

**CONTRIBUTIONS TO THE STUDIES ON PRIONINAE  
(COLEOPTERA: CERAMBYCIDAE) OF CENTRAL INDIA  
WITH CHECKLIST OF INDIAN SPECIES**

**Amitava Majumder, Angshuman Raha,  
Bulganin Mitra and Kailash Chandra\***

\* Zoological Survey of India, Prani Vigyan Bhavan, M- Block, New Alipore, Kolkata-700 053, West Bengal, INDIA. E-mail: kailash611@rediffmail.com

**[Majumder, A., Raha, A., Mitra, B. & Chandra, K. 2014. Contributions to the studies on Prioninae (Coleoptera: Cerambycidae) of Central India with checklist of Indian species. Munis Entomology & Zoology, 9 (2): 848-857]**

**ABSTRACT:** The present paper presents the information on genital and morphological character of 4 species belonging to 4 genera and 3 tribes of the subfamily Prioninae (Cerambycidae) so far reported from Central India. Except *Prionomma (Prionomma) atratum* (Gmelin), other 3 species are newly recorded from Central Indian landscape. First consolidated checklist of Indian Prioninae including 47 species belonging to 23 genera and 9 tribes has also been provided.

**KEY WORDS:** Chhattisgarh, Central India, Cerambycidae, Madhya Pradesh, male genitalia, Prioninae.

The beetles of Prioninae subfamily belonging to the Cerambycidae family are mostly borers, whose larvae feed on rotting wood or roots. Few members of the subfamily make tunnel freely in the soil alongside the roots of trees. These beetles fall in the group of heartwood borers and thus reflecting its immense importance in the timber economy of the country. They are cosmopolitan in distribution and include many of the largest species of the Coleoptera order. Prioninae may be readily recognized by the prothoracic possession of the sharp lateral margins. The Indian genera generally bear coarsely faceted eyes, and the species, more or less, are restricted in their range of coloration between black and lighter shades of brown which verge on red and yellow.

In 2012, Norbert Delahaye has published a world catalogue of prioninae. Till date, the most comprehensive information on Indian Prioninae is provided in 'The Fauna of British India including Ceylon and Burma' by Gahan in 1906. Subsequently, Stebbing (1914) and Beeson (1941) published literatures on biology and ecology of these beetles. Except few scattered publications, this group is poorly represented in recent literatures. In 2005, Sen et al. reported a prioninae species from Goa. Prabhakar et al. (2012) published new record of a prioninae species from India including its biology and natural history. Chandra et al. (2010) published the only literature which includes some information on the prioninae of Central India.

The present communication aims at discussing detailed taxonomy of the prioninae species collected during faunal surveys in Madhya Pradesh and Chhattisgarh by Zoological Survey of India. Moreover, this paper provides a consolidated checklist of the subfamily prioninae recorded in India after Norbert Delahaye (2012) 'World Catalogue of Prioninae'.

**MATERIALS AND METHODS**

**Study period:** The specimens were collected from different parts of Madhya Pradesh and Chhattisgarh since 2001.

**Study Area:** Madhya Pradesh lies more or less at the center of India covering an area of 308.252 square kilometer and extending between 21.2° - 26.87° N Latitude and 74.033° - 82.81° E Longitude. Nearly, 30.9 % of the total geographic area of the state is covered by the forest. The forest types mainly include sub tropical hill forests, moist deciduous forest, dry deciduous forest and thorny vegetation. Most of the forests are Sal dominated interspersed with mixed vegetation and bamboo patches. Major rivers include Chambal, Narmada and Tapti. Chhattisgarh is a newly carved out state from Madhya Pradesh in 2001. The state extends between 17°46' - 24°8' N latitude and 80°15' - 84°24' E longitude in the central Indian landscape having a total area of 1. 35.194 sq. Km. Nearly 44 % of the state area is covered by forests and a major part (35736.239 sq. Km.) is outside Protected Areas. Area of these two states lies on the table land of Central India surrounded by Gangetic plains in the North and Godavari valley in the South, the plains of Gujarat in the West and Orissa and Bihar in the East. Biogeographically, both the states belong to the Deccan Plateau and include provinces, 6D- Chota Nagpur Plateau, 6C- Eastern Highland and 6E- Central Highland (Rodgers et al., 2002).

**Methods:** Cerambycid beetles are collected generally at night with the help of light trap. Mercury bulbs (160 Watt) were used to attract insects on a white sheet of cloth measuring approximately 2 X 2 m. The coordinates of the collection sites were recorded using GPS (Garmin Oregon 550), which were further used in preparing maps of the survey sites in DIVA-GIS. Specimens were studied under Leica EZ4 HD binocular microscope for identification on morphological basis. Morphological photographs were taken with Nikon D300s and 105mm lens. For genital study, the whole abdominal segment was cut out and the genital parts were removed very carefully with the help of fine forceps, then the remaining abdominal exoskeleton was fixed in its old position with the use of gum. The genital parts were kept in 10% KOH solution overnight. Genital parts were studied and photographed in Leica stereo zoom microscope M205A. The genitalia were preserved in 70% alcohol. The identified specimens were deposited in the National Zoological Collection, Zoological Survey of India, Kolkata.

#### ABBREVIATIONS USED

WLS: Wildlife Sanctuary; NP: National Park; BR: Biosphere Reserve; TR: Tiger Reserve; RH: Rest House; Coll.: Collected by.; ex./s.: Example/s.

#### RESULTS

The present taxonomic study of the collected prioninae reveals the presence of 4 species belonging to 4 genera and 3 tribes from Central India. Among these, 3 are recorded for the first time from the Central Indian landscape. The consolidated Indian checklist shows the presence of 47 prioninae species belonging to 23 genera and 9 tribes (Table 1).

#### Subfamily PRIONINAE Latreille

1869. *Prionides*, Lacordair. *Gen. Coleopt.* Viii, p. 16.

**Diagnostic characters:** Typically large (25–70 mm) in size and usually dorsally brown or black and red brown ventrally. The head of the members of this subfamily usually oblique, forwarded anteriorly, antennae inserted more or less close to base of mandibles; pronotum with complete lateral margins, frequently toothed or spined along the margin; procoxae strongly transverse; mesonotum

lacking striadulatory area; coxal cavities open behind, inner lobe of maxillae lacking or vestigial [Dillon & Dillon, 1952].

### Key to the Tribes of subfamily PRIONINAE Gahan

1. Prothorax with lateral margins one to four strong marginal teeth or spines on each side.....2
- Prothorax with lateral margins entire or nearly so, or else provided each with a series of several irregular teeth or spines.....**Macrotomini**
2. First antennal joint one-third at least longer than broad, labrum not triangular..**Prionini**
- First antennal joint short, short, obconic, scarcely longer than broad, labrum triangular.....**Acanthophorini**

#### [1] Tribe Prionini Latreille

##### *Prionomma (Prionomma) atratum (Gmelin)*

1789. *Prionus atratum* Gmelin, *Syst. Nat.*, 1 (4): 1818 (S. India, Ceylon).

1910. *Prionoma (Prionomma) atratum*: Lameere, *Annl. Soc. ent. Belg.*, 54: 279.

**Material examined:** Chhattisgarh, Bilaspur, Achanakmar WLS, ChaparwaRH, 14.vi.2004, 1 ex., coll. A. Singh; Bastar, KangerValley NP, 18.vii.2011, 1 ex., coll. R. P. Gupta and party; Raipur, Barnwapara WLS, 6.vii.2011, 1 ex., coll. Sunil Gupta and party.

**Diagnostic character:** Body pitchy black throughout; antenna twelve segmented, smaller than body (Fig. 2A); segment one small, stumpy, globular, smooth, outer margin of segment three to segment eleven angulated apically (Fig. 2Q); head, gena almost covered by eyes, eyes finely faceted not divided, deep sulcation between two eyes (Fig. 2E); pronotum broader than long, two large spines on the antero-lateral margin; lower one more longer, stronger and acute than upper one, surface smooth glossy, one poorly raised portion on either side of the pronotum (Fig. 2I); scutellum broadly "U" shaped (Fig. 2I); elytra elongated, gradually narrowed towards apex, basally strongly punctate, apex of elytra broadly rounded (Fig. 2A); prosternal process raised above the height of coxae, forwarded anteriorly, coxal cavity closed (Fig. 2M); legs robust, punctate, warty (Fig. 2U), tibia with apical spine, tarsal claws long, less than 90° angle (Fig. 2Y).

**Genitalia:** Apex of the median lobe strongly projected (Fig. 3D). Ring portion of lateral lobe almost parallel and converging towards apex (Fig. 3B). The lobes of the parameres apart and densely covered with setae (Fig. 3D). Internal sac or the endophallus attached between the bifurcated parts of median lobe (Fig. 3C). Tip of the endophallus triangular shaped with a very distinct black marking (Fig. 3A) (Ehara, 1954).

**Distribution:** India: Chhattisgarh, Maharashtra, Odisha and Tamil Nadu. *Elsewhere:* Sri Lanka.

##### *Dorysthenes (Lophosternus) huegelii (Redtenbacher)*

1848. *Cyrtognathus huegelii* Redtenbacher, *Hügel's Kaschmir*, 4 (2): 550.

1981. *Dorysthenes (Lophosternus) huegelii*: Hayashi & Makihara, *ESAKIA*, (17): 183-200.

**Material examined:** Madhya Pradesh, Hosangabad, Panchmari BR, Churna RH, 17.vi.2003, 1 ex., coll. K.Chandra.

**Diagnostic characters:** Body large, robust, chestnut brown in color (Fig. 2B); antenna smaller than body, chestnut brown, segments small, stout, squarish, anteriorly angled, segment-3 longest (Fig. 2R); head chestnut red, eyes finely faceted not divided golden black in color, deep groove between two eyes, clypeus with golden hairs (Fig. 2F); pronotum red brown, squarish, medially concave, gradually sloped laterally, anterior lateral margin flattened with two acute spines, posterior margin wavy, punctate (Fig. 2J); elytra large, red brown, generally converged toward apex, longitudinal striae, basally prominent, obsolete near the apex, lateral margins margined, outer angle broadly rounded, sutural angle ended with blunt out curved (Fig. 2B); legs elongate, femur flattened, serrated (Fig. 2V), tibia serrated, with apical spine, 3<sup>rd</sup> tarsal segments bilobed, claws more than 90° angle (Fig. 2Z).

**Genitalia:** Apex of the median lobe long and sharply pointed (Fig. 3H). Ring portion of lateral lobe converging throughout (Fig. 3F). The lobes of the parameres very close and very densely covered with long setae (Fig. 3H). Internal sac or the endophallus attached with the

median lobe. The endophallus throughout elongated, suddenly swelled at the tip and formed a small rounded structure (Fig. 3G) (Ehara, 1954).

**Distribution:** India: Madhya Pradesh and Tamil Nadu. *Elsewhere:* Nepal.

## [II] Tribe Macrotomini Thomson *Bandar pascoei pascoei* (Lansberge)

1869. *Macrotoma luzonum* Pascoe, *Trans. ent. Soc. Lond.*, (3)3: 666.

1884. *Macrotoma pascoei*: Lansberge, *Notes Leyden Mus.*, 6: 144.

1912. *Macrotoma (Bander) pascoei*: Lameere, *Mem. Soc.ent. Belg.*, 21: 144.

1981. *Bander pascoei pascoei*: Quentin & Villiers, *Ann. Soc. Ent. Fr.* (N. S.), 17(1): 363.

**Material examined:** Madhya Pradesh, Seoni, Pench TR, Karmajhiri, 10.vi.2001, 1 ex., coll. K. Chandra. Chhattisgarh, Bilaspur, Achanakmar WLS, Atariya FRH, 18.vi.2004, 2 exs., Chaparwa FRH 22.vii.2004, 1 ex., coll. A.singh; Durg, Devinavgaon, 14.xii.2012, 1 ex., coll. Sunil Gupta and Party.

**Diagnostic character:** Body robust, elongated, head, pronotum, antennae and legs dark brown, elytra yellow brown in male (Fig. 2C), dark brown in female; antenna eleven segmented smaller than body, hardly surpassing the hind leg (Fig. 2C), segment one small, anteriorly broadened, dorso-ventrally compressed, segment one to three dark brown, gradually paler towards segment eleven, segment three longest, inner margin serrated (Fig. 2S); head deep blackish brown, densely punctate, median incision throughout, eyes finely faceted black not divided, gena very small, clypeus with golden hairs (Fig. 2G); pronotum sub squarish, gradually widened towards basal region, lateral margins with series of small spines, surface rusty brown in color, warty, strongly, densely, deeply punctate, scutellum large dark brown, tongue shaped (Fig. 2K); elytra elongated, basal one-third rusty brown, rest gradually paler towards apex, roughly densely punctate, surface with fey longitudinal indistinct ridges from basal to apical margin, apex of elytra broadly rounded with strong sutural spines (Fig. 2C); coxal cavities open (Fig. 2O), legs rusty brown to dark brown, warty throughout, femur elongated, robust, serrated more in first leg (Fig. 2W), tibia slender elongated and spined; tarsal claw more than 90° angle, tarsal pad two pairs (Fig. 2Aa).

**Genitalia:** Apex of the median lobe bluntly projected and small in size (Fig. 3L). Ring portion of lateral lobe converging throughout (Fig. 3J). The lobes of the parameres almost close, quite broader and very sparsely covered with small setae (Fig. 3L). Internal sac or the endophallus attached with the median lobe. Tip of the endophallus round, expanded and larger than the other parts (Fig. 3K) (Ehara, 1954).

**Distribution:** India: Chhattisgarh, Madhya Pradesh and Tripura. *Elsewhere:* Banga Island, Billiton Island, Borneo, Hainan Island, Java, Laos, Malay Peninsula, Myanmar, Nepal, South China, Sri Lanka, Sumatra, Thailand, Tibet and Vietnam.

## [III] Tribe Acanthophorini Thomson *Acanthophorus serraticornis* (Olivier)

1795. *Prionus serraticornis* Olivier, *Ent.*, 4 (66):14.

1906. *Acanthophorus serraticornis*: Gahan, C.J. *Fauna. Brit. India*, 1:23.

**Material examined:** Madhya Pradesh, Seoni, Pench TR, Karmajhiri, 6.vi.2001, 1 ex., 10.vi.2001, 1 ex., 11.vi.2001, 1 ex., coll. K. Chandra. Chhattisgarh, Raipur, Barnwapara WLS, 23.vi.2012, 1 ex., 21.vi.2012, 1 ex. coll. Sunil Gupta and party.

**Diagnostic character:** Body large, elongated, robust, glossy dark brown to black in color (Fig. 2D); antenna twelve segmented, smaller than body (Fig. 2D), segment one small, globular, segment three largest, segments three to eleven lateral margin apically angulated, which gradually more angulate towards segment eleven (Fig. 2T); head globular, punctate, eyes large almost covering the gena, frons and clypeus covered with golden hairs (Fig. 2H); pronotum large, much broader than long, glossy dark brown, strongly punctate, two raised portion on either side of pronotum, apico-lateral margins with small acute spine on either side, the second one large, acute spine little behind the previous one, the third blunt spine on the postero lateral margins (Fig. 2L); elytra basally strongly punctate, gradually finer towards apex, lateral margins with fine yellowish pubescence, apex of the elytra broadly sub rounded (Fig. 2D); coxal cavities closed (Fig. 2P), femur robust flattened (Fig. 2X), tibia elongated, with sharp spines on the anterior margin; tarsal claw more than 90° angle (Fig. 2Ab).

**Genitalia:** Apex of the median lobe weakly projected, tip almost blunt and broader (Fig. 3P). Ring portion of lateral lobe converging throughout (Fig. 3N). The lobes of the parameres almost close, elongated and broad and the tip bluntly pointed, very sparsely covered with small setae (Fig. 3P). Internal sac or the endophallus attached with the median lobe. Tip of the endophallus balloon shaped with constricted hind part (Fig. 3O) (Ehara, 1954).

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

## DISCUSSION

In spite of its immense economical and ecological importance, Cerambycidae is one of the least studied families of the order Coleoptera. The family attracted the attention of several forest entomologists of the pre-independent India, like Stebbing and Beeson, who studied their taxonomy, biology and ecology in details. The family Cerambycidae is represented by approximately 1200 species in India. Some subfamilies are well studied, while the subfamily Prioninae is poorly studied in India. The present study examined 13 prionine specimens collected from different forests of Central India. It reveals the presence of 4 species within 4 genera and three tribes. Except *Prionomma (Prionomma) atratum* (Gmelin), remaining 3 species are new addition to the fauna of Madhya Pradesh, where as all the species are recorded for the first time from Chhattisgarh. A first consolidate checklist of Indian prioninae has also been prepared compiling information from past literatures and present study. Altogether 47 species belonging to 23 genera of 9 tribes are provided in the checklist.

This paper reports four species based on detailed morphological characters along with illustrations. The male genitalia of all the species have also been studied and provided in the manuscript with illustrations. Detailed taxonomic studies will not only help in the proper identification of pests but also help in the management process based on the biology and ecology of the concerned species.

## ACKNOWLEDGEMENTS

Authors are grateful to Dr. K. Venkataraman, Director, ZSI, for providing necessary facilities and encouragements. We are thankful to Madhya Pradesh and Chhattisgarh Forest Department for providing necessary permissions, support and financial support to carry out the present work.

## LITERATURE CITED

- Beeson, C. F. C.** 1941. The Ecology and Control of the Forest Insects of India and Neighbouring Countries. Govt. of India. 767 pp.
- Chandra, K., Sharma, R. M. & Ojha, P.** 2010. A compendium on the faunal resources of Narmada Basin in Madhya Pradesh. Records of the Zoological Survey of India. Occasional paper, 310: 1-152.
- Delahaye, N.** 2012. World catalogue of Prioninae. <http://prioninae.org/Data/Catalogue%20Prioninae.pdf>. Accessed 16October 2013.
- Dillon, L. S. & Dillon, E. S.** 1952. Cerambycidae of the Fiji Islands. Bernice P. Bishop Museum Bulletin, 206: 1-114.
- Ehara, S.** 1954. Comparative Anatomy of Male Genitalia in Some Cerambycidae Beetles. Jour. Fac. Sci., Hokkaido Univ., 6 (12): 60-115.
- Gahan, C. J.** 1906. The Fauna of British India including Ceylon and Burma. Coleoptera: Cerambycidae. Taylor and Francis, London, 329 pp.

**Prabhakar, M., Prasad, Y. G., Rao, G. R. & Venkateswarlu, B.** 2012. A new record of Longicorn beetle, *Acanthophorus rugiceps*, from India as a root borer on physic nut, *Jatropha curcas*, with a description of life stages, biology, and seasonal dynamics. *Journal of Insect Science*, 12: 141.

**Rodgers, W. A., Panwar, H. S. & Mathur, V. B.** 2002. Wildlife Protected Area Network in India: A review (Executive Summary). Wildlife Institute of India, Dehra Dun, India.

**Sen, A., Rangnekar, S., Rangnekar, P. & Ghate, H. V.** 2005. Record of *Priotyranus mordax* (White) and *Pachylocerus corallinus* Hope (Coleoptera: Cerambycidae) from Goa. *Zoos' Print Journal*, 20 (5): 1869-1870.

**Stebbing, E. P.** 1914. Indian Forest Insects of Economic Importance, Coleoptera. H. M. Secretary of the State for Indian Council. Originally Printed by Eyre and Spottiswoode, London (Indian Reprint by Bishen Singh and Mahendra Pal Singh, Dehradun). 648 pp.

Table 1. Consolidated checklist of the subfamily Prioninae recorded from India.

Sl. No.	SPECIES
	<b>Subfamily: PRIONINAE</b>
<b>I</b>	<b>Tribe: Acanthophorini</b>
1	<i>Acanthophorus serraticornis</i> (Olivier)
2	<i>Anthracocentrus rugiceps</i> (Gahan)
<b>II</b>	<b>Tribe: Aegosomatini</b>
3	<i>Aegolipton gahani</i> (Lameere)
4	<i>Aegolipton marginale</i> (Fabricius)
5	<i>Aegosoma ornatocolle</i> White
6	<i>Baralipton maculosum</i> Thomson
7	<i>Dandamis nigropunctata</i> (Aurivillius)
8	<i>Dandamis tricostata</i> (Duffy)
9	<i>Dinoprionus cephalotes</i> Bates
10	<i>Nepiodes bouringi</i> (Gahan)
11	<i>Nepiodes costipennis</i> (White)
12	<i>Nepiodes sulcipennis</i> (White)
13	<i>Spinimegopsis buckleyi</i> (Gahan)
14	<i>Spinimegopsis mediocostata</i> (Gressitt)
15	<i>Spinimegopsis nepalensis</i> (Hayashi)
16	<i>Spinimegopsis tibialis</i> (White)
<b>III</b>	<b>Tribe: Anacolini</b>
17	<i>Sarmyodus antennatus</i> Pascoe
<b>IV</b>	<b>Tribe: Cantharocnemini</b>
18	<i>Cantharocnemis (Cantharoprion) downesii</i> Pascoe
<b>V</b>	<b>Tribe: Macrotomini (Macrotomina)</b>
19	<i>Anomophysis confusa</i> Quentin & Villiers
20	<i>Anomophysis ellioti</i> (Waterhouse)
21	<i>Anomophysis inscripta</i> (Waterhouse)
22	<i>Anomophysis majerorum</i> Lackerbeck
23	<i>Anomophysis plagiata</i> (Waterhouse)
24	<i>Anomophysis spinosa</i> (Fabricius)
25	<i>Anomophysis katoi</i> (Gressitt)
26	<i>Bandar pascoei pascoei</i> (Lansberge)
27	<i>Chalybophysis aeneipennis</i> (Waterhouse)
28	<i>Zooblastax elateroides</i> Thomson
29	<i>Zooblastax nicobarensis</i> Lackerbeck
<b>VI</b>	<b>Tribe: Remphanini</b>
30	<i>Remphan hopei</i> Waterhouse
31	<i>Rhaphipodus andamanicus</i> Gahan
32	<i>Rhaphipodus gahani</i> Lameere

33	<i>Rhaphipodus subopacus</i> Gahan
<b>VII</b>	<b>Tribe: Meroscelisini</b>
34	<i>Anoeme andrewesi</i> Gahan
<b>VIII</b>	<b>Tribe: Prionini</b>
35	<i>Dorysthenes montanus</i> (Guérin- Ménéville)
36	<i>Dorysthenes rostratus</i> (Fabricius)
37	<i>Dorysthenes (Dissosternus) pertii</i> (Hope)
38	<i>Dorysthenes (Lophosternus) buquetii</i> (Guérin-Ménéville)
39	<i>Dorysthenes (Lophosternus) huegeli</i> ( Redtenbacher)
40	<i>Dorysthenes (Lophosternus) indicus</i> (Hope)
41	<i>Dorysthenes (Lophosternus) zivetta</i> (Thomson)
42	<i>Dorysthenes (Paraphrus) granulosis</i> (Thomson)
43	<i>Prionomma atratum</i> (Gmelin)
44	<i>Prionomma (Ancyloprotus) bigibbosum</i> (White)
45	<i>Prionus corpulentus</i> Bates
46	<i>Priotyrannus mordax</i> (White)
<b>IX</b>	<b>Tribe: Eurypodini</b>
47	<i>Eurypoda (Neoprion) parandraeformis</i> (Lacordaire)

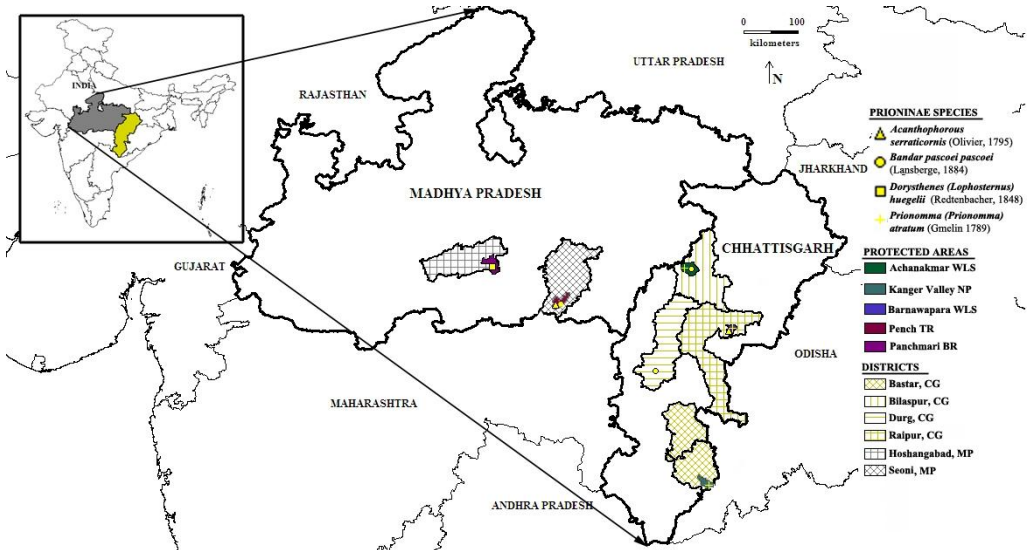


Figure 1. Showing map and the distribution of collected specimens.

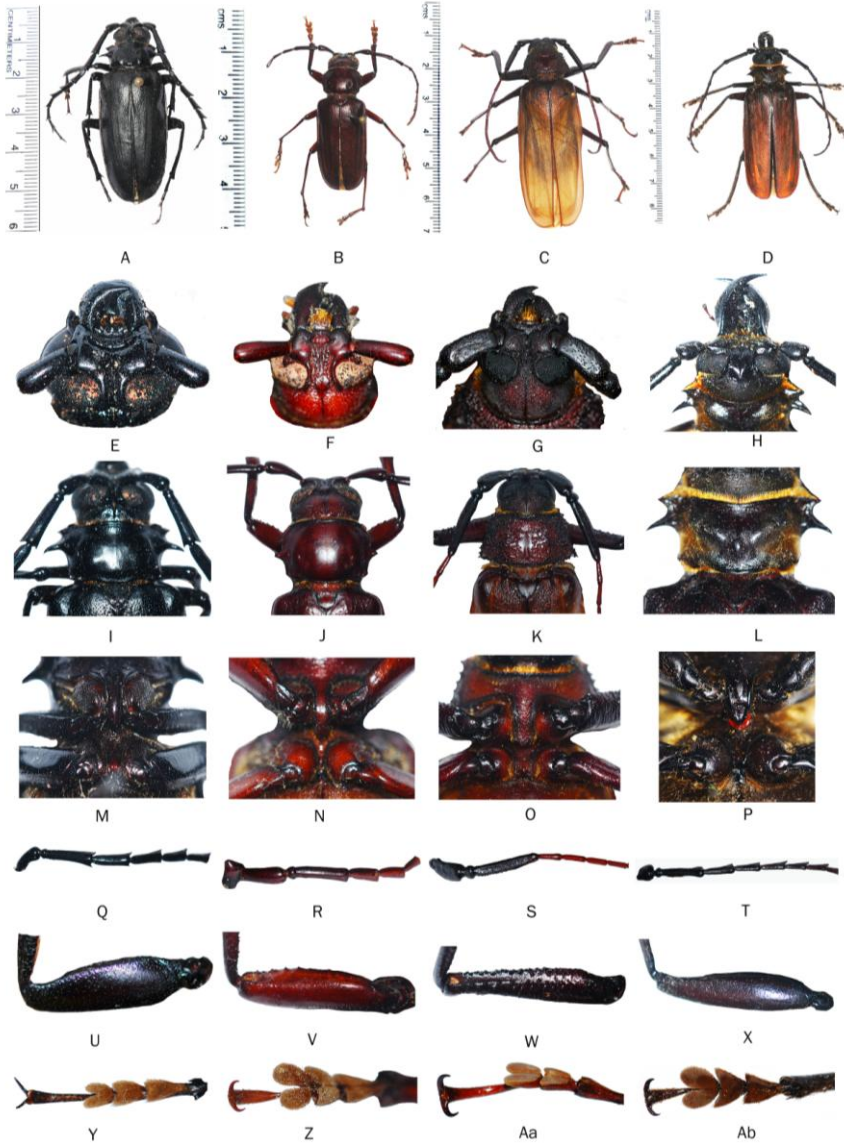


Figure 2. Showing Morphological Characteristics of the different species: *Prionomma* (*Prionomma*) *atratum* (Gmelin) A- Dorsal view, E- Head, I- Pronotum with scutellu, M- Coxal Cavities, Q- Antenna, U- Femur, Y- Tarsal claw; *Dorysthenes* (*Lophosternus*) *huegelii* (Redtenbacher) B- Dorsal view, F- Head, J- Pronotum with scutellu, N- Coxal Cavities, R- Antenna, V- Femur, Z- Tarsal claw; *Bandar pascoei pascoei* (Lansberge) C- Dorsal view, G- Head, K- Pronotum with scutellu, O- Coxal Cavities, S- Antenna, W- Femur, Aa- Tarsal claw; *Acanthophorous serraticornis* (Olivier) D- Dorsal view, H- Head, L- Pronotum with scutellu, P- Coxal Cavities, T- Antenna, X- Femur, Ab- Tarsal claw.



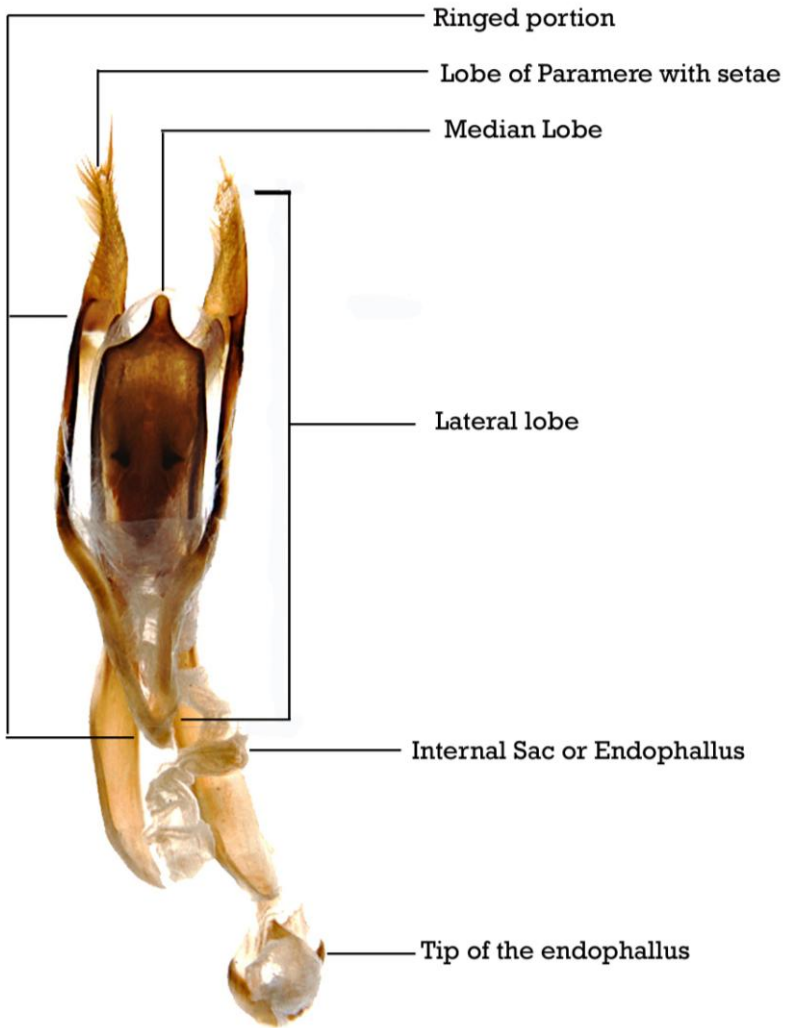


Figure 3. General male genital structure of Prioninae .

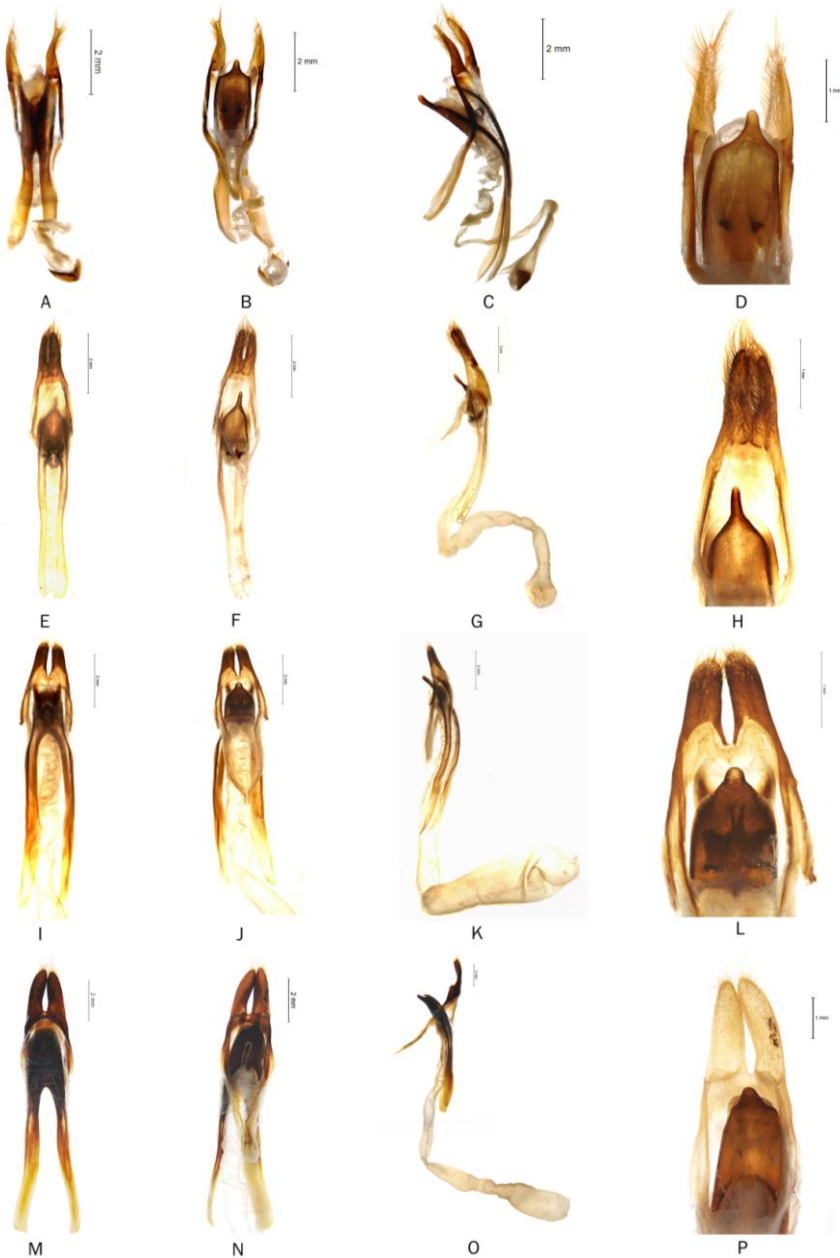


Figure 4. Showing Genital Parts: *Prionomma (Prionomma) atratum* (Gmelin) A- Dorsal, B- Ventral, C- Lateral, D- Tip of Median Lobe and Paramere; *Dorysthenes (Lophosternus) huegelii* (Redtenbacher) E- Dorsal, F- Ventral, G- Lateral, H- Tip of Median Lobe and Paramere; *Bandar pascoei pascoei* (Lansberge) I- Dorsal, J- Ventral, K- Lateral, L- Tip of Median Lobe and Paramere; *Acanthophorous serraticornis* (Olivier) M- Dorsal, N- Ventral, O- Lateral, P- Tip of Median Lobe and Paramere.