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continued on the back inside cover

Cover: Mauve Stinger *Pelagia noctiluca* by Swaathi Na. Medium used is soft pastels and gelly roll.

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COMMUNICATION

Earthworm (Annelida: Clitellata) fauna of Chhattisgarh, India

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Abstract: Present communication is the first study on earthworm fauna of Chhattisgarh in central India. A total of nine species belonging to seven genera and five families—Moniligastridae, Eudrilidae, Lumbricidae, Megascolecidae, and Octochaetidae—were collected from different parts of the state. Among the families, Megascolecidae is most dominant with maximum number of species; other families are represented by a single species in each. The earthworm fauna of the state is comprised of both native (5 species) and exotic peregrine (4 species). A brief description, distribution and identification key for the recorded species is provided. Further surveys are required, which could lead to finding of more species.

Keywords: Diversity, distribution, identification key, deccan peninsula endemism exotic, native, taxonomy, new records, oligochaeta.

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Author details: Md. Nurul Hasan, enrolled his PhD at University of Calcutta, Kolkata, and a budding researcher in the field of earthworm taxonomy. Dr. Shakoor Ahmed a post-doctoral fellow at Zoological Survey of India, currently working on the earthworm ecology and taxonomy. Dr. Kaushik Deuti, scientist D at Zoological Survey of India and PhD guide of Md. Nurul Hasan. Dr. Nithyanandam Marimuthu, scientist E and officer in-charge of General Non-Chordata section, Zoological Survey of India, facilitating the research activities.

Author contributions: NM and KD—conceived the research work, MNH—conducted the survey and compiled the information, SA—Identification, prepared illustration and manuscript. All the authors revised the draft and approved final version of the manuscript.

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INTRODUCTION

In the year 2000, the state Chhattisgarh was curved out of Madhya Pradesh, comprising 1,35,192 km^2, which constitutes about 4.11 percent of the country's land area. The state (GPS coordinates: 17.7833^{0}N to 24.1000^{0}N; 80.2500^{0}E to 84.4000^{0}E) is a part of the Deccan peninsula, a huge plateau between Eastern Ghats and Western Ghats biodiversity hotspots. It is part of the East Deccan physiographic zone and has three distinct agro-climatic zones: the Chhattisgarh plains, the northern hills of Chhattisgarh, and the Bastar Plateau. The Deccan Peninsula in central India is home to a large area of tropical dry deciduous and tropical moist deciduous forest, making it one of the most important ecosystems and biodiversity hotspots. Forests cover around 44% of the state's total area, and they are the source of some major river systems including the Mahanadi, Indravati, and Narmada.

The soil fauna plays a key role in functioning of soil ecosystems, such as recycling of organic matter, primary production and maintenance of soil structure (Verhoef 2004). Among soil invertebrates earthworm constitute the largest biomass in various ecosystems (Bhadauria & Saxena 2010; Ahmed et al. 2022). Earthworms are known as ecosystem engineers, and their activities in the soil play an important role in maintaining a healthy and productive environment (Lavelle et al. 2006). Because earthworms are sensitive to habitat changes, they are considered as important bio-indicators and are widely used in environment assessment and pollution surveys (Howmiller & Beeton 1971; Julka 1988; Weber 2007; Martins et al. 2008; Ozdemir et al. 2011; Pelosi & Römbke 2016; Velki & Ecĭmović 2017). In addition, earthworms provide the essential conditions for transforming all sorts of decomposable organic wastes into recyclable micro-nutrients and organic fertilizers, and thus enhance the soil fertility (Dash & Senapati 1986; Reynolds & Eggen 1993).

Currently the earthworm fauna of India is represented by 453 species accredited to 10 families: Moniligastridae, Lumbricidae, Almidae, Rhinodrilidae, Acanthodrilidae, Eudrilidae, Ocnerodrilidae, Benhamiidae, Octochaetidae and Megascolecidae (Narayanan et al. 2020, 2021; Tiwari et al. 2021; Ahmed et al. 2022; Narayanan et al. 2022). India occupies about two percent of the total world surface area, but it harbours 10.5% of the globally known earthworm species (Julka et al. 2009). Endemism, both at the generic and species levels is extremely high, around 71% of genera and 85% of earthworm species are native to the country (Julka & Paliwal 2005). In India, the Western Ghats and western coastal plains are rich in earthworm fauna, accounting for about 58.4 percent of the country's total earthworm diversity (Goswami 2018; Narayanan et. al. 2020).

Although earthworms occur in all types of terrestrial habitats (except desert, and areas under snow & ice), but still several ecosystems are unexplored. As part of our study to assess the earthworm diversity of Deccan peninsula biogeographic zone, we sampled various habitats like agroecosystems, grassland, pasture, forest, and garbage sites. The listing of species is important for developing conservation strategies at a time when habitat shrinkage, climate change, and invasion poses a threat to sustaining biological diversity.

MATERIALS AND METHODS

Earthworms were collected from different habitats, viz., agroecosystems, grassland, pasture, forest, and garbage by digging and hand sorting method as proposed by Julka (1990). Collected specimens were washed in water and anesthetized in 70% alcohol and then after 24 hours were transferred to 5% formaldehyde solution for preservation. The anatomical observations were made by dorsal dissection under a binocular stereomicroscope (Leica EZ4). Specimens were identified following the monographs of Stephenson (1923); Gates (1945, 1972); Julka (1988); Blakemore (2012), and Bantaowong et al. (2016). After identification, specimens were deposited and registered in General Non-Chordata (ZSI-GNC) section of Zoological Survey of India, Kolkata for future reference. A map is provided showing distribution of earthworm species in state Chhattisgarh (Figure 1)

RESULTS AND DISCUSSION

A total of nine earthworm species belonging to seven genera and five families—Moniligastridae, Eudrilidae, Lumbricidae, Megascolecidae, and Octochaetidae—were collected from different parts of Chhattisgarh State. Among them, four species—*Metaphire houlleti* (Perrier, 1872), *Metaphire planata* (Gates, 1926), *Eisenia fetida* (Savigny, 1826), and *Eudrilus eugeniae* (Kinberg, 1867)—are non-native whereas the remaining five species—*Lampito mauritii* Kinberg, 1867, *Perionyx excavatus* Perrier, 1872, *Perionyx sansibaricus* Michaelsen, 1891, *Drawida calebi* Gates, 1945 and *Octochaetona surensis* Michaelsen, 1910—are native to India (Table 1). Further, a good population of earthworm species were

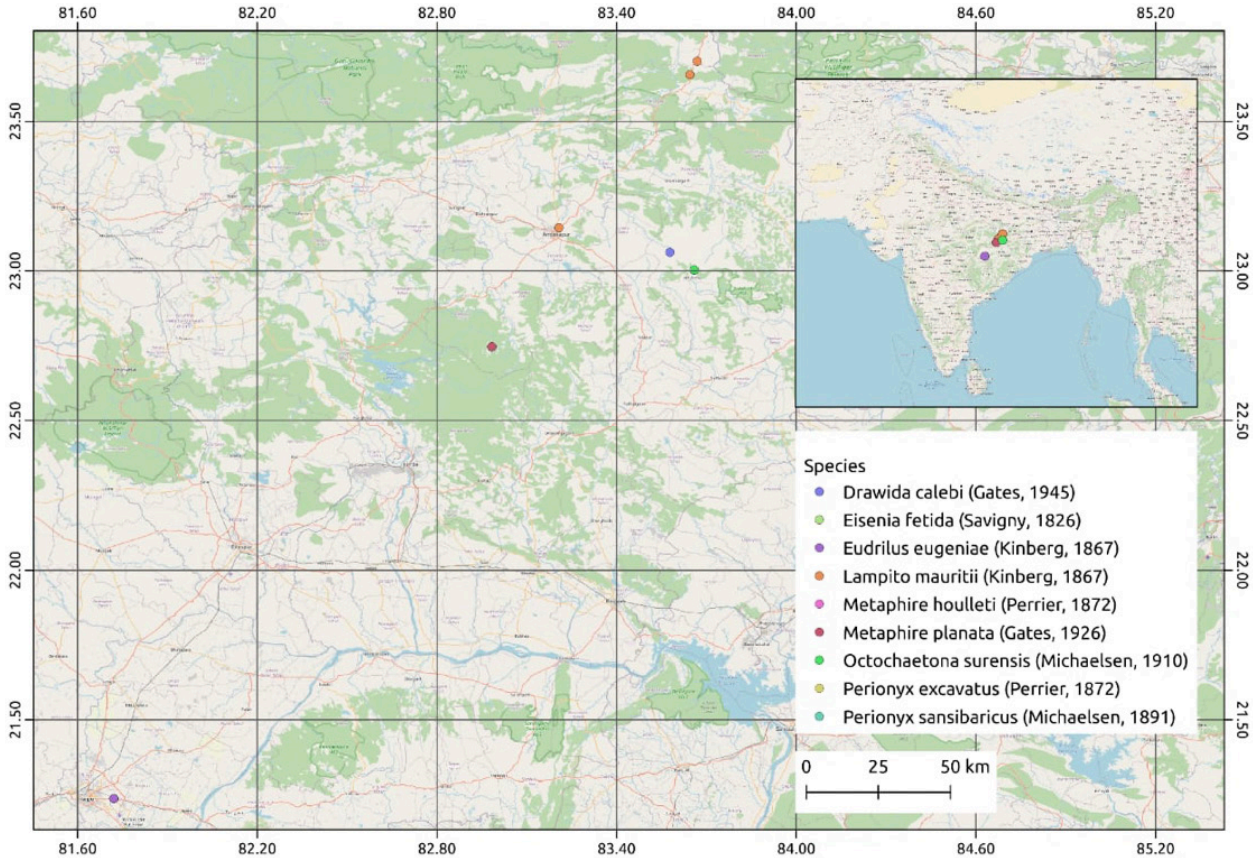

Figure 1. Map showing species distribution localities.

Table 1. Record of earthworm species from state Chhattisgarh.

Family	Species	Biogeographic origin	Ecological category	Habitats
Megascolecidae	*Lampito mauritii* Kinberg, 1867	Native	Epi-endogeic	Forest, Grassland, Cultivation
	Metaphire houlleti (Perrier, 1872)	Non-native	Epi-endogeic	Cultivation, grassland
	Metaphire planata (Gates, 1926)	Non-native	Epi-endogeic	Forest
	Perionyx excavatus Perrier, 1872	Native	Epigeic	Cultivation, grassland
	Perionyx sansibaricus Michaelsen, 1891	Native	Epigeic	Nursery
Lumbricidae	*Eisenia fetida* (Savigny, 1826)	Non-native	Epigeic	Cultivation, grassland
Eudrilidae	*Eudrilus eugeniae* (Kinberg, 1867)	Non-native	Epigeic	Cultivation
Octochaetidae	*Octochaetona surensis* Michaelsen, 1910	Native	Endogeic	Forest
Moniligastridae	*Drawida calebi* Gates, 1945	Native	Endogeic	Forest

found in the forest, grassland and agroecosystems, except surveyed garbage sites. Systematic account, brief description and distribution of earthworm species is provided.

Systematic Account

Phylum Annelida; Class Clitellata; Subclass Oligochaeta; Order Moniligastrida

Family Moniligastridae

Genus *Drawida* Michaelsen, 1900

Drawida calebi Gates, 1945 (Image 1)

1945. *Drawida calebi*, Gates, *Proc. Indian Acad. Sci.*, 21: 211.

Origin: Native; Type locality: Jubbulpore (Jabalpur), Madhya Pradesh, India.

Material examined: India, Chhattisgarh, Ditenkhali (23.062425ºN, 83.578335º E); elev. 1,100 m; 23ex (ZSI-GNC-An 6221/1); 28.x.2021, coll. M. Nurul Hasan; Sanjay

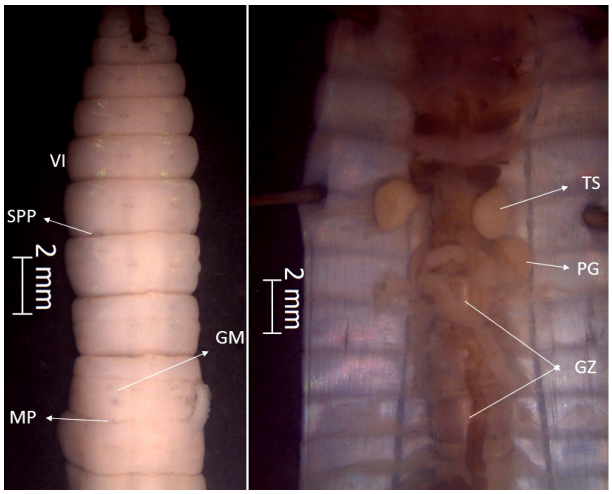

Image 1. *Drawida calebi* Gates, 1945. (SPP—Spermathecal pores | MP—Male pores | GM—Genital markings | GZ—Gizzards | PG—Prostate glands | TS—Testis).

National Park, Ambikapur (23.144452º N, 83.207862º E); elev. 577 m; 12 ex (ZSI-GNC-An 6222/1); coll. M. Nurul Hasan, Sarguja, Bakurma (22.747080º N, 82.983390º E); elev. 651 m; 03 ex (ZSI-GNC-An 6258/1); 29.x.2021; coll. M. Nurul Hasan; Jamnatpur (23.70083º N, 83.66960º E); elev. 443.8 m; 03 ex (ZSI-GNC-An 6259/1); 25. x.2021; coll. M. Nurul Hasan.

Brief description: Length 20–56 mm, diameter 2–4 mm, segments 103–184. Male pores paired, in a transverse slits in intersegmental furrow 10/11 at mid *bc* setal lines. Spermathecal pores paired in 7/8 at *bc* slightly median to *c* setal line. Genital markings small, pre and or postsetal, in segment 7,8,9 and 12, one of the paired markings sometimes absent. Nephridiopores in a single series close to *d* setal lines. Gizzards 4, in segments 12–17; intestine begins in segment 25. Vas deferens short, in a small column of loops in segments 9–10, entering the antero-median of the prostate directly. Prostates almost spheroidal and muscular. Spermathecal ampulla spheroidal, duct long, atrium conical, in segment 8.

Distribution: India (Chhattisgarh (present record), Jharkhand, Karnataka, Odisha, Madhya Pradesh, Uttar Pradesh).

Order Opisthopora
Family Megascolecidae
Genus *Lampito* Kinberg, 1867
Lampito mauritii Kinberg, 1867 (Image 2)
1867. *Lampito mauritii* Kinberg, *Ofvers. K. Vetens. Akad. Forhandl. Stockholm*, 23:103.

Origin: Native; Type locality: Mauritius.

Material examined: India, Chhattisgarh, Balarampur, Aujhariya (23.655820º N, 83.644874º E); elev. 483 m; 11ex (ZSI-GNC-An 6168/1); 25.x.2021; coll. M. Nurul Hasan; Sanjay National Park, Ambikapur (23.144452º N, 83.207862º E); elev. 577 m; 01 ex (ZSI-GNC-An 6212/1); 28.x.2021; coll. M. Nurul Hasan; Jamnatpur (23.70083º N, 83.66960º E); elev. 443 m; 02 ex (ZSI-GNC-An 6260/1); 25.x.2021; coll. M. Nurul Hasan.

Brief description: Length 45–95mm, diameter 3–4mm, segments 128–163. Prostomium epilobous, tongue closed. First dorsal pore in 11/12. Clitellum annular on segments 13–17. Male pores in a slightly raised porophores in segment 18. Female pore in segment 14. Spermathecal pores paired in intersegmental furrows 6/7/8/9. Gizzard in segment 5; intestine begins in segment 15. Last pair of hearts in segment 13. Testis and funnels in segments 10 and 11; seminal vesicles in segments 9 and 12. Penial setae present. Spermathecae paired in segments 7–9, each with two digiform diverticula.

Distribution: India (Andaman & Nicobar Islands, Andhra Pradesh, Assam, Chhattisgarh (present record), Delhi, Goa, Gujarat, Haryana, Jammu & Kashmir, Jharkhand, Karnataka, Kerala, Lakshadweep Islands, Madhya Pradesh, Maharashtra, Odisha, Puducherry, Punjab, Rajasthan, Tamil Nadu, Telangana, Tripura, Uttarakhand, Uttar Pradesh, and West Bengal), Australia, Bangladesh, Cambodia, China, Hong Kong, Indonesia, Laos, Madagascar, Maldives, Malaysia, Mauritius,

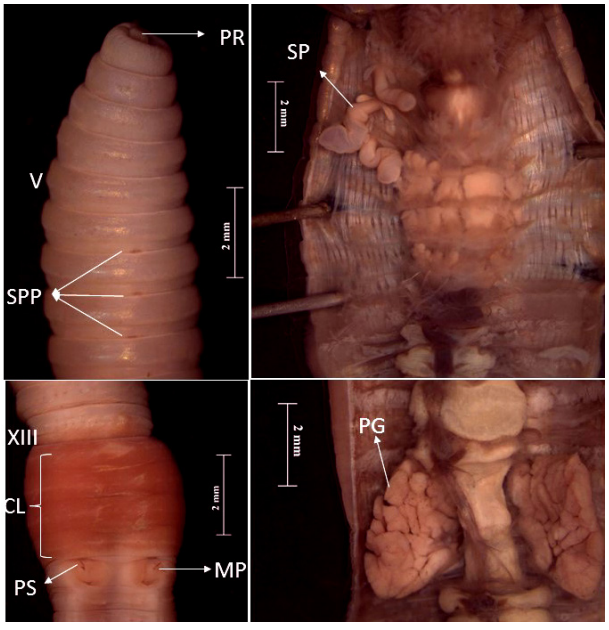

Image 2. *Lampito mauritii* Kinberg, 1867. (PR—Prostomium | SPP—Spermathecal pores | CL—Clitellum | MP—Male pores | PS—Penial setae | SP—Spermathecae | PG— Prostate glands).

Myanmar, New Caledonia, Pakistan, Philippines, Seychelles, Singapore, Sri Lanka, Thailand, Tanzania, United States and Vietnam.

Genus *Metaphire* Sims & Easton, 1972

Metaphire houlleti (Perrier, 1872) (Image 3)

1872. *Perichaeta houlleti* Perrier, *Nouv. Arch. Mus. Hist. Nat. Paris*, 8: 99.

Origin: Exotic; Type locality: Calcutta (Kolkata), India.

Material examined: India, Chhattisgarh, Sarguja, Bagicha (23.00327º N, 83.65952º E); elev. 884 m; 02 ex (ZSI-GNC-An 6216/1); 28.x.2021; coll. M. Nurul Hasan.

Brief description: Length 83–95 mm, diameter 3–3.5 mm, segments 99–103. Prostomium epilobous, tongue open; first dorsal pore in intersegmental furrow 11/12. Clitellum annular, on segments 14–16. Setae, perichaetine. Spermathecal pore in intersegmental furrows 6/7–8/9. Male pore in segment 18. Female pore in segment 14. Gizzard in segment 8; intestine begins in segment 15; intestinal caeca simple. Last pair of hearts in segment 13. Testis and funnels in segment 10 and 11, seminal vesicles in segment 11 and 12. Ovaries in segment 13. Prostates gland racemose 17–20; Spermathecae in segments 7, 8 and 9.

Distribution: India (Andaman & Nicobar Islands, Chhattisgarh (present record), West Bengal), Burma, Indonesia, and Malay Peninsula.

Metaphire planata (Gates, 1926) (Image 4)

1926. *Pheretima planata* Gates, *Ann. Mag. Nat. Hist*., 9: 411.

Origin: Exotic; Type locality: Rangoon, Myanmar.

Material examined: India, Chhattisgarh, Sarguja, Bakurma (22.747080º N, 82.983390º E); elev. 651; 02ex (ZSI-GNC-An 6257/1); 29.x.2021; coll. M. Nurul Hasan.

Brief description: Length 125 mm, diameter 4 mm, segment number 142, Prostomium small epilobous, tongue open; first dorsal pore in intersegmental furrow 11/12. Clitellum annular, 14–16. Genital markings absent. Setae, perichaetine. Spermathecal pore 6/7 and 7/8. Male pore in segment 18; female pore in segment 14. Gizzard in segment 8; intestine begins in segment 15; intestinal caeca simple. Last pair of hearts in segment 13. Testis and funnels in segment 10 and 11, seminal vesicles in segment 11 and 12. Ovaries in segment 13.

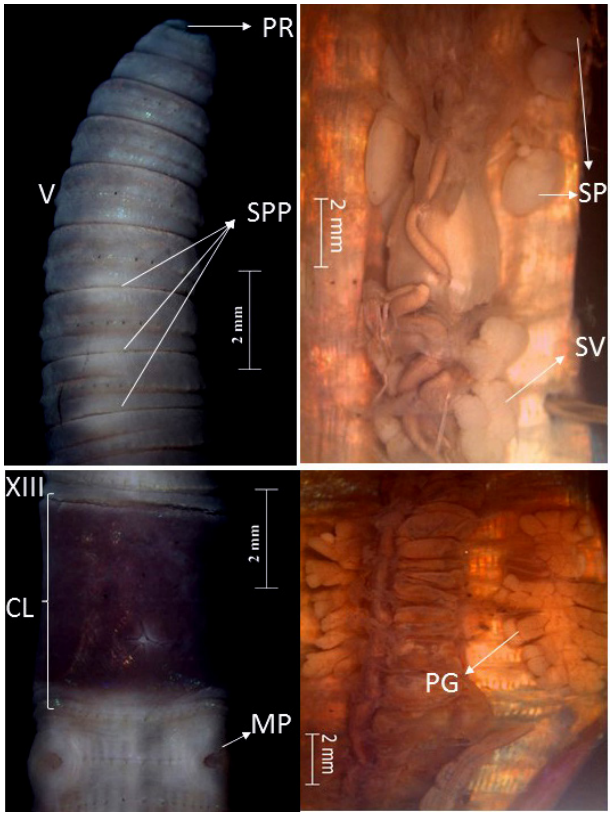

Image 3. *Metaphire houlleti* (Perrier, 1872). (PR—Prostomium | SPP– Spermathecal pores | CL—Clitellum | MP—Male pores | SP—Spermathecae | SV—Seminal vesicles | PG—Prostate glands).

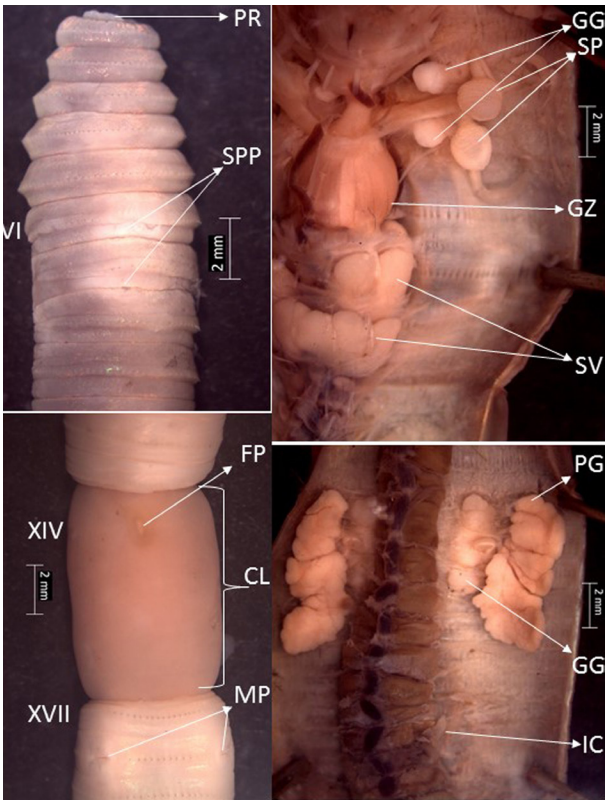

Image 4. *Metaphire planata* (Gates, 1926): PR—Prostomium | SPP—Spermathecal pore | FP—Female pore | CL—Clitellum | MP—Male pore | GG—Genital marking glands | SP—Spermathecae | GZ—Gizzard | SV—Seminal vesicles | PG—Prostate glands | IC—Intestinal caecae.

Prostates gland racemose 17–19, 20; Spermathecae in segments 7 and 8; diverticulum longer than combine length of duct and ampulla. Marking gland stalked, coelomic present inner side of spermathecae; and sessile glands in segments 17–19.

Distribution: India (Andaman & Nicobar Islands, Chhattisgarh (present record), West Bengal), Burma, Indonesia, and Malay Peninsula.

Genus *Perionyx* Perrier, 1872

Perionyx excavatus Perrier, 1872 (Image 5)

1872. *Perionyx excavatus* Perrier, *Nouv. Archs. Mus. Hist. nat. Paris*, 8:126.

Origin: Native; Type locality: Saigon, Vietnam.

Material examined: Chhattisgarh, Sarguja, Bagicha (23.00327º N, 83.65952º E); elev. 884 m; 12ex (ZSI-GNC-An 6219/1); 28.x.2021; coll. M. Nurul Hasan.

Brief description: Length 35–106 mm, diameter 2–4 mm. Segments 85–149. Colour reddish-brown dorsally and pale ventrally. Prostomium open epilobous. First dorsal pore in 4/5. Setae perichaetine. Clitellum annular on segments 13–17. Male pores in a transversely oval small depressed area, each on a small transversely oval papilla with black tips of 5–6 penial setae. Spermathecal pores in intersegmental furrows 7/8 and 8/9. Gizzard vestigial in segment 6. Intestine begins in segment 15. Last heart in segment 12. Testis and funnels free in segments 10 and 11. Seminal vesicles in segments 9–12. Prostates small, confined to segment 18, duct short and straight. Spermathecae with large ovoid ampulla, duct short, diverticula one to four small wart-like on the duct. Penial setae in a group of 4–6 on each side, medial from the male pores.

Distribution: India (Andaman & Nicobar islands, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh (present record), Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Odisha, Puducherry, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh, and West Bengal), Australia, Barbados, China, Jamaica, Fiji, Indonesia, Japan, Korea, Madagascar, Malaysia, Mexico, Mozambique, Myanmar, New Zealand, Philippines, Reunion, Samoa, South Africa, Sri Lanka, Taiwan, Trinidad and Tobago, United Kingdom, United States and Vietnam.

Perionyx sansibaricus Michaelsen, 1891 (Image 6)

1891. *Perionyx sansibaricus* Michaelsen, *Mt. Mus. Hamburg*, 9: 4

Origin: Native; Type locality: Zanzibar, Tanzania.

Material examined: India, Chhattisgarh, Raipur, Green Patel Nursery (21.236533° N, 81.721063° E); elev.

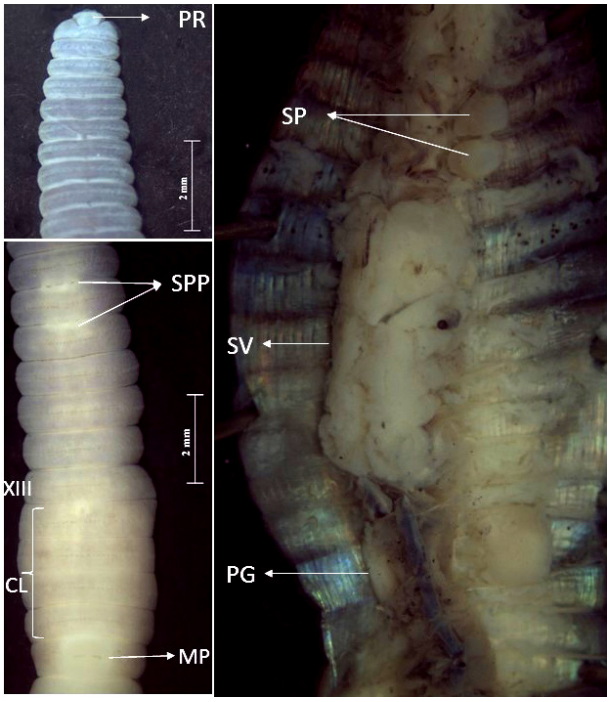

Image 5. *Perionyx excavatus* Perrier, 1872. (PR—Prostomium | SPP—Spermathecal pores | CL—Clitellum | MP—Male pores | SP—Spermathecae | SV—Seminal vesicles | PG—Prostate glands).

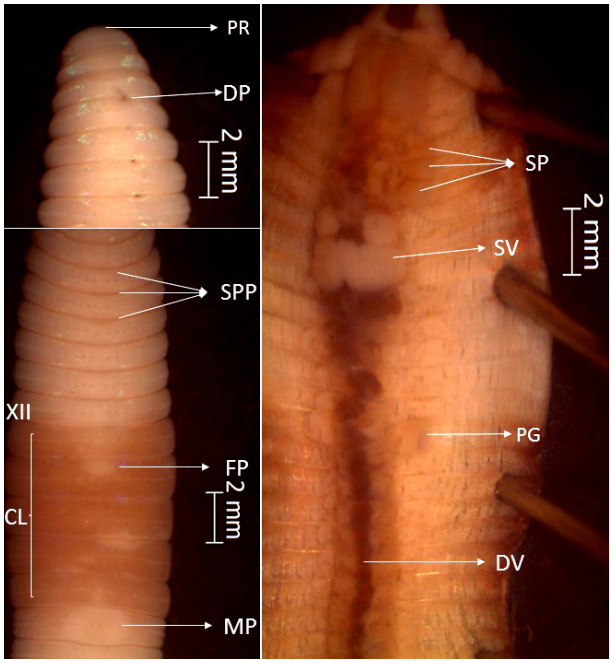

Image 6. *Perionyx sansibaricus* Michaelsen, 1891. (PR—Prostomium | DP—Dorsal pores | SPP—Spermathecal pores | CL—Clitellum | MP—Male pores | FP—Female pore | SP—Spermathecae | SV—Seminal vesicles | PG—Prostate glands | DV—Dorsal blood vessel).

293 m; 05 ex; 08.iii.2021; coll. Basant Patel.

Brief description: Length 45–95 mm, diameter 2–3.5 mm, 94–106 segments. Prostomium epilobous. First dorsal pore in intersegmental furrow 2/3. Clitellum annular on segment 13–17. Setae perichaetine. Male pores near mid-ventral line in a slightly depressed transverse male field in segment 18. Spermathecal pores three pairs in intersegmental furrow 6/7/8/9. Genital markings absent. Gizzard slightly developed in segment 6; intestine begins in segment 16. Last pair of hearts in segment 12. Testis and funnels free in segments 10 and 11; seminal vesicles in segments 11 and 12. Penial setae absent. Spermathecae paired, in segments 7–9.

Distribution: India (Chhattisgarh (present record), Delhi, Gujarat, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttarakhand, Uttar Pradesh, and West Bengal), China, Philippines, Tanzania, and Thailand.

Family Lumbricidae
Genus *Eisenia* Malm, 1877
Eisenia fetida (Savigny, 1826) (Image 7)
1826. *Enterion fetidum* Savigny, *Mem. Acad. Sci. Inst. France,* 5: 182.

Origin: Exotic; Type locality: Paris, France.

Material examined: India, Chhattisgarh, Green Patel Nursery (21.236533° N, 81.721063° E); elev. 293 m; 29 ex (ZSI-GNC-An 6436/1); 08.iii.2021; coll. Basant Patel.

Brief description: Length 35–74 mm; diameter 3–4.5 mm. Segments 85–108. Prostomium open epilobous. First dorsal pores in intersegmental furrow 4/5. Clitellum 24, 25–32; tubercula pubertatis straight on segments 27, 28–30. Setae lumbricine, closely paired. Spermathecal pores paired close to dorsal line in 9/10 and 10/11. Female pore in segment 14 just lateral to *b* setal line. Gizzard in segment 17–18. Nephridia holoic. Last pair of hearts in segment 11. Testis and funnels in segments 10 and 11; seminal vesicles in segments 9–12. Ovaries in segment 13. Spermathecae adiverticulate, spherical ampulla in segment 9 and 10.

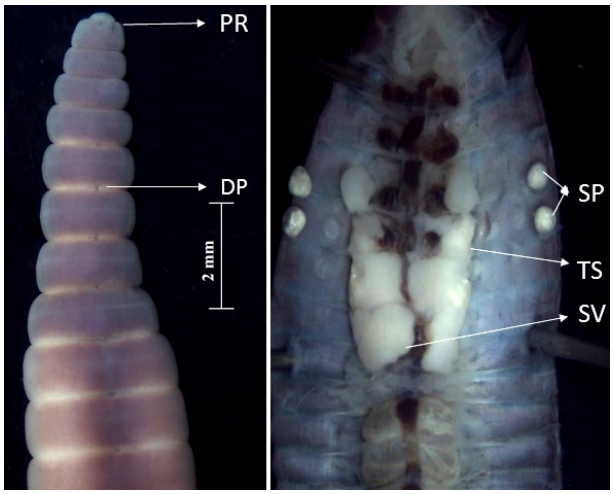

Image 7. *Eisenia fetida* (Savigny, 1826). (PR—Prostomium | DP—Dorsal pores | SP—Spermathecae | SV—Seminal vesicles | TS—Testis)

Distribution: India (Andaman & Nicobar Island, Assam, Chandigarh, Chhattisgarh (present record), Delhi, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Sikkim, Tamil Nadu, Uttarakhand, Uttar Pradesh and West Bengal), Argentina, Australia, Brazil, Cambodia, Canary Islands, China, Chile, Colombia, Carpathian Basin, Ecuador, Greenland, Hawaii, Israel, Japan, Jordan, Korea, Mexico, New Zealand, Russia, South Africa, Turkestan, and Turkey.

Remarks: In several specimens sperm pockets were found attached on ventral in the intersegmental furrows 21/22 and 22/23, mostly in 22/23.

Family Eudrilidae
Genus *Eudrilus* Perrier, 1871
Eudrilus eugeniae (Kinberg, 1867) (Image 8)
1867. *Lumbricus eugeniae* Kinberg, *Ofvers. K. Vetensk. Akad. Forhandl. Stockholm*, 23: 98.

Origin: Exotic; Type locality: St. Helena Island (British protectorate), South Atlantic.

Material examined: India, Chhattisgarh, Green Patel Nursery (21.236533° N, 81.721063° E); elev. 293 m; 08 ex (ZSI-GNC-An 6437/1); 08.iii.2021; coll. Basant patel.

Brief description: Body length 60–98 mm, width 3–4.2; Segments 156–181. Colour dark brown dorsally light ventrally. Setae lumbricine, closely paired; Prostomium open epilobous; dorsal pores absent. Nephropores from segment 3 in c setal line. Clitellum on segments 13, 14–18 and interrupted ventrally. Male pores in posterior margin of segment 17 at *bc* close to *b* setal line. Female pores combined with modified spermathecal pores presetal in segment 14 openings just anterior to *c* setae. Gizzard weakly muscular in segment 5. Intestine begins in segment 14. Intestinal caeca and typhlosole absent. Nephridia holoic. Last hearts in segment 11. Calciferous glands in segments 10 and 11. Ovaries in segment 14. Testis in segments 10 and 11; seminal vesicles in segments 11 and 12. Prostates paired, digiform, with white muscular sheen extending from segment 18 up to segment 22. Spermathecal atrium tubular long in segment 14.

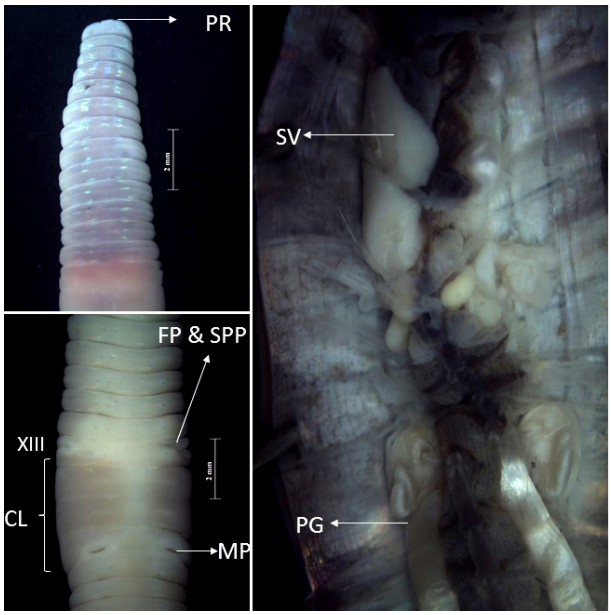

Image 8. *Eudrilus eugeniae* (Kinberg, 1867). (PR—Prostomium | FP—Female pore | SPP—Spermathecal pores | CL—Clitellum | MP—Male pores | SV—Seminal vesicles | PG—Prostate glands)

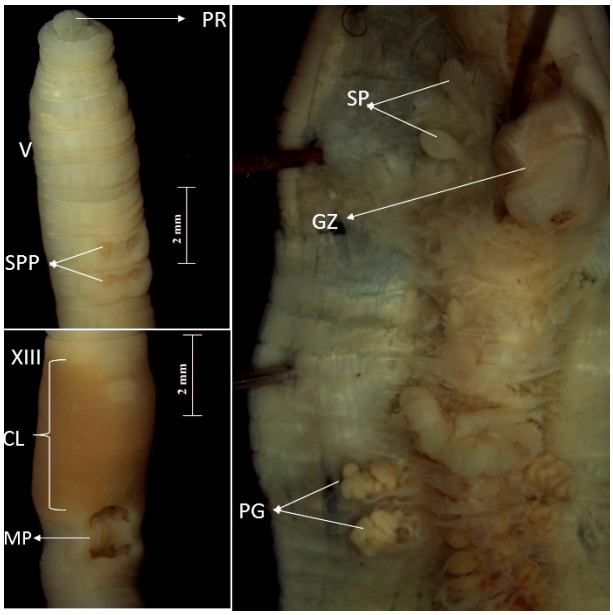

Image 9. *Octochaetona surensis* Michaelsen, 1910. (PR—Prostomium | SPP—Spermathecal pores | CL—Clitellum | MP—Male pores | SP—Spermathecae | GZ—Gizzard | PG—Prostate glands)

Distribution: India (Chandigarh, Chhattisgarh (present record), Karnataka, Kerala, Madhya Pradesh, Puducherry, Tamil Nadu and Uttarakhand), Sri Lanka, Madagascar, Comoros Islands, New Caledonia, USA, Australia, and Europe.

Family Octochaetidae
Genus *Octochaetona* Gates, 1962
Octochaetona surensis (Michaelsen, 1910) (Image 9)
1910. *Octochaetus surensis* Michaelsen, *Abh. Geb. Naturw., Hamburg*, 19(5): 88

Origin: Native; Type locality: Sur Lake , Puri, Odisha, India.

Material examined: India, Chhattisgarh, Sarguja, Bagicha (23.00327º N, 83.65952º E); elev. 884 m; 01 ex (ZSI-GNC-An 6207/1); 28.x.2021; coll. M. Nurul Hasan.

Brief description: Body length 120 mm, width 4; Segments 132. Setae lumbricine, closely paired; Prostomium closed epilobous; first dorsal pore in intersegmental furrow 12/13. Clitellum on segments 13–17. Male pores in segment 18, slightly median to *b* setal line. Prostatic pores in segments 17 and 19 at *b* setal line. Female pores paired, median in segment 14. Genital markings invisible. Gizzard large between segments 4/5 and 8/9. Intestine begins in segment 17. Last heart is in segment 13. Testis and funnels in segment 10 and 11. Seminal vesicles in segments 9 and 12. Penial setae present. Diverticulate, duct longer than ampulla. Genital marking glands lacking.

Distribution: India (Andhra Pradesh, Assam, Chhattisgarh (present record), Karnataka, Madhya Pradesh, Odisha, Tamil Nadu, Uttarakhand, Uttar Pradesh, and West Bengal) and Myanmar.

Climate change critically affects the biodiversity (Sintayehu 2018), and loss of an individual species can alter the structure and functions of an ecosystem and the services they provided to the society (Díaz et al. 2019; Weiskopf et al. 2020). Moreover, the invasive species also influence the existence of indigenous species (Migge-Kleian et al. 2006; Addison 2009; Bradley et al. 2019; Linders et al. 2019). Listing of species in the form of status assessment is important for developing future conservation strategies at a time when the habitat loss, climate change and invasion poses a major threat to existence of biological diversity which negatively reflect the functioning of ecosystems. Till date there is no report on earthworm species from Chhattisgarh.

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Key to the identification of earthworm species (Modified from Julka 2008)

1	Setae lumbricine, eight on each segment	2
1'	Setae perichaetine, more than eight on each segment	5
2	Male pores in intersegment furrow 10/11	*Drawida calebi*
2'	Male pores behind 10/11	3
3	Male pores on segment 15	*Eisenia fetida*
3'	Male pores behind segment 15	4
4	Male pores on segment 18	*Octochaetona surensis*
4'	Male pores on posterior margin of segment 17	*Eudrilus eugeniae*
5	Clitellum covering three segments	6
5'	Clitellum covering more than three segments	7
6	Spermathecal pores two pairs, in intersegmental furrows 6/7 and 7/8	*Metaphire planata*
6'	Spermathecal pores three pairs, in intersegmental furrows 6/7-8/9	*Metaphire houlleti*
7	Spermathecal pores three pairs, located away from the mid ventral line	*Lampito mauritii*
7'	Spermathecal pores two or three pairs, located closed to the mid ventral line	8
8	Spermathecal pores two pairs in intersegmental furrows 6/7 and 7/8	*Perionyx excavatus*
8'	Spermathecal pores three pairs in intersegmental furrows 6/7-8/9	*Perionyx sansibaricus*

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