

industry-related energy consumption. The largest contribution to temperature rise is made by CO₂, which is emitted during fossil fuel combustion. The policy framework for energy envisages taking these factors into consideration, keeping in view the uncertainties in model predictions and that our emphasis broadly pertained to the observations in

the Indian region and suggested strategic actions.

Thus, the remarks of Singh appear to be due to lack of review of recent Indian publications and also the IPCC study report pertaining to estimation of the total solar irradiance and its overall effect on climate change.

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Bats of Indian Institute of Science campus

The lush green Indian Institute of Science campus is located in the north of Bangalore. The Maharaja of Mysore, Krishnaraja Wodeyar IV, generously gifted the Institute with 150.54 hectares of land. At present the extent of land holding of the Institute is 179.28 hectares (Suresh, H. S. and Harish Bhat, *The Flora of IISc Campus, Technical Report*, 1998). Prior to its establishment in 1909, it was said to have open scrubland and farmland. The present landscape is largely due to the planning of the visionaries like C. V. Raman, G. H. Krumbigel, Homi Bhabha, B. S. Nirody and C. N. R. Rao.

The vegetation consists of a large number of avenue trees, such as *Delonix regia* (may flower), *Samanea saman* (rain tree), *Swietenia mahogany* (mahogany) and several species of *Cassia*, *Tabebuia*, and groves of *Ficus benjamina*. Other types of vegetation within the campus include block plantations of *Acacia* and *Casuarina*, thickets of *Lantana* and open grasslands. Grassy marsh and a pool formed of an old quarry are the only wetland habitat.

Many bat species like the Indian short-nosed fruit bat (*Cynopterus sphinx sphinx*), the Indian flying fox (*Pteropus giganteus giganteus*), the Egyptian mouse-tailed bat (*Tadarida aegyptica*),

Pigmy pipistrelle (*Pipistrellus mimus*), Coromandra pipistrelle (*Pipistrellus coromandra*), Ceylon pipistrelle (*Pipistrellus ceylonicus*) and Indian false vampire bat (*Megaderma lyra*) have been observed in this campus. The Indian short-nosed fruit bat is the most common and abundant species in the campus. The presence of a large number of fruiting plant species such as *Muntingia calabura* (Singapore Cherry), *Broussonetia papyrifera* (paper mulberry), *Mangifera indica* (mango), *Psidium guajava* (guava), *Tamarindus indica* (tamarind), *Santalum album* (sandal wood), *Manilkara zapota* (sapota), *Terminalia catappa* (Indian almond), *Musa paradisiaca* (banana), *Syzygium cuminii* (jamun) provide enough food for these fruit bats. At the roosting sites of the short-nosed fruit bat, which are generally the window eaves within the campus, about 100 to 150 individuals were counted.

The roosting site of the other fruit bat, the common Indian flying fox, which forages within the campus is observed just about 500 m from the campus. About 200 of them have been observed foraging within the campus at night. The rest of the species are insectivorous, generally observed hawking insects at streetlights at night. The

roosting sites of these insectivorous bats are crevices in walls, roofs of buildings and between pipes. Generally these species are observed in lesser numbers in the campus compared to fruit bats.

Bats are helpful to humans in many ways. Fruit bats help in the dispersal of many species of plants. The insectivorous bats control very large number of insects. Insectivorous bats tend to roost in roofs of buildings during daytime and defecate and thus create hatred in the minds of people. Some species may produce disturbing sounds. Alternative roosting places available for these bats such as hollow trees, etc. are constantly being removed. A proper study of their roost preference within the campus could reduce these problems, so that bats could have a more congenial relationship with humans.

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