Introduction

Tropical Montane Cloud Forests (TMCFs)

What are TMCFs?

Cloud forests are, by definition, “forests affected by frequent and/or persistent ground level cloud”. The cloud significantly affects the energy, light and temperature regimes and imports potentially large amounts of water as rainfall and horizontal precipitation. Thus the presence of ground-level cloud produces a very different environment to that in which we find other types of montane (and lowland) rainforest.

Why are TMCFs important?

Tropical montane cloud forests are biologically and hydrologically unique and important systems. Biologically they are home to a high diversity of plant and animal species including some which are unique (endemic) to cloud forests and many of which are threatened with extinction. Hydroclimatically, cloud forests occur in high precipitation, low evaporation headwater areas which consequently produce high volumes and high quality water resources in headwater areas. These forests occur on steep mountain slopes, which are highly susceptible to erosion and mass failure in the absence of the protection provided by forest canopies and associated surface root mats. Because of the restrictive altitudinal (climatic) conditions which produce cloud forests, they are usually rather isolated and restricted in spatial extent and thus potentially highly sensitive to land use and climate change and difficult to protect compared with massive lowland forests that are less penetrable on account of their higher area to perimeter ratios. Cloud forests also occur in some of the more agriculturally attractive and thus populated areas of the tropics : mountains and islands with climates and soils amenable to both agriculture and pastoralism. Montane zones, although topographically challenging, also tend to have more dense road networks than the vast and climatically inhospitable lowlands. Altogether this means that cloud forests are thus a rather challenging conservation target.