

Night pollinators

February 21, 2022

In news- Recently, a new study has revealed that moths (especially nocturnal pollinators) are vital to pollination in the Himalayan ecosystem of northeast India.

Key Highlights of the study-

- The study establishes 91 species of moths as **potential pollinators of 21 plant families in Sikkim and Arunachal Pradesh in the northeastern Himalayas.**
- The results assume significance as a **majority of the pollination-related studies are based on diurnal pollinators** (bees and butterflies) and the role of nocturnal pollinators have so far received less scientific attention.
- In the present study about 65% moths (91 species) carried sufficient quantities of pollen grains to be considered as potential pollinators.
- *Teliphasa* sp. (Crambidae) and *Cuculia* sp. (Noctuidae) are found to carry the highest quantity of pollen.
- The Geometridae (geometer moths) and Erebidae (erebid moths, tiger moths, lichen moths, among others) turned out to be the most important moth families for pollen transportation in the Himalayan region.
- It has also found frequent interaction of moths with Betulaceae, Fabaceae, Rosaceae and Ericaceae.
- Though the Betulaceae is predominantly a wind-pollinated plant family, some recent studies indicate that wind-pollinated plant families also benefit from enhanced dispersal by insects.
- Another interesting outcome of the study is that the moth species , *Achaea janata* (a well-known pest of various economically important plants) was identified as a potential pollinator of three plant families,

indicating that moths can provide net benefits as pollinators even when acting as larval herbivores of the same species.

- The research, part of a project funded by the Ministry of Environment, Forest and Climate Change, was among very few large scale studies at a global level where the research team studied the effect of various seasons and different altitudes on the pollination ecology of moths.
- Generally moths are considered mysterious denizens of nights, and for a long time they were better known as pest species.
- There are about 12,000 moth species in India and about 160,000 moth species in the world, and the study can go a long way in understanding the role of the nocturnal insect pollinators.

About Moths

- Moths are a paraphyletic group of insects that includes all members of the order Lepidoptera that are not butterflies, with moths making up the vast majority of the order.
- Moths vary greatly in size, ranging in wingspan from about 4 mm (0.16 inch) to nearly 30 cm (about 1 foot).
- Compared with butterflies, moths have stouter bodies and duller colouring.
- Moths also have distinctive feathery or thick antennae.
- The butterflies form a monophyletic group, the moths, comprising the rest of the Lepidoptera, do not.
- As with all lepidopterans, the moth life cycle has four stages: egg, larva (caterpillar), pupa (chrysalis), and adult (imago).
- The larvae and adults of most moth species are plant eaters.