



## UPDATED CHECKLIST OF PHILODROMIDAE (ARANEAE: ARACHNIDA) FROM INDIA

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### ABSTRACT

The present article deals with the faunal diversity of one of the spider family Philodromidae (Araneae: Arachnida), commonly known as philodromid crab spiders or running crab spiders or house crab spiders in different Indian states and union territories and provides an update checklist based on the literature published up to January 15, 2021. It includes 53 species of spiders described under 10 genera in 18 states and 4 union territories, out of which 39 species are endemic. In India, *Philodromus* Thorell, 1870 is the largest genus consisting of 24 species followed by *Thanatus* Thorell, 1870 (13 species) and *Tibellus* Thorell, 1870 (8 species). The records demonstrated that only 2 species of these spiders are distributed widely: *Tibellus elongatus* Tikader, 1960 (in 9 states) and *Philodromus assamensis* Tikader, 1962 (in 8 states). Maximum 29 species of these spiders were recorded in Maharashtra followed by 19 species in Madhya Pradesh and 12 species each in Chhattisgarh and Gujarat. Strangely, no philodromid spider is recorded in Haryana, Himachal Pradesh, Jharkhand, Mizoram, Nagaland, Odisha, Punjab, Sikkim, Telangana, and Tripura and need extensive research work in these states. Despite their role as insect predators and being crucial to the health of terrestrial ecosystems, none of the species recorded in India is listed in IUCN Red List.

**KEYWORDS:** Philodromidae, philodromid crab spiders, running crab spiders, house crab spiders, faunal diversity, checklist.

### INTRODUCTION

Spiders are chelicerate arthropods (order Araneae: class Arachnida) being highly diverse and abundant terrestrial predators. The order Araneae ranks seventh in global diversity (49,089 species, 4205 genera, 128 families).<sup>[1]</sup> after the five largest insect orders (Coleoptera – ca. 4,00,000 species, Lepidoptera – ca. 1,80,000 species, Hymenoptera – ca. 1,50,000 species, Diptera – ca. 1,25,000 species, Hemiptera – ca. 50,000 species) and one arachnid order (Acari – over 50,000 species) in terms of species diversity.<sup>[2]</sup> Out of them, only 1855 species belonging to 477 genera in 61 families are reported in India.<sup>[3]</sup> However, there exist many species in wild and museums that still await description and classification. It is estimated that only 20-30% of the existing species have been described. Despite recent research works on the diversity and distribution of spiders in India, their number is insufficient as compared to other parts of the world. Recently, the species distribution of 26 families of spiders was updated in India.<sup>[4-12]</sup>

Philodromidae (Araneomorphae: Araneae: Arachnida) is one of the family of spiders commonly called as false crab spiders, philodromid crab spiders, running crab spiders, house crab spiders etc. Most of these spiders are flat bodied and small (upto 16 mm) in size. They may either be brown, gray, yellowish or mottled with leaf-like cardiac mark on the anterior dorsal abdomen. The second pair of legs of these spiders is usually longer than the others. The philodromid spiders have 8 eyes arranged in two recurved rows. The legs have 2 tarsal claws and are laterigrade so that the morphologically dorsal surface is rotated about one quarter of a turn to a posterior position. Most species live in the foliage, branches, stems of bushes and trees and even found running about at ground level. They often found on vertical surfaces and can move very rapidly when disturbed and are difficult to capture. They do not construct webs but use silk for draglines which is used to drop from their perch and hang in the air. However, these spiders build wooly egg sacs across a leaf, under bark etc. They are widely distributed from tundra environment to desert.<sup>[13]</sup>

Philodromidae comprises 536 species described under 31 genera throughout the world.<sup>[1]</sup> Though, spiders, being mostly entomophagous, are among the most abundant biocontrol agents in many agroecosystems, their role in biological control is still argued because they not only consume pest populations but also the biocontrol agents (predators/parasitoids) and thus may hamper the biocontrol of the pests caused by those bioagents. Moreover, the philodromid crab spiders have been found to possess potential to control small- to medium sized soft bodied agricultural pests.<sup>[14]</sup> Despite their role as insect predators and being crucial to the health of terrestrial ecosystems, only three species, *Philodromus insulanus* Kulczyński, 1905 (in Madeira Island, least concern),<sup>[15]</sup> *Philodromus simillimus* Denis, 1962 (in Madeira Island, data deficient)<sup>[16]</sup> and *Rhysodromus signatus* (O. Pickard-Cambridge, 1870 in St. Helena Island, least concern)<sup>[17]</sup> are listed in IUCN Red List. However, none of the species recorded in India is in this list.

Our knowledge on Indian Philodromidae is inadequate and highly inconsistent primarily due to the unexplored diversity of these spiders and extensive surveys were done only in a few states. There are several species of these spiders yet to be described and several species recorded from India have also been misidentified as many species reported from India are said to be identified by using existing old literature without a re-examination of the corresponding types and without consulting any spider taxonomist.<sup>[2]</sup> Hence, these reports need re-examination. At present, a moderate amount of knowledge of Philodromidae is available in India but the pieces of literature are all scattered and so far no consolidated account is available regarding their distribution pattern across the country. Therefore, this present work was undertaken to provide up-to-date information of this family in the light of modern taxonomic information.

## MATERIALS AND METHODS

This checklist is based on the literature published in recent past books, journals and few authentic theses, websites, and World Species Catalog up to 15 January 2021. In most of the literature, published earlier, several errors crept in their scientific names even in the recent ones. It happened because such contents become outdated quickly and, due to their perceived comprehensiveness, readers sometimes overlook newer sources of data. Additionally, the researchers on spider taxonomy are continued with the description of new taxa, their modified status, and the publication of other nomenclatural decisions.<sup>[12]</sup> If a spider species is identified only up to the generic level, it was considered as species if no other species of that genus is reported within the state. In the present checklist, attempts have been made to correct the errors in the scientific names of the spiders following World Spider Catalog. Only those synonymies were mentioned that were reported in India. All the endemic species are marked with (\*). The species

most likely absent in India but enlisted in catalogs.<sup>[1,3,18,19]</sup> are marked with (†).

## RESULTS AND DISCUSSION

In India, O. Pickard-Cambridge.<sup>[20]</sup> appeared the first to describe a philodromid spider, *Thanatus albescens* collected from Sind Valley (Jammu & Kashmir) and Murree (Pakistan) on August 5, 1873. In the same year, Simon,<sup>[21]</sup> described another species *Thanatus indicus* from Wagra-Karoor, Bellary district, Karnataka. Later on, after more than a decade, five more species were described by him: *Philodromus frontosus* Simon, 1897,<sup>[22]</sup> *Thanatus prolixus* Simon, 1897,<sup>[23]</sup> *Gephyrota pudica* (Simon, 1906),<sup>[24]</sup> *Gephyrota virescens* (Simon, 1906),<sup>[24]</sup> and *Tibellus vitilis* Simon, 1906. After 3 decades, Caporiacco,<sup>[25]</sup> (1935) described another species, *Thanatus balestrerii*. In seventh to eighth decade of the last century, among the Indian authors, Tikader,<sup>[26,37]</sup> was first to describe several species of Philodromidae from different states of the country. In the last decade, Bhandari and Gajbe<sup>[38]</sup>, Gajbe & Gajbe,<sup>[39-43]</sup> and Gajbe,<sup>[44-46]</sup> described 11 more species of Philodromidae. During the last 12 years, no new species was described from India. At present, 53 species were described or recorded under 10 genera in 18 Indian states and 4 union territories (Andaman & Nicobar Islands, Jammu & Kashmir, Ladakh and Puducherry) and about three-fourth (73.6%) of the species (39 species) are strictly endemic. However, Caleb and Sankaran,<sup>[3]</sup> enlisted only 45 species of Philodromidae described under 8 genera. Indian record is 9.9% of the world philodromid fauna (31 genera and 536 species),<sup>[1]</sup> and most of the species are described or reported during 1960 to 2008.

In India, *Philodromus* Thorell, 1870 is the largest genus consisting of 24 species followed by *Thanatus* Thorell, 1870 (13 species) and *Tibellus* Thorell, 1870 (8 species). Maximum 29 species of these spiders were recorded in Maharashtra followed by 19 species in Madhya Pradesh, 12 species each in Chhattisgarh and Gujarat, 9 species in Kerala, 7 species each in Karnataka and Tamil Nadu and so on. Strangely, no philodromid spider is recorded in following states of India: Haryana, Himachal Pradesh, Jharkhand, Mizoram, Nagaland, Odisha, Punjab, Sikkim, Telangana, and Tripura and need extensive research work. Further, two species, *Rhysodromus lepidus* (Blackwall, 1870) and *Thanatus simplicipalpis* Simon, 1882 are listed to occur in India,<sup>[1,3,18,19]</sup> without mentioning any reference of locality, it is most likely that these species may not be present in India.

Following is the detailed list of these spiders distributed in Indian states and union territories and elsewhere.

### I. Specieswise check-list and distribution of philodromid spiders in India

#### 1. *Apollophanes bangalores* Tikader, 1963\*

- Karnataka<sup>[28, 31, 32]</sup>
- Kerala<sup>[47]</sup>

**2. *Ebo bhartatae* Tikader, 1965\***

- Andaman & Nicobar Islands<sup>[33]</sup>
- Maharashtra<sup>[29,31,32,33]</sup>

**3. *Gephyrota pudica* (Simon, 1906)\***Syn. *Gephyra pudica* Simon, 1906

- Himalayan plateaus.<sup>[24]</sup>

**4. *Gephyrota virescens* (Simon, 1906)**Syn. *Gephyra virescens* Simon, 1906

- Gujarat.<sup>[48]</sup>
- Himalayan plateaus.<sup>[24]</sup>
- Kerala.<sup>[50]</sup>

Elsewhere: Sri Lanka

**5. *Oxytate kanishkai* (Gajbe, 2008)\***syn. *Dieta kanishkai* Gajbe, 2008

- Madhya Pradesh.<sup>[46]</sup>

**6. *Philodromus ashae* Gajbe & Gajbe, 1999\***

- Chhattisgarh.<sup>[51,52,53]</sup>
- Madhya Pradesh.<sup>[39,54,55,56,57]</sup>
- Maharashtra.<sup>[58]</sup>

**7. *Philodromus assamensis* Tikader, 1962**

- Arunchal Pradesh<sup>[59]</sup>
- Assam<sup>[27,60,61,62]</sup>
- Chhattisgarh<sup>[52]</sup>
- Gujarat<sup>[48,49]</sup>
- Madhya Pradesh<sup>[55]</sup>
- Maharashtra<sup>[63,64]</sup>
- Meghalaya<sup>[31,32,60,65,62]</sup>
- West Bengal<sup>[60,61,62]</sup>

Elsewhere: China

**8. *Philodromus barmani* Tikader, 1980\***

- Chhattisgarh<sup>[52]</sup>
- Madhya Pradesh<sup>[55]</sup>
- Maharashtra<sup>[64,66]</sup>
- Meghalaya<sup>[32,65]</sup>

**9. *Philodromus betrabatai* Tikader, 1966\***

- Andhra Pradesh<sup>[67,68]</sup>
- Chhattisgarh<sup>[69]</sup>
- Madhya Pradesh<sup>[55]</sup>
- Maharashtra<sup>[30,31,32,68,70]</sup>
- West Bengal<sup>[68]</sup>

**10. *Philodromus bhagirathai* Tikader, 1966\***

- Chhattisgarh<sup>[51,52,53,69]</sup>
- Gujarat<sup>[49,71]</sup>
- Madhya Pradesh<sup>[55]</sup>
- Tamil Nadu<sup>[31]</sup>
- Uttar Pradesh<sup>[30,31,32]</sup>

**11. *Philodromus bigibbus* (O. Pickard-Cambridge, 1876)**

- Kerala<sup>[72]</sup>

Elsewhere: Arabia, Egypt, Sudan

**12. *Philodromus chambaensis* Tikader, 1980**

- Gujarat<sup>[49]</sup>
- Uttarakhand<sup>[32,73,74]</sup>

Elsewhere: China

**13. *Philodromus cinereus* Pickard-Cambridge, 1876**

- Kerala<sup>[50]</sup>

Elsewhere: Egypt

**14. *Philodromus decoratus* Tikader, 1962\***

- Gujarat<sup>[75]</sup>
- Maharashtra<sup>[58,76]</sup>
- Meghalaya<sup>[27,31,32,65]</sup>

**15. *Philodromus devhutai* Tikader, 1966\***

- Maharashtra<sup>[30,31,32]</sup>

**16. *Philodromus domesticus* Tikader, 1962\***

- Chhattisgarh<sup>[52,53]</sup>
- Ladakh<sup>[77]</sup>
- Madhya Pradesh<sup>[45,55,78]</sup>
- Meghalaya<sup>[27,31,32,45,78]</sup>

**17. *Philodromus durvei* Tikader, 1980\***

- Madhya Pradesh<sup>[32,45,54,55,56,57,79]</sup>

**18. *Philodromus frontosus* Simon, 1897\***

- Maharashtra<sup>[22]</sup>

**19. *Philodromus jabalpurensis* Gajbe & Gajbe, 1999\***

- Chhattisgarh<sup>[51,52,53]</sup>
- Madhya Pradesh<sup>[40,54,55,56,57]</sup>
- Maharashtra<sup>[58]</sup>

**20. *Philodromus ketani* Gajbe, 2005\***

- Madhya Pradesh<sup>[45]</sup>
- Maharashtra<sup>[58]</sup>

**21. *Philodromus maliniae* Tikader, 1966\***

- Maharashtra<sup>[31,32,60,61,62]</sup>
- West Bengal<sup>[60,61,62,80]</sup>

**22. *Philodromus manikae* Tikader, 1971\***

- Assam<sup>[31]</sup>
- Meghalaya<sup>[31,32,65]</sup>

**23. *Philodromus mohiniae* Tikader, 1966\***

- Maharashtra<sup>[30,31,32]</sup>

**24. *Philodromus pali* Gajbe & Gajbe, 2000\***

- Chhattisgarh<sup>[52]</sup>
- Madhya Pradesh<sup>[43,54,55,56,57]</sup>
- Maharashtra<sup>[64,63,66]</sup>
- Tamil Nadu<sup>[81]</sup>
- Uttar Pradesh<sup>[82,83]</sup>

**25. *Philodromus pawani* Gajbe, 2005\***

- Madhya Pradesh<sup>[45]</sup>
- Maharashtra<sup>[58]</sup>

**26. *Philodromus rajani* Gajbe, 2005\***

- Madhya Pradesh<sup>[45]</sup>
- Maharashtra<sup>[58]</sup>

**27. *Philodromus sanjeevi* Gajbe, 2004\***

- Madhya Pradesh<sup>[56,57]</sup>

**28. *Philodromus shillongensis* Tikader, 1962\***

- Assam<sup>[34]</sup>
- Karnataka<sup>[87]</sup>
- Meghalaya<sup>[27,31,32,65]</sup>

**29. *Philodromus tiwarii* Basu, 1973\***

- Meghalaya<sup>[32,84]</sup>

**30. *Philodromus* sp.**

- Bihar<sup>[85]</sup>
- Chhattisgarh<sup>[53]</sup>
- Gujarat<sup>[49,86]</sup>
- Karnataka<sup>[87,88]</sup>
- Kerala<sup>[89,90,91]</sup>
- Ladakh<sup>[77]</sup>
- Maharashtra<sup>[92]</sup>
- Manipur<sup>[93]</sup>
- Rajasthan<sup>[94,95,96,97]</sup>
- Tamil Nadu<sup>[98,99]</sup>
- Uttar Pradesh<sup>[100,101,102,103,104]</sup>
- Uttarakhand<sup>[74]</sup>

**31. *Pholcus phalangioides* (Fuesslin, 1775)**

- Karnataka<sup>[105]</sup>
- Kerala<sup>[68,91,106,107,108,109]</sup>
- Uttar Pradesh<sup>[104,110]</sup>

Elsewhere: Africa, Asia, Australia, North and South America, New Zealand, numerous islands

**32. *Psellonus planus* Simon, 1897**

Syn. *Philodromus kendratabai* Tikader, 1966

- Karnataka<sup>[31]</sup>
- Kerala<sup>[111]</sup>
- Maharashtra<sup>[30,31,32]</sup>
- Tamil Nadu<sup>[99]</sup>

**33. *Psellonus* sp.**

- Karnataka<sup>[88,112]</sup>

**34. *Rhysodromus lepidus* (Blackwall, 1870) †**

- India<sup>[113]</sup>

Elsewhere: Armenia, Corsica, France, Italy, Macedonia, Romania, Russia, Sicily, Spain, Turkmenistan

**35. *Thanatus albescens* O. Pickard-Cambridge, 1885**

- Jammu & Kashmir<sup>[20]</sup>

Elsewhere: Pakistan

**36. *Thanatus balestrerii* Caporiacco, 1935\***

- Jammu & Kashmir<sup>[25]</sup>

**37. *Thanatus coloradensis* Keyserling, 1880**

Syn. *Thanatus alpinus* Kulczyński, 1887

- Jammu & Kashmir<sup>[114]</sup>

Elsewhere: China, Europe, Kazakhstan, North America, Russia

**38. *Thanatus dhakuricus* Tikader, 1960\***

- Gujarat<sup>[48,71,75,115,116,117]</sup>
- Maharashtra<sup>[58,63,64,70,76]</sup>
- West Bengal<sup>[26,31,32]</sup>

**39. *Thanatus indicus* Simon, 1885\***

- Karnataka<sup>[21]</sup>
- Maharashtra<sup>[58,64]</sup>

**40. *Thanatus jabalpurensis* Gajbe & Gajbe, 1999\***

- Chhattisgarh<sup>[51,52,53]</sup>
- Madhya Pradesh<sup>[41,54,55,56,57]</sup>
- Maharashtra<sup>[58]</sup>

**41. *Thanatus ketani* Bhandari & Gajbe, 2001\***

- Chhattisgarh<sup>[51,52,53]</sup>
- Madhya Pradesh<sup>[38,54,55,56,57]</sup>
- Maharashtra<sup>[64,67,118]</sup>

**42. *Thanatus lanceoletus* Tikader, 1966**

- Rajasthan<sup>[31,32,35,97]</sup>
- West Bengal<sup>[119]</sup>

**43. *Thanatus mandali* Tikader, 1965\***

- Maharashtra<sup>[31,32,36]</sup>

**44. *Thanatus parangvularis* Barrion & Litsinger, 1995**

- Kerala<sup>[50,120,121]</sup>

Elsewhere: Thailand

**45. *Thanatus prolixus* Simon, 1897\***

- Deccan<sup>[23]</sup>

**46. *Thanatus simplicipalpis* Simon, 1882 †**

- India<sup>[122]</sup>

Elsewhere: South Africa, Yemen

**47. *Thanatus stripatus* Tikader, 1980\***

- Gujarat<sup>[49]</sup>
- Karnataka<sup>[87]</sup>
- Maharashtra<sup>[32,58]</sup>

**48. *Thanatus* sp.**

- Gujarat<sup>[71, 123]</sup>

**49. *Tibellus chaturshingi* Tikader, 1962\***

- Gujarat<sup>[124]</sup>
- Maharashtra<sup>[31,32,37,92]</sup>

**50. *Tibellus elongatus* Tikader, 1960\***

- Assam<sup>[125, 26,127]</sup>
- Goa<sup>[128]</sup>
- Gujarat<sup>[48,49,71,75,129,130,131]</sup>
- Karnataka<sup>[88, 132]</sup>
- Kerala<sup>[91,50,109,120]</sup>
- Madhya Pradesh<sup>[45,55]</sup>
- Maharashtra<sup>[31,32,58,60,61,64,70,76]</sup>
- Tamil Nadu<sup>[133]</sup>
- Uttarakhand<sup>[134]</sup>
- West Bengal<sup>[26,31,32,45,60,61]</sup>

**51. *Tibellus jabalpurensis* Gajbe & Gajbe, 1999\***

- Chhattisgarh<sup>[51,52,53,55]</sup>
- Madhya Pradesh<sup>[42,54,55,56,57]</sup>
- Maharashtra<sup>[58]</sup>
- Tamil Nadu<sup>[81]</sup>

**52. *Tibellus katrajghatus* Tikader, 1962\***

- Kerala<sup>[50]</sup>
- Maharashtra<sup>[37,31,32,58]</sup>

**53. *Tibellus pashanensis* Tikader, 1980\***

- Andhra Pradesh<sup>[67]</sup>
- Gujarat<sup>[48,71]</sup>
- Maharashtra<sup>[32,58]</sup>

**54. *Tibellus pateli* Tikader, 1980\***

- Gujarat<sup>[32,48,49,71,129]</sup>
- Tamil Nadu<sup>[135]</sup>

**54. *Tibellus poonaensis* Tikader, 1962\***

- Chhattisgarh<sup>[52]</sup>
- Gujarat<sup>[116,130]</sup>
- Madhya Pradesh<sup>[45,55]</sup>
- Maharashtra<sup>[31,32,37,45,58,64 67,136]</sup>

**56. *Tibellus vitilis* Simon, 1906**

- Maharashtra<sup>[64]</sup>
- Puducherry<sup>[24]</sup>
- Tamil Nadu<sup>[24,135]</sup>

Elsewhere: Sri Lanka

**57. *Tibellus* sp.**

- Chhattisgarh<sup>[53]</sup>
- Gujarat<sup>[71,86]</sup>
- Karnataka<sup>[87]</sup>
- Kerala<sup>[89,137,138]</sup>
- Maharashtra<sup>[139]</sup>

**II. Distribution of philodromid spiders in different states and union territories of India****A. Indian states****1. Andhra Pradesh: *Philodromus betrabatai*, *Tibellus pashanensis*****2. Arunchal Pradesh: *Philodromus assamensis*****3. Assam: *Tibellus elongatus*, *Philodromus shillongensis*, *Philodromus manikae*****4. Bihar: *Philodromus* sp.****5. Chhattisgarh: *Philodromus domesticus*, *Philodromus bhagirathai*, *Philodromus betrabatai*, *Tibellus jabalpurensis*, *Philodromus jabalpurensis*, *Thanatus jabalpurensis*, *Thanatus ketani*, *Philodromus ashae*, *Philodromus pali*, *Tibellus poonaensis*, *Philodromus barmani*, *Philodromus assamensis*****6. Goa: *Tibellus elongatus*****7. Gujarat: *Philodromus chambaensis*, *Tibellus chaturshingi*, *Philodromus bhagirathai*, *Philodromus assamensis*, *Gephyrota virescens*, *Tibellus elongatus*, *Thanatus dhakuricus*, *Tibellus pashanensis*, *Tibellus pateli*, *Philodromus bigibbus*, *Thanatus stripatus*, *Philodromus decoratus*****8. Karnataka: *Tibellus elongatus*, *Philodromus shillongensis*, *Thanatus stripatus*, *Pholcus phalangioides*, *Thanatus indicus*, *Apollophanes bangalores*, *Psellonus planus*****9. Kerala: *Tibellus elongatus*, *Philodromus bigibbus*, *Apollophanes bangalores*, *Pholcus phalangioides*, *Philodromus cinereus*, *Gephyrota virescens*, *Tibellus katrajghatus*, *Psellonus planus*, *Philodromus bigibbus*, *Thanatus parangvulgaris*****10. Madhya Pradesh: *Thanatus ketani*, *Tibellus jabalpurensis*, *Philodromus ashae*, *Thanatus jabalpurensis*, *Philodromus jabalpurensis*, *Philodromus pali*, *Philodromus domesticus*, *Tibellus elongatus*, *Tibellus poonaensis*, *Philodromus bhagirathai*, *Philodromus assamensis*, *Philodromus betrabatai*, *Philodromus sanjeevi*, *Philodromus ketani*, *Philodromus pawani*, *Philodromus rajani*, *Oxytate kanishkai*, *Philodromus durvei*****11. Maharashtra: *Thanatus dhakuricus*, *Thanatus ketani*, *Philodromus barmani*, *Philodromus pali*, *Tibellus vitilis*, *Philodromus assamensis*, *Thanatus indicus*, *Philodromus decoratus*, *Philodromus jabalpurensis*, *Philodromus ketani*, *Philodromus pawani*, *Philodromus rajani*, *Thanatus jabalpurensis*, *Tibellus jabalpurensis*, *Philodromus ashae*, *Philodromus frontosus*, *Tibellus poonaensis*, *Tibellus chaturshingi*, *Tibellus katrajghatus*, *Ebo bhataratae*, *Thanatus mandali*,****12. *Philodromus betrabatai*, *Philodromus devhutai*, *Philodromus mohiniaie*, *Psellonus planus*, *Philodromus maliniaie*, *Tibellus elongatus*, *Thanatus stripatus*, *Tibellus pashanensis*****13. Manipur: *Philodromus* sp.****14. Meghalaya: *Philodromus tiwarii*, *Philodromus decoratus*, *Philodromus shillongensis*, *Philodromus domesticus*, *Philodromus manikae*, *Philodromus barmani*, *Philodromus assamensis*****15. Rajasthan: *Philodromus* sp., *Thanatus lanceoletus*****16. Tamil Nadu: *Psellonus planus*, *Tibellus elongatus*, *Tibellus pateli*, *Philodromus pali*, *Tibellus jabalpurensis*, *Tibellus vitilis*, *Philodromus* sp., *Philodromus bhagirathai***

17. **Uttar Pradesh:** *Philodromus pali*, *Pholcus phalangioides*, *Philodromus bhagirathai*
18. **Uttarakhand:** *Tibellus elongatus*, *Philodromus chambaensis*, *Philodromus bigibbus*
19. **West Bengal:** *Thanatus lanceoletus*, *Philodromus betrabatai*, *Philodromus malinae*, *Philodromus assamensis*, *Tibellus elongatus*, *Thanatus dhakuricus*

#### B. Union territories

1. **Andaman & Nicobar Islands:** *Ebo bharatae*
2. **Jammu & Kashmir:** *Thanatus balestrerii*, *Thanatus albescens*, *Thanatus coloradensis*
3. **Ladakh:** *Philodromus domesticus*
4. **Puducherry:** *Tibellus vitilis*,

#### C. Unidentified state/union territories

1. **Deccan:** *Thanatus prolixus*
2. **Himalayan plateaus:** *Gephyrota pudica*, *Gephyrota virescens*
3. **India:** *Rhysodromus lepidus*, *Thanatus simplicipalpis*,

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