



Research Note

Occurrence of scarab species belonging to Cetoniinae and Sericinae (Coleoptera: Scarabaeidae) on *Lantana camara* L. in India

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ABSTRACT: *Lantana camara* L. (Verbenaceae) is deemed as one of the world's toughest weeds posing major threats to the biodiversity and ecosystem. *Lantana* has been subject to numerous biocontrol attempts in India and other parts of the world. A survey of the phytophagous scarab species associated with *Lantana camara* was undertaken in Shettihalli village of Karnataka, India during 2024. The study yielded one Sericinae species, *Maladera mutabilis* (Fabricius, 1775), and five Cetoniinae species, viz., *Clinteria klugi* (Hope, 1831), *Anthracophora crucifera* (Olivier, 1789), *Protaetia aurichalcea* (Fabricius, 1775), *Gametis versicolor* (Fabricius, 1775) and *Tephraea cinerea* (Kraatz, 1898). Two species, *G. versicolor* and *C. klugi* were found to be abundant and predominant in *Lantana* ecosystem.

KEYWORDS: Scarabaeidae, Sericinae, Cetoniinae, biological control, phytophagous

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In 1807, *Lantana camara* L. was introduced to India as an ornamental plant to be used as a decorative hedge with colourful flowers at the Calcutta botanical garden, Kolkata, West Bengal. Later, its introduction to Lalbagh botanical garden, Bengaluru from Sri Lanka was reported. Soon, there was a wide spread of this plant across the country and established well in most of the landscapes and habitats. The cumulative effect of prolific seed production, high vegetative regenerative capacity, and toxic leaves rendering the plant virtually immune to herbivory, made *Lantana* the most problematic weed in India that has taken over pastures, wastelands, roadsides, and forests. This species was initially reported to be problematic in forests around Madras in 1893. It had invaded 2,000 hectares by 1917; 40,000 ha by 1941, 1,40,96,600 ha by 2023, and has potential to invade 5,74,18,600 ha i.e. 50 % of natural areas in India (Nanjappa *et al.*, 2005; Mungi *et al.*, 2023). Three varieties of *L. camara* viz., *L. camara* var. *aculeata* Moldenke, *L. camara* var. *mista* Bailey and *L. camara* var. *nivea* Bailey are reported from India (Negi *et al.*, 2019).

Entomologists pursuing biological control projects on *Lantana* have identified large number of arthropod species feeding on the vegetative parts of the plant. Thirty-two insect species with biological control potential against *Lantana* have

been released in various countries. A similar survey conducted by Palmer and Pullen (1995) in Mexico and Southern United States recorded several species of phytophagous Scarabaeidae, viz., *Anomalacra donovani* (Stephens, 1830), *Anomalacra foraminosa* (Bates, 1888), *Cotinis mutabilis* (Gory & Percheron, 1833), *Euphoria* sp., *Golofa* sp., *Hoplia squamifera* Burmeister, 1844, *Macroductylus sericeicollis* Bates, 1887, *Strigoderma protea* Burmeister, 1844, and *S. sulcipennis* Burmeister, 1844.

Surveys conducted during day time for collection of phytophagous scarabs in Shettihalli village, Chintamani taluk of Chikkaballapur, Karnataka, India, in August 2024 revealed the presence of scarab fauna associated with *Lantana camara*. Further, a focused study was taken up on 40 *Lantana* plants occurring around agricultural fields and roadsides. The adult phytophagous scarabs that were found feeding on *Lantana* were manually collected from the vegetative and floral parts of the plant and brought to the Scarabaeid Lab at ICAR- National Bureau of Agricultural Insect Resources for identification. Arrow (1910) was referred to identify the species of Cetoniinae, and Ahrens (2004) and Ahrens and Fabrizi (2016) were referred to identify the species of Sericinae. Additionally, the sericine species identified by Ahrens personally (through the images) was used to

compare the collected sericine specimens. The photographs of habitus were taken using a 6.3 Megapixel Leica K-3C digital microscope camera mounted over Leica M205 FA automontage stereo microscope. Field pictures were taken using Google Pixel 8 Pro. All images were processed using Adobe Photoshop® 2023.

The scientific name of the scarab species, their abundance, and the plant parts they were feeding on is listed in table 1. A total of six species belonging to subfamilies Cetoniinae and Sericinae of Scarabaeidae were identified, of which five species belonged to the former and one to the latter. Of all, *Gametis versicolor* (Fabricius, 1775) was found to be the most abundant. All the five species of Cetoniinae were found to feed only on flowers (Figure 1) and were most often seen as mating pairs on flowers. Two species, *Gametis versicolor* (Fabricius, 1775) and *Clinteria klugi* (Hope, 1831) accounted for 74.5 % of the total scarabs collected. The images of adult habitus are shown in Figure 2.

Owing to the proliferation and wide spread of *L. camara*, which poses serious threat to the native flora, intensification of its management through cultural, mechanical and biological methods are being explored. Broughton (2000) reviewed biological control programmes employed against *L. camara* and the potential biocontrol agents. Around 21 species of biocontrol agents were reported from lantana plants in Madhya Pradesh, India, of which two species, *Spilosoma obliqua* (Walker, 1855) and *Euproctis subnotana* (Walker, 1865) were found to be most abundant (Tripathi et al., 2021). The natural enemies, *Teleonemia scrupulosa* Stal, 1873, *Uroplata girardi* Pic, 1934, *Octotoma scabripennis* Guérin-Méneville, 1844, and *Ophiomyia lantanae* (Froggatt, 1919) have proven successful in management of *L. camara* but appeared to be limited in their distribution and establishment. The study presents new records of the scarab species on *L. camara*.



Figure 1. A. Collection locality (red dot); B-E. Field pictures of scarab beetles encountered on *Lantana camara* L.: B. *Clinteria klugi* (Hope, 1831); C. *Maladera mutabilis* (Fabricius, 1775); D. *Gametis versicolor* (Fabricius, 1775); E. *Anthracophora crucifera* (Olivier, 1789). (Map downloaded from KRSRAC, GoK, <https://kgis.in/kgis>).

Table 1. Record of phytophagous scarabs on *L. camara*

Sl. No.	Scientific name	Subfamily	Abundance	Relative abundance (%)	Plant part
1	<i>Maladera mutabilis</i> (Fabricius, 1775)	Sericinae	4	3.6	Leaf
2	<i>Clinteria klugi</i> (Hope, 1831)	Cetoniinae	26	23.6	Flowers
3	<i>Anthracophora crucifera</i> (Olivier, 1789)	Cetoniinae	8	7.2	Flowers
4	<i>Protaetia aurichalcea</i> (Fabricius, 1775)	Cetoniinae	11	10	Flowers
5	<i>Gametis versicolor</i> (Fabricius, 1775)	Cetoniinae	56	50.9	Flowers
6	<i>Tephraea cinerea</i> (Kraatz, 1898)	Cetoniinae	5	4.5	Flowers

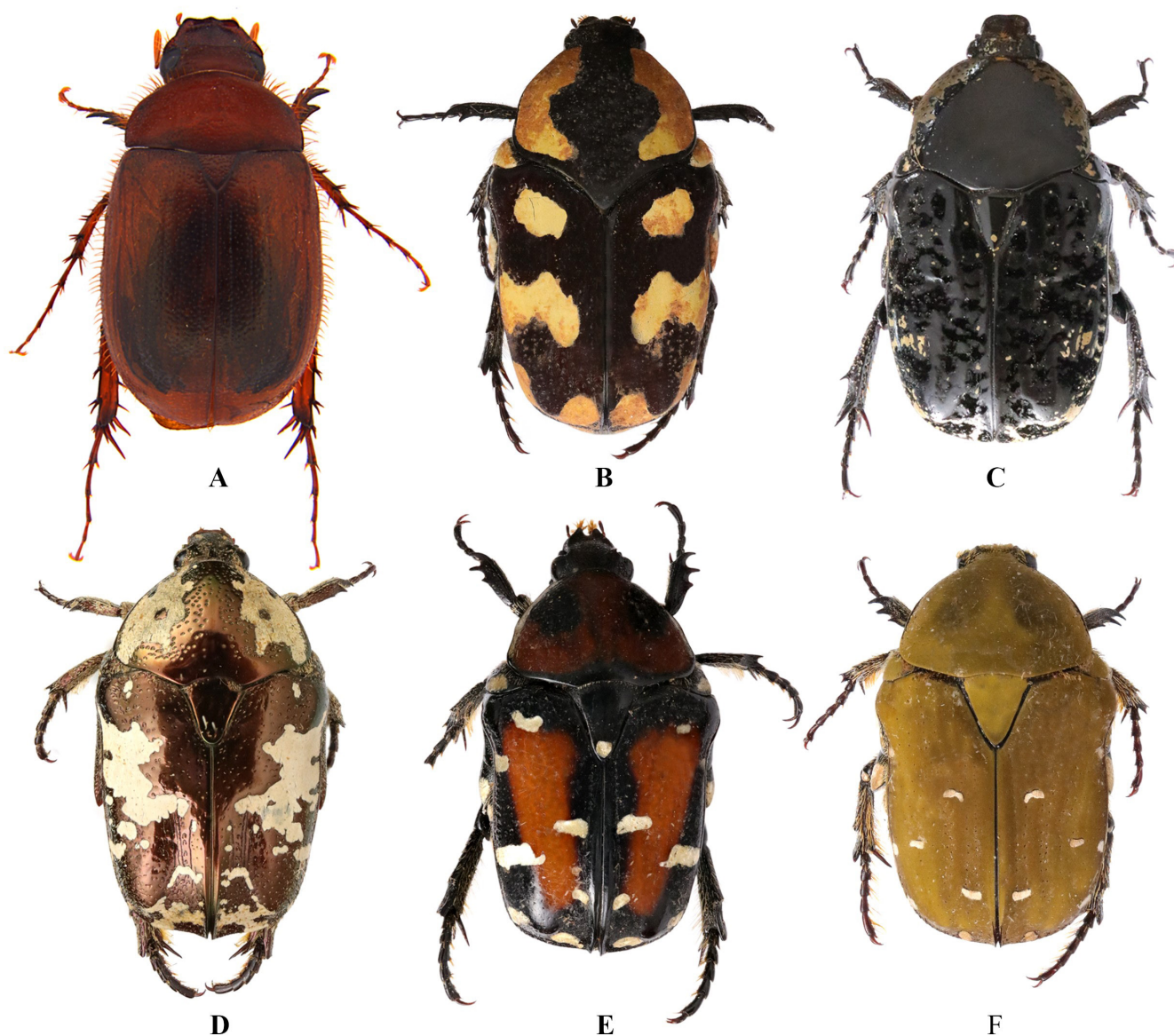


Figure 2. Adult habitus of scarab beetles encountered on *Lantana camara* L.: **A.** *Maladera mutabilis* (Fabricius, 1775); **B.** *Clinteria klugi* (Hope, 1831); **C.** *Anthracophora crucifera* (Olivier, 1789); **D.** *Protaetia aurichalcea* (Fabricius, 1775); **E.** *Gametis versicolor* (Fabricius, 1775); **F.** *Tephraea cinerea* (Kraatz, 1898).

CONCLUSION

Six scarab species were found feeding on different parts of the noxious weed, *L. camara* in Karnataka and these are new records. Two species, *G. versicolor* and *C. klugi* were found to feed on the reproductive parts, flowers of the plant and were abundant comprising nearly 75% of the total scarab species.

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