

An updated list of the Collembola from West Bengal

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The collembolan insects commonly called "spring-tails" are small, entognathous, wingless hexapods possessing a spring-like forked jumping organ and the furcula underneath the fourth abdominal segment. They are minute in size (less than 6 mm in length); antennae primarily with 4 segments. The presence of antennae and absence of cerci distinguish them from other entognathous hexapods. The collembolans have very diverse distribution occurring in all zoo-geographical regions of the world, inhabiting a wide range of ecological niche and climate.

There are about 8800 species of Collembola recorded from the world (Bellinger et al., 2018). Mandal (2018) has published an updated checklist of Collembola from India comprising 342 species under 113 genera belonging to 20 families. Collembola insects of West Bengal were first reported by Imms (1912) from Indian Botanic Garden and Indian Museum Campus, Calcutta. Thereafter, Mukherjee (1932), Choudhuri & Roy (1965), Hazra & Choudhuri (1981), Hazra et al. (2007), Mandal (2011), Mitra (1966, '74) and Mitra et al. (1977) have reported collembola from different ecosystems of West Bengal. Mandal (2011) recorded 16 species of collembola from the Bibhuti Bhushan Wildlife Sanctuary, Parmadan. Mandal & Suman (2013) recorded 9 species of collembola under 8 genera of 5 families from the Sajnekhali Wildlife Sanctuary. Recently, Roy & Mandal (2017) recorded 25 species under 20 genera belonging to 13 families of Collembola from different habitats of the Indian Botanic Garden.

An updated checklist of the Collembola from West Bengal state is provided here with their distribution. A total of 75 species under 43 genera belonging to 13 families have been reported from different districts of West Bengal (Table 1).

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References

- Bellinger, P.F., Christiansen, K.A. & Janssens, F. 1996–2018. *Checklist of the Collembola of the World*. Available from: <http://www.collembola.org/taxa> (accessed 3rd July, 2018).
- Choudhuri, D.K. & Roy, S. 1965. A new species of *Onychiurus* (Insecta: Collembola) from West Bengal. *Rev. Ecol. Biol. Sol.*, 123-127.
- Hazra, A.K. & Choudhuri, D.K. 1981. Studies on distribution of Collembola population in two different soil conditions (Gangetic alluvium and lacustrine soil) in relation to some major edaphic factors. In: *Progress in Soil Biology and Ecology in India* (Ed. G.K. Veeresh). *UAE Tech. Ser. No. 37*: 131-142.
- Hazra, A.K., Mandal, G.P. & Pahari, D. 2007. Impact of some heavy metal and microbial flora on soil micro fauna in reclaimed wetland embankment of Kolkata. *Rec. Zool. Surv. India. Occ. Paper No. 266*: 1-40, pl. 41-47.
- Imms, A.D., 1912. On some Collembola from India, Burma and Ceylon with a catalogue of the Oriental species of the Order. *Proc. Zool. Soc., London*, 1912: 80-125.
- Mandal, G.P. 2011. Collembola (Hexapoda) fauna from Bibhuti Bhushan Wild life Sanctuary, Parmadan, West Bengal, India. *Rec. Zool. Surv. India*, 111 (2): 61-66.
- Mandal, G.P. 2018. Collembola of India -- An Updated Checklist. *Halteres*, 9:116-130.
- Mandal, G.P. & Suman, K.K. 2013. Collembola fauna from Sajnekhali Wild life Sanctuary, South 24Pgs., West Bengal, India. *Pronmalia, Zool. Surv. India*, 1: 69-78.
- Mitra, S.K. 1966. Two new species of *Salina* MacGillivray (Collembola: Entomobryidae: Paronellinae) from India. *J. Ent. Res., New Delhi*, 28(1): 67-73.
- Mitra, S.K. 1974. A critical study on some species of *Callyntrura* Börner, 1906 (Collembola: Entomobryidae: Paronellinae) from India. *Rev. Ecol. Biol. Sol.*, 11(3): 397-439.
- Mitra, S.K., Hazra, A.K. & Sanyal, A.K. 1977. Ecology of Collembola at the Eden Garden, Calcutta. *Ecol. Bull.*, 25: 539-544.
- Mukherjee, D. 1932. Description of a new species of Collembola and its anatomy. *Rec. Indian Mus.*, 34: 47-49.
- Roy, S. & Mandal, G. P. 2017. On a collection of Collembola from Acharya Jagadish Chandra Bose Indian Botanic Garden, Howrah (West Bengal). *Bionotes*, 19(2): 56-57.

Table 1. List of the Collembolan species recorded from West Bengal, India.

Species	District	Locality
Family: Neanuridae		
1 <i>Pseudochorutes anomalus</i> Imms, 1912	Darjeeling	Kurseong
2 <i>Lobella (L.) maxillaris</i> Yosii, 1966	Burdwan, South 24 Pgs, Alipurduar, Jalpaiguri	Golapbag, Sajnekhali Wild Life Sanctuary Buxa Tiger Reserve Gorumara National Park.
3 <i>Protonura carpenteri</i> Mukherjee, 1932	Kolkata	Eden Garden
4 <i>Paleonura siva</i> (Yosii, 1966) Cassagnau, 1982	Howrah	Indian Botanical Garden
5 <i>Singalimeria pachyderma</i> Cassagnau, 1984	Darjeeling	Singalila
6 <i>Gnatholonche polychaetosa</i> Cassagnau, 1984	Darjeeling	Tiger Hill
7 <i>Himalmeria ornata</i> Cassagnau, 1984	Darjeeling	Tonglu, Northern hillside, Singalila
8 <i>Himalmeria (Yetimeria) lama</i> Cassagnau, 1984	Darjeeling	Tiger Hill, Southern Hillside
9 <i>Himalmeria (Yetimeria) rostrata</i> Cassagnau, 1984	Darjeeling	Tonglu, Northern hillside, Singalila
10 <i>Himalmeria (Yetimeria) armata</i> Cassagnau, 1984	Darjeeling	Tista River Valley, Sukna
11 <i>Himalmeria (Yetimeria) lanata</i> Cassagnau, 1984	Darjeeling	Tonglu, Northern hillside Singalila.
12 <i>Himalmeria (Yetimeria) spatulata</i> Cassagnau, 1984	Darjeeling	Tonglu, Northern hillside, Singalila.
13 <i>Paranura squamosa</i> Cassagnau, 1991	Darjeeling	Singalila.
14 <i>Parvatinaura loebli</i> Cassagnau, 1984	Darjeeling	Forest between Kalimpong and Algarah, Tista River Valley.
15 <i>Parvatinaura colcheni</i> Cassagnau, 1984	Darjeeling	Tonglu, Northern hillside, Singalila.
16 <i>Friesea excelsa</i> Denis, 1936	Kolkata	Dhapa, E.M.Bypass.
Family: Hypogastruridae		
17 <i>Ceratophysella indica</i> (Salmon, 1956)	Howrah	Indian Botanical Garden
18 <i>Ceratophysella indovaria</i> (Salmon, 1970)	Howrah	Indian Botanical Garden
19 <i>Xenylla obscura</i> Imms, 1912	Kolkata, North 24 Pgs	Indian Museum Collection, Bibhuti Bhusan WLS, Parmadan.
Family: Onychiuridae		
20 <i>Allonychiurus indicus</i> (Choudhuri & Roy, 1965)	North 24 Pgs,	Bibhuti Bhusan WLS, Parmadan,
Pomorski, 2000	Howrah	Indian Botanical Garden
Family: Tullbergidae		
21 <i>Paratullbergia indica</i> Salmon, 1965	Howrah	Indian Botanical Garden
Family: Brachystomellidae		
22 <i>Brachystomella terrafolia</i> Salmon, 1944	Howrah	Indian Botanical Garden
Family: Isotomidae		
23 <i>Isotomodes dagamae</i> Prabhoo, 1971	Kolkata,	Dhapa, E.M.Bypass.
24 <i>Hemisotoma thermophila</i> (Axelson, 1900)	Kolkata,	Eden Gardens,
Bagnall, 1949	North 24 Pgs,	Bibhuti Bhusan WLS, Parmadan
25 <i>Ballistura bengalensis</i> Yosii, 1966	Howrah, North 24 Pgs	Indian Botanical Garden, Bibhuti Bhusan WLS
26 <i>Isotomurus balteatus</i> (Reuter, 1876)	Bankura, North 24 Pgs	Lokpur, Taldangra, Barrackpore, Bibhuti Bhusan WLS, Parmadan
Handschin, 1929	North 24 Pgs	Barrackpore
27 <i>Isotomurus palustris</i> (Muller, 1776) Börner, 1906	North 24 Pgs	Barrackpore
28 <i>Isotomurus ciliatus</i> Stach, 1947	Kolkata, North 24 Pgs	Eden Gardens, Barrackpore
29 <i>Isotomurus jharkhandensis</i> Mandal, Suman & Bhattacharya, 2017	Darjeeling, Jalpaiguri, Alipurduar	Sukna, Murty beat, Gorumara NP, Lataguri, Chapramari,

- 30 *Isotomiella minor* (Schaeffer, 1896) Yosii, 1939 North 24 Pgs, South 24 Pgs Bibhuti Bhusan WLS, Bankrahat
- 31 *Axelsonia nitida* (Folsom, 1899) Borner, 1906 South 24 Pgs Sajnekhali WLS
- 32 *Folsomides purvulus* Stach, 1922 Kolkata, North 24 Pgs, South 24 Pgs Eden Gardens, Barrackpore, Bankrahat
- Family: Entomobryidae**
- 33 *Homidia cingula* (Borner, 1906) Yosii, 1959 Darjeeling, Hooghly, South 24 Pgs Sukna, Bhadreswar, near Victoria jute mill Sajnekhali WLS
- 34 *Sinella curviseta* Brook, 1882 South 24 Pgs Sajnekhali WLS
- 35 *Lepidocyrtus exploratorius* Carpenter, 1924 North 24 Pgs Bibhuti Bhusan WLS
- 36 *Lepidocyrtus (Lanocyrtus) caeruleicornis* Bonet, 1930 Howrah, South 24 Pgs Indian Botanical Garden, Sudanyakhali
- 37 *Lepidocyrtus (Lepidocyrtus) curvicollis* Bourlet, 1841 South 24 Pgs Sajnekhali WLS, Sudanyakhali
- 38 *Lepidocyrtus (Acrocyrtus) heterolepis* Yosii, 1959 Howrah, North 24 Pgs, South 24 Pgs Indian Botanical Garden, Barrackpore, Bankrahat
- 39 *Lepidocyrtus (Acrocyrtus) malayanus* Yosii, 1959 Jalpaiguri, Alipurduar, Bankura, North 24 Pgs Lataguri, Kumargram, Buxa; Nilpara, Jaldapara NP Taldangra, Bibhuti Bhusan WLS
- 40 *Lepidocyrtus (Cinctocyrtus) medius* Schaeffer, 1898 Kolkata, North 24 Pgs Eden Garden, Barrackpore
- 41 *Lepidocyrtus (Ascocyrtus) scaber* Ritter, 1911 Kolkata, North 24 Pgs Bibhuti Bhusan WLS
- 42 *Lepidocyrtus magnificus* Carpenter, 1924 North 24 Pgs Indian Museum Compound.
- 43 *Dicranocentrus indicus* Bonet, 1930 Kolkata, Indian Museum Compound.
- 44 *Dicranocentrus cercifer* (Imms, 1912) Mari Mutt, 1979 South 24 Pgs Bankrahat
- 45 *Alloscopus tetracanthus* (Borner, 1906) Kolkata, North 24 Pgs Indian Museum Compound, Barrackpore.
- 46 *Seira indica* (Ritter, 1911) Yosii, 1966 North 24 Pgs Bibhuti Bhusan WLS, Barrackpore
- 47 *Seira indra* (Imms, 1912) Kolkata, Indian Museum Compound
- 48 *Seira lateralis* Yossi, 1966 South 24 Pgs Bankrahat
- 49 *Sinella montana* Imms, 1912 Hooghly, Howrah, Bandel Station, Gustia
- Family: Paronellidae**
- 50 *Salina bengalensis* Mitra, 1973 Howrah, Kolkata, North 24 Pgs Indian Botanical Garden, Eden Garden, Barrackpore; Darjeeling, Jalpaiguri, Alipurduar, Sevak, Mahananda, Lataguri, Gorumara NP; Kumargram range, Buxa Tiger Res. Eden Garden
- 51 *Salina celebensis* (Schaeffer, 1898) Yosii, 1959 Kolkata, Indian Museum Collection,
- 52 *Salina indica* (Imms, 1912) Yosii, 1960 Howrah, Indian Botanical Garden, Jalpaiguri, Darjeeling, Khunia beat, Gorumara NP; Mahananda WLS.
- 53 *Salina javana* (Handschin, 1928) Yayuk, 1989 Darjeeling, Chum, Darjeeling
- 54 *Salina montana* (Imms, 1912) Darjeeling, Kurseong

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| 55 <i>Salina striata</i> (Handschin, 1928) | Kolkata | Eden Garden |
| 56 <i>Salina yosii</i> Salmon, 1964 | Kolkata | Eden Garden |
| 57 <i>Callyntrura lineata</i> (Parona, 1892) Yosii, 1961 | Jalpaiguri | Hamiltonganj, Gorumara NP. |
| 58 <i>Callyntrura vestita</i> (Handschin, 1925) Yosii, 1982 | Darjeeling,
Jalpaiguri | Lopchu Tea Estate; Daling Coat, Gorubathan;
Chapramari Beat, Gorumara NP; North Murty
Beat. |
| 59 <i>Callyntrura zaheri</i> Mitra, 1974 | Darjeeling | Ghum, Darjeeling |
| 60 <i>Dicranocentroides flavescens</i> Yosii, 1966 | Howrah,
Burdwan,
Darjeeling,
Jalpaiguri,
Alipurduar | Indian Botanical Garden,
Golpabag,
Sukna Military Camp,
Batabari Tea Estate, Chalsa;
Baikunthapur Forest, Buxa Tiger Reserve
Rajabhatkhawa, Buxa Tiger Res. Jayanti, Buxa
Tiger Res. |
| 61 <i>Dicranocentroides gisini</i> Mitra, 1975 | Alipurduar | Golapbag,
Kumargram, Buxa Tiger Res.
Nilpara forest, Jaldapara NP. |
| 62 <i>Yosiiia dehradunia</i> Mitra, 1967 | Burdwan,
Alipurduar | Indian Botanical Garden |
| 63 <i>Cyphoderopsis ceylonica</i> Yosii, 1966 | Howrah | Indian Botanical Garden |
| 64 <i>Cyphoderus javanus</i> Börner, 1906 | Howrah | Indian Botanical Garden |
| 65 <i>Cyphoderus albinus</i> Nicolet, 1842 | Kolkata,
North 24 Pgs | Eden Gardens,
Barrackpore |
| Family: Neelidae | | |
| 66 <i>Neelus murinus</i> Folsom, 1896 | Kolkata | Eden Gardens |
| 67 <i>Megalothorax minimus</i> Willem, 1900 | Kolkata | Eden Gardens |
| Family: Arrhopalitidae | | |
| 68 <i>Pygmarrhopalites habei</i> (Yosii, 1956) | Howrah | Indian Botanical Garden |
| Family: Sminthuridae | | |
| 69 <i>Sminthurus parvullus</i> Ritter, 1911 | Howrah | Indian Botanical Garden |
| 70 <i>Sminthurus viridis</i> (Linn. 1758) Bourlet, 1843 | Howrah | Indian Botanical Garden |
| 71 <i>Sphyrotheca gangetica</i> Yosii, 1966 | Howrah
North 24 pgs | Indian Botanical Garden,
Bibhuti Bhusan WLS, Parmadan |
| Family: Dicyrtomidae | | |
| 72 <i>Calvatomina pagoda</i> (Yosii, 1966) | Kolkata | Eden Garden |
| Family: Sminthurididae | | |
| 73 <i>Sminthurides appendiculatus</i> Imms, 1912 | Kolkata,
South 24 Pgs,
North 24 Pgs | Eden Gardens,
Barrackpore,
Bankrahat |
| 74 <i>Sminthurides parvulus</i> (Krausbauer, 1898) | North 24 Pgs,
South 24 Pgs | Barrackpore,
Bankrahat |
| 75 <i>Sphaeridia pumilis</i> (Krausbauer, 1898)
Agrell, 1934 | Kolkata,
North 24 Pgs,
Bankura | Indian Botanical Garden,
Bibhuti Bhusan WLS,
Lokpur. |

World's Oldest Organism

Norwegian scientists have claimed that they have found one of the world's oldest living organisms and man's remotest relative — after spending decades examining a microscopic algae-eater that lives in a lake in Norway. They

have invented a new category of organism for it called *Collodictyon* because it is not an animal, plant, parasite, fungus or alga, they said. The elusive, single-cell creature evolved about a billion years ago.