

The spiders of the Swartberg Nature Reserve in South Africa (Arachnida: Araneae)

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Dippenaar-Schoeman, A.S., A.E. van der Walt, M. de Jager, E. le Roux and A. van den Berg. 2005. The spiders of the Swartberg Nature Reserve in South Africa (Arachnida: Araneae). *Koedoe* 48(1): 77–86. Pretoria. ISSN 0075-6458.

The Swartberg Nature Reserve is situated in the Large Swartberg mountain range, in the Oudtshoorn district of the Western Cape Province. Spiders were collected from the reserve over a 10-year period. This is one of the inventory projects of the South African National Survey (SANSA) for spiders of the Succulent Karoo Biome. A total of 45 families comprising 136 genera and 186 species were collected, all which are new records for the area. This represents about 9.4 % of the total known South African spider fauna. Of the spiders collected 142 species (76.5 %) were wanderers and 44 (23.5 %) web dwellers. The plant dwellers comprised 43.3 % of the total number of species and the ground dwellers 56.7 %. The Gnaphosidae was the most diverse family represented by 33 species, followed by the Salticidae with 23 and Thomisidae with 15. Ten species are possibly new to science and the Filistatidae is a first record for South Africa. An annotated checklist with information on the guilds, habitat preference and web types are provided.

Key words: Araneae, Swartberg Nature Reserve, South African National Survey, spiders.

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Introduction

Although spiders constitute an abundant and successful group of invertebrates, little is still known about their diversity in large parts of South Africa. The South African National Survey of Arachnida (SANSA), was initiated in 1997 with the main aim to make inventories of the arachnid fauna of South Africa (Dippenaar-Schoeman & Craemer 2000). As part of SANSA, various projects are in progress to determine the biodiversity of the arachnids from the floral biomes. Surveys are also undertaken to determine the species presently protected in existing conserved areas. Surveys have been undertaken in the Mountain Zebra National Park (Dippenaar-Schoeman 1988), Karoo National Park (Dippenaar-Schoeman *et al.* 1999), Kruger National Park (Dippenaar-Schoeman & Leroy 2003), Roodeplaat Dam

Nature Reserve (Dippenaar-Schoeman *et al.* 1989), Makelali Nature Reserve (Whitmore *et al.* 2001), as well as the Soutpansberg West Conservancy (Foord *et al.* 2002).

Conservation biologists are starting to recognise the importance of the invertebrate component in the functioning of healthy ecosystems. However, meaningful conservation can not take place if the species involved are not known. The survey undertaken at the Swartberg Nature Reserve (SBNR) not only provide information on the species presently protected in the reserve, but also contribute towards our knowledge of the diversity of the Succulent Karoo Biome. This paper does not reflect the results of an intensive survey but is a record of specimens collected in the reserve on a regular basis over a period of 10 years.

Table 1
Guild classification of spiders collected in the Swartberg Nature Reserve

Guilds	Abbreviation	Guild explanation
(a) Wandering spiders		
Ground dwellers	(GD)	
	FGD BGD	free-living spiders running on the soil surface when active live in burrows
Plant dwellers	(PD)	
	FPD	free-living, commonly found on plants
(b) Web-dwellers		
Orb-web	OWB	orb-web consisting of a frame with mooring and bridge lines that anchor the web, and radial signal threads arranged like the ribs of an umbrella converging onto the centre of the web with circular spiral threads
Funnel-web	FWB	sheet-web made over soil surface with a funnel-shaped retreat on one side
Gumfoot-web	GWB	three-dimensional web consisting of a central area with or without a retreat; upper part with mooring, signal and catch threads; lower part with mooring and catch threads studded with sticky droplets
Retreat-web	RWB	silk threads radiating from retreat and used to locate/catch prey
Sheet-web	SWB	sheet-like web consisting of an upper part with mooring, signal and catch threads
Space-web	SPWB	web filling open space usually attached with mooring threads to different substrates.

Study area

The Swartberg Nature Reserve (SBNR) is in the Oudtshoorn district in the Western Cape Province. It is an area of about 130 000 ha situated between the Great Karoo and Little Karoo, bordered by the Gamka River in the west. The nearest town is Prince Albert (33°13'S, 22°02'E), about 5 km to the North. The reserve lies in the Large Swartberg mountain range, with some peaks higher than 2000 m above sea level. The Swartberg mountains are part of the Cape fold mountain range. The geological formation is chiefly of the Table Mountain Group and to a lesser extent the Bokkeveld and Cango groups. Most of the collecting was done in the larger part of the reserve, situated in a valley (laying east to west) between the two mountain ranges Osberg and Gamkasberg. The valley is known as Gamkaskloof (GK) or 'Die Hel' with heights between 300 m and 500 m above

sea level. The Gamka River runs through the reserve, cutting through the mountains from north to south. The reserve was actively farmed for 160 years and only declared a conservation area about 13 years ago.

The winters are cold, frequently with snow on the mountains with temperatures well below freezing point. In the summer the temperatures can reach a high of 40 °C. Rain falls both in summer and winter, but the winter rains are more intense and important. Rainfall records, taken over the last six years, indicate an average rainfall of 208 mm annually.

The veld type of the valley floor is Broken Karoo with scattered *Acacia karroo* Hayne trees. The northern face of the mountains situated in the southern parts of the reserve is mainly dwarf, succulent shrubs while the southern face of the mountains in the north of the valley is a crossover between Renoster Veld, Fynbos and Succulent Karoo.

Methods

Sporadic collecting was undertaken from 1991-2002. Spiders were collected using hand collecting (ground and plant searching, turning rocks) or using a sweep-net or beating tray for grass and low shrubs. Additional material from the Swartberg Pass (SP) housed in the National Collection of Arachnida (NCA) at the ARC-Plant Protection Research Institute in Pretoria was added to the checklist. All material collected has been deposited in the NCA. The lack of taxonomic research in southern Africa within certain families made the identification of some genera to species level impossible. In addition, only immature specimens were collected in some families, hampering identification to species level. In such cases only the generic names were included in the checklist.

Because most spiders live in a defined environment with limitations set by both physical conditions and biological factors (Foelix 1982), species can be grouped into guilds based on available information on their habitat preferences and predatory methods. For the present study two main guilds were recognised, namely wandering spiders and web dwellers, with further subdivisions based on micro-habitat and web construction (Table 1).

Results and discussion

Numbers present

Forty-five families represented by 136 genera and 186 species were collected from the SBNR (Table 2). The family Gnaphosidae is the most diverse with 33 species, followed by the Salticidae with 23 and Thomisidae with 15. Twenty families were represented by a single species. The 186 species collected are all new records for the Swartberg Nature Reserve. Of these, a total of 142 species (76.5 %) are wandering spiders, while 44 species (23.5 %) build webs.

A new hirsutiid genus has been collected from SBNR (Foord & Dippenaar-Schoeman *in press*). Ten species are possibly new to science. However, these putative new species are representatives of species-rich families for which many species are known. Only after revisionary studies would it be possible to tell whether these species are indeed new species. The family Filistatidae, known from Namibia and other parts of the Afrotropical Region (Dippenaar-Schoeman & Jocqué

1997), has been collected during this survey for the first time from South Africa.

Ground layer: Thirty-five families represented by 105 species (56.7 %) are associated with the ground layer (Table 3).

Ground web dwellers: Eighteen species of 11 families make their webs on or close to the ground surface. The web dwellers are mainly members of the funnel-web spiders (Agelenidae and Dipluridae), sheet-web spiders (Linyphiidae) and retreat-web spiders of the Amaurobiidae (Pseudauximus), Eresidae (Dresserus), Filistatidae (Afrofilistata), Oecobiidae (Oecobius), Pholcidae (Smeringopus), Phyxelididae (Namaquarachne) and Segestriidae (Ariadna). The gum-foot webs of the Theridiidae (*Latrodectus*, *Steatoda*) are usually made between plants close to the ground. The bites of *Latrodectus* spp. are known to be of medical importance. The one species, *Latrodectus geometricus* (C.L. Koch), is a species introduced into South Africa, while the other, *L. indistinctus* (O.P.-Cambridge), is an endemic species known from the Western Cape Province. Most of the funnel-webs and retreat-webs are made between or below rocks and plant debris. The space-webs of the Pholcidae are usually made in old mammal holes and in other dark crevices.

Burrow ground dwellers (BGD): The burrow-living ground dwellers are all members of the Mygalomorphae and represent three trapdoor spider species in the families Ctenizidae, Cyrtaucheniidae and Nemesiidae, as well as two baboon spiders of the family Theraphosidae. The *Lepthercus* sp. (Nemesiidae) is the first record of this genus from Western Cape Province and is probably new (Dippenaar-Schoeman 2002a). They make silk-lined burrows running along the underside of rocks. The ctenizid, *Stasimopus maraisi* Hewitt constructs silk-lined burrows of which the entrance is closed with a cork-lid trap-door. This species has previously been recorded from Victoria West and the Karoo National Park. This record extends its range within the Western Cape Province. Of the two theraphosids, the lesser baboon spider *Harpactirella karoocica* Purcell has previ-

Table 2
Spider families collected at the Swartberg Nature Reserve indicating the number of species in each family

Family	Genera	Species
Agelenidae	2	3
Amaurobiidae	1	1
Ammoxenidae	1	1
Araneidae	8	9
Caponiidae	1	15
Clubionidae	1	3
Corinnidae	5	51
Ctenidae	1	1
Ctenizidae	1	1
Cyatholipidae	1	1
Cyrtoucheniidae	2	2
Dipluridae	1	1
Eresidae	3	5
Filistatidae	1	1
Gallieniidae	1	1
Gnaphosidae	21	33
Hersiliidae	1	1
Linyphiidae	1	1
Liocranidae	1	1
Lycosidae	7	10
Mimetidae	1	1
Miturgidae	2	3
Nemesiidae	1	1
Orsolobidae	1	1
Oxyopidae	3	7
Palpimanidae	2	2
Pholcidae	1	1
Phyxelididae	1	1
Pisauridae	2	2
Prodidomidae	2	3
Salticidae	16	23
Scytodidae	1	2
Segestriidae	1	1
Selenopidae	1	2
Sicariidae	2	2
Sparassidae	3	6
Tetragnathidae	3	4
Theraphosidae	2	2
Theridiidae	6	11
Thomisidae	11	15
Trochanteriidae	1	2
Uloboridae	1	1
Zodariidae	5	5
Total 45	136	186

ously been recorded from Prince Albert, while *Harpactira namaquensis* Purcell is known from several localities in the Northern Cape Province. This is only the second record from the Western Cape Province.

Free-living ground dwellers (FGD): A large percentage (47 %) of the spiders recorded

from SBNR (87 species) are free-living species that do not construct webs (Table 3). The families Gnaphosidae, with 33 species, and Lycosidae, with 10, had the highest diversity. Most of these spiders actively run around in search of food. When at rest they are found below rocks and stones or fallen trees.

Field layer: Sixteen families represented by 81 species (43.3 %) are associated with the field layer (Table 3).

Plant web dwellers: From the field layer 33.3 % of the species (27) were web dwellers (Table 2). The orb-web spiders were represented by three families and 14 spp.), with Araneidae the most diverse (9 spp.), followed by Tetragnathidae (4 spp.) and Uloboridae (1 sp.). Some of the larger orb-webs were made by the golden orb-web spiders *Nephila senegalensis* (Walckenaer) and silver vlei spiders *Leucauge festiva* (Blackwall). Other webs included the retreat-webs of the Eresidae. Of the two *Stegodyphus* species recorded, *S. mimosarum* Pavesi is known as the community nest spiders, while *S. tentoriicola* Purcell is a solitary species constructing their retreats in the florescence of grasses.

Free-living plant dwellers: Fifty-four species (66.6 %) collected from the field layer were free-living wandering spiders, represented by nine families. Some commonly construct sac-like retreats in the folds of grass or leaves, including Clubionidae (3 spp.), Miturgidae (3 spp.) and Salticidae (17 spp.). The other grass dwellers are very well camouflaged and actively move around on the plants in search of prey, namely the lynx spiders of the Oxyopidae (7 spp.) and the small wandering spiders of the Philodromidae (4 spp.). Most of the Thomisidae species are associated with flowering plants.

The physical structure of the habitat plays a role in the composition of the spider web dwellers, as it not only provides the necessary support for anchoring webs but also increases the availability of retreat space and modification of the microclimate, which could have an effect on the spiders as well as

Table 3
Check list of the spiders of the Swartberg Nature Reserve

Family/Genus/Species	Region	Guild	Habitat
1. Agelenidae			
<i>Agelena zuluana</i> Roewer, 1955	GK	FWB	GD
<i>Benoitia deserticola</i> (Simon, 1910)	GK; SP	FWB	GD
<i>B. ocellata</i> (Pocock, 1900)	GK	FWB	GD
2. Amaurobiidae			
<i>Pseudauximus pallidus</i> Purcell, 1903	GK	RWB	GD
3. Ammoxenidae			
<i>Ammoxenus pentheri</i> Simon, 1896	GK	FGD	GD
4. Araneidae			
<i>Araneus</i> sp. (immature)	GK	OWB	PD
<i>Argiope australis</i> (Walckenaer, 1805)	GK	OWB	PD
<i>Caerostris sexcupidata</i> (Fabricius, 1793)	GK	OWB	PD
<i>Cyclosa insulana</i> (Costa, 1834)	GK	OWB	PD
<i>Cyrtophora citricola</i> (Forskål, 1775)	GK	OWB	PD
<i>Larinia chloris</i> (Audouin, 1826)	GK	OWB	PD
<i>Neoscona quincasea</i> Roberts, 1983	GK	OWB	PD
<i>N. subfusca</i> (C.L. Koch, 1837)	GK	OWB	PD
Unidentified genus	GK	OWB	PD
5. Caponiidae			
<i>Caponia braunsi</i> Purcell, 1904	GK	FGD	GD
6. Clubionidae			
<i>Clubiona africana</i> Lessert, 1921	GK; SP	FPD	PD
<i>Clubiona</i> sp. 1	GK	FPD	PD
<i>Clubiona</i> sp. 2	GK	FPD	PD
7. Corinnidae			
<i>Cambalida coriacea</i> Simon, 1910	GK	FGD	GD
<i>Cetonana</i> sp. (undetermined)	GK	FGD	GD
<i>Copa</i> sp. (undetermined)	GK	FGD	GD
<i>Graptartia tropicalis</i> Haddad, 2004	GK	FGD	GD
<i>Orthobula</i> sp. (undetermined)	GK	FGD	GD
8. Ctenidae			
<i>Anahita</i> sp. (undetermined)	GK	FGW	GD
9. Ctenizidae			
<i>Stasimopus maraisi</i> Hewitt, 1914	GK	BGD	GD
10. Cyatholipidae			
<i>Cyatholipus hirsutissimus</i> Simon, 1894	GK; SP	SWB	PD
11. Cyrtaucheniidae			
<i>Ancylotrypa</i> sp. (immature)	GK; SP	BGD	GD
<i>Homostola</i> sp. (immature)	GK	BGD	GD
12. Dipluridae			
<i>Allothele australis</i> (Purcell, 1903)	GK	FWB	GD
13. Eresidae			
<i>Dresserus kannemeyeri</i> Tucker, 1920	GK	RWB	GD
<i>Gandanameno purcelli</i> (Tucker, 1920)	GK	RWB	PD

Table 3 (continued)

Family/Genus/Species	Region	Guild	Habitat
<i>G. spenceri</i> (Pocock, 1900)	GK	RWB	PD
<i>Stegodyphus mimosarum</i> Pavesi, 1883	GK	RWB	PD
<i>S. tentoriicola</i> Purcell, 1904	GK	RWB	PD
14. Filistatidae			
<i>Afrofilistata</i> (undescribed sp.)	GK	RWB	GD
15. Gallieniellidae			
<i>Drassodella quinquelabecula</i> Tucker, 1923	GK	FGD	GD
16. Gnaphosidae			
<i>Amusia cataracta</i> Tucker, 1923	GK	FGD	GD
<i>Aneplesa</i> cf <i>facies</i> Tucker, 1923	GK	FGD	GD
<i>A. sculpturata</i> Tucker, 1923	GK	FGD	GD
<i>Aphantaulax</i> sp. (undetermined)	GK	FGD	GD
<i>Asemesthes ceresicola</i> Tucker, 1923	GK	FGD	GD
<i>A. purcelli</i> Tucker, 1923	GK	FGD	GD
<i>Camillina capensis</i> Platnick & Murphy, 1987	GK; SP	FGD	GD
<i>C. cordifera</i> (Tullgren, 1910)	GK	FGD	GD
<i>C. setosa</i> Tucker, 1923	GK	FGD	GD
<i>Drassodes ereptor</i> Purcell, 1907	GK	FGD	GD
<i>D. splendens</i> Tucker, 1923	GK	FGD	GD
<i>Drassodes</i> sp. (undetermined)*	GK	FGD	GD
<i>Echemus</i> sp. (undetermined)	SP	FGD	GD
<i>Haplodrassus stationis</i> (Tucker, 1923)	GK	FGD	GD
<i>Lantonigena africanus</i> Tucker, 1923	GK	FGD	GD
<i>Megamyrmaekion schreineri</i> Tucker, 1923	GK	FGD	GD
<i>Micaria</i> sp. (undetermined)*	GK	FGD	GD
<i>Poecilochroa anomala</i> (Hewitt, 1915)	GK	FGD	GD
<i>P. involuta</i> Tucker, 1923	GK	FGD	GD
<i>Pterotricha varia</i> (Tucker, 1923)	GK	FGD	GD
<i>Setaphis bilinearis</i> Tucker, 1923	GK	FGD	GD
<i>S. browni</i> (Tucker, 1923)	GK; SP	FGD	GD
<i>S. calviniensis</i> Tucker, 1923	GK	FGD	GD
<i>Trachyzelotes jaxartensis</i> (Kroneberg, 1875)	SP	FGD	GD
<i>Trephopoda</i> sp. (undetermined)*	SP	FGD	GD
<i>Trichothyse</i> sp. (undetermined)*	SP	FGD	GD
<i>Upognampa parvipalpa</i> Tucker, 1923	GK; SP	FGD	GD
<i>Urozelotes rusticus</i> (L. Koch, 1872)	GK	FGD	GD
<i>Xerophaeus communis</i> Purcell, 1907	GK	FGD	GD
<i>X. phaseolus</i> Tucker, 1923	GK	FGD	GD
<i>X. rubeus</i> Tucker, 1923	GK	FGD	GD
<i>Zelotes montanus</i> (Purcell, 1907)	GK	FGD	GD
<i>Z. unguis</i> Tucker, 1923	GK	FGD	GD
17. Hersiliidae			
New genus (Foord & Dippenaar-Schoeman, <i>in press</i>)	GK	FGD	GD
18. Linyphiidae			
<i>Microlinyphia sterilis</i> (Pavesi, 1883)	SP	SWB	GD
19. Liocranidae			
<i>Rhaeboctesis</i> sp. (undetermined)	GK	FGD	GD
20. Lycosidae			
<i>Evipomma squamulatum</i> (Simon, 1898)	GK	FGD	GD
<i>Hippasa</i> sp. (undetermined)	GK	FGD	GD

Table 3 (continued)

Family/Genus/Species	Region	Guild	Habitat
<i>Hogna bimaculata</i> (Purcell, 1903)	GK	FGD	GD
<i>Pardosa crassipalpis</i> Purcell, 1903	GK	FGD	GD
<i>Pardosa</i> sp. 2 (undetermined)	GK	FGD	GD
<i>Trabea</i> sp. 1 (undetermined)	GK; SP	FGD	GD
<i>Trabea</i> sp. 2 (undetermined)	GK	FGD	GD
<i>Trabea</i> sp. 3 (undetermined)	GK	FGD	GD
<i>Trochosa</i> sp. (undetermined)	GK	FGD	GD
Undetermined genus	GK	FGD	GD
21. Mimetidae			
<i>Mimetus</i> sp. (undetermined)*	SP	FPD	PD
22. Miturgidae			
<i>Cheiracanthium furculatum</i> Karsch, 1879	GK	FPD	PD
<i>C. africanum</i> Lessert, 1921	GK	FPD	PD
<i>Cheiramiona ansiae</i> Lotz, 2002	GK	FPD	PD
23. Nemesiidae			
<i>Lepthercus</i> sp. (undetermined)*	GK	BGD	GD
24. Oecobiidae			
<i>Oecobius navus</i> Blackwall, 1859	GK	RWB	GD
25. Orsolobidae			
<i>Azanielobus</i> sp. (undetermined)	SP	FGD	GD
26. Oxyopidae			
<i>Hamataliwa</i> sp. (immature)	GK	FPD	PD
<i>Oxyopes affinis</i> Lessert, 1915	GK	FPD	PD
<i>O. bothai</i> Lessert, 1915	GK	FPD	PD
<i>O. longispinosus</i> Lawrence, 1938	GK	FPD	PD
<i>O. russoi</i> Caporiacco, 1940	GK	FPD	PD
<i>O. vogelsangeri</i> Lessert, 1946	GK	FPD	PD
<i>Peucetia maculifera</i> Pocock, 1900	GK	FPD	PD
27. Palpimanidae			
<i>Ikuma</i> sp. (undetermined)	GK; SP	FGD	GD
<i>Palpimanus crudeni</i> Lessert, 1936	GK; SP	FGD	GD
28. Philodromidae			
<i>Gephyrota</i> sp. (undetermined)*	GK	FPD	PD
<i>Hirriusa variegata</i> (Simon, 1895)	GK	FPD	GD
<i>Philodromus grosi</i> Lessert, 1943	GK; SP	FPD	PD
<i>Thanatus vulgaris</i> Simon, 1870	GK	FPD	PD
<i>Tibellus minor</i> Lessert, 1919	GK	FPD	PD
29. Pholcidae			
<i>Smeringopus pallidus</i> (Blackwall, 1858)	GK	SPWB	GD
30. Phyxelididae			
<i>Namaquarachne</i> (undetermined)*	GK	RWB	GD
31. Pisauridae			
<i>Chiasmopes</i> sp. (undetermined)	GK	SWB	PD
<i>Rothus vittatus</i> Simon, 1898	GK	SWB	PD

Table 3 (continued)

Family/Genus/Species	Region	Guild	Habitat
32. Prodidomidae			
<i>Prodidomus</i> sp. (undetermined)*	GK	FGD	GD
<i>Theuma fusca</i> Purcell, 1907	GK	FGD	GD
<i>Theuma</i> sp. (undetermined)*	GK	FGD	GD
33. Salticidae			
<i>Aelurillus</i> sp. (undetermined)	GK	FGD	GD
<i>Afraflacilla</i> sp. (undetermined)	GK	FPD	PD
<i>Asemonea</i> sp. (undetermined)	GK	FPD	PD
<i>Baryphas ahenus</i> Simon, 1902	GK	FPD	PD
<i>Bianor albobimaculatus</i> (Lucas, 1846)	GK	FPD	PD
<i>Bianor</i> sp. 2 (undetermined)	GK	FPD	PD
<i>Cembalea</i> sp. (undetermined)	GK	FGD	GD
<i>Cosmophasis australis</i> Simon, 1902	GK	FGD	GD
<i>C. natalensis</i> Lawrence, 1942	GK	FGD	GD
<i>Euophrys</i> sp. 1 (undetermined)	GK	FPD	PD
<i>Euophrys</i> sp. 2 (undetermined)	GK	FPD	PD
<i>Habrocestrum</i> sp. 1 (undetermined)	GK	FPD	PD
<i>Habrocestrum</i> sp. 2 (undetermined)	GK	FPD	PD
<i>Heliophanus inseperatus</i> Wesolowska, 1986	GK	FPD	PD
<i>Massagris mirifica</i> Peckham & Peckham, 1903	GK	FPD	PD
<i>Menemerus lesnei</i> Lessert, 1936	GK	FPD	PD
<i>M. transvaalicus</i> Wesolowska, 1999	GK	FPD	PD
<i>Menemerus</i> sp. 3 (undetermined)	GK	FPD	PD
<i>Natta chionogastrer</i> (Simon, 1901)	GK	FPD	PD
<i>Pseudicius</i> sp. (undetermined)	GK	FPD	PD
<i>Stenaelurillus</i> sp. 1 (undetermined)	GK	FGD	GD
<i>Stenaelurillus</i> sp. 2 (undetermined)	GK	FGD	GD
<i>Thyenula</i> sp. (undetermined)	GK	FPD	PD
34. Scytodidae			
<i>Scytodes</i> sp. 1 (undetermined)	GK	FGD	GD
<i>Scytodes</i> sp. 2 (undetermined)	GK	FGD	GD
35. Segestriidae			
<i>Ariadna</i> sp. (undetermined)	GK; SP	RWB	GD
36. Selenopidae			
<i>Anypops immaculatus</i> (Lawrence, 1940)	GK	FGD	GD
<i>A. rubicundus</i> (Lawrence, 1940)	GK	FGD	GD
37. Sicariidae			
<i>Loxosceles spinulosa</i> Purcell, 1904	GK	FGD	GD
<i>Sicarius testaceus</i> Purcell, 1908	GK	FGD	GD
38. Sparassidae			
<i>Palystella</i> sp. (undetermined)	GK	FGW	GD
<i>Olios</i> sp. (undetermined)	GK; SP	FPW	PD
<i>Palystes karoensis</i> Croeser, 1996	GK	FPW	PD
<i>P. perornatus</i> Pocock, 1900	GK	FPW	PD
<i>P. superciliosus</i> L. Koch, 1875	GK	FPW	PD
<i>P. stilleri</i> (Croeser 1996)	GK	FPW	PD
39. Tetragnathidae			
<i>Leucauge festiva</i> (Blackwall, 1866)	GK	OWB	PD
<i>Nephila senegalensis</i> (Walckenaer, 1842)	GK	OWB	PD

Table 3 (continued)

Family/Genus/Species	Region	Guild	Habitat
<i>Tetragnatha boydi</i> O.P.-Cambridge, 1898	GK	OWB	PD
<i>T. ceylonica</i> O.P.-Cambridge, 1869	GK	OWB	PD
40. Theraphosidae			
<i>Harpactira namaquensis</i> Purcell, 1902	GK	BGD	GD
<i>Harpactirella karrooica</i> Purcell, 1902	GK	BGD	GD
41. Theridiidae			
<i>Achaearanea</i> sp. (undetermined)	GK	GWB	PD
<i>Euryopsis</i> sp. (undetermined)	GK; SP	GWB	GD
<i>Latrodectus geometricus</i> C.L. Koch, 1841	GK	GWB	GD
<i>L. indistinctus</i> O.P.-Cambridge, 1904	GK	GWB	GD
<i>Steatoda capensis</i> Hann, 1990	GK	GWB	GD
<i>S. foravae</i> Dippenaar-Schoeman & Müller, 1992	GK	GWB	GD
<i>S. grossa</i> (C.L. Koch, 1838)	GK	GWB	GD
<i>Theridion purcelli</i> O.P.-Cambridge, 1904	GK	GWB	PD
<i>Theridion</i> sp. 2 (undetermined)	GK	GWB	PD
<i>Theridion</i> sp. 3 (undetermined)	GK	GWB	PD
<i>Tidarren</i> sp. (undetermined)	GK	GWB	PD
42. Thomisidae			
<i>Diaea puncta</i> Karsch, 1884	GK	FPD	PD
<i>Misumenops rubrodecoratus</i> Millot, 1941	GK	FPD	PD
<i>Oxytate leruthi</i> (Lessert, 1943)	GK	FPD	PD
<i>Pherecydes tuberculatus</i> O.P.-Cambridge, 1883	GK	FPD	PD
<i>Runcinia aethiops</i> (Simon, 1901)	GK	FPD	PD
<i>Stiphropus affinis</i> Lessert, 1923	GK	FGD	GD
<i>Synema decens</i> (Karsch, 1878)	GK	FPD	PD
<i>S. imitator</i> (Pavesi, 1883)	GK	FPD	PD
<i>Thomisus citrinellus</i> Simon, 1875	GK	FPD	PD
<i>T. daradioides</i> Simon, 1890	GK	FPD	PD
<i>T. kalaharicus</i> Lawrence, 1936	GK	FPD	PD
<i>T. stenningi</i> Pocock, 1900	GK	FPD	PD
<i>Tmarus hirsutus</i> Comellini, 1955	GK	FPD	PD
<i>Xysticus tugelanus</i> Lawrence, 1942	GK	FGD	GD
Undetermined genus	GK	FPD	PD
43. Trochanteriidae			
<i>Platyoides pictus</i> Pocock, 1902	GK	FGD	GD
<i>P. walteri</i> (Karsch, 1886)	GK	FGD	GD
44. Uloboridae			
<i>Uloborus plumipes</i> Lucas, 1846	GK	OWB	PD
45. Zodariidae			
<i>Chariobas</i> sp. (immature)	SP	FPD	PD
<i>Cicynethus</i> sp. (undetermined)	GK	FGD	GD
<i>Cydrela</i> sp. (undetermined)	SP	BGD	GD
<i>Diores bifurcatus</i> Tucker, 1920	GK; SP	FGD	GD
<i>Ranops</i> sp. (undetermined)	GK	FGD	GD

* = possibly new species; GK = Gamkaskloof; SP = Swartberg Pass; GD = ground dweller; PD = plant dweller; FGD = free-living ground dweller; BGD = burrow-living ground dweller; FPD = free-living plant dweller. Webs: FWB = funnel-web; RWB = retreat-web; OWB = orb-web; SWB = sheet-web; SPWB = space-web; GWB = gumfoot-web.

their prey. In the SBNR, with its dwarf succulent shrub field, fewer physical supports for webs were available, hence the large percentage of ground dwellers compared to the plant dwellers. This was also found in the Karoo National Park (KNP), a park also located within the Succulent Karoo Biome. From the KNP 38 families and 116 species have been collected. Both areas are distinguished by the high percentage of ground dwellers compared to plant dwellers.

Conclusion

Preliminary investigations into the biodiversity of the invertebrate fauna in South Africa have highlighted the dilemma caused by a lack of baseline information on the ecology and diversity of most arachnid groups (Dippenaar-Schoeman 2002b).

This survey of the SBNR forms part of the South African National Survey of Arachnida (SANSA) and data gathered form part of the Succulent Karoo Biome Project. Of the approximately 2000 spiders presently known from South Africa (Dippenaar-Schoeman 2002b), the 186 species collected here represent about 9.4 % of the total spider fauna. All 186 species are new distribution records and the material collected during this survey will be available for revisionary studies in future and the new species will be described.

Although this paper reports on sporadic collecting and probably represents only a portion of the spider fauna present, we hope this information will stimulate further interest and research. It is an important contribution towards our knowledge of the different biomes as well as the diversity of the fauna in each province.

Acknowledgements

Thanks are due to A. M. van den Berg and E. Kassimatis, both from ARC-Plant Protection Research Institute, for comments on the manuscript.

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