

New records of 43 spider species from the Mountain Zebra National Park, South Africa (Arachnida: Araneae)

A.S. DIPPENAAR-SCHOEMAN

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Forty-three new spider species records have been added to the check list of spiders published in 1988 on the spiders of the Mountain Zebra National Park. An updated check list with information on the guilds, habitat preferences and web types are provided for the 34 families, 66 genera and 76 species presently known from the park. A total of 3.8 % of the spiders known from South Africa are presently protected in the park. Fourteen of the 34 families representing 35 species (46.1 %) are web builders and twenty-one families represented by 41 species (53.9 %) are wanderers. The Thomisidae are the most diverse family represented by 11 species. This is an inventory project of the South African National Survey of Arachnida (SANSA) for spiders in the Nama Karoo and conserved areas.

Key words: Araneae, check list, Mountain Zebra National Park, Nama Karoo, spiders, South African National Survey of Arachnida.

A.S. Dippenaar-Schoeman, Agricultural Research Council, Plant Protection Research Institute, Biosystematics Division, Private Bag X134, Queenswood, 0121 Republic of South Africa/ Department of Zoology and Entomology, University of Pretoria, Pretoria, 0002 Republic of South Africa.

Introduction

This study forms part of the South African National Survey of Arachnida (SANSA), initiated in 1997 with the main aim to create an inventory of the arachnid fauna of South Africa (Dippenaar-Schoeman & Craemer 2000). One of the objectives of SANSA is to assess the number of arachnid species presently protected in conserved areas in the country. Check lists of spiders are now available for three national parks, three nature reserves and a conservancy. These areas include: Mountain Zebra National Park (Dippenaar-Schoeman 1988); Karoo National Park (Dippenaar-Schoeman *et al.* 1999); Kruger National Park (Dippenaar-Schoeman & Leroy 2002); Roodeplaatdam Nature Reserve (Dippenaar-Schoeman *et al.* 1989); Makelali Nature Reserve (Whitmore *et al.* 2001, 2002); Swartberg Nature Reserve (Dippenaar-Schoeman *et al.* 2005);

and the Soutpansberg Conservancy (Foord *et al.* 2002).

The Mountain Zebra National Park (MZNP) is 24 km west of Cradock in the Eastern Cape Province and was proclaimed as a protected area in 1937. It is situated in a zone transitional between the Nama Karoo Biome in the west and the Grassland Biome in the East but is classified as Nama Karoo (Rutherford & Westfall 1986). Another objective of SANSA is to determine the diversity of the arachnids from the different floral biomes. Little is known about the spider fauna of the Nama Karoo. Only three published surveys appeared, i.e., on the MZNP (Dippenaar-Schoeman 1988) that listed 32 species from 16 families; the Karoo National Park (Dippenaar-Schoeman *et al.* 1999) with 116 species from 38 families; and the Nama Karoo grassland in the Northern Cape Province (Haddad & Dippenaar-Schoeman 2005) where 20

Table 1
Guild classification of spiders collected in the Mountain Zebra National Park

Guilds	Abbreviation	Guild explanation
Wandering Spiders		
Ground wandering spiders (GW)		
Free living	FGW	free-living spiders running on the soil surface when active
Burrow living	BGW	living in burrows
Rock living	RGW	living permanently or semi-permanently on or under rocks
Sand living	SGW	living beneath the soil surface when not active
Plant wandering spiders (PW)		
Grass living	GPW	found mainly on grass
Flower living	FPW	found mainly on flowers
Foliage living	FOPW	found mainly on the foliage of shrubs, herb or thicket
Web-builders		
Orb-web	OWB	webs consist 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	webs made over soil surface with a funnel-shaped retreat
Gumfoot-web	GWB	three-dimensional webs consisting of a central area with or without a retreat. The upper part comprises mooring, signal and catch threads and a lower part with mooring and catch threads. The lower catch threads studded with sticky droplets are attached to the substrate
Retreat-web	RWB	silk threads radiating from retreat used to catch prey; usually made with cribellate silk
Sheet-web	SHWB	webs that usually consist of an upper sheet with mooring, signal and catch threads.
Space-web	SPWB	webs that fill open space and are usually attached with mooring threads to different substrates.

families and 56 species of ground-dwelling spiders were collected.

Since the publication of the previous check list of spider species from the MZNP (Dippenaar-Schoeman 1988) some additional collecting has been undertaken.

In this paper an updated annotated check list is provided with information on the guilds, habitat preferences and web types.

Materials and methods

The check list provides an updated list of species names, including recent taxonomic name changes for some species. Due to new taxonomic information

several species that were previously only identified to generic level are now identified to species level. Additional information is also provided on species' behaviour, based on the different guilds they occupy. The two main guild categories are free-living wandering spiders and web builders (Table 1). Voucher specimens are housed in the National Collection of Arachnida, ARC-Plant Protection Research Institute, Pretoria.

Results

Forty-three new records of spiders are listed, as well as species names of previous records that could only be identified to generic level (Table 2). The number of spider families recorded from the MZNP has increased from

Table 2
Check List of the spider fauna of the Mountain Zebra National Park (nr = new record)

Class Arachnida			
Family / genera /species	Guilds	Record	
1. Family Agelenidae (funnel-web spiders) <i>Benoitia ocellata</i> (Pocock, 1900)	FWB	nr	
2. Family Ammoxenidae (termite feeders) <i>Ammoxenus pentheri</i> Simon, 1896	SGW	nr	
3. Family Araneidae (orb-web spiders) <i>Araneus</i> sp. (immature)	OWB	Dippenaar-Schoeman 1988	
<i>Argiope australis</i> (Walckenaer, 1805)	OWB	Bjørn 1997 (new name)	
<i>Caerostris sexcuspidata</i> (Fabricius, 1793)	OWB	id to species level	
<i>Cyclosa insulana</i> (Costa, 1834)	OWB	id to species level	
<i>Cyrtophora citricola</i> (Forskål, 1775)	OWB	nr	
<i>Larinia bifida</i> Tullgren, 1910	OWB	id to species level	
<i>Nemoscolus tubicola</i> (Simon, 1887)	OWB	nr	
<i>Neoscona quincasea</i> Roberts 1983	OWB	Dippenaar-Schoeman 1988	
<i>Neoscona subfusca</i> (C.L. Koch, 1837)	OWB	nr	
<i>Neoscona triangula</i> (Keyserling, 1864)	OWB	nr	
4. Family Caponiidae (orange lungless spiders) <i>Caponia</i> sp. (immature)	FGW	nr	
5. Family Clubionidae (sac spiders) <i>Clubiona sigillata</i> Lawrence, 1952	FOPW	Dippenaar-Schoeman 1988	
6. Family Cyrtaucheniidae (wafer-lid trapdoor spiders) <i>Ancylotrypa sororum</i> (Hewitt, 1916)	BGW	nr	
7. Family Dictynidae (meshweb spiders) <i>Mashimo leleupi</i> Lehtinen, 1967	RWB	Dippenaar-Schoeman 1988	
8. Family Eresidae (velvet spiders) <i>Gandanameno spenceri</i> (Pocock, 1900)	RWB	nr	
<i>Stegodyphus tentoriicola</i> Purcell, 1904	RWB	nr	
9. Family Gnaphosidae (ground spiders) <i>Asemesthes albobittatus</i> Purcell, 1908	FGW	nr	
<i>Micaria</i> sp. (mmature)	FGW	nr	
10. Family Hahniidae (comb-tailed spiders) <i>Hahnia tabulicola</i> Simon, 1898	SHWB	nr	
11. Family Idiopidae (spurred trapdoor spiders) <i>Heligmomerus deserti</i> Pocock, 1901	BGW	nr	
12. Family Linyphiidae (hammocksheet-web spiders) <i>Ceratinopsis</i> sp. (immature)	SHWB	nr	
<i>Metaleptyphantes familiaris</i> Jocqué, 1984	SHWB	nr	
<i>Microlinyphia sterilis</i> (Pavesi, 1883)	SHWB	Dippenaar-Schoeman 1988	
13. Family Lycosidae (wolf spiders) <i>Pardosa crassipalpis</i> Purcell, 1903	FGW	id to species level	
<i>Proevippa dregei</i> (Purcell, 1903)	FGW	nr	
14. Family Miturgidae <i>Cheiracanthium furculatum</i> Karsch, 1879	FOPW	id to species level	
15. Family Nemesiidae (wishbone trapdoor spiders) <i>Hermacha crudeni</i> Hewitt, 1913	BGW	id to species level	

Table1(continued)

16.	Family Nephilidae (golden orb-web spiders) <i>Nephila senegalensis</i> (Walckenaer, 1842) <i>Nephila fenestrata</i> Thorell, 1859	OWB OWB	Dippenaar-Schoeman 1988 Dippenaar-Schoeman 1988
17.	Family Oxyopidae (lynx spiders) <i>Hamataliwa</i> sp. (immature) <i>Oxyopes bothai</i> Lessert, 1915 <i>Peucetia nicolae</i> Van Niekerk & Dippenaar-Schoeman, 1994 <i>Peucetia maculifera</i> Pocock, 1900	GPW GPW GPW GPW	nr id to species level Van Niekerk & Dippenaar-Schoeman 1994 Van Niekerk & Dippenaar-Schoeman 1994
18.	Family Palpimanidae (palp-footed spiders) <i>Palpimanus capensis</i> Simon, 1893	FGW	nr
19.	Family Philodromidae (small huntsman spiders) <i>Hirriusa arenacea</i> (Lawrence, 1927) <i>Philodromus</i> sp. <i>Thanatus</i> sp.	FGW FPW FPW	nr Dippenaar-Schoeman 1988 nr
20.	Family Pholcidae (daddy-long-legs spiders) <i>Smeringopus natalensis</i> Lawrence, 1947 <i>Smeringopus similis</i> Kraus, 1957	SPWB SPWB	nr nr
21.	Family Phyxelididae (retreat-web spiders) <i>Vidole capensis</i> (Pocock, 1900)	RWB	nr
22.	Family Pisauridae (nursery-web spiders) <i>Afropisaura</i> sp. <i>Euprosthenops pulchellus</i> Pocock, 1902 <i>Voraptus</i> sp. (immature)	GPW FWB FWB	nr nr Dippenaar-Schoeman 1988
23.	Family Salticidae (jumping spiders) <i>Dendryphantus</i> sp. <i>Myrmarachne solitaria</i> Peckham & Peckham, 1903 <i>Natta chionogaster</i> (Simon, 1901) Salticidae indet.	GPW GPW FGW GPW	id to species level id to species level id to species level Dippenaar-Schoeman 1988
24.	Family Scytodidae (spitting spiders) <i>Scytodes cedri</i> Purcell, 1904	FGW	Dippenaar-Schoeman 1988
25.	Family Segestriidae (tube-web spiders) <i>Ariadna hottentotta</i> Purcell, 1908	RWB	nr
26.	Family Selenopidae (wall spiders) <i>Anyphops capensis</i> (Lawrence, 1940)	FGW	nr
27.	Family Sparassidae (huntsman spider) <i>Olios</i> sp. (immature)	FPW/FGW	nr
28.	Family Tetragnathidae (water orb-web spiders) <i>Leucauge decorata</i> (Blackwall, 1864) <i>Pachygnatha leleupi</i> Lawrence, 1952 <i>Tetragnatha</i> sp. (immature)	OWB OWB OWB	nr nr Dippenaar-Schoeman 1988
29.	Family Theridiidae (gumfoot-web spiders) <i>Achaearanea tepidariorum</i> (C.L. Koch, 1841) <i>Enoplognatha molesta</i> O.P.-Cambridge, 1904 <i>Latrodectus cinctus</i> Blackwall, 1865 <i>Latrodectus geometricus</i> C.L. Koch, 1841	GFWB GFWB GFWB GFWB	nr id to species level nr Lotz 1994

Table1(continued)

30.	Family Thomisidae (crab spiders)		
	<i>Diaea puncta</i> Karsch, 1884	GPW	nr
	<i>Holopelus albibarbis</i> Simon, 1895	FPW	Dippenaar-Schoeman 1988
	<i>Misumenops rubrodecoratus</i> Millot, 1941	FPW	Dippenaar-Schoeman 1988
	<i>Runcinia aethiops</i> (Simon, 1901)	GPW	Dippenaar-Schoeman 1988
	<i>Runcinia flavida</i> (Simon, 1881)	GPW	Dippenaar-Schoeman 1988
	<i>Runcinia grammica</i> (L. Koch, 1837)	GPW	nr
	<i>Synema imitator</i> (Pavesi, 1883)	FPW/OPW	nr
	<i>Synema vallotoni</i> Lessert, 1923	FPW	nr
	<i>Thomisus blandus</i> Karsch, 1880	FPW	nr
	<i>Thomisus stenningi</i> Pocock, 1900	FPW	Dippenaar-Schoeman 1988
	<i>Xysticus</i> sp.	FGW	nr
31.	Family Theraphosidae (baboon spiders)		
	<i>Harpactirella</i> sp.	BGW	nr
32.	Family Trochanteridae (scorpion spider)		
	<i>Platyoides leppanae</i> Pocock, 1902	FGW	nr
33.	Family Uloboridae (hackled orb-web weavers)		
	<i>Miagrammopes constrictus</i> Purcell, 1904	OWB	nr
	<i>Uloborus planipediis</i> Simon, 1896	OWB	id to species level
34.	Family Zodariidae (ant eaters)		
	<i>Diores spinulosus</i> Jocqué, 1990	FGW	nr

16 to 34, the genera from 29 to 66 and the species from 32 to 76. Mountain Zebra National Park represents a new range extension for all 43 spider species. Fourteen of the 34 families representing 35 species (46.1%) are web builders. They construct orb-webs (17 spp.); retreat-webs (5 spp.); sheet-webs and gumfoot-webs (4 spp. each); funnel-webs (3 spp.) and space-webs (2 spp.). Most of the web dwellers construct webs close to the soil surface and, except for some of the orb-web spiders, most are nocturnal and not easily seen. The few diurnal species include the two large golden orb-web spiders *Nephila senegalensis* (Walckenaer) and *N. fenestrata* Thorell, the garden orb-web spiders *Argiope australis* (Walckenaer) and the tropical tent-web spiders *Cyrtophora citricola* (Forskål).

Twenty-one families represented by 41 species (53.9%) are wanderers. Of these, 23 species are free-living plant dwellers, 14 are free-living ground dwellers and four species are burrow dwellers. Of the burrow dwellers three species are trapdoor spiders: *Ancylor-*

trypa sororum (Hewitt) (Cyrtacheniidae), *Heligmomerus deserti* Pocock (Idiopidae) and *Hermacha crudeni* Hewitt (Nemesiidae). The fourth burrow dweller is a lesser baboon spider (*Harpactirella* sp.) of the family Theraphosidae.

Discussion and conclusion

With the ecology and diversity of the spider fauna of South Africa so poorly known, each study is a contribution to our knowledge on the geographical distribution of spider species. It forms part of the South African National Survey of Arachnida (SANSA) for the Nama Karoo Biome and as such, represents new distribution records for 43 species.

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