

# THE ANAPIDAE OF SOUTH AFRICA



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# THE ANAPIDAE OF SOUTH AFRICA

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## ABSTRACT

The Anapidae is a family known from 58 genera and 225 species. Three genera are known from South Africa represented by four species endemic to the region. The family Anapidae is not well studied in Africa and several new species are expected. It is a family not common in South Africa and only 77 specimens are housed in the National Collection of Arachnida of which 61 specimens are not identified. Based on the Conservation Assessment only one species is of special concern. *Crozetulus scutatus* (Lawrence, 1964) has a small restricted distribution range, currently known from only one site and occurring within a protected area where there are no known threats. It is listed as Critically Rare. The other species *C. rhodesiensis* Brignoli, 1981 is Least Concern as it is recorded from several countries in southern Africa. The other two species are Data Deficient. But the picture will change if the family is eventually revised.

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## FAMILY ANAPIDAE Simon, 1895

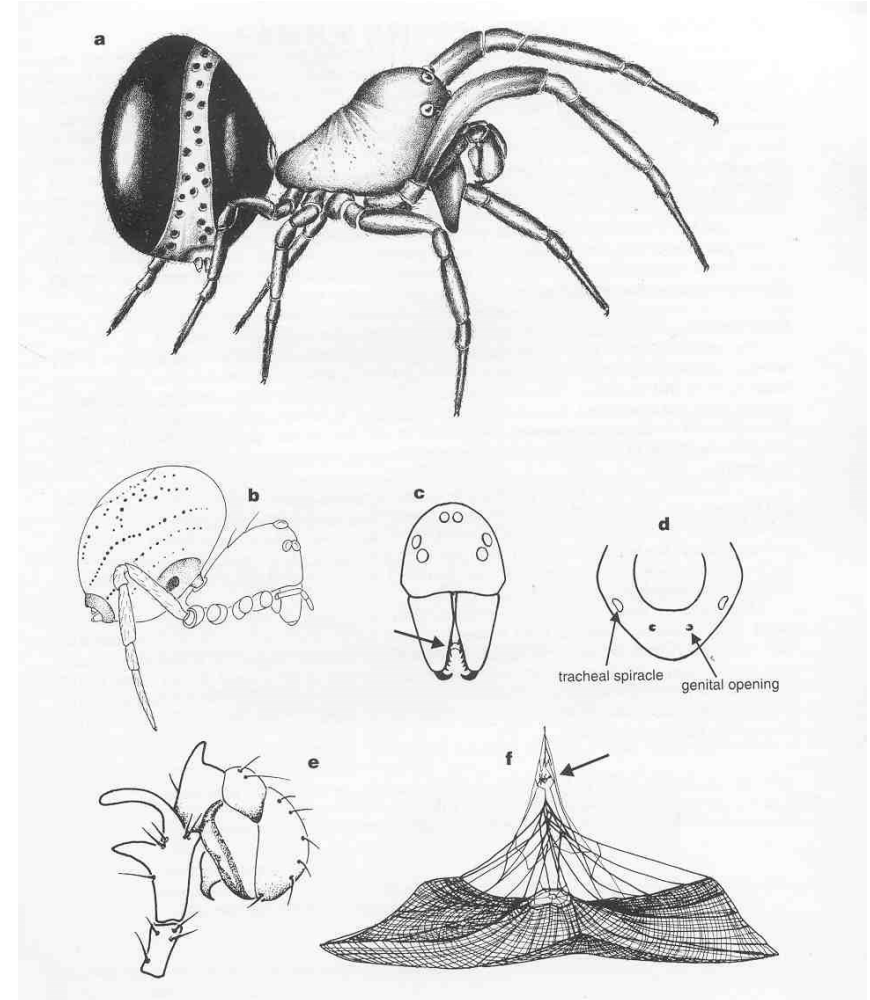
The Anapidae is a family known from 58 genera and 225 species. Three genera are known from South Africa represented by four species all three species are endemic to the region (World Spider Catalog 2022). According to Brignoli (1981) the general distribution of the Anapidae is typical of the "Gondwanian elements" as a whole it is poorly represented in the Northern Hemisphere. But he predicted that we probably know actually only a small number of the existing species.

**COMMON NAME:** Anapid Ground Orb-Web Spiders

**MORPHOLOGY:** Very small spiders (< 2 mm). Colour: various hues of brown (reddish to yellowish). Carapace modified with the ocular region elevated and the pedicel arising from a circular, rimmed cavity on the posterior declivity; glandular openings are situated in hollow pits on the edge of the carapace at the anterolateral corners; eyes (6-8) are arranged in pairs; labium bears an anterior spur that projects forward between the chelicerae (discernible when the chelicerae are spread apart), sometimes reduced to a small crest. Abdomen spherical; soft with only some sclerotised areas in the female; a large scutum in the male. Legs short, without spines; three claws; metatarsi shorter than tarsi; femora I of the male have a short spine ventrally. Genitalia haplogyne; spermathecae are well separated; the male palp is variable, femur and patella sometimes have bristles or apophyses (Dippenaar-Schoeman 2014; Dippenaar-Schoeman & Jocqué 1997; Jocqué & Dippenaar-Schoeman 2006).

**LIFESTYLE:** Anapids are cryptozoic and found in the litter layer. Some genera produce webs. Some are free-living in the litter and humus while others build small, horizontal orb webs slightly drawn up in the centre (Dippenaar-Schoeman & Jocqué, 1997). Some species also inhabit caves, like the troglobite, *Crozetulus scutatus*, a species so far collected twice from caves in the Western Cape. This species was described by Lawrence (1964) from the Table Mountain Cave complex, where it was collected again by Sharratt et al. (2000).

**TAXONOMY:** Very little is known about the South African fauna. Litter surveys indicate that there are several undescribed species present in South Africa. For example from the Ngome State Forest >300 specimens from four species have been sampled (Van der Merwe et al. 1996).



Anapidae. a: Anapidae sp., male, lateral view; b: *Metanapis* sp., female, lateral view; c: carapace, anterior view, showing labral spur; d: abdomen, anterior view, showing tracheal spiracle and opening of female genitalia; e: male palp, lateral view; f: web, showing position of spider and egg-sac. (After Dippenaar-Schoeman & Jocqué 1997).

## GENUS *CROZETULUS* Hickman, 1939

**COMMON NAME:** Ground Orb-Web Spiders

**TYPE SPECIES:** *Crozetulus minutus* Hickman, 1939

**MORPHOLOGY:** They are very small spiders and the male is almost the same size as the female. Their colour varies from reddish brown to yellowish brown. The carapace is modified, the ocular region elevated and the pedicel arises from a circular, rimmed cavity on the posterior declivity. Glandular openings are situated in hollow pits on the edge of the carapace at the anterolateral corners. Legs are short without spines; femur I of the male has a short spine ventrally. The male has a large dorsal scutum, or two to three scuta, or a dorsal region with scattered small sclerotised areas. The female's abdomen is soft with a small, brown sclerotised ring (Dippenaar-Schoeman 2014; Hickman 1939).

**LIFE STYLE:** Anapids are usually found in forest areas and sometimes in caves. Some are free-living in the litter and humus while others build small, horizontal orb webs slightly drawn up in the centre.

**TAXONOMY:** Not revised.



*Crozetulus* sp. male Photos ASD



Anapid orb-web

Photo E. Krynauw



## *Crozetulus rhodesiensis* Brignoli, 1981

**COMMON NAME:** Rhodesian Ground Orb-Web Spider

**CONSERVATION STATUS:** LC

**NATIONAL RATIONALE:** A Southern Africa endemic described by Brignoli (1981) from Zimbabwe. It has also been sampled from Namibia and South Africa. In South Africa sampled from three provinces including six protected areas. No known threats and due to wide geographical range (EOO=625 729 km<sup>2</sup>; AOO= 48 km<sup>2</sup>; 15-1412 m a.s.l.) the species is listed as being of Least Concern.

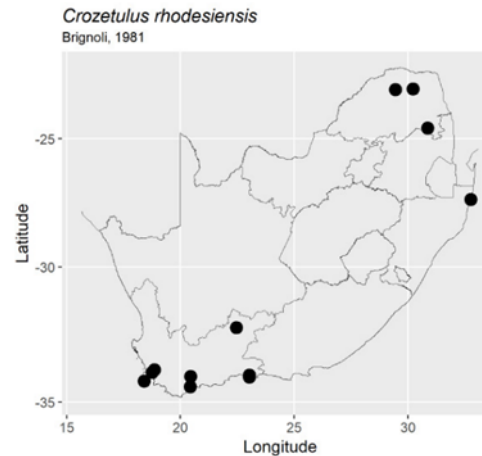
**LIFE STYLE:** Anapids are small cryptozoic spiders usually found in leaf litter, where they construct small, horizontal orb-webs. These small orb-web spiders are collected by sieving the litter and sweeping the vegetation (Dippenaar-Schoeman 2014). This species was found on the shore of rivers and lakes, mainly in reed beds. The species was sampled from the Fynbos, Forest, Nama Karoo, Indian Ocean Coastal Belt and Savanna (Foord et al. 2011) biomes.

**GLOBAL DISTRIBUTION:** Namibia, Zimbabwe and South Africa.

**DISTRIBUTION SOUTH AFRICA:** **Western Cape:** Karoo National Park (Pienaar's Pass) (-32.28, 22.46); Bontebok National Park (-34.07, 20.45); Brenton-on-Sea (-34.1, 23.03); Table Mountain National Park (Cape of Good Hope Nature Reserve) (-34.24, 18.41); Diepwalle Forest Station (-34.03, 23.03); De Hoop Nature Reserve (De Hoop Vlei) (-34.45, 20.44); Simonsberg Cons., Delvera Core (-33.833, 18.857); Stellenbosch Kastanjeberg Edge (-33.934, 18.754). **Limpopo:** Entabeni Forest (-23.00, 30.23); Luvhondo Nature Reserve (-23.03, 29.45). **Mpumalanga:** Mariepskop (-24.58, 30.87). **KwaZulu-Natal:** iSimangaliso Wetland Park: Sodwana Bay Nature Reserve (-27.40, 32.76).

**CONSERVATION MEASURES:** No conservation actions are recommended. The species is protected in six protected areas such as: De Hoop Nature Reserve (Haddad & Dippenaar-Schoeman 2009), Bontebok National Park (Dippenaar-Schoeman 2020a), Table Mountain National Park (Dippenaar-Schoeman 2020c) and Karoo National Park (Dippenaar-Schoeman 2020b). No conservation measures needed.

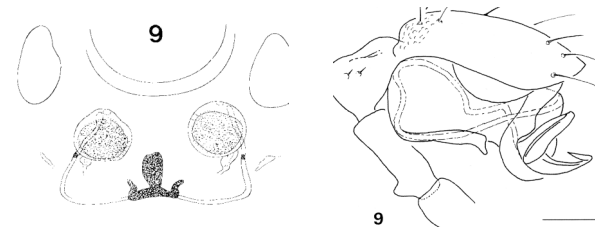
**TAXONOMIC NOTES:** Redescribed by Schütt (2000, 2002). Known from both sexes.



*Crozetulus rhodesiensis* male microscope image anterior view Photo ASD



*Crozetulus rhodesiensis* microscope image dorsal and lateral view Photos ASD.



Epigyne and palp after Schütt (2002)

## *Crozetulus scutatus* (Lawrence, 1964)

**COMMON NAME:** Cape Cave Orb-Web Spider

**CONSERVATION STATUS:** CR

**NATIONAL RATIONALE:** A Western Cape endemic species described in 1964 as *Speleoderces scutatus* from Wynberg Caves, Table Mountain National Park. Known only from the type locality a very restricted range (EOO=12km<sup>2</sup>; AOO=12 km<sup>2</sup>; 276-1068 m a.s.l.). Due to the species having a small restricted distribution range, currently known from only one site and occurring within a protected area where there are no known threats. It is listed as Critically Rare.

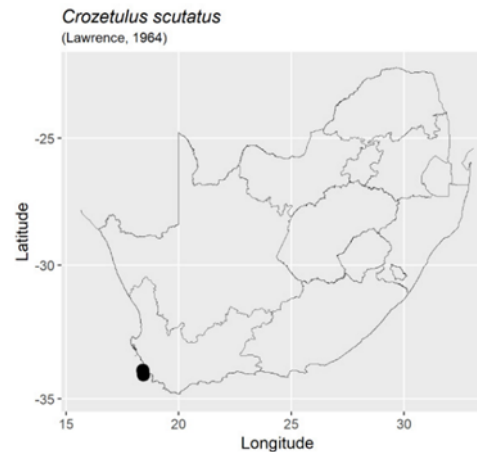
**LIFE STYLE:** A small cavernicolous spider that makes orb-webs close to the ground in totally dark parts of the caves (Dippenaar-Schoeman 2014. This species was described from the Table Mountain Cave complex (Lawrence 1964; Dippenaar-Schoeman & Myburgh 2009; Picker & Samways (2000) where it was collected by Sharratt et al. (2000).

**GLOBAL DISTRIBUTION:** South Africa.

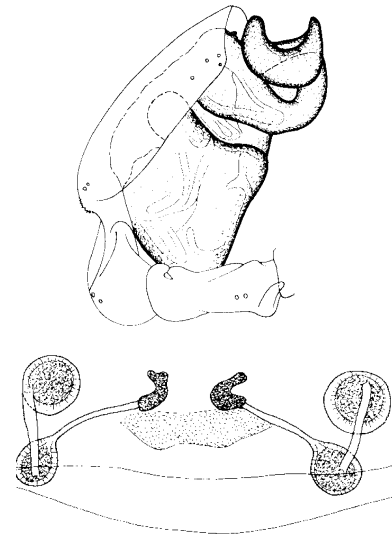
**DISTRIBUTION SOUTH AFRICA: Western Cape:** Table Mountain Bats Caves (-33.952, 18.399); Wynberg Caves, Table Mountain (-33.9605, 18.40131); Muizenberg Boomslang Cave (-34.1192, 18.4389).

**CONSERVATION MEASURES:** No threats are known to impact this species it is possible that cave exploration for recreation may disturb this species and the impacts of caving on the population should be monitored. Sampled from the Table Mountain Bat caves (Dippenaar-Schoeman & Myburg 2009). It is listed as Critically Rare.

**TAXONOMIC NOTES:** Not revised. Known from both sexes.



*Crozetulus scutatus* male Photo ASD



Palp and epigyne after Brignoli (1981)



*Crozetulus scutatus* female Photo ASD

## GENUS *DIPPENAARIA* Wunderlich, 1995

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A monotypic genus described by Wunderlich (1995) from South African (World Spider Catalog 2022).

**COMMON NAME:** Anapid Orb-Web Spiders

**TYPE SPECIES:** *Dippenaaria luxurians* Wunderlich, 1995

**MORPHOLOGY:** Very small > 3 mm. The carapace and abdomen are dark red-brown and the legs yellowish brown. The carapace is very high and there is no fovea. They have eight eyes and the anterior median eyes are the smallest; the posterior eye row is recurved. The sternum is as wide as it is long; the legs are short and robust. The male has a large dorsal scutum (Dippenaar-Schoeman 2014; Wunderlich, 1995).

**LIFE STYLE:** Holotype male was sampled from a tree.

**TAXONOMY:** Known only from the male.



*Dippenaaria* sp. male Photos ASD



## *Dippenaaria luxurians* Wunderlich, 1995

**COMMON NAME:** Dippenaar's Anapid Orb-Web Spider

**CONSERVATION STATUS:** DDT

**NATIONAL RATIONALE:** This Eastern Cape endemic described by Wunderlich (1995) and known only from holotype male from Grahamstown in an area greatly transformed for human settlement (EOO= 4 km<sup>2</sup>; AOO=4 km<sup>2</sup>; 646 m a.s.l.). A species known only from holotype male. With more collecting in targeted microhabitats more specimens could be caught. More sampling is needed to collect the female and determine the species' range. Therefore it is listed as Data Deficient for Taxonomic purposes.

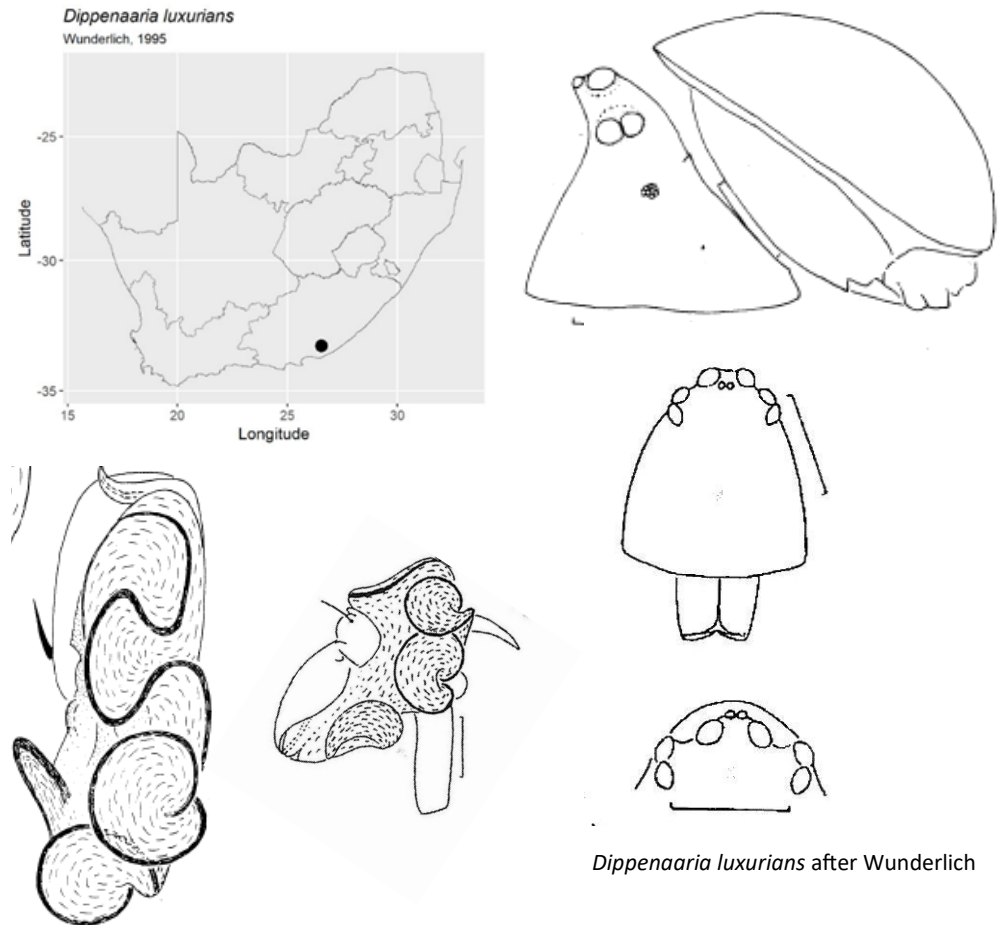
**LIFESTYLE:** This small spider was sampled from a *Robinia* tree in Albany Thicket biome.

**GLOBAL DISTRIBUTION:** South Africa.

**DISTRIBUTION SOUTH AFRICA:** *Eastern Cape*: Grahamstown (-33.2996, 26.5519).

**CONSERVATION MEASURES:** The species is threatened by loss of habitat for infrastructure development around Grahamstown. More targeted microhabitat sampling needed.

**TAXONOMIC NOTES:** Monotypic genus. Known only from male.



*Dippenaaria luxurians* after Wunderlich

Male palp after Wunderlich (1995).

## GENUS *METANAPIS* Brignoli, 1981

*Metanapis* is known from five species with three species recorded from Africa (World Spider Catalog 2022).

**COMMON NAME:** Anapid Ground Orb-Web Spiders

**TYPE SPECIES :** *Metanapis mahnerti* Brignoli, 1981

**MORPHOLOGY:** Small spiders. Carapace relatively unspecialized. Abdomen roundish, slightly sclerotized. Legs: with femur normal, with no apophysis; patella elongated with a single apophysis; tibia short, shorter than the patella, partially fused with the cymbium; cymbium very elongated; bulbus elongated, embolus large, more or less coiled (Brignoli, 1981).

**LIFESTYLE:** Some are free-living in the litter and humus while others build small, horizontal orb webs slightly drawn up in the centre.

**TAXONOMY:** Not revised.



*Metanapis* sp. male Photos ASD

## *Metanapis bimaculata* (Simon, 1895)

**COMMON NAME:** Ground Orb-Web Spider

**CONSERVATION STATUS:** DD

**NATIONAL RATIONALE:** This South African endemic species was described in 1895 as *Chasmocephalon bimaculatum* with type locality given only as “Prom. Cap. Bonae Spei” no exact locality. Fage (1937) illustrated a male from Cape Town. More sampling is needed to determine the species’ range. Therefore listed as Data Deficient.

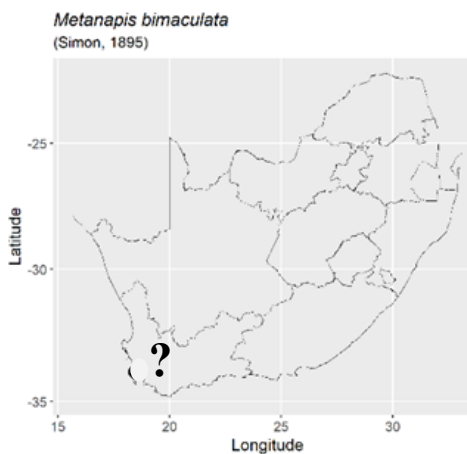
**LIFESTYLE:** They make small orb-webs in litter, found in the Fynbos Biome.

**GLOBAL DISTRIBUTION:** South Africa.

**DISTRIBUTION SOUTH AFRICA:** Western Cape no exact locality

**CONSERVATION MEASURES:** More targeted microhabitat sampling needed.

**TAXONOMIC NOTES:** Not revised. Known from both sexes, but only the male palp illustrated.



*Metanapis bimaculata* male palp after Fage (1937)

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