Moths are widely considered as pests, but a recent study by scientists of Zoological Survey of India (ZSI) has revealed that these group of insects are pollinators to a number of flowering plants in the Himalayan ecosystem.

Under the project titled “Assessment of Moths (Lepidoptera) As Significant Pollinators in the Himalayan Ecosystem of North Eastern India”, scientists collected moth samples from different ecosystem. The analysis of proboscis, a long and thread-like organ used to suck flower sap, of a dozen moth species’ revealed the presence of pollen grains.

“Most of the studies on plant pollinators or plant-pollinator network are focused on diurnal interactions between the insects and plants. This particular study is based on plant-moth interactions, as a nocturnal phenomenon,” Navneet Singh, principal investigator of the project, told The Hindu.

The study was carried out in states such as Arunachal Pradesh, Sikkim and West Bengal. According to Dr. Singh, proboscis of different moth families, such as Erebidae and Sphingidae, were found to contain pollen of several flowering plants, including Rhododendron.

Unique structure
What came as a bigger revelation was the structure of the proboscis in different moth species, he said.

“When observing the proboscis under scanning electron microscope, we observed that these structures are not only meant for sap sucking, but are morphological designed for pollination. In some species of moths, the organ is found to be modified into a spine like structure and in others, a lateral canal to arrest and disperse pollen,” Dr. Singh said.

Experts also pointed out that similar studies on ascertaining the role of moths in pollination are underway in different parts of the world.

Kailash Chandra, director of ZSI, emphasised that the study was unique, as scientist are looking at a new group of insects (moths) as pollinators. Usually bees, wasps and butterflies are considered as prominent pollinators.

“About 90% of the world’s flowering plants are pollinated by animals. Therefore, pollinators are essential for the genetic exchange among flowering plants and the biodiversity among plants,” Dr. Chandra said. In India, estimates put the number of of moth species at nearly 12,000.

Researchers have pointed out that almost two-thirds of common large moth species have declined over a period of 40 years in many parts of the world.

One of the main reasons for the decline is the increase in ecological light pollution, especially in areas inhabited by moths.