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The non-acarine Arachnida of the Amathole Mountains, South Africa

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Background: The Eastern Cape province of South Africa has a rich floral diversity, with seven of the country's eight floral biomes represented in the province. The non-acarine arachnid fauna of the province is largely understudied and considerable gaps exist in our knowledge of the distribution, diversity and levels of endemism of the arachnid fauna.

Objectives: To address this, non-acarine arachnids were sampled intensively in the Afromontane forests and surrounding biotopes in the Amathole Mountains over the course of a decade.

Methods: In the present contribution, comprehensive checklists of the non-acarine arachnids (specifically, the orders Amblypygi, Araneae, Opiliones, Pseudoscorpiones and Scorpiones) of the region are presented, based on a combination of field sampling, provenance data from museum specimen databases, and a review of the historical literature.

Results: In total, 398 species of non-acarine arachnids have been recorded from the Amathole Mountains, with spiders (Araneae; 324 species from 51 families) and harvestmen (Opiliones; 41 species from four families) the richest groups. The region is exceptionally rich in harvestmen and pseudoscorpions (Pseudoscorpiones; 24 species from 11 families), and might be considered a hotspot of biodiversity and endemism for these taxa.

Conclusion: As the sampling was concentrated around Hogsback, and most other areas remain undersampled, further efforts should be made to sample all representative biotopes more comprehensively in the mountain range. This will improve understanding of the distribution and endemism of the arachnid fauna and assess the conservation significance of the region from a national perspective.

Keywords: Amblypygi, Araneae, conservation, forests, hotspot, Opiliones, Pseudoscorpiones, SANSA, Scorpiones.

Introduction

South Africa contains a particularly rich arachnid fauna, which has been well studied compared to other parts of the continent (e.g., Staręga 1992; Jocqué et al. 2013). Since 1997, the South African National Survey of Arachnida (SANSA) has co-ordinated research on the non-acarine arachnids in the country and surveyed many undersampled areas. This greatly improved knowledge of the distribution of described species, provided material for taxonomists to describe new taxa, and offered insights into the community composition of different biotopes. The project resulted in the production of national checklists, catalogues or taxonomic treatments of the Pseudoscorpiones (Dippenaar-Schoeman & Harvey 2000), Scorpiones (Prendini 2005), Solifugae (Dippenaar-Schoeman et al. 2006; Dippenaar-Schoeman & González Reyes 2006), Opiliones (Lotz 2009), Amblypygi (Prendini et al. 2005) and Araneae (Dippenaar-Schoeman

et al. 2010). These works laid the foundation for understanding the biodiversity and biogeography of the non-acarine arachnid fauna.

The Eastern Cape is South Africa's second largest province by area and contains the greatest representation of the country's floral biomes. Seven of the eight biomes fall within its borders; only the Desert Biome is absent (Mucina & Rutherford 2006). Nevertheless, the Eastern Cape is among the most undersampled for non-acarine arachnids (Janion-Scheepers et al. 2016; Foord et al. 2020). In reviews of the savanna (Foord et al. 2011) and grassland (Haddad et al. 2013) spiders of the country, gap analyses revealed that the Eastern Cape was considerably undersampled. Although 13 protected areas in the Eastern Cape contain more than fifty specimen records, checklists have only been published for the Mountain Zebra National Park (Dippenaar-Schoeman 1988, 2006), Addo Elephant National Park (Dippenaar-Schoeman et al. 2020), Mkambati Nature Reserve (Dippenaar-Schoeman et al. 2011), Asante Sana Nature Reserve (Midgley 2012), Silaka Nature Reserve (Forbanka & Niba 2013), and Thyspunt (Dippenaar-Schoeman & Wiese 2021). There is considerable scope to conduct more intensive sampling in the province to determine the non-acarine arachnid diversity, particularly in highly threatened biotopes such as Afromontane Forest.

The Amathole Mistbelt Forest of the Amathole Mountains (at 642.2 km^2 remaining, the second largest forest type in South Africa according to Berliner (2009)), is regarded as an emblematic example of Afromontane Forest due to its relatively large extent and its unique fauna (Lawrence 1953). Unfortunately, most of the sampling in the Amathole Mountains has concentrated on the forests near Hogsback, whereas other areas are comparatively poorly sampled, particularly for spiders. Consequently, the arachnid fauna is suggested to consist of numerous endemic or near-endemic taxa, although these may indeed be more widespread in the nearby forests and adjacent biomes of the Eastern Cape. Further, the considerable undersampling of grassland, fynbos, thicket and savanna biomes in the region suggests that much of the regional species pool may not yet have been sampled. For example, no Solifugae have been sampled from the Amathole Mountains, despite 28 species being recorded from the Eastern Cape in more xeric biotopes to the south and west of this mountain range (Dippenaar-Schoeman et al. 2006).

The first known spiders described from the Amathole Mountains were *Stasimopus insculptus* Pocock, 1901, described from King William's Town (now Qonce) (Pocock 1901), *Spiroctenus flavopunctatus* (Purcell, 1903), originally placed in *Hermachastes* Pocock, 1900, and *Thomisus weberi* Lessert, 1923, later synonymised with *T. stenningi* Pocock, 1900 by Dippenaar-Schoeman (1983). Subsequently, ten harvestmen species were described from Hogsback by Lawrence (1931, 1934), including the genus *Amatola* Lawrence, 1931, with the type species *A. dentifrons* Lawrence, 1931. Species were occasionally described from the area in later papers (e.g. Lawrence 1940; Griswold 1985), but most new taxa from the area were described in the last two decades (Supplementary Table 1). Hogsback was also one of two South African sites included in the first studies of tree canopy arthropods in the country, as part of comparative studies with the U.K. fauna (Moran & Southwood 1982; Southwood et al. 1982).

In the present contribution, we provide a comprehensive overview of the records of non-acarine arachnids (specifically, the orders Amblypygi, Araneae, Opiliones, Pseudoscorpiones and Scorpiones) in the literature, include records from museum specimen databases, and incorporate all data on recently sampled arachnids from the Amathole Mountains to prepare a checklist of the fauna of the region. We further detail the biology of the common taxa of the region and their habits, supplemented by habitus photos of selected species. Lastly, we comment on the significance of the Amathole Mountains as a biodiversity hotspot for particular taxa within a national context.

Research method and design

Study area

The Amathole Mountains are located in the south-central part of the Eastern Cape and lie north of the provincial capital, Qonce (formerly King William's Town). The approximate limits of this mountain range are between the Kat and Esk rivers in the northwest and the Keiskamma and Thomas rivers in the east. The northern limits of the range fall south of the towns of Cathcart, Whittlesea and Tarkastad, and its southern limits to the north of the towns along the R63 road between Bedford and Qonce, covering an area of approximately 900 km^2 (Phillipson 1987).

The Afromontane Forests of the Amathole Mountains can be classified as Southern Mistbelt Forests (Mucina & Geldenhuys 2006), or Amathole Mistbelt Forests (Von Maltitz et al. 2003). These forests are regarded as being well conserved and classified as Least Threatened (Mucina & Geldenhuys 2006). The indigenous forests of South Africa have been widely exploited for fuel wood, timber, traditional medicine, clearing for agriculture and silviculture, and the florist industry (Mucina & Geldenhuys 2006), and the Amathole Mountains are no exception. Large tracts of land have been converted to pine and *Eucalyptus* plantations, bordering on indigenous forests in the area, as well as causing loss of grassland,

shrubland and fynbos vegetation. Most of the forests in the Amathole Mountains are state-owned and managed under a formal multiple-use system to ensure sustainable utilisation of resources (Von Maltitz et al. 2003). The grasslands surrounding forest patches are also under severe threat from silviculture and overgrazing by cattle (McMaster 2003). Although 1 215 plant species were recorded in the Amathole Mountains by Phillipson (1987), the majority of these are associated with grasslands and more open habitats, whereas Berliner (2009) indicated that only 161 species were found in the Amathole Mistbelt Forests, representing the lowest species richness among the six mistbelt forest types in the country.

Field sampling

Many of the arachnid specimens on which the present contribution is based, were collected during student field excursions to Hogsback between 2006 and 2013. Entomology third-year students from the University of the Free State were divided into groups of two or three students, with equal numbers of samples taken by sweep-netting, beating and leaf litter sifting in Afromontane forests, pine plantations, and the mixed forest (with exotic trees) at the Hogsback Arboretum (Figure 1). Students sorted all arthropods from the samples, with the first author sorting, identifying and tallying the

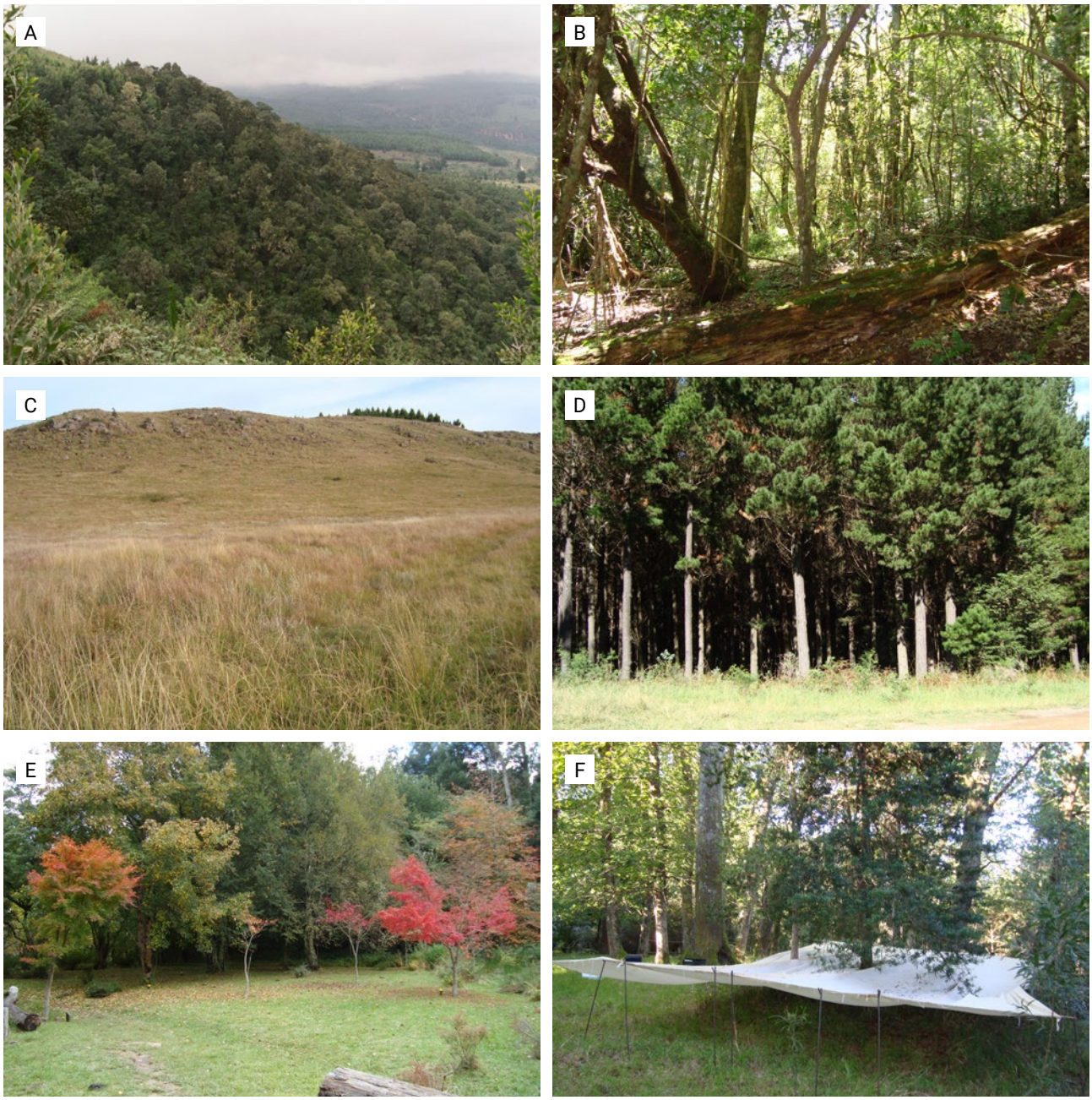

Figure 1. Biotopes sampled in the Hogsback area of the Amathole Mountains, Eastern Cape, South Africa; A, Part of Tyume Forest on a south-facing slope (Afromontane Forest); B, Understorey of Afromontane Forest; C, Open mesic grassland north of Hogsback; D, Pine plantation; E, Hogsback Arboretum, mixed indigenous and exotic trees; F, Canopy fogging a yellowwood sapling at Hogsback Arboretum. Photos: C. Haddad.

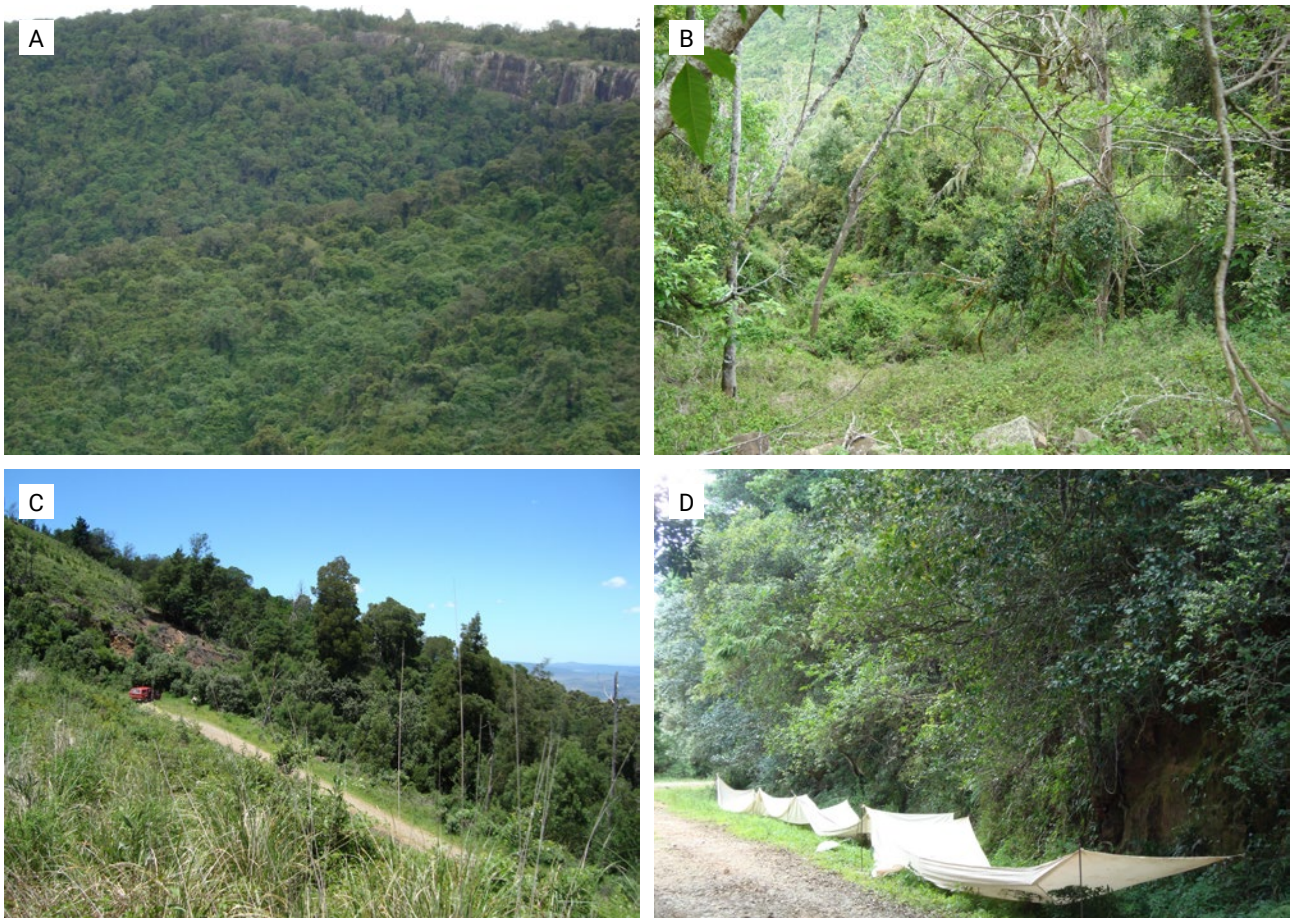

Figure 2. Afromontane Forest sampled at Mpofu Fort Fordyce Nature Reserve (A, B) and Katberg State Forest (C, D) in the Amathole Mountains, Eastern Cape, South Africa. Photos: C. Haddad.

non-acarine arachnids. Additional sampling was conducted by hand collecting, sweeping and beating in grassland and fynbos to the north and east of Hogsback, in gardens, and by tree canopy fogging (Figure 1F). Subsequently, the first and third authors also conducted sampling at Mpofu Fort Fordyce Nature Reserve and Katberg State Forest (Figure 2), including canopy fogging (Figure 2D). Additional scorpion material was collected by the second author over the course of several visits to the area during larger field excursions in the Eastern Cape.

Data mining

Additional records from the vicinity of the Amathole Mountains were obtained from the arachnid databases of the National Collection of Arachnida (Pretoria, NCA), KwaZulu-Natal Museum (Pietermaritzburg, NMSA), National Museum (Bloemfontein, NMBA), the Ditsong National Museum of Natural History (Pretoria, TMSA) and the Iziko South African Museum (Cape Town, SAMC). When this work was undertaken, the Albany Museum (Grahamstown) arachnid collection had not yet been digitised, and material could not be obtained from the California Academy of Sciences (San Francisco), preventing the inclusion of data from these collections.

A thorough survey of the primary taxonomic literature was also performed to source records for non-acarine arachnids. The *First Atlas of the Spiders of South Africa* (Dippenaar-Schoeman et al. 2010) served as the primary source for determining records of spiders, which were checked against the existing literature for all recorded species. Staręga (1992) and Lotz (2009) served as the preliminary sources for harvestmen, with additional records identified by Leon Lotz incorporated into the specimen database of the NMBA. Scorpions were identified and data sourced by the second author, and pseudoscorpions by the third author, with some identifications provided by Mark Harvey (Western Australian Museum, Perth, Australia) and Danilo Harms (Museum der Natur, Hamburg, Germany).

Results and discussion

To date, 398 species of arachnids have been recorded from the Amathole Mountains (Supplementary Table 1), with spiders (324 species from 51 families) and harvestmen (41 species from four families) the richest orders (Table 1). A brief overview of the arachnid fauna of the region, documenting some of the common species likely to be encountered, identifying taxa for which the

Table 1. Recorded species richness (# spp.) of arachnid orders (total number of species in parenthesis) and families in the Amathole Mountains, Eastern Cape, South Africa

AMBLYPYGI (1)	**# spp.**	**% of order**			
Phrynichidae	1	100.0			
ARANEAE (324)	**# spp.**	**% of order**		**# spp.**	**% of order**
Agelenidae	1	0.3	Oecobiidae	1	0.3
Amaurobiidae	5	1.6	Oonopidae	4	1.2
Anapidae	1	0.3	Orsolobidae	2	0.6
Araneidae	26	8.0	Oxyopidae	3	0.9
Bemmeridae	2	0.6	Palpimanidae	1	0.3
Cheiracanthiidae	5	1.6	Penestomidae	1	0.3
Clubionidae	10	3.1	Philodromidae	5	1.6
Corinnidae	5	1.6	Pholcidae	3	0.9
Ctenidae	2	0.6	Phyxelididae	3	0.9
Cyatholipidae	3	0.9	Pisauridae	4	1.6
Cyrtaucheniidae	2	0.8	Salticidae	49	15.1
Deinopidae	1	0.3	Scytodidae	12	3.7
Dictynidae	3	0.9	Segestriidae	2	0.6
Entypesidae	1	0.3	Selenopidae	5	1.6
Euagridae	1	0.3	Sparassidae	4	1.2
Gallieniellidae	2	0.6	Stasimopidae	2	0.6
Gnaphosidae	15	4.6	Tetragnathidae	9	3.6
Hahniidae	4	1.2	Theraphosidae	1	0.3
Hersiliidae	1	0.3	Theridiidae	28	8.6
Linyphiidae	12	3.7	Thomisidae	28	8.6
Lycosidae	16	4.9	Trachelidae	16	4.9
Microstigmatidae	1	0.3	Trochanteriidae	2	0.6
Migidae	1	0.3	Uloboridae	5	1.6
Mimetidae	4	1.2	Zodariidae	3	0.9
Miturgidae	2	0.6	Zoropsidae	3	0.9
Nesticidae	1	0.3			
OPILIONES (41)	**# spp.**	**% of order**		**# spp.**	**% of order**
Biantidae	5	12.2	Phalangiidae	8	19.5
Pettalidae	1	2.4	Triaenonychidae	27	65.9
SCORPIONES (8)	**# spp.**	**% of order**		**# spp.**	**% of order**
Buthidae	3	37.5	Scorpionidae	1	12.5
Hormuridae	4	50.0			
PSEUDOSCORPIONES (24)	**# spp.**	**% of order**		**# spp.**	**% of order**
Atemnidae	1	4.2	Gymnobisiidae	3	12.5
Cheliferidae	6	25.0	Olpiidae	1	4.2
Chthoniidae	2	8.3	Pseudochiridiidae	1	4.2
Feaellidae	1	4.2	Pseudotyrannochthoniidae	2	8.3
Garypinidae	1	4.2	Withiidae	3	12.5
Geogarypidae	3	12.5			

region represents a biodiversity hotspot, and providing information about their biology and endemism, is presented in Table 1 and Supplementary Table 1.

Amblypygi (whip spiders)

Only three whip spider species have been recorded from South Africa, all belonging to Phrynichidae. One of these, *Damon annulatipes* (Wood, 1869), has only been recorded in the Qonce area (Weygoldt 1999; Prendini et al. 2005), but probably occurs elsewhere in the Amathole Mountains. Whip spiders are secretive nocturnal arachnids that typically reside under logs or in rock crevices, so they may have evaded past collecting efforts.

Araneae (spiders)

South Africa has the richest known spider fauna on the continent, with 2 268 described species currently recorded and many more awaiting description (Foord et al. 2020). Much of the current knowledge benefits from a rich collecting history, a well-developed museum infrastructure, and active local and international taxonomists that made sizable contributions to describing the fauna (Dippenaar-Schoeman et al. 2015).

Overall, the levels of spider endemism in South African forests are surprisingly low in terms of number of species (< 10%), but when the area of each biome is considered, then forests have the highest level of endemism proportionally (Foord et al. 2020). The relatively low number of endemic species is unusual, considering the high levels of endemism reported for other invertebrates, such as snails (Perera et al. 2021), millipedes (Janion-Scheepers et al. 2016), harvestmen (e.g., De Bivort & Giribet 2010) and velvet worms (e.g., Daniels et al. 2009). This could possibly be attributed to: 1) the greater dispersal ability of spiders compared to the other invertebrate groups, and 2) undersampling of forests and other biomes in the Eastern Cape, which when improved, could provide more accurate data on spider biodiversity and levels of endemism. Despite its small area (< 0.3% of South Africa), forests still possess the fourth highest spider species richness (646 species) among the eight South African biomes (Dippenaar-Schoeman et al. 2015).

In total, 324 species of spiders were recorded from the Amathole Mountains, with Salticidae (49 spp.), Theridiidae and Thomisidae (28 spp. each) and Araneidae (26 spp.) the most species-rich families. In considering the various datasets used to assess the fauna of the Amathole Mountains, there is a clear sampling bias towards Hogsback (1 357 records), followed by Mpofu Fort Fordyce Nature Reserve (188 records), Qonce (formerly King William's Town) (105 records) and Katberg (63 records), with the remaining sites all represented by fewer than 30 records (Table 2). Hogsback has by far the highest recorded species richness (254 species), but even here the bulk of the records originate from forest habitats and plantations, and the grassland and fynbos biomes in the area remain comparatively poorly sampled. Increased sampling effort in these biomes, as well as the undersampled thicket and savanna biomes to the south, will likely result in the discovery of many new records for the area.

The Amathole Mountains fall within one of the areas with a moderate number of endemic South African spider species, none of which are considered rare or endangered (Foord et al. 2020). However, the apparent absence of certain 'typical' forest taxa from these mountains is perplexing. For example, all South African species of the family Archaeidae are endemic to the country, with three endemic to the Eastern Cape; most *Afrarchaea* Forster & Platnick, 1984 are forest-dwellers (Dippenaar-Schoeman et al. 2021). However, none have been sampled from Afromontane forests or grasslands in the interior of the Eastern Cape, despite several species occurring in these biomes in the KwaZulu-Natal Drakensberg and eastern Free State (Dippenaar-Schoeman et al. 2021). Similarly, the tiny

Table 2. Summary of collecting effort and species richness of spiders from localities in the Amathole Mountains, Eastern Cape, South Africa [FB = Fort Beaufort; HB = Hogsback; KB = Katberg; MF = Mpofu Fort Fordyce Nature Reserve; QO = Qonce (formerly King William's Town); ST = Stutterheim; OT = other Amathole localities]

Collection	FB	HB	KB	MF	QO	ST	OT	Sum
National Collection of Arachnida	29	1 249	61	188	102	10	11	1 649
National Museum, Bloemfontein	–	45	–	–	–	–	–	45
KwaZulu-Natal Museum	–	14	–	–	3	1	–	18
Ditsong National Museum of Natural History	–	49	2	–	–	5	19	75
Total records	29	1 357	63	188	105	16	30	1 788
Total species richness	21	254	49	95	82	12	10	324
Type locality	0	19	1	1	1	0	0	22

litter-dwelling corinnid genus *Hortipes* Bosselaers & Jocqué, 2000 is represented by 14 species in the country, most of which occur in forest and savanna habitats, some in the Eastern Cape, but none have been recorded to date from the Amathole Mountains (Bosselaers & Jocqué 2000). The web-building Eresidae are widespread throughout the country but have not yet been recorded from the region (Dippenaar-Schoeman et al. 2022).

Wandering spiders

More than two-thirds of the spiders from the Amathole Mountains (219 species in 35 families) are wandering species that actively search for prey or hunt from burrows. The ground-dwelling species most commonly collected in Afromontane forest litter include *Copa kei* Haddad, 2013 (Corinnidae; Figure 3A), *Drassodella amatola* Mbo & Haddad, 2019 (Gallieniellidae; Figure 3D),

Figure 3. Selected wandering spiders from the Amathole Mountains, Eastern Cape, South Africa: A, *Copa kei*, female (Corinnidae); B, *Lepthercus mandelai*, female (Entypesidae); C, Same, burrow opening among leaves; D, *Drassodella amatola*, female (Gallieniellidae); E, *Proevippa bruneipes*, female (Lycosidae); F, *Microstigmata amatola*, female (Microstigmatidae); G, *Asemonea amatola*, male (Salticidae); H, *Myrmarachne lesserti*, female (Salticidae); I, *Myrmarachne* sp., female (Salticidae); J, *Rumburak hilaris*, female (Salticidae); K, *Rumburak mirabilis*, male (Salticidae); L, *Thyenula alotama*, female (Salticidae). Photos: C. Haddad.

Microstigmata amatola Griswold, 1985 (Microstigmatidae; Figure 3F), tiny oonopid spiders of the genera *Australoonops* Hewitt, 1915 and *Opopaea* Simon, 1890, and the jumping spiders *Rumburak hilaris* Wesołowska et al., 2014 (Figure 3J), *Thyenula alotama* Wesołowska et al., 2014 (Figure 3L) and *Euophrys bifida* Wesołowska et al., 2014 (Salticidae). *Pachygnatha* Sundevall, 1823 (Figure 4E) is among the few genera of tetragnathids that do not build webs (Levi 1980), and is represented by a new species that is common in the litter of all forest types. Many of the aforementioned species are also frequently sampled in pine plantations and mixed forest.

In the grassland and fynbos biomes, a very different ground- and grass-dwelling fauna is encountered, which includes *Chumma foliata* Jocqué & Alderweireldt, 2018 (Amaurobiidae), various lycosids including *Proevippa bruneipes* (Purcell, 1903) (Figure 3E) and *Trabea* Simon, 1876 spp., several species of *Scytodes* Latreille, 1804 (Scytodidae), *Heliophanus* C.L.Koch, 1833 and *Thyenula* Simon, 1902 (Salticidae).

Some species are commonly associated with rocks and logs in forest habitats and plantations, including *Leptheracus mandelai* Ríos-Tamayo & Lyle, 2020 (Entypesidae; Figure 3B), which build a silk-lined burrow often covered with dead leaves (Figure 3C), the flat wall spiders *Anyphops amatolae* (Lawrence, 1940) (Selenopidae; Figure 4A) and *A. gilli* (Lawrence, 1940) (Figure 4B, C), and the scorpion spider *Platyoides walteri* (Karsch, 1886) (Trochanteriidae; Figure 4I).

A very rich fauna of arboreal spiders has been collected by beating vegetation and canopy fogging, including various jumping spiders such as *Asemonea amatola* Wesołowska & Haddad, 2013 (Figure 3G), *Dendryphantes purcelli* Peckham & Peckham, 1903 and *D. silvestris* Wesołowska & Haddad, 2013, species of *Myrmarachne* MacLeay, 1839 (Figure 3H, I), *Rumburak mirabilis* Wesołowska et al., 2014 (Figure 3K), and two species of *Wandawe* Azarkina & Haddad, 2020. Sac spiders of the families Clubionidae (10 spp.), Cheiracanthiidae (5 spp.) and Trachelidae (16 spp.) are especially species-rich compared to

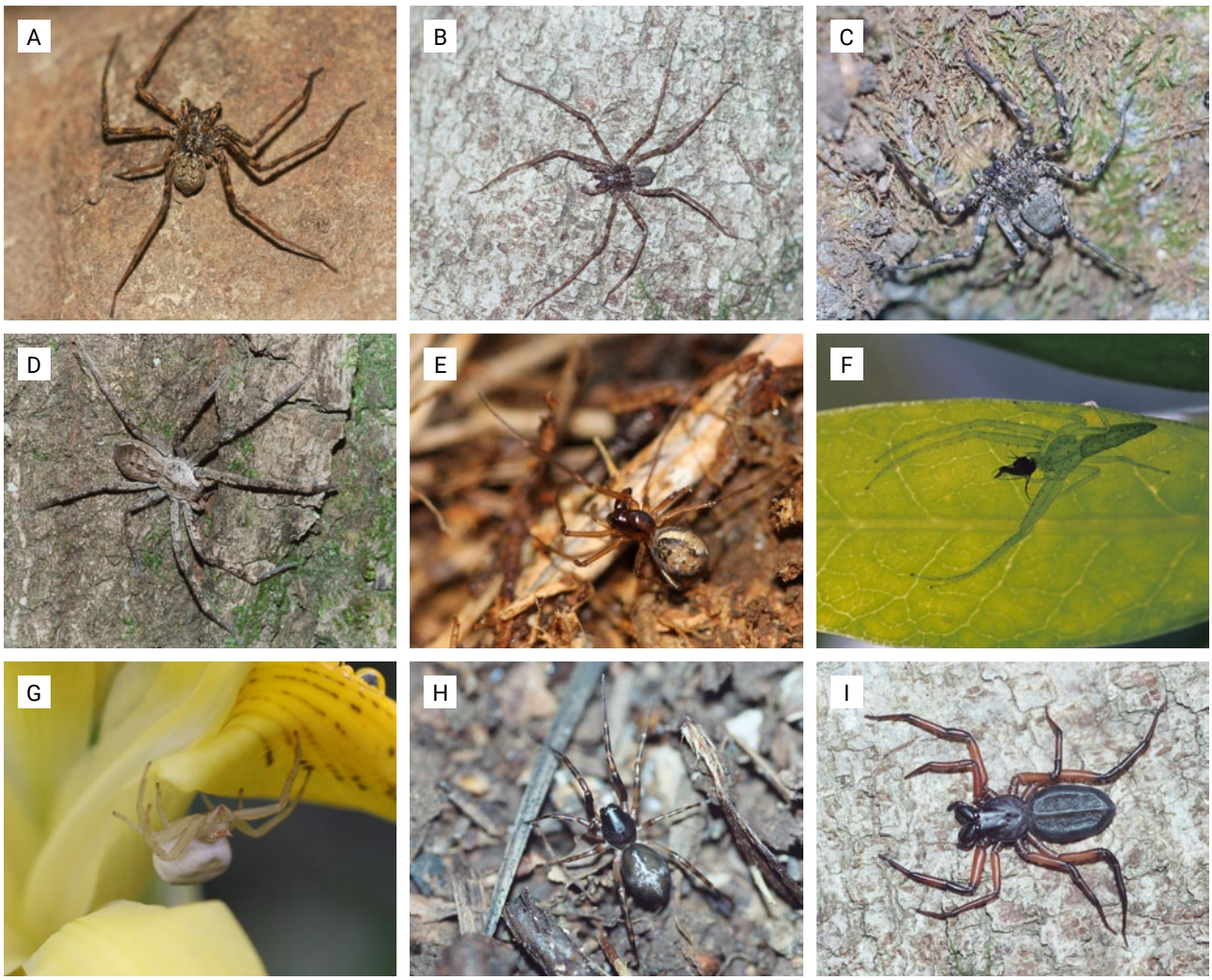

Figure 4. Selected wandering spiders from the Amathole Mountains, Eastern Cape, South Africa: A, *Anyphops amatolae*, female (Selenopidae); B, *Anyphops gilli*, male (Selenopidae); C, Same, female; D, *Palystes superciliosus*, female (Sparassidae); E, *Pachygnatha* sp., female (Tetragnathidae); F, *Oxytate ribes*, female (Thomisidae); G, *Thomisus australis*, female (Thomisidae); H, *Afroceto martini*, female (Trachelidae); I, *Platyoides walteri*, female (Trochanteriidae). Photos: C. Haddad.

other parts of South Africa. Species such as *Afroceto martini* (Simon, 1897) (Trachelidae; Figure 4H) are some of the most abundant wandering spiders on shrubs and in trees. Two species of rain spiders, *Palystes perornatus* Pocock, 1900, and *P. superciliosus* L. Koch, 1875 (Figure 4D), can be easily recognised by their large size and by their nests, comprising a ball of leaves, woven together with silk, to accommodate their egg sacs. Certain taxa prefer particular kinds of trees, such as *Oxytate ribes* (Jézéquel, 1964) (Thomisidae; Figure 4F), which was only collected from broad-leaved trees and shrubs, whereas others have very flexible habitat requirements, such as crab spiders of the genus *Thomisus* Walckenaer, 1805 (Thomisidae; Figure 4G), which occur in grasses, herbs, shrubs and trees.

Web-builders

Approximately one-third of the spiders (105 species in 17 families) are web-builders. Species of *Agelena* Walckenaer, 1805 (Agelenidae; Figure 5A) and *Hippasa* Simon, 1885 (Lycosidae) build funnel-webs close to

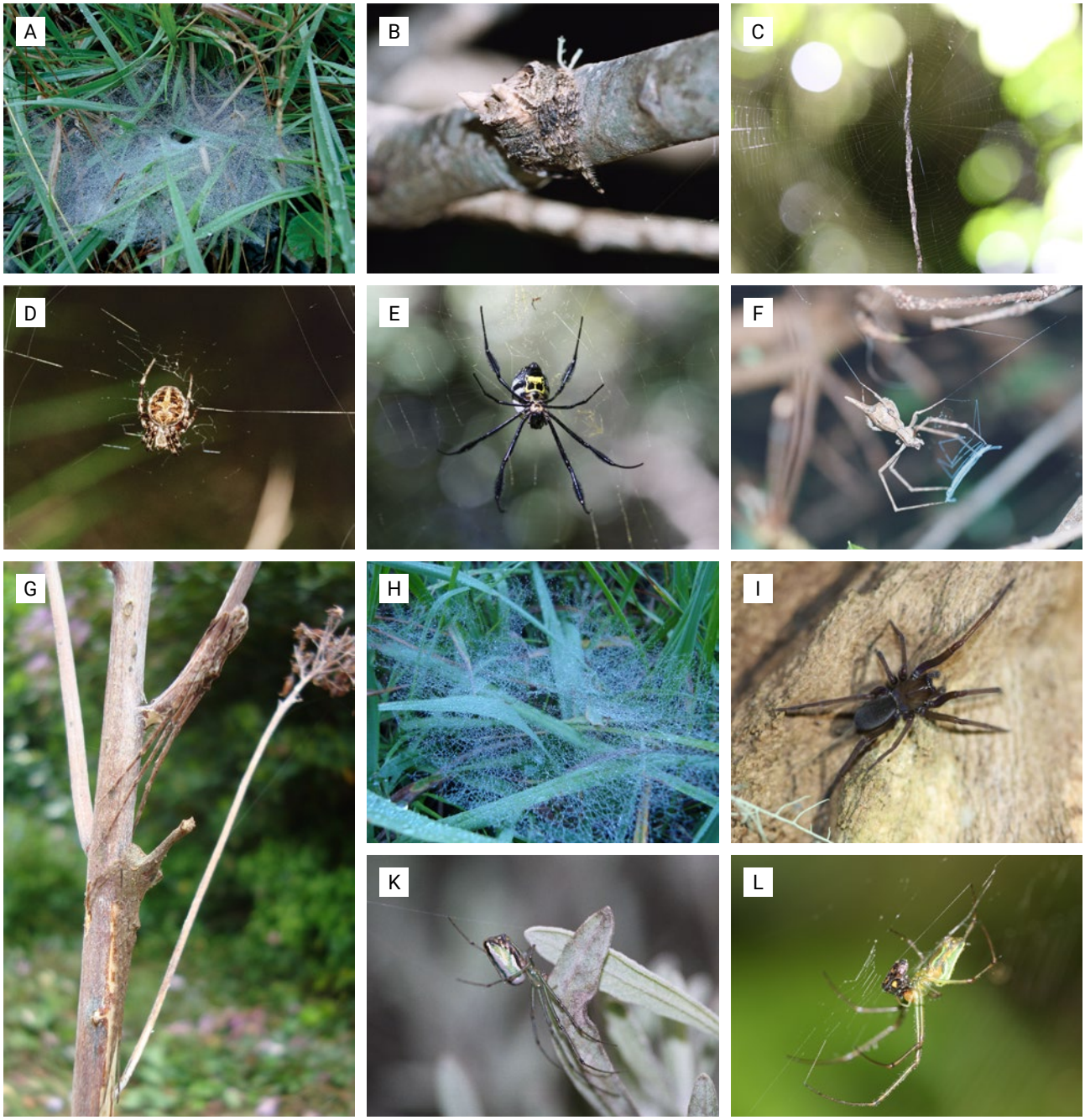

Figure 5. Selected web-building spiders from the Amathole Mountains, Eastern Cape, South Africa; A, Funnel-web of *Agelena* sp. (Agelenidae); B, *Caerostris sexcuspidata*, female (Araneidae); C, *Cyclosa insulana*, female in web (Araneidae); D, *Neoscona subfusca*, female (Araneidae); E, *Trichonephila fenestrata*, female (Araneidae); F, *Menneus camelus*, female, with net-casting web (Deinopidae); G, Same, male (above) and female (below), resting on a twig; H, *Microlinyphia sterilis*, female (Linyphiidae); I, *Themacrys* sp., female (Phyxelididae); J, *Leucauge decorata*, female (Tetragnathidae); K, *Leucauge festiva*, female (Tetragnathidae). Photos: C. Haddad.

the ground in open grassy areas that are obvious when covered by dew-drops in the mornings. Other species common in grassy areas include various hammock-web spiders (Linyphiidae; Figure 5H), *Neoscona subfusca* (C. L. Koch, 1837) (Araneidae; Figure 5D), and tetragnathid orb-weavers of the genera *Leucauge* White, 1841 (Figure 5K, L) and *Tetragnatha* Latreille, 1804.

Araneid orb-weavers are a diverse group (26 species), with several large and charismatic species that can be seen in the forests, constructing orb-webs often 50 cm or more in diameter. These include the bark spider *Caerostris sexcuspidata* Fabricius, 1793 (Figure 5B), species of *Neoscona* Simon, 1885 (Figure 5D), and the golden orb-web spider *Trichonephila fenestrata* (Thorell, 1859) (Figure 5E). Garbage-line spiders, *Cyclosa insulana* (Costa, 1834) (Araneidae; Figure 5C), build fine orb-webs with a vertical line of prey remains down the centre among which the spider rests. However, the most common orb-weavers seen in the forests are undoubtedly the species of *Leucauge* (Figure 5K, L), which construct obliquely orientated orb-webs in low foliage and the herbaceous layer, and are brightly coloured in shades of green, silver, orange and red.

Few web-building species are encountered on bark, predominantly including mesh web-building species of *Themacrys* Simon, 1906 (Phyxelididae; Figure 5I) and tiny Cyatholipidae, which construct small orb-webs in the buttresses and crevices of trees.

The assemblage of forest litter web-builders is dominated by Amaurobiidae, a group of small spiders < 4 mm in length that build mesh-webs between dead leaves. Several web-builders construct webs under rocks and logs, including *Vidole capensis* (Pocock, 1900) and species of *Xeviosa* Lehtinen, 1967 (Phyxelididae), *Steatoda* Sundevall, 1833, and *Theridion* Walckenaer, 1805 (Theridiidae).

Opiliones (harvestmen)

In total, 41 species representing 16 genera and four families of harvestmen have been collected in the Amathole Mountains (Table 1; Supplementary Table 1). Consistent with overall patterns in southern Africa (Lotz 2009), the most genus- and species-rich family is Triaenonychidae, followed by Phalangiidae. Most harvestmen sampled are associated with leaf litter, but species of *Rhampsinitus* Simon, 1879 (Figure 6A, B)

Figure 6. Selected harvestmen and scorpions from the Amathole Mountains, Eastern Cape, South Africa; A, *Rhampsinitus* sp., male (Phalangiidae); B, *Rhampsinitus* aff. *silvaticus*, female (Phalangiidae); C, possible *Adaeum* sp., female (Triaenonychidae); D, *Parabuthus planicauda*, female (Buthidae); E, *Uroplectes formosus*, female (Buthidae); F, *Uroplectes triangulifer*, male (Buthidae); G, *Hadogenes trichiurus*, juvenile (Hormuridae); H, *Opistacanthus validus*, male (Hormuridae); I, *Opistophthalmus latimanus*, female (Scorpionidae). Photos: A–C, G, H, C. Haddad; D, C. Hobson; E, I, S. Christie; F, G. Diedericks.

and Biantidae occasionally wander onto the foliage of grasses, herbs and shrubs, where they may be collected by sweeping or beating vegetation. Triaenonychids are mainly slow-moving cryptic species that blend in with the colour of the soil and litter (Figure 6C).

Surprisingly, harvestmen appear to be minimally impacted by silviculture (pines and *Eucalyptus*) near Hogsback and were more abundant there than in the indigenous forests. Preliminary indications suggest that harvestmen would be an ideal candidate taxon to include in studies evaluating the effects of silviculture on different animal groups, particularly given their high abundance in forest habitats, exceptionally high species richness in the Amathole Mountains (Supplementary Table 1), and the restricted ranges of many of the species (Lotz 2009).

Scorpiones (scorpions)

Eight species, representing six genera and three families of scorpions have been recorded in and around the Amathole Mountains (Table 1; Supplementary Table 1). These include three species of thick-tailed scorpions (genera *Parabuthus* Pocock, 1890 and *Uroplectes* Peters, 1861) in the family Buthidae, one species of flat rock scorpion (genus *Hadogenes* Kraepelin, 1894), three species of creeping scorpions (genera *Cheloctonus* Pocock, 1892 and *Opisthacanthus* Peters, 1861) in the family Hormuridae, and one species of burrowing scorpion (genus *Opistophthalmus* C. L. Koch, 1837) in the family Scorpionidae.

The scorpions of the Amathole Mountains may be classified into three ecomorphotypes (Table 3) based on their morphology and microhabitat requirements (Prendini 2001, 2005). The thick-tailed scorpions of the genus *Uroplectes* (Figure 6E, F) are lapidicolous, sheltering under stones, logs and other surface debris. These morphologically generalist scorpions are ecologically eurytopic. All other scorpion taxa occurring in and around the mountain range are morphologically specialist and ecologically stenotopic. The thick-tailed scorpion, *Parabuthus planicauda* (Pocock, 1889) (Figure 6D), is also fossorial and pelophilous, constructing scrapes or shallow burrows, usually under stones. The flat rock scorpion, *Hadogenes trichiurus* (Gervais, 1843) (Figure 6G), and one of the creeping scorpions, *Opisthacanthus validus* Thorell, 1876 (Figure 6H), are lithophilous, inhabiting the narrow cracks and crevices of rock outcrops. The burrowing scorpion, *Opistophthalmus latimanus* C. L. Koch, 1841 (Figure 6I), and the creeping scorpions of the genus *Cheloctonus* are fossorial and pelophilous, constructing burrows in hard, clayey soil, usually in open ground [*Cheloctonus crassimanus* (Pocock, 1896) and *O. latimanus*] or under stones (*C. glaber* Kraepelin, 1896). The burrows of *Opistophthalmus* are usually constructed at an angle to the ground surface, with a semi-circular entrance opening, whereas the burrows of *Cheloctonus* are usually vertical, with a more slit-like entrance opening.

The method of burrow construction differs among the four fossorial scorpion taxa. The scorpionid, *O. latimanus*, is a cheliceral burrower, which uses the chelicerae to loosen the soil, and the legs and, to a lesser extent, the metasoma, to scrape it away. The hormurids, *C. crassimanus* and *C. glaber*, are pedipalpal burrowers, which use the pedipalps to loosen and scrape the soil away. The buthid, *P. planicauda*, is a metasomal burrower, which uses the metasoma to loosen the soil and the legs and metasoma to scrape it away.

Different scorpion taxa inhabit distinct geographical areas in and around the Amathole Mountains. Three species with lower tolerance for aridity occupy mesic

Table 3. Habitat preferences of scorpions occurring in and around the Amathole Mountains, Eastern Cape, South Africa (Eco = ecomorphotype)

	Eco	Habitat	Elevation	Location
Buthidae				
Parabuthus planicauda (Pocock, 1889)	pelophilous	savanna	low	valleys, N/S slopes
Uroplectes formosus Pocock, 1890	lapidicolous	grassland, thicket	high	summit, N/S slopes
Uroplectes triangulifer (Thorell, 1876)	lapidicolous	savanna	low	valleys, N/S slopes
Hormuridae				
Cheloctonus crassimanus (Pocock, 1896)	pelophilous	savanna, thicket	low	valleys, S slope
Cheloctonus glaber Kraepelin, 1896	pelophilous	grassland	high	summit, N slope
Hadogenes trichiurus (Gervais, 1843)	lithophilous	savanna	low	valleys, N slope
Opisthacanthus validus Thorell, 1876	lithophilous	forest, thicket	high	summit, S slope
Scorpionidae				
Opistophthalmus latimanus C.L. Koch, 1841	pelophilous	savanna, thicket	low	valleys, S slope

habitats at higher elevations on the mountain range. *Opisthacanthus validus* inhabits forests and thicket on the summit and southern slopes whereas *C. glaber* inhabits grasslands on the summit and northern slopes. *Uroplectes formosus* Pocock, 1890 inhabits grasslands and thicket on the summit, northern and southern slopes. Five species with higher tolerance for aridity occupy xeric habitats, primarily savanna, thicket and, in places, Nama Karoo, in the warm, dry valleys intersecting the mountains. *Parabuthus planicauda* and *U. triangulifer* (Thorell, 1876) occur in valleys intersecting both the northern and southern slopes of the mountain range, whereas *C. crassimanus* and *O. latimanus* are restricted to valleys intersecting the southern slopes and *H. trichiurus* to valleys intersecting the northern slopes.

Pseudoscorpiones (false scorpions)

Pseudoscorpions are a morphologically homogenous group, with small differences in body shape, proportions and fine structures often determining their taxonomic placement (Figure 7). There are currently 165 species of pseudoscorpions described from South Africa (Dippenaar-Schoeman & Harvey 2000; Harvey et al. 2016; Neethling & Haddad 2016; Neethling & Neethling 2023), with the Amathole Mountain range containing 18 described species, representing 16 genera and nine families. An additional three species and two families are represented by possibly undescribed species (Table 4; Supplementary Table 1).

As elsewhere in South Africa, data on pseudoscorpion diversity are somewhat limited for the Amathole Mountains. The area is of particular historical significance with regard to South African pseudoscorpion taxonomy, however, as many of the earliest species descriptions came from material collected by Reverend Robert Godfrey, a missionary and naturalist stationed at the Pirie Mission near Qonce, then known as King William's Town (Ellingsen 1912). Indeed, eight of the area's described species have type localities at, or around, the Pirie Mission (Supplementary Table 1). For the Amathole region, historical records are concentrated around the Pirie Forest area, whereas modern sampling has only recently been conducted in the forests around Hogsback, Fort Fordyce, Katberg and Stutterheim. Barely any data are available on the presence of species outside these forests.

The indigenous forests around Hogsback are of particular interest. Not only do 11 described species occur there, but recent sampling has yielded as of yet unidentified species of *Ectactolpium* Beier, 1947 (Olpiidae), *Ectromachernes* Beier, 1944 (Withiidae), and *Parallowithius* Beier, 1955 (Withiidae). Another three new species of *Gymnobisium* Beier, 1931 (Gymnobisiidae) (Figure 7D, E) were recently described (Neethling & Neethling 2023).

Table 4. Habitat preferences (Hab) of pseudoscorpions occurring in and around the Amathole Mountains, Eastern Cape, South Africa (AR = arboreal; BE = associated with beehives; FA = facultative arboreal; LL = leaf litter)

Species	Hab
Atemnidae	
Cyclatemnus globosus Beier, 1947	LL
Cheliferidae	
Aperittochelifer minusculus (Ellingsen, 1912)	AR
Beierius walliskewi (Ellingsen, 1912)	LL
Ellingsenius sculpturatus (Lewis, 1903)	BE
Hansenius torulosus (Tullgren, 1907)	LL
Lophochernes mucronatus (Tullgren, 1907)	AR
Microchelifer minusculoides (Ellingsen, 1912)	AR
Chthoniidae	
Anaulacodithella mordax (Tullgren, 1907)	LL
Tyrannochthonius contractus (Tullgren, 1907)	LL
Feaellidae	
Feaella mucronata Tullgren, 1907	LL
Garypinidae	
Garypinidius capensis (Ellingsen, 1912)	AR
Geogarypidae	LL
Afrogarypus excelsus (Beier, 1964)	LL
Afrogarypus impressus (Tullgren, 1907)	LL
Afrogarypus triangularis (Ellingsen, 1912)	FA
Gymnobisiidae	
Gymnobisium cuneatum Neethling & Neethling, 2023	LL
Gymnobisium hogsbackense Neethling & Neethling, 2023	FA
Gymnobisium prionotogladiatum Neethling & Neethling, 2023	FA
Olpiidae	
Ectactolpium sp.	AR
Pseudochiridiidae	
Pseudochiridium lawrencei Beier, 1964	FA
Pseudotyrannochthoniidae	
Afrochthonius godfreyi (Ellingsen, 1912)	LL
Selachochthonius serratidentatus (Ellingsen, 1912)	LL
Withiidae	
Afrowithius paradoxus (Ellingsen, 1912)	FA
Ectromachernes sp.	LL
Parallowithius sp.	LL

As forest-dwellers, most pseudoscorpions occur in leaf litter, under dead logs or stones. Others are arboreal, hiding in holes or crevices in the trunks or under loose bark. Many of the species, in particular those of the families Chthoniidae, Feaellidae, Pseudotyrannochthoniidae and Tridenchthoniidae, are ecologically stenotopic, having adapted to the humid environment of the forest floor, whereas *Ellingsenius sculpturatus*

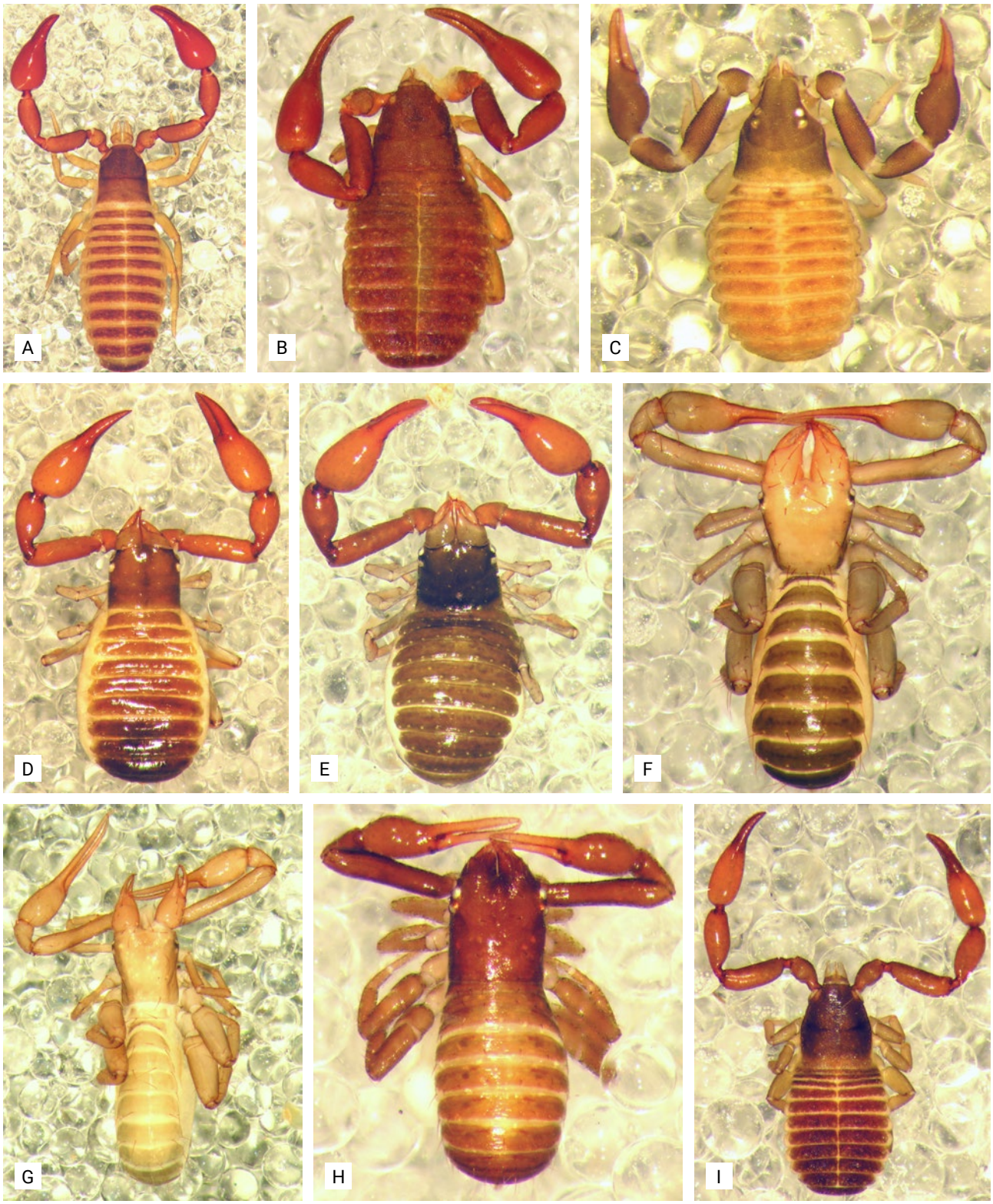

Figure 7. Selected Pseudoscorpiones from the Amathole Mountains, Eastern Cape, South Africa; A, *Catatemnus* sp., female (Atemidae); B, unidentified species of Cheliferidae, female; C, *Afrogarypus triangularis*, female (Geogarypidae); D, *Gymnobisium cuneatum*, female (Gymnobisiidae); E, *Gymnobisium hogsbackense*, male (Gymnobisiidae); F, *Afrochthonius godfreyi*, female (Pseudotyrannochthoniidae); G, *Afrochthonius* aff. *inequalis*, female (Pseudotyrannochthoniidae); H, *Anaulacodithella mordax*, female (Tridenchthoniidae); I, unidentified species of Withiidae, female. Photos: C. Haddad.

(Lewis, 1903) (Cheliferidae) are found exclusively on bees or in beehives (Hewitt & Godfrey 1929). Arboreal or semi-arboreal species, such as the families Atemnidae, Cheliferidae, Olpiidae, Pseudochiridiidae and Withiidae, are more widespread, as many have thicker cuticles and can tolerate a greater range of environmental conditions (Beier 1947). Some pseudoscorpions disperse via phoresis, enabling them to establish populations in a greater variety of habitats.

Amathole Mountains as a hotspot for Arachnida

The Amathole Mountains appear to be a hotspot for particular arachnid taxa, based on the data available, but the importance of conserving this mountain range will only be fully appreciated when many of the species in poorly studied taxa have been described and the fauna more comprehensively sampled. Although the current spider diversity for the area is 324 species (Table 1), many more species may occur there. For comparison, 276 species in 47 families were recorded from the Addo Elephant National Park (Dippenaar-Schoeman et al. 2020), the northern limit of which is about 80 km south of the western margin of the Amathole Mountains, and which has five biomes represented within its borders.

Among spiders, Hogsback is the type locality for 19 species, nine of which have not been recorded elsewhere: *Chumma foliata*, *Spiroctenus flavopunctatus* (Bemmeridae), *Lepthercus mandelai*, *Drassodella amatola* and *D. tolkieni* Mbo & Haddad, 2019, *Afraflacilla imitator* (Wesołowska & Haddad, 2013), *Asemonea amatola* and *Thyenula splendens* Wesołowska & Haddad, 2018 (Salticidae), and *Anyphops amatolae*. *Chumma subridens* Jocqué & Alderweireldt, 2018 has only been recorded from its type locality, Mpofu Fort Fordyce Nature Reserve, and *Stasimopus insculptus* Pocock, 1901 (Stasimopidae) is only known from Qonce. Sampling at various sites in the Amathole Mountains also provided considerable range extensions for many species (Dippenaar-Schoeman et al. 2010), particularly in the family Salticidae (Wesołowska & Haddad 2013, 2018).

Several groups are understudied taxonomically, and a large proportion of the Amathole species are new, e.g., both species of *Parapostenus* Lessert, 1923 (Miturgidae), 11 of 12 species of *Scytodes*, 10 of 16 species of Trachelidae, six of 10 species of *Clubiona* Latreille, 1804 (Clubionidae), and most Theridiidae. Only with additional taxonomic effort can these taxa be described and a more accurate representation of their distribution in South Africa be presented.

Despite the taxonomic shortfall for spiders, it is somewhat surprising that the Amathole Mountains were not identified as an area of endemism in Griswold's (1991) analysis of Afromontane biogeography. This could be explained by inclusion of only three currently recognised spider families, Microstigmatidae, Migidae and Phyxelididae, in his analysis. *Microstigmata amatolae* and two new species of Phyxelididae belonging to the genera *Themacrys* and *Xevioso* Lehtinen, 1967 may be endemic to the region, but only the former was known at the time of Griswold's (1985) study and neither of the latter two species was recorded in his revision of Phyxelididae (Griswold 1990). The Amathole Mountains may have emerged as an area of endemism if these or other spider taxa had been included in Griswold's (1990) analysis.

The Amathole Mountains have by far the richest Opiliones fauna of any part of South Africa, with more than 40 species already recorded, representing more than 20% of the species known from the country (Lotz 2009, 2010; De Bivort & Giribet 2010). A remarkable 27 species of Triaenonychidae and eight species of the phalangiid genus *Rhampsinitus* have been recorded, an exceptional diversity. Although most of the records (32 spp.) are concentrated around Hogsback, suggesting a very strong sampling bias, other sites, particularly forest biotopes, will probably have a similarly rich fauna if sampled thoroughly.

Hogsback is the only place in the Amathole Mountains that is a type locality for harvestmen; 11 species, of which one was subsequently synonymised (Staręga 1984), were described from material collected there (Lawrence 1931, 1934; De Bivort & Giribet 2010). Six of these have been recorded elsewhere in the Amathole Mountains and beyond (Lotz 2009), but four remain known only from Hogsback: *Parapurcellia amatola* De Bivort & Giribet, 2010 (Purcellidae), and *Adaeulum brevidentatum* Lawrence, 1934, *Larifuga mantonae* Lawrence, 1934 and *Roewerania lignicola* Lawrence, 1934 (Triaenonychidae).

Outside the Afromontane Forests, the pseudoscorpions of the Amathole Mountains are poorly studied. The region appears to possess a high degree of endemism, with some species, such as the Gymnobisiidae, occurring exclusively within the isolated forest patches, though, due to the lack of sampling in the region, the true extent of the distributions of many species is unknown.

The other two arachnid orders, Amblypygi and Scorpiones, are represented by species more widespread in the Eastern Cape or South Africa. None of these species is endemic to the Amathole Mountains, although the hormurid scorpion, *Cheloctonus glaber* may be considered near-endemic, with a distribution restricted to the Amathole and ranges to the north.

Conclusions

The Amathole Mountains contain an impressive arachnid biodiversity and are a hotspot for several taxa,

particularly harvestmen, pseudoscorpions and the spider families Clubionidae, Salticidae, Scytodidae and Trachelidae. Although the levels of endemism presently appear low, numerous undescribed species from the region may potentially be endemic. Arachnids may be important for informing conservation management decisions in the region, once their distributions are better known and the many new taxa have been described.

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Competing interests

The authors declare that they have no financial or personal relationship(s) that may have inappropriately influenced them in writing this article.

Authors' contributions

C.R.H. (University of the Free State) conducted field sampling, specimen identification, sourced literature and museum data for Araneae and Opiliones, prepared tables and figures, photographed specimens, and wrote and edited the manuscript. L.P. (American Museum of Natural History) sourced data for Amblypygi and Scorpiones, prepared the ecology table and wrote the Scorpiones section, and helped edit the manuscript. J.A.N. (National Museum) conducted field sampling, specimen identification, sourced literature and museum data for Pseudoscorpiones, prepared the ecology table and wrote the Pseudoscorpiones section, and helped edit the manuscript. A.S.D. (University of Venda) identified specimens, provided geographical data, and helped edit the manuscript.

Ethical considerations

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Data availability statement

Species-level data are available from the corresponding author or from each of the museums listed in the Data Mining section.

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Supplementary material

Supplementary Table 1. Checklist of the non-acarine arachnids of the Amathole District, Eastern Cape, South Africa (FB = Fort Beaufort; HB = Hogsback; KB = Katberg; MF = Mpofu Fort Fordyce Nature Reserve; QO = Qonce; ST = Stutterheim; OT = other Amathole localities; X = present; XT = type locality; † = new species)

	FB	HB	KB	MF	QO	ST	OT	References
AMBLYPYGI								
Phrynichidae								
Damon annulatipes (Wood, 1869)					X			Weygoldt (1999)
ARANEAE								
Agelenidae								
Agelena sp.		X						
Amaurobiidae								
Chresiona sp.		X						
Chumma foliata Jocqué & Alderweireldt, 2018		XT						Jocqué & Alderweireldt (2018)
Chumma subridens Jocqué & Alderweireldt, 2018				XT				Jocqué & Alderweireldt (2018)
Amaurobiidae sp. 1		X	X		X			
Amaurobiidae sp. 2		X		X				
Anapidae								
Pseudanapis sp.†		X						
Araneidae								
Acanthepeira sp.		X						
Acusilas africanus Simon, 1895					X			
Araneus nigroquadratus Lawrence, 1937	X	X	X	X				Dippenaar-Schoeman et al. (2010)
Araneus sp.		X						
Argiope australis (Walckenaer, 1805)		X						Dippenaar-Schoeman et al. (2010)
Argiope trifasciata (Forskal, 1775)		X						Dippenaar-Schoeman et al. (2010)
Bijoaraneus legonensis (Grasshoff & Edmunds 1979)			X					
Caerostris sexcuspidata Fabricius, 1793	X	X		X	X			Dippenaar-Schoeman et al. (2010); Gregorič et al. (2015)
Chorizopes sp.		X			X			
Cyclosa insulana (Costa, 1834)		X						Dippenaar-Schoeman et al. (2010)
Cyclosa sp. 2		X		X			X	
Cyphalonotus larvatus (Simon, 1881)		X						
Cyrtophora citricola (Forsskål, 1775)					X			Dippenaar-Schoeman et al. (2010)
Gasteracantha versicolor (Walckenaer, 1841)					X			

	FB	HB	KB	MF	QO	ST	OT	References
Araneidae (continued)								
Hypsosinga sp.		X			X			
Ideocaira transversa Simon, 1903		X						
Isoxya cicatricosa (C.L. Koch, 1844)		X			X			Dippenaar-Schoeman et al. (2010)
Isoxya stuhlmanni (Bösenberg & Lenz, 1885)					X			Dippenaar-Schoeman et al. (2010)
Isoxya tabulata (Thorell, 1859)					X			Dippenaar-Schoeman et al. (2010)
Nemoscolus elongatus Lawrence, 1947		X					X	
Neoscona hirta (C. L. Koch, 1844)		X			X			Dippenaar-Schoeman et al. (2010)
Neoscona subfusca (C. L. Koch, 1837)		X	X					Dippenaar-Schoeman et al. (2010)
Pararaneus cyrtoscapus (Pocock, 1898)		X						
Prasonica seriata Simon, 1895		X						Dippenaar-Schoeman et al. (2010)
Pycnacantha tribulus (Fabricius, 1781)					X			Dippenaar-Schoeman et al. (2010)
Trichonephila fenestrata (Thorell, 1859)		X			X			Dippenaar-Schoeman et al. (2010)
Bemmeridae								
Homostola abernethyi (Purcell, 1903)		X						
Spiroctenus flavopunctatus (Purcell, 1903)		XT						Purcell (1903); Dippenaar-Schoeman et al. (2010); Opatova et al. (2020); Montes de Oca et al. (2022)
Cheiracanthiidae								
Cheiramiona ansiae Lotz, 2002		X						Dippenaar-Schoeman et al. (2010)
Cheiramiona filipes (Simon, 1898)				X				
Cheiramiona hogsbackensis Lotz, 2015	X	XT		X				Lotz (2015)
Cheiramiona silvicola (Lawrence, 1938)		X			X			Dippenaar-Schoeman et al. (2010)
Cheiracanthium furculatum Karsch, 1879		X	X	X				
Clubionidae								
Clubiona biaculeata Simon, 1897		X		X				
Clubiona capensis Simon, 1897		X	X		X			
Clubiona pupillaris Lawrence, 1938		X			X			Dippenaar-Schoeman et al. (2010)
Clubiona sigillata Lawrence, 1952		X						Dippenaar-Schoeman et al. (2010)
Clubiona sp. 5†	X	X						
Clubiona sp. 6†		X	X	X				
Clubiona sp. 7†		X	X					

	FB	HB	KB	MF	QO	ST	OT	References
Clubionidae (continued)								
Clubiona sp. 8†	X	X	X					
Clubiona sp. 9†		X						
Clubiona sp. 10†		X						
Corinnidae								
Cambalida fulvipes (Simon, 1896)	X			X				Haddad (2012a)
Copa flavoplumosa Simon, 1885		X			X			Haddad (2013)
Copa kei Haddad, 2013		X	X					Haddad (2013)
Echinax sp. imm.		X						Haddad (2012b)
Pronophaea natalica Simon, 1897		X		X	X			Dippenaar-Schoeman et al. (2010)
Ctenidae								
Ctenus parvoculatus Benoit, 1979					X			Dippenaar-Schoeman et al. (2010)
Ctenus pulchriventris (Simon, 1896)					X			Dippenaar-Schoeman et al. (2010)
Cyatholipidae								
Cyatholipus sp.		X						
Isicabu sp.†		X						
Ulwembua sp.†		X						
Cyrtaucheniidae								
Ancylotrypa sororum (Hewitt, 1916)		X		X				
Homostola abernethyi (Purcell, 1903)		X						
Deinopidae								
Menneus camelus Pocock, 1902		X						Dippenaar-Schoeman et al. (2010)
Dictynidae								
Archaeodictyna sp.		X						
Dictyna sp.		X	X	X	X			
Mashimo leleupi Lehtinen, 1967							X	
Entypesidae								
Lepthercus mandelai Ríos-Tamayo & Lyle, 2020		XT						Ríos-Tamayo & Lyle (2020)
Euagridae								
Allothele australis (Purcell, 1903)				X				
Gallieniellidae								
Drassodella amatola Mbo & Haddad, 2019		XT						Mbo & Haddad (2019)
Drassodella tolkieni Mbo & Haddad, 2019		XT						Mbo & Haddad (2019)
Gnaphosidae								
Ammoxenus sp.				X				Dippenaar-Schoeman et al. (2010)

	FB	HB	KB	MF	QO	ST	OT	References
Gnaphosidae (continued)								
Aphantaulax signicollis Tucker, 1923				X	X			
Camillina capensis Platnick & Murphy, 1987		X						
Camillina cordifera (Tullgren, 1910)			X					Dippenaar-Schoeman et al. (2010)
Drassodes sp.		X				X		
Echemus sp.					X			
Micaria beaufortia (Tucker, 1923)				X				Booysen & Haddad (2021)
Nomisia sp.		X						
Poecilochroa sp.		X						
Scotophaeus sp.				X				
Trichothyse africana (Tucker, 1923)		X						
Xerophaeus aurariarum Purcell, 1907				X				
Xerophaeus communis Purcell, 1907	X	X						
Zelotes fuligineus (Purcell, 1907)		X						
Zelotes sp. 2		X						
Hahniidae								
Hahnia clathrata Simon, 1898				X	X			
Hahnia laticeps Simon, 1898				X				
Hahnia tabulicola Simon, 1898		X		X	X			
Hahnia sp.†		X	X					
Hersiliidae								
Neotama corticola (Lawrence, 1937)		X		X				
Linyphiidae								
Ceratinopsis sp.		X						
Limoneta sirimoni (Bosmans, 1979)		X						
Mecynidis sp.†		X	X	X	X			
Meioneta sp.		X						
Microlinyphia sterilis (Pavesi, 1883)		X	X					
Ostearius melanopygius (O. Pickard-Cambridge, 1879)		X						
Pelecopsis sp.		X		X	X			
Typhistes sp.		X						
Linyphiidae sp.1		X	X	X	X	X		
Linyphiidae sp. 2			X	X		X		
Linyphiidae sp. 3				X				
Linyphiidae sp. 4				X				
Lycosidae								
Allocosa sp.		X						
Arctosa promontorii (Pocock, 1900)		X						

	FB	HB	KB	MF	QO	ST	OT	References
Lycosidae (continued)								
Foveosa foveolata (Purcell, 1903)				X				
Hippasa australis Lawrence, 1927				X				
Hippasa funerea Lessert, 1925		X		X	X		X	
Hogna bimaculata (Purcell, 1903)				X				
Lycosa sp.		X		X				
Pardosa crassipalpis Purcell, 1903				X				
Pardosa sp.		X		X	X			
Proevippa bruneipes (Purcell, 1903)		X						
Pterartoria sp.		X						
Trabea nigriceps Purcell, 1903				X				
Trabea ornatipalpis Russell-Smith, 1982		X						
Trabea purcelli Roewer, 1951		X	X	X				
Trabea rubriceps Lawrence, 1952		X		X				
Lycosidae sp. 1						X		
Microstigmatidae								
Microstigmata amatola Griswold, 1985		XT				X		Griswold (1985); Dippenaar-Schoeman et al. (2010); Opatova et al. (2020); Montes de Oca et al. (2022)
Migidae								
Poecilomigas abrahami (O. Pickard-Cambridge, 1889)		X			X			Dippenaar-Schoeman et al. (2010); Opatova et al. (2020)
Mimetidae								
Anansi natalensis (Lawrence, 1938)		X			X			Dippenaar-Schoeman et al. (2010); Benavides et al. (2017)
Anansi sp. 2†	X	X	X	X				
Anansi sp. 3†		X						
Ero lawrencei Unzicker, 1966		X						
Miturgidae								
Parapostenus sp. 1†		X		X				Wheeler et al. (2017); Haddad (2022)
Parapostenus sp. 2†		X						
Nesticidae								
Nesticus sp.†		X						
Oecobiidae								
Oecobius navus Blackwall, 1859		X						Šťáhlavský et al. (2020)
Oonopidae								
Australoonops granulatus Hewitt, 1915		X						Dippenaar-Schoeman et al. (2010); Platnick & Dupérré (2010)

	FB	HB	KB	MF	QO	ST	OT	References
Oonopidae (continued)								
Australoonops skaife Platnick & Dupérré, 2010		X						Platnick & Dupérré (2010); Dippenaar-Schoeman et al. (2010)
Opopaea speciosa (Lawrence, 1952)		X			X			Dippenaar-Schoeman et al. (2010)
Orchestina sp.†		X						
Orsolobidae								
Afrilobus sp.†		X		X				
Azanialobus sp.†		X		X				
Oxyopidae								
Oxyopes bothai Lessert, 1915		x						
Oxyopes sp.		X		X	X			
Peucetia maculifera Pocock, 1900		X			X			Dippenaar-Schoeman et al. (2010)
Palpimanidae								
Palpimanus sp.				X				
Penestomidae								
Penestomus prendinii Miller, Griswold & Haddad, 2010				X				
Philodromidae								
Gephyrota glauca (Jézéquel, 1966)		X						
Philodromus brachycephalus Lawrence, 1952		x						
Philodromus spp.	X	X	X	X	X			
Thanatus sp.		x		X				
Tibellus minor Lessert, 1919		x		X				
Pholcidae								
Quamtana sp.†		X	X	X		X		
Smeringopus ubicki Huber, 2012				X				
Spermophora sp.†		X						
Phyxelididae								
Themacrys sp.†		X						
Vidole capensis (Pocock, 1900)		X				X		Dippenaar-Schoeman et al. (2010)
Xevioso sp.†		X						
Pisauridae								
Cispius kimbius Blandin, 1978		X						
Euprosthenopsis lamorali Blandin, 1977		X		X				
Nilus massajae (Pavesi, 1883)		X				X		Dippenaar-Schoeman et al. (2010)
Rothus auratus Pocock, 1900		X						

	FB	HB	KB	MF	QO	ST	OT	References
Salticidae								
Afraflacilla imitator (Wesołowska & Haddad, 2013)		XT						Wesolowska & Haddad (2013)
Asemonea amatola Wesołowska & Haddad, 2013		XT						Wesolowska & Haddad (2013, 2018)
Baryphas ahenus Simon, 1902		X						
Brancus mustelus (Simon, 1902)					X			
Dendryphantes purcelli Peckham & Peckham, 1903		X						Dippenaar-Schoeman et al. (2010)
Dendryphantes silvestris Wesołowska & Haddad, 2013		XT	X	X			X	Wesolowska & Haddad (2013)
Euophrys bifida Wesołowska, Azarkina & Russell-Smith, 2014		XT		X	X	X		Wesolowska et al. (2014)
Evarcha denticulata Wesołowska & Haddad, 2013		X						Haddad & Wesolowska (2013); Wesolowska & Haddad (2013)
Hasarius adansoni (Audouin, 1826)		X			X			Wesolowska & Haddad (2013)
Heliophanus aberdarensis Wesołowska, 1986		X						Wesolowska & Haddad (2018)
Heliophanus debilis Simon, 1901		X						
Heliophanus demonstrativus Wesołowska, 1986	X							Dippenaar-Schoeman et al. (2010)
Heliophanus deserticola Simon, 1901		X						Wesolowska & Haddad (2018)
Heliophanus gramineus Wesołowska & Haddad, 2013		XT	X	X				Wesolowska & Haddad (2013, 2018)
Heliophanus hastatus Wesołowska, 1986		X		X				Dippenaar-Schoeman et al. (2010)
Heliophanus nanus Wesołowska, 2003		X						Dippenaar-Schoeman et al. (2010)
Heliophanus orchesta Simon, 1886		X						Dippenaar-Schoeman et al. (2010)
Heliophanus sororius Wesołowska, 2003		X						Wesolowska & Haddad (2018)
Hispo georgius (Peckham & Peckham, 1892)		X						Haddad & Wesolowska (2013)
Langona sp.†		X						
Massagris honesta Wesołowska, 1993		X						Dippenaar-Schoeman et al. (2010); Wesolowska & Haddad (2013); Maddison (2015)
Massagris mirifica Peckham et Peckham, 1903		X		X				Haddad & Wesolowska (2013); Wesolowska & Haddad (2013, 2018)
Myrmarachne lesserti Lawrence, 1938				X	X			
Myrmarachne sp.		X		X	X		X	
Natta horizontalis Karsch, 1879		X			X			
Nigorella hirsuta Wesołowska, 2009					X			

	FB	HB	KB	MF	QO	ST	OT	References
Salticidae (continued)								
Oviballus vidae Azarkina & Haddad, 2020				X	X			Azarkina & Haddad (2020)
Phintella aequipes (Peckham & Peckham, 1903)					X			
Phlegra nuda Próchniewicz & Hęciak, 1994		X						
Planamarengo bimaculata (Peckham & Peckham, 1903)		X						Azarkina & Haddad (2020)
Pseudicius africanus Peckham & Peckham, 1903		X						
Pseudicius maculatus Haddad & Wesołowska, 2011		X						Wesolowska & Haddad (2013)
Rhene biguttata Peckham & Peckham, 1903					X			Wesolowska & Haddad (2018)
Rhene timidus Wesołowska & Haddad, 2013		XT						Wesolowska & Haddad (2013, 2018)
Rumburak hilaris Wesołowska, Azarkina & Russell-Smith, 2014		XT	X	X			X	Wesolowska et al. (2014)
Rumburak mirabilis Wesołowska, Azarkina & Russell-Smith, 2014		XT		X				Wesolowska et al. (2014)
Stenaelurillus sp.				X				
Thyene aperta (Peckham & Peckham, 1903)		X						Dippenaar-Schoeman et al. (2010)
Thyene natalii Peckham & Peckham, 1903					X			
Thyene ogdeni Peckham & Peckham, 1903		X						Dippenaar-Schoeman et al. (2010)
Thyene thyenioides (Lessert, 1925)				X				
Thyenula alotama Wesołowska, Azarkina & Russell-Smith, 2014		XT		X				Wesolowska et al. (2014)
Thyenula aurantiaca (Simon, 1902)				X				Dippenaar-Schoeman et al. (2010)
Thyenula juvenca Simon, 1902		X	X		X			
Thyenula leighi (Peckham & Peckham, 1903)					X			
Thyenula splendens Wesołowska & Haddad, 2018		XT						Wesolowska & Haddad (2018)
Tusitala barbata Peckham & Peckham, 1902	X	X						Azarkina & Foord (2015)
Wandawe australe Azarkina & Haddad, 2020			XT					Azarkina & Haddad (2020)
Wandawe benjamini (Wesołowska & Haddad, 2013)		XT	X					Wesolowska & Haddad (2013); Azarkina & Haddad (2020)
Scytodidae								
Scytodes triangulifera Purcell, 1904		X						

	FB	HB	KB	MF	QO	ST	OT	References
Scytodidae (continued)								
Scytodes sp. 2†		X						
Scytodes sp. 3†		X						
Scytodes sp. 4†		X						
Scytodes sp. 5†		X						
Scytodes sp. 6†				X				
Scytodes sp. 7†		X						
Scytodes sp. 8†		X						
Scytodes sp. 9†			X	X				
Scytodes sp. 10†		X		X				
Scytodes sp. 11†		X						
Scytodes sp. 12†		X	X					
Segestriidae								
Ariadna sp. 1		X			X			
Ariadna sp. 2		X						
Selenopidae								
Anyphops amatolae (Lawrence, 1940)		XT						Lawrence (1940); Dippenaar-Schoeman et al. (2010)
Anyphops gilli (Lawrence, 1940)		X						Dippenaar-Schoeman et al. (2010)
Anyphops whiteae (Pocock, 1902)					X			Lawrence (1940)
Anyphops sp.				X	X			
Selenops sp.	X							
Sparassidae								
Olios sp.		X					X	
Palystes perornatus Pocock, 1900		X						Dippenaar-Schoeman et al. (2010)
Palystes superciliosus L. Koch, 1875		X			X			Dippenaar-Schoeman et al. (2010)
Parapalystes lycosinus (Pocock, 1900)				X				
Stasimopidae								
Stasimopus insculptus Pocock, 1901					XT			Pocock (1901); Dippenaar-Schoeman et al. (2010)
Stasimopus schoenlandi Pocock, 1900					X			
Tetragnathidae								
Diphya simoni Kauri, 1950		X			X			Omelko et al. (2020)
Leucauge decorata (Blackwall, 1864)		X						
Leucauge festiva (Blackwall, 1866)		X						Dippenaar-Schoeman et al. (2010)
Leucauge levanderi (Kulczynski, 1901)		X						Dippenaar-Schoeman et al. (2010)
Leucognatha sp.		X						

	FB	HB	KB	MF	QO	ST	OT	References
Tetragnathidae (continued)								
Meta sp.		X						
Pachygnatha sp.†		X						
Tetragnatha keyserlingi Simon, 1890		X						Dippenaar-Schoeman et al. (2010)
Tetragnatha subsquamata Okuma, 1985			X	X	X			
Theraphosidae								
Harpactira tigrina Ausserer, 1875					X			
Theridiidae								
Achaearanea sp.†		X						
Anelosimus sp.†		X						
Argyrodes sp.†			X					
Chorizopella tragardhi Lawrence, 1947		X			X			
Coscinida sp.†		X						
Crustulina guttata (Wider, 1834)		X						Dippenaar-Schoeman et al. (2010)
Dipoenata sp.†			X					
Episinus bilineatus Simon, 1894		X	X	X	X			
Episinus sp. 2†		X						
Euryopis sp. †		X	X	X	X			
Latrodectus cinctus Blackwall, 1865	X							Dippenaar-Schoeman et al. (2010)
Latrodectus geometricus C.L. Koch, 1841		X			X			Dippenaar-Schoeman et al. (2010)
Parasteatoda sp.		X						
Phoroncidia sp.		X	X	X	X			
Ruborrhidion sp. 1†		X						
Ruborrhidion sp. 2†		X						
Ruborrhidion sp. 3†		X						
Ruborrhidion sp. 4†		X						
Steatoda capensis Hann, 1990			X					
Steatoda erigoniformis (O. Pickard-Cambridge, 1872)						X		
Steatoda foravae Dippenaar-Schoeman & Muller, 1992		X				X		
Theridion sp. 1	X	X	X		X			
Theridion sp. 2		X						
Theridula sp.		X						
Thymoites chopardi (Berland, 1920)		X						Dippenaar-Schoeman et al. (2010)
Theridiidae sp. 1	X	X	X	X	X		X	
Theridiidae sp. 2		X	X		X			

	FB	HB	KB	MF	QO	ST	OT	References
Theridiidae (continued)								
Theridiidae sp. 3			X					
Thomisidae								
Ansiea tuckeri (Lessert, 1919)				X				
Diaea puncta Karsch, 1884		X						Dippenaar-Schoeman et al. (2010)
Firmicus bipunctatus Caporiacco, 1941		X						
Geraesta congoensis (Lessert, 1943)		X						
Hewittia gracilis Lessert, 1928		X		X				
Misumenops rubrodecoratus Millot, 1941		X		X				
Monaeses austrinus Simon, 1910		X		X				
Monaeses paradoxus Lucas, 1864		X						Dippenaar-Schoeman et al. (2010)
Oxytate concolor (Caporiacco, 1947)		X						
Oxytate ribes (Jézéquel, 1964)		X	X					
Pactactes obesus Simon, 1895					X			
Pactactes trimaculatus Simon, 1895		X	X					
Phaenopoma nigropunctatum (O. Pickard-Cambridge, 1883)		X						
Pherecydes ionae Dippenaar-Schoeman, 1980		X	X	X				
Phrynarachne melloleitaoi Lessert, 1933		X	X		X			Dippenaar-Schoeman et al. (2010)
Runcinia erythrina Jézéquel, 1964		X		X				
Synema decens Karsch, 1878	X	X						
Synema langheldti Dahl, 1907			X					
Synema marlothi Dahl, 1907		X		X				
Synema imitatrix (Pavesi, 1883)					X			
Thomisops bullatus Simon, 1895		X			X			
Thomisus australis Comellini, 1957		X			X			Dippenaar-Schoeman et al. (2010)
Thomisus blandus Karsch, 1880		X				X	X	Dippenaar-Schoeman et al. (2010)
Thomisus stenningi Pocock, 1900		X		X	X		X	Lessert (1923); Dippenaar-Schoeman et al. (2010)
Tmarus comellinii Garcia-Neto, 1989		X						Dippenaar-Schoeman et al. (2010)
Tmarus cameliformis Millot, 1942	X		X	X	X			Dippenaar-Schoeman et al. (2010)
Xysticus mulleri Lawrence, 1952				X				
Xysticus sp. 2		X						
Trachelidae								
Afroceto africana (Simon, 1910)		X						Haddad (2019)

	FB	HB	KB	MF	QO	ST	OT	References
Trachelidae (continued)								
Afroceto martini (Simon, 1897)	X	X		X	X			Dippenaar-Schoeman et al. (2010); Lyle & Haddad (2010)
Capobula montana Haddad *et al.*, 2021		X						Haddad et al. (2021)
Fuchiba sp.†		X						
Jocquestus schenkeli (Lessert, 1923)		X		X				Dippenaar-Schoeman et al. (2010); Lyle & Haddad (2018)
Poachelas montanus Haddad & Lyle, 2008		X						
Thysanina transversa Lyle & Haddad, 2006		X		X	X			
Thysanina sp. 2†		X			X			
Thysanina sp. 3†		X						
Thysanina sp. 4†		X						
Trachelas sp. 1†	X	X		X				
Trachelas sp. 2†		X						
Trachelas sp. 3 †		X						
Trachelas sp. 4†		X						
Trachelas sp. 5†		X						
Trachelas sp. 6†	X	X		X	X			
Trochanteriidae								
Platyoides pusillus Pocock, 1898		X						Dippenaar-Schoeman et al. (2010)
Platyoides walteri (Karsch, 1886)		X			X			Dippenaar-Schoeman et al. (2010)
Uloboridae								
Hyptiotes akermani Wiehle, 1964		X	X		X			Dippenaar-Schoeman et al. (2010)
Miagrammopes sp.	X	X	X	X	X			
Philoponella angolensis (Lessert, 1933)					X			
Uloborus plumipes Lucas, 1846	X	X						
Uloborus sp.					X			
Zodariidae								
Chariobas lineatus Pocock, 1900		X			X			Dippenaar-Schoeman et al. (2010)
Cydrela sp.		X						
Diores annetteae Jocqué, 1990		X						
Zoropsidae								
Griswoldia sp.		X	X	X				
Phanotea xhosa Griswold, 1994		X			X			Griswold (1994)
Phanotea sp. 2†		X						

	FB	HB	KB	MF	QO	ST	OT	References
OPILIONES								
Biantidae								
Metabiantes hanstroemi Kauri, 1961			X					
Metabiantes pusulosus (Loman, 1898)		X				X		Staręga (1992); Lotz (2009, 2010)
Metabiantes urbanus Kauri, 1961				X				
Metabiantes zuurbergianus Kauri, 1961		X						Lotz (2009)
Metabiantes sp.					X	X		
Pettalidae								
Parapurcellia amatola De Bivort & Giribet, 2010		XT						De Bivort & Giribet (2010); Svojanovská et al. (2016)
Phalangiidae								
Rhampsinitus brevipes Kauri, 1961		X						
Rhampsinitus capensis (Loman, 1898)		X						Lotz (2009, 2010); Šťáhlavský et al. (2018)
Rhampsinitus crassus Loman, 1898		X						
Rhampsinitus fissidens Lawrence, 1933		X	X					
Rhampsinitus ingae Kauri, 1961		X						
Rhampsinitus lalandei Simon, 1879		X						
Rhampsinitus leighi (Pocock, 1902)		X						Lotz (2009)
Rhampsinitus silvaticus Lawrence, 1931		X						Lotz (2009)
Triaenonychidae								
Adaeulum brevidentatum Lawrence, 1934		XT						Lawrence (1934); Staręga (1992); Lotz (2009, 2010)
Adaeulum godfreyi Lawrence, 1931		X			X	X		Lotz (2009, 2010)
Adaeum squamatum Lawrence, 1931		X	X					
Amatola dentifrons Lawrence, 1931	X	XT			X	X		Lawrence (1931); Staręga (1992); Lotz (2009, 2010)
Biacumontia elata Kauri, 1961		X				X		
Biacumontia paucidens Lawrence, 1931				X				
Biacumontia truncatidens Lawrence, 1931		X						Staręga (1992); Lotz (2009, 2010)
Biacomontia sp.				X				
Ceratomontia irregularis Lawrence, 1931		X		X				Lotz (2010)
Ceratomontia pusilla Lawrence, 1934		X						
Ceratomontia reticulata Lawrence, 1934		XT		X		X		Lawrence (1934); Staręga (1992); Lotz (2009, 2010)
Ceratomontia rumpiana Lawrence, 1937		X	X					Lotz (2010)
Ceratomontia sanguinea Lawrence, 1934				X				
Ceratomontia setosa Lawrence, 1931		X						Lotz (2009, 2010)
Graemontia bifidens Lawrence, 1931		X	X			X		Lotz (2009)
Graemontia dentichelis Lawrence, 1931		XT	X		X	X		Lawrence (1931); Staręga (1992); Lotz (2009, 2010)

	FB	HB	KB	MF	QO	ST	OT	References
Triaenonychidae (continued)								
Larifuga mantonae Lawrence, 1934		XT						Lawrence (1934); Staręga (1992); Lotz (2009, 2010)
Larifugella afra Lawrence, 1933			X					
Larifugella sp.		X						
Mensamontia morulifera Lawrence, 1931					X			Lotz (2009)
Monomontia atra Lawrence, 1931		XT	X					Lawrence (1931); Staręga (1992); Lotz (2009, 2010)
Monomontia montensis Lawrence, 1938		X						
Monomontia rattrayi Lawrence, 1931		X			X			Lotz (2009, 2010)
Paramontia sp.†		X						Lotz (2010)
Roewerania guduana Kauri, 1961		X	X	X		X		Lotz (2010)
Roewerania lignicola Lawrence, 1934		XT						Lawrence (1934); Staręga (1992); Lotz (2009, 2010)
Paradaeum rattrayi Lawrence, 1931		XT				X		Lawrence (1931); Staręga (1992); Lotz (2009, 2010)
PSEUDOSCORPIONES								
Atemnidae								
Cyclatemnus globosus Beier, 1947		X			X			
Cheliferidae								
Aperittochelifer minusculus (Ellingsen, 1912)		X		X	XT			Ellingsen (1912); Hewitt & Godfrey (1929)
Beierius walliskewi (Ellingsen, 1912)					X	X		Ellingsen (1912); Hewitt & Godfrey (1929)
Ellingsenius sculpturatus (Lewis, 1903)					X			Hewitt & Godfrey (1929)
Hansenius torulosus (Tullgren, 1907)		X			X			Hewitt & Godfrey (1929)
Lophochernes mucronatus (Tullgren, 1907)					X	X		Ellingsen (1912); Hewitt & Godfrey (1929)
Microchelifer minusculoides (Ellingsen, 1912)					XT			Ellingsen (1912); Hewitt & Godfrey (1929)
Chthoniidae								
Anaulacodithella mordax (Tullgren, 1907)		X		X	X			Ellingsen (1912)
Tyrannochthonius contractus (Tullgren, 1907)		X	X	X	X	X		Ellingsen (1912)
Feaellidae								
Feaella mucronata Tullgren, 1907		X				X		
Garypinidae								
Garypinidius capensis (Ellingsen, 1912)		X			XT			Ellingsen (1912)
Geogarypidae								
Afrogarypus excelsus (Beier, 1964)				X	X	X		Neethling & Haddad (2016)
Afrogarypus impressus (Tullgren, 1907)					X			Ellingsen (1912)
Afrogarypus triangularis (Ellingsen, 1912)		X			XT			Ellingsen (1912); Neethling & Haddad (2016)

	FB	HB	KB	MF	QO	ST	OT	References
Gymnobisiidae								
Gymnobisium cuneatum Neethling & Neethling, 2023		X						Neethling & Neethling (2023)
Gymnobisium hogsbackense Neethling & Neethling, 2023		X						Neethling & Neethling (2023)
Gymnobisium prionotogladiatum Neethling & Neethling, 2023			X	X				Neethling & Neethling (2023)
Olpiidae								
Ectactolpium sp.		X						
Pseudochiridiidae								
Pseudochiridium lawrencei Beier, 1964		X			XT			Beier (1964)
Pseudotyrannochthoniidae								
Afrochthonius godfreyi (Ellingsen, 1912)		X	X	X	XT			Ellingsen (1912)
Selachochthonius serratidentatus (Ellingsen, 1912)					XT			Ellingsen (1912)
Withiidae								
Afrowithius paradoxus (Ellingsen, 1912)		X			XT			Ellingsen (1912)
Ectromachernes sp.		X						
Parallowithius sp.		X						
SCORPIONES								
Buthidae								
Parabuthus planicauda (Pocock, 1889)	X			X	X			
Uroplectes formosus Pocock, 1890		X	X			X		
Uroplectes triangulifer (Thorell, 1876)	X			X	X			
Hormuridae								
Cheloctonus crassimanus (Pocock, 1896)				X	X			
Cheloctonus glaber Kraepelin, 1896						X		
Hadogenes trichiurus (Gervais, 1843)	X							
Opisthacanthus validus Thorell, 1876		X			X	X		
Scorpionidae								
Opistophthalmus latimanus C.L. Koch, 1841	X			X	X			