

**LONGHORNED BEETLES FROM GOMARDA
WILDLIFE SANCTUARY, CHHATTISGARH, INDIA
(COLEOPTERA: CERAMBYCIDAE)**

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[Majumder, A., Halder, S., Raha, A., Mitra, B. & Chandra, K. 2016. Longhorned beetles from Gomarda Wildlife Sanctuary, Chhattisgarh, India (Coleoptera: Cerambycidae). Munis Entomology & Zoology, 11 (2): 613-618]

ABSTRACT: Faunal survey of Gomarda Wildlife Sanctuary, Chhattisgarh reported eight species of long horned beetles belonging to three subfamilies, of these six species are recorded for the first time from the sanctuary and three species are recorded for the first time from Chhattisgarh. The paper deals with a comprehensive taxonomic account, photographs of these species along with its geographic distribution.

KEY WORDS: Gomarda Wildlife Sanctuary, Chhattisgarh, Long horned beetle, Cerambycidae

Longhorned beetles (Coleoptera: Cerambyidae), an important group of insects are regarded as impending bio indicator for forest regulation (Vance et al., 2003). These small to large sized beetles are easily recognized by their long antenna. Adults are xylophagus, feed on the plant sap, pollen, nectar, and foliage. Despite of its importance as a major forest pest they are poorly studied. This family stands for one of the largest families of Coleoptera with 5232 genera, 30079 species globally (Zang, 2011). The first attempt with major taxonomic and biological studies on this group was taken in 20th century. Gahan (1906) explored these long horned beetles from the Indian regions which were documented in “*Fauna of British India*”. The fauna was lacked the information on the subfamily Lamiinae. The inventory on this family from the state Chhattisgarh was done by Majumder et al. (2014) and reported two species from Gomarda Wildlife Sanctuary. The present communication reports 6 species new to Gomarda WLS, of which three species, namely *Chlorophorus annularis* (Fabricius, 1787), *Stromatium barbatum* (Fabricius, 1775), *Diorthus cinereus* (Fabricius, 1793) are new record to Chhattisgarh state.

MATERIALS AND METHODS

Field trips are frequently undertaken for the collection of different species from various habitats. Collections are made during daytime using forceps, from logs, decayed matters, ground, sometimes by beating bushes with a stick and collecting the dropping one on a piece of cloth. Beetles are also collected at night by installing light traps at different locations. Specimens are collected in different sized jars, vials which are filled with benzene for desensitizing the beetles. Specimens are preserved in dry form in paper packets. The specimens collected are brought to the laboratory at The Headquarters, Zoological Survey of India, Kolkata, for further processing of fixation and preservation.

Study area: Faunal exploration was undertaken in the different parts of the Sanctuary. Biogeographically the state Chhattisgarh is placed in Deccan Plateau

zone with three provinces namely 6D Chota Nagpur plateau, 6C Eastern Highlands and 6E Central high land (Rodgers et al., 2002). The Sanctuary comes under the district Raigarh, in this State. It lies between 21°30'24" N to 83°06'47" E and with an elevation of 400 m. The Sanctuary derives its name from the village Gomarda in Sarangarh tehsil of Raigarh district. It is situated about 15 km south of Sarangarh on Raigarh-Sarangarh-Saraipali state highway.

Abbreviation used: GWLS: Gomarda Wildlife Sanctuary, RH: Rest House, Alt: Altitude, Coll: Collector.

RESULTS

Subfamily Prioninae Tribe Acanthophorini

Acanthophorus serraticornis (Olivier, 1795)

1795. *Prionus serraticornis* Olivier, Ent., Coléoptères. Imprimerie de Lanneau, Paris, 4 (66): 14.

1906. *Acanthophorus serraticornis*: Gahan, Fauna British India, including Ceylon and Burma (Cerambycidae), I: 23.

Material examined: Raigarh, GWLS, 910RF Watch Tower (Saranger beat) 21°28'56.9", 83°03'17.4" Alt-437 m; 27.vi.2015, coll. Amitava & party.

Diagnostic character: Body very large, measuring about 72mm, robust, glossy, dark brown to black; antenna smaller than body or almost equal, twelve segmented, segment I globular, small, segment III longest, lateral margins of segment III- XI apically gradually angulate towards segment XI; head globular, punctate, eyes large almost covering the gena, frons and clypeus covered with golden hairs, basal margin of vertex with dense golden hairs; pronotum large, much broader than long, glossy dark brown, strongly punctate, baso-lateral area covered with dense pubescence, two raised portion on either side of pronotum, lateral margin with thin spines on either side of pronotum, apico-lateral spine small, comparatively blunt, baso lateral spine much acute and larger than apico-lateral spine, the median spine largest and more acute and more close to apico-lateral spine; elytra, broad, elongated, dark brown, darker towards basal margin, lateral margins with fine yellowish pubescence, apex of the elytra broadly sub rounded; coxal cavities closed, femur robust, flattened, tibia elongated, with sharp spines on the anterior margin; tarsal claw more than 90° angle.

Distribution: India: Chhattisgarh, Andaman and Nicobar Islands, Bihar, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Sikkim and Tamil Nadu. *Elsewhere:* Sri Lanka.

Subfamily Cerambycinae Tribe Clytini

Chlorophorus annularis (Fabricius, 1787)

1787. *Callidium annulare* Fabricius, Hafniae, Proft, 1: 156.

1863. *Chlorophorus annularis* Chevrolat, Mémoires de la Société Royale des Sciences de Liège, 18 (4): 290.

1900. *Chlorophorus annularis*: Gahan, The Annals and Magazine of Natural History, 5 (7) 28: 348.

1906. *Caloclytus annularis*: Gahan, The Fauna of British India, including Ceylon and Burma (Cerambycidae), I: 261.

2008. *Chlorophorus annularis*: Makihara, Mannakkara, Fujimura & Ohtake, Bulletin of the Forestry and Forest Products Research Institute, Ibaraki, 7 (2) 407: 106.

2013. *Chlorophorus annularis*: Weigel, Meng & Lin, Formosa Ecological Company, Taiwan: 76.

Material examined: Raigarh, GWLS, 910RF Watch Tower (Saranger beat) 21°28'56.9", 83°03'17.4" Alt-437 m; 27.vi.2015, coll. Amitava & party.

Diagnosis: Body medium, measuring about 12mm, ornamented with black and yellowish patches of pubescence; head small, horizontal, covered with yellowish pubescence, more towards gena and frons; mandibles small, prominent; vertex small, pubescent, narrow, deeply incised in between the antennal tubercles; eyes large almost covered the gena, semicircular, anterior lobe much large than posterior lobe; antenna smaller than body, 11-segmented, dark brown with off white pubescence, more towards apical segments, segment I large, almost equal to IV, but smaller than III; pronotum large globular finely punctate, densely covered with yellowish pubescence, ornamented with some black patches: one on

either side of baso-lateral margins, the second one sub oval, on either side of the apico-lateral region, the third or central one broad, along the median line, somewhat swollen on the basal region of the pronotum; scutellum, large densely whitish yellowish pubescence; elytra elongated, covered with densely golden-yellow pubescence throughout, ornamented with black patches of pubescence: first black patch in between mid and hind legs, elongated, semi-oval, second started from one third of basal margin, along the sutural margin, more broadened at the middle, ended in lateral margin beyond the hind leg, the third one very near to apex, broad, semicircular, more close to lateral margin than sutural margin, apex sub truncated with lateral and sutural spines; ventral side densely covered with pale whitish pubescence, prosternum narrow lower than the coxal cavity; mesosternum broad almost at the height of the coxa, mesocoxal cavity closed, legs elongated, hind femur and tibia much elongated, femur with two spines, first tarsal segment of the hind femur much longer, third tarsal segment bilobed; tarsal claw more than 90° angle.

Distribution: India: Chhattisgarh, Maharashtra, Arunachal Pradesh, Assam. *Elsewhere:* China, Japan.

Tribe Hesperophanini

Stromatium barbatum (Fabricius, 1775)

1775. *Callidium barbatum* Fabricius, Systema Entomologiae, 30: 189.

1798. *Callidium variolosum* Fabricius, Supplementum entomologiae systematicae Proft & Storch, Hafniae: 149.

1835. *Callidium funestum* Boisduval, In Voyage de Découvertes. sous le commandement de M. J. Dumont d'Urville, 2: 481.

1840. *Stromatium barbatum* Laporte and Castelnau, Histoire Naturelle des Insectes Coléoptères P. Duménil, Paris, 2: 452.

1906. *Stromatium barbatum*: Gahan, The Fauna of British India, including Ceylon and Burma (Cerambycidae), I: 114.

2004. *Stromatium barbatum*: Mukhopadhyay & Halder, State Fauna Series, Zoological Survey of India, 10: 426.

2014. *Stromatium barbatum*: Švácha & Lawrence, In Walter de Gruyter, Handbook of Zoology, 3: 90.

Material examined: Raigarh, GWLS, 910RF Watch Tower (Saranger beat) 21°28'56.9", 83°03'17.4" Alt-437 m; 27.vi.2015, Coll. Amitava & party.

Diagnosis: Body medium, measuring about 14-24mm, brown to deep brown in color, densely punctate throughout, covered with fine hairs; head, pronotum, elytra, leg and scape dark brown, other antennal segments brown; head small, dark brown, sparsely hairy, clypeus transverse, frons dark brown depressed, eyes large almost subdivided, anterior portion large, vertex large, suddenly depressed and broad in between the posterior lobe of the eyes, little raised and narrowly incised in between the antennal tubercles; antenna 11-segmented, longer than body, slender with long hairs on the inner margin, segment I dark brown small, densely punctate, segment II to XI brown or light brown in color, segment III much longer than segment I, little longer than segment IV; pronotum sub-squarish, dark brown, surface strongly punctate with five blunt tubercles, in male lateral sides with large concavity covered with dense hairs, absent in female; elytra sub-squarish, densely granule, dark brown with erect hairs, two prominent longitudinal ridges started from the sides of scutellum ended near to the apex, the third longitudinal ridges started from the hind leg and ended near to the apex, apex sub rounded, sutural angle with small spine; ventral side dark brown, densely hairy; prosternum broad at the height of coxa, mesosternum much broad, almost at the height of coxa, coxal cavities closed; legs dark brown third tarsal segment bilobed; tarsal claw more than 90° angle.

Distribution: India: Chhattisgarh, Andaman, Meghalaya, Manipur, Maharashtra, Tripura, West Bengal. *Elsewhere:* Sri Lanka, Africa, Myanmar.

Tribe Cerambycini

Neoplocaederus pedestris (White, 1853)

1853. *Hammaticherus pedestris* White, Catalogue of the coleopterous insects in the collection of the British Museum., Longicornia, I: 127.

1906. *Plocaederus humeralis*: Gahan, Fauna Brit. India including Ceylon & Burma, Col: Cerambycidae: 123.

1906. *Plocaederus pedestris*: Gahan, Fauna Brit. India including Ceylon & Burma, Col: Cerambycidae: 123.

1991. *Neoplocaederus pedestris* Sama, Bollettino della Società Entomologica Italiana, 123 (2): 121-128.

Material examined: Raigarh, GWLS, 910RF Watch Tower (Saranger beat) 21°28'56.9", 83°03'17.4" Alt-437 m; 27.vi.2015, coll. Amitava & party.

Diagnosis: Body large, measuring about 24-32mm, elongate, deep black throughout, female more paler, almost brown; head protuberant, horizontal, eyes very large, finely faceted, black in color, weakly subdivided, both the eyes separated by a narrow carina, antenna 11-segmented, ferruginous, segment I small, thick, as long as segment III, segment V to X dorso- apically raised; pronotum broader than long, surface rough with ridges and punctures, sparsely pubescent, these gradually dense towards lateral margins, small distinct tubercle on either side of the mid lateral margins of the pronotum; elytra elongated, parallel sided black with dense grayish pubescence, female sometimes deep ferruginous, humeral angel raised, few indistinct longitudinal ridges on the elytra, basal margin widened, compressed at the middle, gradually widened towards apex, apex narrowly truncated, sutural spine acute, lateral spine blunt; legs ferruginous, pubescence, femur thick, elongated, tibia slender, elongated, tarsal claws less than 90° angle.

Distribution: India: Chhattisgarh, Tamil Nadu, Madhya Pradesh, Maharashtra. *Elsewhere:* Myanmar.

Diorthus cinereus (Fabricius, 1793)

1793. *Cerambyx cinereus* Fabricius, Hafniae, C. G. Proft, 1 (2): 265.

1795. *Cerambyx holosericeus* Olivier, Coléoptères. Imprimerie de Lanneau, Paris, 4: 14.

1853. *Hammaticherus simplex* White, Longicornia I. Catalogue of the coleopterous insects in the collection of the British Museum, London, 7: 130.

1906. *Diorthus simplex* Gahan, The Fauna of British India (Cerambycidae), I: 133.

1912. *Diorthus cinereus* Aurivillius, Coleopterorum Catalogus, pars 39 (22): 56.

2008. *Diorthus cinereus*: Makihara, Mannakkara, Fujimura & Ohtake, Bulletin of the Forestry and Forest Products Research Institute, Ibaraki, 7 (2) 407: 100.

Material examined: Raigarh, GWLS, Tamtora FRH, 21°26'39.6", 83°04'58.6" Alt. 372 m, 31.v.2014, coll. S. Gupta & Party.

Diagnosis: Body large, measuring about 32 mm, brown to black in color, covered with velvety greyish pubescence; head small almost covered by the eyes, frons small, mandibles strong, clypeus large black, eyes black, vertex large, black, narrow in between the posterior lobe of eyes and antennal tubercles, feebly sulcated; antenna 11 segmented hardly surpassing the body in female, longer in male, stout, densely pubescence, segment I and III almost equal but longer than segment IV, segment I with apical cicatrix, III to V apically broadened, segment V to X apically outwardly angulate; pronotum globular shaped, longer than broad irregularly strongly wrinkled formed crown shaped impression, densely pubescent; elytra brown to black covered with velvety greyish pubescence, apex sub-straight with acute sutural spine; ventral side densely pubescent, prosternum broad, raised at the height of coxa, mesosternum much broader at the height of coxa, coxal cavities closed, legs elongated covered with greyish pubescence, femora stumpy, tarsal claw more than 90 angle.

Distribution: India: Chhattisgarh, Chennai, Maharashtra, Tamil Nadu, West Bengal. *Elsewhere:* Sri Lanka, West Africa, Myanmar, Mauritius.

Subfamily Lamiinae

Tribe Batocerini

Batocera rufomaculata (Degeer, 1775)

1775. *Cerambyx rufomaculatus* Degeer, Imprimerie Pierre Hesselberg, 5: 127.

1950. *Batocera rufomaculata m. flavescens* Breuning, Longicornia, I: 519.

2007. *Batocera rufomaculata rufomaculata*: Dalens & Touroult, Lambillionea, 107 (2) 2: 292.

2012. *Batocera rufomaculata*: Weigel, Verein der Freunde und Förderer des Naturkunde museums Erfurt e. V: 408.

2006. *Batocera rufomaculata*: Özdikmen, Munis Entomology & Zoology, 1 (1): 81.

Material examined: Raigarh, GWLS, 910RF Watch Tower (Saranger beat) 21°28'56.9", 83°03'17.4" Alt-437 m; 27.vi.2015, coll. Amitava & party.

Diagnosis: Body large, measuring about 50 mm, robust, covered with finely greyish pubescence; head vertical, clypeus trapezoid glossy, mandible large, frons broad, black with sparsely greyish pubescence, eyes large almost covered the gena, subdivided, anterior portion much larger than posterior one, vertex large with sparsely yellowish pubescence, broaden in between the antennal tubercles, depressed; antenna 11 segmented longer than

body on male and almost equal in female, dark brown in colour, segment I large robust, with apical cicatrix, surface wrinkled, strongly in male, segment III much longer than IV and I, strongly, densely punctate, inner margin of all the antennal segments with small spines except segment I; pronotum large, sub squarish, surface roughened with some ridges, two iron red kidney shaped patches at the centre on either side of the median line of the pronotum, lateral margin out curved, ended with long strong spine, basal margin with some wavy ridges, scutellum large tongue shaped with bright whitish yellow pubescence, elytra elongated covered with fine densely greyish pubescence, ornamented with yellowish orange spots and patches, humeral angle with acute spine, basal margin strongly warty gradually converging towards apex, elytral apex sub straight, sutural margin with acute spine, ventral side covered with densely finely greyish pubescence, one broad pale whitish band running along the ventro-lateral margin from last abdominal segment to base of the eye, prosternum broad anteriorly, depressed, mesosternum broad little depressed, coxal cavities open; legs elongated, fore femur and tibia strongly warty in male, fore tibia apically flattened and little bend in both sexes, tarsal claw more than 90° angle.

Distribution: India: Chhattisgarh, Tamil Nadu, Maharashtra, West Bengal. *Elsewhere:* Sri Lanka, Africa, Myanmar.

Species list from Gomarda Wildlife Sanctuary

No	Species	Remarks
1.	<i>Acanthophorus serraticornis</i> (Olivier, 1795)	New record to GWLS
2.	<i>Chlorophorus annularis</i> (Fabricius, 1787)	New record to Chhattisgarh
3.	<i>Stromatium barbatum</i> (Fabricius, 1775)	New record to Chhattisgarh
4.	<i>Neoplocaederus pedestris</i> (White, 1853)	New record to GWLS
5.	<i>Diorthus cinereus</i> (Fabricius, 1793)	New record to Chhattisgarh
6.	<i>Batocera rufomaculata</i> (Degeer, 1775)	New record to GWLS
7.	<i>Nyphasia apicalis</i> Gahan, 1893	Reported Majumder et al., 2014
8.	<i>Apomecyna saltator</i> (Fabricius, 1781)	Reported Majumder et al., 2014

DISCUSSION

Protected areas are critical for the conservation of residual tropical forest biodiversity, yet many of these are being deforested by humans both within and outside of their administrative boundaries. It has been observed that, sanctuaries, parks and reserves consistently recorded higher number of endemic species, in addition to larger population densities, than in their surrounding human-modified areas across the protected areas. Therefore, it is essential to document the faunal diversity of the protected areas which are still undisturbed with human interference. In view to above, an attempt has been made to document the cerambycid faunal diversity of Gomarda WLS which is also a notorious pest of the forest ecosystem.

Present study reports eight species of long horned beetles from Gomarda WLS, of which 2 species have been reported by Majumder et al. (2014) from Gomarda WLS. The remaining six species are new record to Gomarda WLS and three species of them, namely, *Chlorophorus annularis* (Fabricius, 1787), *Stromatium barbatum* (Fabricius, 1775) and *Diorthus cinereus* (Fabricius, 1793) are reported for the first time from the state of Chhattisgarh. Present communication will significantly help as a base line data for the future worker of Cerambycidae of Chhattisgarh.

ACKNOWLEDGEMENTS

Authors are grateful to Director, Zoological Survey of India, for providing necessary facilities and encouragements. We are also thankful to Chhattisgarh CAMPA (Compensatory Afforestation Fund Management and Planning

Authority) for providing funds to carry out the work. Thanks are also due to Chhattisgarh Forest Department for providing necessary permissions and support to carry out the present work.

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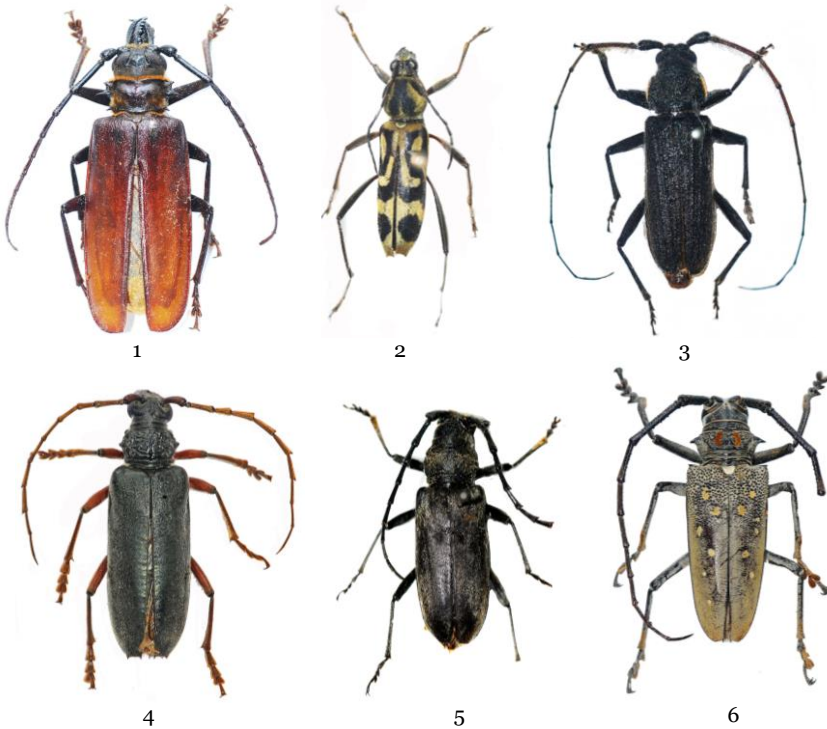


Figure 1. Cerambycid beetles collected during the present study. 1. *Acanthophorus serraticornis* (Olivier, 1795), 2. *Chlorophorus annularis* (Fabricius, 1787), 3. *Stromatium barbatum* (Fabricius, 1775), 4. *Neoplocaederus pedestris* (White, 1853), 5. *Diorthus cinereus* (Fabricius, 1793), 6. *Batocera rufomaculata* (Degeer, 1775).