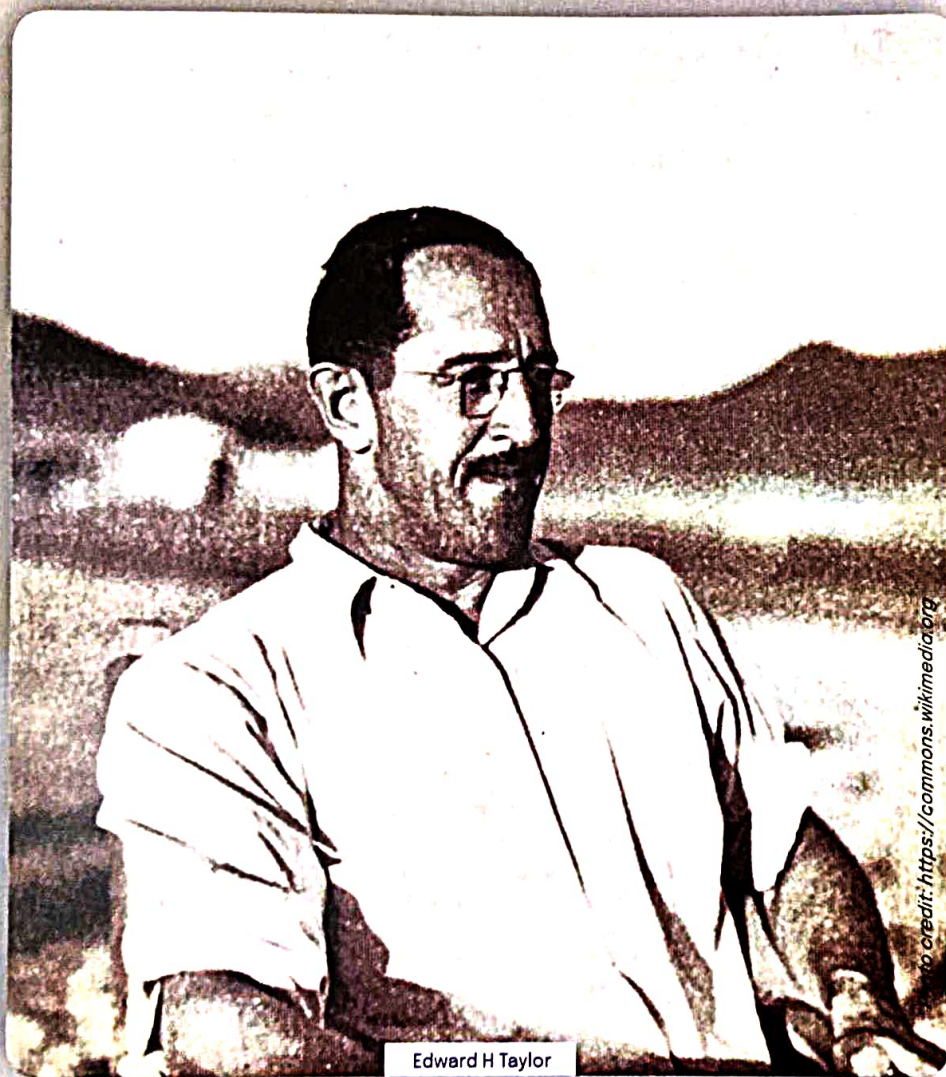


Sky Islands

The fragile Evolutionary Hotspots

J Madambikattil Sasi and Biju Dharmapalan



Edward H Taylor

EVERYONE is familiar with islands, which are usually land areas surrounded by water. But have you ever heard about “Sky Islands”? Though it rhymes with sky, there is nothing related to sky or space. Sky islands are one of the fragile and unique ecosystems on our planet. They are isolated mountains surrounded by radically different lowland environments. The term was initially used to refer to those isolated ecosystems found on the Mexican Plateau by herpetologist Edward H Taylor in 1943. However, the concept of “Sky Islands” was popularised by nature writer Weldon Heald in his book *Sky Island*, published in 1967. In more

recent scientific contexts, Indian evolutionary biologist VV Robin is credited with identifying the sky island ecosystems of the southern Western Ghats and has researched the evolution of birds in these unique areas. According to VV Robin, “*Sky islands are different from oceanic islands; here intervening valleys act as barriers or may turn into bridges for dispersal, depending on the ecology of the species and the conditions in the valley*”.

The isolation has significant implications for these natural habitats. Endemism, altitudinal migration, and relict populations are among the natural phenomena found on sky islands. These interesting geological formations serve as a natural laboratory for investigating the effects of geographic isolation and climate change on evolution. In different languages, they are called different things. For example, in Spanish they are called *islas del cielo*, in Afrikaans they are called *koppies*, in German they are called *inselbergs*, and in Abenaki they are called *monadnocks*. Geological events like erosion, volcanic activity, and mountain uplift that started about 200 million years ago have shaped

the Sky Islands. This process made environments higher up, which let species move from lower to higher altitudes. Changes in climate throughout history, especially during the Pleistocene epoch, made species move up and down the slopes to adapt to new conditions. After the last glacial maximum, which happened about 18,000 years ago, the warming and drying period made many groups of people move back up the slope, which caused them to become isolated over time. Sky Islands are some of the most biologically diverse ecoregions on Earth because they have been isolated from the rest of the world for so long.