

First Record of Mango shoot borer *Chlumetia transversa* (Walker, 1863) (Lepidoptera: Euteliidae) from Kerala, India

Aparna Sureshchandra Kalawate^{1*}, Gayatri Lahu Borse², and Thapasya, K.¹

ABSTRACT

The Euteliid moth, *Chlumetia transversa* (Walker, 1863), is a specialised lepidopteran known for its association with Anacardiaceae. While its presence is documented across the Indo-Australian tropics, detailed locality records within the southern Indian states remain fragmented. This report documents a new distributional record of *C. transversa* from Kerala. Understanding the distribution of this species is critical for predicting pest outbreaks in mango plantations. This record contributes to the biogeographical database of Indian Euteliidae and underscores the necessity of continuous faunal monitoring in varied ecological niches.

Keywords: Mango, shoot borer, Euteliidae, first record, pest

MS History: 09.04.2026(Received)-27.05.2026(Revised)- 30.05.2026 (Accepted)

Citation: Aparna Sureshchandra Kalawate, Gayatri Lahu Borse, and Thapasya K. 2026. First Record of Mango shoot borer *Chlumetia transversa* (Walker, 1863) (Lepidoptera: Euteliidae) from Kerala, India. *Journal of Biopesticides*, 19(1):50-53. DOI: 10.57182/jbiopestic.19.1.50-53

INTRODUCTION

The family Euteliidae was formerly treated as a subfamily of Noctuidae but is now recognised as a distinct family within the superfamily Noctuoidea. The family is divided into two subfamilies, Euteliinae and Stictopterinae, and includes 540 species worldwide, of which 104 species under nearly 20 genera have been reported from India (Joshi *et al.*, 2024). Euteliid moths are predominantly phytophagous, and several species are economically important due to their association with cultivated plants and forestry crops (Sivasankaran *et al.*, 2011).

Despite early taxonomic works (Walker, 1863; Hampson, 1894) providing foundational knowledge on Indian Lepidoptera, distributional data for many euteliid species remain sparse and region-specific. Recent faunal surveys and pest-related studies have focused on economically important species; however, southern India, particularly Kerala, remains poorly documented. India is one of the leading mango-producing countries, contributing about 40.48% of global production (Mukherjee, 1948). The crop is widely grown in major states such as Andhra Pradesh, Uttar Pradesh, Karnataka, Bihar, Gujarat, West Bengal, Kerala, Maharashtra, and others (Saxena and Gandhi, 2014). Despite its

high production potential, mango productivity is severely constrained by insect pests, which constitute the most important biotic factor. Mango is attacked by a complex of over 492 insect species worldwide, of which 188 species are reported from India, infesting both vegetative and reproductive stages (Tandon and Verghese, 1985).

Among the major pests, the mango shoot borer (MSB), *Chlumetia transversa* is of particular concern as it damages young shoots, suppresses vegetative growth, and adversely affects canopy development and yield (Munj *et al.*, 2019). *C. transversa*, shoot borer, has become one of the most serious pest problems in the tropics and subtropics, directly feeding on crops and inflicting losses (Patel and Pandya, 2022) and causing shoot damage of 4.00 to 6.67 per cent (Munj *et al.*, 2019). The larvae are the primary cause of damage, and their feeding habits include mining, boring, wilting, and stunting. The newly hatched caterpillars first mine the midribs of the tender leaves and then bore into the terminal shoots. They tunnel downward through the shoot, and the terminal leaves begin to wilt, turn black, and drop off. This leads to secondary branching, giving a stunted appearance. Eggs are

laid on tender leaves or buds, and pupation occurs at the damaged shoot or in the soil (Chahal and Singh, 1977). They are also pests on Lychee (*Litchi chinensis*, Sapindaceae), *Buchanania* sp., *Solanum erianthum* (Solanaceae) (Robinson *et al.*, 2010). Although classified as a minor pest by some agricultural assessments, heavy infestations can cause economically significant damage to fruit crops. The use of integrated pest management strategies, such as clipping off and destroying affected shoots in the initial stage of attack, biological controls including parasitoids like those in the family Phoridae and, in case of severe attack, spraying carbaryl two times at three-week intervals commencing from initiation of new flush of leaves (Disney *et al.*, 1992; Munj *et al.*, 2019).

MATERIALS AND METHODS

The specimens were collected at night by setting a light trap in the field. Ethyl acetate vapours were used to euthanise them in the field. The specimens that were killed were dry-preserved and brought back to the laboratory. The specimens were studied under a Leica S9i stereozoom microscope with a photographic facility. The specimen was identified as per Holloway (1985). The material examined is deposited in the National Repository of the Zoological Survey of India, Western Regional Centre, Pune, Maharashtra, India (ZSI-WRC-L-5148).

RESULTS AND DISCUSSION

Systematic account

Order : Lepidoptera Linnaeus, 1758

Superfamily : Noctuoidea Latreille, 1809

Family : Euteliidae Grote, 1882

Subfamily : Euteliinae Grote, 1882

Genus : *Chlumetia* Walker, [1866]

***Chlumetia transversa* (Walker, 1863)**

Material examined

01 female, India, Kerala, Malappuram, near Kizhuparamba, 01.xi.2025, coll. A. S. Kalawate, (ZSI-WRC- L-5148)

Diagnostic character

Adult female moth with wingspan approximately 15 mm. Forewings elongate, greyish-brown to dark brown, with a distinct oblique transverse band across the median area; basal and terminal regions slightly darker;

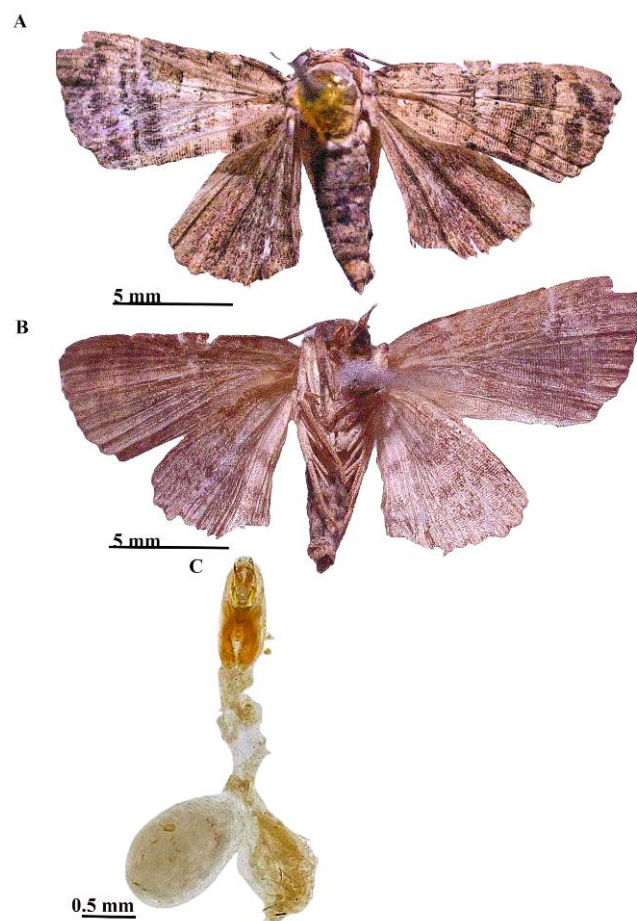


Figure 1. *Chlumetia transversa* (Walker, 1863) ♀: A. dorsal habitus; b. ventral habitus; c. genitalia.

Orbicular and reniform stigmata faint but discernible; costa darker near apex; termen gently curved. Hindwings paler, whitish-grey with brownish marginal suffusion. Antennae filiform; head and thorax covered with fine brown scales; abdomen stout.

Female genitalia characterized by a large, membranous, oval corpus bursae with a small circular signum centrally located; ductus bursae short to moderately long, weakly sclerotised; ostium bursae broad; papillae anales moderately setose; apophyses posteriores longer than apophyses anteriores; eighth abdominal segment lightly sclerotised. These features, together with wing pattern and body colouration, reliably separate *C. transversa* from other congeners in India.

Distribution

India: Andhra Pradesh, Karnataka, Gujarat, Maharashtra, Uttarakhand, West Bengal (Sondhi

et al., 2026), Kerala (present study). Global: Indo-Australian tropics (Holloway, 1985). The present record from Kerala fills a geographical gap in the known distribution of *C. transversa* in Southern India. Given the rapid land-use changes in the region, documenting such specific occurrences is vital for long-term ecological monitoring.

Damage symptoms

Southern India is a global hub for mango production. As *C. transversa* larvae feed on tender shoots and inflorescences, mapping its presence allows for the development of region-specific integrated pest management strategies. The Damage symptoms of the mango shoot borer include the presence of frass at the tender shoots near the entry holes. The affected terminal shoots show wilting and drying. Repeated shoot damage results in stunted plant growth. Stunted seedlings also cause a terminal bunchy appearance of the affected portion. This pest causes quality reduction and yield losses in the affected plant. However, with effective pest management strategies, MSB can be managed. As per Goni & Goje (2025), localized pest monitoring and site-specific control measures are more beneficial than uniform treatment.

Suggested Management Practices

Pruning is the best cultural method of control. Pruning affected shoots and destroying them in the initial stage of attack is effective in controlling it. Summer ploughing needs to be undertaken to expose the pupae of MSB. Similarly, regulating the vegetative flush, controlling excess irrigation, and reducing nitrogenous fertiliser use are effective in controlling it. Spraying of organophosphorus insecticides with recommended doses is also effective if the pests cross Economic threshold level (ETL). Spraying neem oil at 5 ml/l two times at fortnightly intervals is effective to control it. Spinosad is also effective in controlling the MSB.

ACKNOWLEDGEMENTS

Author contributions

Idea conceptualisation, writing original draft, collection of specimens, Specimen pinning, genitalia dissection by A.S.K; identification, photograph, writing original draft done by G.L.B; T.K. did the writing of the original draft.

Declaration and Funding Statement

The work is based on the annual research programme of Zoological Survey of India, WRC, Pune (Ministry of Environment & Forests, Govt. of India).

Plagiarism

This manuscript is an original work and not previously published, and proper citations are provided.

REFERENCES

- Chahal, B. S. and Singh, D. 1977. Bionomics and control of mango shoot borer, *Chlumetia transversa* Walk. (Noctuidae: Lepidoptera). *Indian journal of Horticulture*, **34**: 188-192.
- Disney, R. H. L., Khochare, N. N. and Godase, S. K. 1992. A new parasitoid (Diptera: Phoridae) of the mango shoot borer, *Chlumetia transversa* (Lepidoptera: Noctuidae), in India. *Bulletin of Entomological Research*, **82**(2):191-195. doi:10.1017/S0007485300051713
- Goni, K. A. and Goje, Z. M. 2025. Survey of Some Important Insect Pest of Mango. *Fane-Fane International Multi-Disciplinary Journal*, **9**(2):100–110.
- Hampson, G. F. 1894. The Fauna of British India including Ceylon and Burma. Moths. Vol. 2. Taylor and Francis, London, 403 PP.
- Holloway, J. D. 1985. The Moths of Borneo: Family Noctuidae: Subfamilies Euteliinae, Stictopterinae, Plusiinae, Pantheinae. *Malayan Nature Journal*, **38**: 157–317.
- Joshi, R., Singh, N., Ahmad, J. and Farooqui, S. A. 2024. A Catalogue of Indian Euteliidae (Lepidoptera, Noctuoidea). *Zootaxa*, **5448** (2): 151–182. <https://doi.org/10.11646/zootaxa.5448.2.1>
- Mukherjee S. K. 1948. The varieties of mango (*Mangifera indica* L.) and their classification. *Bull. Bot. Soc. Bengal*. **2**:101-133.
- Munj, A. Y., Sawant, B. N., Malshe, K. V., Dheware R. M. and Narangalkar, A. L. 2019. Survey of important foliage pests of mango from south Konkan region of Maharashtra, *Journal of Entomology and Zoology Studies*, **7**(1): 684-686.
- Patel, S. and Pandya, H. V. 2022. Effect of bio

- pesticides on shoot borer, *Chlumetia transversa* in organic mango. *The Pharma Innovation Journal*, **11**(11): 377-382.
- Robinson G. S., Ackery P. R., Kitching I. J., Beccaloni G. W. and Hernandez L. M. 2010. HOSTS - A Database of the World's Lepidopteran Hostplants. Natural History Museum, London. <http://www.nhm.ac.uk/hosts>.
- Saxena M, Gandhi. 2014. Indian Horticulture Database. National Horticulture Board; **PP**. 99.
- Sivasankaran, K., Gnanasekaran, S., Parandhaman, D. and Ignacimuthu, S. 2011. Diversity of Noctuid moths (Lepidoptera: Noctuidae) in Tamil Nadu part of Western Ghats (Nilgiris biosphere and Kodaikanal hills), India. *Elixir Bio Diversity*, **38**: 4131–4134.
- Sondhi, S., Sondhi, Y. Roy, P. and Kunte, K. 2026. Moths of India. Version 4.11. Indian Foundation for Butterflies. Available from: <https://www.mothsofindia.org/>
- Tandon, P. L. and Verghese, A. 1985. World list of insect, mite and other pests of mango. *IIHR, Bangalore*, **6**(3):122-131.
- Walker, F. 1863. List of the Specimens of Lepidopterous Insects in the Collection of the British Museum, London. Vol. 27. The Trustees of the British Museum (Natural History), London, 286 **PP**.
-
- Aparna Sureshchandra Kalawate^{1*}, Gayatri Lahu Borse², Thapasya K.¹**
- ^{1*}Zoological Survey of India, Western Regional Centre, Vidya Nagar, Sector- 29, P.C.N.T.(PO), Ravet Road, Akurdi, Pune, Maharashtra 411044, India.
- ²Fergusson College, Shivajinagar, Pune, Maharashtra 411004, India.
- * Corresponding author**
- E-mail: devarpanento@gmail.com;
<https://orcid.org/0000-0001-6595-6749>