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Association of the elusive Fulgorid bug, *Pyrops delesserti* Guérin-Méneville, 1840 (Hemiptera: Fulgoromorpha: Fulgoridae) with pithraj tree *Aphanamixis polystachya* (Meliaceae): an observation from Kerala

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Introduction

Laternflies, the spectacularly coloured large planthoppers belong to the family Fulgoridae Latreille, 1807 (Hemiptera Linnaeus, 1758, Fulgoromorpha Evans, 1946) and has about 774 species in 142 genera according to the FLOW database (Fulgoromorpha Lists On the Web – Bourgoin, 2022). Mostly distributed in the wet tropics of the globe, these true bugs have caught the attention and imagination of scientists, and bug enthusiasts (Constant & Pham, 2022).

The genus *Pyrops* Spinola, 1839 a member of the family Fulgoridae is set apart from other Fulgoromorphs by the presence of their typical elongated, upward curving cephalic process (Constant, 2015) and has nearly 70 species described so far (Constant & Pham, 2022). It is widely distributed in South East Asia, from Sri Lanka to the Himalayas (north India, south China), eastwards to Taiwan and Vietnam, and southwards to Sulawesi and neighbouring islands through Indonesia and the Philippines (Constant, 2015).

In India, three *Pyrops* species are currently recorded from the Andaman and Nicobar archipelago *viz*., *Pyrops andamanensis* (Distant, 1880), *P. rogersi* (Distant, 1906) and *P. azureus* (Constant & Mohan, 2017). *Pyrops delessertii* (Guérin Méneville, 1840), the fourth one is recorded from southern India (Constant & Mohan, 2017).

Dearth of information on their biology, natural history and host plant association still remains poorly documented except for a few species (Constant & Pham, 2022; Bourgoin, 2022). Hence efforts were taken to shed some light into sightings of these beautiful bugs especially *Pyrops delessertii* in Kerala during 2020-2022.

Materials and methods

Purposive surveys were carried out into areas where presences of rare or elusive fulgorid insects were reported by the farmers or officials of the Department of Agriculture and Farmers welfare in the Idukki district of Kerala state, south India. Efforts were taken to

visually identify and confirm the specimens/reports through the photographs given by the farmers or with the information gleaned from the conversations with them to remove misinformation. Live insects were located and their activities were continuously observed and documented without hampering their natural activities. After a reasonable period ranging from few weeks to months of observation, couple of specimens was collected for confirmation of species identity with the help of an expert or available literature. The specimens were pinned and dried for preservation for further studies. Meticulous recording of insect behavior and host plant association were done. Pictures were taken with a Canon EOS 700 D camera with Canon Macro 100 mm lens and Canon EFS 50-250mm zoom lens.

Results and discussion

Heightened attention and media frenzy generated around the invasion of desert locust (*Schistocerca gregaria*) into Indian subcontinent and the emergence of large masses of coffee locust (*Aularches miliaris*) with bright warning colours in the state of Kerala, drove many to report unique insects that they saw. In one such incidence, a farmer confusing the aggregation of brightly colored lanternflies on a tree in his mixed cropping system, as swarms of adult coffee locust took the drastic steps of killing them. On receipt of the information and the picture of the insect through WhatsApp, quick purposive surveys were conducted to the locality (Nariyampara, Idukki district; 9.7424° N, 77.0939° E).

Adult lanternflies were observed in groups of 3-9 individuals per group. They were observed to remain still at the same spot for more than 3 hours if undisturbed. They were later identified as *Pyrops delesserti* Guérin-Méneville, 1840. Most of the vivid earlier records pertaining to these bugs were made under the name *Fulgora delesserti* especially on their morphology, morphometrics etc (Distant, 1906, Delessert, 1843 and Atkinson, 1885). This species was recorded from Western Ghats of southern India with specific reference on Nilgiris-Malabar, Karwar and Trivandrum (Distant, 1906) and mostly prefers riverine forests (Delessert, 1843).

We could not collect or record any nymphal stages of the insect. In adult insects, cephalic process and head is greenish or brownish with white mottling. Thorax is brown with red bands at the base of the neck. Forewings/tegmina are black with reticulate venation with numerous ochraceous spots arranged in three transverse bands at the basal half with apical one more scattered. The hind wings are bluish green with a broad black border along the margin.

The wild trees on which congregations of *Pyrops delesserti* were observed was locally known as *Chemmaram* in vernacular (Malayalam) language. Commonly called as pithraj tree (*Aphanamixis polystachya*), these evergreen trees grow to 20 m height having

reddish-brown bark mottled with green. It is widely used for therapeutic uses (Mishra, 2014) and is native to SAARC countries especially India. Even though genus *Pyrops* is well represented by many large specimens with brilliant colours globally, the specimens are hard to collect for their timid nature and long flight on slight disturbance. *Pyrops delessertii* was no exception to this behaviour, which made the documentation of their activities more difficult. The adult lanternflies when disturbed flew away from the host tree to large distances, but returned to the same tree after a gap of 20- 50 minutes. It is curious to note that the bugs dutifully returned to the same tree which stood in the middle of large assorted group of trees. This strongly points to the close affinity of the bugs to *Aphanamixis polystachya*.

Even though excretions of honey dew by the fulgorids and consequent trophobiosis with gecko and cockroaches was already recorded with *Pyrops whiteheadi* and *P. intricatus* (Constant, 2015), we could observe only opportunistic attendance by ants in the case of *P. delessertii*.

Further dedicated surveys and observations are to be made to record various nymphal stages, host plants, trophobiosis associations and life cycle of this beautiful bug.

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Fig 1: *Pyrops delessertii* Habitus, dorsal view

Fig 2: *Pyrops delessertii* Habitus, ventral view

Fig 3: *Pyrops delessertii* on *Aphanamixis polystachya*

Fig 4: *Pyrops delessertii* aggregation *Aphanamixis polystachya*

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