

CHECKLIST OF EARTHWORMS OF WESTERN HIMALAYA, INDIA

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ABSTRACT

A total of 51 species of earthworms belonging to 23 genera and seven families from the western Himalaya are listed in this checklist. Detailed distributional records at district level under the western Himalayan states of Jammu & Kashmir, Himachal Pradesh and Uttarakhand are provided.

KEYWORDS

Earthworms, Western Himalaya, checklist, distribution.

Earthworms have drawn the attention of several taxonomists all over the world because of their immense importance in soil improvement and enhancing soil fertility. Bourne (1889) was the first to explore earthworm fauna of the western Himalaya. Subsequently, the knowledge on earthworm diversity of this region has been enriched by Fedarb (1898), Michaelsen (1907, 1909) and Stephenson (1914, 1916, 1922). Stephenson (1923) listed 28 species from the western Himalaya in his famous *Fauna of British India* volume on Oligochaeta. Cernovsikov (1937), Gates (1945, 1951), Soota (1970), Sharma and Kaul (1974), Julka (1979, 1981, 1988, 1995, 1999), Soota and Halder (1980), Julka and Paliwal (1993, 1994, 1995, 2000), and Halder and Ghosh (1997) have further supplemented the knowledge on the western Himalayan earthworm diversity. This checklist is based on previous records as well as studies on fresh material from the western Himalayan states of Jammu & Kashmir, Himachal Pradesh and Uttarakhand. As a result, 51 species are listed from the area.

Species marked with an asterisk (*) are first records from western Himalaya. Names of new locality record are italicized in the text.

Family: Moniligastridae

1. *Drawida japonica* (Michaelsen, 1892)

Distribution: J & K: Doda dist.- Kishtwar, Bhaderwah, Doda; Jammu dist.- Jammu; Kathua dist.- Kathua; Poonch dist.- Poonch; Rajouri dist.- Rajouri; Srinagar dist.- Srinagar; Udhampur dist.- Udhampur. H.P.: Chamba dist.- *Banikhet, Khajjiar, Kalatop, Bharmour, Chaned*; Hamirpur dist.- *Sindhari*; Kangra dist.- *McLeodganj*; Kullu dist.- *Larji*, Sainj Valley (*Sainj, Ropa, Lapah*); Mandi dist.- *Barot*; Shimla dist.- *Ghanahatti, Shimla*; Sirmour dist.- *Naina Tikkar*; Solan dist.- *Dharampur, Gambhar Bridge, Arki, Solan, Subathu, Sadhupul, Deothal, Shilli Forest, Barog*. Uttarakhand: Dehra Dun dist.- *Chakrata, Mussoorie*.

2. *Drawida nepalensis* Michaelsen, 1907

Distribution: J & K: Budgam dist.- *Ratsun*. H.P.: Kangra dist.- *Sadwan, Dadh, Nagrota, Neugal Khud*; Mandi dist.- *Barchhwar, Pandoh Dam, Joginder Nagar, Mohan Ghatti,*

Gumma, Dak Bagda, Ner Chowk, Sunder Nagar, Hara Bagh. Uttarakhand: Almora dist.- *Soni, Kausani-Almora Road, Kausani-Garur Road*; Dehra Dun dist.- Dehra Dun; Naini Tal dist.- Naini Tal.

Family: Lumbricidae

3. *Allolobophora eiseni* (Levinsen, 1884)

Distribution: Uttarakhand: Almora dist.- Dhakuri, Dwali; Chamoli dist.- Gairoli Patali, Bedni; Naini Tal dist.- Naini Tal, Painsur.

4. *Allolobophora parva* Eisen, 1874

Distribution: J & K: Budgam dist.- *Chadura*; Jammu dist.- *Kokar Nag*; Srinagar dist.- Gorai, Srinagar; Udhampur dist.- *Mansar Lake, Balli Nalla Udhampur*. H.P.: Bilaspur dist.- *Kanaula, Barmala*; Chamba dist.- *Rakh, Khajjiar, Bhanjaroo, Gajnu, Jukiyani, Chamba*; Hamirpur dist.- *Heranagar, Nauli Khud, Galod, Bharnani, Man Khud Badsar*; Kangra dist.- *Neugal Khud, Churan Khud, Loond Khud, Multhan*; Kinnaur dist.- *Wangtu, Pooh, Chango, Sungra, Sangla, Khursaran Nalla, Rogi*; Kullu dist.- *Kullu, Vashistha Kund, Tirthan Valley (Shai Ropa)*, Sainj Valley (*Sainj, Shakti*), *Jiwanal, Rohtang-Marhi, Kothi, Rahla Fall*; Lahaul & Spiti dist.- *Thirot, Madgram, Keylong, Shansha*; Mandi dist.- *Ranuki Khud, Barot, Kao*; Shimla dist.- *Janog Ghat, Jatog, Rajpur, Kinu, Ghanahatti, Kufri, Shimla*; Sirmour dist.- *Giripul, Paonta Sahib, Kheri, Haloni, Tikattu, Bandli, Rajgarh, Daluwala, Renuka Sanctuary, Saniyo Didag, Nohra*; Solan dist.- *Ashwini Khud, Ramshahar, Swargdwari, Nalagarh, Oachghat, Solan, Arki, Kasauli, Barog, Chhawasa, Jarash, Shilli Forest, Chail*; Una dist.- *Nanavi, Samoor Kalan, Kuwadi, Tutroo, Kokra*. Uttarakhand: Champawat dist.- *Monpokhari Forest*; Dehra Dun dist.- *Sahiya, Sahastradhara*; Naini Tal dist.- Naini Tal; Pauri dist.- *Satpuli*; Uttarakhand dist.- *Jalan, Dharasu*.

5. *Aporrectodea caliginosa caliginosa* (Savigny, 1826)

Distribution: H.P.: Chamba dist.- *Ehlla*; Kinnaur dist.- *Pooh*; Kullu dist.- *Manali, Kothi, Tirthan Valley (Shai Ropa, Kharongcha)*, Sainj Valley (*Ropa*); Lahaul & Spiti dist.- *Madgram, Sissu*; Shimla dist.- *Chopal, Baldein, Kufri, Mashobra, Shimla, Jatog, Jakhu Hill, Narkanda, Bhogi Nalla Jubbal, Taradevi*; Solan dist.- *Chail, Janerghat, Blossom, Alampur, Nagali*.

6. *Aporrectodea caliginosa trapezoides* (Dugès, 1828)

Distribution: J & K: Anantnag dist.- *Pahalgam, Anantnag*; Budgam dist.- *Ratsun*; Doda dist.- *Doda, Bhaderwah, Banihal*; Srinagar dist.- *Harwan, Srinagar*. H.P.: Chamba dist.- *Bhandal, Lower Bakrota, Daklotha, Hadsar, Ghararu, Rajour, Kilar*, Chamba, *Tissa, Rakh, Lakkar Mandi, Dalhousie, Khajjiar,*

Kailang, Kalatop, Khushnagari, Barmanh, Jukiyani, Bharmour, Malkauta; Kangra dist.- Jotla, Multhan; Kinnaur dist.- Karchham, Sholtu, Sangla; Kullu dist.- Vashistha Kund, Kasol, Kullu, Kothi, Marhi, Tirthan Valley (Kharongcha), Sainj Valley (Lapah); Lahaul & Spiti dist.- Sissu, Tholang; Mandi dist.- Barot, Mandi; Shimla dist.- Kufri, Baldein, Jatog, Mashobra, Shilaroo, Khara Patthar, Shilghat, Shimla, Taradevi; Sirmour dist.- Sarahan, Habban, Haloni; Solan dist.- Sadhupul, Jabli, Gambhar Bridge, Solan, Junga, Chail, Blossom. Uttaranchal: Almora dist.- Ranikhet, Soni, Punwa Nalla; Chamoli dist.- Joshimath, Mana, Joshimath-Tapovan Road, Garur Ganga, Helong; Champawat dist.- Champawat; Dehra Dun dist.- Chakarata, Mussoorie, Sahiya; Naini Tal dist.- Naini Tal, Ramgarh; Pithoragarh dist.- Deval Thal; Tehri dist.- Patli Devika; Uttarkashi dist.- Bhairo Ghati Lanka.

Remarks: Stephenson (1923) records this subspecies from Gilgit, Gurez, Gandarbal and Anchar Lake (Kashmir Valley). The identity of the specimens needs confirmation.

7. *Aporrectodea rosea rosea* (Savigny, 1826)

Distribution: J & K: Baramulla dist.- Baba Rishi (Tangmarg); Budgam dist.- Chun; Srinagar dist.- Gandarbal. H.P.: Chamba dist.- Kharamukh, Sundla, Lakkar Mandi, Dalhousie, Khajjiar, Bhanjraroo, Kalatop; Kangra dist.- Mcleodganj; Kinnaur dist.- Pooh, Shipki La Road, Namgia; Kullu dist.- Manali, Kullu, Kothi, Rahla Fall; Lahaul & Spiti dist.- Kolang, Jahlman, Tholang, Goushal, Shansha, Mooring, Trilokinath, Sissu, Keylong; Mandi dist.- Barot, Baria; Shimla dist.- Chopal, Kufri, Mashobra, Shimla, Dhartoo Khari, Mashnu, Sanaba Forest Nursery, Ghanahatti, Kotkhai; Sirmour dist.- Habban, Kufar, Haripurdhar Fort; Solan dist.- Jabli, Nagali, Jhajha, Dagshai, Dharampur, Kasauli, Solan, Sadhupul, Chail. Uttaranchal: Chamoli dist.- Valley of Flowers, Joshimath; Dehra Dun dist.- Mussoorie; Naini Tal dist.- Naini Tal, Ramgarh; Pauri dist.- Lansdowne; Tehri dist.- Kaddukhal.

8. *Dendrobaena hortensis* (Michaelsen, 1890)

Distribution: H.P.: Shimla dist. - Shimla.

9. **Dendrobaena octaedra* (Savigny, 1826)

Distribution: H.P.: Kullu dist.- Manali, Kothi, Jagatsukh, Solang Morrain; Mandi dist. - Barot.

10. *Dendrodrilus rubidus* (Savigny, 1826)

Distribution: J & K: Baramulla dist.- Shit Garhi (Sonemarg). H.P.: Chamba dist.- Garola, Beauty, Lower Bakrota, Purthi Pangi, Daklotha, Lakkar Mandi, Hadsar, Dhansho, Kugti, Kailang, Ain Pokhar Nalla, Chhatri, Sara, Gatoth, Khajjiar, Kalatop, Rajour, Malkauta, Rota, Dinka; Kangra dist.- Multhan; Kinnaur dist.- Dabbling Bridge, Karchham, Tapri, Pooh, Kalpa, Sholtu, Kamroo, Chango, Sangla, Rurtang, Namgia, Chaura, Rakchham-Chitkul, Nichar, Khursaran Nalla, Shialkhar, Rukti; Kullu dist.- Manali-Kothi Road, Manali, Rohtang-Marhi Road, Rahla Fall, Tirthan Valley (Kharongcha, Goshaini, Rolla, Grahani, Chhota Vaasu); Lahaul & Spiti dist.- Koksar, Gondla, Lote, Sissu, Gopanthang, Thiro, Kirting, Kuth Bihar, Gramphu, Patsyoo, Kolang, Jahlman, Tholang, Bhayadi,

Trilokinath, Yangling, Keylong, Jispa, Shansha, Rappe, Sander Bridge, Udaipur; Mandi dist.- Barot, Ranuki Khud, Kao; Shimla dist.- Sarahan, Chopal, Kufri, Narkanda, Kinu, Pashad, Mashnu, Tutupani, Sanaba Forest Nursery, Kotkhai, Khara Patthar, Shilghat, Shimla, Junga, Matiana, Mashobra; Sirmour dist.- Nohra, Phagu, Tikattu, Dhartoo Khari. Uttaranchal: Almora dist.- Almora, Khati; Chamoli dist.- Kedarnath, Tungnath, Vasu Dhara, Chopta, Hemkund, Valley of Flowers, Mana, Joshimath, Bedni; Dehra Dun dist.- Chakrata, Mussoorie; Naini Tal dist.- Gairal, Ramgarh, Naini Tal; Rudraprayag dist.- Phata, Trijuginaraian; Tehri dist.- Dhanaulti; Uttarkashi dist.- Harsil, Bhairon Ghati Lanka, Uttarkashi.

11. *Eisenia fetida* (Savigny, 1826)

Distribution: H.P.: Chamba dist.- Lower Bakrota; Kangra dist.- Dharamshala; Kinnaur dist.- Sholtu, Shong Tong, Nichar; Kullu dist.- Manali; Shimla dist.- Janog Ghat, Mashobra, Shimla, Narkanda, Kufri, Kartot, Ghanahatti, Shilghat; Sirmour dist.- Rajgarh, Naina Tikkar, Nohra; Solan dist.- Solan, Arki, Oachghat, Chail, Kasauli. Uttaranchal: Chamoli dist.- Govindghat, Joshimath, Padukeshwar; Dehra Dun dist.- Mussoorie; Tehri dist.- Kaddukhal.

12. *Eiseniella tetraedra tetraedra* (Savigny, 1826)

Distribution: H.P.: Kinnaur dist.- Khursaran Nalla (5km from Kalpa); Shimla dist.- Janog Ghat, Thanedhar, Taradevi; Sirmour dist.- Giripul; Solan dist.- Ashwini Khud, Sadhupul, Oachghat, Chail Sanctuary. Uttaranchal: Naini Tal dist.- Naini Tal.

13. *Lumbricus castaneus* (Savigny, 1826)

Distribution: H.P.: Chamba dist.- Lower Bakrota; Shimla dist.- Mashobra, Kufri.

14. *Lumbricus terrestris* Linnaeus, 1758

Distribution: H.P.: Shimla dist.- Shimla, Kufri.

15. *Octolasion cyaneum* (Savigny, 1826)

Distribution: H.P.: Chamba dist.- Dalhousie, Kalatop; Kullu dist.- Manali, Kothi, Rahla Fall, Solang Morrain; Shimla dist.- Kufri, Shimla, Mashobra, Taradevi. Uttaranchal: Dehra Dun dist.- Mussoorie.

16. *Octolasion tyrtaeum* (Savigny, 1826)

Distribution: J & K: Anantnag dist.- Achabal; Budgam dist.- Chadura; Srinagar dist.- Harwan. H.P.: Chamba dist.- Lower Bakrota, Lakkar Mandi, Dalhousie, Khajjiar, Matoonu, Kalatop, Rota; Kinnaur dist.- Dabbling Bridge, Pooh, Kalpa, Sholtu, Chogaon, Sangla, Namgia, Ponda, Baro, Chaura, Sunnam, Rogi, Kaa, Shoulding, Shialkhar, Rukti, Rekong Peo, Shongtong, Nichar; Kullu dist.- Manali, Larji, Tirthan Valley (Shai Ropa, Kharongcha, Ropa, Barnag); Lahaul & Spiti dist.- Kirting, Lote, Tholang, Shansha; Mandi dist.- Barot; Shimla dist.- Chopal, Kufri, Baldein, Jatog, Shimla, Mashobra, Shilaroo, Narkanda, Dhartoo Khari, Rangori, Pashad, Mashnu, Kartot, Noon, Tutupani, Khaneti, Sanaba Forest

Nursery, Ghanahatti, Gajta Nalla Kotkhai, Shilghat; Sirmour dist.- Dadahu; Solan dist.- Kasauli, Chail, Solan, Malon, Alampur, Jhajha, Blossom, Hinner, Nagali. Uttaranchal: Almora dist.- Jhoola Devi; Chamoli dist.- Joshimath, Padukeshwar; Dehra Dun dist.- Mussoorie, Bahmanpur, Sahastradhara, Chakrata; Naini Tal dist.- Bhim Tal, Ramgarh, Naini Tal; Tehri dist.- Dhanaulti, Kaddukhal, Patli Devika.

Family: Almididae

17. *Glyphidrilus* sp. (? gangeticus Gates, 1958)

Distribution: Uttaranchal: Naini Tal dist.- Naini Tal.

Family: Ocnerodrilidae

18. *Malabaria levis* (Chen, 1938)

Distribution: H.P.: Sirmour dist.- Bata Bridge (nr. Paonta Sahib).

19. *Ocnerodrilus occidentalis* Eisen, 1878

Distribution: J & K: Doda dist.- Doda. H.P.: Bilaspur dist.- Bheri Ghat; Chamba dist.- Sundla, Rakh; Kangra dist.- Kangra; Kullu dist.- Manikaran; Mandi dist.- Mohan Ghatti; Solan dist.- Solan, Jarash, Nalagarh; Una dist.- Lathiani, Nagain, Kuwadi. Uttaranchal: Dehra Dun dist.- Dehra Dun.

20. *Thatonia exilis* Gates, 1945

Distribution: H.P.: Sirmour dist.- Bata Bridge (nr. Paonta Sahib).

21. *Thatonia gracilis* Gates, 1942

Distribution: H.P.: Kangra dist.- Nurpur.

Family: Acanthodrilidae

22. *Microscolex phosphoreus* (Dugès, 1837)

Distribution: H.P.: Shimla dist.- Kukulnala (3km W. of Kotkhai); Solan dist.- Ded Gharat, Kailar.

23. *Plutellus sadhupulensis* Julka and Paliwal, 1994

Distribution: H.P.: Solan dist.- Sadhupul.

Family: Octochaetidae

24. *Dichogaster bolau* (Michaelsen, 1891)

Distribution: H.P.: Hamirpur dist.- Bhalet, Galod, Mair; Kangra dist.- Kangra, Jwalamukhi, Nurpur; Sirmour dist.- Rajgarh, Renuka Sanctuary; Solan dist.- Deli; Una dist.- Kotla Kalan, Lathiani, Nanavi. Uttaranchal: Dehra Dun dist.- Dehra Dun; Tehri dist.- Vyas Ji.

25. *Eutyphoeus annandalei* Michaelsen, 1907

Distribution: Uttaranchal: Naini Tal dist.- Bhim Tal.

26. *Eutyphoeus incommodus* (Beddard, 1901)

Distribution: J & K: Kathua dist.- Changram. H.P.: Bilaspur dist.- Kandhar, Maijpur, Goalthui, Bherighat; Chamba dist.- Rajpura, Chamba; Kangra dist.- Sadwan, Kangra, Jaritika, Dehra, Nurpur, Jasoor, Gangwal; Mandi dist.- Harabagh, Ner Chowk, Sunder Nagar, Mandi; Sirmour dist.- Paonta Sahib; Solan dist.- Kasauli; Una dist.- Kotla Kalan, Bharwain, Daulatpur, Ambota, Lathiani, Thana, Buhana, Nagain. Uttaranchal: Bageshwar dist.- Baijnath, Dhakuri; Chamoli dist.- Gairola Patali, Bedni; Dehra Dun dist.- Dehra Dun; Pauri dist.- Dhikala-Sarapduli

Road, Pauri, Chilla Forest.

27. *Eutyphoeus nainianus* Michaelsen, 1907

Distribution: Uttaranchal: Chamoli dist.- Talwari; Naini Tal dist.- Naini Tal; Pithoragarh dist.- Pabta.

28. *Eutyphoeus nicholsoni* (Beddard, 1901)

Distribution: H.P.: Sirmour dist.- Paonta Sahib. Uttaranchal: Dehra Dun dist.- Doon Valley; Pauri dist.- Chilla Forest.

29. *Eutyphoeus orientalis* (Beddard, 1883)

Distribution: Uttaranchal: Dehra Dun dist.- Dehra Dun.

30. *Eutyphoeus pharpiangianus* Michaelsen, 1907

Distribution: Uttaranchal: Pithoragarh dist.- Bastia.

31. *Eutyphoeus waltoni* Michaelsen, 1907

Distribution: J & K: Jammu dist.- Parel (nr. Samba), Udhampur dist.- Mansar. H.P.: Bilaspur dist.- Swarghat, Bilaspur; Chamba dist.- Rajpura; Hamirpur dist.- Bhot, Deot Sidh; Kangra dist.- Sadwan, Khajjan Khud, Darang, Bagli, Sehra, Nurpur, Gangwal, Dehra, Jasoor; Mandi dist.- Mandi, Ner Chowk, Sunder Nagar; Sirmour dist.- Gisani, Paonta Sahib; Una dist.- Una, Bharwain, Kotla Kalan, Daulatpur, Kodi, Ambota, Lathiani, Thana, Nanavi, Buhana, Nagain. Uttaranchal: Almora dist.- Ranikhet; Dehra Dun dist.- Kandholi Forest, Dehra Dun; Pauri dist.- Ghasia Mahadev, Guthain, Dhikala-Sarapduli Road, Pauri, Chamdhar, Budhana, Dhikala Machan.

32. *Lenogaster chittagongensis* (Stephenson, 1917)

Distribution: J & K: Udhampur dist.- Mansar Lake. H.P.: Bilaspur dist.- Dukali; Chamba dist.- Sundla, Rajpura, Rakh, Chamba; Hamirpur dist.- Bhot; Kangra dist.- Sadwan, Khajjan Khud, Darang, Chobu, Kangra, Baijnath, Nurpur, Jasoor; Mandi dist.- Badanu, Joginder Nagar, Mohan Ghatti, Ner Chowk, Sunder Nagar, Mandi, Hara Bagh, Dak Bagda, Tatta Pani; Sirmour dist.- Sarahan, Gisani, Kulchet, Renuka, Jalal Khud (nr. Dadahu); Solan dist.- Malon, Sadhupul, Oachghat, Dharampur, Gaura, Kunihar; Una dist.- Daulatpur, Ambota, Lathiani, Thana, Nagain.

33. (?) *Lenogaster parvus* (Fedarb, 1898)

Distribution: Uttaranchal: Dehra Dun.

34. *Lenogaster pusillus* (Stephenson, 1920)

Distribution: H.P.: Chamba dist.- Rakh; Kangra dist.- Nurpur; Mandi dist.- Dak Bagda, Badanu; Shimla dist.- Kotkhai; Solan dist.- Solan. Uttaranchal: Almora dist.- Chaukni; Pauri dist.- Dhikala.

35. *Lenogaster yeicus* (Stephenson, 1931)

Distribution: H.P.: Kangra dist.- Mohan Ghatti; Mandi dist.- Dak Bagda, Kara Forest (nr. Hanogi); Shimla dist.- Kotkhai.

36. *Octochaetona beatrix* (Beddard, 1902)

Distribution: J & K: Jammu dist.- Budhwani. H.P.: Bilaspur dist.- Kandhor, Bherighat; Chamba dist.- Rajpura, Chamba, Rakh; Hamirpur dist.- Bhot; Kangra dist.- Nurpur, Jasoor, Gangwal, Sadwan, Khajjan Khud, Kedara, Dehra; Mandi dist.-

Joginder Nagar, Dak Bagda, Sunder Nagar, Harabagh, Tatta Pani; Sirmour dist.- Sarahan, Tikkar, Gisani, Paonta Sahib, Renuka Sanctuary; Solan dist.- Kunihar, Subathu, *Kasauli, Sadhupul, Oachghat*; Una dist.- *Bharwain, Daulatpur, Ambota, Nanavi*. Uttaranchal: Dehra Dun dist.- Rishikesh, Kandholi Forest, Dehra Dun; Naini Tal dist.- *Gairal*; Pauri dist.- *Jwalpa Devi*.

37. *Ramiella bishambari* (Stephenson, 1914)

Distribution: H.P.: Kangra dist.- Nurpur, Jasoor; Shimla dist.- Pulbahal; Solan dist.- Kunihar. Uttaranchal: Naini Tal dist.- Haldwani.

Family: Megascolecidae

38. *Amyntas alexandri* (Beddard, 1900)

Distribution: H.P.: Hamirpur dist.- *Sujanpur Tihra*; Kangra dist.- *Kedara, Palampur*; Mandi dist.- *Joginder Nagar, Sunder Nagar*; Sirmour dist.- *Dadahu*; Una dist.- *Nanavi*. Uttaranchal: Dehra Dun dist.- Gujrara, Sahastradhara, Nehrugram; Naini Tal dist.- Rani Bagh; Pauri dist.- Khankra.

39. *Amyntas corticis* (Kinberg, 1867)

Distribution: J & K: Budgam dist.- *Ratsun, Beerwah*; Srinagar dist.- Harwan, Srinagar. H.P.: Bilaspur dist.- *Dukali*; Chamba dist.- *Bhandal, Pukhari, Sundla, Rajpura, Rakh, Dalhousie, Khajjiar, Khushnagari, Gajnu, Chaned, Jukiyani, Saho*; Hamirpur dist.- *Bhalet, Mundkhar, Nadaun*; Kangra dist.- *Dharamshala, Kotla, Kangra, Palampur, Neugal Khud, Churan Khud, Multhan, Tang-Baroi, Bid, Binwa Nagar, Sidhpur, Bhagsu Nag, Gaggal*; Kinnaur dist.- *Tapri*; Kullu dist.- *Kullu, Ramshed, Vashisth Kund, Kasol, Bhuntar, Badanu, Larji, Tirthan Valley (Shai Ropa, Goshaini, Ropa), Sainj Valley (Ropa)*; Lahaul & Spiti dist.- *Keylong*; Mandi dist.- *Joginder Nagar, Dak Bagda, Hara Bagh, Tattapani, Barot*; Shimla dist.- *Shimla, Baghara, Mashobra, Pashad, Kartot, Suni, Chopal, Silaroo, Chhaila*; Sirmour dist.- *Rajgarh, Habban, Naina Tikkar, Dadahu, Chandni, Laaldang, Sarahan, Renuka Sanctuary, Giripul, Ranhat*; Solan dist.- *Koti, Dharampur, Chail, Sadhupul, Kuthar, Parwanu, Gambhar Bridge, Arki, Kasauli, Solan, Malon, Subathu, Deothal, Lugoan Bridge, Bajdol, Shilli Forest, Barog, Sadhupul, Nagali*. Uttaranchal: Almora dist.- *Kausani, Chaukni, Sheraghat, Lakhidiyar, Soni*; Bageshwar dist.- *Bageshwar, Garur, Jogeshwar, Baijnath*; Chamoli dist.- *Bhimtoli, Joshimath, Mandal, Pandukeshwar, Mana, Govindghat*; Champawat dist.- *Lohaghat, Bed Bagad*; Dehra Dun dist.- *Amlawa River bed, Kalsi, Rajpur, Ramgash*; Naini Tal dist.- *Bhim Tal, Naini Tal, Sat Tal, Ramgarh, Mohan, Malani*; Pauri dist.- *Lansdowne, Kanda, Pauri, Malan Sanctuary, Chamdhar, Gumkhal*; Pithoragarh dist.- *Didihat, Thal, Jharia Gad, Pithoragarh, Berinag, Dhamrikhet, Arca*; Rudra Prayag dist.- *Phata, Augustmani, Narainkoti, Trijuginarain, Tehri dist.- Kirtinagar, Kaddukhal, Pokhal*; Uttarkashi dist.- *Uttarkashi, Maneri, Raturi Sera, Jashyra, Badyar Gad, Mori, Dunda*.

40. *Amyntas gracilis* (Kinberg, 1867)

Distribution: H.P.: Kangra dist.- *Palampur*. Uttaranchal: Chamoli dist.- *Ramnee*; Dehra Dun dist.- *Dehra Dun*.

41. *Amyntas morrissi* (Beddard, 1892)

Distribution: J & K: Doda dist.- *Bhadarwah*; Poonch and Srinagar districts. H.P.: Bilaspur dist.- *Nauni*; Chamba dist.- *Hardaspur, Rajpura*; Kangra dist.- *Palampur*; Shimla dist.- *Suni*; Sirmour dist.- *Nahan*; Solan dist.- *Dharampur, Solan, Sadhupul, Subathu, Deothal*. Uttaranchal: Dehra Dun dist.- *Raipur, Dehra Dun*.

42. *Metaphire anomala* (Michaelsen, 1907)

Distribution: H.P.: Kangra dist.- *Dadh, Kangra, Palampur*; Mandi dist.- *Joginder Nagar*; Sirmour dist.- *Dadahu*. Uttaranchal: Chamoli dist.- *Nandprayag, Thirpali*; Dehra Dun dist.- *Sahastradhara, Dehra Dun, Lachhiwala, Ghattikhola, Gujrara, Mussoorie Forest Range, Barkot*; Naini Tal dist.- *Naukuchia Tal*; Pauri dist.- *Dhikala-Kanda Road, Tehri dist.- Deoprayag*.

43. *Metaphire birmanica* (Rosa, 1888)

Distribution: H.P.: Hamirpur dist.- *Tikkar, Sujanpur Tihra*; Kangra dist.- *Darang, Kangra*; Mandi dist.- *Joginder Nagar, Baijnath, Dak Bagda, Ner Chowk, Sunder Nagar*; Sirmour dist.- *Renuka Sanctuary*; Solan dist.- *Solan*. Uttaranchal: Bageshwar dist.- *Garur, Kapkote*; Chamoli dist.- *Pipalkoti, Kuher, Nandprayag*; Dehra Dun dist.- *Timli, Dehra Dun, Mussoorie, Nehrugram, Ghattikhola, Kandholi Forest*; Naini Tal dist.- *Naini Tal, Deochauri, Naukuchia Tal*; Pauri dist.- *Dhikala-Kanda Road, Dhikala-Sarapduli Road*; Rudraprayag dist.- *Rudraprayag*.

44. *Metaphire houletti* (Perrier, 1872)

Distribution: J & K: Udhampur dist.- *Katra, Udhampur*; H.P.: Bilaspur dist.- *Dukali*; Hamirpur dist.- *Sujanpur Tihra, Jungle Beri, Bhalet*; Kangra dist.- *Dehra, Nurpur, Jasoor, Sadwan, Baijnath, Darang, Chobu, Kedara, Ganoh, Palampur, Chimbhar*; Mandi dist.- *Joginder Nagar, Mohan Ghatti, Gumma, Dak Bagda, Ner Chowk, Sunder Nagar, Hara Bagh, Tattapani, Jeori, Mandi*; Shimla dist.- *Suni*; Sirmour dist.- *Banethi, Renuka Sanctuary, Dadahu, Ajoli, Daluwala, Shirumella*; Solan dist.- *Gaura, Gambhar Bridge, Oachghat, Dharampur, Kasauli, Chhawasa, Solan*; Una dist.- *Ambota, Thana, Nanavi*. Uttaranchal: Almora dist.- *Soni, Chitai*; Chamoli dist.- *Thirpali*; Champawat dist.- *Champawat*; Dehra Dun dist.- *Dehra Dun, Sahiya, Nehrugram, Ghattikhola, Lalpul, Timli Forest, Sahastradhara, Rishikesh, Phanduwalla, Gujrara*; Naini Tal dist.- *Gagasat Sultan, Ranibagh, Bhowali, Dhangarhi, Naukuchia Tal, Sat Tal, Kala Dungi, Bhim Tal*; Pithoragarh dist.- *Thal, Jharia Gad, Oriti, Ravti Nalla, Kolika*; Rudraprayag dist.- *Rudraprayag*; Tehri dist.- *Kirtinagar, Aglar River, Gulabrai, Chamba*.

45. *Metaphire posthuma* (Vaillant, 1868)

Distribution: J & K: Jammu dist.- *Barpur*; Udhampur dist.- *Udhampur*. H.P.: Chamba dist.- *Sundla, Rajpura*; Kangra dist.- *Jasoor*; Mandi dist.- *Tattapani, Jeori*; Sirmour dist.- *Dadahu*, *Renuka Sanctuary*; Una dist.- *Kodi*. Uttaranchal: Dehra Dun dist.- *Kansro Forest, Easthope Town, Dehra Dun, Satyanarayan, Lachhiwala*; Tehri dist.- *Deoprayag*.

46. *Perionyx bainii* Stephenson, 1915

Distribution: H.P.: Chamba dist.- *Bhandal, Khajjiar, Banikhet*; Kangra dist.- *Multhan*, Dharamshala; Kinnaur dist.- *Tapri, Sholtu, Chogaon, Nichar, Baro, Chaura, Khursaran Nalla*; Kullu dist.- *Juanu Khud, Manali, Rahla Fall, Kothi*, Tirthan Valley (*Ropa, Barnagi, Kharongcha, Rolla, Poocha, Grahani, Shilt, Chhota Vaasu*), Sainj Valley (*Ropa, Neoli, Marm, Lapah, Denga Pul, Sakti, Dolnu, Shanghar*), *Jiwanal*; Mandi dist.- *Barot*; Shimla dist.- *Sarahan, Pulbahal, Kotgarh, Jarol, Koti-Badhog, Kunni, Gaura, Kholidhar, Tutupani, Thanedhar, Khara Patthar*, Shimla; Sirmour dist.- *Nohra, Renuka Sanctuary, Phagu, Habban, Rajgarh, Haripurthar, Jarva, Nohradhar, Rondi Nalla*; Solan dist.- *Junga, Chail Sanctuary, Hinner*. Uttaranchal: Almora dist.- *Kausani, Chaukni, Almora*; Chamoli dist.- *Joshimath, Mandal, Dugal Batta, Tungnath, Padukeshwar*; Dehra Dun dist.- *Chakrata*; Pithoragarh dist.- *Ghatkola Nalla*; Rudraprayag dist.- *Guptakashi*; Uttarkashi dist.- *Kunaur, Rawain Forest Range, Syana Chatti, Barnigad Kuwa*.

47. *Perionyx barotensis* Julka and Paliwal, 1993

Distribution: H.P.: Kullu dist.- Tirthan Valley (*Barnagi, Ropa, Rolla*), Sainj Valley (*Ropa*); Mandi dist.- *Barot*.

48. *Perionyx excavatus* Perrier, 1872

Distribution: H.P.: Bilaspur dist.- *Nihari Forest Plantation, Bamta, Kandror, Kanaula*; Chamba dist.- *Lower Bakrota, Sundla, Rakh*; Hamirpur dist.- *Hera Nagar, Sujampur Tihra, Galod, Bharnani*; Kangra dist.- *Nurpur, Bhagsu Nag, Banoi, Palampur, Chimbhar*; Mandi dist.- *Pandoh, Gumma, Barot*; Shimla dist.- *Taradevi, Baghara, Jatog, Shimla, Rajpur*; Sirmour dist.- *Nohra, Naina Tikkar, Dhamla, Dadahu, Kialtu, Renuka Sanctuary, Chandni, Rajgarh, Sataun, Paonta Sahib, Shillai*; Solan dist.- *Sadhupul, Patta, Solan, Parwanu, Chhawasa, Jarash, Lugoan Bridge, Ramshahar, Chail, Hinner*; Una dist.- *Thana, Nanavi*. Uttaranchal: Almora dist.- *Almora, Sheraghat*; Chamoli dist.- *Joshimath*; Champawat dist.- *Phorti, Sandev*; Dehra Dun dist.- *Phanduwala, Dehra Dun, Satyanarain, Kansro Forest, Motichur Rao*; Naini Tal dist.- *Bhowali, Naini Tal, Mohan*; Pauri dist.- *Khankara, Chamdhar, Kanda Nala*; Uttarkashi dist.- *Barnigad Kuwa*.

49. *Perionyx nainianus* (Michaelsen, 1907)

Distribution: Uttaranchal: Almora dist.- *Dhakuri, Khati*; Chamoli dist.- *Wan, Gairoli Patali, Bedni*; Naini Tal dist.- *Naini Tal*; Pithoragarh dist.- *Ghattabagur, Kulagarh*; Rudraprayag dist.- *Augastmani, Guptakashi*.

50. *Perionyx sansibaricus* Michaelsen, 1891

Distribution: H.P.: Kangra dist.- *Holta (nr. Palampur)*; Solan dist.- *Parwanu*. Uttaranchal: Dehra Dun dist.- *Clemant Town, Easthope Town*.

51. *Perionyx simlaensis* (Michaelsen, 1907)

Distribution: H.P.: Sirmour dist.- *Renuka Sanctuary, Dadahu, Paonta Sahib, Bata Bridge*; Solan dist.- *Dharampur, Ramshahar*. Uttaranchal: Dehra Dun dist.- *Ramgash*.

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