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First record of leaf miner, *Phyllocnistis unipunctella* (Stephens, 1834) (Lepidoptera, Gracillariidae) infesting *Populus deltoides* Marsh (Salicaceae) in Jammu and Kashmir, India

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ABSTRACT: The study reports infestation of leaf miner *Phyllocnistis unipunctella* (Stephens, 1834) (Lepidoptera, Gracillariidae) on *Populus deltoides* Marsh (Salicaceae) in the UT of Jammu and Kashmir, India. The serpentine mining of leaves by larvae caused the leaves to dry out and turn brown, which lead to premature leaf drop, especially in severe infestations. Large populations rendered a silvery hue to the appearance of infested poplars when viewed from a distance. Pupation occurred inside the mine within a silken cell. Adults emerged after a period of 10-14 days. The infestation by this moth on poplars in the field was observed from the month of July to September.

KEY WORDS: Serpentine leaf miner, poplar species, damage, biology, occurrence

Most of the exotic poplars, especially *Populus deltoides* Marsh (Salicaceae) have been attacked by insects since their introduction in India. Over 65 insect species have been reported infesting *Populus deltoides* alone in northern India (Ahmad *et al.,* 2001; Singh *et al*., 2004). During 2023, poplar trees and polar nurseries (*P. deltoids*) were searched for the insect pest attack in the district Ganderbal (34.2165° N, 74.7719° E) of Kashmir Valley. The poplars were infested by a leaf miner. The insect larvae caused serpentine mining of the leaves on the poplar trees (Figs. 1-4). The mining of leaf tissue caused the leaves to later dry out and turn brown, which lead to premature leaf drop, especially during severely infested patches. Large population of this insect rendered a silvery hue to the appearance of infested poplars when viewed from a distance at this site. Less than 20 per cent poplar leaves were infested. Pupation occurred inside the mine within a silken cell. Adults emerged after a period of 10-14 days in the month of August 2023. The emergent moths were identified as *Phyllocnistis unipunctella* (Stephens, 1834) according to Kuznetzov and Baryshnikova (2001). These moths had a wingspan of 6mm; were narrow, lance-shaped, with white wings mottled with brown and black markings having relatively long, thread-like antennae (Figs. 5-6). The mining of the poplars was witnessed during the months from July to September.

According to Wagner *et al.* (2008), the leaf miner,

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Fig. 1, 2 *Populus deltoids* leaves infested with leaf miner *Phyllocnistis unipunctella* (Stephens, 1834) Fig. 3, 4 Larva of leaf miner *Phyllocnistis unipunctella* (Stephens, 1834) inside the leaf tissue. Fig. 5, 6 Emergent moth, *Phyllocnistis unipunctella* (Stephens, 1834)

Phyllocnistis feeds on the contents of epidermal cells on both top (adaxial) and bottom (abaxial) surfaces of quaking aspen leaves, leaving the photosynthetic tissue of the mesophyll intact. *P. unipunctella* (Stephens, 1834) is known to attack poplars (*Populus nigra*, *P. balsamifera*, *P. nigra, P. suaveolens, P. nigra* var. *italica*) in Asian parts of Russia and Japan (Tomilova, 1973; Ermolaev, 1987; Sinev, 2008; Kobayashi and Hirowatari, 2011). Previously a sister genus of this leaf mining moth *Phyllonorycter populifoliella* (Treitschke) has been recorded on *Populus* sp. in the UT of Ladkah (Shashank *et al*., 2021), but this is the first report of *Phyllocnistis unipunctella* (Stephens, 1834*)* (Lepidoptera, Gracillariidae) infesting *P. deltoides* Marsh from Kashmir valley, India. During the field observation, *P. unipunctella* (Stephens, 1834) was found to be a moderate pest of *P. deltoides* as only less than 20 per cent leaves of the searched host trees were found infested.

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