

PHOTO-ESSAY

Twilight of an Ecosystem

An interest in the ecology of the Western Ghats, led Ian E Lockwood to work on a series of photographs, documenting the high altitude ranges. In medium-format black and white, the photographs artfully present a unique and undocumented Indian landscape with the intent of promoting its conservation



Rising high above the dusty, scorching plains of southern India are the highest altitudes of the Western Ghats. These mountains, consisting of several ranges, elevate themselves abruptly between the states of Kerala and Tamil Nadu. Sheer cliffs, often covered in dense vegetation guard their sides, as if to protect the surprisingly level plateaux which crown these ranges. Made famous by their exploitation as hill stations, places like the Nilgiri and Palani Hills, were once host to a unique ecosystem that is now in danger of obliteration. The fragile grassland/shola ecosystem that once dominated their plateaux, is today a relic of the past with only a few small, threatened examples surviving.

The Western Ghats, stretching 1,440 km from the Tapti river in Maharashtra to Kanyakumari, acts as a barrier between the tropical Malabar coast and arid peninsular India. They are not, however, a consistent mountain range and are composed of several different types of geological formations. The name 'ghats' is, in fact, taken from the more northern reaches, where lava formations from the Deccan Plateau have been eroded into steps leading to the sea.

The southern Western Ghats, originating a little north of the Nilgiri Hills, are geologically quite different from the northern Ghats. This is evidenced in the weathered and steep granite cliffs leading up to the gentle plateaux of the high altitude ranges. Averaging around 2000 mts, all of the high altitude plateau areas lie in the southern part of the Western Ghats. The significant ranges include Tamil Nadu's Nilgiri, Palani and Anaimalai Hills along with Kerala's High Range. It is here on the plateaux of the southern Western Ghats, that the grassland/shola ecosystem has evolved over millions of years.

A FRAGILE ECOSYSTEM

The high altitude grasslands and shola form a complex ecosystem that is still far from being properly understood. Grasslands are the dominant vegetation type above 1500 mts, while thick tropical forests traditionally cover the lower valleys of the Western Ghats. The smooth rolling hills that exemplify the plateaux (in a preserved setting) are blanketed with an almost velvet layer of mixed grasses. Scattered patches of life-rich shola (technically known as wet evergreen tropical montane forest) fill the plateau's valleys, but make up a smaller percentage of the land space.

Controversy surrounds the origins of the high altitude grassland/shola ecosystem. Currently, two major

theories have been put forward by scientists. One is that shola are the true 'climax' vegetation and that human interference (fire and grazing) lead to the evolution of grasslands as a sub-climax vegetation. This theory was put forward by scientists in the Nilgiris, the only range where there has been a significant human presence over the years. The opposing theory is that the grassland/shola system is a 'polyclimax' vegetation and that shola and grasslands have coexisted long before humans ventured into the hills. Recent pollen testing from bore samples of soil and research currently underway in the High Range make the 'polyclimax' theory much more likely.

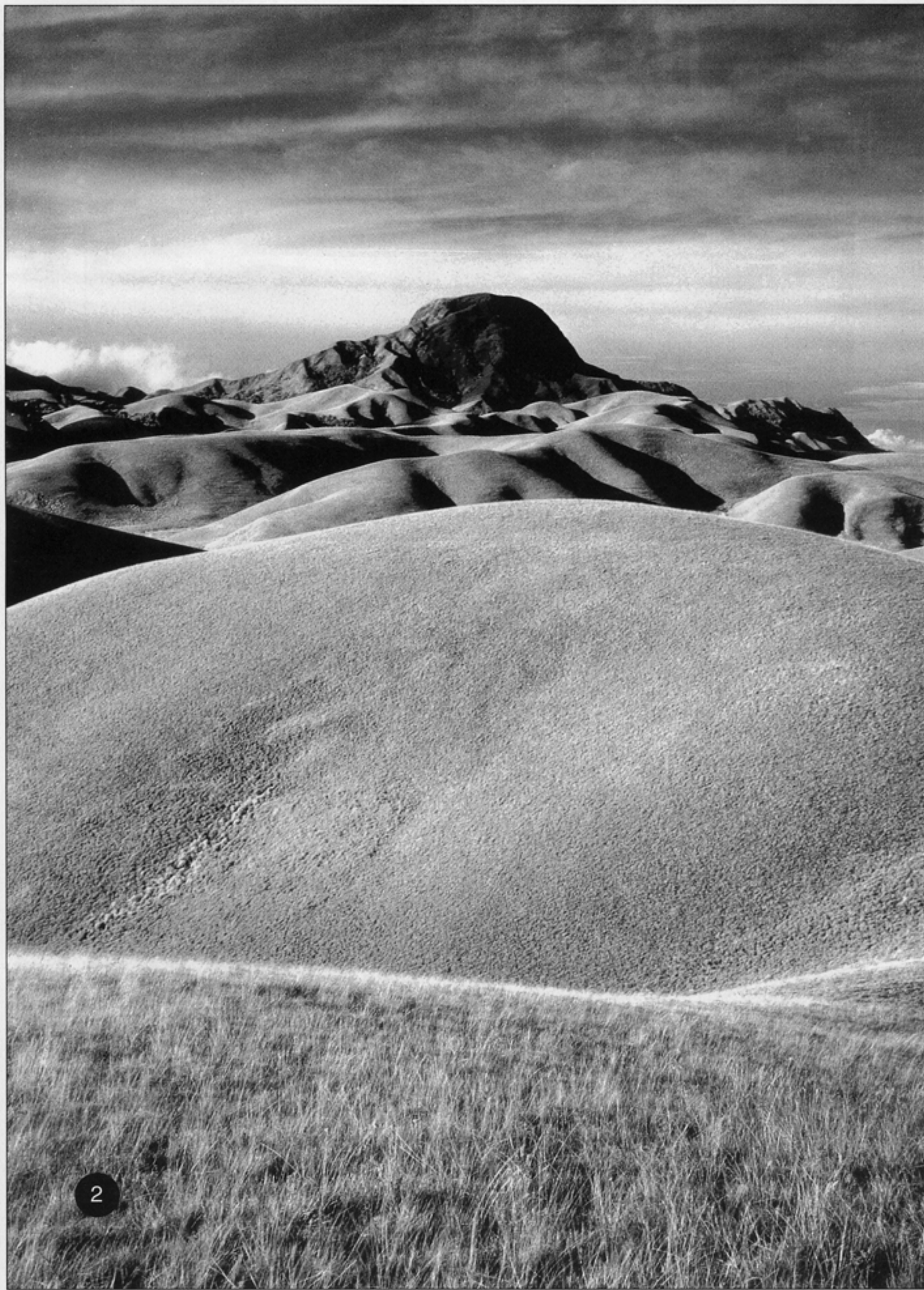
Though there is no certain answer to this 'ecological riddle' we do know that the high altitude grassland and shola are a complex, biological-rich ecosystem supporting a wealth of distinctive life forms. The endangered Nilgiri tahr is only one of the mammals that makes its home in the highest altitudes. The Kurinji (*strobilanthes*) flower, of which there are 46 different varieties, thrives in the grasslands and blooms every twelve years. In fact, it is expected to bloom next in the later part of this year. Numerous other examples of flora and fauna, unique only to the high altitude regions, illustrate the importance of protecting this fragile ecosystem and its biodiversity from exploitation and ruin.

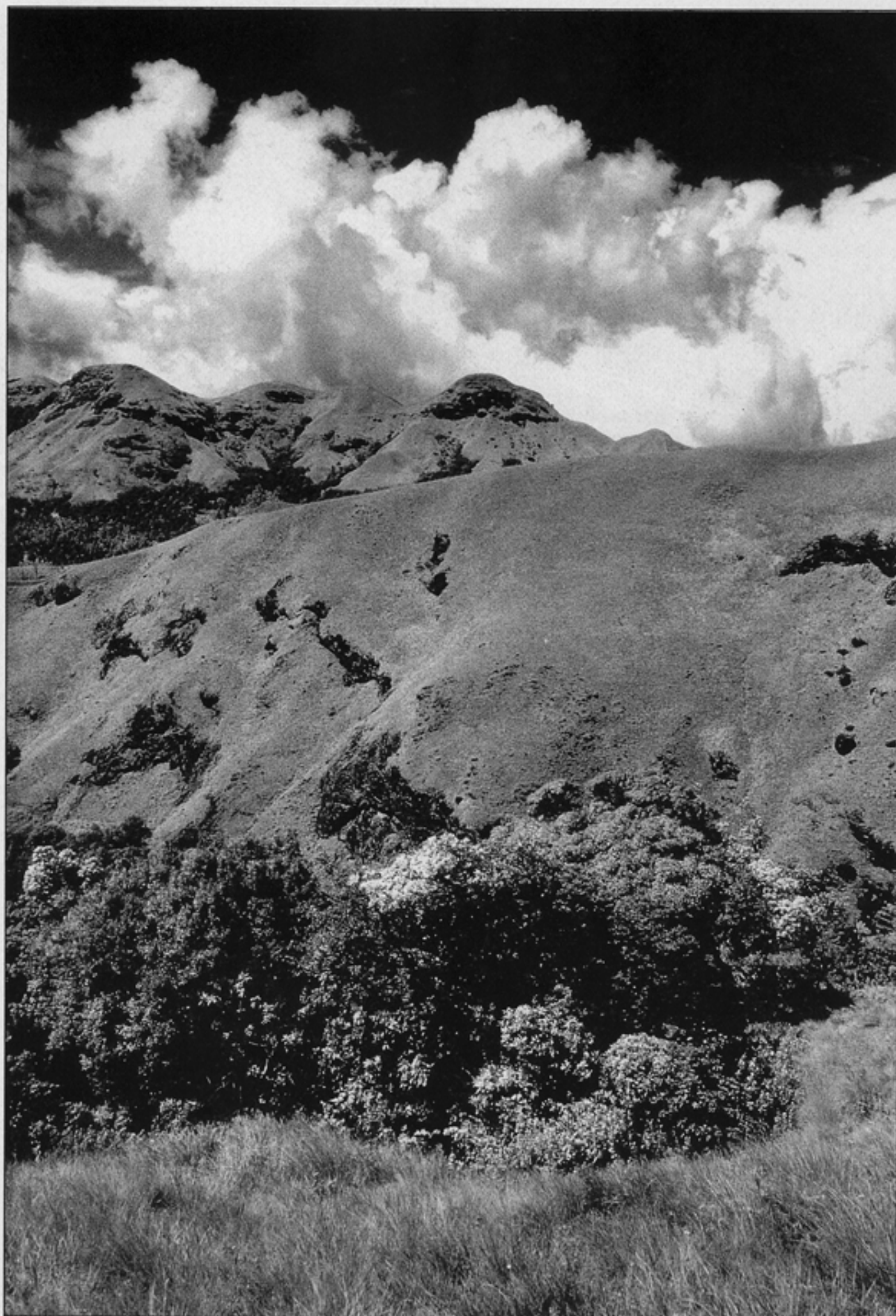
A HISTORY OF EXPLOITATION

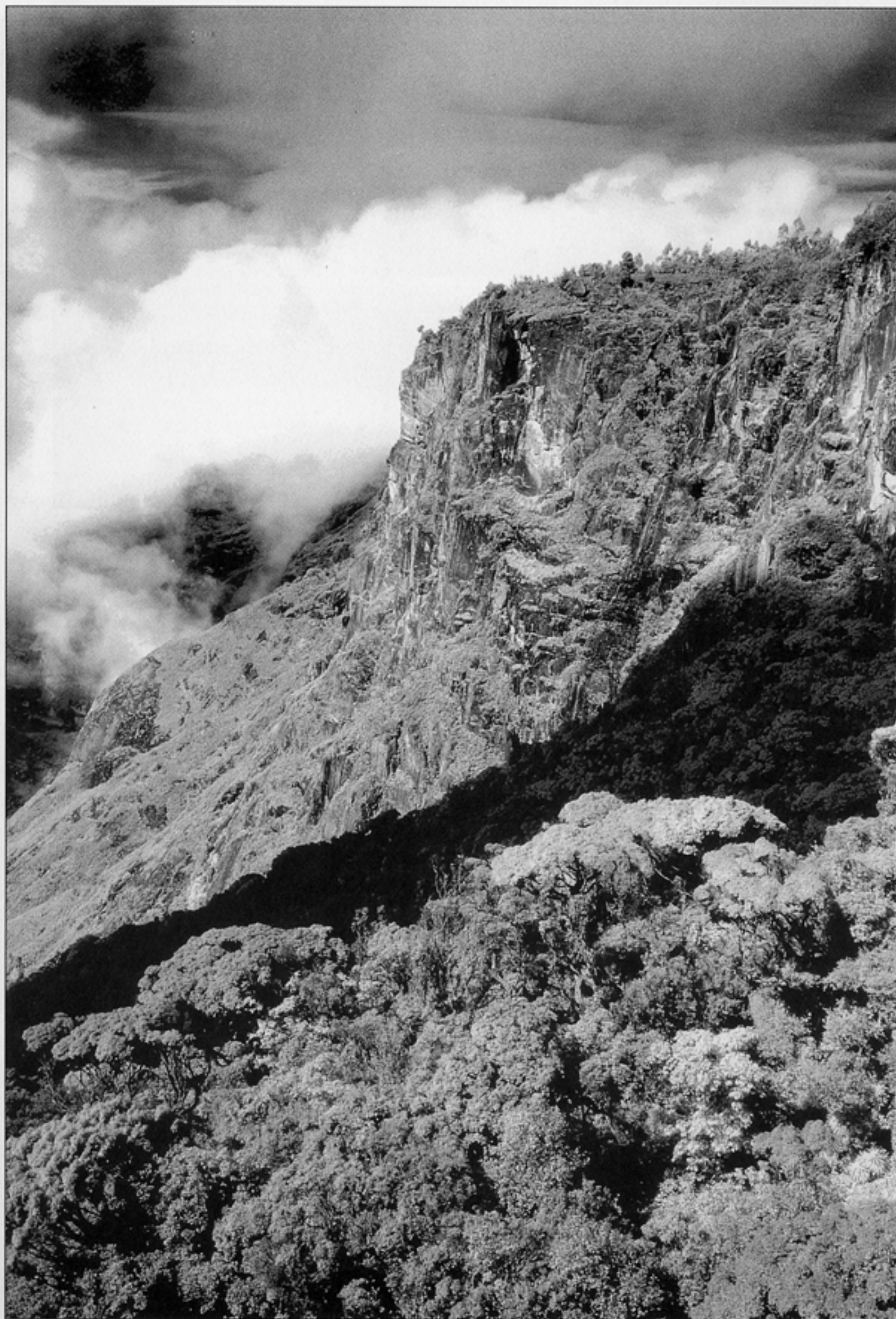
Until relatively recently, there was practically no human interference in the high altitude range of the southern Western Ghats. Lower forests infested with leeches, malaria, superstitions and other human deterrents effectively guarded the access-ways to the high altitude plateaux. There were, however, scattered tribal groups that took refuge from disease and war in the hills. Yet few of them lived on the high plateaux, where winter frost, high rainfall and ferocious winds can make life unpleasantly miserable.

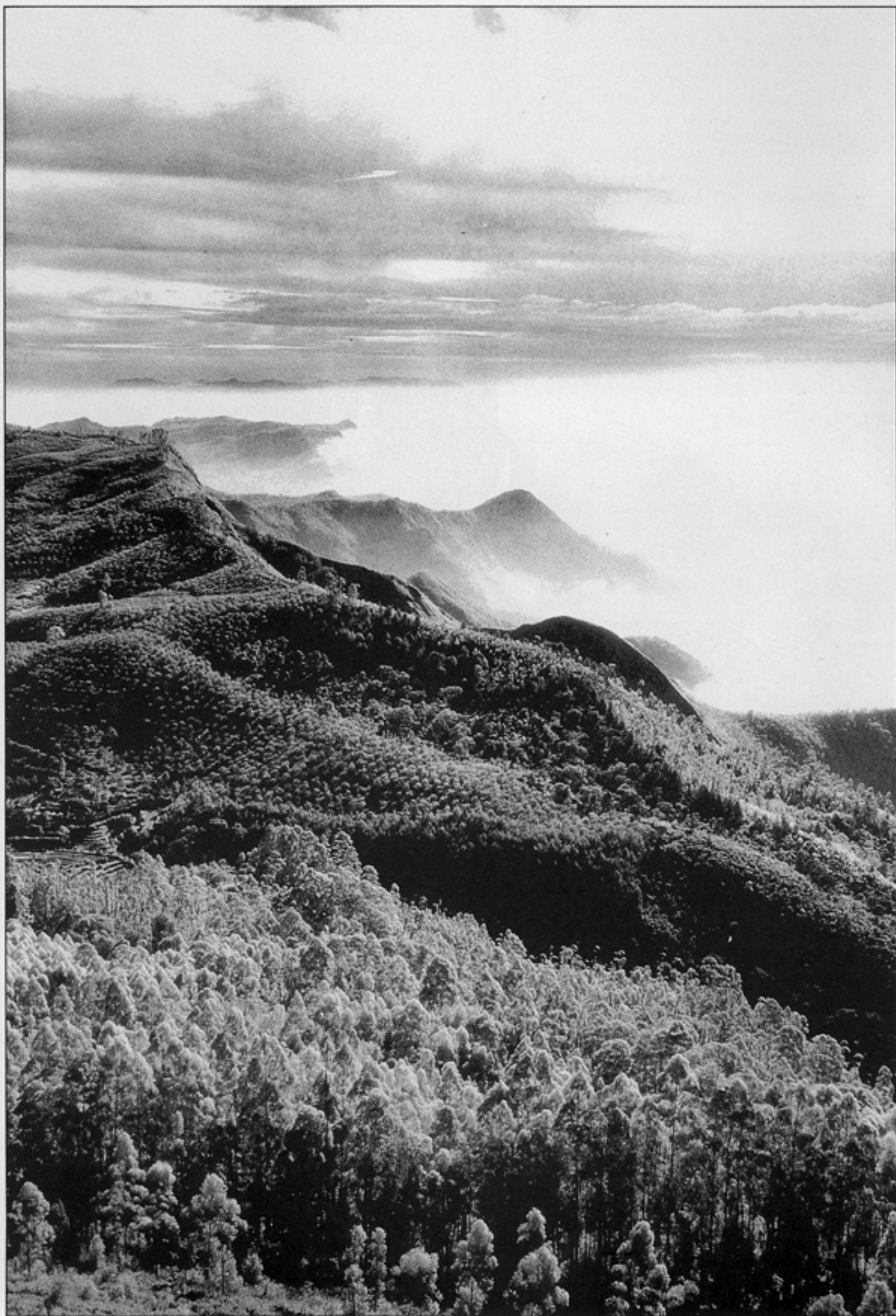
The one exception, of course, were the Todas of the Nilgiris who have lived on the Nilgiri plateau for hundreds of years. In the other major plateau areas (in the Palani Hills and High Range for example) there is little evidence of human habitation above 2000 mts. In any case, the tribal groups that might have frequented the plateau areas to hunt, never altered the grassland/shola ecosystems (at least according to 'polyclimax' theorists).

During the early part of the nineteenth century, the







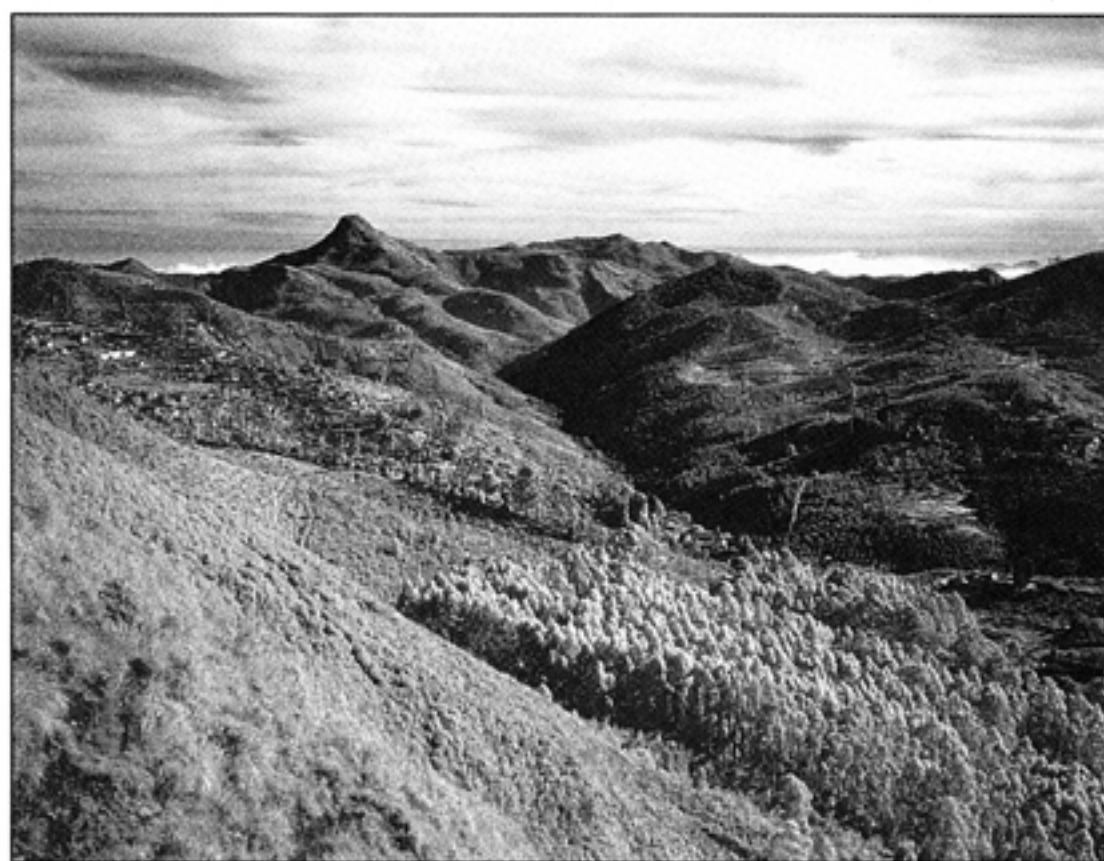


British established Ooty as a 'hill-sanitorium' in the Nilgiri Hills. In the following years, hill stations were developed in the Palanis and other neighbouring ranges. Other high altitude hill areas were cleared and developed for plantation crops. It was the beginning of the end for most of the grasslands and shola. In the Palani and Nilgiri Hills almost every bit of grasslands was eventually converted into monoculture tree plantations for commercial use. In the High Range and parts of the Anaimalais much of the land was converted into tea plantations. Hydroelectric dams were built in the Nilgiris and High Range with little forethought concerning their impact on the balance of nature. Incidentally, many of these dams are now heavily silted up, thanks to clear cutting on nearby slopes.

Commercial forestry with exotic trees has had a particularly disastrous effect on the virgin hills of the high altitude plateaux. For many years forest officials categorised grasslands as 'wasteland', thus paving the way for unquestioned exploitation! Fast-growing monoculture plantations of exotic trees leave little room for native species. There is evidence that the extensive planting of eucalyptus, pine and wattle trees in the Palani Hills has contributed to a significant decline in the supply of water to the thirsty Tamil Nadu plains. The grassland/shola ecosystem acts as a 'sponge', soaking up the torrential rains. Moisture is then released slowly during the following dry months. With the advent of commercial forestry, this important watershed has been sucked dry by the exotic trees, leaving once perennial streams parched. Droughts are now commonplace on the plains near the periphery of the mountains.



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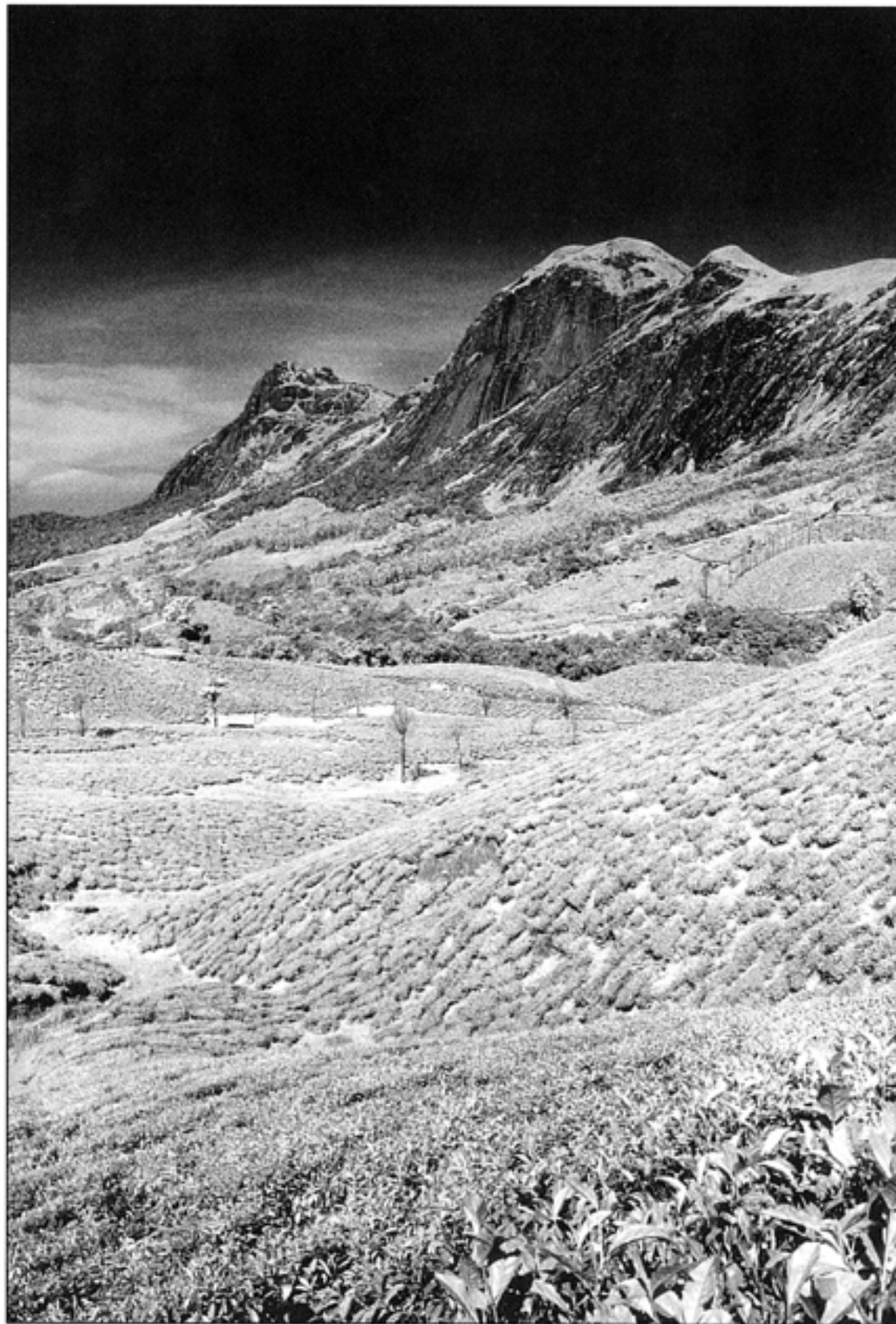
A BRIEF SITUATION REPORT

Today the status of the Western Ghats' highest altitudes is depressing. In the Nilgiris, perhaps the most exploited of all the plateau areas, commercial forests, hydroelectric dams, tourism and an expanding population have all but destroyed the once extensive grasslands and shola, not to mention tribal groups like the Todas. The only significant protected (high altitude) land in the Nilgiris is Mukkurthi National Park. However its shola and grasslands have suffered the fate of careless logging while its herds of Nilgiri tahr have been ravaged by poachers.

South across the Palghat Gap is Indira Gandhi Wildlife Sanctuary in the Anaimalai Hills which plays host to a

significant example of high altitude grasslands and shola, called Grasshills. However, Grasshills is still threatened by attempts to expand nearby tea estates and cinchona plantations. Eravikulam National Park in the neighbouring High Range has what is, perhaps, the best surviving example of a high altitude grassland/shola ecosystem. Yet, it is a meagre 100 sq km and is already facing an increasing burden of (often belligerent) tourists who flock to see its herds of friendly Nilgiri tahr.

In the Palani Hills, there is no significant grassland left, though many of the shola have survived amidst eucalyptus, pine and wattle plantations. In recent years these shola have become a favourite place for illegal ganja plantations, which threaten many pristine



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pockets of biodiversity. There is a proposal for a Palani Hills Wildlife Sanctuary, yet the question of vested logging interests has not been taken into account. Even if there was political will to establish a sanctuary, it is uncertain that land artificially forested with exotic trees could be returned to natural grasslands.

There are other small pockets of high altitude grassland and shola between the Nilgiris and Kanyakumari. However, none have the extensive tableland that the Nilgiris, Palanis, Anaimalais and High Range have. Thus the conservation of one of India's most beautiful, yet fragile ecosystems, is dependant on a handful of inadequately small sanctuaries. Most of these sanctuaries could be expanded since, much of the neighbouring land is

virgin reserve forest. This along with greater protection and increased public awareness is, perhaps, the only way to preserve the grassland/shola ecosystem from slipping into ecological oblivion



IAN E LOCKWOOD'S LOVE FOR THE WESTERN GHATS DEVELOPED WHILE HE WAS AT SCHOOL IN THE PALANI HILLS. CURRENTLY BASED IN DHAKA, HE IS NOW A FREELANCE PHOTOGRAPHER/ WRITER, SPECIALISING IN ENVIRONMENTAL AND WILDLIFE ISSUES



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- 1 Precipitous granite escarpments guard access to the strangely level Palani Hills plateau. South India's high altitude ranges are distinguished by these sheer cliffs and undulating tableland of grasslands and shola
- 2 Anai Mudi, at 2695 metres, is the highest peak in India south of the Himalaya, dominates Eravikulam's pristine grasslands
- 3 Shola are biologically-diverse wet evergreen montane forest. In the high altitude plateaux, shola are confined to valleys, where they are safe from the almost continuous onslaught of high speed winds
- 4 Monsoon clouds approach a cliff side and shola in the Palani Hills
- 5 Commercial forests, like these eucalyptus trees, have dramatically altered the natural watershed that the grassland/shola ecosystem used to provide for the thirsty plains far below
- 6 Mist rolling up from the plains quickly engulfs a shola at the edge of the Palani Hills plateau
- 7 The hill station of Kodaikanal sits at the edge of the Palani Hills plateau. It is under severe pressure from an increased burden of tourists, an expanding population and commercial forestry
- 8 Hydroelectric dams, indiscriminate commercial forestry and tourism in the Nilgiris have destroyed what was one India's largest high altitude grassland/shola ecosystem. Pictured here is the Avalanche reservoir
- 9 Tea estates in the High Range, were originally carved out of lower altitude forest, leaving many plateau areas untouched. Planters in the High Range played an important role in preserving Eravikulam's virgin grassland/shola ecosystem from commercial development
- 10 Thalayar Falls in the Palani Hills. At one time, the hills provided a perennial supply of water to the parched Tamil Nadu plains. Today, commercial forests of eucalyptus and pine guzzle up water that would have once fed the drought-prone plains
- 11 Ferns and other plant life embrace a stream inside a shola
- 12 Rolling hills covered in wild grasses with small clumps of shola are representative of the high altitude plateaux. Eravikulam National Park has one of the few surviving, unspoiled examples of this fragile ecosystem