

A check list of the spider fauna of the Karoo National Park, South Africa (Arachnida: Araneae)

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A check list of the spider species of the Karoo National Park collected over a period of 10 years is presented. Thirty-eight families, represented by 102 genera and 116 species have been collected. Of these species, 76 (66.4 %) were wanderers and 39 (33.6 %) web builders. The Araneidae have the highest number of species (14) followed by the Thomisidae (10) and the Gnaphosidae (8), while 14 families are represented by a single species. Information on spider guilds, their habitat preference and web types is provided. This study forms part of the South African National Survey of Arachnida (SANSA).

Key words: Araneae, check list, Karoo National Park, South Africa, spiders.

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Introduction

In the past, invertebrates were largely ignored in conservation endeavours and they were only incidentally conserved in existing parks and reserves (De Wet & Schoonbee 1991). It was only after the late eighties that attempts were made to assess the extent to which conservation areas in South Africa include true representatives of all the indigenous flora and fauna (Pienaar 1991). Meaningful conservation, however, cannot take place if the species concerned are not known. Therefore, surveys of invertebrate fauna become more important, especially in conserved areas where conservation strategies are already in place.

Compared with the temperate regions in the northern hemisphere, ecological surveys of the araneofauna of tropical and subtropical regions of Africa are sparse (Dippenaar-Schoeman & Jocqué 1997). In South Africa, most ecological studies on spiders consist of surveys in agro-ecosystems (Dippenaar-Schoeman 1979; A. van den Berg &

Dippenaar-Schoeman 1991; A.M. van den Berg & Dippenaar-Schoeman 1991; Van den Berg *et al.* 1992) and forest and pine plantations (Van den Berg & Dippenaar-Schoeman 1988; Van der Merwe *et al.* 1996). Little is known about the spider fauna inhabiting undisturbed conserved areas. Dippenaar-Schoeman (1988) compiled a check list of the spider fauna of the Mountain Zebra National Park, while Dippenaar-Schoeman *et al.* (1989) studied the savanna spider fauna of the Roodeplaat Dam Nature Reserve.

In this paper, the second in a series of spiders of the national parks, a check list of the spiders collected from the Karoo National Park (KRNP) is given. This paper does not reflect the results of an intensive survey, but is a record of specimens collected in the park over a period of 10 years and housed in the National Collection of Arachnida in Pretoria. It forms part of the South African National Survey of Arachnida (SANSA) coordinated by the Biosystematics: Arachnology

Division of the ARC-Plant Protection Research Institute.

Material and methods

Study area

The description of the park follows that of Rubin & Palmer (1996). The KRNP is situated west to north-west of Beaufort West (32°11'S–32°23'S, 22°15'E–22°35'E) against the Nuweveld Mountain range in the Western Cape Province and comprises approximately 33 000 ha.

The KRNP consists of four physiographic units: the southern and western plain (< 1200 m above sea level); the middle plateau (1200–1300 m); the mountain range (>1300–1900 m) and the northern upper plateau (1600–1900 m). It is a summer rainfall area and the annual rainfall ranges from 175–406 mm with an average of 260 mm. It falls within the Nama-Karoo Biome (Rutherford & Westfall 1986). The vegetation includes Montane Karoo grassy shrublands, Karoo grassy dwarf shrubland, Karoo succulent dwarf shrubland and riparian thicket.

Collecting methods

Sporadic collecting was mainly undertaken by the second and third authors from 1988–1997. Spiders were sampled by hand (ground and plant search, turning rocks and sifting of leaf litter) or using a sweepnet or beating tray for grass and low shrubs. The material was identified by the first author and is housed in the National Collection of Arachnida

(NCA) at the ARC-Plant Protection Research Institute in Pretoria.

The lack of taxonomic research in southern Africa within certain families e.g. Linyphiidae and Theridiidae made the identification of some genera to species level impossible. In some families only immature specimens have been collected, hampering the identification to species level. In both instances only the genera were then included in the check list.

General behaviour

Most spiders live in a defined environment with limitations set by physical conditions, such as temperature, wind and light intensity, as well as biological factors, such as type of vegetation, food supply, competitors and enemies (Foelix 1996). Based on the habitat data recorded with the spiders species collected, they were grouped into different guilds and the micro-habitats they occupy. A guild is a group of species that potentially compete for jointly exploited limited resources (Polis & McCormick 1986). The following guilds were recognized: wanderers (W) or web builders (WB). The wanderers are further divided into ground wanderers (GW) or plant wanderers (PW).

Based on their micro-habitat and general behaviour the ground dwellers can be further grouped into: (GWF) free-living, running on the soil surface when active; (GWR) living permanently or semi-permanently on or under rocks; (GWB) living in burrows; (GWUS) living under the soil surface when not active; (GWW) living in a web close to the ground. The plant dwellers are divided into the following: (PWG) found mainly on grass; (PWF) found mainly on flowers; (PWFO) found mainly on the foliage of shrubs, herb or thicket; (PWT) found mainly on

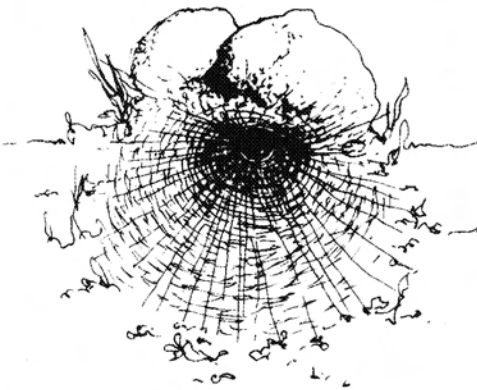


Fig. 1. Funnel web.

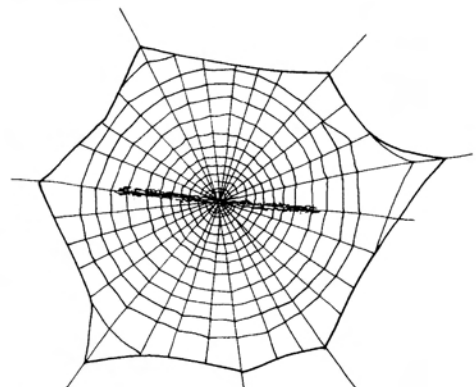


Fig. 2. Orb web.

trees; (PWW) living on a web made between or on plants.

The following web types have been recognized: (FWB) a funnel web consisting of a slightly concave sheet, spread over the surface with a funnel-like retreat to the one side (Fig. 1); (OWB) an 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 from the centre of the web with circular spiral threads (Fig. 2); (RWB) a retreat web is usually made by the more primitive weavers and usually consists of a tubular retreat with simple signal or catching threads radiating from the entrance (Fig. 3); (SWB) a sheet web usually has an upper part with mooring, signal and catch threads (Fig. 4); (SPWB) a space web fills open space and is usually made between different substrates, it varies from very simple to three dimensional (Fig. 5); and (SLWB) a single-line web consists of a single line (Fig. 6).

Distribution records

Several species have previously been collected and described from the Beaufort West region. In the older publications, unfortunately, only the major



Fig. 4. Example of a sheet web.

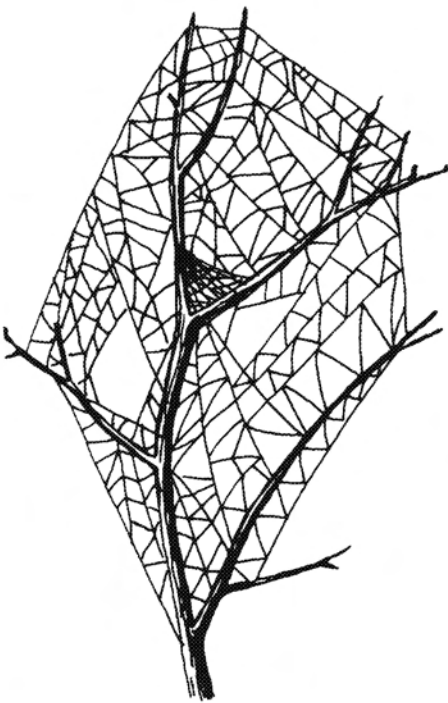


Fig. 3. Example of a retreat web.

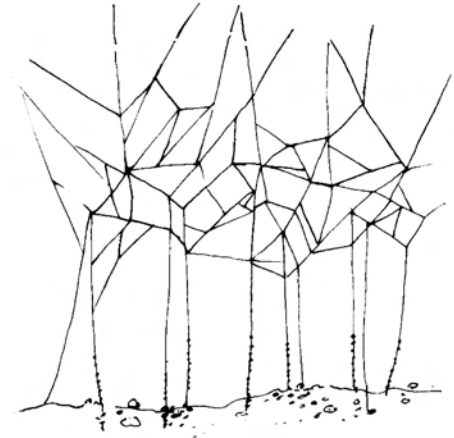


Fig. 5. Example of a space web.



Fig.6. Single line web.

localities are listed. Species known from the Beaufort West region and the KRNP are listed with literature references in Table 1 while new records (NR) for the KRNP are indicated as such.

Results and discussion

Numbers present

Thirty-eight spider families, represented by 101 genera and 116 species, have been collected (Table 1). Seventy-seven of the collected species (66.37 %) are wanderers and 39 (33.62 %) are web builders. Twenty-one species were previously known from the KRNP and the Beaufort West region, while 94 are new records. The Araneidae are the richest in species numbers (14), followed by the Thomisidae (10) and the Gnaphosidae (8), while 14 families are represented by a single species.

Ground dwellers

Twenty-nine 29 families, represented by 63 species (54.31 %), were found associated with the ground (Table 2). Most of the ground dwellers are free-living spiders (29 spp.). They could be either nocturnal or diurnal, and when not active, they are usually found sheltering underneath rocks, stones or other debris. Of the free-living families, the Gnaphosidae (8) and Lycosidae (4) are more common. The gnaphosids construct silk retreats under stones within which they remain during non-active periods. Most species of the Lycosidae are diurnal and they are easily recognized, especially in summer when the female has the grey-white egg sac attached to her spinnerets.

Rock-living spiders are represented by four families and nine species (Table 2). The following four types of behaviour patterns are found: a) species that simply use the rocks as cover on a semi-permanent base; b) species which make a retreat or web below the rock by scraping away the soil; c) species which live more permanently in rock cracks or narrow crevices in rocky outcrops and d) species that live permanently in webs or silk

retreats on the rock surface. The oecobiids belong to the last group. They live in small star-shaped retreats made over crevices or cracks on the rocks. The retreat serves as protection, and the anchor threads attached to the substrate warn the spider of approaching prey. The Eresidae has a diverse life style and several species are found in silk retreats under rocks. One species, *Dresserus schreineri* Tucker, builds a bluish white shroud-like retreat of loosely woven silk, while *Anyphops minutus* Lawrence, of the Selenopidae, with their flattened bodies live in crevices and cracks on the rocks. Some members of the Heteropodidae (*Olios* spp.) are free-living spiders usually found on rocks, but they are also found on the soil surface, or on plants.

Burrow-living spiders (11 spp.) are well represented in the KRNP (Table 2). They include trapdoor, baboon or spoor spiders. One of the trapdoor spiders, *Moggridgea peringueyi* Simon of the Migidae, closes the entrance to its retreat with a hinged trapdoor. The ctenizid, *Stasimopus maraisi* Hewitt, closes its burrow with a trapdoor made of silk and often clay, molded into shape and reinforced by silk. The door resembles a cork bottle stopper. The cyrtaucheniid, *Ancylotrypa sororum* Hewitt lives in silk-lined burrows varying from a single burrow to one with several side passages. The entrance is usually closed with a wafer-type lid consisting of a flexible, limp flap. In *Spiroctenus schreineri* Purcell, a species of the Nemesiidae, a turret made of plant material and soil is constructed around the entrance. The burrows of *Gorgyrella schreineri* Purcell (Idiopidae) are usually slanting and provided with funnel-shaped entrances. The trapdoor lid varies from a thin wafer-like lid to a thick cork lid. Four species of the baboon spiders (Theraphosidae) are found living in silk lined burrows made in the soil, or in crevices below rocks. The entrances to their burrows are usually open or covered with silk threads during inactive periods. Juveniles and females of the spoor spiders *Seothyra schreineri* Purcell (Eresidae) live in burrows similar to those of the trapdoor spiders. However, the entrance to the burrow is

Table 1

Check list of spiders collected at the Karoo National Park, Beaufort West from 1988 to 1997 (GW = ground dwellers, PW = plant dwellers; WB= web dwellers; NR = new record)

Family/ genus/ species	Guilds	Distribution records
1. Family Agelenidae		
<i>Benoitia raymondeae</i> (Lessert, 1915)	WB	NR
<i>Mistaria howelli</i> (Benoit, 1978)	WB	NR
<i>Olorunia ocellata</i> (Pocock, 1900)	WB	NR
2. Family Ammoxenidae		
<i>Ammoxenus pentheri</i> Simon, 1896	GW	NR
3. Family Araneidae		
<i>Argiope australis</i> (Walckenaer, 1805)	WB	Bjørn, 1997
<i>Caerostris sexcuspidata</i> (Fabricius, 1793)	WB	Grasshoff, 1984
<i>Cyclosa insulana</i> (Costa, 1834)	WB	NR
<i>Cyrtophora citricola</i> (Forskål, 1775)	WB	NR
<i>Hypsacantha crucimaculata</i> (Dahl, 1914)	WB	NR
<i>Isoxya cicatricosa</i> (Koch, 1844)	WB	NR
<i>Nemoscolus tubicola</i> (Simon, 1887)	WB	NR
<i>Neoscona blondeli</i> (Simon, 1885)	WB	NR
<i>N. kivuensis</i> Grasshoff, 1986	WB	NR
<i>N. subfusca</i> (C.L. Koch, 1837)	WB	NR
<i>N. triangula</i> (Keyserling, 1864)	WB	NR
<i>N. vigilans</i> (Blackwall, 1865)	WB	NR
<i>Pararaneus cyrtoscapus</i> (Pocock, 1895)	WB	NR
<i>Singa</i> sp. (immature)	WB	NR
4. Family Caponiidae		
<i>Caponia spiralifera</i> Purcell, 1904	GW	NR
5. Family Clubionidae		
<i>Clubiona</i> sp. (immature)	PW	NR
6. Family Corinnidae		
<i>Copa kibonotensis</i> (Lessert, 1921)	GW	NR
<i>Castianeira</i> sp. (immature)	GW	NR
7. Family Ctenizidae		
<i>Stasimopus maraisi</i> Hewitt, 1914	GW	NR
8. Family Cyrtacheniidae		
<i>Ancylotrypa sororum</i> Hewitt, 1916	GW	NR
9. Family Dictynidae		
<i>Archaeodictyna gertschii</i> Berland & Millot, 1939	WB	NR
10. Family Eresidae		
<i>Dresserus schreineri</i> Tucker, 1920	WB	NR
<i>Gandanameno purcelli</i> (Tucker, 1920)	WB	NR
<i>Paradonea variegata</i> (Purcell, 1904)	GW	NR
<i>Penestomus</i> sp. (immature)	GW	NR
<i>Seothyra schreineri</i> Purcell, 1903	WB	NR
<i>Stegodyphus dumicola</i> Pocock, 1898	WB	NR
<i>Wajane stilleri</i> Dippenaar-Schoeman, 1989	GW	NR

Table 1 (continued)

11. Family Gnaphosidae		
<i>Asemesthes reflexus</i> Tucker, 1923	GW	Tucker, 1923
<i>Camillina cordifera</i> Tullgren, 1910	GW	NR
<i>Drassodes lophognathus</i> Purcell, 1907	GW	Tucker, 1923
<i>Epikurtomma beaufortia</i> Tucker, 1923	GW	Tucker, 1923
<i>Micaria</i> sp. (immature)	GW	NR
<i>Scotophaeus relegatus</i> Purcell, 1907	GW	NR
<i>Setaphis calviniensis</i> Tucker, 1923	GW	NR
<i>Trachyzelotes jaxartensis</i> (Kroneberg, 1875)	GW	Platnick & Murphy, 1984
<i>Zelotes lava</i> Tucker, 1923	GW	Tucker, 1923
12. Family Hersiliidae		
<i>Hersiliola australis</i> Simon, 1893	WB	Smithers, 1945
<i>Tama incerta</i> Tucker, 1920	WB	Smithers, 1945
13. Family Heteropodidae		
<i>Olios correvoni</i> Lessert, 1921	GW	NR
<i>O. furcatus</i> Lawrence, 1927	GW	NR
<i>Palystes karoensis</i> Croeser, 1996	PW	Croeser, 1996
<i>Parapalystes lycosinus</i> (Pocock, 1900)	PW	Croeser, 1996
14. Family Idiopidae		
<i>Gorgyrella schreineri</i> Purcell, 1903	GW	NR
15. Family Linyphiidae		
<i>Microlinyphia sterilis</i> (Pavesi, 1883)	WB	NR
3 unidentified genera		
16. Family Lycosidae		
<i>Evippomma squamulatum</i> (Simon, 1898)	GW	NR
<i>Pardosa crassipalpis</i> Purcell, 1903	GW	NR
<i>Trabea rubriceps</i> Lawrence, 1952	GW	NR
<i>Zenonina mystacina</i> Simon, 1898	GW	NR
<i>Lycosa</i> sp.	GW	NR
17. Family Migidae		
<i>Moggridgea peringueyi</i> Simon, 1907	GW	Griswold, 1987
18. Family Miturgidae		
<i>Cheiracanthium africanum</i> Lessert, 1921	PW	Lotz, 1996
<i>C. furculatum</i> Karsch, 1879	PW	Lotz, 1996
19. Family Nemesiidae		
<i>Spiroctenus schreineri</i> Purcell, 1903	GW	NR
20. Family Oecobiidae		
<i>Oecobius navus</i> Blackwall, 1859	GW	NR
<i>Paroecobius</i> sp. (juvenile)	GW	NR
21. Family Oonopidae		
<i>Oonops caecus</i> Benoit, 1975	GW	NR
<i>Orchestina cincta</i> Simon, 1893	GW	NR
22. Family Oxyopidae		

Table 1 (continued)

35. Family Theridiidae		
<i>Latrodectus geometricus</i> O.P.-Cambridge, 1904	WB	NR
<i>L. karrooensis</i> Smithers, 1944	WB	Smithers, 1944
<i>L. renivulvatus</i> Dahl, 1902	WB	Lotz, 1994
<i>Seatoda capensis</i> Hann, 1990	WB	NR
<i>Achaearanea</i> sp.	WB	NR
<i>Euryopis</i> sp.	WB	NR
<i>Argyrodes</i> sp.	WB	NR
36. Family Thomisidae		
<i>Holopelus albibarbis</i> Simon, 1895	PW	NR
<i>Synema imitator</i> (Pavesi, 1883)	PW	NR
<i>Diaea puncta</i> Karsch, 1884	PW	NR
<i>Heriaeus transvaalicus</i> Simon, 1895	PW	NR
<i>Misumenops rubrodecorata</i> Millot, 1941	PW	NR
<i>Runcinia erythrina</i> Jézéquel, 1964	PW	NR
<i>R. flavida</i> (Simon, 1881)	PW	NR
<i>Stiphropus affinis</i> Lessert, 1923	GW	NR
<i>Thomisus stenningi</i> Pocock, 1900	PW	NR
<i>Xysticus</i> sp. (immature)	GW	NR
37. Family Uloboridae		
<i>Miagrammopes brevicauda</i> Cambridge, 1882	WB	NR
<i>Uloborus planipediis</i> Simon, 1896	WB	NR
<i>U. plumipes</i> Lucas, 1846	WB	NR
38. Family Zodariidae		
<i>Cicynethus</i> sp. (immature)	GW	NR
<i>Diores poweri</i> Tucker, 1920	GW	Jocqué, 1990

provided with a lobed silk flap covered with sand particles. Seen from above, it resembles an unguulate footprint. The males, in search of mates, are active during the day mimicking ants in behaviour and appearance.

Twelve species construct their webs close to the soil surface (Tables 2 & 4). The webs vary, from the very commonly seen funnel webs made in the grass by the three species of Agelenidae, to the smaller three-dimensional space webs made by the Theridiidae. Two Hersiliids, *Hersiliola australis* Simon and *Tama incerta* Tucker, are found in the park and they usually build irregular retreat webs under stones. In *T. incerta*, the retreat consists of a circular wall of closely woven webbing, plastered with stones and debris. Anchor threads attached to the substratum warn the spider of approaching prey. Some of

the abandoned mammal burrows house either pholcids or pisaurids, recognized by their irregular space webs. *Ariadna hottentotta* Purcell of the Segestriidae permanently resides in a retreat web consisting of a silk-lined tube with two side burrows used as "back doors" to escape. From the front end of the burrow, about a dozen trip lines radiate outwards warning the spider of approaching prey.

Members of two families (Ammoxenidae and Sicariidae) have the ability to shelter themselves beneath the soil surface (Table 2). *Ammoxenus pentheri* Simon of the family Ammoxenidae is a specialist predator of harvester termites and is usually found in areas infested with termites. When not active, they are found in the soil mounds, consisting of soft sand excavated by the termites from

Table 2

Spider families associated with the ground level at the Karoo National Park, Beaufort West: (GWF) free running on the ground when active; (GWR) living permanently or semi-permanently on or under rocks; (GWB) living in burrows; (GWW) living in a web; (GWUS) living under the soil surface when not active; p = in part, only some genera in family

Family	no. spp.	GWF	GWR	GWB	GWW	GWUS
Agelenidae	3	0	0	0	3	0
Ammoxenidae	1	0	0	0	0	1
Caponiidae	1	1	0	0	0	0
Corinnidae	2	2	0	0	0	0
Ctenizidae	1	0	0	1	0	0
Cyrtachenidae	1	0	0	1	0	0
Eresidae (p)	5	0	4	1	0	0
Gnaphosidae	8	8	0	0	0	0
Hersiliidae	2	0	0	0	2	0
Heteropodidae(p)	2	0	2	0	0	0
Idiopidae	1	0	0	1	0	0
Lycosidae	5	4	0	1	0	0
Migidae	1	0	0	1	0	0
Nemesiidae	1	0	0	1	0	0
Oecobiidae	2	0	2	0	0	0
Palpimanidae	2	2	0	0	0	0
Philodromidae(p)	1	1	0	0	0	0
Pholcidae	1	0	0	0	1	0
Prodidomidae	3	3	0	0	0	0
Pisauridae	1	0	0	0	1	0
Salticidae(p)	1	1	0	0	0	0
Segestriidae	1	0	0	0	1	0
Selenopidae	1	0	1	0	0	0
Scytodidae	2	2	0	0	0	0
Sicariidae	2	1	0	0	0	1
Theraphosidae	4	0	0	4	0	0
Theridiidae(p)	4	0	0	0	4	0
Thomisidae (p)	2	2	0	0	0	0
Zodariidae	2	2	0	0	0	0
	63	29	9	11	12	2

their hives. The spiders run extremely fast and are able to dive headfirst into this soft sand. *Sicarius testaceus* Purcell of the Sicariidae is able to remain beneath the soil for extended periods. The legs are used to throw sand over their bodies, enabling them to quickly disappear beneath the sand surface.

Plant dwellers

Twelve families, represented by 44 species, are associated with plants (Table 3). They wander around on the plants in search of prey or use it as shelter during periods of

inactivity. Plants are also used as a substrate to which they attach their egg sacs or webs. The wanderers are either free running or ambushers and could be found in different micro habitats. They are usually very well camouflaged and blend in with their surroundings.

Some of the more common families of web builders (Tables 3 & 4) associated with plants are: the orb-web spiders (14 spp.) of the family Araneidae; the space-web spiders (3 spp.) of the Theridiidae and the retreat-web spiders Dictynidae (1 sp.) and *Stegodypus dumicola* Pocock of the family Eresidae.

Table 3

Spider families associated with plants at the Karoo National Park, Beaufort West: (PWW) living in webs associated with plants; (PWG) found mainly on grass; (PWF) found mainly on flowers; (PWFO) found mainly on foliage of shrubs, herbs or thicker; (PWT) found mainly on trees living on the bark; p = in part, only some genera in family.

Family	No. spp.	PWW	PWG	PWF	PWFO	PWT
Araneidae	14	14	0	0	0	0
Clubionidae	1	0	0	0	1	0
Dictynidae	1	1	0	0	0	0
Eresidae (p)	2	1	0	0	0	1
Heteropodidae(p)	2	0	0	0	2	0
Miturgidae	2	0	0	0	2	0
Oxyopidae	3	0	3	0	0	0
Philodromidae (p)	2	0	1	0	0	1
Salticidae(p)	4	0	2	0	2	0
Tetragnathidae	2	2	0	0	0	0
Theridiidae	3	3	0	0	0	0
Thomisidae	8	0	3	2	3	0
	44	21	9	2	10	2

Nine species of Oxyopidae, Philodromidae, Salticidae and Thomisidae are commonly found on grass (Table 3). Most of the grass dwellers are cream to fawn, sometimes with longitudinal bands (*Oxyopes pallidecoloratus* Strand) or they usually have elongated bodies, as in *Runcinia flavida* (Simon) blending in with the grass stems. *Heriaeus transvaalicus* Simon, bear long setae on the body and legs. This spiky appearance enables them to blend in with the inflorescence.

Two species of the Thomisidae were found on flowers in the park (Table 3). The one, *Thomisus stenningi* Pocock, have the ability to change colour from white to yellow to pink to conform with the background colour of the flower while *Holopelus albibarbis* Simon, with its very small, round body resembles a seed.

Eleven species, represented by five families, are commonly found on the foliage of the plants (Table 3). They wander around in search of food or ambush their prey. One of the larger plant dwellers *Palystes karooensis* Croeser, can reach a size of 25 mm. The bark dwellers *Caerostris sexcuspidata* (Fabricius), are usually greyish brown and decorated with protuberances resembling

bark. They construct large orb webs between plants and remove it usually early in the morning. The bark is used as a resting place during inactive periods.

Web builders

Forty-four species, represented by 13 families, present six different types of webs (Table 4). Orb webs are best represented and made by three families namely Araneidae (14 spp.), Tetragnathidae (2 spp.) and Uloboridae (1 sp.). Space webs are made by nine species.

Most of the orb-web genera are nocturnal. They build their webs between plants at night and remove it early in the morning, e.g. *Neoscona*, *Pararaneus* and the large bark spider *Caerostris*. The garden orb-web spider *Argiope australis* (Walckenaer), is found during the day in a large orb web usually decorated with a zig-zag stabilimentum. Their abdomens are large with black and yellow bands. *Cyclosa insulana* (Costa), also known as the garbage-line spider, makes delicate orb webs with the female centrally positioned between pieces of dried-out prey and other debris. The tropical tent-web spider *Cyrtophora citricola* (Forsk.) builds

Table 4

Web building spiders from the Karoo National Park, Beaufort West: the following types of webs have been recognized: (FWB) funnel-web; (OWB) orb- web; (RWB) retreat-web; (SWB) sheet-web; (SPWB) space-web; (SLWB) single line-web

Family	No. spp.	FWB	OWB	RWB	SWB	SPWB	SLWB
Agelenidae	3	3	0	0	0	0	0
Araneidae	14	0	14	0	0	0	0
Dictynidae	1	0	0	1	0	0	0
Eresidae	4	0	0	4	0	0	0
Hersiliidae	2	0	0	2	0	0	0
Linyphiidae	4	0	0	0	4	0	0
Oecobiidae	2	0	0	2	0	0	0
Pholcidae	1	0	0	0	0	1	0
Pisauridae	1	1	0	0	0	0	0
Segestriidae	1	0	0	1	0	0	0
Tetragnathidae	2	0	2	0	0	0	0
Theridiidae	7	0	0	0	0	7	0
Uloboridae	2	0	1	0	0	0	1
	44	4	17	10	4	8	1

its fine, mesh-like orb webs in plants, especially between stiff leaves, e.g. aloes.

Some other interesting webs are made by *Stegodyphus dumicola* (Eresidae). These spiders live socially in a communal nest, usually attached to branches of trees. Capture webs of cribellate silk extend out from the nest. The single-line web made by *Miagrammopes brevicauda* Cambridge consists of a single thread held under tension and manipulated by the spider to catch prey.

Conclusions

The 116 species listed for KRNP is a high number if it is taken into account that only sporadic collecting was undertaken. This number probably represents only a portion of the spider fauna present. It still compares very well with other, more comprehensive, surveys undertaken in South Africa. For example, 27 families and 98 species have been collected over four years during monthly surveys from the savanna biome at the Roodeplaat Dam Nature Reserve (Dippenaar-Schoeman *et al.* 1989). From Rietondal Research Station 21 families and 55 species were collected over a 15-month period during weekly surveys (Van den Berg

& Dippenaar-Schoeman 1991). Although the Araneae are an abundant and highly successful group of invertebrate animals, little has been done to protect them. One of the aims of this survey, as part of the South African National Survey of Arachnida (SANSA), is to make an inventory of all the araneofauna in the national parks. Meaningful conservation can not take place if the species involved are not known and an awareness of the spiders present might stimulate additional collecting and more research.

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