

MYGALOMORPHS OF INDIA: AN OVERVIEW

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ABSTRACT

The mygalomorph spiders remain poorly studied in India. So far, 89 species under 27 genera and eight families have been reported from the country. Most of the mygalomorph descriptions from the region were done more than a century ago, based on a few prominent morphological characters. In the last 10 years, interest in mygalomorphs has revived, and along with taxonomy, studies on ecology, natural history and conservation of mygalomorphs have been initiated. Nineteen new species have been reported, and 18 taxa have undergone taxonomic revision. Endemism is high at the species level, and the endemic species are threatened with habitat loss, fragmentation and pet trade. Fourteen species of mygalomorph were listed in the IUCN Red List in 2008. Immediate conservation actions are needed to prevent the extinction of threatened tarantulas in the wild.

INTRODUCTION

The spiders (Phylum Arthropoda: Class Arachnida: Order Araneae) are top-level predators amongst the invertebrates and play an important role by keeping a check on insect populations (Marc & Canard, 1997; Marc *et al.*, 1999). Spiders are broadly classified into two suborders and two infraorders, namely Suborder Mesothelae and Suborder Opisthothelae, the latter with the infraorders Mygalomorphae and Araneomorphae. Mesothelae spiders are the most primitive in the evolutionary history of spiders, with a segmented abdomen and four pairs of primitive spinnerets. So far, these spiders have not been reported from India. Infraorder Mygalomorphae also consists of primitive spiders that resemble the Mesothelae spiders in having chelicerae (jaws) that move vertically, two pairs of book lungs, a stout body and stout legs. But unlike Mesothelae spiders, they do not have segmented abdomens, and the number of spinnerets is reduced to one to three pairs. In contrast, the more evolved or modern spiders of Infraorder Araneomorphae have horizontally moving chelicerae, although the primitive families (Gradungulidae, Austrochilidae) belonging to this group have two pairs of booklungs—most have maximally a single pair of book lungs, a relatively small body-size and slender legs.

To date, 43,678 species in 3898 genera and 112 families of spider have been recorded from around the world (Platnick, 2013). The actual number of species is believed to be three to fivetimes higher (Coddington & Levi, 1991). The number of mygalomorph species recorded in the world is 2731 in 328 genera and 16 families. The most diverse and dominant family is the Theraphosidae, represented by 124 genera and 946 species (Platnick, 2013). A very small number of mygalomorphs have been reported from India, a mere 89 species in 27 genera and eight families. Theraphosidae is the most dominant family, represented by 52 species and 12 genera. Theraphosids are relatively easy to locate: they have burrows with open entrances, compared with the burrows of mygalomorphs of the families Atypidae, Barychelidae, Ctenizidae and Idiopidae, which have trap doors.

RESULTS AND DISCUSSION

TAXONOMY

Studies of Indian mygalomorph spiders were initiated in the late 19th century (Siliwal *et al.*, 2005) with the description of new species based on specimens deposited in various European museums. The first mygalomorph described from India was *Chilobrachys stridulans* (Wood Mason, 1877) from Sibsagar, Assam. Three arachnologists played a major role in initiating

studies on Indian mygalomorphs: R. I. Pocock, arachnologist at the British Museum of Natural History (=NaturalHistoryMuseum), London; F. H. Gravely, Assistant Superintendent of the Government Museum, Madras; and Eugène Simon, French arachnologist. Pocock and Simon described 37 and eight species, respectively, on the basis of specimens deposited in various European museums (Pocock, 1895, 1899, 1900; Simon, 1888, 1891, 1892, 1897, 1906). The first comprehensive book on spiders of this region was by Pocock (1900), and it had a compilation of spider descriptions (including mygalomorphs) from India, Ceylon (=Sri Lanka) and Burma (=Myanmar). The identification keys provided by Pocock (1900) were very precise and are widely referred to by arachnologists of the region to date (Siliwal *et al.*, 2005). Later, Gravely (1915, 1921, 1935a, 1935b) described 15 species of mygalomorph on the basis of collections made during his surveys in various parts of India. He also provided natural history information on mygalomorphs for the first time. Many other arachnologists also described a few species each, again on the basis of Indian specimens deposited in different museums (Walckenaer, 1806; P.-Cambridge, 1883, 1890; Karsch, 1891; Thorell, 1891; Hirst, 1909; Chamberlin, 1917). In the period between 1935 and 2000, work on mygalomorphs was insignificant and dwindling. During this period there were very few, sporadic publications on mygalomorphs from India (Coyle, 1995; Tikader, 1969, 1977; Barman, 1978).

In September 2001, a hands-on training workshop was conducted in Parambikulam Wildlife Sanctuary to create awareness and revive interest in tarantula studies amongst Indian researchers (Molur & Daniel, 2001). Subsequently, researchers started noticing and recording spiders in different parts of India, and a few projects were initiated. As a result of this, one new genus and 19 new species of mygalomorph have been described in the last 10 years (Smith, 2004, 2006; Siliwal *et al.*, 2007; Jose & Sebastian, 2008; Siliwal & Molur, 2009b; Siliwal *et al.*, 2009b, 2009c; Mirza *et al.*, 2011; Sanap & Mirza, 2011; Siliwal *et al.*, 2011; Mirza & Sanap, 2012; Mirza *et al.*, 2012; Siliwal *et al.*, 2012). As apart from descriptions of new species, many range extension records and taxonomic redescriptions of various species of Indian mygalomorph have been published (Cheeran & Nagaraj, 1997; Molur & Daniel, 2001; Molur *et al.*, 2004; Rao *et al.*, 2004; Ganeshkumar & Siliwal, 2005; Siliwal & Molur, 2009a).

PROBLEMS IN TAXONOMY OF MYGALOMORPHS OF THE REGION

Nearly 70% of the mygalomorphs described from India were described during the late 19th or early 20th century, a period before independence, mainly on the basis of specimens deposited in various European museums. The descriptions of these species are very basic, based on a few distinct morphological characters that are not of much use in recent comparative taxonomy. After India's independence, 29 new species, a very small number, were described with taxonomic detail. Mygalomorph studies carried out in the past and present have remained limited to a few pockets in the country, mainly to biodiversity-rich areas such as the Western Ghats, Northeast India and parts of eastern India. There are areas such as central and north India that have remained neglected areas as far as mygalomorphs are concerned. This is mainly due to a lack of surveys and funds for taxonomic studies. Further, there have been no further collections of many of the mygalomorphs since their first description, due to which there are a few invalid descriptions and taxonomic confusion.

About 60% of the Indian mygalomorphs are known only from the type locality. Of these spiders, 60% were described a century ago. Localities names have changed in many instances over the years. Moreover, there are six species, *Chilobrachys flavopilosus* (Simon, 1884), *Idiops fortis* (Pocock, 1900), *I. fossor* (Pocock, 1900), *Indothele mala* Coyle, 1995, *I. rothi* Coyle, 1995 and *Latouchia cryptica* (Simon, 1897), whose exact type localities are not known. Therefore, it is difficult to obtain fresh specimens of these species from the wild to work on their taxonomy. According to Platnick (2013), *C. flavopilosus* occurs in India and Myanmar, but there is no formal record of this species from India. As this species occurs in Myanmar, it can be inferred that this species could occur in northeastern India, in areas adjoining Myanmar, but so far there have been no reports of this species from Northeast India.

A total of 47 species have been described based on a single sex, of which, 34 are based on female specimens and only 13 are based on male specimens. This difference is mainly because males are found only during the mating season and have a short life span. After maturing, males lead a nomadic life. During the day they occupy temporary hideouts under rocks or wooden logs or in crevices and depressions in roadside bunds. A majority of surveys in protected areas are carried out during the daytime, and so it is very difficult to locate males during these surveys. Males are best caught in pitfall traps but it is not possible to catch them during short surveys.

Many species have undergone taxonomic changes recently. A major contribution to revising the mygalomorphs of the world was made by Raven (1980, 1985). He elevated the Hexathelidae, Idiopidae and Nemesiidae to family status and the genera *Damarchus*, *Heligmomerus*, *Idiops* and *Macrothele* were transferred to other families. Recently, a total of nine species have been transferred, seven species and two genera have been synonymized, and one genus has been removed from synonymy (Raven, 1980, 1985; Siliwal, 2009a; Siliwal & Raven, 2010; Siliwal *et al.*, 2010; Guadanucci, 2011). Many more generic revisions and validations of species are expected in the coming years (Siliwal *et al.*, 2005).

ENDEMIC MYGALOMORPH DIVERSITY IN INDIA

The mygalomorph spiders are poor at dispersal (Raven, 1980; Bond, 1999, Bond *et al.*, 2006; Siliwal & Molur, 2009b; Siliwal, 2009b), and therefore, a high level of endemism is seen in this group. In Indian mygalomorphs too, a high level of endemism is observed at the species level: of the 89 mygalomorphs reported from India, 87 are endemic to India. In contrast, at the generic level, endemism reduces considerably: of the 27 genera, only six genera are endemic to India and an additional five genera are endemic to South Asia (Table 1). Biogeographic research in India has resulted in different biogeographic elements being recognized in the subcontinent. The species found in the Western Ghats have affinities to African elements, and therefore many genera are presumably Gondwanan relicts, e.g., *Tigidia*, *Neoheterophriectus*, *Heterophriectus* and *Heligmomerus* (Siliwal *et al.*, 2011; Siliwal *et al.*, 2012). Thirty-seven of the 40 species occurring in the Western Ghats are endemic to the region. In contrast, species occurring in Northeast India have closer affinities with Indo-Chinese or Indo-Malayan elements such as *Conothele*, *Damarchus*, *Phlogeillus* and *Haplocosmia*. Interestingly, 17 of the 19 species reported from Northeast India are endemic to the region. Apart from these, there are genera that are Indian endemics such as *Annandaliella*, *Thrigmopoeus*, *Haploclastus*, *Sasonichus*, *Scalidognathus* and South Asian endemics such as *Poecilotheria*, *Diplothele* and *Indothele*. The only monotypic genus reported from India is *Sasonichus*, represented by a single species, *Sasonichus sullivani* Pocock, 1900, from Trivandrum, Kerala. It is likely that few species are naturally restricted to certain areas and are found in small numbers, as a result of which they have been never reported from other areas. However, this cannot be confirmed without carrying out a systematic survey throughout the country. With more studies on mygalomorphs being conducted in India, the number of endemic species is expected to increase.

ECOLOGY

Studies in the past were taxonomically-centered, and very little information is available on the ecology and natural history of mygalomorphs of India. Recent descriptions of species include information on natural history, habits and habitats, but ecological studies need to be intensified. Information on ecology and natural history are important for the conservation of a species. The information also educates people on where to look out for spiders in the wild. For example, *Conothele* from Myanmar was reported to be arboreal in habits (Pocock, 1900; Gravely, 1935a), but the species reported from India are strictly ground-burrowing forms (Siliwal *et al.*, 2009c). Similarly, *Chilobrachys* sp. in the Western Ghats was observed to be arboreal nesting in areas with heavy rainfall (pers. obser.).

Population and habitat preference studies have also been initiated recently. Most of these studies remain focused on the ecology of large-bodied tarantulas such as *Poecilotheria* spp., *Thrigmopoeus* spp. and *Chilobrachys* spp. (Molur *et al.*, 2003; Siliwal *et al.*, 2009a), except for one on the trapdoor spider *Idiops* in the Western Ghats, Karnataka (Gupta, 2010).

Mygalomorphs prefer undisturbed forests and wooded areas. They have been reported from different forest types: wet evergreen forests, semi-evergreen forests, moist deciduous forests, dry deciduous forests, mixed forests, bamboo forests and teak plantations. Usually, most mygalomorphs, including large-bodied tarantulas such as *Thrigmopoeus*, *Chilobrachys*, *Neoheterophriectus* and *Lyrognathus*; funnel web mygalomorphs such as *Macrothele* and *Indothele*; trapdoor spiders such as *Tigidia* and *Conothele*; and the nemesiid *Damarchus*, are entirely forest dwellers. However, secondarily, some of them have adapted to altered habitats such as scrub lands near human habitations. Some species of *Poecilotheria* primarily prefer old trees in forests and teak or bamboo plantations, but they have also been reported from disturbed and altered habitats such as private plantations (casuarina, banana, tamarind), scrub lands and human habitations that are close to wooded areas. Similarly, the trapdoor spider *Idiops* (in the Western Ghats) (Gupta, 2010) and small-sized tarantulas *Plesiophriectus* (in different locations in India) have also been found in human habitations close to forests (Siliwal, pers. comm.). However, the encounter rate of these spiders in these secondary habitats is less than that in natural forest.

CONSERVATION

Like other Indian fauna, mygalomorphs are also threatened due to habitat loss and fragmentation. An additional threat to large-bodied tarantulas is the illegal pet trade.

Developmental activities such as mining and construction and encroachments of natural resources are degrading forests, and the fragmented habitat is getting altered. The impact of habitat loss and fragmentation is clearly visible in biodiversity-rich areas, namely the Western Ghats and Northeast India. Thus species, including the megafauna, are declining in these areas at a great speed. Conservation efforts have been mainly focused on charismatic fauna or vertebrates, and the status of invertebrates such as mygalomorphs (though they have a long life span) receives no attention.

Mygalomorphs are long-lived spiders that are poor at dispersal, and the species are restricted to few locations. Habitat alteration and degradation can have a major impact on small populations or highly localized species of mygalomorph. For example, *Neoheterophriectus* and *Thrigmopoeus* are ground-burrowing mygalomorphs that prefer very specific habi-

tat areas and need a contiguous habitat for dispersal. As a result of habitat loss and fragmentation, three species of *Neoheterophritus* are known only from pockets of forests or wooded areas. Similarly, small ground-burrowing trapdoor spiders of the genus *Idiops* were observed in clusters (many burrows in a small patch) in suitable habitats in the Western Ghats as a result of habitat loss and fragmentation (Gupta, 2010). Further, any change in the habitat can wipe out a complete population.

In many cases, ground-burrowing mygalomorphs occupy roadside cuts or mud bunds. And very often, roadside cuts are further cut for either maintenance or widening of the road. During this process, many burrows are destroyed, and often spiders get killed by getting buried in the mud or are killed by locals.

Large-bodied tarantulas are often killed by locals who find these spiders near human habitations or in forests. They do this mainly due to a lack of education, fear and myths prevailing regarding spiders. Tarantula bites are very painful but are not lethal to humans.

Another major threat in Northeast India and the Western Ghats is that of slash-and-burn agriculture practices, which raise the temperature of burrows and cause ground mygalomorphs to die. However, some deep-burrowing mygalomorphs and trapdoor spiders have been able to escape small fires in forests (Molur *et al.*, 2003; Gupta, 2010).

PET TRADE

There is a long history of keeping tarantulas in captivity, earliest record is from 1700 AD (Molur & Siliwal, 2004; Smith, pers. comm.). It got popularized as a hobby in the late 19th century in Europe and North America. South and Central American tarantulas (*Brachypelma* spp., *Avicularia* spp.) were in great demand and were collected extensively from the wild for the pet trade. To save these species from extinction, *Brachypelma* spp. and *Aphonopelma* spp. were included in the Appendix II of the CITES in 1994 (Locht, 1999; M'rabet, 2005). After which, trade shifted to South Asian tarantulas, which morphologically resembled the South American tarantulas. A total of 13 species of Indian tarantulas are in the pet trade (Table 2). This includes all *Poecilotheria* spp., *Thrigmopoeus* spp., *Lyrognathus* spp. The Pet trade in India continues because these spiders are not listed under the Wildlife Protection (1972) Act or are CITES listed. As these species are long-lived, it takes more than four years for a female to mature and moreover, captive breeding and rearing is a time-consuming and tedious process. Therefore, collecting tarantulas from the wild gives quick profit to traders. Many of these species (e.g., *Poecilotheria metallica*, *Thrigmopoeus insignis*, *Haploclastus nilagiris*) are restricted to small patches of forest and effect of pet-trade on wild population can be critical for species survival. Even species like *Poecilotheria regalis*, with a wide range of distribution could be threatened with local extinction due to collection for pet-trade. Most of these tarantulas population status in the wild is poorly known.

RED LIST

In 2000, the Sri Lankan government and the US Fish and Wildlife Service proposed that the genus *Poecilotheriabe* included in the appendices of CITES due to the increasing trade in these spiders. But they were not included in CITES because of a lack of information on the population status, distribution, ecology and biology of these spiders. Subsequently, studies were initiated to collect primary data on the distribution and population status of Indian tarantulas in the wild. And based on the published literature and data collected during recent surveys on tarantulas in India, 14 species of theraphosid were listed in the IUCN Red List in 2008 (Table 3, Molur *et al.*, 2008). Eight of the 14 species are threatened with extinction. Two species are Critically Endangered, four species are Endangered and two species are Vulnerable due to various threats including the pet trade and the restricted nature and small size of the populations. Conservation plans need to be framed for threatened species and put into action before complete populations get extinct in the wild.

CONSERVATION PRIORITIES

Distribution and diversity studies: Very few areas have been surveyed properly for mygalomorphs. Most of the records obtained before independence were based on chance encounters. Though recent surveys have been focused on mygalomorphs, surveys have remained restricted to a few selected spots in the Western Ghats, Eastern Ghats and east and northeast India, and most areas in the country remain unsurveyed. A systematic survey is required for the whole country to get an overall picture of the distribution and diversity of mygalomorphs in India.

Population status: Of the 14 species of tarantula in the Red List, five species are Data Deficient due to a lack of information on their populations. These species should be a priority for population studies in the wild and for future assessments. Further, a study should be carried out to understand the impact of the pet trade on the wild populations of these tarantulas.

Biology: The life cycle of Indian tarantulas is very poorly known. Therefore, in-situ as well as ex-situ studies should be carried out to understand the life span and breeding biology of Indian tarantulas. This will help in gaining an understanding of the long-term impact of various threats on wild populations and can be included in conservation management plans for threatened tarantulas.

Taxonomic revisions: Most of the descriptions of mygalomorph species are old and outdated. For these species, re-description based on examination of type specimens (often located in European museums) or re-collection of fresh specimens from their type localities is required. This will help revise the Indian mygalomorph genera. Taxonomic confusion can be resolved with the help of advanced molecular techniques.

Education and awareness: With sporadic news regarding tarantula bites and myths prevailing about tarantula venom, it is necessary to create awareness programmes for locals about the positive role of these spiders and to educate them about the misconceptions related to the poisonous nature of these spiders. Also, to have a control on the illegal collection and smuggling of tarantulas from India, forest officials, central government officials and custom officials should also be educated about the existing pet trade involving Indian tarantulas. Further, training needs to be provided on what to do with confiscated animals.

Legal protection: To maintain a check on smuggling of tarantulas, it is necessary to get some of these spiders listed under the Wildlife Protection Act or CITES. At international ports, the customs need to keep a strict watch to prevent anyone from smuggling these spiders out of the country.

Liaison with customs officers in other countries (e.g., USA, Mexico, Germany) will permit a useful list of known or convicted smugglers to be made. All customs officers and park staff can be alerted when these people enter the country. In other countries, the use of these data and searches on outgoing luggage has ensured that the loss of fauna is minimal.

Conservation: A few hot spots should be selected, and the tarantula populations in these areas should be monitored. Local communities and the forest departments need to be motivated and trained to carry out long-term monitoring programmes.

CONCLUSIONS

With the present revived interest in mygalomorph studies in India, more species are expected to be discovered. Along with the distribution and taxonomic studies, there is a need to take up conservation-oriented studies on threatened tarantula species to ensure their survival in the wild. Sensitizing locals, foresters and decision makers can help the long-term conservation of tarantulas. Also, a strict implementation of laws can ensure that the illegal pet trade existing in the country is restricted.

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Table 1. List of Indian mygalomorphs with their distribution records

Family	Species	Sex	Locality	Distribution
Atypidae	<i>Atypus sutherlandi</i> Chennappaiya, 1935*	M,F	Kalimpong, in Darjeeling District, West Bengal	India
Barychelidae	<i>Diplothele gravelyi</i> Siliwal <i>et al.</i> , 2009*	F	Jadeshwar, Huma, Ganjam District, Orissa	India
Barychelidae	<i>Diplothele tenebrosus</i> Siliwal <i>et al.</i> , 2009*	F	Orissa: Satkosia Wildlife Sanctuary, Angul District	India
Barychelidae	<i>Diplothele walshi</i> O. P.-Cambridge, 1890	M,F	Barkuda Island, Orissa	India
Barychelidae	<i>Sason andamanicum</i> Simon, 1888*	M,F	Andaman Island	India
Barychelidae	<i>Sason rameshwaram</i> Siliwal & Molur, 2009*	M,F	Rameshwaram Island, Mandapam, Ramnathpuram District, Tamil Nadu	India
Barychelidae	<i>Sason robustum</i> (O. P.-Cambridge, 1883)	M,F	Tirupati hills, Horsleykondain Chittoor District, in Andhra Pradesh; Madras city, Rameshwaram Island, Nerkandram, Chingleput District, in Tamil Nadu; Trivandrum, Travancore in Kerala; Anuradhapura, in Sri Lanka	India, Sri Lanka, Seychelles
Barychelidae	<i>Sasonichus sullivanii</i> Pocock, 1900*	M	Trivandrum, Kerala	India
Barychelidae	<i>Sipalolasma arthropophysis</i> (Gravely, 1915)*	M,F	Barkul, in southeast Orissa	India
Barychelidae	<i>Tigidia nilgiriensis</i> Sanap, Mirza & Siliwal, 2011*	F	Kothagiri, Tamil Nadu	India
Barychelidae	<i>Tigidia rutilofronis</i> Sanap, Mirza & Siliwal, 2011*	F	Maruthamalai, Coimbatore District, Tamil Nadu	India

Barychelidae	<i>Tigidia sahydari</i> Siliwal, Gupta & Raven, 2011*	F	Dandeli, Uttara Kannada District, Karnataka	India
Ctenizidae	<i>Conothele vali</i> Siliwal et al., 2009*	F	Near Shurbi village, Tawang District, Arunachal Pradesh	India
Ctenizidae	<i>Conothele varvarti</i> Siliwal et al., 2009*	F	Barehipaniroad, Chahala Range, Similipal Tiger Reserve, Orissa	India
Ctenizidae	<i>Latouchia cryptica</i> (Simon, 1897)*	M	The Deccan	India
Dipluridae	<i>Indothele dumicola</i> (Pocock, 1900)*	M,F	Poona, Maharashtra	India
Dipluridae	<i>Indothele mala</i> Coyle, 1995*	F	Exact location not known	India
Dipluridae	<i>Indothele rothi</i> Coyle, 1995*	F	Exact location not known	India
Dipluridae	<i>Ischnothele indicola</i> Tikader, 1969*	M,F	Khasi and Jaintia hills, Meghalaya	India
Hexathelidae	<i>Macrothele vidua</i> Simon, 1906	M,F	Kalimpong, in Darjeeling District, and Kurseong, West Bengal	India
Idiopidae	<i>Heligmomerus barkudensis</i> (Gravely, 1921)*	M,F	Barkuda Island, Orissa	India
Idiopidae	<i>Heligmomerus biharicus</i> (Gravely, 1915)*	M	Sahibgunge, Bihar	India
Idiopidae	<i>Heligmomerus prostans</i> Simon, 1892*	F	Kodaikanal, Palni Hills, Tamil Nadu	India
Idiopidae	<i>Idiops bombayensis</i> Siliwal, Molur & Biswas, 2005*	M,F	Bombay, Matheran, Maharashtra	India
Idiopidae	<i>Idiops constructor</i> (Pocock, 1900)	M,F	Chingleput, Yercaud (in the Shevaroy Hills) in Tamil Nadu; Horsleykonda, Chittoor District in Andhra Pradesh; Panchgani (Satara District), Medha, Yenna Valley (Satara District), in Maharashtra	India
Idiopidae	<i>Idiops fortis</i> (Pocock, 1900)*	F	Exact location not known	India
Idiopidae	<i>Idiops fossor</i> (Pocock, 1900)*	M	The Deccan	India
Idiopidae	<i>Idiops garoensis</i> (Tikader, 1977)*	M	Degrangiri, Garo Hills, Meghalaya	India
Idiopidae	<i>Idiops madrasensis</i> (Tikader, 1977)*	F	Kulasekeram, Madras District, Tamil Nadu	India
Idiopidae	<i>Idiops rubrolimbatus</i> Mirza and Sanap, 2012*	M,F	Mumbai, Maharashtra	India
Idiopidae	<i>Idiops kassensis</i> Mirza et al., 2012*	M,F	Kaas Plateau, Panchagani, Satara District, Maharashtra	India
Idiopidae	<i>Scalidognathus nigriaraneus</i> Sanap and Mirza, 2011*	F	Dodabetta peak, Ooty, Nilgiri District, Tamil Nadu	India
Idiopidae	<i>Scalidognathus tigrinus</i> Sanap and Mirza, 2011*	F	Maruthamalai, Coimbatore District, Tamil Nadu	India

Idiopidae	<i>Scalidognathus montanus</i> (Pocock, 1900)*	F	Yercaud, in Shevaroy Hills, Tamil Nadu	India
Nemesiidae	<i>Damarchus assamensis</i> Hirst, 1909*	M,F	Sibsagar, Assam; Gmatia in Birbhum District, West Bengal	India
Nemesiidae	<i>Damarchus bifidus</i> Gravely, 1935*	M	Tindharia (Darjeeling District), Kalimpong, Sureil, Gopaldhara, West Bengal	India
Nemesiidae	<i>Damarchus excavatus</i> Gravely, 1921*	F	Barkuda Island, Orissa	India
Theraphosidae	<i>Annandaliella ernakulamensis</i> Jose & Sebastian, 2008*	M	Boothathankettu forests, Ernakulam District, Kerala	India
Theraphosidae	<i>Annandaliella pectinifera</i> Gravely, 1935*	M,F	Agricultural College, Coimbatore, Tamil Nadu	India
Theraphosidae	<i>Annandaliella travancorica</i> Hirst, 1909	M,F	Kulattupuzha; Trichur; Cochin State Forest (Parambikulam Wildlife Sanctuary) in Kerala	India
Theraphosidae	<i>Chilobrachys fimbriatus</i> Pocock, 1899	M,F	Khandala, Jaoli (Satara); Hoshali in Shimoga District in Mysore state (now in Karnataka). Recent observations: Borivali National Park, Amba Valley, Amboli, Matheran (Maharashtra); Castle Rock (Goa and Karnataka)	India
Theraphosidae	<i>Chilobrachys himalayensis</i> (Tikader, 1977)*	M	Birch Hill, Darjeeling, eastern Himalaya, West Bengal	India
Theraphosidae	<i>Chilobrachys khasiensis</i> Tikader, 1977*	F	Umshining, Khasi and Jaintia hills, Meghalaya	India
Theraphosidae	<i>Chilobrachys assamensis</i> Hirst, 1909*	M,F	Sibsagar, Assam	India
Theraphosidae	<i>Chilobrachys femoralis</i> Pocock, 1900*	M	Nasik, Maharashtra	India
Theraphosidae	<i>Chilobrachys flavopilosus</i> (Simon, 1884)	M,F	Exact location in India not known	India, Myanmar
Theraphosidae	<i>Chilobrachys fumosus</i> (Pocock, 1895)	M,F	Burroi in Dafia Hills, Arunachal Pradesh; Sureil, Darjeeling; Kurseong, eastern Himalaya	India
Theraphosidae	<i>Chilobrachys hardwicki</i> (Pocock, 1895)	M,F	Shahjahnpur in North-West provinces; Bilaspur, in Central Province; Chota Nagpur; Burdwan; Dharhara (Monghyr District), Sahibgunge in Bihar; Chakardharpur (Singbhum District) in Chota Nagpur; Gmatia (Birbhum District) and Murshidabad, West Bengal	India
Theraphosidae	<i>Chilobrachys stridulans</i> (Wood Mason, 1877)	M,F	Aideo, Goalpara, Sibsaagar, Silcuri in Cachar in Assam; Punkabari in Sikkim (=West Bengal), Sylhet, Assam (now in Bangladesh)	India, Bangladesh
Theraphosidae	<i>Chilobrachys thorelli</i> Pocock, 1900	M	Sadiya, Assam	India
Theraphosidae	<i>Haploclastus cervinus</i> Simon, 1892*	F	Shembaganur and Kodaikanal in Palni Hills in Tamil Nadu	India
Theraphosidae	<i>Haploclastus kayi</i> Gravely, 1915*	F	Parambikulam Wildlife Sanctuary, Kerala	India

Theraphosidae	<i>Haploclastus nilgirinus</i> Pocock, 1899*	F	Nilgiri Hills; Savarimullay, Vandiperiyar, Travancore, Kerala	India
Theraphosidae	<i>Haploclastus satyanus</i> (Barman, 1978)*	F	Cantonment area, Shillong, Meghalaya	India
Theraphosidae	<i>Haploclastus tenebrosus</i> Gravely, 1935*	M	High Wavy Mountain, Madura District, Tamil Nadu	India
Theraphosidae	<i>Haploclastus validus</i> (Pocock, 1899)	F	Matheran, Mumbai, Bhimshankar, Maharashtra	India
Theraphosidae	<i>Haplocosmia himalayana</i> (Pocock, 1899)*	M,F	Dehra Dun, Uttaranchal	India
Theraphosidae	<i>Heterophriectus bhorii</i> (Gravely, 1915)*	F	Parambikulam Wildlife Sanctuary, Kerala	India
Theraphosidae	<i>Heterophriectus milleti</i> Pocock, 1900	F, M	Nasik; Eastern Poona; Jauli; Mahabaleshwar, in Satara; Bhimashankar; in Maharashtra	India
Theraphosidae	<i>Lyrognathus crotalus</i> Pocock, 1895*	M,F	North India, Shillong, Meghalaya	India
Theraphosidae	<i>Lyrognathus saltator</i> Pocock, 1900*	F	North Khasi Hills, Meghalaya	India
Theraphosidae	<i>Neoheterophriectus crurofulvus</i> Siliwal et al., 2012*	M,F	Dandeli Wildlife Sanctuary, Uttara Kannada, Karnataka	India
Theraphosidae	<i>Neoheterophriectus sahyadri</i> Siliwal et al., 2012*	M,F	Dandeli and Anshi Tiger Reserve, Uttara Kannada, Karnataka	India
Theraphosidae	<i>Neoheterophriectus uttarakannada</i> Siliwal et al., 2012*	F	Anshi and Dandeli Wildlife Sanctuary, Uttara Kannada, Karnataka	India
Theraphosidae	<i>Phlogiellus subarmatus</i> (Thorell, 1891)*	M,F	Nancowry in the Nicobar Islands	India
Theraphosidae	<i>Plesiophriectus linteatus</i> (Simon, 1891)*	F	Pondichery	India
Theraphosidae	<i>Plesiophriectus nilagiriensis</i> Siliwal, Molur & Raven, 2007*	F	Mettupalayam, Coimbatore, Tamil Nadu	India
Theraphosidae	<i>Plesiophriectus blatteri</i> Gravely, 1935*	M,F	Panchgani, Satara District, Maharashtra	India
Theraphosidae	<i>Plesiophriectus collinus</i> Pocock, 1899*	F	Yercaud, in Shevaroy hills, Madras Presidency (Tamil Nadu)	India
Theraphosidae	<i>Plesiophriectus fabrei</i> (Simon, 1892)*	F	Madura, South India	India
Theraphosidae	<i>Plesiophriectus madraspatanus</i> Gravely, 1935	M,F	Madras city, Chingleput District, Velacheri, Nagalapuram Hills, Kambakkam Hills, in Tamil Nadu	India
Theraphosidae	<i>Plesiophriectus meghalayaensis</i> Tikader, 1977*	M,F	Fruit garden, Nongrim Hills, Shillong, Meghalaya	India
Theraphosidae	<i>Plesiophriectus millardi</i> Pocock, 1899*	M, F	Matheran, Uran, Maharashtra	India
Theraphosidae	<i>Plesiophriectus raja</i> Gravely, 1915*	F	Kavalai, Cochin State Forest, Kavalai, Kerala	India

Theraphosidae	<i>Plesiophrictus satarensis</i> Gravely, 1915*	M,F	Medha, in Yenna Valley; Umbri, Taloshi, Helvak, Kembsa, in Koyna Valley of Sata- ra District, in Maharashtra	India
Theraphosidae	<i>Plesiophrictus sericeus</i> Pocock, 1900*	F	Poona, Maharashtra	India
Theraphosidae	<i>Poecilotheria tigrinaweseli</i> Smith, 2006	M,F	Anantagiri, Araku, Paderu, in Andhra Padesh	India
Theraphosidae	<i>Poecilotheria formosa</i> Pocock, 1899	F	Kadiampatti and Mallapuram, in Salem District, in Tamil Nadu	India
Theraphosidae	<i>Poecilotheria hanumavilasumica</i> Smith, 2004	M,F	Rameshwaram Island, Mandapam, Ra- manathapuram District, Tamil Nadu	India
Theraphosidae	<i>Poecilotheria metallica</i> Pocock, 1899*	F	Nandyal-Giddalur road and Gooty, in Andhra Pradesh	India
Theraphosidae	<i>Poecilotheria miranda</i> Pocock, 1900*	F	Chota Nagpur, Kharagpur Hills, Chaibas- sa, Singbhum District of Chota Nagpur; Simlipal Tiger Reserve, Orissa	India
Theraphosidae	<i>Poecilotheria regalis</i> Po- cock, 1899	M,F	Coorg, Mysore, Bangalore in Kar- nataka; Sengottai, Mudumalai, Masinagudi, Avinashi, Nilgiri Hills, Moongilpallam in Anaikatti, Puttathathi (Siruvani),Theppakadu,Arakkonam (Ar- cot District), in Tamil Nadu; Anamalai Hills, in Kerala; Madanapalle, Biarapur Cheruvu, Thummalabailu, Shikharam, Sunipenta, Paldhara Panchdhara, Nandyal-Giddalur road, in Andhra Pradesh	India
Theraphosidae	<i>Poecilotheria rufilata</i> Po- cock, 1899*	M,F	Trivandrum, Mookuthala Sacred Grove, Nammamukku, Malapuram, in Kerala	India
Theraphosidae	<i>Poecilotheria striata</i> Po- cock, 1895	M,F	Mysore, Dandeli Wildlife Sanctuary, in Karnataka; Puttathathi (Siruvani), Ta- mil Nadu; Trivandrum, Parambikulam Wildlife Sanctuary, Peechi, Thrissur, Vazhachal Forest, Pattikadu Reserve For- est, in Kerala	India
Theraphosidae	<i>Selenocosmia javanensis</i> (Walckenaer, 1837)	M,F	Lesser Nicobar; Java	India, Malaysia to Sulawesi
Theraphosidae	<i>Selenocosmia kulluensis</i> Chamberlin, 1917*	M	Kullu Valley, Himachal Pradesh	India
Theraphosidae	<i>Selenocosmia sutherlandi</i> Gravely, 1935*	M	Kalimpong, Darjeeling District, West Bengal	India
Theraphosidae	<i>Thrigmopoeus insignis</i> Pocock, 1899	M,F	Kanara Ghats, Castle Rock, Dandeli Wildlife Sanctuary, North Canara, in Kar- nataka	India
Theraphosidae	<i>Thrigmopoeus truculentus</i> Pocock, 1899	M, F	Karwar, Coorg, in Karnataka; Amboli, in Maharashtra	India

Note: species with * mark are only known from the type locality

Table 2. List of Indian species of mygalomorph in the pet trade

S No.	Scientific name	Common name in pet trade	Status in pet trade
1.	<i>Chilobrachys fimbriatus</i> Pocock, 1899	Indian Violet	Very common
2.	<i>Chilobrachys hardwicki</i> (Pocock, 1895)	Common Indian Yellow-brown Tarantula	Rare
3.	<i>Lyrognaethus crotalus</i> Pocock, 1895	-	Common
4.	<i>Haploclostus nilgirinus</i> Pocock, 1899	Nilgiri Dark Mustard	Common
5.	<i>Poecilotheria regalis</i> Pocock, 1899	Indian Ornamental Tarantula	Very common
6.	<i>Poecilotheria miranda</i> Pocock, 1900	Bengal Spotted Ornamental	Very common
7.	<i>Poecilotheria formosa</i> Pocock, 1899	Salem Ornamental Tarantula	Common
8.	<i>Poecilotheria rufilata</i> Pocock, 1899	Red Slate Ornamental Tarantula	Very common
9.	<i>Poecilotheria metallica</i> Pocock, 1899	Gooty Ornamental	Very common
10.	<i>Poecilotheria striata</i> Pocock, 1895	Mysore Ornamental	Very common
11.	<i>Poecilotheria tigrinawesseli</i> Smith, 2006	Ivory Ornamental	Common
12.	<i>Thrigmopoeus truculentus</i> Pocock, 1899	Lesser Goa Mustard	Very common
13.	<i>Thrigmopoeus insiginis</i> Pocock, 1899	Kanara Ghats Mustard	Common

Table 3. List of Indian tarantula spiders in the IUCN Red List and their categories

Scientific name	Common names	Category	Criteria
<i>Chilobrachys fimbriatus</i> Pocock, 1899	Fimbriated Striated Burrowing Spider, Indian Violet	Least Concern	
<i>Chilobrachys hardwicki</i> (Pocock, 1895)	Eastern Indian Striated Burrowing Spider	Least Concern	
<i>Haploclostus kayi</i> Gravely, 1915	Parambikulam Large Burrowing Spider	Endangered	B1ab(ii,iii)
<i>Poecilotheria formosa</i> Pocock, 1899	Beautiful or Finely Formed Parachute Spider, Salem Ornamental	Endangered	B1ab(i,ii,iii)+2ab(i,ii,iii)
<i>Poecilotheria hanumavilasumica</i> Smith, 2004	Rameshwaram Parachute Spider, Rameshwaram Ornamental	Critically Endangered	B1ab(ii,iii,iv,v)+2ab(ii,ii,iv,v)
<i>Poecilotheria metallica</i> Pocock, 1899	Peacock Parachute Spider, Gooty Tarantula, Metallic Tarantula, Peacock Tarantula	Critically Endangered	B1ab(iii)
<i>Poecilotheria miranda</i> Pocock, 1900	Wonderful Parachute Spider, Bengal Ornamental	Endangered	B1ab(iii)
<i>Poecilotheria nallamalaiensis</i> Rao et al., 2007*	Nallamala's Parachute Spider	Data Deficient	
<i>Poecilotheria regalis</i> Pocock, 1899	Regal or King Parachute Spider, Indian Ornamental	Least Concern	
<i>Poecilotheria rufilata</i> Pocock, 1899	Reddish or Rufus Parachute Spider, Travancore Slate-Red, Red Slate Ornamental	Endangered	B1ab(ii,iii)
<i>Poecilotheria striata</i> Pocock, 1895	Striped or Striated Parachute Spider, Mysore Ornamental	Vulnerable	B1ab(ii,iii)+2ab(ii,iii)
<i>Poecilotheria tigrinawesseli</i> Smith, 2006	Anantagiri's Parachute Spider	Data Deficient	

<i>Thrigmopoeus insignis</i> Pocock, 1899	Notable Large Burrowing Spider	Vulnerable	B1ab(ii,iii) + 2ab(ii,iii)
<i>Thrigmopoeus truculentus</i> Pocock, 1899	Karwar Large Burrowing Spider	Near Threatened	B1ab(ii,iii)

*Note: This species has been synonymized with *P. formosa*.