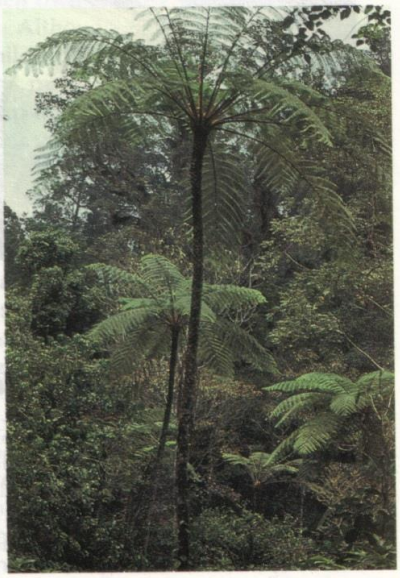
Secrets in high places

High on a plateau in Central Java, **Jan Pasternak** marvelled at his surroundings and considered the impact man is having on tropical rainforests

The tropical rainforest I had entered was a shadowed, dimly-lit world with only faint beams of greenish sunlight penetrating the canopy. I was on the high plateau of Mount Muria, an isolated, extinct volcano on Central Java's north coast. It is my favourite place and contains an astounding diversity of plant and animal species.

The world's tropical rainforests are becoming a precious commodity. The tragedy is that in many regions they are being cut down and destroyed at an alarming rate, before they can be studied properly.

Two hundred years ago, before human population began to have much impact, the original cover of the Earth's tropical rainforests was about 15.5 million square kilometres. At present it is only 7.8 million square kilometres, which is less than six per cent of the Earth's land surface.



Primary rainforest on the upper slopes and high plateau of Mount Muria (left); giant ferns (below left) are common in this damp and cloudy setting

According to United Nations Food and Agriculture Organisation surveys in the late 1980s and early 1990s, tropical rainforests were being destroyed at the rate of about 142,000 square kilometres a year. At that rate, rainforests would be wiped out by the middle of next century, a frightening prospect.

On Java, with rapid development of industry and agriculture, and overpopulation, natural habitats of indigenous fauna and flora have suffered great losses. The Javanese tiger is now believed to be extinct; the Javanese rhino is on the brink; the gibbon and leopard are endangered; and so the sad list goes on.

Primal tropical rainforest has been all but obliterated on the island. Today remnants only are found in remote, rugged or isolated places, usually on or around steep mountain peaks—including Mount Muria.

Getting there was not easy. An hour by bus from Semarang to Kudus and then on from Kudus by minibus to Colo is a pleasant trip through picturesque Javanese countryside. From Colo to Mount Muria it's on foot all the way. The hike to the edge of the plateau on which the relatively undisturbed primal rainforest is found takes anything from three to six hours, depending on one's pace and fitness.

The rainforest canopy, the foliage of tree crowns, is the forest powerhouse where more than 90 per cent of photosynthesis occurs

The trail winds first through terraced fields of maize and soya bean, which give way to coffee plantations. The going gradually gets tough, on a winding trail which climbs steeply over slippery clay or rocky surfaces. It can be strenuous and exhausting in the hot, humid conditions. Frequent breaks are needed. Gaining altitude, coffee gradually gives way to damaged secondary forest.

Finally, the tough climb was over and I was on the edge of the plateau. The rainforest was primeval and magnificent. Majestic trees, centuries old, were shrouded in mosses, vines, orchids, bromeliads and other epiphytes, some of them enormous. Everywhere the forest was teeming with a rich variety of life, nurturing millions of organisms and life-forms, many still unknown to man.

Java is in the heart of Sundaland, a region comprising the Malaysian Peninsula, Java, Kalimantan, Bali, Sumatra and other smaller adjacent islands. Sundaland is rich in the variety of fauna and flora and only a few other regions, such as the Amazon basin or central equatorial Africa, can rival it.

A survey in Ujung Kulon National Park in West Java conducted by botanists from Bogor Botanical Gardens and Herbarium revealed 500 species of trees in a single three-hectare tract. Diversity of animal life was equally astonishing.

The world's tropical rainforests grow in areas with high rainfall—more than 2000mm a year. They began to evolve about 140 million years ago, in the beginning of the Cretaceous period, the age of dinosaurs, when most of the Earth's climate was tropical to subtropical.

Most biologists agree that of the approximately 1.5 million species of life-forms known to science today—and in all probability millions more yet to be discovered and studied—more than half are found in tropical rainforests. Yet this habitat covers less than six per cent of the land surface.

Why such a great biodiversity is invested in the rainforests is not fully known. However, many scientists believe that a major factor could be the greater climatic stability of the tropics. Tropical rainforests have had long periods of uninterrupted evolution with almost constant temperatures and, unlike temperate zones, have never been glaciated.

Therefore, a tropical species of

Troides cuneifera, a birdwing butterfly (above); Arundina graminifolia, a bamboo orchid (left) and (below left) a strange, cone-like flower of the family Zingiberaceae growing on the floor of the rainforest

plant or animal is far more vulnerable to climatic changes, damage or disturbance to its habitat ecosystem than a temperate zone species, which is more adaptable.

The rainforest of Mount Muria is no different. Changes resulting from disturbances, especially those inflicted by man, can cause serious damage to the fragile ecosystem. The forest, with all its inhabitants, is one large community living in delicate symbiosis.

Each level of the forest has its specific plants and animals: from the floor, where dead leaves and other fallen matter rot to give the soil new nutrients to start the cycle again, through the undergrowth and the higher storeys and hanging gardens of epiphytes, to the canopy.

The rainforest canopy, the thick foliage of tree-crowns, is the powerhouse of the forest where more than 90 per cent of photosynthesis occurs. Until recently this top layer remained largely unexplored. Biologists researching rainforest canopy are now making astounding discoveries and reporting thousands of new species. Life in the rainforest is more diverse than previously thought.

As I was leaving the forest of Mount Muria I wondered how long it would survive before giving way to the encroaching coffee or other cash crops. Surrounded by several hundred thousand people in many villages scattered around the mountain, and with population increasing, the pressure is mounting on the rainforest of Mount Muria.

No efforts should be spared so that these remnants of primal rainforest are protected and preserved for posterity. They are of vital importance as life-sustaining water reservoirs and the last refuge of indigenous Javanese fauna and flora.

Apart from that, no-one knows what new medicines and cures, foods or other materials they may contain. It would be a great tragedy if they disappeared. G

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