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REVIEW ARTICLE



Araneae (spiders) of South America: a synopsis of current knowledge

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ABSTRACT

South America is the fourth largest continent on the planet; its birds, mammals, and amphibian's biodiversity is relatively well known, but no outright assessment of the continent spider (Araneae) fauna has been done to date. From January 2019 to August 2020, a recompilation of all spider species registered to occur in South America was conducted based on the data available from the World Spider Catalog [2020. Version 18.5. Natural History Museum Bern. [cited Jan 2019–Aug 2020]]. The assessment revealed that the South American spider fauna comprises 83 families, 1018 genera, and 8302 species, representing 17% of the world spider fauna biodiversity; however, 94% of the spider-specific biodiversity is found nowhere else on earth. A total of 78 species have been introduced in South America, while 30 species were exported from the South American continent to other parts of the world. For all South American families, an overview of the current knowledge is presented: distribution, endemism, taxonomical inconsistency, and problems are discussed. The complete checklist of spiders occurring in SA with distribution given by countries and the complete list of introduced and exported species with details of their native region and current known distribution are presented.

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Introduction

Continental South America is the fourth largest continent on earth (covering 12%) and is situated mainly in the Southern hemisphere, with only a small portion in the Northern hemisphere (Orme 2007). The continent is situated on the South American Plate. This major tectonic plate includes a sizable portion of the Atlantic Ocean, the tectonic forces that define the South American continent's location, landscape, and significant relief features are still ongoing (Orme 2007).

Continental South America broke off from Gondwana about 170–180 million years ago, and about 140 million years ago, South America and Africa split, opening up the South Atlantic Ocean between them (Orme 2007). South America was a large island, isolated from the rest of the world during the Paleogene and Neogene (65 million to 2.6 million years ago), which explains part of South American significant biological diversity

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in various animal groups (e.g. mammals, birds, reptiles, and amphibians) (e.g. Duellman 1979, 1999; Simpson 1980; Vanzolini and Heyer 1985; Marshall and Sempere 1993; Vuilleumier and Andors 1993).

Approximately 4 million years ago, the formation of the Isthmus of Panama allowed many North American mammal groups to move south and some South American mammal to move north (Stehli and Webb 1985; Pitman et al. 1993), as well as other land animals. Gondwana encompasses the present-day continents of South America, Africa, most of Australia and Antarctica, the Indian subcontinent and Madagascar, and parts of Arabia (Torsvik and Cocks 2013). The Zealandia continent, 94% of which is now submerged under ocean water, was also part of Gondwana (Mortimer et al. 2017). Gondwanan South America comprises >64% of the present-day continental mass (Torsvik and Cocks 2013).

One of the most diagnostic geographic features of the South American continent is undoubtedly the Andean mountains that extend over 8500 km (Duellman 1999; Orme 2007). The complex orogeny of the Andes began in the late Mesozoic, the formation of the mountain range is characterised by a succession of various events (e.g. plate subduction, magmatism, crustal shortening) that lasted millions of years and has peaked with a massive uplift over the past 30Ma (Ramos and Aleman 2000; Orme 2007). The major uplift of the southern Andes happened in the Miocene, while the uplift of the northern Andes occurred in the Pliocene (Duellman 1999; Orme 2007). The Andes mountains range is quite impressive, with the highest point peaking at 6961 m, but notably, there are also more ancient mountains found in the Brazilian and the Guyana Shield (Young et al. 2007).

The South American continent was also affected by important climate changes during the last glacial maximum event (ca. 21,000 years ago). Based on glacial, periglacial, and pollen evidence, a last glacial maximum temperature depression of 5–6°C can be assumed for both tropical lowland South America and the Andes (Heine 2000), but the subject is still up to debate (e.g. Colinvaux 1989; Van der Hammen and Absy 1994; Heine 1998).

South America is characterised by some of the most impressive ecosystems of the planet, the largest river, the Amazon River; the longest mountain range, the Andes; the driest non-polar place on earth, the Atacama Desert, and the largest rainforest, the Amazon Rainforest. The continent encompass five major biodiversity hotspots (Myers et al. 2000): the Tropical Andes, a diverse landscape of snow-topped mountains, deep canyons and valleys with diverse vegetation (tropical rainforests between 500 and 1500 m, cloud forests between 800 and 3500 m and at the highest altitudes of 3000–4800 m, Paramo grasslands up to snow cover); the Atlantic Forest, with various ecoregions such as the seasonal moist and dry broadleaf tropical forests, the tropical and subtropical grasslands, savannas shrublands, as well as mangrove forests; the Tumbes-Chocó-Magdalena, including tropical moist forests and tropical dry forests of the Pacific coast of South America and the Galapagos Islands, mangroves and montane forest; the Cerrado, a large tropical savanna ecoregion including forested, wooded, and gramineous-woody savannas, as well as wetlands savanna and gallery forests; and the Chilean Winter Rainfall-Valdivian forests, temperate rainforests on the west coast of southern South America, characterised by their dense understories of bamboos temperate broadleaf and mixed forests (Myers et al. 2000).

Notwithstanding the Pliocene and Pleistocene extinctions, South America is also one of the most biodiverse continents on earth for practically every animal group (Meserve

2007). For instance, 20% of earth's mammals (5416 species) occur on the continent (Nowak 1999; Wilson and Reeder 2005; Meserve 2007) and 34% of birds (3431 species) (Sibley and Monroe 1990). The fish fauna of South America is also one of the most diverse on the planet, with current estimates ranking around 9100 species for continental freshwaters and nearshore marine waters fishes combined, or 29% of all fishes worldwide (Moyle and Cech 2000). South America is also home to more than 2500 species of amphibians, 42% of the world's biodiversity (Frost 2020).

While the diversity of South America's larger animals is somewhat known, the diversity of small animals such as invertebrates (insects, mollusks, or arachnids) is practically unknown. In 2011, Zhang evaluated that worldwide 112,201 Arachnids had been described. Within the class Arachnida, Araneae (spiders) is the second most diverse group after Acari, with 49,673 species described (WSC 2020). On average, since the year 2000, roughly 707 spider species are described per year worldwide (WSC 2020). Arachnologists estimate that the group may include >120,000 species in total (Agnarsson et al. 2013); it will take about 50 years at this rate to describe all the known spider species of the planet.

So far, 120 spider families have been described (WSC 2020), but the spider family tree is still subject to taxonomical changes. New families are still being proposed or erected (e.g. Griswold et al. 2012; Ramírez et al. 2019; Opatova et al. 2020), and relationships and limits between the families are still not entirely resolved (e.g. Garrison et al. 2016; Wheeler et al. 2017) primarily due to the lack of taxon sampling. Of these, 56 families have less than 100 species described, and only 12 families have more than 1000 species described (WSC 2020). The 10 most diverse families are (WSC 2020): Salticidae (6174), Linyphiidae (4631); Araneidae (3052); Gnaphosidae (2522); Theridiidae (2506); Lycosidae (2431); Thomisidae (2145); Oonopidae (1850); Pholcidae (1751) and Agelenidae (1334). If we look at the generic diversity, the families with the most recognised genera are Salticidae (644); Linyphiidae (614); Araneidae (178); Thomisidae (170); Gnaphosidae (158); Theraphosidae (149); Lycosidae (125); Theridiidae (124); Oonopidae (114) and Pholcidae (94).

But it must be emphasised that families that have received more taxonomic attention are often the families with the most described species (e.g. Araneidae, Gnaphosidae, and Oonopidae).

For some part of the world, the spider diversity is better known, checklists, books, or online catalogs document the diversity: for example, 5400 spider species are known to occur in Europe (Araneae of Europe: <https://araneae.nmbe.ch/>); 3000 species are registered in North America, USA (Ubick et al. 2017); 1477 species in North America, Canada (Paquin et al. 2010; Bennett et al. 2019); 2295 species in Mexico (Franke 2013) and in Australia, 3903 species are found (Framenau 2020). For other parts of the world, countries, regional lists, or parks/reserve lists are more commonly published: e.g. for China (Tang et al. 2021); Tanzania (Russell-Smith 2020); Ukraine (Polchaninova and Prokopenko 2019); South Africa, Kruger National Park (Dippenaar-Schoeman and Leroy 2003); and Iran (<https://www.spiders.ir/>) (Zamani et al. 2020). As well in SA, numerous lists, inventories and diversity studies exists: e.g. for Colombia (Pinzon et al. 2010); Brazil (Brescovit et al. 2011; Carvalho et al. 2014; Oliveira et al. 2017); the Galapagos (Baert and Maelfait 2000; Bucholz et al. 2020); and for the Neotropics (Santos et al. 2017). These are merely a few examples of the plenitude of checklists and catalogs published on spider diversity. However, no current overview of all the South American spider fauna has been published to this day.

The paper presents the diversity, endemism and distribution of all spider species recorded to occur in SA based on data extracted from the World Spider Catalog (between January 2019 and August 2020). The inventory does not claim to be complete since only species included in taxonomic papers are listed in the WSC (2020), and taxonomic changes, new species descriptions happen almost daily.

Overview of Arachnology in South America

European taxonomists described the first American spiders, dating back to Clerck in 1757 and Linnaeus in 1758. In the early years of arachnology, various arachnologists worked in different regions of the SA continent. In 1945, Bonnet presented a list of regions and arachnologists that worked on the fauna: **Argentina**: Holmberg (1874–1883), Simon (1897); **Brazil**: Blackwall (1862–1863), Bertkau (1880), Pickard-Cambridge (1881), Keyserling (1880–1893), Göldi (1894–1899), Pickard-Cambridge (1896); **Colombia**: Keyserling (1878); **Chile**: Nicolet (1849), Keyserling (1880–1893), Simon (1889–1897), Pickard-Cambridge (1898); **Ecuador**: Simon (1889c); **French Guiana, Guyana**: Taczanowski (1872, 1873), Keyserling (1880–1893). **Patagonia, Terre de Feu, Cap Horn**: Simon (1884–1896); **Peru**: Taczanowski (1878), Keyserling (1880–1893), F.O.P.-Cambridge (1898); **Paraguay**: Masterman (1869), Simon (1897); **Uruguay**: Keyserling (1878); **Venezuela**: Simon (1889–1893) and **South America**: Thorell (1894). The two most productive European arachnologists that worked on the SA spider fauna are French arachnologist Eugène Simon (1848–1924), who described 682 species from SA, followed by German arachnologist Eugen von Keyserling (1832–1889) that described 510 species from the continent. Eduardo Holmberg (1852–1937), born in Buenos Aires, is considered the first SA arachnologist, but the most productive of all SA arachnologist is Cândido Firmino de Mello-Leitão (1886–1948) from Brazil, who described 918 species. Contemporarily, numerous arachnologists are working on the SA spider fauna from different parts of the world. The three most productive arachnologists in terms of species described are *the late* Dr. Herbert Levi (1921–2014) from the Museum of Comparative Zoology, Harvard University, who described 806 species from SA; *the late* Dr. Norman Platnick from the American Museum of Natural History (1951–2020), who described 564 species, and Dr. Antonio Brescovit from the Butantan Institute, who described 518 species and is still very active. The most notorious female arachnologist is, without a doubt, the Argentinian arachnologist, *the late* María Elena Galiano (1928–2000) from the Bernardino Rivadavia Natural Sciences Museum, who described 145 species. The most productive female arachnologists in terms of species described in SA are Dr. Cristina Rheims from the Butantan Institute who described 167 species and myself with 308 species described so far.

Methodology

Data extraction and Annexes organisation

The data was compiled/extracted from the World Spider Catalog (<https://wsc.nmbe.ch/>) between January 2019 until August 2020. All the species occurring in SA were sought out and compiled in an excel spreadsheet alongside their known distribution (countries occurrences or distribution range) (Annexe 1). The decision to use only the World

Spider Catalog as a source of information and not seek out data in different checklists or other online catalogs is based on two premises: first, the World Spider Catalog compiles only but all taxonomic papers, enabling for a more reliable source of information; secondly, choosing one source of information allows for more uniformity and comparability. While the data may not be complete, and the addition of information from regional lists, or inventories could modify the species and genera estimation, distribution patterns and endemism, the data presented here serve as a benchmark study and readers should seek out complementary information.

When the distribution of a species was only specified as a range in the World Spider Catalog (e.g. USA to Brazil), all the relevant taxonomic papers mentioned were consulted, and all the localities (countries) found were added to the species distribution. For example, *Verrucosa undecimvariolata* is registered from Mexico to Argentina (WSC 2020), while in the checklist (Annexe 1), the species distribution is as such: Mexico, Central America, Caribbean, Brazil, Colombia, Uruguay, and Venezuela based on the review of papers from O. Pickard-Cambridge (1889) and, F. O. Pickard-Cambridge (1904); Keyserling (1892); Levi (1976) and Lise et al. (2015). If a complete distribution could not be established, the distribution mentioned in Annexe 1 is presented, as such: GTM-PER, and should be read as Guatemala to Peru.

Furthermore, when some genera or species were recognised as ‘doubtful’ occurrence in SA, their distribution, identification, taxonomical history was further investigated to determine their most probable distribution and if they occur or not in SA. In some cases, some genera are not included in the total generic count because of doubtful identification, illustrations, and/or distribution. The details of problematic genera or species can be found in the taxonomic section under every family (ex. *Clubiona* is a very diverse genus, including 502 species in SA; nine species were described by Nicolet (1849) and Caporiacco (1947) without any illustrations). Therefore, the presence of *Clubiona* in SA is not well established and is considered doubtful and not considered occur in the context of the paper computation.

In Annexe 1, families are arranged by infraorder: Mygalomorphae (17 families) and Araneomorphae (65 families). Within these main divisions, taxa are listed alphabetically by family, then genus, then species. For authors, due to space constrain, only the two first authors of the species description are mentioned in the list. The genera endemic to SA are written with an ‘*’ while the genera, species, or distribution that are ‘underlined’ are considered doubtful or problematic, and one should refer to the main text for explanation.

The information used to compile the lists of species introduced to SA and species exported from SA to other countries (Annexes 2a, 2b) is based on a literature search in Google Scholar and the World Spider Catalog (2020). In this case, the search for papers/data had to go beyond the World Spider Catalog since papers concerning species introduction in and out of SA are not necessarily registered by the WSC (2020). The literature providing detailed information about an introduced or exported species is stated in the annexes (2a, 2b); the species list is based only on papers in which illustrations or photos could identify the species. The biogeographic realm for introduced species in SA is based on the species’ current known distribution. For some species, the native region, biogeographic realm, known distribution is either unknown or uncertain. In those cases, the information is ‘underlined,’ and the problematic cases are discussed under the section: Species introduction, exportation to and from SA.

Definitions and abbreviations

To determine the continental distributions of genera and species, the mainland continent delimitation of the seven continents was followed. However, for isolated islands, their continental affiliation is based on their position on the main tectonic plates, definitions are as such: **Africa** (includes Canaries Island, Cape Verde, La Réunion, Madagascar, Marion Island, São Tomé and Príncipe, Seychelles, St Helena, and Tristan da Cunha); **Asia** (including Sri Lanka); **Australia/Oceania** (includes the islands of Micronesia, Melanesia, New Zealand, and Polynesia); **Europe; North America** (including Central America and the Caribbean); **South America** (including the Falkland Islands, Juan Fernandez Islands, Galapagos Islands, South Georgia) and **Antarctica** (including the Kerguelen Islands).

Hawaii is located in the middle of the Pacific plate, therefore not closely associated with any continental landmass. Price and Wagner (2018) study on the origin of the Hawaiian flora showed that the diversity was either Indo-Malayan (22.2%) or American (27.8%) in origin. Since a genuine association with a continental landmass is difficult, Hawaii is considered here part of the Americas. Most of the spider genera found in Hawaii and SA have worldwide distribution except for a few cases that are discussed in the taxonomical section. Long-range distribution is defined here for species that occur from Canada, the USA, or Mexico until South America.

Abbreviations for continents: Africa: AF; Asia: AS; Antarctica: AN; Australia/Oceania: AU; Europe: EU; North America: NA; South America: SA. **Abbreviations for countries** (follow the International Organization for Standardization (ISO) code of three letters (https://en.wikipedia.org/wiki/ISO_3166-1_alpha-3)): Argentina: ARG; Bahamas: BHS; Bolivia: BOL; Brazil: BRA; Cayman Islands: CYM; Chile: CHL; Colombia: COL; Costa Rica: CRI; Cuba: CUB; Curaçao: CUW; Dominican Republic: DOM; Ecuador: ECU; El Salvador: SLV; Falkland Is.: FLK; French Guiana: GUF; Galapagos Is.: GIs.; Guatemala: GTM; Guyana: GUY; Jamaica: JAM; Juan Fernandez Is.: JFIs.; Honduras: HND; Mexico: MEX; Nicaragua: NIC; Panama: PAN; Paraguay: PRY; Peru: PER; Puerto Rico: PRI; Saint Vincent and the Grenadines: VCT; South Georgia Is.: SGIs.; Suriname: SUR; Trinidad and Tobago: TTO; Uruguay: URY; Venezuela: VEN. **Abbreviations for regions:** Andes: AND; Caribbean: CAR; Central America: CA; External America: EXT AM; External South America: EXT SA; Greater Antilles: GA; Hispaniola: HIS; Lesser Antilles: LA; Virgin Islands: VI; West Indies: WI; Worldwide: WW.

Collection abbreviations are as follows: MNHN: Muséum National d'Histoire Naturelle, Paris (France); MNRJ: Museu Nacional da Universidades Federal do Rio de Janeiro (Brazil); MSNG: Museo Civico di Storia Naturale di Genova 'Giacomo Doria,' Genova (Italy); ZMH: Zoological Museum Hamburg (Germany).

Abbreviations used in the text are as follows: juveniles: juv.; in preparation: in prep.; undetermined: undt.; opposite: opp.; pers. comm.: personal communication.

Results

In August 2020, the spider fauna of SA comprised 83 families, 1018 genera, and a total of 8302 species (Table 1). The two most speciose families are the Salticidae (1073 spp.), followed by the Araneidae (1002 spp.). In terms of endemism, 52% of the genera (537) and 94% of the species (7756 spp.) are endemic to the SA continent (Table 1). The families

with the most endemic genera are the Salticidae family (91), interestingly followed by the Linyphiidae (49) and Theraphosidae (42) families. In comparison, the families with the most endemic species are the Salticidae (1004 spp.) and the Araneidae (874 spp.) ([Table 1](#)).

The inventory shows that Brazil is the country where the most spider species are known to occur, with 3843 species registered, followed by Argentina with 1295 species, oppositely Suriname and Uruguay are the countries with fewer registered species, 113 and 159 species respectively ([Table 2](#)). Some species distributions are not well established and could not be attributed to any countries. Earlier taxonomists (1800–1900s) occasionally described species with vague locality information (Northern Andes, Andean, or South America). The tally showed that 15 species have unprecise distribution ([Table 2](#); Annexe 1).

The inventory of introduced/exported species in and from SA shows that 78 species have been introduced to SA, while 30 species have been exported from SA to other continents ([Table 3](#)). No Mygalomorphae spiders have been introduced or exported; the family with the most introduction into SA is the Oonopidae family (12 spp.), followed by Theridiidae (10 spp.), Gnaphosidae, and Salticidae with eight species, respectively. Oppositely, SA introduced nine species of Theridiidae to other continents. The total number of families (85) in [Table 3](#) is different than in [Table 1](#) because two families are represented in SA only by introduced species, the families Cithaeronidae (2 spp.) and Dysderidae (1 spp.).

All the genera (1018) that occur in SA were categorised into 20 different categories (e.g. South America, North America, North America-Africa) based on the continental distribution of their included species ([Table 4](#)). The results showed that of the 1018 genera found in SA, 538 genera are endemic to SA, while 315 genera are composed of species that occur strictly in SA and NA. Only 5% of the genera (52) that occur in SA have a worldwide distribution. Only seven genera include species found exclusively in Africa and SA; six genera are found in SA and Australia/Oceania, while four genera are registered to occur exclusively in SA and Asia. No genera uniquely share species with Europe. One genus is considered to occur in Antarctica because *Neomaso antarcticus* is found in Kerguelen and Marion Island.

All non-endemic SA species (546) were classified into 13 different distribution corridors or other continents (e.g. North America, USA-Mexico-Central America) ([Table 5](#)). Only four species are known to occur naturally in SA and outside the Americas, while nine species occur all over the Americas (Canada to SA). Only eight Mygalomorphae species are distributed outside SA; the two families with more species occurring outside the continent are the Araneidae and Theridiidae families with 126 and 118 species, respectively.

Discussion

Diversity and endemism

Two families, Cithaeronidae and Dysderidae are considered introduced to the continent, while five families (Diguetidae, Paratropididae, Senoculidae, Synotaxidae, and Xenoctenidae) are endemic to the Americas; only one family, Mecicobothriidae, is endemic to

Table 1. South America spider family list with total number of genera and species, and total number of endemic genera and species.

	Family	Authority	Total genera	Endemic genera	Total species	Endemic species
MYGALOMORPHAE						
1	Actinopodidae	Simon, 1892	3	1	54	54
2	Barychelidae	Simon, 1889	8	5	31	31
3	Cyrtuchenidae	Simon, 1889	4	2	18	18
4	Dipluridae	Simon, 1889	7	6	69	69
5	Entypesidae	Bond, Opatova & Hedin, 2020	1	—	4	4
6	Euagridae	Raven, 1979	2	2	4	4
7	Halonoproctidae	Pocock, 1901	1	—	2	2
8	Hexathelidae	Simon, 1892	2	2	10	10
9	Idiopidae	Simon, 1889	2	—	32	32
10	Ischnothelidae	F.O. Pickard-Cambridge, 1897	2	1	8	7
11	Mecicobothriidae	Holmberg, 1882	1	1	2	2
12	Microstigmatidae	Roewer, 1942	6	6	17	17
13	Migidae	Simon, 1889	3	3	10	10
14	Nemesiidae	Simon, 1889	12	12	48	48
15	Paratropididae	Simon, 1889	5	2	14	14
16	Pycnothelidae	Chamberlin, 1917	4	4	60	60
17	Theraphosidae	Thorell, 1869	60	42	395	388
ARANEOMORPHAE						
18	Agelenidae	C. L. Koch, 1837	1	1	1	1
19	Amaurobiidae	Thorell, 1870	20	18	56	56
20	Anapidae	Simon, 1895	14	7	58	56
21	Anyphaenidae	Bertkau, 1878	54	35	379	361
22	Araeidae	Clerck, 1757	62	15	1002	874
23	Austrochilidae	Zapfe, 1955	2	2	9	9
24	Caponiidae	Simon, 1890	10	6	51	50
25	Cheiracanthiidae	Wagner, 1887	6	2	58	56
26	Clubionidae	Wagner, 1887	1	—	21	16
27	Corinnidae	Karsch, 1880	24	9	264	256
28	Ctenidae	Keyserling, 1877	22	14	179	176
29	Cybaeidae	Banks, 1892	1	1	7	7
30	Deinopidae	C. L. Koch, 1850	1	—	15	14
31	Desidae	Pocock, 1895	4	3	15	15
32	Dictynidae	O. Pickard-Cambridge, 1871	8	3	31	29
33	Diguetidae	F. O. Pickard-Cambridge, 1899	2	1	5	5
34	Drymusidae	Simon, 1893	1	—	7	7
35	Eresidae	C. L. Koch, 1845	1	—	1	1
36	Filistatidae	Simon, 1864	4	3	21	20
37	Gallieniellidae	Millot, 1947	1	1	1	1
38	Gnaphosidae	Banks, 1892	29	21	228	222
39	Hahniidae	Bertkau, 1878	8	6	19	18
40	Hersiliidae	Thorell, 1869	3	2	8	7
41	Linyphiidae	Blackwall, 1859	70	49	434	419
42	Liocranidae	Simon, 1897	1	1	3	3
43	Lycosidae	Sundevall, 1833	24	13	212	209
44	Malkaridae	Davies, 1980	1	1	1	1
45	Mecysmauchenidae	Simon, 1895	5	5	22	22
46	Mimetidae	Simon, 1881	4	1	29	26
47	Miturgidae	Simon, 1886	2	1	6	4
48	Mysmenidae	Petrunkewitch, 1928	7	2	50	47
49	Nesticidae	Simon, 1894	2	—	14	14
50	Ochyroceratidae	Fage, 1912	5	1	50	48
51	Oecobiidae	Blackwall, 1862	2	—	2	1
52	Oonopidae	Simon, 1890	43	21	589	571
53	Orsolobidae	Cooke, 1965	7	7	40	40

(Continued)

Table 1. Continued.

	Family	Authority	Total genera	Endemic genera	Total species	Endemic species
54	Oxyopidae	Thorell, 1869	5	1	57	50
55	Palpimanidae	Thorell, 1870	5	3	70	68
56	Philodromidae	Thorell, 1870	16	10	68	68
57	Pholcidae	C.L. Koch, 1850	36	24	330	326
58	Physoglenidae	Petrunkewitch, 1928	2	2	5	5
59	Pisauridae	Simon, 1890	2	—	42	31
60	Salticidae	Blackwall, 1841	180	91	1073	1004
61	Scytodidae	Blackwall, 1864	1	—	89	85
62	Segestriidae	Simon, 1893	1	—	23	22
63	Selenopidae	Simon, 1897	1	—	24	20
64	Senoculidae	Simon, 1890	1	—	22	20
65	Sicariidae	Keyserling, 1880	2	1	73	70
66	Sparassidae	Bertkau, 1872	23	12	140	137
67	Symphytognathidae	Hickman, 1931	5	—	18	17
68	Synottaxidae	Simon, 1894	1	—	11	8
69	Telemidae	Fage, 1913	1	1	1	1
70	Tetrablemmidae	O. Pickard-Cambridge, 1873	4	—	14	13
71	Tetragnathidae	Menge, 1866	13	2	229	203
72	Theridiidae	Sundevall, 1833	54	6	592	475
73	Theridiosomatidae	Simon, 1881	9	2	45	37
74	Thomisidae	Sundevall, 1833	33	16	361	339
75	Titanoecidae	Lehtinen, 1967	2	—	7	7
76	Trachelidae	Simon, 1897	3	1	52	51
77	Trechaleidae	Simon, 1890	16	7	109	96
78	Trochanteriidae	Karsch, 1879	3	3	5	5
79	Uloboridae	Thorell, 1869	9	4	64	56
80	Viridaspididae	Lehtinen, 1967	1	—	1	1
81	Xenoctenidae	Ramírez & Silva-Dávila, 2017	4	3	24	24
82	Zodariidae	Thorell, 1881	7	3	77	75
83	Zoropsidae	Bertkau, 1882	3	3	10	10
	TOTAL		1018	538	8302	7756

SA. Comparatively, the Australian/Oceanian region holds the highest level of spider family endemism (12), followed by North America (8).

The overall family diversity in SA is still subject to change, considering that the limits of various families in the order Araneae are not entirely resolved. Worldwide, families are still being delimited (e.g.; Wheeler et al. 2017; Opatova et al. 2020), and new families are still being proposed (Griswold et al. 2012; Ramírez et al. 2019). Additionally, in SA, various parts of the continent are understudied, and many smaller cryptic animals are still unknown. For example, the family Telemidae was relatively recently discovered in SA (Dupérré and Tapia 2015); with the closest record being *Telema mayana* from Guatemala described by Gertsch (1973). Moreover, it would not be surprising that some families occurring in the Caribbean or Central America emerge in SA, such as Leptonetidae (occurring until Panama; Ledford and Griswold 2010) or Phrurolithidae (occurring in the Caribbean; Bryant 1940). Oppositely some families such as Agelenidae, Eresidae and Viridaspididae may prove not to occur on the SA continent.

In SA so far, the five most speciose families are the: Salticidae (1073), Araneidae (1002), Theridiidae (592), Oonopidae (589), and Linyphiidae (434) (Table 1). The five most speciose SA families almost correspond to the world top five most diverse families (Salticidae (6222), Linyphiidae (4667), Araneidae (3052), Gnaphosidae (2547), and

Table 2. Total number of species known per family for all South American countries.

	ARG	BOL	BRA	CHL	COL	ECU	GUF	GUY	PRY	PER	SUR	URY	VEN	SA	AND
MYGALOMORPHAE															
1	Actinopodidae	25	1	15	3	1	—	—	1	—	—	9	5	2	—
2	Barychelidae	—	—	15	—	3	2	1	1	—	1	—	8	—	—
3	Cyrtucheniiidae	1	1	8	—	—	3	—	—	—	—	—	2	—	—
4	Dipluridae	2	2	32	—	9	11	2	2	1	4	—	—	6	—
5	Entypesidae	—	3	—	—	1	—	—	—	—	—	—	—	—	—
6	Euagridae	1	—	—	3	—	—	—	—	—	—	—	—	—	—
7	Halonoproctidae	—	—	1	—	—	—	—	—	—	—	—	—	—	—
8	Hexathelidae	1	—	—	10	—	—	—	—	—	—	—	—	—	—
9	Idiopidae	10	1	11	—	2	1	1	1	3	1	1	1	3	—
10	Ischnothelidae	1	2	3	—	2	1	1	1	1	6	1	—	1	—
11	Mecicobothriidae	1	—	1	—	—	—	—	—	—	—	—	1	—	—
12	Microstigmatidae	1	—	13	—	1	1	—	—	—	—	—	1	2	—
13	Migidae	2	—	—	8	—	—	—	—	—	—	—	—	—	—
14	Nemesiidae	13	—	20	14	—	—	—	—	—	—	—	2	—	—
15	Paratropididae	—	—	3	—	6	1	—	—	—	1	—	—	3	—
16	Pycnothelidae	15	—	26	22	—	—	—	—	—	1	—	5	—	—
17	Theraphosidae	46	20	206	16	35	20	10	10	12	43	5	15	41	4
ARANEOMORPHAE															
18	Agelenidae	—	—	1	1	—	—	—	1	—	—	—	1	—	—
19	Amaurobiidae	19	1	6	19	2	8	—	—	1	5	—	—	2	—
20	Anapidae	2	—	7	20	13	11	—	1	—	2	1	—	5	—
21	Anyphaenidae	129	15	165	86	29	38	2	2	15	26	1	14	22	—
22	Araneidae	213	102	569	38	278	165	89	99	87	279	40	27	118	—
23	Astrochilidae	2	—	—	9	—	—	—	—	—	—	—	—	—	—
24	Caponiidae	2	1	25	5	5	3	1	—	1	4	—	1	4	—
25	Cheiracanthiidae	6	3	26	8	9	4	—	—	1	15	—	1	—	—
26	Clubionidae	1	2	9	8	4	1	—	1	—	5	—	—	1	—
27	Corinnidae	17	8	171	5	20	9	8	15	8	21	2	3	24	2
28	Ctenidae	11	13	107	—	32	27	3	11	7	12	3	4	13	1
29	Cybaeidae	—	—	—	—	1	—	—	—	—	1	—	—	5	—



30	Deinopidae	1	-	9	-	2	-	1	-	-	-	-	1	2	-	-	-	-	-
31	Desidae	5	-	2	10	-	1	-	1	-	-	5	-	1	1	9	-	-	-
32	Dictynidae	3	-	3	5	-	4	-	1	-	-	1	-	1	1	-	-	-	-
33	Diguetidae	1	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	Eresidae	1	-	5	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	Drymusidae	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	Filistatidae	11	1	6	1	1	1	-	-	1	1	1	1	1	1	1	1	1	1
37	Gallieniellidae	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	Gnaphosidae	52	8	82	41	17	15	-	2	11	25	3	3	13	-	-	-	-	-
39	Hahniidae	9	-	5	4	1	-	-	-	-	-	-	-	-	2	-	-	-	-
40	Hersiliidae	3	2	7	-	1	2	-	2	3	5	1	1	2	-	-	-	-	-
41	Linyphiidae	57	18	84	87	81	39	-	2	1	91	-	2	26	-	-	-	-	-
42	Liocranidae	1	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-
43	Lycosidae	78	9	51	17	19	13	3	7	14	18	-	-	11	11	-	-	-	-
44	Malkaridae	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	Mecysmaucheniiidae	7	-	-	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	Mimetidae	3	3	24	1	3	5	2	3	2	7	1	1	4	-	-	-	-	-
47	Miturgidae	3	1	2	-	3	1	-	1	2	1	1	1	2	-	-	-	-	-
48	Mysmenidae	-	-	4	-	4	25	-	1	2	11	-	-	2	-	-	-	-	-
49	Nesticidae	4	-	9	1	-	-	1	-	-	-	-	-	1	1	-	-	-	-
50	Ochyroceratidae	1	-	18	-	1	18	1	-	-	1	-	-	10	-	-	-	-	-
51	Oecobiidae	1	-	1	-	-	1	-	-	-	-	-	-	1	-	-	-	-	-
52	Oonopidae	41	11	159	27	114	141	-	6	4	68	2	7	80	-	-	-	-	-
53	Orsolobidae	3	-	4	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-
54	Oxyopidae	7	4	44	2	5	3	4	7	3	7	2	-	6	-	-	-	-	-
55	Palpimanidae	8	3	35	9	10	1	-	4	1	4	-	-	3	-	-	-	-	-
56	Philodromidae	21	2	29	5	1	3	1	1	3	6	-	-	3	-	-	-	-	-
57	Pholcidae	21	11	188	10	20	21	3	8	-	33	2	3	59	-	-	-	-	-
58	Physoglenidae	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
59	Pisauridae	3	4	33	1	13	13	3	6	3	17	6	1	8	-	-	-	-	-

(Continued)

Table 2. Continued.

	ARG	BOL	BRA	CHL	COL	ECU	GUF	GUY	PRY	PER	SUR	URY	VEN	SA	AND	
60	Salticidae	186	24	544	22	106	91	64	72	43	91	22	12	101	1	-
61	Scytodidae	2	1	79	2	4	1	3	1	1	1	-	1	10	-	-
62	Segestriidae	5	2	12	6	1	2	-	-	1	3	1	2	1	-	-
63	Selenopidae	5	2	16	-	5	5	-	1	3	4	-	1	4	-	-
64	Senoculidae	4	-	15	-	-	-	1	2	2	2	-	-	3	-	-
65	Sicariidae	7	2	25	10	4	5	-	-	2	24	-	-	7	-	-
66	Sparassidae	11	4	71	4	15	13	5	7	4	23	4	1	16	-	-
67	Sympytognathidae	1	-	10	-	4	2	-	-	-	-	-	-	1	-	-
68	Synotaxidae	-	-	8	-	1	2	-	2	1	-	-	-	1	-	-
69	Telemidae	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
70	Tetrablemmidae	-	-	10	-	3	-	-	-	-	-	-	-	1	-	-
71	Tetragnathidae	14	8	75	19	62	33	7	9	9	34	3	3	21	-	-
72	Theridiidae	80	27	311	54	46	68	16	28	33	124	5	4	102	3	-
73	Theridiosomatidae	1	1	25	-	6	14	2	2	-	8	1	-	10	-	-
74	Thomisidae	43	20	242	17	22	13	20	17	17	43	2	8	15	1	-
75	Titanoecidae	1	-	5	1	1	1	-	-	-	2	-	-	1	-	-
76	Trachelidae	22	5	21	15	4	3	1	1	6	7	-	4	2	-	-
77	Trechaleidae	7	8	58	-	22	15	1	13	5	38	2	3	18	-	-
78	Trochanteriidae	3	-	3	1	-	-	-	-	2	-	-	-	-	-	-
79	Uloboridae	17	2	25	3	12	5	1	7	5	6	-	-	10	-	-
80	Viridaspididae	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
81	Xenoctenidae	7	-	7	1	-	4	-	1	-	3	-	-	2	-	-
82	Zodariidae	11	1	25	11	8	9	-	1	1	12	-	1	6	-	-
83	Zoropsidae	-	-	9	1	-	-	-	-	-	-	-	-	-	-	-
	TOTAL	1295	359	3843	727	1076	900	258	359	324	1155	113	159	843	14	1

Abbreviations: AND, Andes; ARG, Argentina; BOL, Bolivia; BRA, Brazil; CHL, Chile; COL, Colombia; ECU, Ecuador; GUF, French Guiana; GUY, Guyana; PRY, Paraguay; PER, Peru; SA, South America; SUR, Suriname; URU, Uruguay; VEN, Venezuela.

**Table 3.** Total number of species introduced to SA and exported from SA per family.

	Family	Introduced to SA	Exported from SA
MYGALOMORPHAE			
1	Actinopodidae	–	–
2	Barychelidae	–	–
3	Cyrtaucheniidae	–	–
4	Dipluridae	–	–
5	Entypesidae	–	–
6	Euagridae	–	–
7	Halonoproctidae	–	–
8	Hexathelidae	–	–
9	Idiopidae	–	–
10	Ischnothelidae	–	–
11	Mecicobothriidae	–	–
12	Microstigmatidae	–	–
13	Migidae	–	–
14	Nemesiidae	–	–
15	Paratropididae	–	–
16	Pycnothelidae	–	–
17	Theraphosidae	–	–
ARANEOMORPHAE			
18	Agelenidae	4	–
19	Amaurobiidae	–	–
20	Anapidae	–	–
21	Anyphaenidae	–	1
22	Araneidae	6	2
23	Austrochilidae	–	–
24	Caponiidae	–	–
25	Cheiracanthiidae	1	–
26	Cithaeronidae	2	–
27	Clubionidae	–	–
28	Corinnidae	–	3
29	Ctenidae	–	–
30	Cybaeidae	–	–
31	Deinopidae	–	–
32	Desidae	1	1
33	Dictynidae	–	–
34	Diguetidae	–	–
35	Eresidae	–	–
36	Drymusidae	–	–
37	Dysderidae	1	–
38	Filistatidae	1	–
39	Gallieniellidae	–	–
40	Gnaphosidae	8	1
41	Hahniidae	–	–
42	Hersiliidae	–	–
43	Linyphiidae	5	1
44	Liocranidae	–	–
45	Lycosidae	–	–
46	Malkaridae	–	–
47	Mecysmaucheniiidae	–	–
48	Mimetidae	–	–
49	Miturgidae	–	–
50	Mysmenidae	–	–
51	Nesticidae	1	–
52	Ochyroceratidae	–	–
53	Oecobiidae	2	1
54	Oonopidae	12	1
55	Orsolobidae	–	–
56	Oxyopidae	–	–
57	Palpimanidae	–	–
58	Philodromidae	–	–
59	Pholcidae	6	1

(Continued)

Table 3. Continued.

	Family	Introduced to SA	Exported from SA
60	Physoglenidae	—	—
61	Pisauridae	—	—
62	Salticidae	8	1
63	Scytodidae	2	2
64	Segestriidae	1	—
65	Selenopidae	—	—
66	Senoculidae	—	—
67	Sicariidae	—	3
68	Sparassidae	1	—
69	Symphytognathidae	—	—
70	Synotaxidae	—	—
71	Telemidae	—	—
72	Tetrablemmidae	—	—
73	Tetragnathidae	4	1
74	Theridiidae	10	9
75	Theridiosomatidae	—	—
76	Thomisidae	1	—
77	Titanoecidae	—	—
78	Trachelidae	—	1
79	Trechaleidae	—	—
80	Trochanteridae	—	—
81	Uloboridae	1	1
82	Viridasiidae	—	—
83	Xenoctenidae	—	—
84	Zodariidae	—	—
85	Zoropsidae	—	—
	TOTAL	78	30

Abbreviation: SA, South America.

Theridiidae (2508) (WSC 2020), the only difference being the Oonopidae and Gnaphosidae. Many SA families are still understudied, including some highly diverse families such as Theridiidae and Salticidae, while other families have hardly been studied at all (e.g. Nemesiidae, Hahniidae, and Tetragnathidae); consequently, the specific biodiversity of SA is likely to increase significantly.

The Mygalomorphae order is represented in SA by 17 families (Table 1), while 30 families are recognised worldwide (WSC 2020). Impressively, 72% of the genera present in SA are endemic to the continent, while 99% of the species are endemic. Only eight species occur outside the SA continent, the broadly distributed *Ischnothelus caudata* found from Mexico to SA, and seven Theraphosidae species found in Central America or the Caribbean (Table 5). The high endemism of Mygalomorphae spiders in SA corroborates their low dispersal capabilities (Janowski-Bell and Horner 1990; Bond et al. 2001; Bond 2004; Raven 2010; Hedin et al. 2013; Ferretti et al. 2014). Although some families have been observed in nature to use ballooning as a mean of dispersal, such as Atypidae and Halonoproctidae (Coyle 1983, 1985; Coyle et al. 1985; Fisher et al. 2014) and in laboratory conditions for the families Actinopodidae and Idiopidae (Ferretti et al. 2013; Rossi et al. 2021).

Mecicobothriidae is the only endemic family found in SA, while 82% of all Paratropididae species are found in SA, the remaining being found in the Americas. More than 70% of the world species diversity is found in SA for the families, Actinopodidae, Dipluridae, and Pycnothelidae, while SA Theraphosidae account for 40% of the world biodiversity. Some families of the infraorder recently went through some changes and redelimitation; however, clear limits of some SA mygalomorph families are still pending (Opatova et al. 2020).

Table 4. Geographic distribution of all South American genera per families.

	SA	NA	AF	AS	AU	AN	NA – AF	NA – AS	NA – AU	AF – AS	AF – AU	NA-EU – AF-AS	NA-EU – AS	NA-EU – AS-AU	NA-AF – AS-AU	NA-AS – AU	EU-AS AF	EU-AS – AU	AF-AS WW	Total
MYGALOMORPHAE																				
Actinopodidae	1	1	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	3	
Barychelidae	5	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	8	
Cyrttaucheniiidae	2	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	
Dipluridae	6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	7	
Entypesidae	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	
Euagridae	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	
Halonoprotidae	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1	
Hexathelidae	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	
Idiopidae	–	1	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	2	
Ischnothelidae	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	
Mecicobothriidae	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	
Microstigmatidae	6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6	
Migidae	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	
Nemesiidae	12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	12	
Paratropididae	2	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	
Pycnothelidae	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4	
Theraphosidae	42	17	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	60	
ARANEOMORPHAE																				
Agelenidae	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	
Amaurobiidae	18	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	20	
Anapidae	7	2	–	1	3	–	–	–	–	–	–	–	–	1	–	–	–	–	14	
Anyphaenidae	35	17	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	54	
Araneidae	15	34	–	–	–	–	–	–	1	1	2	–	–	3	1	–	–	5	62	
Austrochilidae	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	
Caponiidae	6	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	10	
Cheiracanthiidae	2	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	6	
Clubionidae	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	
Corinnidae	9	12	–	1	–	–	–	–	1	–	1	–	–	–	–	–	–	–	24	
Ctenidae	14	7	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	22	
Cybaeidae	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	
Deinopidae	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1	
Desiidae	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	4	
Dictynidae	3	3	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	9	

(Continued)

Table 4. Continued.

Selenopidae	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Senoculidae	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Sicariidae	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	2
Sparassidae	12	10	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	23
Sympyotognathidae	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	1	5
Synotaxidae	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Telemidae	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Tetrablemmidae	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	4
Tetragnathidae	2	5	1	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-	3	13
Theridiidae	6	12	1	-	-	-	1	8	-	1	-	4	2	1	-	2	1	1	1	13	54
Theradiosomatidae	2	3	-	-	-	-	-	1	-	-	-	-	-	-	1	-	1	-	-	1	9
Thomisidae	16	10	-	-	1	-	-	-	1	-	-	-	-	-	1	-	-	-	-	4	33
Titanoecidae	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	2
Trachelidae	1	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	3
Trechaleidae	7	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16
Trochanteriidae	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Uloboridae	4	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	1	9
Viridasiidae	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Xenocentriidae	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Zodariidae	3	3	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	7
Zoropsidae	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Total	538	315	7	4	6	1	5	13	4	5	2	33	5	1	6	13	4	2	3	52	1018

Abbreviations: AF, Africa; AN, Antarctica; AS, Asia; AU, Australia/Oceania; EU, Europe; NA, North America; SA, South America; WW, worldwide.



Table 5. Geographic distribution of all South America none-endemic species per family.

Deinopidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Desidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Dictynidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Diguetidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Drymusidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Eresidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Filistatidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Gallieniellidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
Gnaphosidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Hahniidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Hersiliidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Linyphiidae	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15
Liocranidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Lycosidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Malkaridae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Mecysmaucheniiidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Mimetidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Miturgidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Mysmenidae	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Nesticidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Ochyroceratidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Oecobiidae	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Oonopidae	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
Orsolobidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Oxyopidae	1	-	-	1	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
Palpimanidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Philodromidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Pholcidae	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Physoglenidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Pisauridae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	1
Salticidae	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	10	-	-	1	41	2	-	-	10	69	11			
Scytodidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	4		

(Continued)



Table 5. Continued.

	EXT AM	CAN-USA – MEX- CA – CAR	USA – MEX-CA	USA – MEX-CAR	USA-MEX – CA-CAR	USA – CA	USA-CA – CAR	USA – CAR	MEX – MEX	MEX – CA- CAR	CA – CAR	CAR	Total
Segestriidae	–	–	–	–	–	–	–	–	–	–	1	–	1
Selenopidae	–	–	1	–	–	–	–	–	–	–	2	–	1
Senoculidae	–	–	–	–	–	–	–	–	–	–	1	–	1
Sicariidae	–	–	–	–	–	–	–	–	–	–	2	–	1
Sparassidae	–	–	1	–	–	–	–	–	–	1	–	–	3
Sympyognathidae	–	–	–	–	1	–	–	–	–	–	–	–	1
Synotaxidae	–	–	–	–	–	–	–	–	–	–	2	–	1
Telemidae	–	–	–	–	–	–	–	–	–	–	–	–	0
Tetrablemmidae	–	–	–	–	–	–	–	–	–	–	–	–	1
Tetragnathidae	2	1	–	–	3	–	–	–	7	3	7	1	26
Theridiidae	–	2	9	3	16	2	–	1	3	15	5	39	13
Theridiosomatidae	–	–	–	–	–	–	–	–	1	–	2	3	2
Thomisidae	–	–	–	–	–	–	–	–	1	4	1	11	1
Titanoećidae	–	–	–	–	–	–	–	–	–	–	–	–	0
Trachelidae	–	1	–	–	–	–	–	–	–	–	–	–	1
Trechaleidae	–	–	–	–	–	–	–	–	–	1	–	9	1
Trochanteriidae	–	–	–	–	–	–	–	–	–	–	–	–	0
Uloboridae	–	–	2	–	2	–	–	–	2	–	2	–	8
Viridasiidae	–	–	–	–	–	–	–	–	–	–	–	–	0
Xenocentridae	–	–	–	–	–	–	–	–	–	–	–	–	0
Zodariidae	–	–	–	–	–	–	–	–	–	–	1	1	2
Zoropsidae	–	–	–	–	–	–	–	–	–	–	–	–	0
Total	4	9	23	3	47	2	1	2	10	69	27	205	58
													546

Abbreviations: CA, Central America; CAN, Canada; CAR, Caribbean; EXT AME, external America; MEX, Mexico; USA, United States of America.



In SA, 66 families of Araneomorphae have been registered so far (Table 1), interestingly seven families (Austrochilidae, Mecysmauchenidae, Ochyroceratidae, Senoculidae, Synotaxidae, Trechaleidae, and Xenoctenidae) include more than 70% of the world's diversity. Ochyroceratidae is a small family with only 166 described species (WSC 2020); the family is found around the planet except in Europe. This cryptic family has not been well studied in SA and much more species are likely to be discovered. The small families Senoculidae and Synotaxidae are actual American families, both being endemic to the Americas, both families need revision, and undoubtedly more species will be discovered. Trechaleidae is a medium-sized family, including 131 described species (WSC 2020); they are found in the Americas except for one species that occurs in Japan, although the species may be misplaced; therefore, Trechaleidae maybe turn out to be a true American family. Finally, Xenoctenidae is a small family endemic to the Americas; the family was recently delimited and included in the Dionycha clade (Wheeler et al. 2017).

Four families are poorly represented in SA, with 1% or less of the world diversity. The Agelenidae family is a diverse family including so far 1334 described species (WSC 2020); the family diversity is concentrated in the temperate region of the world. Since the work of Roth (1967) on SA agelenids, most of the genera have been transferred to other families, such as Cybaeidae, Amaurobiidae, Hahniidae, Desidae, and Cheiracanthiidae. Only the monotypic genus *Neotegenaria* is considered to occur naturally in SA, but the genus has to be revised and may prove to belong to another family in the future. Galieniellidae is a small family with only 68 species described so far (WSC 2020). Only the monotypic genus *Galianoella* occurs in Argentina, the rest of the family occurring in South Africa and Australia, but it would not be surprising to find more species in southern SA. The family Liocranidae is not well delimited; many genera have been recently transferred to other families (WSC 2020). The family is also more diverse in the temperate regions of the world, and here again, only one monotypic genus (*Xenoplectus*) is present in SA, Argentina. Finally, the Trochanteriidae family includes 171 species worldwide; three endemic genera are found in SA, the majority of the diversity being found in Australia, but most likely, other species will be discovered in southern SA.

The level of endemism at the generic level (53%) is half the level of endemism than the specific level. For some 20 families, all genera occurring in SA are endemic (Table 1), while 18 families have no endemic genera occurring on the continent. For the families known to have higher dispersal capabilities via ballooning, such as Araneidae, Theridiidae, and Tetragnathidae (Blandenier and Fürst 1998; Blandenier 2009), the generic endemism drops at 10–22%, but interestingly this is not true for the highly dispersable Linyphiidae family, where 70% of the generic diversity is endemic to SA.

At the species level, the Araneomorphae endemism rate (94%) in SA is impressive. Even in the most dispersive families such as Araneidae (87%), Theridiidae (80%), Tetragnathidae (89%), and Linyphiidae (97%), the level of specific endemism is above 80%. Notably, only four families have 75% or less of specific endemism in SA (Oecobiidae, Miturgidae, Synotaxidae, and Pisauridae) (Table 1).

The evaluation of Araneae diversity per country (Table 2) shows that for 15 species, their distribution could not be attributed to any countries; in most cases, the only data available is 'South America.' Brazil represents the country with the highest known species diversity (3843), while Suriname corresponds to the country with the lowest

known spider diversity (113). The data is somewhat inconsequential from a scientific point of view since countries that yield more diversity merely represent countries with more active taxonomists and, or where more extensive collecting has been done over the years. Furthermore, the inventory is based only on taxonomical papers; more than often, the distribution data limit the species to where they have been collected and described initially and do not present their complete distribution within SA. Nonetheless, the tally is based on consistent data, therefore comparable, and gives insight into which SA countries the spider diversity remains poorly known.

Evaluating the Araneae diversity and endemism in SA is a premier assessment; while the data is undoubtedly incomplete, the inventory presents a first picture and a base for future research. Most probably, the specific diversity evaluation presented is an underestimation of the actual diversity, considering that much of SA specific diversity is still unknown (based on personal observation, about 50% of species examined in Ecuador are undescribed), hence the total number of species occurring in SA could be between 12,000 and 16,000 species.

On the other end, the specific endemism evaluation might be a slight overestimation of the actual SA level of endemism. For numerous species, only the localities found in the species' original taxonomic publications are known, and more than often, species are only known from their type locality. Thus, species full distribution range is not well documented, and many species are likely to extend their range outside the continent.

Geographical distribution

Most of the spider families found in SA have a worldwide distribution; a few notable exceptions are the SA endemic family Mecicobothriidae and the five endemic American families. Interestingly, ten families present a Gondwanan distribution based on their modern distribution: in the Mygalomorphae (Entypesidae, Hexathelidae, Migidae, and Pycnothelidae); in the Araneomorphae (Austrochilidae, Gallieniellidae, Malkaridae, Mecysmauchenidae, Orsolobidae, and Physoglenidae) (Frick and Scharff 2013; Giribet et al. 2016; Opatova et al. 2020).

Interestingly only 5% of the genera in SA (52 genera) are considered to have a worldwide distribution (Figure 1), not surprisingly mainly from the cosmopolitan Theridiidae family (Table 4). As expected, the data shows that 31% of the genera (315) occurring in SA include species exclusively found within the Americas (Table 4, Figure 1). These American genera are linked to the great American interchange that occurs after the formation of the Isthmus of Panama 4 million years ago. Interestingly only 3% of the SA generic diversity includes species found exclusively in SA and other continents than NA (Figure 1). The data suggest that only 16 genera found in SA (Table 4) are exclusively affiliated either with Africa, Australia/Oceania, and Antarctica: Actinopodidae, *Missulena* (Australia, doubtful); Entypesidae, *Hermacha* (Africa); Eresidae, *Stegodyphus* (Africa); Theraphosidae, *Heterothele* (Africa); Anyphaenidae, *Amaurobiooides* (Africa, Australia); Amaurobiidae, *Macrobunus* (Africa, doubtful); Anapidae, *Eperiella*, *Gigiella* and *Normplatnicka* (Australia); Linyphiidae, *Neomaso* (Antarctica); Pholcidae, *Aucana* (Australia); Tetragnathidae, *Mecynometa* (Africa, doubtful); Theridiidae, *Echinotheridion* (Africa); Thomisidae, *Sidymella* (Australia); Viridasiidae, *Vulsor* (Africa, doubtful); Zodariidae *Cyrioclea* (Africa, Australia) and therefore associated to the Gondwanan

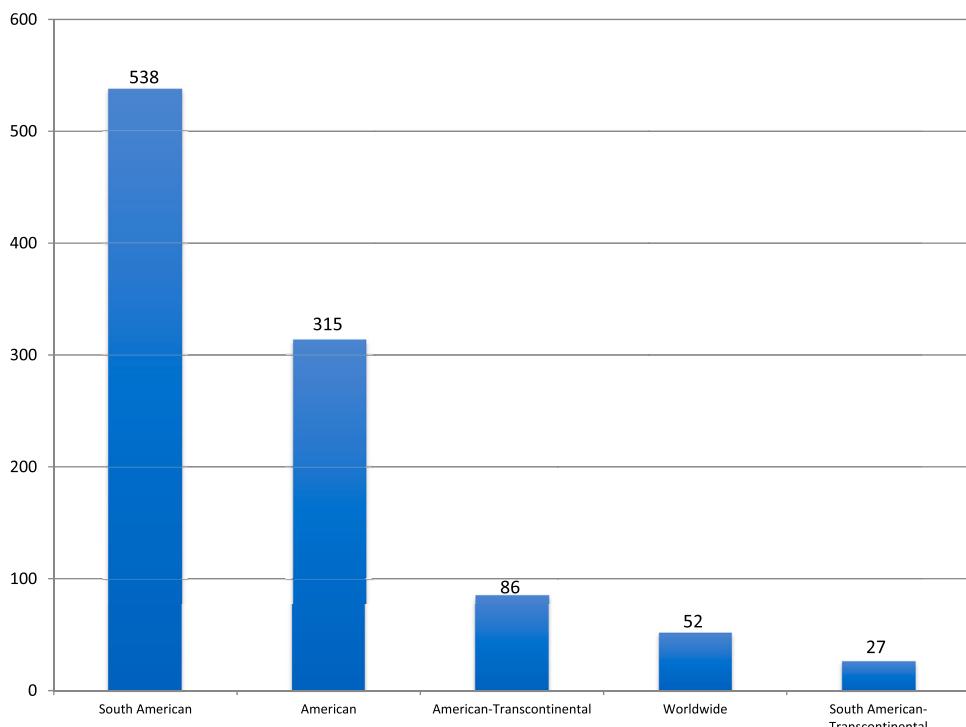


Figure 1. South America generic continental distribution (number of genera per region).

region. Only four genera include species exclusively distributed in Asia and SA: Anapidae, *Minanapis* (China); Corinnidae, *Sphecotypus* (Asia); Linyphiidae, *Nasoona* (Asia), and *Ostearius* (China).

Only 546 species occurring on the SA continent are not endemic, of which only four species are found outside the Americas (Table 5). The small Mysmenidae, *Microdipoena guttata*, is found in NA, Paraguay and Africa (Lopardo and Hormiga 2015; opp. WSC 2020). The Oxyopidae, *Hamataliwa helia* occurs in NA, Guyana, Thailand, Malaysia, Brunei, and Indonesia, and two Tetragnathidae are also found outside SA; *Tetragnatha keyserlingi* is found in America, Brazil as well as Africa, Korea, India to the Philippines, New Hebrides, and Polynesia, and *Tetragnatha mandibulata* is found in Central America, Colombia, Guyana, Brazil as well as West Africa, India to Philippines and Australia (WSC 2020). Interestingly, *Microdipoena guttata* and *Hamataliwa helia* presents large gaps in their American distribution. These gaps could be due to a lack of data, or point to the fact that the species are introduced in SA. *Tetragnatha* is a worldwide genus, with numerous species considered introduced to SA (Annexe 2a) and viceversa (Annexe 2b). Hence, it is not possible to establish with certainty if these species occur naturally in SA or have been introduced until further research is done.

Within the Americas, some patterns of distribution can be observed, only nine species (2%) are found all over the Americas, occurring from Canada to SA (Table 5 and Figure 2): Araneidae, *Argiope trifasciata*; Cheiracanthiidae, *Cheiracanthium inclusum*; Linyphiidae, *Mermessus bryantae*, *Mermessus denticulatus*, *Ostearius melanopygus*; Tetragnathidae, *Tetragnatha elongata*; Theridiidae, *Rhomphaea fictilium*, *Wamba crispulus*; and

Trachelidae, *Meriola decepta*. Not surprisingly, most of these species belong to highly dispersive families that use ballooning as a means of dispersal (Blandenier and Fürst 1998; Blandenier 2009). While the two remaining species present some synanthropic affinities, *Cheiracanthium inclusum* was partly collected in open fields, forests, man-made structures, and dwellings (Peck and Whitcomb 1970), while collecting records show that *Meriola decepta* was often collected in leaf litter in gardens or houses (González-Márquez et al. 2021).

The inventory shows that only 14% of the non-endemic species found in SA occur until the USA via various corridors, while 19% occur until Mexico. Foreseeably, most none endemic species (38%) extend their distribution until Central America or into the Caribbean (16%) exclusively (Figure 2).

For some widely distributed species, their distribution patterns are well-known and unequivocal, for example, the widely distributed *Kukulcania hibernalis* or *Lupettiana mordax*. Whereas for other species their distribution is somewhat doubtful, or unclear and should be treated with caution. For example, an unclear pattern of distribution is of the giant Theraphosidae, *Phormictopus cancerides*. The species was first described from Haiti by Latreille (1806) without illustrations; the description is of a male since Latreille described the male palp ‘*Marium genitalibus in ...*’ hence the description of the male should not be attributed to Hahn 1820 (WSC 2020); the type is deposited in the British Museum (Schiapelli and Gerschman 1979) and should be rechecked to confirm the exact sex of the specimen. The species is recorded from the Caribbean to Brazil (WSC 2020), but no record of *Phomicoptus cancerides* in Northern SA was found, and the Brazilian record is unclear. Walckenaer (1837) was the first to describe a female and mentioned the species occurrence in Brazil, without any precise locality;

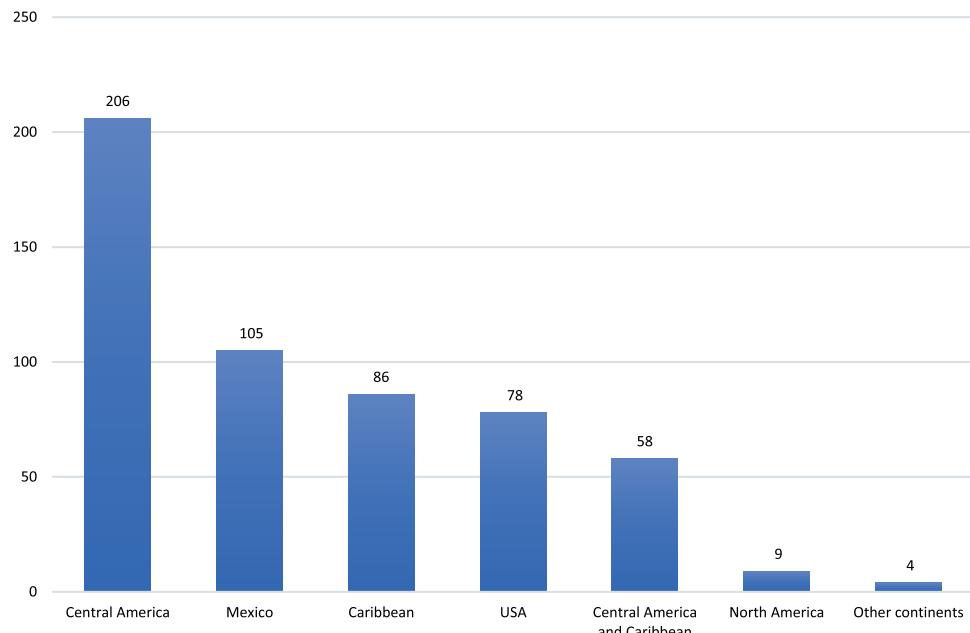


Figure 2. Total number of South America non-endemic species per region.

subsequently followed by Koch (1837, 1842) and Ausserer (1871, 1875) (see Bonnet 1958). No concrete record with precise locality information was found in any relevant, subsequent taxonomic publications; it appears that the authors merely ‘repeat’ Walckenaer’s Brazilian record. Furthermore, no contemporary record of the species in Brazil could be found. Surprisingly, for such a large spider, the species is not mentioned in any taxonomic work in Northern SA, and no occurrence is recorded from Venezuela, Colombia, or Guyana. Therefore, the species disjunct distribution between the Caribbean and Brazil is treated as doubtful until further data is provided. Another curious example of doubtful distribution is of the Deinopidae, *Deinopis spinosa*. The species is recorded in the USA, CA, and the Caribbean (Marx 1889; Griswold et al. 2005; Coddington et al. 2012), and Venezuela. The record from Venezuela was not found in the references list from the WSC (2020), and until further data is presented should be regarded with caution until the genus is revised.

Some species with long-range distribution between SA-NA should be considered with caution as well; the wide distribution range associated with these species could be attributed to misidentifications; unreliable localities, mislabelling; lack of data; or the lack of recognising cryptic species as shown by Ballesteros and Hormiga (2018) in the case of the Tetragnathidae, *Leucauge venusta*. Ballesteros and Hormiga (2018) demonstrated that the species is restricted to the USA, while it was previously recorded from Canada to Brazil.

Not surprisingly, the family with the most widely distributed species outside SA are the foremost diverse families, Araneidae 23%, followed by the Theridiidae 22%. Interestingly, the Salticidae (13%) are widely distributed primarily until Central America, and except for three widely distributed species, only 3% of non-endemic Linyphiidae species are found outside the continent (Table 5 and Figure 3).

Notably, 86 species are found only in SA and in the Caribbean, mainly from the Araneidae family. Interestingly, ten species of Oonopidae, Salticidae and Theridiidae respectively are also found in SA and in the Caribbean.

Disjunct species distribution between NA-SA

The inventory suggests that very few species present disjunct distribution between SA and North America. Two Theridiidae are registered to occur in the USA, CA, and SA. *Phycosoma lineatipes* occur in the southern USA and Panama (Levi 1953; Roberts 1979) with only one specimen collected in Brazil. The specimen from Brazil was collected at the Rio de Janeiro botanical gardens (Roberts 1979) and may well represent an accidental introduction. *Diponeta dorsata* is registered in the USA, Panama, and then in Paraguay. The Paraguayan record is considered a doubtful identification per Levi (1963a, p. 144); see taxonomic section for more details. Nine species are recorded to occur in Mexico and SA, presenting a significant gap in distribution. The Araneidae, *Rubrepeira rubronigra* (Mello-Leitão, 1939) is known to occur in Mexico and various countries in SA but has not been recorded in Central America (Levi 1992b; Galvis et al. 2018). Only one specimen has been recorded from Mexico (Mexico 150 km NE of Barranco?). The record from Mexico is somewhat doubtful; new data has to be obtained to confirm the presence of the species in Mexico. One Dictynidae, *Phantyna mandibularis* was described by Taczanowski (1874) from Cayenne, French Guiana

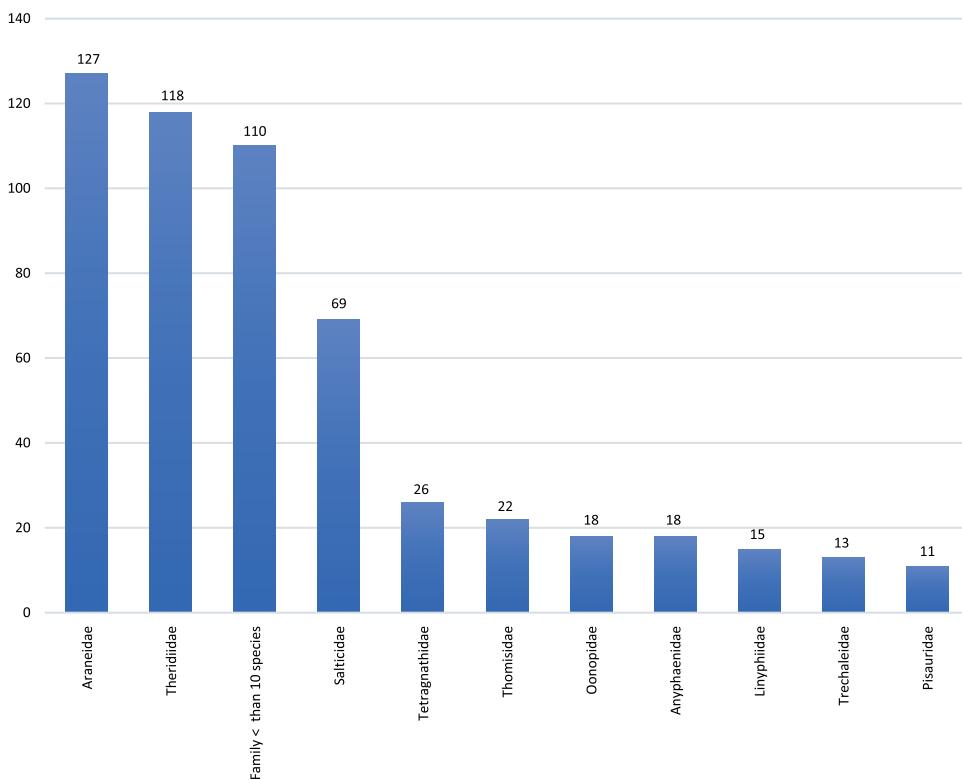


Figure 3. Total number of South American species with long-range distribution per families.

(description on page 61, not 62, opp. WSC 2020) without illustrations. The species is recorded to occur from Mexico to Brazil (WSC 2020). Keyserling (1891) examined one female from Serra Vermella in Brazil. The Brazilian record is considered doubtful since no illustrations exist and Keyserling based his identification on colouration only. Furthermore, the records of the species in Mexico are based on the synonymy of *Dictyna parietalis* O. Pickard-Cambridge, 1896 under *Dictyna mandibularis* Tacznowski, 1874 by Lehtinen (1967). Lehtinen (1967, p. 257) did not revise the types specimens of the two species. Therefore, the occurrence of *Phantyna mandibularis* in Mexico is considered doubtful until the types specimens of both species can be re-examined. Three species of Salticidae could present a disjunct pattern of distribution. In the case of *Cotinusa distincta*, the record from Peru could not be found in the list of taxonomical references from the WSC (2020), while *Lyssomelas leucolmelas* record from Mexico, is based on one specimen without exact locality or date (Lougov 2014). *Tomis palpalis* presents a large distribution gap, being recorded in Mexico and Argentina. The male was first described from Mexico by F.O. Pickard-Cambridge (1901), while the female was described from Argentina by Galiano (1991). Galiano did not examine the holotype, but she did examine specimens from Mexico, namely the male type of *Tomis jonesae* Bryant, 1948, which she synonymised. More data is needed to explain this wide disjunct distribution. One Thomisidae, *Synema aequinoctiale*, is recorded in Mexico and French Guiana; here again, Mexico's record was also not found in the list of taxonomical

references from the WSC (2020). One Pisauridae, *Thaumasia caracarai* Silva and Carico, 2012 is recorded in Mexico, Colombia, Ecuador and not Mexico to Brazil (opp. WSC 2020) and three Theridiidae also present disjunct distribution, *Ameridion unaminuia* (Mexico, Venezuela and Brazil), *Anelosimus oritoyacu* (Mexico and Ecuador) and *Thymoites puer* (Mexico, Argentina and Brazil). Consequently, disjunct distribution between NA-SA should be treated with prudence and can mainly be explained by either: insufficient data, uncertain identifications, unreliable records, and taxonomical imbroglio.

The distribution pattern presented for the various SA families, genera, or species may be fragmentary, seeing that no other lists, faunistic papers, or catalogs other than the World Spider Catalog (2020) were used to compile the data. Nonetheless, the information provided is uniform, comparable, and provides an insight into the general geographical pattern of distribution that can be observed for South American spiders that future research will help to define. In short, the primary data suggest that most of the spider families that occur in SA have a worldwide distribution, and only one endemic and five American families so far occur on the continent. Contrarily, almost half the genera are endemic to the continent (53%), while 31% are only found in the Americas. South American species endemism is truly impressive, with 94% of the species not being found anywhere else on the planet.

The extensive Araneae diversity found in SA relates to a complex and lengthy evolutionary history; from the determining Gondwanian organisms, through an extended period of isolation during the Cenozoic period, with a succedent opening to a new influx of diversity in late Neogene, via the creation of the Isthmus of Panama. In addition, the South American continent experienced dramatic events throughout its history: the dinosaur mass extinction that reshaped the Neotropical forests (Carvalho et al. 2021); the Andean uplift that shapes the Amazonian landscape (Hoorn et al. 2010) and drove plant (e.g. Leubert and Weigend 2014) and animal species diversification (e.g. De-Silva et al. 2017); the great mammal mass extinction and period of climate changes and climatic oscillations (e.g. Heine 2000; Hewitt 2004; Magalhaes et al. 2014; Magalhaes and Ramírez 2019). All these forces, amongst others, played a role in shaping South America's unique, undeniable but fragile biodiversity.

Species introduction and exportation to and from SA

So far, 78 spider species have been introduced to SA, mainly from the families Oonopidae (12), Theridiidae (10), Salticidae, and Gnaphosidae (8 each) (Table 3). A few well-known synanthropic species are, without a doubt, established in SA, *Tegenaria domestica*, *Oecobius navus*, *Pholcus phalangioides*, and *Urozelotes rusticus*; the remaining species presence in SA has to be investigated further to establish if the species can maintain a viable population. Only 30 species have been exported from SA and introduced to other countries, predominantly from the Theridiidae (9) family (Table 3). Only three species, *Loxoceles latea*, *Nesticodes rufipes*, and *Parasteatoda tepidariorum*, are considered to be established in Europe (Nentwig 2015).

Most species introduced in SA came exclusively from the Palearctic realm (27), followed by from the Afrotropical realm (13) and Indomalayan realm (10) (Annexe 2a). Only six species were introduced to SA from the Nearctic, two species from the

Australasian realm and one species from the Holarctic and Neotropical realms. The remaining species are known to have been introduced from various realms (e.g. Palearctic-Indomalayan, Afrotropical-Palearctic) or unknown realm (Annexe 2a).

Introduced species (Annexe 2a) problematic cases

The araneid species *Neoscona nautica* is an intriguing case of uncertain origin. The species is known to occur in Asia, and the Pacific Is. and is considered introduced to the Americas and Sudan (WSC 2020), but its native and biogeographic realms are still debatable. The species name is attributed to Koch (1875b); Koch described the species based on specimens that came from ‘cabins of his Rothen Sea steamer and on the African coast of the Red Sea near Soudan.’ However, Taczanowski (1873) is the first to have described the species under *Epeira tristis* from Ile Salut, an island on the coast of French Guiana; unfortunately, the name was preoccupied (WSC 2020). In fact, over the years, many authors have redescribed the species, under eight different names, from different regions, making it hard to pinpoint its origin and natural distribution. Berman and Levi (1971) presented the synonymy of the species and revised most of the type specimens, but not of all registered synonyms (e.g. Thorell 1877; Strand 1906). *N. nautica* full distribution includes Asia, the Pacific Islands (WSC 2020), Africa (Grasshoff 1986), and its primarily distributed in America from Virginia to South-eastern USA, Mexico, Central America, West Indies (Berman and Levi 1971), and introduced in South America. The origin of this cosmopolitan synanthropic species with an affinity for human settlement (found on stables, pigs pen and buildings in Texas) (Berman and Levi 1971) and a wooden house in Ecuador (pers. observ.) is still unknown. Berman and Levi (1971) suggested that based on the morphology of male palp and the female genitalia, the closest relatives of *Neoscona nautica* were found in the South Pacific area, and therefore the species was probably introduced to the Americas (Levi 1993a). Until more data is gathered, the native region and biogeographic realm of the species are still unknown.

Likewise, the gnaphosid species, *Prodidomus rufus* native region, and biogeographic realm are unknown. The species was first described from Alabama in the USA by Hentz (1847), but Platnick and Baehr (2006) mentioned that the presence of the species in NA might be due to humans since the species is synanthropic and widespread. The species is known to occur in North America, Europe, Turkey, Caucasus, Russia, Kazakhstan, Iran, Central Asia, Mongolia, China, Korea, and Japan (WSC 2020); so far in SA, it is only found in Argentina and Chile. The species is definitely introduced to SA; either it came initially from NA or Eurasia is unknown. Another introduced Gnaphosidae in SA of unknown origin is *Urozelotes rusticus*; the species was first described from Italia in 1872, and later on from Uruguay by Keyserling in 1878. Over the years, the species was described under 25 different names; this synanthropic species can be found in buildings but is also known to occur in gardens, pastures, citrus orchards, oak forests, and caves (Platnick and Murphy 1984). The species is introduced to SA and most probably Palearctic in origin, but until evidence is gathered, its origin remains uncertain.

Five Linyphiidae spiders have been introduced in SA, three of them from Eurasia, and *Leptyphantes leprosus* from an unknown region. *Leptyphantes leprosus* is found in North America, Iceland, Europe, Turkey, Caucasus, Russia, and Kazakhstan and has

been introduced in Chile. Dimitrov (2018) recently described a new species from Turkey (*Lepthyphantes rossitsae*) closely related to *L. leprosus*, pointing to the possible origin of *L. leprosus* in Eurasia, but until more data can be ascertained, the native region is uncertain.

The small Erigoninae, *Erigona atra*, is considered introduced to the Galapagos Islands (WSC 2020); this Holarctic species is quite common on the islands (Baert 2013). This well-known ballooning spider (Blandenier and Fürst 1998) is nonetheless registered as ‘possibly native’ by Bucholz et al. (2020); hence the status of the species in the Galapagos Islands is still unclear.

The families Oonopidae yield the most introduced species in SA, but some species distributions and origins are unclear. For example, *Brignolia parumpunctata* was first described by Simon from Sierre Leone in 1893c; the first occurrence in the Americas was 49 years later when Bryant described it as *Gamasomorpha perplexa* from the Virgin Islands. The WSC (2020) states that the species occur in North, Central, and South America and is introduced in Gambia, Sierra Leone, Seychelles, Yemen, Pakistan, India, Sri Lanka, Philippines, Indonesia, Australia, and the Pacific Islands. However, as Platnick et al. (2011) noted, this pantropical species is related to an Asian species *B. ratnapura* from Sri Lanka. Therefore, the species is believed to be more likely of Afrotropical or Asian origin and introduced to the Americas. This synanthropic species has often been collected in, e.g. banana plantation, gardens, zoos, coconut pile, secondary plantation around farm, Universities campus, and thus probably travelled with humans across the Oceans many times, making it difficult to pinpoint its native region.

Three species of *Opopaea* have been introduced to SA. *Opopaea apicalis* was introduced from Asia, but the native region of the other two species, *Opopaea concolor* and *Opopaea deserticola*, are unclear. The pantropical, synanthropic species, *Opopaea concolor* was first described by Blackwall (1859) from Madeira; the specimen was found in a house among loose papers (Blackwall 1859). The species has been recorded in Sainte-Hélène, Madagascar, Yemen, Canary Is., Cape Verde Is., Botswana, Seychelles, and Israel. Platnick and Duperré (2009a) suggested that *Opopaea concolor* originated in the Old World and that all American populations are introduced. Andriamalala and Hormiga (2013) suggested that *Opopaea concolor* is more closely related to African species of the genus. The species is none native in the Americas, but further data is required to establish its African origin. *Opopaea deserticola*, on the other hand, was first described from the Americas (St-Vincent) by Simon (1892). However, Simon also mentions that he has seen the species in various desertic and hot regions, such as Algeria, Egypt, Arabia, the Philippines, and Venezuela. Platnick and Duperré (2009a) suggested that the species is probably Old World in origin because no native American members of this species complex and no close relatives are found in the New World; thus, all American populations are introduced rather than native. Furthermore, Tong and Li (2010) mention that the species *O. sauteri* Brignoli, 1971 from Japan, closely resemble *Opopaea deserticola*, pointing to an Asian origin, while Andriamalala and Hormiga (2013) suggested that the species is more closely related to African species of the genus. The native region of the species is still up for debate. *Opopaea deserticola* herein is considered to occur naturally in Asia and Africa (contrary to WSC 2020) and that the species is distributed in Algeria, Egypt, Arabia, Philippines, Japan, St. Helena, Tonga, Samoa, Tuamotu Is., and was introduced to USA (Florida), Mexico to Panama,

Brazil, Colombia, Caribbean Is., Galapagos Is. and Germany (Simon 1892; Platnick and Dupérré 2009a; Brescovit et al. 2019).

The synanthropic species *Artema atlanta* Walckenaer, 1837, was first described from Brazil. In the same paper, Walckenaer described the same species as *Artema mauriciiana* from Mauritius; in fact, the species was described under eight different names and four different genera. The species is widespread, from the Americas, Africa and India, the Far East, and Australia (Aharon et al. 2017), making it difficult to assess its natural distribution and its native origin. Aharon et al. (2017) suggested that *A. atlanta* was originally an Old World species and, like the other species in the genus, restricted to the Old World, ranging from the African Sahel to Central and South Asia (Aharon et al. 2017).

In the family Theridiidae, the cosmopolitan species *Cryptachaea blattea* native region is up to debate. The species is known to occur in Saint Helena, Cape Verde, Portugal (Porto, Azores, Madeira), Belgium, and France, and taught to be introduced in the USA, Chile, Azores, Europe, Australia, New Zealand, and Hawaii (WSC 2020). Vink et al. (2009) presented a review of the synonyms of the species and stated that the origin of *C. blattea* could not be ascertained. *C. blattea* is known only on the west coast of North America, and according to Levi (1955a, 1963b), no species in North America are morphologically similar to *C. blattea*. Levi (1955a) comments that *C. blattea* is very close to the Palaearctic species *C. riparia* (Blackwall, 1834) found throughout Europe; therefore if *C. riparia* is a sister species, it would suggest *C. blattea* originated in or near the Palaearctic region. Its distribution throughout the world suggests accidental anthropogenic introductions to at least New Zealand, Australia, Chile, Hawaii, and the west coast of North America.

The origin of *Latrodectus geometricus* is uncertain; the species was first described from SA, Colombia by Koch in 1841 but was also known at that time from Africa (Madagascar) and South America (Suriname) (Thorell 1875; Garb et al. 2004; Taucare-Ríos and Bustamante 2015). Levi (1959c) considered that the native range of *L. geometricus* lies within Africa. Garb et al. (2004) phylogenetic hypothesis places the African *L. rhodesiensis* as sister to *L. geometricus*, suggesting a shared African ancestor. However, Garb et al. (2004) mentioned that the presence of *L. geometricus* in Africa might also be explained by secondary colonisation from one of the other localities. Until more data are provided, the place of origin is considered unknown.

Platnickina mneon was first described from Japan by Bösenberg and Strand (1906); the species is considered to occur in SA (Brazil) and introduced to Ghana, Seychelles, China, Japan, and Pacific Is. (WSC 2020). The history of this species is complex; numerous authors have redescribed the species under various names (4) only in the Americas (Gertsch and Archer 1942; Bryant 1945, 1947; Archer 1950). In 1957a, Levi re-examined all the American types and listed all synonyms, stating that *T. hobbsi* occurs from Florida to Texas, West Indies, Brazil, New Guinea. In 1959b Levi synonymised *T. hobbsi* with *T. adamsoni* Berland, 1934 after examining syntypes females deposited at the Bishop Museum, mentioning the species as cosmopolitan distribution, including a record from Canal Zone and Venezuela. In 1967c, Levi mentioned that this species is not very common and is found in Florida and collected in Africa (Ghana), and on houses in South America, but it is common on various Pacific Islands. Thus, it has no close relatives in America and is probably introduced.



In 2001, Yoshida synonymised *Theridion adamsoni* with *Theridion mneon* under the new combination *Keijia mneon* new comb., without examining the type specimen. Ono (2011) argues that the original illustration of *Theridion mneon* by Bösenberg and Strand (1906) does not allow recognition, and due to the non-examination of the type by Yoshida, the two species may be different. Hence, Ono (2011) re-instated the species, *Platnickina adamsoni* as a different species. Indeed, the original illustration presented by Bösenberg and Strand (1906) does not allow for precise identification, Theridiidae females' genitalic features are often conspicuous, and dissection and examination of the internal genitalia are necessary. The reexamination and illustration of both species type specimens are crucial in establishing this species' correct identity and its synonyms. The species origin or natural distribution is problematic; following Levi (1967c), the species is considered here to have been introduced to SA most probably from Asia since other species of the genus occur in Asia naturally.

Exported species (Annexe 2b) problematic cases.

Two Araneidae (*Argiope trifasciata* and *Trichonephila clavipes*) with long-range distribution have been introduced from the Americas to other continents; it is impossible to pinpoint their origin (either from NA or SA).

The Corinnidae, *Creugas gulosus* is considered introduced to Africa, Myanmar, Australia, and the Pacific Islands from SA (WSC 2020). This species has been described under various names by different authors and often by the same author. Firstly, *Creugas gulosus* was described as *Liocranum pallipes* based on a juvenile specimen from Australia by L. Koch (1873). However, the species description is attributed to Thorell (1878) that also described a juvenile from Indonesia; then, in 1887, he described the same species under *Phanoptilus sericeus* from Myanmar. The species was described under 22 different names (WSC 2020), interestingly, Simon described the species under four different names (Simon 1886c, 1889a, 1896, 1898b). The species is widely distributed in the tropics; it is impossible to pinpoint its origin; but based on the fact that other species of the genus are found in the Americas, the species is most probably American in origin. Here again, the exact origin of *Xeropigo tridentiger* is hard to establish. The species was first described from St. Helena by O. Pickard-Cambridge (1870), and further on, the species was redescribed under seven different names from the Caribbean, Central America, and SA (WSC 2020). All *Xeropigo* species are from the Neotropics, the species is considered here to be most probably of American origin.

The small Linyphiidae, *Ostearius melanopygus* origin is uncertain; the species was first described from New Zealand by O. Pickard-Cambridge (1880). Subsequently, the species was redescribed from various regions (e.g. America, Australia, Hawaii, Magellan Territories, England, etc.) and under various names (11 different names). The genus is considered sister to the monospecific genus *Neocautinella* (Miller 2007) found in Bolivia, Ecuador, the Galapagos Is. and Peru, the only other species in the genus *Ostearius*, *Ostearius muticus* was described from China. The species origin is difficult to determine, but it is probably either American or Australasian in origin.

Mermessus bryantae and *Mermessus denticulatus* are considered here to be of NA origin therefore not included in the list of species introduced from SA to other continents (Millidge 1987; Nentwig 2015).

The oonopidae *Heteroonops spinimanus* origin is difficult to establish; the species was first described from the Caribbean with mention by Simon (1892) of its occurrence in Venezuela. The species is also known to occur in the USA, Mexico, Panama, Costa Rica, and Colombia and has been introduced to various countries (Annexe 2b). All other species from the genus occur in Mexico, Central America and the Caribbean, hence *Heteroonops spinimanus* origin points either to NA or Northern SA. Brescovit et al. (2019) considered the species invasive in Brazil.

Two species of pantropical and synanthropic *Scytodes* are thought to be of SA origin and introduced to other countries. *Scytodes fusca* was first described by Walckenaer (1837) from Cayenne, French Guiana, and *Scytodes longipes* was first described by Lucas (1844) based on specimens from Mexico. These pantropical species are often associated with humans and are found inside houses and in gardens and their surroundings, but they also can be found in fields, on vegetation, under logs and rocks, or in forest litter (Brescovit and Rheims 2000). Therefore, it is difficult to establish their origin with certainty, but they are presumably of American origin.

The Theridiidae is the most successful family; nine species were introduced from SA to other countries or continents. *Coleosoma floridanum* origin is still arguable; according to the World Spider Catalog (2020), the species is registered from Central and South America, and introduced in Europe, Macaronesia, North Africa, Middle East, China, Japan, Sri Lanka, Indonesia, New Zealand, and the Pacific Is. The first specimen was described from North America, Florida, by Banks in 1900. Levi (1967c) mentions that females are often found in packages arriving from the tropics and that the relatives in America indicate that they may be native to American tropics. Therefore, the native origin remains uncertain; it could either be from North or South America.

Nesticodes rufipes was first described by Lucas in 1846 from Algeria and later on from various regions around the globe, under various names (WSC 2020). This cosmopolitan species origin is uncertain, the World Spider Catalog (2020) states that the species is introduced in the Old World. Levi (1967c) mentions that in South America, the species is found in houses and in association with man with no relative known, therefore most probably introduced in the New World. Until more data is gathered, it is not possible to determine if the species is of Old World or New World origin. Even though *Parasteatoda tepidariorum* was first described from a greenhouse in Germany, the consensus is that the species is of South American origin (Levi 1967c; WSC 2020). *Rhomphaea prosciens* was first described from Mexico but has a large distribution from the USA to Paraguay; therefore, the species could be of NA or SA origin. *Theridula gonygaster* was first described from Corsica by Simon in 1873; the species is distributed in the Mediterranean region and tropical America. According to Levi (1967c), the origin of the species is still uncertain, even though numerous similar species occur in America.

South American spider families: analysis, synthesis and problematics.

MYGALOMORPHAE

1. Actinopodidae Simon, 1892

Genera: 3

Species: 54

Diversity: 75%

Distribution: Argentina, Bolivia, Brazil, Chile, Colombia, Paraguay, Uruguay, and Venezuela.

Three-quarter of this small family of medium to large 8-eyed Mygalomorphae (7.0–25.0) is found in SA. The most diverse genus *Actinopus* includes 51 species and is found from Trinidad to Argentina. Simon (1889b) described three species from Venezuela; all three species were never illustrated (*Actinopus caraiba*, *A. rojasi*, and *A. scalops*). The genus *Plesiolena* is endemic to Chile. Only one species of the genus *Missulena* is found in SA (Chile) (*Missulena tessulata* Goloboff, 1994), while the rest of the species occurs in Australia, but the Chilean species is considered as probably misplaced per Platnick et al. (2021). The southern part genus was revised by Ríos-Tamayo and Goloboff (2018).

2. Barychelidae Simon, 1889

Genera: 8

Species: 31

Diversity: 10%

Distribution: Brazil, Colombia, Ecuador, French Guiana, Guyana, Peru, and Venezuela.

These medium-sized to large (4.9–20.8) Mygalomorphae spiders are not prevailing in SA. Interestingly the genera *Psalistops*, *Strophaeus*, and *Thalerommata* include species found in North America only, while the rest of the genera are endemic to SA. The genus *Neodiplothele* was revised by Gonzalez-Filho et al. (2015); the genera *Idiophthalma*, *Psalistops*, and *Strophaeus* need revision.

3. Cyrttaucheniidae Simon, 1889

Genera: 4

Species: 18

Diversity: 3%

Distribution: Argentina, Bolivia, Brazil, Ecuador, and Venezuela.

These medium-sized to large Mygalomorphae spiders (5.0–18.4) are not well represented in SA, only 3% of the world diversity. To be noted that Raven (1985) stated that the region typica, Argentina for the species *Acontius australis* (Simon, 1886) is doubtful, as all the other subsequent species described by Simon and others are from West Africa, therefore the occurrence of the genus in SA is doubtful. The monotypic genera *Bolostromoides* and *Rhytidicolus* are so far endemic to Venezuela. *Fufius* and *Bolostromus* are the most diverse genera in SA, including five and ten species, respectively. Both genera include species found in NA and SA only; except for *Bolostromus suspectus* O. Pickard-Cambridge, 1911 from Uganda which is considered presumably misplaced (WSC 2020).

4. Dipluridae Simon, 1889

Genera: 7

Species: 69

Diversity: 74%

Distribution: Argentina, Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Paraguay, Peru, and Venezuela.

Three-quarter of the world diversity of this small to large size Mygalomorphae (2.50–53.7) family is found in SA. All genera are endemic to SA, except for *Masteria*. *Masteria* has an interesting distribution with species found in America, Asia, and Australia/Oceania. Diplurids are considered to be of South America origin (Opatova et al. 2020), the family was recently redelimited and includes the subfamily Masteriinae. Although, Opatova et al. (2020) predicted that the subfamily may be recognised as a standalone family in the future, perhaps closely related to Microhexuridae.

The SA part of the family was mainly studied by Coyle (1995), Passanha and Brescovit (2018), and Pedroso et al. (2019).

5. Entypesidae Bond, Opatova and Hedin, 2020

Genera: 1

Species: 4

Diversity: 11%

Distribution: Brazil and Colombia.

This recently established Mygalomorphae family is represented in SA by only one genus (*Hermacha*) and includes four medium-sized species (8.6–18.0). The family was diagnosed by Opatova et al. (2020, p. 702), but species of *Hermacha* were not included in their study; the transferred to the family Entypesidae is based on morphological affinities with the two other genera. The South African genus *Hermacha* needs a complete revision; most of the species were never illustrated, including the type species described by Simon. The four species of *Hermacha* found in SA (Brazil and Colombia) need revision to ascertain the presence of the genus in SA; nonetheless, the genus is considered to occur in SA pending revision. Both species described by Mello-Leitão, *Hermacha conspersa* Mello-Leitão, 1941, and *Hermacha itatiayae* Mello-Leitão, 1923, were probably destroyed by the fire in 2018 at the MNRJ, Brazil (WSC 2020), and no illustrations exist. The only remaining species were described based on females by Bertkau (1880), who fortunately illustrated the female genitalia.

6. Euagridae Raven, 1979

Genera: 2

Species: 4

Diversity: 5%

Distribution: Argentina and Chile.

The recently elevated Mygalomorphae family Euagridae (Opatova et al. 2020) is represented in SA by only two endemic genera. Opatova et al. (2020) mention that some taxa may be transferred to other ‘diplurid’ families (e.g. *Chilehexops* and *Vilchura*).

South American members of Euagridae are small size spiders (2.63–5.40) found in the southernmost part of SA. The rest of the family is widely distributed and can be found in Africa, America, Asia, Australia, and New Caledonia.

7. Halonoproctidae Pocock, 1901

Genera: 1

Species: 2

Diversity: 2%

Distribution: Brazil and Venezuela.

Medium to large spider (21.1) this Mygalomorphae family is only represented in SA by two species from the genus *Ummida*. The genus has a very interesting distribution and is found in America from the USA to Venezuela, the Caribbean, and northern South America, with representatives in Europe, Africa, and Asia. The species from Brazil, *Pachylomerus glaber* was described in 1871 by Doleschall without illustrations, and *Pachylomerus asperulus* Simon, 1889 was described from Venezuela without illustrations.

8. Hexathelidae Simon, 1892

Genera: 2

Species: 10

Diversity: 22%

Distribution: Argentina and Chile.

This family of small to medium-sized Mygalomorphae (4.92–14.40) spider is only represented by the genera *Mediothele* and *Scotinoecus* in SA. Both genera are endemic and occur in the southern part of SA. The rest of the family occurs only in Australia and New Zealand. In SA, the family was mainly studied by Ríos-Tamayo and Goloboff (2012).

9. Idiopidae Simon, 1889

Genera: 2

Species: 32

Diversity: 8%.

Distribution: Argentina, Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Paraguay, Peru, Suriname, Uruguay, and Venezuela.

Only two genera of this small to medium-sized family (6.01–23.3) are found in SA. The two genera are widely distributed. The genus *Idiops* include species found in Africa and Asia, while the genus *Neosteniza* is only found in SA and Central America. The genus *Idiops* is in dire need of a revision; most species, especially from Africa, have never been illustrated. The genus *Neosteniza* was revised by Goloboff and Platnick (1992). The family is also known to present Gondwanan affinities (Opatova et al. 2020).

10. Ischnothelidae F.O. Pickard-Cambridge, 1897

Genera: 2

Species: 8

Diversity: 31%

Distribution: Argentina, Bolivia, Brazil, Guyana, Paraguay, Suriname, Peru, and Venezuela.

The recently elevated Mygalomorphae family Ischnothelidae (Opatova et al. 2020) is represented in SA by the endemic genus *Andethela* and the American genus *Ischnothele*. Opatova et al. (2020, p. 697) discussed the limits and diagnostic characters of the family

These small size spiders, carapace length (2.2–9.2), were well studied by Coyle (1995).

The genus *Ischnothele* includes species found in NA; one species *Ischnothele caudata* is widely distributed and occurs from Mexico, Central America, the Lesser Antilles to Brazil. The species *Ischnothele indicola* Tikader, 1969 is considered misplaced in this genus (WSC 2020).

11. Mecicobothriidae Holmberg, 1882

Genera: 1

Species: 2

Diversity: 100%.

Distribution: Argentina, Brazil, and Uruguay.

The Mecicobothriidae family was recently split, the genera *Hexurella*, *Hexura*, and *Megahexura* were transferred to other families (Hedin et al. 2019). The only genus left in the family, *Mecicobothrium* includes only two small (5.12–6.9) species found in the southern part of SA. This is the only endemic family in SA; the two species were illustrated by Lucas et al. (2006).

12. Microstigmatidae Roewer, 1942

Genera: 6

Species: 17

Diversity: 41%

Distribution: Argentina, Brazil, Colombia, Ecuador, Venezuela, and Uruguay.

About half of the world's diversity of this family of small to medium-sized spiders (1.80–10.0) is found in SA. All genera are endemic to SA, and the only two other genera of the family are found in South Africa or Panama. *Spelocteniza ashmolei* Gertsch, 1982 from Ecuador, is troglobite with evanescent eyes (Gertsch 1982). The family was mainly studied by Raven and Platnick (1981).

13. Migidae Simon, 1889

Genera: 3

Species: 10

Diversity: 10%

Distribution: Argentina and Chile.

The family of small to medium-sized Mygalomorphae (9.2–21.9) is only found in southern SA. All genera are endemic to SA, while the rest of the family is distributed in Australia, New Caledonia, New Zealand, Africa, and Madagascar. The SA part of the family was studied by Goloboff and Platnick (1987), Ferretti et al. (2019), and Griswold and Ledford (2001).

14. Nemesiidae Simon, 1889

Genera: 12

Species: 48

Diversity: 25%

Distribution: Argentina, Brazil, Chile, and Uruguay.

Medium to very large (7.3–35.9) Mygalomorphae spider, the limits of the family are not fully resolved (Bond et al. 2012; Opatova et al. 2020). All genera are endemic to SA, and half of the genera are monotypic. The genus *Rachias* needs revision, some species were never illustrated, and some types of specimens described by Mello-Leitão were probably destroyed in the 2018 fire at the MNRJ, Brazil (WSC 2020). Opatova et al. (2020) suggested that *Rachias* (per Goloboff 1995) and *Chilelopsis* most likely belong to the family Pycnothelidae. Goloboff (1995) presented a revision of part of the family, and Lucas and Indicatti (2006) revised the genus *Psalistopoides*.

15. Paratropididae Simon, 1889

Genera: 5

Species: 14

Diversity: 82%

Distribution: Brazil, Colombia, Ecuador, Peru, and Venezuela.

This family of small to medium size (6.0–18.5) Mygalomorphae spider is endemic to America, most of the fauna is found in northern SA, but some species occur in the Caribbean, Panama, and Mexico. The phylogenetic placement of this enigmatic family is still uncertain (Bond et al. 2012). The genus *Paratropis* needs revision; some species were never illustrated, and unfortunately, *Paratropis sanguinea* Mello-Leitão, 1923 was most probably destroyed in the 2018 fire at the MNRJ, Brazil (WSC 2020). The genera *Anaspooides* and *Stormtropis* are endemic to SA, *Stormtropis* was recently described by Perafán et al. (2019), and Raven (1999) revised the genus *Melloina*.

16. Pycnothelidae Chamberlin, 1917

Genera: 4

Species: 60

Diversity: 74%

Distribution: Argentina, Brazil, Chile, Peru, and Uruguay.

Three-quarter of the world biodiversity of this recently elevated Mygalomorphae family is found in SA (Opatova et al. 2020). All genera of this small to large (7.90–35.50) spider family found in SA are endemic. The most speciose genus *Acantognathus* includes 29 species and was revised by Goloboff (1995), while Passanha et al. (2014) revised the genus *Pycnothele*.

17. Theraphosidae Thorell, 1869

Genera: 60

Species: 395

Diversity: 40%

Distribution: all mainland SA.

The most diverse family of Mygalomorphae spiders in SA, Theraphosidae, include small to very large spiders (12.50–90). Most of the genera are endemic to SA (42); interestingly, the remaining 17 genera include species that occur in North America except for the African genus *Heterothele*.

Acanthopelma beccarii was described from Guyana by Caporiacco (1947); according to Rudloff (2001), the species is misplaced and possibly belongs to the genus *Holothele*; therefore, the genus is not considered to occur in SA.

The genus *Cyrtopholis* includes 24 species from the Caribbean, only one species, *Cyrtopholis intermedia* (Ausserer, 1875), is known to occur in SA, the species was never illustrated, but Schiapelli and Gerschman (1979) mention seeing the type in the British Museum (9-7-1-352) affirming that the species belong to *Cyrtopholis*.

The African genus *Heterothele* comprises ten described species; numerous species, including the type species, were never illustrated. The only SA member of the genus, *Heterothele caudicula* (Simon, 1886), was described from Argentina.

The African genus *Ischnocolus* includes eight described species, the only SA species *I. rubropilosus* was described by Keyserling (1891) from Brazil without illustrations. Like Montemor et al. (2020), the presence of the genus in SA is considered dubious and not considered here to occur on the continent.

The most speciose Theraphosidae genus, *Lasiodora*, with 33 described species, needs a thorough revision. Numerous species have never been adequately illustrated; some species described by Mello-Leitão have unfortunately been destroyed in the 2018 fire at the MFRJ, Brazil (WSC 2020).

The monotypic genus *Ozopactus* was established by Simon based on a female from Venezuela; Schmidt (2003) presented an image of the spermathecae of the holotype.

Four species of the genus *Phormictopus* occurs in SA, two of which are considered misplaced in the genus according to Rudloff (2008) (*Phormictopus australis* Mello-Leitão, 1941 and *Phormictopus ribeiroi* Mello-Leitão, 1923), while *Phormictopus brasiliensis* Strand, 1907 is considered nomina dubia per Nentwig et al. (2020). Only the type species *Phormictopus cancerides* (Latreille, 1806) is considered to occur in SA, but the record from Brazil is somewhat doubtful (see distribution section for further explanation). While trying to precise the entire distribution of the species, a curious detail was uncovered. The first illustration recorded in the WSC (2020) is from Hahn (1820; pl. 4), but Hahn mentioned that the species was first illustrated by: ‘Palisot-de-Beauvois insects.

Tom. I 8^{me.} Liverat p.135. apteres PL.III fig 1. mas.' and that his illustration was copied from Palisot-de-Beauvois work after it had been compared with a specimen in the collection of his friend Herr Sturm. Who was this mysterious Mr. Palisot-de-Beauvois and, why was his illustration/work not recorded in the WSC (2020). Mr. Ambroise Marie François Joseph Palisot, Baron de Beauvois was a french naturalist that published a significant book 'Insectes recueillis en Afrique et en Amérique, dans les royaumes d'Oware et de Benin, à Saint-Domingue et dans les États-Unis, pendant les années 1786-1797' (Wilson and Fiske 1900). Fortunately, a complete online version of the book and the plates exist (<https://gdz.sub.uni-goettingen.de/>). Indeed, Mr. Palisot-de-Beauvois has recorded and illustrated numerous insects but also some spiders, scorpions, millipedes, amblypygid and, spiders. For spiders, Palisot-de-Beauvois (1805) recorded and illustrated: *Epeira clavipes* (p. 72; plate I, fig. 9), *Mygale cancerides* (p.135, pl.III fig. 1a, 1); *Mygale blondii* (p.135, pl.III, fig. 2). The authors and his illustrations are mentioned in Bonnet (1958, p. 3626) but, it seems the information got lost over the years.

Pocock (1885) described *Psalmopoeus cambridgei* based on a female specimen from: 'East Indies, possibly from Pinang since the specimen was taken from a bottle which also contains an *Omothymus*'. Gabriel and Sherwood (2019: 45) mentioned that the type is actually from Trinidad. The record of the species from Malaysia is doubtful, hence the genus is considered here to occur only in the Americas. *Psalmopoeus emeraldus* and *Psalmopoeus plantaris* from Colombia are considered species inquirenda per Gabriel and Sherwood (2019, p. 42).

The monotypic genus *Pseudhapalopus* Strand, 1907 is considered a nomen dubia by Nentwig et al. (2020) since the type specimen is considered lost and no illustration exists of the species (WSC 2020).

The genus *Trichopelma* includes 12 described species; the genus is in dire need of a revision, the type species was never illustrated, and most of the SA species described by Simon were also never reviewed.

Major complete taxonomic revision includes: *Avicularia* was revised by Fukushima and Bertani (2017); *Cyriocosmus* by Fukushima et al. (2005); *Ephebopus* was revised by West et al. (2008); *Euthycaelus* revised by Guadanucci and Weinmann (2014); *Hapalotremus* was revised by Ferretti et al. (2018); *Tmesiphantes* was revised by Yamamoto et al. (2007); Bertani (2012) revised the genera *Typhochlaena*, *Pachistopelma*, and *Iridopelma*; Indicatti et al. (2008) revalidated and revised of the genus *Magulla*; Gabriel and Sherwood (2020) revised *Psalmopoeus*.

ARANEOMORPHAE

18. Agelenidae C. L. Koch, 1837

Genera: 1

Species: 1

Diversity: 0.4%

Distribution: Guyana.

Only four species of this small to medium-sized (4.3–14.0) family are found in SA; the four *Tegenaria* species found on the continent are introduced (Annexe 2a),

therefore not included to occur in SA. So far, the only genus of Agelenidae found in SA is the monotypic, endemic genus *Neotegenaria* (*N. agelenoides* Roth, 1967) from Guyana.

19. Amaurobiidae Thorell, 1870

Genera: 20

Species: 56

Diversity: 20%

Distribution: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Falkland Is., Paraguay, Peru, and Venezuela.

This family of small to medium-sized (2.0–15.0) spider includes 18 genera endemic to SA, ten of which are monotypic. The most diverse genus *Retiro* includes species found in North America, while the genus *Macroburus* includes one species from Africa. *Macroburus caffer* was described from South Africa by Simon (1898a); the species must be illustrated and revised to confirm its placement in *Macroburus*.

Two species described by Mello-Leitão from the genus *Amaurobius* (*Amaurobius thoracicus* and *Amaurobius asuncionis*) are considered doubtful, according to Marusik et al. (2020). *Amaurobius thoracicus* is a species inquirenda and may belong to another genus or Titanoecidae, while *Amaurobius asuncionis* is considered nomen dubia (WSC 2020).

The SA part of the family desperately needs revision; the primary studies on the family include Roth (1967) and Almeida-Silva et al. (2015).

20. Anapidae Simon, 1895

Genera: 14

Species: 58

Diversity: 25%

Distribution: Argentina, Brazil, Chile, Colombia, Ecuador, Guyana, Peru, Suriname, and Venezuela.

One-quarter of the world biodiversity of this family of very small spiders (0.6–2.27) is found in SA. Seven genera are endemic to SA (*Crassanapis*, *Elanapis*, *Pecanapis*, *Sheranapis*, *Sofanapis*, *Teutoniella*, *Tricella*) and two genera (*Anapis* and *Anapisona*) include species found in North America. The genus *Pseudanapis* Simon, 1905, has an interesting distribution and is found in Hawaii, North America, Africa, Asia, and Australia. The genera *Eperiella*, *Gigiella*, and *Normplatnicka*, include species found in Australia, while the genus *Minanapis* includes species occurring in China.

The genus *Anapis* was revised by Platnick and Shadab (1978b); *Anapisona* and *Pseudanapis* by Platnick and Shadab (1979b); *Crassanapis*, *Minanapis* and *Sheranapis* by Platnick and Forster (1989).

21. Anyphaenidae Bertkau, 1878

Genera: 54

Species: 379

Diversity: 66%

Distribution: all mainland SA, Galapagos Is., Juan Fernandez Is. and Falkland Is.

This family of small to medium-sized spiders (2.2–18.0) is very diverse in SA; 66% of the world biodiversity is found on the continent, 35 genera are endemic to SA, while 17 genera include species found in NA. The speciose genus *Anyphaena* includes 83 species (WSC 2020) and is found worldwide except in Australia/Oceania. Only two species were described from SA, *Anyphaena andina* Chamberlin, 1916, and *Anyphaena mollicoma* Keyserling, 1879. Based on the illustrations presented in the original descriptions, there is a possibility that the two species do not belong in *Anyphaena*, but until the types are examined, the genus is considered to occur in SA. Species from the genus *Amaurobioides* are found in SA, Africa, New Zealand, and Australia/Oceania.

The large genus *Aysha* was revised by Brescovit (1992b) and included 41 species. Only one species was described from Central America (Panama) by Chickering (1937); the species' type specimen must be examined to determine if it truly belongs to the genus seeing that the genus present a disjunct distribution and lack representative in northern SA.

The genus *Gayenna* is composed of ten species described from the southern part of SA; two species were described by Banks (1898) from Mexico, showing a significant gap in the genus distribution, the two species have to be re-studied to confirm the genus occur outside SA, the illustrations presented by Banks do not allow for generic recognition.

A few species have long-range distribution: *Hibana futilis* occurs in the USA, Mexico, and the Caribbean to Venezuela; *Hibana melloleitaoi* is found from Mexico to Brazil; *Hibana similaris* occurs from Mexico to Brazil and the Caribbean; *Hibana tenuis* occurs in Mexico, Central America, and the Caribbean to Venezuela; *Josa nigrifrons* is found in Mexico, Central America to Bolivia and *Lupettiana mordax* is found from the USA to Peru (Annexe 1). *Sanogasta maculatipes* was introduced to Easter Is. (Annexe 2b).

The family has been well studied only a few genera are still pending revision (*Aljassa*, *Gayenna*, *Josa*, *Patrera*, *Sillus*, *Tasata* and *Teudis*), only the principal publications pertaining to the SA part of the family are presented here: Brescovit (1992a, 1992b, 1992c, 1993, 1997, 1999a, 1999b); Ramírez (1997, 1999, 2003); Lopardo (2005); Werenkraut and Ramírez (2009); Aisen and Ramírez (2015); González and Ramírez (2012); Soto and Ramírez (2012); Oliveira and Brescovit (2015).

22. Araneidae Clerck, 1757

Genera: 62

Species: 1002

Diversity: 33%

Distribution: all mainland SA, Galapagos Is., Juan Fernandez Is. and Falkland Is.

The family Araneidae is one of the most diverse worldwide; 33% of the world's biodiversity is found in SA. This family of very small to very large orb-weaver spiders (2.5–40.0) is

known to occur worldwide. Fifteen genera are endemic to SA, 34 genera include species found in NA, while five genera are found worldwide (*Araneus*, *Argiope*, *Cyclosa*, *Larinia*, and *Neoscona*). Two genera are found in North America, Europe, Africa, and Asia (*Aculepeira* and *Mangora*); the problematic genus *Ursa* is found in SA, Africa, and Asia; interestingly, the genus *Parawixia* occurs in America, Asia, and Australia/Oceania (New Guinea); three genera are found in America, Africa, Asia and Australia/Oceania (*Eriophora*, *Gasteracantha*, and *Trichonephila*), and finally, *Carepalxis* is found in America and Australia/Oceania.

Araneus unistriatus presumably from Brazil, is seemingly a *Parawixia*, according to Levi *in litt.* (WSC 2020). The genus *Carepalxis* is mainly found in the Australian region, with only three species described from the Americas. Most species from the Australian region have not been revised contemporarily.

Three species from the genus *Gasteracantha* occur in America, the largely distributed type species *Gasteracantha cancriformis* (Linnaeus, 1758); *Gasteracantha flava* Nicolet, 1849 described from Chile, and one species from the USA, *Gasteracantha cancriformis gertschi* Archer, 1941. The type specimens of the two later species have to be re-examined, the first species was described without illustrations, while the other species is considered probably not valid, per Brignoli (1983) (WSC 2020). Therefore, the genus is considered to occur in SA, Africa, Asia, and Australia/Oceania.

The highly diverse genus *Mangora* (186 described species) has an interesting distribution pattern. Most of the species are found in the Americas except for ten species found in China, Korea, Malaysia, and Myanmar, and the widely distributes species *Mangora acalypha* is found everywhere apart from Australia/Oceania.

The record of *Micrathena furcula* (O. Pickard-Cambridge, 1890) from Brazil is considered uncertain per Levi (1985).

The genus *Neoscona* is interesting; only one species is known to occur naturally in SA, *Neoscona oaxacensis* is found from the USA to Peru, and the Galapagos Is., while the rest of the genus is found all around the world, the record from the Philippines by Barrion et al. (1988) is probably a misidentification (WSC 2020).

The only species of *Nephila* found in SA is dubious; *N. cornuta* was described from Guyana by Pallas in 1772. The species was treated as a subspecies of *Nephila clavipes* by Dahl (1912) and elevated to species status by Archer (1958). *Nephila clavipes* was transferred to *Trichonephila* by Kuntner et al. (2019). *N. cornuta* most likely belongs to the genus *Trichonephila* or represents a synonym of *Nephila clavipes*; hence the presence of the genus *Nephila* in SA is doubtful and considered not to occur on the continent until new information is presented. Levi (1980, p. 22) considered all described subspecies of *Trichonephila clavipes* (Linnaeus, 1767) as identical but did not formally synonymise them (WSC 2020). *Trichonephila clavipes fasciculata* (De Geer, 1778) and *Trichonephila clavipes vespcea* (Walckenaer, 1841) are considered doubtful but still included in the species list pending revision of the genus.

Two species of *Pronous* have been described outside America, *Pronous affinis* Simon, 1901 from Malaysia, and *Pronous tetalobus* Simon, 1895 from Madagascar; the two species were never illustrated, until the type specimens are examined, the genus *Pronous* is considered here to occur only in SA.

The occurrence of the monotypic genus *Rubrepeira* in Mexico is considered doubtful; see distribution section for explanation.

The small genus *Spintharidius* comprises only two species; one species is known to occur in SA, while the other species (*Spintharidius viridis*), was described by Franganillo (1926) from Cuba, without illustrations. Therefore, the Cuban species must be re-examined to confirm generic placement, but the genus *Spintharidius* is considered to occur in NA and SA for the time being.

The genus *Ursa* is problematic; most species were described without illustrations by Simon and Nicolet from different parts of the world (Brazil, Chile, Sri Lanka, South Africa and Vietnam). The type species *Ursa pulchra* Simon, 1895 was re-illustrated by Levi (2005), but until the type specimens of all species can be re-examined, the genus distribution is uncertain and considered here to occur in SA, Africa, and Asia.

Forty-seven species have a long-range distribution from CAN, USA, or Mexico to SA (Annexe 1).

Argiope trifasciata (Forsskål, 1775) was introduced to Africa, Portugal to Israel, Iran, China, Japan, Australia (Tasmania) and Pacific Is., while *Trichonephila clavipes* was introduced to São Tomé and Príncipe (Annexe 2b). *Cyrtophora citricola*, *Gea heptagon*, *Neoscona moreli*, *Neoscona nautica*, *Nephilingis cruentata*, and *Zygiella x-notata* are introduced in SA (Annexe 2a). The genera *Cyrtophora*, *Gea*, *Nephilingis*, and *Zygiella*, do not occur naturally in SA.

The Araneidae family has been fairly well studied in SA, mainly by Dr. Levi, we present here some of the most important publications: Levi (1971, 1976, 1985, 1988, 1989, 1991, 1992a, 1993a, 1993b, 1993c, 1995a, 1995b, 1996a, 1996b, 1997, 1999, 2001, 2003, 2005, 2008); Harrod et al. (1991); Glueck (1994); Traw (1996); Piel (2001); Lise et al. (2015); Cabra-García and Hormiga (2020).

23. Austrochilidae Zapfe, 1955

Genera: 2

Species: 9

Diversity: 90%

Distribution: Argentina and Chile.

Almost all the fauna of this family of small to medium-sized spiders (7.0–20.0) occur in SA; the two genera (*Austrochilus* and *Thaida*) are endemic to SA. The only other genus in the family is the monotypic genus *Hickmania*; *Hickmania troglodytes* is found in Australia, Tasmania. In SA, the family is restricted to the southern part and was mainly studied by Forster et al. (1987).

24. Caponiidae Simon, 1890

Genera: 10

Species: 51

Diversity: 40%

Distribution: Argentina, Brazil, Chile, Colombia, Ecuador, French Guiana, Guyana, Paraguay, Peru, Uruguay, and Venezuela.

Almost half of the world's diversity of the small to medium-sized (2.9–17.0) family occurs in SA. Most of the genera are endemic to SA; the four remaining genera (*Caponina*,

Medionops, *Nops*, and *Nopsma*) include species found in North America. The most speciose genus *Nops*, was revised by Sánchez-Ruiz and Brescovit (2018), three species are recorded as species inquirenda: from Paraguay, *Nops anisitsi* Strand, 1909; from Peru, *Nops bellulus* Chamberlin, 1916; and from French Guiana, *Nops branicki* (Taczanowski, 1874).

The SA part of the family was revised by Platnick (1994); Sánchez-Ruiz and Brescovit (2017, 2018); Sánchez-Ruiz et al. (2020).

25. Cheiracanthiidae Wagner, 1887

Genera: 6

Species: 58

Diversity: 16%

Distribution: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Uruguay, and Venezuela.

This family of small to medium-sized spiders (4.2–21.3) is not well represented in SA; two genera are endemic to the continent (*Macerio* and *Radulphius*). Three genera (*Eriacaella*, *Eutichurus*, and *Strotarchus*) include species found in NA; finally, the genus *Cheiracanthium* is found worldwide, and the well-known synanthropic species *Cheiracanthium inclusum* (Hentz, 1847) is found all over the Americas.

Cheiracanthium mildei is introduced and does not occur naturally in SA (Annexe 2a). Two species in the genus *Eutichurus* were described from India but are considered misplaced (Bonaldo et al. 2018, p. 322); therefore, the genus is considered endemic to America. *Strotarchus alboater* Dyal, 1935 and *Strotarchus vittatus* Dyal, 1935 are considered probably misplaced, per Bonaldo et al. (2012) (WSC 2020); therefore, the genus is considered here to occur only in America. Recently Eutichuridae was synonymised with Cheiracanthiidae by Ono and Ogata (2018), against Ramírez (2014), who had elevated Eutichuridae to family status (WSC 2020); the limits of the family are still unclear.

The SA part of the family was revised by: Bonaldo (1994); Bonaldo and Buckup (1995); Ramírez et al. (1997) and Bonaldo et al. (2012).

26. Clubionidae Wagner, 1887

Genera: 1

Species: 21

Diversity: 3%

Distribution: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Peru, and Venezuela.

Only two genera of this small to medium-sized family (2.5–17.4) occur in SA. The genus *Clubiona* is a very diverse genus, including 502 species described so far (WSC 2020). The genus occurs worldwide; in SA, nine species were described by Nicolet (1849) and Caporiacco (1947) without any illustrations and in the case of Caporiacco of a juvenile specimen. Several species described by Nicolet under *Clubiona* have already been transferred

to other families (e.g. *Clubiona flavipes* Nicolet, 1849 transferred to *Macerio* (Cheiracanthiidae); *Clubiona pusilla* Nicolet, 1849 transferred to *Tomopisthes* (Anyphaenidae); *Clubiona sternalis* Nicolet, 1849 transferred to *Sanogasta* (Anyphaenidae)). Consequently, the presence of *Clubiona* in SA is not well established and considered not to occur on the continent pending a complete revision of the genus.

The only genera considered present in SA is *Elaver*, including 12 species. Two species of *Elaver* were described from the Philippines by Barrion and Litsinger (1995); both species are considered misplaced per Saturnino and Bonaldo (2015); therefore, the genus is considered to occur only in America.

27. Corinnidae Karsch, 1880

Genera: 24

Species: 264

Diversity: 33%

Distribution: all mainland SA and the Galapagos Is.

One-third of the world diversity of this family is found on the South American continent. In SA, nine genera of this small to medium-sized spider (2.75–16.45) are considered endemic (*Attacobius*, *Ecitocobius*, *Ianduba*, *Methesis*, *Olbus*, *Paradiestus*, *Psellocoptus*, *Stethorrhagus* and *Tapixaua*), while 12 genera include species that occur in NA. The genus *Apochinomma* includes species found in SA, Africa, and Asia, while the genus *Castianeira* occurs in North America, Europe, Africa, and Asia. Finally, the genus *Sphecotypus* occurs in SA and Asia.

Nine species of the genus *Apochinomma* are described from SA, the rest of the genus being distributed in Africa and Asia. Most of the SA species were described without illustrations, and regrettably, some types may have been lost in the 2018 fire at the MNRJ, Brazil (*Apochinomma myrmecoides* Mello-Leitão, 1922; *Apochinomma formicoides* Mello-Leitão, 1939, *Apochinomma armatum* Mello-Leitão, 1922). The genus needs a complete revision to determine its accurate distribution, but we considered the genus to occur in SA, Africa, and Asia until further evidence is presented.

The genus *Castianeira* is a large genus including 122 species occurring almost worldwide except in Australia/Oceania. The North and Central American fauna was revised by Reiskind (1969), but most of the species from Africa and SA have never been illustrated or comprehensively described. Furthermore, numerous type specimens are presumed lost, destroyed in the 2018 fire at the MNRJ, Brazil (WSC 2020).

Corinna is a diverse and problematic genus, 79 species have been described so far, and numerous species are difficult to identify due to the lack of illustrations, basic descriptions, or have been described based on juveniles. Furthermore, some types are now considered lost or destroyed: *Corinna anomala* Schmidt, 1971; *Corinna brunneipeltula* Strand, 1911; *Corinna bristoweana* Mello-Leitão, 1926, and *Corinna travassosi* Mello-Leitão, 1939 (WSC 2020). *C. aerolata* was described from Cameroon by Thorell (1899), and *C. brunneipeltula* was described by Strand (1911) from New Guinea (probably destroyed) (WSC 2020), both were described without illustrations and are considered doubtful. *Corinna cibratus* (Simon, 1886) was described from Tanzania (Zanzibar), and *Corinna major* Berland, 1922, from Kenya probably belongs to the

genus *Brachyphaea* Bonaldo (2000); finally, one species described by Dyal (1935) from Pakistan belong to *Oedignatha* group according to Bonaldo (2000). Therefore, the genus *Corinna* is considered here to occur only in the Americas.

Methesis brevitarsus Caporiacco, 1954 is considered a possible castianeirine according to Bonaldo (2000) therefore leaving the genus monotypic.

Four species are included in the genus *Sphecotypus*; the type species *Sphecotypus niger* (Perty, 1833) was described from Brazil, the remaining species were described from Myanmar, Malaysia, and Sri Lanka. The Asian species lack the constriction of the abdomen and may prove to belong to another genus, but until the type specimens of all species can be revised, the genus is considered to occur in SA and Asia.

The genus *Myrmecotypus* presents an interesting broken distribution pattern in the Americas. Species are known from the USA, Mexico, Nicaragua, and Panama, and they only occur in Brazil, Bolivia, and Argentina. Only two species have long-range distribution, *Xeropigo tridentiger* and *Creugas gulosus* are distributed from the USA to Brazil.

Falconina gracilis has been introduced to the USA, while *Creugas gulosus* has been introduced to numerous countries, and *Xeropigo tridentiger* was introduced to St. Helena. (Annexe 2b).

The family has been fairly well studied in SA: Bonaldo and Brescovit (1994, 2005); Bonaldo (1997, 2000); Candiani and Bonaldo (2017); Ramírez et al. (2001) and Rodrigues and Bonaldo (2014).

28. Ctenidae Keyserling, 1877

Genera: 22

Species: 179

Diversity: 36%

Distribution: all mainland SA, except Chile.

This family of medium to large spider (3.10–40) is reasonably well represented in SA, with 36% of the world diversity occurring on the continent. Fourteen genera are endemic to SA, while seven genera include species found in NA and only one genus, *Ctenus* is considered here to occur in SA, NA, Africa, and Asia.

Ctenus is a large genus with 212 described species (WSC 2020), the genus needs revision, but the sheer number of described and undescribed species in the genus and its worldwide distribution is an obstacle to a complete taxonomic revision (Polotow and Brescovit 2014). Two species were described from the Australia/Oceania region without illustrations (*Ctenus kochi* Simon, 1897 and *Ctenus agroecoides* (Thorell, 1881)), while *Ctenus rufisternis* was described by Pocock (1898) from New Britain. Until the type specimens of all three species can be examined, the genus is considered not to occur in Australia/Oceania.

Caloctenus abyssinicus Strand, 1917 described from Ethiopia is considered misplaced in this genus according to Silva-Dávila (2004) (WSC 2020); therefore, the genus is considered endemic to SA.

The monotypic genus *Wiedenmeyeria* was described based on a juvenile male and female, without illustrations by Schenkel (1953); the genus is considered doubtful and not considered here to occur in SA.

The family was mainly revised by: Brescovit (1996); Höfer and Brescovit (2000); Silva-Dávila (2004); Martins and Bertani (2007); Polotow and Brescovit (2008, 2009, 2013, 2014, 2018).

29. Cybaeidae Banks, 1892

Genera: 1

Species: 7

Diversity: 3%

Distribution: Colombia, Peru, and Venezuela.

Only the endemic genus *Sympoia* of this of small size (2.0–2.7), six eyes spider family occurs in northern SA. Keyserling described *Cybaeus signatus* in 1881 from Peru, the type specimen is taught to be lost, and the species placement in *Cybaeus* is doubtful (Roth 1967, p. 316); therefore, the presence of the genus *Cybaeus* in SA is not considered here.

30. Deinopidae C. L. Koch, 1850

Genera: 1

Species: 15

Diversity: 22%

Distribution: Argentina, Brazil, Colombia, French Guiana, Uruguay, and Venezuela.

Only the widely distributed genus *Deinopis* occurs in SA. Even so, 22% of the world biodiversity of this medium-sized (13.0–25.0) spider occurs on the continent. The genus *Deinopis* needs revision and is somewhat problematic. Numerous species were described without illustrations, especially by Simon and Taczanowski, and some types have probably been lost in the 2018 fire at the MNRJ, Brazil (*Deinopis armaticeps* Mello-Leitão, 1925; *Deinopis guasca* Mello-Leitão, 1943; *Deinopis plurituberculata* Mello-Leitão, 1925 and *Deinopis rodophthalma* Mello-Leitão, 1939). Coddington et al. (2012) stated that the revision of the genus *Deinopis* ‘would recognize approximately 30 valid species.’

Deinopis spinosa has a long-range distribution from the USA to Venezuela, but the record from Venezuela could not be confirmed.

31. Desidae Pocock, 1895

Genera: 4

Species: 15

Diversity: 5%

Distribution: Argentina, Brazil, Chile, Galapagos Is., Peru and Uruguay.

This family of medium-sized spiders (4.4–15.0) is seldomly found in SA. All genera but one are endemic to SA and occur in the southern part of the continent. The three endemic genera have been transferred between various families over the years (e.g. *Calacadia* was transferred from rhoicinine pisaurids to Amaurobiidae, to Amphinectidae, and

finally to Desidae by Wheeler et al. (2017)); *Metaltella* was transferred from the Dictynidae to Amaurobiidae by Lehtinen (1967), to Amphinectidae by Davies (1998) and to Desidae by Wheeler et al. (2017).

Only one species of the genus *Desis* occurs in the Galapagos Islands; the other members of the genus occur in Africa, Australia/Oceania, and Asia. *Metaltella simoni* has been introduced to the USA and Canada, and the Australian *Badumna longinqua* was introduced in Uruguay (Annexes 2a, 2b).

32. Dictynidae O. Pickard-Cambridge, 1871

Genera: 8

Species: 31

Diversity: 7%

Distribution: Argentina, Brazil, Chile, Ecuador, Galapagos Is., French Guiana, Guyana, Peru, Uruguay, and Venezuela.

This family of small size spiders (2.5–5.0) is not very diverse in SA; three monotypic genera (*Aebutina*, *Tahuantina*, and *Tandil*) are endemic to the continent, while three genera (*Mallos*, *Phantyna*, and *Thallumetus*) include species that occur in North America. *Dictyna* is considered to occur everywhere except in Australia/Oceania and only one species from the North American, European, Asian genus *Emlynna* occurs in SA, *E. formicaria* Baert, 1987 from the Galapagos Is.

The genus *Clitistes* was recently removed from nomen dubium by Dupérré and Harms (2018). According to Ramírez (pers. comm.), *Clitistes velutinus* Simon, 1902 is conspecific with *Cybaeolus pusillus* (Hahniidae), hence the genus *Clitistes* is not included in the list (Annexe 1).

Most SA species of *Dictyna* have never been adequately studied. One type is considered lost, destroyed by the 2018 fire at the MNRJ, Brazil (*Dictyna fluminensis* Mello-Leitão, 1924), while the type specimen of *Dictyna trivirgata* Mello-Leitão, 1943 survived the fire at the MNRJ, Brazil (WSC 2020).

Two species have long-range distribution, *Phantyna mandibularis* is found in Mexico, French Guiana, and Brazil but is considered doubtful while *Mallos hesperius* occurs in Mexico, Central America, Peru, and Paraguay.

33. Diguetidae F. O. Pickard-Cambridge, 1899

Genera: 2

Species: 5

Diversity: 33%

Distribution: Argentina, Brazil, Chile, and Peru.

The family Diguetidae is endemic to America; in SA, five medium-sized (3.4–11.1) species occur. The genus *Segestroides* is endemic to SA and was revised by Platnick (1989). The genus *Diguetia* shows a broken distribution pattern, with species occurring in the USA, Mexico, and then in Argentina, and does not occur in the northern part of SA; the genus was revised by Gertsch (1958a).

34. Drymusidae Simon, 1893

Genera: 1
 Species: 7
 Diversity: 41%
 Distribution: Argentina, Brazil, and Chile.

Almost half of the world's diversity of this family occurs in SA; *Drymusa* is the only genera present in SA. *Drymusa* is composed of medium-sized (2.2–8.1), six eyes spider and includes species that occur in North America. *Drymusa* presents a broken distributional pattern with species missing in the northern part of SA.

35. Eresidae C. L. Koch, 1845

Genera: 1
 Species: 1
 Diversity: 1%
 Distribution: Brazil.

Only one species of the genus *Stegodyphus* Simon, 1873 is known to occur in SA. The small *Stegodyphus manaus* (6.9–8.9) was described from the Amazonian region of Brazil and is related to species of the African groups *S. dufouri* (Kraus and Kraus 1992). The presence of the family in SA is doubtful since no specimens have been collected since the original description of the species in 1992. In 2008, the species was recorded as threatened in the Brazilian redlist (Brescovit 2008), but in a new evaluation presented in 2018, the species was considered to have insufficient data and not included in the list. Until further data is provided the species is considered here to occur in SA.

36. Filistatidae Simon, 1864

Genera: 4
 Species: 21
 Diversity: 11%
 Distribution: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Galapagos Is., Paraguay, Uruguay, Peru, and Venezuela.

This family of small to medium-sized (1.8–6.0) six-eyes spiders is not very diverse in SA; three genera are endemic to SA (*Lihuelistata*, *Misionella*, and *Pikelinia*). The genus *Filistatoides* is considered here not to occur in SA since the only species *Filistatoides milloti* (Zapfe, 1961) from Chile does not appear to belong to the genus based on morphological structure according to Brescovit et al. (2016) (WSC 2020). The North American genus *Kukulcania* is only represented by one species in SA, the widely distributed *Kukulcania hibernalis* (Hentz, 1842). *Kukulcania santosi* Magalhaes and Ramírez, 2019 is probably introduced in Chile and Peru (Magalhaes and Ramírez 2019).

The southern part of the family was mainly studied by: Ramírez and Grismado (1997); Grismado and Ramírez (2000); *Kukulcania* was revised by Magalhaes and Ramírez (2019).

37. Gallieniellidae Millot, 1947

Genera: 1
Species: 1
Diversity: 1%
Distribution: Argentina.

Only one endemic species of this family of small (5.3–5.9) spider is described from SA. *Galianoella leucostigma* was described by Mello-Leitão (1941b) and transferred by Goloboff (2000) to Gallieniellidae. The rest of the family occurs in Australia/Oceania, South Africa, and Madagascar.

38. Gnaphosidae Pocock, 1898

Genera: 29
Species: 228
Diversity: 9%
Distribution: Argentina, Bolivia, Brazil, Chile, Juan Fernandez Is., Colombia, Ecuador, Galapagos Is., Guyana, Paraguay, Suriname, Uruguay, Peru, and Venezuela.

Only 9% of the diversity of this speciose family of small to large size (2.3–15.0) spiders occurs in SA. Twenty-one genera are endemic to SA, while five genera include species found in NA (*Apodrassodes*, *Apopyllus*, *Lygromma*, *Neozimiris*, and *Zimiromus*). Two genera are considered to have worldwide distribution (*Eilica* and *Zelotes*), while the genus *Camillina* is considered here to occur only in the Americas and Africa. *Camillina europaea* Dalmas, 1922 was described from Italia, but Dalmas did not provide any illustration; therefore, the genus is considered not to occur in Europe until the type specimen or specimens from the type locality can be examined. *Camillina smythiesi* (Simon, 1897) was described from India in the genus *Echemus*, then considered to belong in *Camillina* by Berland (1919), and then considered to belong in *Haplodrassus* by Tikader (1982). Tikader provided illustrations of the immature type specimen from MNHN, France (AR 1632). The World Spider Catalog (2020) mentions that no justification for the generic transfer was presented; therefore, the transfer is not recorded in the catalog. Since the type specimen is a juvenile, the occurrence of *Camillina* cannot be confirmed in India.

Apodrassodes yogeshi Gajbe, 1993 described from India, is considered misplaced in this genus (WSC 2020); hence, the genus is considered to occur only in the Americas.

Drassodes arapensis was described by Strand (1908) based on a juvenile specimen from Peru, without illustration (WSC 2020). Two other species were described by Nicolet (1849) from Chile and one species by Blackwall (1862) from Brazil. All species were described without illustrations; until the type specimens or specimens from the type locality of the various species are found, the genus *Drassodes* is considered not to occur in SA.

The only species of the genus *Herpyllus* described from SA, *H. australis* (Holmberg, 1881), is probably misplaced, as noted by Platnick and Shadab (1977). The species was transferred from *Drassus* to *Herpyllus* by Mello-Leitão (1940), but the coiled embolus

is unlike *Herpyllus* (Platnick and Shadab 1977). Therefore, the genus is considered not to occur in SA until new material can be examined.

The monotypic genus *Parabonna* Mello-Leitão, 1947 is considered misplaced in the Gnaphosidae family according to Brescovit (Brescovit in Murphy 2007); therefore, the genus is also considered not to occur in SA.

Poecilochroa latefasciata was described by Simon (1893c) based on a juvenile specimen from Peru, while *P. trifasciata* Mello-Leitão, 1918 was described from Brazil without any illustrations and probably destroyed by the 2018 fire at the MNRJ, Brazil (WSC 2020); finally, *P. bifasciata* was described by Banks (1902) from Galapagos. Banks presented illustrations of the species, but the generic placement of the species cannot be confirmed or infirmed based on the illustrations. The genus mainly occurs in Africa, Asia, and Europe; therefore, the genus presence in SA is doubtful until type specimens can be examined the genus is considered not to occur in SA.

Only two species of *Prodidomus* are known to occur in SA; both species were described by Simon (1893b) from Venezuela without illustrations. Dalmas (1919) re-described the species and presented illustrations of the female genitalia based on the type specimens from Simon's personal collection. Platnick and Shadab (1976a) stated that the two Venezuelan species differed from *Prodidomus* in spinnerets morphology, the anterior spinnerets being larger than the posteriors as in *Neozimiris*; thus, they considered the generic placement of the species uncertain. According to Platnick and Shadab (1976a, p. 16), the two species might belong in *Neozimiris* or undescribed genus. Therefore, the presence of *Prodidomus* in SA is considered doubtful and not considered to occur on the continent.

The type specimen of *Pseudolygromma simoni* Berland, 1913 held at the MHNP, France was examined (Dupérré in prep.), the specimens identified as *P. simoni* by Platnick and Shadab (1976a, p. 14, figs. 39, 40) are considered a misidentification.

Scotophaeus correntinus was described by Mello-Leitão (1945) from Argentina and is the only species from the genus present in the Americas. Although the genus is distributed in Europe, Africa, and Asia, and Australia/Oceania, the only other species found in the Americas is the introduced species *Scotophaeus blackwalli* (WSC 2020); consequently, the genus is considered not to occur in SA until the re-examination of the type specimen of *Scotophaeus correntinus*.

Apodrassodes guatemalensis has a long-range distribution from Mexico, Central America to Argentina, Brazil, and Paraguay. Platnick and Shadab (1983b) noted that populations recorded in Mexico and Central America might be introduced.

Eight species of Gnaphosidae have been introduced in SA. *Prodidomus rufus* Hentz, 1847 is considered here to be introduced in the Americas following Platnick and Baehr's (2006) statement that the presence of the species in NA is probably due only to human transport (Annexe 2a). *Urozelotes rusticus* (L. Koch, 1872) is considered to occur in the Americas, Africa, Europe, Asia, and Australia, but its native area is unknown. The species is synanthropic and considered introduced in SA; therefore, the genus does not occur naturally on the continent (Annexe 2a). Contrarily one species, *Camillina pulchra* from SA, was introduced to the USA (Annexe 2b).

The family was mainly studied in SA by: Platnick (1975b); Platnick and Shadab (1976a, 1976b, 1979a, 1982, 1983a, 1983b, 1984); Brescovit and Höfer (1994a); Platnick et al. (2005); Azevedo et al. (2016).

39. Hahniidae Bertkau, 1878

Genera: 8

Species: 19

Diversity: 5%

Distribution: Argentina, Brazil, Chile, Colombia, Falkland Is., and Venezuela.

This family of small (1.3–4.9) six or eight-eyes spiders has never really been studied in SA; so far, only 5% of the family biodiversity is found on the continent. Six genera are endemic to SA, while the genus *Neohahnia* includes species from NA, and *Hahnia* is distributed throughout the Americas, Europe, Africa, and Asia.

The endemic genus *Cybaeolus* includes three species. Simon described *Cybaeolus delfini* and *Cybaeolus pusillus* from Chile. Lehtinen (1967) mentions that the type specimen of *C. pusillus* was probably lost. The type specimens of *C. pusillus* and *C. delfini* were found at the MNHN, France and examined (Dupérré in prep). To be noted that Roth (1967) mentions that the illustration on plate 50, fig. 6, is probably another species and not *C. delfini*.

Only four species of the largely distributed genus *Hahnia* are known to occur in SA. Two species were described without illustrations (*Hahnia heterophtalma* Simon, 1905 and *Hahnia simoni* Mello-Leitão, 1919), the other two species (*Hahnia tatei* (Gertsch, 1934) and *Hahnia michaelensi* Simon, 1902) generic placement is considered doubtful based on the examination of the original illustrations. Nonetheless, until a complete revision of all types specimens is completed, the genus *Hahnia* is considered to occur in SA.

The genus *Neohahnia* needs revision, but the revision is problematic; the type species of the genus (*Neohahnia sylviae* Mello-Leitão, 1917) was described based on a juvenile specimen; moreover, the fire destroyed the specimen in 2018 at the MNRJ, Brazil (WSC 2020) alongside *Neohahnia palmicola* Mello-Leitão, 1917. Furthermore, Simon described one species from St. Vincent based on a male without illustration (*Neohahnia ernsti* (Simon, 1898)). Lehtinen (1967) mentions the genus is problematic and re-illustrated the species based on the species *Neohahnina ernesti* (Simon, 1898) ♂♀ syntypes Paris-London, and various specimens.

The genus *Austrohahnia* was revised by Rubio et al. (2014).

40. Hersiliidae Thorell, 1870

Genera: 3

Species: 8

Diversity: 4%

Distribution: Argentina, Bolivia, Brazil, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname, Uruguay, and Venezuela.

The family Hersiliidae is composed of small to medium-sized spiders (3.9–11.0); only 4% of the world diversity is found in SA. Two genera (*Iviraiva* and *Ypypuera*) are endemic to the continent, while the genus *Neotama* includes species found in North America, Asia, and Africa. *Neotama mexicana* has a long-range distribution from the USA to Peru.

The family was revised by Rheims and Brescovit (2004a).

41. Linyphiidae Blackwall, 1859

Genera: 70

Species: 434

Diversity: 9%

Distribution: Argentina, Bolivia, Brazil, Chile, Colombia, Juan Fernandez Is., Ecuador, Falkland Is., Galapagos Is., Guyana, Paraguay, Peru, South Georgia Is., Uruguay and Venezuela.

This highly diverse family of small spiders (1.3–6.0) is considered more diverse in the northern region (Coddington and Levi 1991); only 9% of the world biodiversity is found in SA. In SA, 49 genera are endemic, and ten genera include species found in NA. Five genera (*Agyneta*, *Linyphia*, *Leptophantes*, *Microneta*, and *Walckenaeria*) occur in the Americas, Europe, Asia, and Africa. The genus (*Mermessus*) occurs in the Americas and Asia, while the genus *Erigone* is found worldwide. *Nasoona* occurs in SA and Asia; interestingly, three genera are found in the Americas and some remote Islands: *Lamnicauda* is found in America and Tristan da Cunha (African Plate). In contrast, *Notiomaso* occurs in SA and South Georgia (South American plate), and *Neomaso* is found in SA, Kerguelen, and Marion Island (Antarctic Plate). Finally, the genus *Ostearius* occurs in SA and China.

The genus *Agyneta* is highly diverse and includes 198 described species, the genus occurs worldwide, but only one species, *Agyneta vera* Wunderlich, 1976 is known to occur in Australia/Oceania, the type needs to be examined to confirm the generic placement of the species.

The presence of the genus *Bathyphantes* in SA is considered doubtful and not considered here to occur in SA. Only two species (*B. lennoxensis* and *B. fissidens*) described by Simon from Argentina are known to occur; both were described without illustrations. The types specimens have to be examined to confirm the presence of *Bathyphantes* in SA. The types specimens are probably located in the MNHN, Paris, since no syntypes were found in ZMH, Germany (Dupérré and Harms 2018).

The only representative of the genus *Floronia* in SA, *Floronia annulipes*, was described by Berland (1913) from Ecuador; the rest of the species are found in Europe and Asia. The type has to be examined to ascertain the presence of the genus in SA; therefore, the genus is not considered here to occur in SA.

The presence of the genus *Gongylidiellum* in SA is considered doubtful and not considered to occur in SA; *Gongylidiellum (?) uschuaiense* Simon, 1902 is considered misplaced by Dupérré and Harms (2018).

Only two species of *Leptophantes* occur in SA; the two species are found on Juan Fernandez Island and Fernando de Noronha Island. Berland described *Leptophantes fernandezi*; the illustration of the female epigynum does not present a scape typical of the genus; the generic placement is uncertain. *Leptophantes noronhensis* was described more recently by Rodrigues et al. (2008) from Fernando de Noronha Island. The illustrations present morphological characteristics of *Leptophantes*; therefore, the genus is considered to be present in SA. Finally, *Leptophantes neocaledonicus* described by Berland (1924) from New Caledonia is the only species found in the Australian

region; based on the illustrations of the female epigynum, the genus is considered not to occur in Australia/Oceania due to the lack of a typical scape.

The genus *Linyphia* is very diverse and found worldwide except in Australia/Oceania; most of the species from SA were described in the 1800s and never recently re-studied; all species need re-examination to confirm the presence of the genus in SA. Nonetheless, until a revision is completed, the genus is registered as present in the South American continent. The type specimens of *Linyphia karschi* Roewer, 1942 from São Tomé and Príncipe held at the ZMH, Germany was examined; the species belongs to the Araneidae family (Dupérré in prep.).

Microneta is a problematic genus, the genus is found on all continents except Australia/Oceania, and except for the largely distributed species *Microneta varia*, most species were never reviewed or lack illustrations. The species *Microneta formicaria* from New Guinea was described by Balogh (1938), the illustration does not present the characteristic of the type species, and therefore the genus is considered not to occur in Australia/Oceania; otherwise, the genus is considered here to occur in America, Africa, Asia, and Europe.

Minyriolus australis is considered not to occur in SA since the genus is considered misplaced (Dupérré and Harms 2018).

Nasoona coronata (Simon, 1894) from Venezuela is the only species of the genus found in SA. Millidge (1995, p. 44) transferred the species to *Nasoona* based on the spiny elevation of male carapace and palpal conformation; the genus presents an interesting distribution being found in SA and Asia.

The small Erigoninae *Mermessus bryantae* and *Mermessus denticulatus* have long-range distribution occurring from Canada to Venezuela, and Canada to Peru, respectively.

Ostearius melanopygius occurs from Canada to SA. Finally, *Grammonota teresta* and *Notiohyphantes excelsus* occur in Mexico, Central America to Colombia and Mexico, Central America to Peru, respectively, while *Novafrontina uncata* is found in Mexico and Central America to Brazil.

Diplocephalus cristatus has been introduced to the Falkland Islands, *Leptyphantes leprosus* was introduced in Chile, while *Microctenonyx subitaneus* and *Tenuiphantes tenuis* are considered introduced in Argentina and Chile (Annexe 2a). Oppositely, *Mermessus bryantae* was introduced from SA to the Azores; *Mermessus denticulatus* was introduced in Europe, North Africa, and Turkey; and *Ostearius melanopygius* was introduced in Europe, Canary Is. Egypt and Turkey, South Africa, China, Malaysia, Indonesia, and New Zealand (Annexe 2b).

Our knowledge of the South American Linyphiidae fauna is based on the work of Millidge (1991) and Miller (2007).

42. Liocranidae Simon, 1897

Genera: 1

Species: 3

Diversity: 1%

Distribution: Argentina, Colombia, and Peru.

The family Liocranidae comprises medium-size spiders (2.8–3.4) and is almost absent in SA. Only three species are found on the continent; the genus *Agroeca* presence in SA is

doubtful and considered not to occur on the continent. *Agroeca aureoplumata* Keyserling, 1879 was described from Colombia; in 1967, Lehtinen transferred the species to the family Corinnidae but did not specify a genus (WSC 2020). *Agroeca dubiosissima* (Strand, 1908) was described from Peru without illustrations.

The only Liocranidae genus present in SA is the monotypic, endemic genus *Xenoplectus*. *Xenoplectus* was recently transferred from Gnaphosidae to Liocranidae by Azevedo et al. (2018, p. 612), but the placement remains uncertain.

43. Lycosidae Sundevall, 1833

Genera: 24

Species: 212

Diversity: 9%

Distribution: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Galapagos Is., French Guiana, Guyana, Paraguay, Uruguay, and Venezuela.

The diverse family Lycosidae comprises small to large spiders (3.3–40.0); the family is seldom found in SA; only 9% of the diversity occurs on the continent. Thirteen genera are considered endemic to SA, while only one genus (*Melocosa*) includes species that occur in NA. Four genera are considered to have worldwide distribution (*Allocosa*, *Geolycosa*, *Hogna*, and *Lycosa*), and five genera are found in the Americas, Europe, Africa, and Asia (*Pirata*, *Alopecosa*, *Arctosa*, *Pardosa*, and *Trochosa*); finally, the genus *Schizocosca* is found in North America, Africa, and Asia.

The genus *Agalenoscosa* is considered endemic to SA since species described outside SA are considered misplaced but have not been transferred to another genus (Piacentini 2014).

The genus *Dingosa* is considered not to occur in SA since *Dingosa liopus*, and *Dingosa venefica* are considered misplaced per Famenau and Baehr (2007).

The genus *Lycosa* includes 224 species described from all over the world; the genus has never received a thorough revision, its worldwide distribution might change after closer examination, but until a revision is completed, the genus is included here to occur in SA.

The genus *Ocyale* is found mainly in Africa and Asia; one species, *O. huachoi*, was described by Mello-Leitão (1942) from Peru; the fire destroyed the specimen in 2018 at the MNRJ, Brazil (WSC 2020). The genus is considered here not to occur in SA until a complete revision of the genus.

The genus *Orinocosa* was established by Chamberlin based on a female specimen from Peru; the genus is composed of species from SA, Africa, and Iran. The female illustrations presented by Chamberlin (1916: pl. 24, f. 7–8) of the epigynum presents a short and wide septum with a transverse bar, while all the other species transferred and illustrated by Roewer (1959) from Africa and Iran (*Orinocosa hansi* Roewer, 1959; *Orinocosa priesneri* Roewer, 1959) as well as a species from Pocock (1899) (*Orinocosa guentheri*) and Cornic (1976) (*Orinocosa celerierae*) have an elongated, much narrower septum. Until a revision is completed, the presence of *Orinocosa* outside SA is considered doubtful; accordingly, the genus is considered endemic to SA.

The genus *Paratrichosina* includes species that occur in Canada, Alaska, and West Siberia; Mello-Leitão described one species in 1941b from Argentina, *Alopecosa amica*

than later on placed by Roewer (1955) into the questionable genus *Paratrichosina*, the transferred is considered doubtful; therefore, the genus is considered not to occur in SA.

Pavocosa occurs in Argentina and Brazil, one species was described from a juvenile specimen from the Caroline Islands by Strand (1915), and one species was described from Thailand by Giebel (1863) without illustrations. Thus, until a revision of the genus is completed, the genus *Pavocosa* is considered to occur only in SA.

The genus *Pardosa* is exceptionally diverse; 539 have been species described so far (WSC 2020). Only one species of *Pardosa* is known to occur in Australia; *Pardosa pexa* was described by Hickman (1944) from a male specimen. *Pardosa* have a large, extruding, pointed median apophysis; the illustration presented by Hickman does not show the characteristic median apophysis of *Pardosa*. Two species were described by Dahl (1908) from Papua New Guinea (Bismarck Archipelago); the illustrations do not allow for recognition of the generic affinity of the species. Until all specimens are reviewed, the genus is considered not to occur in Australia/Oceania.

Mello-Leitão described three species of *Pirata* from Argentina and Peru; based on the available illustrations, the generic placement of these species is doubtful. All species described present a large septum, which is not characteristic of *Pirata* females. *Pirata sagitta* was described by Mello-Leitão (1941b); the text description presented on page 133 is of the male while the illustration (Mello-Leitão 1941b: fig. 30) presented is of a female epigynum, and the habitus presented on plate IV appears to be of a male. The holotype of *Pirata soukupi* (Mello-Leitão, 1942) is considered lost in the 2018 fire at the MNRJ, Brazil (WSC 2020). Until a revision of the genus is completed, the genus is considered here to occur in the Americas, Europe, Africa, and Asia.

The genus *Schizocosa* includes species from America, Africa, and Asia; the species from Africa and Asia desperately need revision; future revision may conclude that they belong in another genus, but until a revision is completed, the genus is here to occur in the Americas, Africa, and Asia.

Only one species of *Trochosa*, *Trochosa glarea* McKay, 1979 is known to occur in Australia. The illustration of the epigynum provided by McKay indicates that the species does not belong in this genus; therefore, *Trochosa* is considered not to occur in Australia/Oceania.

The genus *Trochosippa* occurs mainly in Africa; one species was described from Argentina, *Trochosippa obscura* (Mello-Leitão, 1943). The illustration provided by Mello-Leitão does not allow to determine where it might belong; until the species is re-examined, the occurrence is considered doubtful and not considered to occur on the continent.

Only one species presents a long-range distribution; *Allocosa panamena* is found in Mexico, and Central America, to Ecuador.

The South American fauna of Lycosidae needs revision, revisional work has been done so far by: Piacentini and Laborda (2013); Piacentini (2014); Piacentini et al. (2017); Simó et al. (2017) and Piacentini and Ramírez (2019).

44. **Malkaridae Davies, 1980**

Genera: 1
Species: 1

Diversity: 2%

Distribution: Argentine and Chile.

The only species found in SA of Malkaridae, *Chilenodes australis* Platnick and Forster, 1987 is a small (2.11–3.07) six eyes spider. The monotypic genus is endemic to SA, while the rest of the family occurs in Australia and New Zealand.

45. Mecysmaucheniidae Simon, 1895

Genera: 5

Species: 22

Diversity: 88%

Distribution: Argentina, Chile, Juan Fernandez Is., and Falkland Is.

This interesting family of very small spiders (1.5–7.0) is highly diverse in SA, all genera are endemic, and 88% of the world diversity is found on the southern part of the continent. The rest of the family is only found in New Zealand. The family was studied by Forster and Platnick (1984).

46. Mimetidae Simon, 1881

Genera: 4

Species: 29

Diversity: 19%

Distribution: all mainland SA and the Galapagos Is.

This family of small (2.1–7.0) arachnophagous spiders is not very diverse in SA; only 19% of the world diversity is found in SA. *Arocha* is the only endemic genera in SA, while the genus *Gelanor* includes species found in NA. *Ero* and *Mimetus* are considered to occur in America, Europe, Africa, and Asia, but both genera need taxonomic revision.

The genus *Arocha* was established by Simon (1893c) based on female specimens from Peru and Brazil. Benavides and Hormiga (2020) suggested that the genus was misplaced in Mimetidae and belonged to Theridiidae, but the genus was not formally transferred (WSC 2020). The type specimen of *Arocha erythrophthalma* was examined at the MNHN, France, and the species belongs to the Mimetidae family (Dupérré in prep.).

Three species are widely distributed, *Gelanor consequus* and *G. latus* are found from Mexico to Bolivia, while *Gelanor zonatus* is found from Mexico to Uruguay.

The genus *Gelanor* was revised by Benavides and Hormiga (2016)

47. Miturgidae Simon, 1886

Genera: 2

Species: 6

Diversity: 4%

Distribution: Argentina, Bolivia, Brazil, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname, Uruguay, and Venezuela.

The diversity of this medium-sized (8.0–12.1) spider family is low in SA; only three genera are known to occur on the continent. Only the monotypic genus *Pseudoceto* is endemic to SA, the genus was recently transferred from Corinnidae by Ramírez (2014) following Brescovit in Bonaldo (2000), but unfortunately, the holotype was destroyed by the 2008 fire at MNRJ, Brazil (WSC 2020).

The genus *Syrisca* is problematic; only two species are recorded in SA (WSC 2020). *Syrisca albopilosa* Mello-Leitão, 1941 is known from Colombia (type probably destroyed by the 2008 fire at the MNRJ, Brazil), while *Syrisca patagonica* (Boeris, 1889) was described from Argentina without illustrations. Platnick and Shadab (1989, p. 4) removed the American species of the genus *Teminius* from the synonymy of the African genus *Syrisca*. The authors suggested that two SA species (*Syrisca albopilosa* and *Syrisca patagonica*) did not belong in *Teminius* based on morphology and distribution (Platnick and Shadab 1989, p. 4), but no formal transfer was proposed. The African genus *Syrisca* needs revision, the type species was described by Simon (1886c), based on a juvenile male from Senegal, and most species were never illustrated until a revision is completed the occurrence of the genus on SA is considered doubtful and not considered to occur pending revision.

The genus *Teminius* is represented by three species in SA, two of which have long-range distribution; *Teminius insularis* is found from the USA, the Caribbean to Argentina, while *Teminius hirsutus* occur in Mexico, Central America, the Caribbean, Colombia, and Venezuela. The genus *Teminius* was revised by Platnick and Shadab (1989).

48. Mysmenidae Petrunkevitch, 1928

Genera: 7

Species: 50

Diversity: 35%

Distribution: Brazil, Colombia, Ecuador, Galapagos Is., Guyana, Paraguay, Peru, and Venezuela.

This family of minuscule (0.6–3.0) orb-weaver spiders is relatively diverse in SA, but do not occur in the most southern part of the continent (Argentina and Chile). Two monotypic genera are endemic to SA, while two genera include species that occur in NA (*Maymena* and *Mysmenopsis*). The genus *Microdipoena* occurs worldwide, but only one widespread species occurs in America; *Microdipoena guttata* is found in the USA, the Caribbean, Paraguay, and Africa (Lopardo and Hormiga 2015). The genus *Mysmena* is considered to have a worldwide distribution, while the genus *Trogloneta* occurs in America, Europe (Madeira and Canary Island), and Asia.

The family Mysmenidae benefitted from revision by Platnick and Shadab (1978a) and Lopardo and Hormiga (2015).

49. Nesticidae Simon, 1894

Genera: 2

Species: 14

Diversity: 5%

Distribution: Argentina, Brazil, Chile, French Guiana, Uruguay, and Venezuela.

This family of small spiders (1.4–5.0) is seldomly found in SA; only two genera occur. The genus *Nesticella* is found worldwide with only two species described from Brazil, while *Nesticus* is found in America, Europe, Africa, and Asia. The genus *Nesticus* is quite diverse, including 120 described species. Eleven species are known to occur in SA, two species described by Simon were described without illustrations, and *Nesticus citrinus* (Taczanowski, 1874) is considered misplaced by Marusik et al. (2015); in fact, the species may belong to another family (WSC 2020). Ott and Lise (2002) recently described the remaining species and mentioned that their placement in the genus *Nesticus* is tentative. The family requires a thorough revision.

Eidmannella pallida has been introduced to the Galapagos Islands (Annexe 2a).

50. Ochyroceratidae Fage, 1912

Genera: 5

Species: 50

Diversity: 30%

Distribution: Argentina, Brazil, Colombia, Ecuador, Galapagos Is., French Guiana, Peru, and Venezuela.

This family of small spiders (0.6–3.0) with an often blue-violet colouration is fairly diverse in SA, but only the genus *Psilochyrocera* is so far endemic to the continent. Only one genus includes species that occur in NA (*Fageicera*), while *Speocera* and *Theotima* are known to occur in America, Africa, and Asia. All *Ochyrocerata* species except the Samoan species, *Ochyrocerata ransfordi* (Marples, 1955), are known to occur in the Americas. The illustrations presented by Marples (1955) suggest that the species is indeed an *Ochyrocerata*, but the type specimens should be examined to confirm the generic position of the species; nonetheless, the genus is considered here to occur in America and Australia/Oceania.

51. Oecobiidae Blackwall, 1862

Genera: 2

Species: 2

Diversity: 2%

Distribution: Argentina, Brazil, Galapagos Is. and Venezuela.

Oecobiidae is a small spider family; only 119 species occur worldwide (WSC 2020). In SA, only two species of these small size spiders (0.9–2.9) occur naturally. The genus *Platoecobius* includes species found in NA, while the more speciose genus *Oecobius* is found worldwide.

Two species have been introduced in SA, *Oecobius marathaus* was introduced in Brazil, while *Oecobius navus* has been introduced in various parts of SA (Annexe 2a). *Oecobius concinnus* is introduced in the Seychelles, Laos, and Japan (Annexe 2b) and occurs from Brazil to the USA.

52. Oonopidae Simon, 1890

Genera: 43

Species: 589

Diversity: 32%

Distribution: Argentina, Brazil, Bolivia, Chile, Colombia, Ecuador, Galapagos Is., Guyana, Paraguay, Peru, Suriname, Uruguay, and Venezuela.

The family Oonopidae comprises small size spiders (0.5–4.0), often with bright orange to red colouration. The fauna of Oonopidae in SA is relatively diverse; 21 genera are endemic to the continent. Nineteen genera include species found in NA and SA, while two genera are considered to have worldwide distribution (*Orchestina* and *Oonops*). Finally, the genus *Brignolia* is considered here to occur in America and Asia, even though almost all species are found in Asia.

The genus *Dysderina* is considered to be endemic to SA since all the species occurring outside the continent are considered misplaced (WSC 2020).

Only two species remain in the genus *Gamasomorpha* in SA after the revalidation of the genus *Cinetomorpha* by Ott et al. (2019). *Gamasomorpha plana* was described by Keyserling (1883) from Peru, while *Gamasomorpha tovarensis* was described from Venezuela by Simon (1893a). Ott et al. (2019) examined the type material of *Gamasomorpha tovarensis* and confirmed the species belong to the *Gamasomorpha/Xetapis* groups but did not discard a mislabeling; no mention of *G. plana* status was made. Herein the genus *Gamasomorpha* is considered not to occur in SA.

The species *Oonopinus aurantiacus* Simon, 1893 is the only species from the genus *Oonopinus* to occur in SA, Venezuela. Based on Simon illustration of the male palp: the species is not congeneric; therefore, the genus is considered not to occur in SA.

The very diverse genus *Opopaea* includes 187 species and presents a worldwide distribution (WSC 2020); four species are found in SA. Platnick and Duperré (2009a) considered *Opopaea ita* Ott, 2003 misplaced in this genus and suggested that all *Opopaea* species in America are introduced; hence the genus *Opopaea* is considered here not occur naturally in SA.

Heteroonops spinimanus, of possible American origin, was introduced to Macaronesia, Germany, Czechia, Seychelles, Madagascar, Australia, the Pacific Is., and is considered invasive in Brazil (Brescovit et al. 2019). In addition, twelve species of Oonopidae were introduced to SA: *Brignolia parumpunctata* with possible Afrotropican or Asian origin was introduced to Brazil, Colombia, Guyana, and Venezuela; *Pelcinus marmoratus* was introduced from Tropical Asia to Brazil; the Asian *Xetaspis parmata* was introduced in Venezuela and Brazil; while the African *Triaeris stenaspis* was introduced to South America; the European *Orchestina pavesiiformis* was introduced in Brazil, Argentina, and Uruguay; *Orchestina dentifera* of Caribbean origin has been introduced in Brazil; *Ischnothyreus velox* and *Brignolia dasysterna* are introduced in Brazil; while *Ischnothyreus peltifer* was introduced to various countries in SA (Annexes 2a, 2b).

Three species are considered to have long-range distribution, *Cinetomorpha simplex* occurs from the USA to Argentina, while *Cinetomorpha zero* occurs from Mexico to Venezuela.

Heteroonops spinimanus occurs naturally from the USA to Colombia and Venezuela.

The family has been fairly well revised, some of the most important publications are presented here, for an exhaustive list consult the World Spider Catalog (2020): Platnick and Dupérré (2009a, 2009b, 2009c, 2010a, 2010b, 2010c, 2011a, 2011b, 2011c, 2011d); Platnick et al. (2011); Abraham et al. (2012); Platnick et al. (2013); Grismado and Ramírez (2013); Izquierdo and Ramírez (2017) and Ott et al. (2017).

53. Orsolobidae Cooke, 1965

Genera: 7

Species: 40

Diversity: 21%

Distribution: Argentina, Brazil, Chile, and Falkland Is.

This family of small (2.1–6.9) six-eyes spiders is found mainly in the southern part of SA; all genera are endemic to the continent. The SA part of the family was revised by: Forster and Platnick (1985), Platnick and Brescovit (1994), and Ott et al. (2013).

54. Oxyopidae Thorell, 1870

Genera: 5

Species: 57

Diversity: 13%

Distribution: Argentina, Bolivia, Brazil, Chile, Guyana, Ecuador, Galapagos Is., French Guiana, Paraguay, Peru, and Venezuela.

This family of medium-sized (5.0–17.5) spiders is not very diverse in SA; only the genus *Schaenicoscelis* is endemic to the continent. The genus *Tapinillus* includes species found in NA, while two genera have worldwide distribution (*Oxyopes* and *Peucetia*). Finally, the genus *Hamataliwa* occurs in America, Africa, Asia, and Australia. The genera *Oxyopes*, *Tapinillus*, *Hamataliwa*, and, *Schaenicoscelis* need thorough revision.

Hamataliwa helia was described based on a female by Chamberlin (1929). Bryant (1936) described the male based on specimens from Texas, however, Brady (1964, p. 497) stated that the male described by Bryant was in fact a male of a new species, *Oxyopes apollo* Brady, 1964.

Many species have long-range distribution: *Hamataliwa helia* is one of the few species found outside the Americas (Thailand, Malaysia, Brunei, Indonesia) and in the Americas (the USA, Mexico, and Guyana); *Oxyopes salticus* occurs from the USA to northern Argentina and Chile, *Peucetia longipalpis* and *Peucetia viridans* are found from the USA to Venezuela.

The genus *Peucetia* was revised by Santos and Brescovit (2003).

55. Palpimanidae Thorell, 1870

Genera: 5

Species: 70

Diversity: 46%

Distribution: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, and Venezuela.

Almost half of the world biodiversity of this family small to medium-sized spider (1.98–10.04) occurs in SA. Three of the five genera are endemic to SA (*Anisaedus*, *Fernandezina* and *Notiothops*); the genus *Otiothops* includes species that occur in NA, while the genus *Palpimanus* includes species found in Europe, Asia, and Africa. *Anisaedus aethiopicus* Tullgren, 1910 and *Anisaedus levii* Chickering, 1966 are considered misplaced in this genus according to Platnick (1975a) (WSC 2020); therefore, the genus is considered endemic to SA. Likewise, *Otiothops namratae* Pillai, 2006 from India, is considered misplaced in this genus (WSC 2020).

Only one species of the genus *Palpimanus* is found in SA, *Palpimanus argentinus* Mello-Leitão, 1927; the type should be revised to confirm the generic placement, but until then, the genus is considered to occur in SA.

The family in SA was mainly studied by Platnick (1975a) and Platnick et al. (1999).

56. Philodromidae Thorell, 1870

Genera: 16

Species: 68

Diversity: 13%

Distribution: Argentina, Brazil, Bolivia, Chile, Colombia, Ecuador, Galapagos Is., Falkland Is., French Guiana, Guyana, Paraguay, Peru, and Venezuela.

This family of small or medium-sized (3.0–16.0) spider is not very diverse in SA; only 13% of the world fauna can be found on the continent. Ten genera are considered endemic, while one genus (*Gephyrina*) includes species found in NA. Species from the genera *Apollophanes* and *Ebo* are found in America and Asia, while *Philodromus* and *Thanatus* species occur in America, Europe, Africa, and Asia. *Tibellus* is the only genus of Philodromidae found in SA that presents a worldwide distribution.

The endemic genus *Cleocnemis* Simon, 1886 needs revision; Simon described the type species of the genus based on a juvenile female specimen. The male description of the species is attributed to Mello-Leitão (1929) in the WSC (2020), but on page 187, Simon (1886a) clearly describes the male, including the male palpal bulb. The specimens used by Simon in the original description have to be re-examined. Furthermore, most species pertaining to the genus that were described by Mello-Leitão were never illustrated comprehensively.

Ebo present a disjunct distribution in the Americas with species found in Canada, USA and Mexico and then only in Argentina. The three Argentinian species described by Mello-Leitão have not been reviewed at present time.

The endemic genus *Fageia* needs revision; the type species *Fageia amabilis* Mello-Leitão, 1929 was never illustrated, and the two other species described in the genus are considered ‘probably’ lost in the 2018 fire at the MNRJ, Brazil (WSC 2020).

The genus *Gephyrina* Simon, 1895 is problematic; the genus includes five species; Simon described two species based on juvenile specimens, including the type species *Gephyrina alba*. Mello-Leitão described the three remaining species from Brazil and Bolivia. Unfortunately, *Gephyrina nigropunctata* Mello-Leitão, 1929, was described without illustrations,

while *Gephyrina albimarginata* Mello-Leitão, 1929 and *Gephyrina imbecilla* Mello-Leitão, 1917 were probably lost in the 2018 fire MNRJ, Brazil (WSC 2020).

The endemic genus *Petricus* is also quite problematic, most species were never adequately illustrated, and the species are known to present colour variation.

Philodromus is a large and widely distributed genus; only three species occur in Australia/Oceania. *Philodromus australis* (L. Koch, 1876) was apparently described based on a juvenile specimen (Koch 1876, p. 824). The type specimen was examined and corresponded to an adult female. *Philodromus luteovirescens* Urquhart, 1893 and *Philodromus planus* (L. Koch, 1875) were never reviewed contemporary; consequently, the genus is considered not to occur in Australia until type specimens of the two latter species can be examined. Only two species of *Philodromus* occur in SA, *Philodromus cayanus* Taczanowski, 1872 and *Philodromus traviatus* Banks, 1929. *Philodromus cayanus* was described from French Guiana and was never illustrated, while *Philodromus traviatus* occurs in Venezuela. Therefore, we considered that the genus occurs in SA, at least in the northern part.

The large genera *Thanatus* and *Tibellus* also requires revision, most species occurring in SA were never reviewed contemporary.

This family needs extensive taxonomic revision; work has been done by Lise and Silva (2011).

57. Pholcidae C.L. Koch, 1850

Genera: 36

Species: 330

Diversity: 19%

Distribution: Argentina, Bolivia, Brazil, Chile, Juan Fernandez Is., Colombia, Ecuador, Galapagos Is., French Guiana, Guyana, Uruguay, Peru, Suriname, and Venezuela.

Only 19% of this diverse family of small to medium (0.99–7.8) spiders are found in SA. Twenty-four genera are endemic to the continent; ten genera include species that occur in NA. One genus (*Aucana*) includes species found in Australia/Oceania (New Caledonia), and one genus (*Micropholcus*) includes species that are found in the Americas and Africa.

Physocyclus viridis and *Spermophora maculata* are considered misplaced (Huber 2000; Valdez-Mondragón 2010).

Six Pholcidae species have been introduced to SA (*Crossopriza lyoni*, *Pholcus phalangioides*, *Physocyclus globosus*, *Smeringopus pallidus*, and *Micropholcus fauroti*) (Annexe 2a). *Coroia magna* described by González-Sponga (2005) from Venezuela, was synonymised by Huber et al. (2014) under *Artema atlanta*; therefore, the species is considered introduced in SA since its originally from North Africa and the Middle East. Contrary, *Modisimus culicinus* was introduced from SA to Germany, Czech Rep., Zaire, Seychelles, Sri Lanka, Indonesia, China, Australia, and the Pacific Is. (WSC 2020) (Annexe 2b), the species is considered synanthropic (Huber 1996).

Only two species present long-range distribution; *Physocyclus dugesii* occur from Mexico to Venezuela, and *Modisimus culicinus* occur from the USA, Mexico to Venezuela, and the Galapagos Islands.

The SA part of the family has been revised by Huber ([1996](#), [2000](#), [2016](#), [2018](#)); Huber and Brescovit ([2003](#)); Huber et al. ([2014](#)); Huber et al. ([2017](#)) and, Huber and Carvalho ([2019](#)).

58. Physoglenidae Petrunkevitch, 1928

Genera: 2

Species: 5

Diversity: 7%

Distribution: Chile.

The small family Physoglenidae includes small to medium-sized spiders (1.5–4.2); only 22 species have been described worldwide (WSC [2020](#)). The family is seldomly found in SA, only 7% of the world diversity occurs on the continent. The two genera are endemic in SA and have been found so far only in Chile. The rest of the family is only found in Australia and New Zealand.

The genus *Physoglenes* placement is still pending, the genus was first described in the Leptonetidae family, listed under Pholcidae by Petrunkevitch [1928](#), then transferred from Pholcidae to Synotaxidae by Forster et al. ([1990](#)) and finally from Synotaxidae to Physoglenidae by Dimitrov et al. ([2017](#)).

The SA fauna was revised by Forster et al. ([1990](#)).

59. Pisauridae Simon, 1890

Genera: 2

Species: 42

Diversity: 11%

Distribution: Argentina, Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Paraguay, Peru, Suriname, Uruguay, and Venezuela.

The family Pisauridae includes medium to large (2.9–15.6) spider, the family is not very diverse in SA, no endemic genera have been so far, and the two genera (*Architis* and *Thaumasia*) found on the continent includes species that occur in NA.

Four species of *Dolomedes* have been described from SA; all species were described without any illustrations; therefore, the genus is considered here not to occur in SA pending revision.

Two species present long-range distribution, *Thaumasia argenteonotata* is found from Mexico to Brazil, and *Thaumasia caracarai* is found in Mexico and SA (Silva and Carico [2012](#)).

The genus *Architis* was revised by Santos ([2007](#)), while *Thaumasia* was revised by Silva and Carico ([2012](#)).

60. Salticidae Blackwall, 1841

Genera: 180

Species: 1073



Diversity: 17%

Distribution: all mainland SA and the Galapagos Is.

This family of small to medium-sized spiders (3.0–12.0) is found worldwide, but only 17% of the most diverse spider family occurs in SA. In SA, 91 genera are endemic to the continent, while 81 genera include species that occur in NA. The genus *Frigga* is primarily found in the Americas, but *Frigga crocuta* (Taczanowski, 1878) occurs in the Americas, Australia, and French Polynesia. The genus *Myrmapeni* Prószyński, 2016 includes species from America, Africa, and Asia (Madagascar). The genus *Dendryphantes* is distributed in America, Europe, Africa, and Asia, while five genera are considered to occur worldwide (*Bianor*, *Euophrys*, *Hasarius*, *Marpissa*, and *Saitis*).

The genus *Akela* is considered here to occur only in the Americas since *Akela fulva* Dyal, 1935 from Pakistan is considered misplaced per Edwards (2015) (WSC 2020). Moreover, the genus *Bellota* is considered here to occur only in the Americas since the two species described from Pakistan by Dyal (1935) are doubtful. Galiano (1972) mentions that the two oriental species were ‘excluded’; either the species were excluded for the revision or the species are excluded from the genera. Galiano also provided a list of species pertaining to the genus (Galiano 1972, p. 467) which did not include the oriental species. Therefore, we considered that the oriental species do not belong in the genus *Bellota*.

The genus *Cotinusa* is considered here to occur only in America since *Cotinusa splendida* (Dyal, 1935) described without illustrations from Pakistan is considered doubtful.

The genera *Carrhotus* and *Thiratoscirtus* are considered here not to occur in SA, the presence of *Carrhotus viridiaureus* (Simon, 1902) from Brazil and *Thiratoscirtus patagonicus* Simon, 1886 from Argentina are doubtful, following Maddison (2015, p. 249) comments ‘The claimed type locality for *Diagondas viridiaureus* Simon, 1902, Brazil, is almost certainly a result of mislabelling, as for *Thiratoscirtus patagonicus* Simon, 1886 (Tamás Szűts, pers. comm; Wesolowska and Russell-Smith 2011, p. 599)’.

The genus *Euophrys* includes 110 species worldwide; thirteen species have been described in SA (WSC 2020). Most of the SA species were never illustrated; Prószyński et al. (2018, p. 38) mention that at least three species (*Euophrys bifoveolata*, *Euophrys melanoleucus*, and *Euophrys sima*) are pending reclassification. All species have to be revised to establish the presence and distribution of *Euophrys* in SA, nonetheless, the genus is considered to occur on the continent.

The genus *Hasarius* is considered here to occur worldwide, but the genus is problematic; most species were never illustrated, and a fair number of species are also ‘species inquirenda.’ (Prószyński 2018; WSC 2020). Notably, only one species is known to occur naturally in SA, *Hasarius lisei* Bauab and Soares, 1982 from Brazil. The only other species found in SA is the introduced species, *Hasarius adansonii* (Audouin, 1826).

The species *Eris riedeli* (Schmidt, 1971) is the only species of *Eris* found in SA; Schmidt described the species based on a specimen brought with a banana shipment either from Ecuador or Colombia that arrived in Mölln, Germany. The genus is considered not to occur on the continent until the type, or new specimens from SA can be examined.

The genus *Icius* occurs in Africa, Europe, and Asia. *Icius in honestus* was described by Keyserling (1878), the illustration of the female epigynum dispute that it belongs in the

genus *Icius*. Therefore, *Icius* is considered at present not to occur in SA until a revision of the type specimen.

The genus *Neon* is also known to occur worldwide; the only species from SA, *Neon punctulatus* Karsch, 1880 was described from Bolivia without illustrations. Upon examination of the type specimen, the species presents genitalic dissimilarities from other members of the genus and may need to be assigned to another genus; therefore, for now the genus is considered not to occur in SA.

The genus *Maevia* currently includes eight species, except for the three North American species; the remaining species from Indonesia (Sumatra) and Peru were never illustrated. The genus distribution is very doubtful, especially the species from Indonesia (Sumatra); therefore, we considered the genus to occur only in the Americas.

Phiddipus is a large genus including 76 species; the genus is mainly found in the Americas and was revised in 2004 by Edwards. *Phidippus bengalensis* Tikader and Biswas, 1981; *Phidippus calcuttaensis* Biswas, 1984; *Phidippus khandalaensis* Tikader, 1977; *Phidippus punjabensis* Tikader, 1974, and *Phidippus yashodarae* Tikader, 1977 from India are considered misplaced in the genus, per Edwards (2004). Edwards did not mention *Phidippus majumderi* Biswas, 1999 from Bangladesh; two other species from India were described after Edwards's (2004) revision, *Phidippus tirapensis* Biswas and Biswas, 2006 and *Phidippus bhimrakshiti* Gajbe, 2004 are considered doubtful based on the examination of the illustrations. Furthermore, seven species described from SA are also considered misplaced by Edwards (2004) (WSC 2020). Consequently, *Phiddipus* is considered to occur only in North America, pending a complete revision of the genus.

The species *Plexippus luteus* Badcock, 1932 is the only species from the genus recorded to occur in SA; the species was described from Paraguay, and it is considered ‘unrecognizable species,’ species inquirenda per Prószyński (2017) (WSC 2020), therefore the genus is considered not to occur in SA hitherto. The species *Pseudicius oblongus* Peckham and Peckham, 1894 is the only species in SA, the remaining species of the genus occurring in Africa, Asia, and Europe; here again, the genus presence in SA is doubtful and not considered to occur on the continent until examination of the type.

Members of the genus *Psecas* are primarily found in SA, with a few species occurring in Panama and Trinidad; the genus was never soundly revised.

Two species of *Salticus* have been described from SA, *Salticus bonaerensis* Holmberg, 1876 from Argentina, and *Salticus brasiliensis* Lucas, 1833 from Brazil. The two SA species lack sufficient illustrations and detailed descriptions; therefore, the genus is considered not to occur in SA until examination of the type specimens.

Multiple species present long-range distribution: *Hentzia fimbriata* is found from the USA to Colombia; while *Metacyrba punctata* is found from the USA to Ecuador; *Breda milvina*, *Lyssomanes elegans*, and *Platycryptus magnus* are found from Mexico to Brazil; while *Frigga pratensis* is found from Mexico to Colombia; *Lyssomanes jemineus* is found from Mexico to Guyana; *Lyssomanes unicolor* is found from Mexico to Peru; *Metacyrba venusta* and *Synemosyna americana* are found from Mexico to Venezuela; *Pachomius dybowskii* is found from Mexico to Ecuador and in Brazil; *Semiopyla cataphracta* and *Zuniga magna* are found from Mexico to Argentina; *Tomis palpalis* is found in Mexico and Argentina; and finally, *Platycryptus magnus* is found in Mexico, Central America and Brazil.

Cotinusa distincta and *Lyssomanes leucomelas* distribution are considered doubtful; see distribution section for explanation.



Eight species were introduced to SA, while *Leptofreya ambigua* was introduced from SA to the USA (Annexes 2a, 2b).

The family was mainly studied by: Galiano (1960, 1961, 1963a, 1963b, 1964a, 1964b, 1966a, 1966b, 1968, 1969, 1970, 1971, 1972, 1979a, 1979b, 1979c, 1980, 1981, 1984, 1985, 1994, 1998); Bustamante and Ruiz (2017); Ruiz and Brescovit (2008, 2013); Ruiz and Maddison (2015); Ruiz et al. (2019).

61. Scytodidae Blackwall, 1864

Genera: 1

Species: 89

Diversity: 36%

Distribution: Argentina, Bolivia, Brazil, Chile, Colombia, French Guiana, Guyana, Paraguay, Peru, Uruguay, and Venezuela.

Only the genus *Scytodes* from this six-eyes, small to medium-sized (2.5–9.0) spider family occur in SA; nonetheless, 36% of world biodiversity is found on the continent. The worldwide genus *Scytodes* is the most speciose genus with 224 species described so far (WSC 2020). Except for one species, *S. tardigrada* Thorell, 1881, all Australian species of *Scytodes* are introduced in Australia. Chrysanthus (1967: 91) examined the type specimen held at the Genova Museum (MSNG), Italy, and confirm that the specimen label information matched the information found in Thorell's original description, therefore confirming the presence of the genus in Australia.

Three species have a long-range distribution in the Americas: *Scytodes championi* occurs from Mexico to Brazil; while *Scytodes fusca* and *Scytodes longipes* are found from Mexico to SA.

Scytodes fusca and *Scytodes longipes* were introduced to other countries from SA (Annexe 2b). On the other hand, *Scytodes thoracica* has been introduced to Argentina, while *Scytodes univittata* has been introduced in Venezuela, Brazil, Paraguay, and Chile (Annexe 2a).

The Brazilian fauna of the genus *Scytodes* was studied mainly by Rheims and Brescovit (2004b, 2006, 2009).

62. Segestriidae Simon, 1893

Genera: 1

Species: 23

Diversity: 17%

Distribution: Argentina, Bolivia, Brazil, Chile, Juan Fernandez Is., Colombia, Ecuador, Galapagos Is., Paraguay, Peru, Suriname, Uruguay, and Venezuela.

Only one genus of this family of small to medium-sized spider (2.8–20.25) is naturally present in SA, the genus *Ariadna*. Interestingly, *Ariadna* is found worldwide; the American part of the genus was revised by Beatty (1970) and, Giroti and Brescovit (2018).

Segestria florentina has been introduced from the Mediterranean in Brazil, Uruguay, and Argentina (Giroti and Brescovit 2011) (Annexe 2a).

63. Selenopidae Simon, 1897

Genera: 1

Species: 24

Diversity: 9%

Distribution: Argentina, Bolivia, Brazil, Colombia, Ecuador, Galapagos Is., Guyana, Paraguay, Uruguay, Peru, and Venezuela.

Selonopidae are medium to large (4.7–15.2) flattened spiders; the family is not very diverse in SA, only one genus is present on the continent. The genus *Selenops* shows an interesting distribution and is found in the Americas, Europe, Africa, and Asia.

One species presents a long-range distribution in the Americas, *Selenops mexicanus* is found from the USA to Colombia, and the Galapagos Is.

Corronca (1998) and Crews (2011) revised the South American part of the genus.

64. Senoculidae Simon, 1890

Genera: 1

Species: 22

Diversity: 71%

Distribution: Argentina, Brazil, French Guiana, Guyana, Paraguay, Peru, and Venezuela.

This family of medium to large spiders (5.5–20.0) is endemic to the Americas. The only genus *Senoculus* is primarily found (71%) in SA; the rest of the species occur in Mexico and Central America. The genus was never reviewed, and most SA species need to be re-illustrated.

65. Sicariidae Keyserling, 1880

Genera: 2

Species: 73

Diversity: 43%

Distribution: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Galapagos Is., Paraguay, Peru, and Venezuela.

Almost half of the world's diversity of this small to medium-sized spider (8.0–19.0) is found in SA. The genus *Sicarius* is endemic to the Americas, while the genus *Loxosceles* has a much broader distribution and occurs naturally on all continents except Australia/Oceania.

Only one species, *Loxosceles immodesta* (Mello-Leitão, 1917) has never been illustrated; the type was stated as 'not located' by Silva-Moreira et al. (2010) and was most probably destroyed in the 2018 fire at MNRJ, Brazil (WSC 2020).

Loxosceles gaucho was introduced in Tunisia, while *Loxosceles laeta* was introduced to Canada, the USA, Finland, and Australia, and presumably introduced by trade to Argentina and Brazil (Gertsch and Ennik 1983); finally, *Loxosceles rufipes* has been introduced in the Pacific Is., Guinea, Congo, Indonesia and Australia (Annexe 2b).



The South American part of the genus *Loxosceles* was revised by Gertsch (1958a), while the genus *Sicarius* was revised by Magalhaes et al. (2017).

66. Sparassidae Bertkau, 1872

Genera: 23

Species: 140

Diversity: 11%

Distribution: all mainland SA and the Galapagos Is.

This family of medium to large (6.0–40.0) spiders is fairly diverse worldwide, yet only 11% of the biodiversity occurs in SA. Twelve genera are endemic to the continent, while ten genera include species that are found in NA. The genus *Olios* is considered to occur in America, Europe, Africa, and Asia.

All species described in the genus *Heteropoda* from SA are considered doubtful; therefore, the genus is considered not to occur in SA. *Heteropoda camelia* Strand, 1914 is considered misplaced in this genus per Jäger (2014); *Heteropoda meticulosa* Simon, 1880 and *Heteropoda rosea* Karsch, 1879 were described based on females but never illustrated.

The genus *Nonianus* is problematic, *Nonianus unilateralis* Strand, 1908 described from Peru is a considered nomen dubium (Nentwig et al. 2020); the type specimens of *Nonianus gaujoni* Simon, 1897 could not be located at the MNHN, Paris, even though the card file is present in the collection record. The only other species in the genus and type species, *Nonianus pictus* Simon, 1885, occurs from Algeria to Israel; therefore, the genus considered not occur in SA until type specimens or new specimens can be examined.

The genus *Olios* is a large genus including 235 species; three species occur in Australia but have never been illustrated; therefore, the genus is considered to occur in America, Europe, Africa, and Asia. Forty-nine species occur in SA, most of which have never been revised; the genus needs a thorough revision.

The genus *Pseudosparianthis* is also problematic, the type species was described from a juvenile, and most species were never illustrated; the genus occurs only in the Americas. The genus *Stasina* is also problematic; all species from SA and NA were described based on juvenile specimens; the remaining species are found in Africa and Asia; therefore, the presence of the genus is considered as doubtful as well. The monotypic genus *Tibellomma* Simon, 1903 was erected based on a juvenile specimen; the specimen was not found at the MNHN, Paris (WSC 2020). Therefore, the genus is considered doubtful until the type specimen can be examined. Finally, *Vindullus kratochvili* Caporiacco, 1955 is considered misplaced the genus, according to Rheims and Jäger (2008: 221).

Only two species present long-range distribution *Curicaberis ferrugineus* is found from the USA to Brazil while *Olios erroneous* occurs from Mexico to Venezuela. *Heteropoda venatoria* (Linnaeus, 1767) was introduced to the SA continent from Tropical Asia (WSC 2020) (Annexe 2a).

The SA part of the family has been mainly reviewed by: Jäger and Rheims (2008); Rheims (2008, 2010, 2013, 2019); Rheims et al. (2008); Jäger et al. (2009).

67. Symphytognathidae Hickman, 1931

Genera: 5

Species: 18

Diversity: 24%

Distribution: Argentina, Brazil, Colombia, Ecuador, and Venezuela.

Almost one-quarter of the biodiversity of this family of minuscule spiders (0.40–1.7) occur in SA; no genera are endemic to the continent. Two genera include species that occur in NA (*Curimagua* and *Globignatha*). The genus *Patu* includes species found in Africa, Asia, and Australia/Oceania and so far in SA, the genus is only found in Colombia. *Symphytognatha* includes species found in North America, Africa, Asia, and Australia/Oceania, and finally, the most diverse genus *Anapistula* is found worldwide. *Anapistula secreta* present a long-range distribution from the USA to Colombia.

The family was revised by Forster and Platnick (1977).

68. Synotaxidae Simon, 1894

Genera: 1

Species: 11

Diversity: 100%

Distribution: Brazil, Colombia, Ecuador, Guyana, Paraguay, and Venezuela.

This family of medium-sized spiders (2.5–5.2) is endemic to the Americas. Only one genus *Synotaxus* remained in the family after Dimitrov et al. (2017) transferred all other genera (13 genera) to Physoglenidae. The genus *Synotaxus* includes species found in SA, the Caribbean, and Central America; the genus was revised by Exline and Levi (1965).

69. Telemidae Fage, 1913

Genera: 1

Species: 1

Diversity: 10%

Distribution: Ecuador.

This family of minuscule (0.74–0.76) spider is known to be more diverse in Asia and Africa; only the genus *Usofila* and one species *Telema mayana* Gertsch, 1973 occur in the Americas. The only SA endemic genus *Kinku*, including one species *K. turumanya* Dupérré and Tapia, 2015 was described relatively recently from Ecuador (Dupérré and Tapia 2015).

70. Tetrablemmidae O. Pickard-Cambridge, 1873

Genera: 4

Species: 14



Diversity: 8%

Distribution: Brazil, Colombia, and Venezuela.

This family of very small (0.9–1.2) spider is not diverse in SA; only four genera occur, none are endemic to the continent. Two genera (*Caraimatta* and *Matta*) include species that occur in NA; the genus *Monoblemma* includes species found in NA and one species is found in Madagascar, but the placement of the species is uncertain (Sankaran and Sebastian 2016). Finally, the genus *Tetrablemma* includes species found in NA, Africa, Asia, and Australia/Oceania.

The genus *Matta* presents an interesting gap in distribution being found in Mexico and Brazil, species are often associated with caves (Brescovit and Cizauskas 2019) and further research in the northern SA cave system may reveal new species.

71. Tetragnathidae Menge, 1866

Genera: 13

Species: 229

Diversity: 23%

Distribution: all mainland SA, the Galapagos Is., Falkland Is. and Juan Fernandez Is.

This family of small to medium-sized (2.0–23.0) orb-weaver spider is relatively diverse; almost one-quarter of the world diversity is found in SA. Two genera (*Allende* and *Mollemeta*) are endemic to SA, while five genera include species that occur in NA (*Azilia*, *Chrysometa*, *Homalometra*, *Metabus*, and *Opas*). The genus *Diphya* includes species found in Africa and Asia. *Glenognatha* is distributed in the Americas, Africa, Asia, and Australia/Oceania; the genus was recently revised Cabra-García and Brescovit (2016). Three genera (*Dolichognatha*, *Leucauge*, and *Tetragnatha*) are found worldwide.

Chrysometa is a highly diverse genus with 146 species described (WSC 2020); the genus was revised by Levi (1986). The type specimen of *Meta alticola* Berland, 1913 held at the MHNP, France was examined and is considered here to be a distinct species from *Chrysometa zelotypa* (Keyserling, 1883) per Levi (1986).

The genus *Mecynometa* is composed of three species, the type species was described from SA, and the two other species were described from Africa. *Mecynometa argyrosticta* Simon, 1907 occurs in Ile S. Thomé, Ile Annobon, Guinea-Bissau, and Congo, while *Mecynometa gibbosa* was described by Schmidt and Krause (1993) based on a female from Comoros. Unfortunately, both species lack detailed illustrations; the African species have to be reviewed; nonetheless, the genus is considered to occur in SA and Africa.

The genus *Dyschiriognatha* is found in Asia and Australia/Oceania; the type species of the genus from Borneo has never been illustrated. *Dyschiriognatha bedoti* Simon, 1893 was described in honour of the collector Mr. Maurice Bedot. There is a bit of confusion regarding Simon's original description (1893d); first, on page 324, a male symbol accompanies the description, but on the next page, Simon mentions that he only examined one female specimen from Sarawak. This error is possibly due to a typographical mistake of the sex symbol accompanying the description. Additionally, Simon mentions that the species is very close to *P. argyrostilba*, now *Glenognatha argyrostilba*, and only differ

by its more granular sternum and the medium eyes larger anteriorly. The WSC (2020) mentions that Bedot described the male (Bedot 1909: 146), but Bedot mentions in the introduction of his paper, that he is presenting a resumé of the findings of his expedition based on the species identified by specialists (including Simon) and published beforehand. Therefore, he did not describe the male on page 146 but he only mentions Simon description (WSC 2020). Additionally, all other species (*Dyschiriognatha ganeshi* Bodkhe, Manthen and Tanikawa, 2014; *Dyschiriognatha oceanica* Berland, 1929; *Dyschiriognatha upoluensis* Marples, 1955) still placed in the genus *Dyschiriognatha* are congeneric with *Glenognatha* based on the examination of the illustrations provided by the various authors (also recognised as such by Cabra-García and Brescovit 2016, p. 16). Only one species *Dyschiriognatha lobata* Vellard, 1926, was described from Brazil; based on Vellard illustrations, the species must also pertain to the genus *Glenognatha*. Thus, the genus is problematic and in dire need of revision; first, finding the genus type specimen or a specimen from the type locality is crucial; pending revision, the genus is considered not to occur in SA.

Sixteen Tetragnathidae species present long-range distributions, including two species found outside continental America. *Tetragnatha keyserlingi* is found in Central America, the Caribbean, Brazil as well as Africa, Korea, India to the Philippines, New Hebrides, and Polynesia; while *Tetragnatha mandibulata* is found in Central America, Caribbean, Guyana, Brazil as well as West Africa, India to Philippines and Australia. *Tetragnatha elongata* occurs from Canada to Argentina, while three species occur from the USA to SA: *Dolichognatha pentagona* occurs from the USA to Venezuela; *Leucauge argyra* and *Leucauge argyrobapta* occur in the USA, Mexico, Central America, Caribbean, Brazil and Colombia (Ballesteros and Hormiga 2018); *Chrysometa alboguttata* and *Leucauge argentea* are found from Mexico to Colombia; *Glenognatha spherella* and *Leucauge mariana* are found from Mexico to Peru; *Metabus debilis* is found Mexico to Ecuador; while *Metabus ocellatus* is found from Mexico to French Guiana; finally, four species are found from Mexico to Brazil: *Chrysometa flava*, *Mecynometa globosa*, *Tetragnatha bogotensis*, and *Tetragnatha tenuissima*.

Tetragnatha bogotensis is considered introduced in Italy, Africa, Seychelles, Yemen, India, Bangladesh, Nepal, and China; while four species were introduced the SA, *Glenognatha argystilba*, *Tetragnatha chauliodus*, *Tetragnatha nitens*, and *Tetragnatha vermiciformis* (Annexes 2a, b).

The genera *Azilia*, *Dolichognatha*, *Leucauge*, *Opas* and *Tetragnatha* need revisions, the family was mainly studied by; Levi (1986); Álvarez-Padilla (2007), Álvarez-Padilla and Hormiga (2011); Cabra-García and Brescovit (2016).

72. Theridiidae Sundevall, 1833

Genera: 54

Species: 592

Diversity: 24%

Distribution: all mainland SA, the Galapagos Is. and Juan Fernandez Is.

The family Theridiidae is the fifth most diverse family worldwide; the SA continent holds almost one-quarter of the world's diversity. This small to medium-sized family (2.0–15.0)

is in dire need of revision in SA. Interestingly, only six genera (*Audifia*, *Cabello*, *Cerocida*, *Guaraniella*, *Hetschka*, and *Selkirkia*) are endemic. In contrast, the majority of the genera either includes species from NA (*Ameridion*, *Dipoenata*, *Exalbidion*, *Helvibis*, *Henziectypus*, *Neopisinus*, *Nesticodes*, *Paratheridula*, *Spintharus*, *Styposis*, *Wamba*, and *Wirada*) or have worldwide distribution (*Anelosimus*, *Argyrodes*, *Cryptachaea*, *Dipoena*, *Episinus*, *Euryopis*, *Latrodectus*, *Pholcomma*, *Phoroncidia*, *Phycosoma*, *Rhomphaea*, *Steatoda*, and *Theridion*). Eight genera are considered here to include species from North America and Asia (*Chrosiothes*, *Craspedisia*, *Emertonella*, *Faiditus*, *Neospintharus*, *Nihonhimea*, *Stemmops*, and *Tekellina*). The remaining genera present various patterns of distribution: *Achaeareana* and *Ariamnes* occur in NA (incl. Hawaii), Africa, Asia, and Australia/Oceania but not in Europe. *Enoplognatha*, *Platnickina*, *Theridula*, and *Thymoites* occur in NA, Europe, Africa, and Asia, while *Lasaeola* and *Chryssso* are found in NA, Europe, and Asia. The genus *Tidarren* has an interesting NA and Africa distribution. *Janula* occurs in NA, Asia, and Australia/Oceania but not in Africa and Europe. The genus *Coleosoma* occurs in NA, Africa, and Asia, while *Parasteatoda* is found in NA, Europe, Asia, and Australia/Oceania. Finally, *Thwaitesia* is found in Africa, Asia, and Australia/Oceania; *Kochiura* is found in Europe, Africa, and Asia; and *Echinotheridion* is found only in SA and Madeira and the Canary Islands.

Anelosimus elegans occurrence in Mexico and Brazil is considered doubtful and maybe represent another species according to Agnarsson (2006). *Ameridion colima* presence in Ecuador is doubtful; according to Levi (1963c, p. 548), the species is presented in the list (Annexe 1) but not considered to occur in SA until new data is presented.

The genus *Audifia* includes three species, one species *Audifia duodecimpunctata* Simon, 1907, was described from Guinea-Bissau, Congo, without illustrations and is considered here doubtful; therefore, *Audifia* is considered endemic to SA until the type of *Audifia duodecimpunctata* can be examined.

Chryssso indicifera Chamberlin and Ivie, 1936, and *Cryptachaea zonensis* (Levi, 1959) were described from Panama. The WSC (2020) mentions the distribution of the two species as such: 'Panama to Peru' and 'Panama to Peru, Brazil,' respectively. No taxonomic papers stated in the WSC (2020) present records of these species outside Panama; therefore, the two species are not included to occur in SA for now.

Dipoena is a reasonably large genus (164 species) with a worldwide distribution (WSC 2020). However, the genus limits are not well established, the taxonomy of this diverse genus is still controversial, and many generic changes are likely to happen within the closely related genera *Dipoena*, *Dipoenata*, *Laseola*, and *Phycosoma*. Levi (1963a, p. 144) mentions that the specimen of *Dipoena dorsata* Muma, 1944 from Paraguay, is different from the other specimens and may belong to another species but lack genitalic character for differentiation; therefore, the species is considered doubtful.

Dipoenata is a problematic genus, the type species *D. stipes* Wunderlich, 1988 was described from Dominican amber. Three species occur in NA, and two species are known to occur in Malta and Madeira, *Dipoenata cana* Kristscher, 1996 and *Dipoenata longitarsis* (Denis, 1962) respectively (WSC 2020). However, *Dipoenata cana* was considered by Le Peru (2011, p. 439) as *Dipoena cana* and *Dipoena longitarsis*, while Wunderlich (2011, p. 254) considered that they might belong to *Lasaeola*. Wunderlich (2011) stated that 'the (sub) genus *Dipoenata* Wunderlich, 1988, has to delete from the list of European spiders.' Therefore, the genus is considered here to occur only in the Americas.

Simon described the only species of *Enoplognatha* from Australia in 1908 without any illustrations. Syntypes specimens of *Enoplognatha bidens* Simon, 1908 were studied, the species placement is doubtful thus the genus *Enoplognatha* is considered here to occur in NA, Europe, Africa, and Asia.

The genus *Episinus* is considered to have a worldwide distribution; only three species occur in the Australian/Oceania region, more precisely in New Zealand. The female syntype of *Episinus similitudus* was examined by photos and confirmed to belong in *Episinus*; the species most likely represent *E. antipodianus* O. Pickard-Cambridge, 1880 (Vink, pers comm.) but the internal genitalia as to be examined to confirm the synonymy. The type of *E. similarus* is most probably lost (Cor Vink pers. comm.; Nicholls et al. 2000).

The genus *Euryopis* is yet another significant and widely distributed genus, the NA and Central American parts of the genus were revised by Levi (1954b), but the SA part is still pending.

The genus *Janula* is problematic; the type species (*Janulus bicornis* Thorell, 1881) from Australia based on a female specimen was never illustrated. The genus presents a large distribution from Australia/Oceania, Asia, and the Americas. Yoshida and Koh (2011) reinstated the genus from the synonymy of *Episinus* and transferred six American species from *Episinus*, stating that other species described under *Episinus* might also belong in *Janula* but without transferring them formally. Both genera need revisions to establish their limits and distributional range.

Interestingly the genus *Faiditus* occurs mainly in the Americas, with one species found in Asia, *Faiditus xiphias* (Thorell, 1887). Yoshida (1993) synonymise *Argyrodes carnocabarensis* Tikader, 1977 and *Argyrodes levii* Zhu and Song, 1991 under *Faiditus xiphias* without examining the type specimens of all three species. The type specimens of *Faiditus xiphias* held at the ZMH, Germany were reviewed, the synonymy of *Argyrodes levii* Zhu and Song, 1991 is accepted based on the comparison of the illustrations presented by Zhu and Song (1991: fig. 10A-D) and the type specimen. Contrarily, the synonymy of *Argyrodes carnocabarensis* Tikader, 1977 is considered doubtful. The illustrations presented by Tikader (1977: fig. 6A-D) show an extremely long clypeal projection and a much simpler palpal bulb with a shorter embolus; the female epigynal region illustrated is broader than long, while in *Faiditus xiphias* the genital area is as wide as long. The type specimen of *Argyrodes carnocabarensis* has to be examined to confirm or infirm the synonymy. To be noted that *Argyrodes lucmae* Chamberlin, 1916 from Peru is actually a Linyphiidae according to Exline and Levi (1962).

Interestingly, most species of the genus *Kochiura* are found in SA, except for the type species that occurs in Europe, Africa, and Asia.

The genus *Phoroncidia* is quite diverse in SA; 25 species are known to occur, the genus was partly revised by Levi (1964c). The type specimens of *Phoroncidia chelys* (L. Koch, 1872) and *Phoroncidia personata* (L. Koch, 1872) held at the ZMH, Germany were examined. Comparison of the two types of specimens show clear differences in the genitalic characters, and the two species are considered distinct species (Dupérré in prep.).

Only one species of *Styposis* is described from Africa; the rest of the genus is found solely in the Americas. *Styposis kahuziensis* Miller, 1970 was described from Congo, and even the author of the description was not sure of its placement ‘*Styposis (?) kahuziensis*’ (Miller 1970, p. 163) therefore the genus is considered here to occur only in the

Americas. *Styposis clausis* is recorded from the USA to Colombia (WSC 2020), but no records from the USA were found; the species is found in Panama and Colombia.

The vast genus *Theridion* is considered to occur worldwide, but the genus delimitation is vague and needs reassessment. There have been many generic changes within the genus, 337 so far (WSC 2020), and further taxonomic revision in the Theridiidae family will likely downsize the genus and precise its distribution.

The genus *Thwaitesia* needs thorough revision; most of the species were never re-studied since their original description. Two species (*Thwaitesia argenteosquamata* and *Thwaitesia aureosignata*) described by Lenz (1891) from Madagascar. The type specimen of *Thwaitesia aureosignata* held at the ZMH, Germany was examined and is considered misplaced in Theridiidae family and belongs in the family Tetragnathidae (Duperré in prep.).

Thymoites illudens is known to occur from the USA until Colombia; Levi (1959b) suggested that the Mexican and Central American specimens should be rechecked as they may belong to another species or species group. The specimens from Colombia cited by Müller and Heimer (1990) should also be studied to make sure they are conspecifics, nonetheless until more data is available, the species is considered to occur in the USA, Mexico, Central America, and Colombia.

Numerous species have long-range distribution, but the longest distribution range winners are:

Rhomphaea fictilium found from Canada to Argentina, and *Wamba crispulus* found from Canada to Brazil.

Species with long-range distribution from the USA are: from the USA to Chile: *Paratheridula perniciosa*, *Emertonella taczanowskii* and *Rhomphaea projiciens*; from the USA to Argentina: *Anelosimus studiosus*, *Argyrodes elevatus*, *Coleosoma acutiventer*, *Coleosoma floridanum*, *Faiditus americanus*, *Tidarren haemorrhoidale*, *Tidarren sisyphooides*, and *Wamba congener*; from the USA, the Caribbean to Argentina and Galapagos Is.: *Argyrodes nephilae*; from the USA to Paraguay: *Faiditus dracus* and *Theridion positivum*; from the USA to Brazil: *Chrysso albomaculata*, *Coleosoma normale*, *Faiditus caudatus*; from the USA to Peru: *Neopisinus cognatus*; from the USA to Ecuador: *Chrosiothes silvaticus*; from the USA to Colombia: *Euryopis lineatipes*, *Euryopis spinigera* and *Thymoites illudens*; from the USA to Venezuela: *Steatoda quadrifasciata* and *Henziectypus florendidus* and *Thymoites pallidus*. Species with long-range distribution from Mexico are: from Mexico to Chile: *Steatoda ancorata*; from Mexico to Argentina: *Anelosimus jucundus*, *Parasteatoda nigrovittata*; Mexico to Paraguay: *Nihonhimea tesselata* and *Theridion hispidum*; from Mexico to Peru: *Anelosimus chickeringi*, *Anelosimus tosum* and *Thymoites confraternus*; Mexico to Brazil: *Anelosimus baeza*, *Faiditus ululans*, *Phycosoma altum*, *Rhomphaea paradoxa*, *Steatoda moesta* and *Theridion evexum*; from Mexico to Venezuela: *Chrysso cambridgei*, *Cryptachaea rostrata*, *Stemmops questus*, *Theridion grecia* and *Thymoites delicatulus*.

Nine species were introduced from SA to other continents: *Argyrodes nephilae* and *Rhomphaea projiciens* were introduced in India; *Nihonhimea tesselata* was introduced to Pakistan, New Guinea, and Australia; *Parasteatoda tepidariorum* was introduced to Canada, the USA, Seychelles, Europe, Turkey, Caucasus, Russia, Central Asia, China, Japan, New Zealand, and Hawaii and *Phycosoma altum* was introduced in India and Hawaii. *Coleosoma floridanum*, *Nesticodes rufipes*, and *Theridula gonygaster* were

introduced to numerous countries while *Emertonella taczanowskii* was introduced in India, Sri Lanka, China, and Japan (Annexe 2b).

Oppositely, ten Theridiidae species were introduced to SA: *Latrodectus geometricus*, *Latrodectus mactans*, *Meotipa pulcherrima*, and *Steatoda bipunctata* were introduced to numerous countries in SA; *Steatoda grossa* was introduced to Ecuador, Peru, and Chile; *Steatoda nobilis* to Ecuador, Colombia, and Chile; while *Theridion melanostictum* and *Theridion myersi* were introduced to the Galapagos Is.; *Cryptachaea blattea* was introduced in Chile and the mysterious species *Platnickina mneon* probably introduced to Brazil and Venezuela (Annexe 2a).

The SA part of the Theridiidae family was mainly studied by: Levi (1954a, 1954b, 1955b, 1957b, 1959a, 1959b, 1960, 1962a, 1962b, 1963a, 1963b, 1963c, 1963d, 1963e, 1964a, 1964b, 1964d, 1964e, 1966, 1967b); Exline and Levi (1962); Agnarsson (2004, 2006); Marques et al. (2011).

73. Theridiosomatidae Simon, 1881

Genera: 9

Species: 45

Diversity: 34%

Distribution: Argentina, Bolivia, Brazil, Colombia, Ecuador, Galapagos Is., French Guiana, Guyana, Peru, Suriname, and Venezuela.

This family of minuscule (0.9–4.4) orb-weaver is relatively diverse in SA; two genera (*Chthonos* and *Cuacuba*) are endemic to the continent. *Epilaneutes*, *Naatlo*, and *Plato* are distributed all over the Americas, while *Theridiosoma* presents a worldwide distribution. *Baalzebub* is distributed in the Americas, Asia, and Australia. *Ogulnius* is present in America and Asia, while *Wendigarda* is distributed through the Americas, Africa, and Asia.

Interestingly all species from the genus *Plato* are found in caves. Only one of these tiny orb-weavers presents a long-range distribution; *Epilaneutes globosus* occurs from Mexico to Brazil.

The genera of the spider family Theridiosomatidae were revised by Coddington (1986), while Wienskoski (2010) revised the genus *Naatlo*.

74. Thomisidae Sundevall, 1833

Genera: 33

Species: 361

Diversity: 16%

Distribution: all mainland SA and the Galapagos Is.

This family of small to medium-sized spiders (1.8–15.5) is not remarkably diverse in SA; only 16% of the world fauna is found on the continent. Sixteen genera are endemic to the continent, while 10 genera (*Aphantochilus*, *Bucranium*, *Epicadus*, *Epicadinus*, *Misumenoides*, *Onocolus*, *Stephanopoides*, *Strophius*, and *Synaemops*) include species found in NA, including the genus *Mecaphesa* found in North America, Hawaii, the Galapagos

Is. and Juan Fernandez Is. Four genera are considered to have worldwide distribution (*Misumena*, *Tmarus*, *Synema*, and *Xysticus*). *Sidymella* has an interesting distribution with species found in SA, New Zealand and Australia; the genus was revised by Machado et al. (2019) and presents a Gondwanan distribution.

Stephanopis also has an interesting American-Australian distribution, the Australian part of the genus was also revised by Machado et al. (2019), but the American species need to be revised. The type specimens of both *Stephanopis minuta* L. Koch, 1876 and *Stephanopis ornata* L. Koch, 1876 are held at the ZMH collection, Germany and should not be considered nomina dubia, contra Machado et al. (2019).

Finally, species from the genus *Misumenops* occur in America, Africa, and Asia and on remote islands located on the Pacific tectonic plate (Marquesas Is., Tahiti, Moorea, Rapa).

Unfortunately, numerous *Misumenops* species from SA have never been re-studied since their original description or were never illustrated (*Misumenops anachoretus* (Holmberg, 1876); *M. gibbosus* (Blackwall, 1862); *M. ignobilis* Badcock, 1932; *M. lacticeps* Mello-Leitão, 1944; *M. octoguttatus* Mello-Leitão, 1941; *M. silvarum* Mello-Leitão, 1929; *M. spinitarsis* Mello-Leitão, 1932). Additionally, some types of specimens have been lost in the 2018 fire at the MNRJ, Brazil; hence a thorough revision of the genus is needed.

The genus *Carcinarachne* was described based on a juvenile specimen from Ecuador brought to Germany in a banana shipment. The monotypic genus is considered not to occur in SA until the type, or new material can be examined.

The genus *Diaeae* is distributed in North America, Africa, Asia, Europe, and Australia (New Zealand); only one species was described from SA, Colombia (*Diaeae spinosa* Keyserling, 1880). The illustration presented by Keyserling (1880: pl. 2, f. 64) of the female epigynum cast doubt on the generic placement of the species. The epigynum lack the central hood characteristic of at least the type species *Diaeae dorsata*. Szymkowiak (2014) stated that no diagnoses characterise the genus *Diaeae* adequately and that a detailed description of the reproductive organs of *D. dorsata* should be the basis for the inclusion of other species in the genus *Diaeae*. Based on the review of the illustration of *Diaeae spinosa* and until the type specimen can be re-examined, the genus is considered not to occur in SA.

The monotypic genus *Hexommulocymus* is also problematic; the type species *Hexommulocymus kolosvaryi* Caporiacco, 1955 was described based on a juvenile specimen, the genus is considered here not to occur in SA until the type is re-examined.

The genus *Misumenoides* is found in North and South America; only two species of *Misumenoides* fall out of this distribution. The two species described from India (*Misumenoides gwarighatensis* Gajbe, 2004; *Misumenoides naginae* Biswas and Roy, 2008) are considered doubtful based on the examination of the illustrations; therefore, the genus is considered here to occur only in the Americas. This diverse genus is in dire need of a revision; numerous species have not been re-studied since the original description and lack comprehensive illustrations (e.g. *Misumenoides dasysternon* and *Misumenoides gerschmanae* were never illustrated while *Misumenoides vulneratus* was never illustrated, and the male was probably destroyed in the 2018 fire at the MNRJ, Brazil, but the female syntype survived).

Two monotypic genera described by Simon that could be considered endemic to SA are not included in the genera count until the specimens can be examined. *Phireza*

sexmaculata Simon, 1886 was described based on a female from Brazil but never illustrated, while *Physoplatys nitidus* Simon, 1895 was described from Paraguay based on a juvenile without illustrations.

Thomisus is a large genus that occurs in Africa, Asia, Australia, Europe, and North America (six species from NA requires confirmation (Dondale 2005)), and only one species was described from SA. *Thomisus guadahyrensis* Keyserling, 1880 was described from Peru; based on the examination of the male and female illustrations provided by Keyserling (1880: pl. 2, f. 39), its placement in *Thomisus* is questionable. Therefore, the genus is considered here not to occur on the SA continent until a revision of the type specimen of *Thomisus guadahyrensis* Keyserling, 1880 is possible.

The monotypic genus *Wechselia* was described based on a male from Argentina without illustrations. The type of *Wechselia steinbachi* Dahl, 1907 has to be examined to establish the validity of the genus.

Three species of the most speciose Thomisidae genus, *Xysticus*, are known to occur in SA, *Xysticus gracilis* and *Xysticus pulcherrimus* were described by Keyserling (1880) from Colombia, and *Xysticus silvestrii* was described by Simon (1905) based on a female from Argentina but unfortunately, Simon did not provide any illustrations. All type specimens need to be revised to undeniably confirm the presence of *Xysticus* in SA, but since *Xysticus* has worldwide distribution and occurs in NA, the genus is considered to occur in SA.

Seven species present long-range distribution: *Epicadus trituberculatus* is found from Mexico to Argentina; *Epicadinus trispinosus* from Mexico to Peru; *Misumenoides magnus* is found from Mexico to Colombia; *Strophius signatus* from Mexico to Brazil and *Synema affinitatum* from Mexico to Brazil. *Ozyptila praticola* was recently introduced in Argentina (Annexe 2a).

Most of the South American genera of Thomisidae need revision, the family was mainly studied by: Lise (1981); Esmerio and Lise (1996); Bonaldo and Lise (2001); Teixeira et al. (2014); Prado et al. (2018); Faleiro and Santos (2019) and Machado et al. (2019).

75. Titanoecidae Lehtinen, 1967

Genera: 2

Species: 7

Diversity: 13%

Distribution: Argentina, Brazil, Colombia, Chile, Ecuador, Peru, and Venezuela.

This small family of small to medium-sized (4.0–6.4) spider is not very diverse worldwide; only 54 species have been described so far (WSC 2020). The family is relatively scarce in SA, with only two genera occurring on the continent. The genus *Goeldia* includes species found in NA, *Goeldia arnozoi* (Mello-Leitão, 1924) was never illustrated, and the type was probably destroyed in the 2018 fire at MNRJ, Brazil. Only one species of the speciose genus *Titanoecea* occurs in SA, *Titanoecea guayaquilensis* Schmidt, 1971 was described based on a male from Ecuador brought to Hamburg, Germany, in a banana shipment. The type specimen should be examined to confirm generic placement; for now, the genus is considered to occur in SA, NA, Europe, and Asia.

76. Trachelidae Simon, 1897

Genera: 3

Species: 52

Diversity: 21%

Distribution: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, French Guiana, Guyana, Paraguay, Peru, Uruguay, and Venezuela.

This family of small to medium-sized spiders (2.6–8.1) includes only one endemic genus (*Trachelopachys*) in SA. The genus (*Meriola*) is composed of species found in NA, while (*Trachelas*) includes species that occur in NA, Europe, Africa, and Asia.

Three species from the genus *Cetonana* were described from SA; all three were described without illustrations. The type specimen of one species, *Cetonana lineolata* (Mello-Leitão, 1941), was destroyed in the 2018 fire at MNRJ, Brazil (WSC 2020). The genus *Cetonana* is known to occur in Europe, Russia, and China; therefore, the genus is considered here not to occur in SA until its presence can be established.

The genus *Trachelas* is somewhat problematic, and in need of revision, some species were not reviewed since the original description, were described only with basic or without illustrations, and in some cases, the types have been lost: e.g. *Trachelas anomalus* (Taczanowski, 1874) male from Guyana was described with basic illustrations; *Trachelas niger* Mello-Leitão, 1922 was described without illustrations and the type was destroyed; *Trachelas nigrifemur* Mello-Leitão, 1941 was described with basic illustrations and the type was probably destroyed; *Trachelas tridentatus* was described by Mello-Leitão (1947) without illustrations, and the juvenile holotype was destroyed (WSC 2020).

Meriola decepta presents a long-range distribution from CAN to Brazil, while *Meriola arcifera* was introduced to the USA (WSC 2020) (Annexe 2b).

The genus *Meriola* was revised by Platnick and Ewing (1995), while *Trachelopachys* was revised by Platnick (1975c).

77. Trechaleidae Simon, 1890

Genera: 16

Species: 109

Diversity: 80%

Distribution: Argentina, Bolivia, Brazil, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname, Uruguay, and Venezuela.

This family of small to medium-sized (3.5–21.0) spider is almost entirely found in SA; 80% of the world's biodiversity is found on the continent. Seven genera (*Amapalea*, *Caricelea*, *Heidrunea*, *Neoctenus*, *Paratrechalea*, *Rhoicinus*, and *Trechaleoides*) are endemic to the continent, while nine genera include species that occur in NA (*Barrisca*, *Cupienius*, *Dossenus*, *Enna*, *Hesydrus*, *Syntrechalea*, *Paradossenus*, and *Trechalea*).

The genus *Neoctenus* needs thorough revision, the type species *Neoctenus comosus* Simon, 1897 was described based on a female from Brazil. Silva-Dávila (2003) examined the female holotype (MNHN 7223) and stated that the specimen exhibits the typical

lycosid eye pattern, but the genitalia closely resemble those found in trechaleids, such as *Paradossenus*. To be noted, that Mello-Leitão (1939b) illustrated the female genitalia identified as *Neoctenus comosus* but the specimen is from Paraguay. Furthermore, the species *Neoctenus peruvianus* (Chamberlin, 1916) from Peru was described based a juvenile male Silva-Dávila (2003).

Only one species of Trechaleidae is found outside the Americas, *Shinobius orientalis* (Yaginuma, 1967), was described from in Japan and is regarded as a close relative of *Rhoicinus* (Griswold 1993; Sierwald 1993) hence its placement in the Trechaleidae family, but the placement is still uncertain. The genus *Cupiennius* was recently transferred from Ctenidae to Trechaleidae by Piacentini and Ramírez (2019).

Only one species, *Syntrechalea tenuis*, is considered to have a long-range distribution occurring from Mexico to Brazil.

The family has been mainly revised by: Exline (1960); Platnick (1978); Brescovit and Höfer (1994b); Carico (1993, 2005, 2008); Barth and Cordes (2008); Silva et al. (2006, 2007, 2008); Silva and Lise (2009); Carico and Silva (2010).

78. Trochanteriidae Karsch, 1879

Genera: 3

Species: 5

Diversity: 0.6%

Distribution: Argentina, Brazil, Chile, and Paraguay.

This family of medium-sized spiders (5.0–6.6) is almost absent from the SA continent, most of the species being found in Australia. All genera are endemic to the continent; the monotypic genus *Doliomalus* is endemic to Chile. The genus *Trochanteria* was revised by Platnick (1986), while the monotypic genus *Vectius* was recently transferred from Gnaphosidae to Trochanteriidae by Azevedo et al. (2018). Azevedo et al. (2018) suggested that the three South American genera are part of monophyletic group alongside *Platyoides*, *Hemicloea* and *Plator* and that their peculiar lifestyle under tree bark or in cracks may also have been found in their most recent common ancestor.

79. Uloboridae Thorell, 1869

Genera: 9

Species: 64

Diversity: 23%

Distribution: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, French Guiana, Guyana, Paraguay, Peru, and Venezuela.

This family of small to medium-sized spider (3.0–10.0) is relatively diverse in SA, about one-quarter of the world's biodiversity occur on the continent. Four genera are considered endemic to the continent (*Conifaber*, *Orinomana*, *Sybota*, and *Uaitemuri*), while two genera include species found in NA (*Ariston* and *Zosis*). *Miagrammopes* and *Philoponella* have a larger distribution and are found in America, Africa, Asia, and Australia/Oceania, while the large genus *Uloborus* is found worldwide. *Uloborus* presence in

SA is undeniable, but several species are problematic because they were described from juveniles, never illustrated, or the type specimens have been lost.

The genus *Zosis* is mainly found in the Americas and comprises numerous subspecies from Cuba and Guyana. However, one subspecies, *Zosis geniculata timorensis* (Schenkel, 1944), was described from Timor. The illustrations provided by Schenkel (1944: fig. 1a-b) do not allow for specific recognition; therefore, the genus *Zosis* is considered here to only occur naturally in America until the type of *Zosis geniculata timorensis* can be examined.

Uloborus plumipes was introduced in Argentina, while the American species *Zosis geniculata* was introduced to Macaronesia, West Africa, Seychelles, India, Indonesia, Philippines, China, Korea, Japan, Australia, and Hawaii (Annexes 2a, b).

The genera *Ariston* O. P. Cambridge, 1896; and *Siratoba* Opell, 1979 were reviewed by Salvatierra et al. (2014). The American part of the genera *Miagrammopes* and *Philoponella* have been reviewed by Opell (1979, 1981, 1984).

A few species present long-range distribution: *Philoponella semiplumosa* was recorded from the USA to Venezuela; *Zosis geniculata* from the USA to Brazil; *Philoponella tingens* from Mexico to Colombia; *Uloborus campestratus* from the USA to Venezuela; *Uloborus segregatus* from the USA to Colombia and *Uloborus trilineatus* from Mexico to Argentina.

80. Viridasiidae Lehtinen, 1967

Genera: 1

Species: 1

Diversity: 14%

Distribution: Brazil.

This extremely small family of medium-sized spiders (11.5) was elevated to family level by Polotow et al. (2015); the family is found on Comoros Is., Mayotte Is. and Madagascar with only one species described from SA. The only South American species *Vulsor occidentalis* was described by Mello-Leitão (1922) based on a male. No illustrations were provided with the original description, the type was not located by Silva-Moreira et al. (2010) and is considered probably destroyed in the 2018 fire at MN RJ, Brazil (WSC 2020). Therefore, the presence of the family in SA is doubtful but still considered present in SA.

81. Xenoctenidae Ramírez and Silva-Dávila, 2017

Genera: 4

Species: 24

Diversity: 73%

Distribution: Argentina, Brazil, Chile, Ecuador, Galapagos Is., Guyana, Peru, and Venezuela.

This recent elevated family of medium-sized spiders (7.8–15.2) (Wheeler et al. 2017, p. 609) includes genera that were previously placed in Miturgidae (*Xenoctenus*, *Odo*, and *Paravulsor*) as well as Ctenidae (*Incasoctenus*). The family is endemic to the Americas,

and most of the diversity occurs in SA (73%). Three genera are endemic to SA (*Incasocetus*, *Paravulsor*, and *Xenoctenus*); one genus (*Odo*) includes species that occur in NA.

The larger genus *Odo* is somewhat problematic and needs revision, the type species was never re-studied, and four species from Venezuela and Guyana have been described based on juvenile specimens by Caporiacco (1947, 1955). Furthermore, the genus includes one species, *Odo australiensis* described by Hickman (1944) from Central Australia. The illustrations presented by Hickman (1944: figs. 31–34) do not allow for specific recognition; therefore, the genus is considered here to occur only in America until the type specimen can be examined.

The monotypic genus *Paravulsor* has never been illustrated; fortunately, the type survived the fire at the MNRJ, Brazil (WSC 2020). *Xenoctenus* is endemic to Argentina, while *Odo* occurs from Mexico, the Caribbean, to Peru.

82. Zodariidae Thorell, 1881

Genera: 7

Species: 77

Diversity: 7%

Distribution: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Falkland Is., Guyana, Paraguay, Peru, Uruguay, and Venezuela.

This diverse family of small to medium-sized spiders (3.9–9.7) is not well represented in SA; only 7% of the world diversity is found on the continent. Three genera are endemic to the continent (*Cybaeodamus*, *Epicratinus*, and *Platnickia*). In comparison, three genera include species that occur in NA (*Antillorena*, *Leprolochus*, and *Tenedos*), and one genus (*Cyrioctea*) is found so far only in the southern part of SA (Argentina and Chile), Africa, and Australia/Oceania. The genus *Cyrioctea* has an interesting distribution, Grismado and Pizarro-Araya (2016) commented that their new species (*Cyrioctea islachanaral*) shared morphological characters with some Southern African representatives of this genus rather than with the species of continental South America.

The genus *Antillorena* presents a disjunct distribution and is found in the Caribbean, Colombia, and Brazil, while the genus *Platnickia* is found only in Argentina, Chile, and Falkland Islands.

Only three species of the large genus *Storena* are known to occur on the continent, *Storena caporiacoi* Brignoli, 1983 described from a juvenile from Venezuela; *Storena analis* Simon, 1893 described from a female from Ecuador and *Storena lebruni* Simon, 1886 described from a male from Argentina. Simon species are not recorded in the type card catalog of the MNHN, Paris, and the type specimens were not found. Only the description of *Storena lebruni* includes an illustration (male palp retrolateral view). The identity of the three species SA is problematic, and the species cannot be readily identified. The Australian part of the genus was revised by Jocqué and Baehr (1992); in 1994, Baehr and Jocqué stated that the genus *Storena* was an Australian endemic genus. Base on the fact that the descriptions are incomplete or from juvenile specimens, the lack of type material, the genus is here considered endemic to Australia following Baehr and Jocqué (1994); therefore, considered not occur in SA until compelling data is provided.

The genus *Cybaeodamus* was revised by Lise et al. (2009); *Epicratinus* was revised by Jocqué and Baert (2005), and the genus *Platnickia* was revised by Grismado and Platnick (2008).

83. Zoropsidae Bertkau, 1882

Genera: 3

Species: 10

Diversity: 5%

Distribution: Brazil and Chile.

This family of medium to large spiders (4.2–15.6) is not diverse in SA; the family limits are still poorly defined. Just recently, the family Tengellidae was synonymised under Zoropsidae by Polotow et al. (2015). The three genera are endemic to SA and are found in the southern part of the continent. The genera *Cauquenia* and *Itatiaya* have been suggested to be more related to African genera since both genera lack cribellum and calamistrum (Polotow and Brescovit 2006; Piacentini et al. 2013). *Itatiaya* is endemic to the Brazilian Atlantic forest (Polotow and Brescovit 2006). Not much is known about the monotypic genus *Cinifella*; the type species has never been illustrated. The genus was recently transferred to Tengellidae (Ramírez 2014); Ramírez stated that through comparison of illustrations of the type specimen, he was able to identify two species of *Cinifella* from Argentina and Brazil, that the genus has an oval calamistrum, and that the genus is similar to Australian genus *Austrotengella*. However, the genus *Austrotengella* is ecribellate (Ramírez 2014, p. 344).

Introduced families

1. Cithaeronidae Simon, 1893

Genera: 1

Species: 2

Distribution: Introduced in Brazil.

Only the two small (3.49–7.24) species, *Cithaeron praedonius* and *Cithaeron reimoseri* of this Eurasian/African family occurs in SA. The two species are introduced and the family does not occur naturally in SA (Annexe 2a).

2. Dysderidae C. L. Koch, 1837

Genera: 1

Species: 1

Distribution: Introduced in Colombia and French Guiana.

The family Dysderidae does not occur naturally in SA. *Dysdera crocata* was introduced from Eurasia (Annexe 2a) and the two other species (*Dysdera bicolor* Taczanowski, 1874 and *Dysdera solers* Walckenaer 1837) are possibly an oonopid and a caponiid respectively according to Řezáč et al. (2008) (WSC 2020).

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