

A Revision of the genus *Ceratogyrus* Pocock (Araneae: Theraphosidae)

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The African genus *Ceratogyrus* of the family Theraphosidae is revised, with notes of its natural history. Seven species are recognised and distinguished in a key. Six species, namely *C. bechuanicus* Pocock, *C. brachycephalus* Hewitt, *C. darlingii* Pocock, *C. dolichocephalus* Hewitt, *C. marshalli* Pocock and *C. sanderi* Strand are redescribed and figured, *C. cornuatus* is newly described and figured and *C. schultzei* Pocock is synonymized with *C. bechuanicus*. Lectotypes are designated for four species namely, *C. brachycephalus*, *C. darlingii*, *C. dolichocephalus* and *C. marshalli*. Distributional data is given for all seven species.

Key words: Revision, natural history, *Ceratogyrus*, Araneae, Theraphosidae.

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Introduction

The genus *Ceratogyrus* is endemic to southern Africa and according to distribution records listed in the catalogues of Roewer (1942) and Bonnet (1945-1959), this genus is restricted to the 16 to 28 southern latitudes of the southern region of Africa (Fig. 1). It is characterized by a foveal tubercle which is unique to these theraphosid spiders.

Very little is known about the genus *Ceratogyrus*. The genus description by Pocock in 1897 was based on three adult females of *C. darlingii* from Enkeldoorn (=Chivu), Zimbabwe. At the same time he described another species, *C. marshalli*, based on two adult males from Salisbury (=Harare), Zimbabwe. Purcell (1902) described *C. bechuanicus* based on two adult males from Mochudi in Botswana and *C. schultzei* (1908), based on four females from an area between Kang and Kgokong in Botswana. Strand (1906) described *C. sanderi* based on an adult male from Windhoek in Namibia and in 1907 he described the female based on one specimen. Hewitt (1919) described two further species, *C. brachycephalus*, based on four females from the N'jelele River, South Africa, and *C.*

dolichocephalus based on two females from Victoria in Zimbabwe.

Simon (1903), Strand (1907), Lawrence (1928a, 1928b, 1936) and Lessert (1936) published new distribution records with short redescrptions of the specimens of *Ceratogyrus* collected on their respective field trips.

Ceratogyrus bechuanicus has the widest distribution in the genus and is found in central Namibia, Botswana, Zimbabwe, Moçambique, as well as the north-western Cape, northern and eastern Transvaal and northern Natal, South Africa (Fig. 9). *Ceratogyrus brachycephalus* is found in central Botswana, southern Zimbabwe and northern Transvaal, South Africa (Fig. 9). *Ceratogyrus darlingii* is found in central and eastern Zimbabwe and central Moçambique (Fig. 12), while *C. dolichocephalus*, *C. marshalli* and *C. cornuatus* are found only in Zimbabwe. *Ceratogyrus dolichocephalus* is widely spread throughout in Zimbabwe (Fig. 14) while *C. marshalli* and *C. cornuatus* spec. nov. are confined to the eastern part of Zimbabwe (Fig. 18 & 12). *Ceratogyrus sanderi* has only been found in Namibia (Fig. 18).

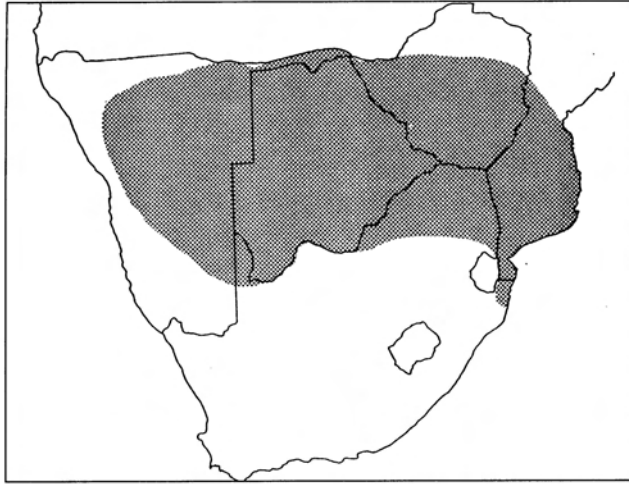


Fig. 1. Known geographical distribution of the genus *Ceratogyrus* Pocock in Southern Africa.

This revision of *Ceratogyrus* has resulted in the recognition of seven species, of which *C. bechuanicus* Pocock, *C. brachycephalus* Hewitt, *C. darlingii* Pocock, *C. dolichocephalus* Hewitt, *C. marshalli* Pocock and *C. sanderi* Strand are recognised as valid species and redescribed. A new species, *C. cornuatus*, is described and *C. schultzei* Pocock is recognised as a junior synonym of *C. bechuanicus*.

Natural History

The juveniles and females of *Ceratogyrus* live in silk-lined burrows in soil. Burrows are found in different types of soils, ranging from sandy to very hard, compacted soils in areas sparsely covered with grass. The opening of the burrow is usually found on the edge of an open area near grass tufts. Very often the openings are closed with a thin layer of silk. This is more noticeable during cloudy weather or before rain. The diameter of burrow entrances for mature specimens varies from 20-50 mm and the depth from 240-400 mm. Some burrow entrances are wider at the surface but taper inwards within the first 100 mm. Most burrows are "J"-shaped (Fig. 2), but can be found in other shapes as well since pre-existing cavities such as those left by rotted tree roots are sometimes used. Storage spaces, where prey remains as well as exu-

viae are stacked, occur mostly at the bottom of the burrows. Sometimes storage places can be found as hollowed out portions of the side walls near the bottom of the burrow.

How the burrow is made is unknown. It is assumed that the young spider invades an existing burrow or nest made by other animals, including ants. The burrow is then further excavated over a period of time. A few burrows of very young spiders were found with remnants of what seemed to be grass stored by ants. An adult female of *C. brachycephalus* held in captivity was observed making a burrow in soft soil. She first pushed clumps of soil together with the first pair of legs, bound it together with silk and then carried it off with the chelicerae. Solid clumps of soil of manageable size were picked up with the fangs and removed. Adult females of *C. bechuanicus* and *C. brachycephalus* kept in cages containing loose sand did not attempt to excavate burrows. Smith (1990) is of the opinion that the majority of African theraphosids are opportunistic burrowers, extending mole and lizard holes or excavating chambers beneath rocks or logs, etc.

No adult males of *Ceratogyrus* were ever found in burrows. As adult males are usually actively seeking females to mate with, it may

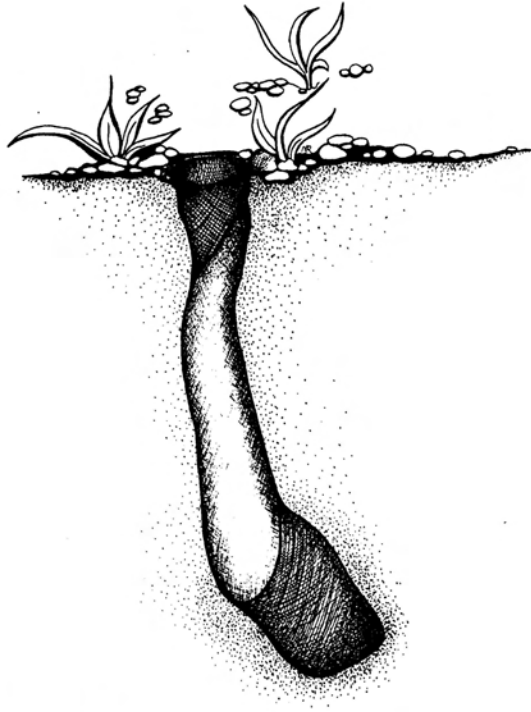


Fig. 2. Cross section of a burrow.

be possible that they only use temporary shelter such as abandoned burrows. This was once observed for a *Harpactira* species. Petrunkevitch (1911) noted that the courtship of the theraphosids is of very short duration and that the male dies an apparent natural death a few weeks after mating. Adult males of *Ceratogyrus bechuanicus* kept in captivity by the author and those of a *Pterinochilus* sp. kept by Perret (1974a) also survived only a few weeks. It is therefore assumed that this phenomenon may apply to the southern African theraphosids.

Egg laying does not necessarily take place directly after mating as a female of *C. bechuanicus* collected in July 1988 and kept in captivity by the author laid fertile eggs only in December of that year. A female of *C. darlingii* in captivity laid eggs 44 days after mating (Smith 1990). Captive breeding of a *Pterinochilus* sp. by Perret (1974a) showed a delay of 30 to 117 days before egg laying after mating.

A female of *C. bechuanicus* was observed to lay as few as 30 eggs. These eggs are deposited in an egg sac constructed at the bottom of the burrow. The young hatch after two weeks (Smith 1986a). Yates (1968) found 150 eggs in the sac of an unknown theraphosid.

Although females of *C. bechuanicus* can be found in their burrows throughout the year, eggs were only observed in the burrows in October.

Newly hatched spiderlings of *C. darlingii* (Smith 1990) and *C. bechuanicus* (*pers. obs.*) are by no means mobile and they only commence moving around approximately 50 days later (Smith 1990). The small spiderlings stay with the female for a considerably longer time.

Ceratogyrus bechuanicus and *C. brachycephalus* were only found to occur in small colonies of a few burrows scattered

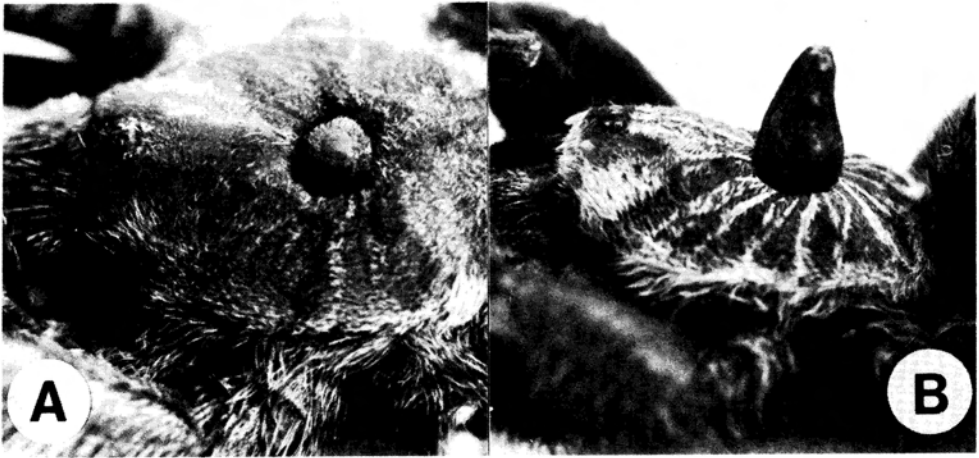


Fig. 3.(A&B). Shape of the foveal tubercle of *Ceratogyrus marshalli* Pocock (A), and *C. cornuatus* spec. nov. (B).

over a wide area. This is in marked contrast to *Pterinochilus* sp. which is usually found in large colonies (in one instance 106 burrows were counted in 80 square metres).

Little is known about the hunting behaviour of theraphosids. They are nocturnal and are found at night sitting in the entrances of their burrows, probably waiting for prey to pass close enough to be pounced upon and dragged into the burrow. Remains of insects such as grasshoppers (Orthoptera) and beetles (Coleoptera) have been observed in the burrows of *C. bechuanicus* and *C. brachycephalus*. These remains were crushed and bound in small balls after they had been consumed. Remains of millipedes (Diplopoda) found in the burrows were not crushed and it is assumed that the millipedes fell or crawled accidentally into the burrows where they died naturally. In captivity, *C. bechuanicus* and *C. brachycephalus* were given a variety of larvae and adults of Coleoptera, Orthoptera, Isoptera, Blattodea, Lepidoptera (mostly Saturniidae and Sphingidae), other smaller spiders and driver ants (Hymenoptera: Dorylidae), all of which were consumed.

Predators of theraphosid spiders include mammal species such as the honey badger, *Mellivora capensis*, as observed by Smithers (1983). The large wasps of the genus *Hemipepsis* frequently use theraphosids as

prey for their larvae (Ledger 1979; Scholtz & Holm 1985).

Theraphosid spiders may live up to 25 years (Baerg & Peck 1970; Seymour 1979) and take up to 10 years to mature.

Material and methods

A total of 196 specimens, adults and juveniles, housed in the following institutions were studied:

BMNH - British Museum of Natural History, London, UK.

CAS - California Academy of Sciences, San Francisco, California, USA.

MNB - Museum für Naturkunde der Humboldt Universität Berlin, Germany.

MHNG - Museum d'Histoire naturelle, G n ve, Switzerland.

MRAC - Mus e Royal de l'Afrique Centrale, Tervuren, Belgium.

NCA - Biosystematic division: National Collection of Arachnida, Plant Protection Research Institute, Pretoria, South Africa.

NM - Natal Museum, Pietermaritzburg, South Africa.

NMB - Natural History Museum of Zimbabwe, Bulawayo, Zimbabwe.

SAM - South African Museum, Cape Town, South Africa.

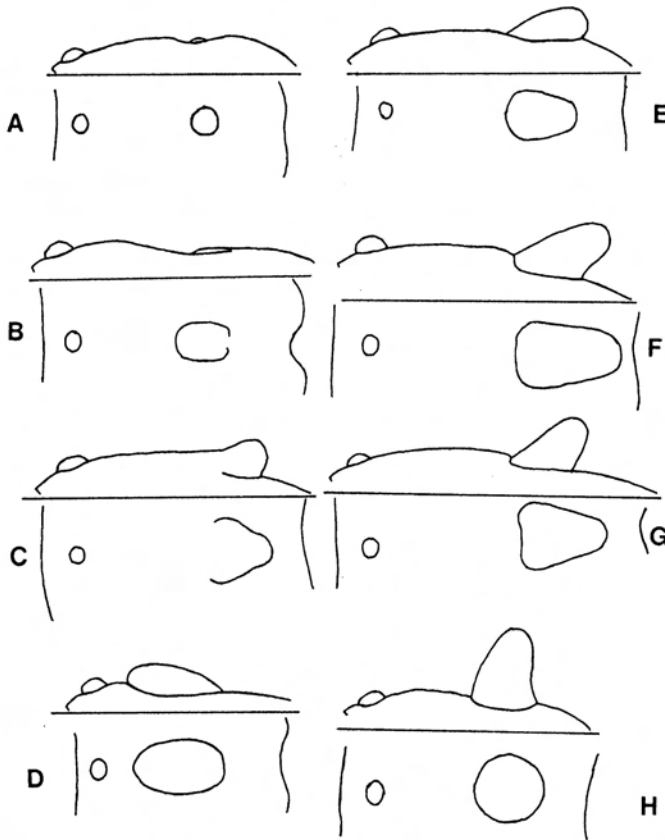


Fig. 4(A-H). Schematic representation of the lateral and dorsal views of the carapace of the species of *Ceratogyrus*. (A), *C. marshalli* Pocock. (B), *C. sanderi* Strand. (C), *C. dolichocephalus* Hewitt. (D), *C. brachycephalus* Hewitt. (E&F), *C. bechuanicus* Purcell. (G), *C. darlingii* Pocock. (H), *C. cornuatus* spec. nov.

SMN - State Museum, Windhoek, Namibia.

TM - Transvaal Museum, Pretoria, South Africa.

Type material of the following species was examined: *C. schultzei* (MNB), *C. brachycephalus* (TM), *C. darlingii* (BMNH), *C. dolichocephalus* (TM), *C. marshalli* (BMNH).

Scanning Electron Microscopy (SEM) using an ISI-SS60 Scanning Electron Microscope including specimen preparation by a qualified technician, was carried out at the Zoology Department of the Rand Afrikaans University. Suitable material of only *Ceratogyrus bechuanicus*, *C. brachycephalus*, *C. sanderi* and *C. dolichocephalus* was available and the following body parts of each of these species were examined using the SEM: tarsal claw, tarsal scopula, patella (retrolateral side), cheliceral teeth, labial serrula, labial setae, maxillary serrula, maxillary setae, sternal cuticle, sigilla, foveal tubercle, cuticle on carapace, eye tubercle, setae ventrally on abdomen

and setae on spinnerets. The same structures in the closely related genera *Harpactira* and *Pterinochilus* were also examined.

The measurements of the eyes and the distances between the eyes as well as the measurements of the spermathecae were taken with a linear graticule mounted in the right eye piece of the Wild stereo microscope. All other measurements were taken with a Tricle Brand Vernier Caliper capable of an accuracy of 0,02 mm. All measurements are given in millimetres.

Taxonomy

Genus *Ceratogyrus* Pocock

Ceratogyrus Pocock, 1897:754. Roewer, 1942:268. Bonnet, 1952:1022. Platnick, 1989:98. Smith, 1986a:113, 1990:67. Type

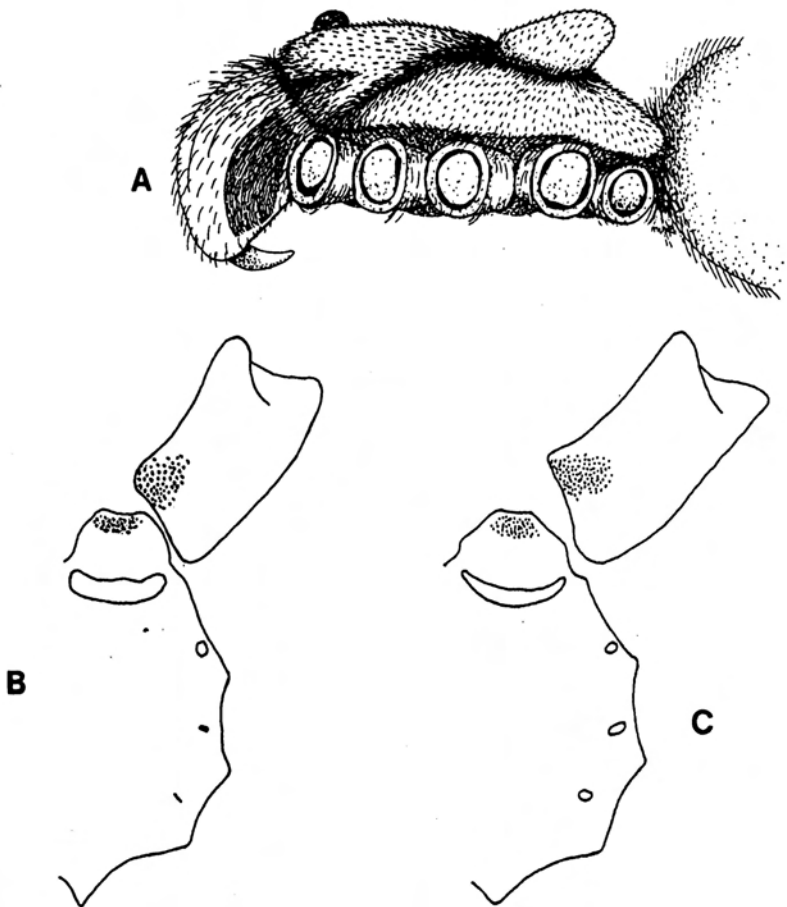


Fig. 5(A-C). *Ceratogyrus bechuanicus* Purcell, male and female. (A), Lateral view of of carapace, female. (B), Ventral view of cephalothorax, male. (C), Ventral view of cephalothorax, female.

species, *Ceratogyrus darlingii* Pocock, 1897:754.

Diagnosis: Mygalomorphae spiders with a foveal tubercle clearly recognisable as a low dome or prominent horn (Fig. 3A&B).

Description: Large to very large mygalomorphs, 30-55 mm in length. Little sexual dimorphism, males smaller than females. Abdomen oval shaped with fish bone pattern dorsally and reticulated pattern of darker markings laterally. Uniformly setose. Cuticle ruffled. Ocular area anteromedially on carapace with eyes grouped in a small rectangle on a compact tubercle 1,50-2,45 long, 2,00-3,00 wide; clypeus 0,92-2,28 wide; tho-

racic fovea with groove circular, strongly procurved or strongly recurved (Fig. 4A-H). Foveal tubercle varies from low and dome shaped to erect and horn shaped (Fig. 4A-H). Chelicera large, 5,54-11,46 long, 2,20 -5,00 wide, 4,92-10,13 high. Rastellum and paddle setae absent from chelicera. Dense scopula on the retrolateral surface of the chelicera. Maxilla with a distinct lobe anteriorly (Fig. 5B). Serrula consisting of numerous blunt cuspules (Fig. 19C) on labium and maxillae. Sternum 7,00-12,86 long, 5,52-10,20 wide. Leg formula varies: 4132; 2413; 4123; 1423 or 4123. Tarsal and metatarsal scopulae ventrally present on all four legs; paired claws hidden in claw tufts. Spines present on tibiae I to IV and on metatarsi III and IV. Male with

spur on tibia I, absent in female. Female palpal tarsus distinctly longer than wide; male palpal tarsus very short, about equal in length and width. Palpal organ with bulb fully sclerotised and with slender embolus, visible on retrolateral side of palpal tarsus (Fig. 6A). Spinnerets four; posterior lateral spinnerets (PLS) long, clearly visible, apical segment digitiform. Spermathecae paired, simple, unbranched. In female, spermathecal walls fully sclerotised and pored.

- 6. Foveal tubercle a low round dome (Fig. 4A) *marshalli*
- Foveal tubercle a low rectangular dome (Fig. 4B) *sanderi*

Descriptions of the species of the genus *Ceratogyrus*

Ceratogyrus bechuanicus Purcell (Figs. 5-7&9).

Ceratogyrus bechuanicus Purcell, 1902:339. Lawrence, 1928a:2, 1928b:219, 1936:145. Roewer, 1942:268. Bonnet, 1957:1022. Smith, 1986a:128, 1990:70.

Ceratogyrus schultzei Purcell, 1908:213 (syntype 29829, Kalahari, 2W(?) Kokong u Kang, MNB.). Roewer, 1942:268. Bonnet, 1957:1022. Smith, 1986a:129, 1990:75. syn. nov.

The two male specimens (SAM 4539) used by Purcell (1902) to describe *C. bechuanicus* from Mochudi in Botswana were stored dry and they disintegrated completely with age. Redescriptions are based on male specimen TM 6018, Gabani, Botswana and female specimen TM 6022, Khutse Pan, Botswana.

Synonymy: Purcell (1902) described *C. bechuanicus* based on two males from Mochudi in Botswana. In 1908 he described *C. schultzei* based on four females from an area between Kang and Kgokong, Botswana. Purcell (1908) noted that the two species are very similar in colour. However, he regarded them as two different species based on the difference in the shape of the foveal tubercle. The variation in the shape of the foveal tubercle falls within the range of variation as observed for *C. bechuanicus* (Fig. 7A-J) and as both species are recorded from Botswana they are considered to be conspecific.

Notes:

- 1. This species is only distinguished from *C. darlingii* in that the latter's foveal tubercle

Key to the species of the genus *Ceratogyrus*

- 1. Foveal tubercle distinct and clearly visible laterally (Fig. 4 C-H) 2
- Foveal tubercle a low dome, round or rectangular, not clearly visible laterally (Fig. 4A&B) 6
- 2. Foveal tubercle a posteriad extension of the cephalic region (Fig. 4C) *dolichocephalus*
- Foveal tubercle not a posteriad extension of the cephalic region, inclined posteriad or anteriad, or vertical (Fig. 4 D-H) 3
- 3. Foveal tubercle inclined posteriad or anteriad (Fig. 4 D-G) 4
- Foveal tubercle vertical, slightly curved posteriad (Fig. 4H) *cornuatus* spec. nov.
- 4. Foveal tubercle inclined posteriad (Fig. 4E-G) 5
- Foveal tubercle inclined anteriad (Fig. 4D) *brachycephalus*
- 5. Foveal tubercle broad and obtuse, strongly inclined posteriad, anterior slope of tubercle slightly curved (Fig. 4E&F) *bechuanicus*
- Foveal tubercle slender, straight, conical, inclined posteriad anterior slope of tubercle not curved (Fig. 4G) *darlingii*

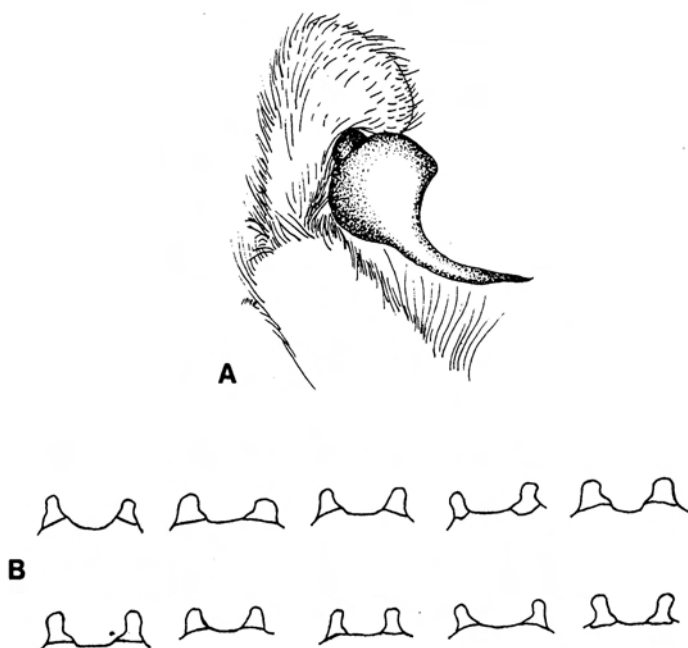


Fig. 6. (A&B). *Ceratogyrus bechuanicus* Purcell, male and female. (A), Palpal organ. (B), Spermathecae, variation.

is more slender, straight and conical and the posterior pair of booklungs of *C. bechuanicus* is darker brown than that of *C. darlingii*. Only 13 specimens of *C. darlingii* were examined and when more specimens become available, clearer distinction may be made, or they may be synonymised. Electrophoresis may also help to resolve the problem.

2. Smith (1990) describes the foveal tubercle of *C. bechuanicus* as "conical erect and straight" and that of *C. darlingii* as "short, robust and raised". My observation is that the foveal tubercle of *C. bechuanicus* is the more robust and that the foveal tubercle of *C. darlingii* is conical and more slender. This agrees with Pocock (1897) who describes the foveal tubercle of *C. darlingii* as a "long conical horn" and Purcell (1908) who describes the foveal tubercle of *C. schultzei* syn. nov. as very large and long with the apex rounded and very obtuse.

Diagnosis: Male and female with foveal tubercle a prominent horn, with an obtuse shape

which is strongly inclined posteriad and is completely surrounded by the foveal groove (Fig. 4E&F, 5A).

Description: Male (TM 6018): Total length 34,82. Integument reddish-brown, carapace covered with yellowish-brown setae dorsally. Abdomen with reticulated pattern of dark markings dorsally, ventrally dark brown with epigastric area yellowish-brown, covered with yellowish-brown setae; posterior pair of booklungs dark brown, anterior pair yellowish-brown, covered with dark brown setae. Chelicerae covered with yellowish-brown setae, retrolateral scopula yellowish-brown. Sternum and coxae densely covered with short, dark brown setae interspersed with longer, pale brown setae. Trochanters of palp, leg I and II with a band of black setae prolaterally and ventrally, and yellowish-brown retrolaterally. Femur of palp, leg I and II covered with short dark brown setae prolaterally, rest of legs covered with short greyish-white setae interspersed with longer yellowish-brown setae.

Carapace 19,22 long, 15,60 wide, 10,86 high. Clypeus 1,24 wide. Ocular area 2,20 long, 2,30 wide; AME round, 0,55 in diameter; ALE 0,62 long, 0,43 wide; PME 0,49 long, 0,31 wide; PLE 0,55 long, 0,43 wide. Distance between eyes: AM-AL 0,18, AM-AM 0,43, AM-PM 0,25, AL-PL 0,18, PM-PL 0,06, PM-PM 1,11. Foveal tubercle 4,36 long, 3,28 wide, 1,54 high; anterior edge of foveal tubercle to anterior edge of carapace 9,57, posterior edge of foveal tubercle to posterior edge of carapace 5,29. Sternum 7,78 long, 7,38 wide; sigilla small, three pairs very weakly developed, pair next to coxa I round, pair next to coxa II smaller and oval, pair next to coxa III very small and linear (Fig. 5B). Promargin of chelicera with 10 large teeth and a group of about 20 smaller teeth laterad. Labium 2,50 long, 3,22 wide. Labial serrula with about 90 cuspules and maxillary serrula with about 240 cuspules. Abdomen 17,90 long, 12,32 wide, 11,82 high. Lengths of PLS segments: proximal 3,88, medial 2,40, distal 3,08, total length of PLS 9,36; ALS 2,28 long.

Palp: bulb fully sclerotised with slender embolus (Fig. 6A). Metatarsi and tarsi I to IV with dense scopulae ventrally; tarsi I to IV covered completely, metatarsus I covered 68% distally, metatarsus II covered 70% distally, metatarsus III covered 63% distally, metatarsus IV covered 58% distally; metatarsus IV with a band of setae dividing the scopula, scopulae on other leg segments undivided. Paired tarsal claws on all legs smooth and covered by claw tufts. Tibia I with distal proventral spine modified into tibial spur.

Spination on legs:

| | | Proximal | Medial | Distal |
|----------------|--------------|----------|--------|--------|
| Tibia I | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 1 |
| Tibia II | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 1 |
| Tibia III | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 1 |
| Metatarsus III | prodorsal | 0 | 0 | 1 |
| | retrodorsal | 0 | 0 | 1 |
| | proventral | 1 | 0 | 0 |
| | midventral | 0 | 0 | 1 |
| | prolateral | 0 | 1 | 1 |
| | retrolateral | 0 | 0 | 1 |
| Tibia IV | proventral | 0 | 0 | 1 |

| | | | | |
|---------------|--------------|---|---|---|
| | retroventral | 0 | 0 | 2 |
| Metatarsus IV | prodorsal | 0 | 1 | 1 |
| | retrodorsal | 0 | 1 | 1 |
| | proventral | 0 | 0 | 0 |
| | midventral | 0 | 0 | 1 |
| | prolateral | 1 | 0 | 1 |
| | retrolateral | 0 | 0 | 1 |

Leg measurements:

| | PALP | I | II | III | IV |
|------------|-------|-------|-------|-------|-------|
| Femur | 10,16 | 15,76 | 14,56 | 12,16 | 15,22 |
| Patella | 6,82 | 9,86 | 8,12 | 7,88 | 7,78 |
| Tibia | 7,60 | 11,78 | 10,02 | 10,80 | 11,12 |
| Metatarsus | - | 11,26 | 10,00 | 11,06 | 14,42 |
| Tarsus | 3,90 | 6,14 | 5,84 | 5,60 | 6,96 |
| Total | 28,48 | 54,80 | 48,54 | 47,50 | 55,50 |

Variation (male): Integument brown to dark brown. Abdomen ventrally pale brown to black. Sternum with pale brown to black setae. Carapace 16,92-20,44 long, 13,72-16,16 wide, 9,16-12,96 high. Cheliceral teeth on promargin 10-13; group of smaller teeth laterad 13-23. Labial serrula with 54-90 cuspules, maxillary serrula with 157-240 cuspules. Foveal tubercle varies as shown in Fig. 7A-E. Tibia III, retroventral side with 1 or 2 spines distally.

Female (TM 6022): Total length 47,16. Very similar in colour to male, only with reticulated pattern of dark markings dorsally on abdomen more prominent.

Carapace 22,34 long, 18,26 wide, 13,74 high. Clypeus 1,36 wide. Ocular area 2,08 long, 2,66 wide. AME round, 0,43 in diameter; ALE 0,62 long, 0,49 wide; PME 0,49 long, 0,31 wide; PLE 0,55 long, 0,37 wide. Distance between eyes: AM-AL 0,25, AM-AM 0,49, AM-PM 0,12, AL-PL 0,25, PM-PL 0,06, PM-PM 1,23. Foveal tubercle 6,60 long, 4,86 wide, 5,24 high; longer than that of male and more prominent; anterior edge of foveal tubercle to anterior edge of carapace 11,61, posterior edge of foveal tubercle to posterior edge of carapace 4,13. Sternum 10,70 long, 9,14 wide; sigilla small, better developed than in male, three pairs equal in size, placed next to coxae I, II and III (Fig. 5C). Promargin of chelicera with 11 large teeth and a group of about 30 smaller teeth laterad. Labium 3,12 long, 3,92 wide. Labial serrula with about 97 cuspules and maxillary

serrula with about 250 cuspules. Abdomen 24,82 long, 19,26 wide, 17,88 high. Lengths of PLS segments: proximal 4,56, medial 3,08, distal damaged; ALS 2,71 long. Spermathecae very simple, 3,08 wide, 1,11 apart, 0,80 orifice, 0,92 long.

Metatarsi and tarsi I to IV with dense scopulae ventrally; tarsi I to IV covered completely, metatarsus I covered 78% distally, metatarsus II covered 72% distally, metatarsus III covered 57% distally, metatarsus IV covered 56% distally; metatarsus IV with a band of setae dividing the scopula, scopulae on other leg segments undivided. Paired tarsal claws on all legs smooth and covered by claw tufts.

Spination on legs:

| | | Proximal | Medial | Distal |
|----------------|--------------|----------|--------|--------|
| Tibia I | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 1 |
| Tibia II | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 1 |
| Tibia III | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 2 |
| Metatarsus III | prodorsal | 0 | 0 | 1 |

| | | | | |
|---------------|--------------|---|---|---|
| | retrodorsal | 0 | 0 | 1 |
| | proventral | 1 | 0 | 0 |
| | midventral | 0 | 0 | 1 |
| | prolateral | 0 | 1 | 1 |
| | retrolateral | 0 | 0 | 1 |
| Tibia IV | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 2 |
| Metatarsus IV | prodorsal | 0 | 0 | 1 |
| | retrodorsal | 0 | 0 | 1 |
| | proventral | 0 | 1 | 0 |
| | midventra | 0 | 0 | 1 |
| | prolateral | 0 | 1 | 1 |
| | retrolateral | 0 | 1 | 1 |

Leg measurements:

| | PALP | I | II | III | IV |
|------------|-------|-------|-------|-------|-------|
| Femur | 11,84 | 15,88 | 11,14 | 12,02 | 14,32 |
| Patella | 7,46 | 10,14 | 9,68 | 7,38 | 8,34 |
| Tibia | 6,96 | 10,72 | 8,98 | 7,38 | 10,80 |
| Metatarsus | - | 9,58 | 9,34 | 10,10 | 13,68 |
| Tarsus | 6,96 | 5,64 | 6,14 | 6,00 | 7,14 |
| Total | 33,22 | 51,96 | 39,88 | 42,88 | 54,28 |

Variation (female): Integument pale yellow, to nearly white in one specimen (probably an albinistic specimen) to dark chocolate brown; abdomen ventrally with pale brown to black setae. Carapace 15,82-25,02 long, 11,82-

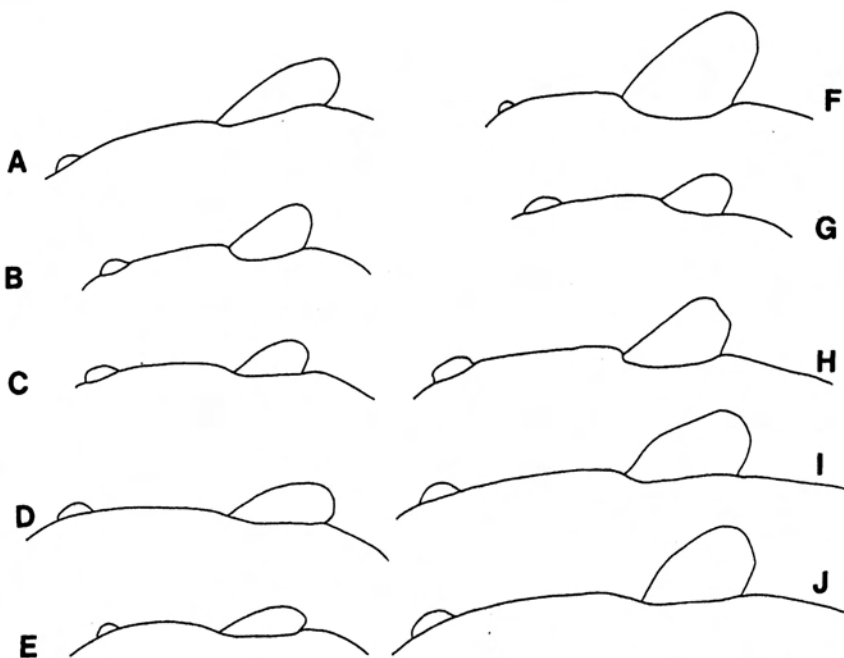


Fig. 7. (A-J). *Ceratogyrus bechuanicus* Purcell. Shape of foveal horn, variation. (A-E), male. (F-J), female.

19,54 wide, 9,62-13,62 high. Cheliceral teeth on promargin 9-11; group of smaller teeth laterad 24-30. Labial serrula with 97-125 cuspsules, maxillary serrula with 232-294 cuspsules. Foveal tubercle and spermathecae varies as in Figs. 7F-J&6B. Metatarsus III, proventral side with one spine proximally or medially.

Distribution: central Namibia, Botswana, Zimbabwe, Moçambique as well as South Africa, the northwestern Cape, northern, western and eastern Transvaal, and northern Natal (Fig. 9).

Material examined: SOUTH AFRICA: Transvaal: Selati, Pilgrims Rest, 2430BA, male, TM 16402, III.1896; Selati, Pilgrims Rest, 2430BA, female, TM 16399; Mooketsi, Northern Transvaal, female, NCA 89/504, 1987; Wilhanshohe 78LS, Pietersburg, 2329AA, four females, TM 16403-16406; Moorddrift 470LQ, Waterberg, 2327DA, female, TM 16400; Mamiashoek 279KQ, Waterberg, 2427BC, female, TM 16401; Punda Maria, Kruger National Park, 2231CA, two females, TM 5366 & 5369, 25.XI.1932; Punda Maria, Kruger National Park, 2231CA, female, TM 5373; Glasgow 750MS, Zoutpansberg, 2229DC, female, TM 6625, 30.IV.1934; Debad 396KT, Lydenburg, 2430CD, female, TM 16364, 15.III.1985; Bluebank 244KT, Pilgrims Rest, 2430BD, female, TM 16365; Manutsa 233KT, Pilgrims Rest, 2430BC, female, TM 16370, IV.1987; D'Nyala Nature Reserve, Ellisras, 2327DB, two females, TM 16366 & 16367, 26.II.1987; Dudley 360KU, Sabi Sand Private Game Reserve, Pilgrims Rest, 2431CD, female, TM 16368, 16.VI.1987; Sparta 259KU, Sabi Sand Private Game Reserve, Pilgrims Rest, 2431CD, two females, TM 16371 & 16374, 21.X.1987; Kingstown 380KU, Sabi Sand Private Game Reserve, Pilgrims Rest, 2431CD, female, TM 16372, 20.X.1987; Lisbon 297KU, Sabi Sand Private Game Reserve, Pilgrims Rest, 2431CD, female, TM 16373, 21.X.1987; Shaws 379KU, Sabi Sand Private Game Reserve, Pilgrims Rest, 2431CD, two females, TM 16383 & 16384, 26.X.1988; Verdwaal, Ten Bosch 162JU, Komatiipoort, 2531BD, female, TM 16394, 25.IV.1989; Whiskey, Ten Bosch 162JU, Komatiipoort, 2531BD, female, TM 16395, 26.IV.1989; Messina Nature Reserve, Messina, 2230AC, female, TM 16375, 18.II.1988; Twyfontein 483MS, Messina, 2229DA, two females, TM 16376 & 16377, 14.VI.1988; Twyfontein 483MS, Messina, 2229DA, female, TM 16380, 15.VI.1988; Riebelton 488MS, Messina, 2229DA, two females, TM 16378 & 16379, 16.VI.1988; Linton 177MS, Messina, 2229BC, female, TM 16385, 11.I.1989; Kopfontein 78KP, Marico, 2426CA, two females, TM 16381 & 16382, 24.VIII.1988; Weltevreden, Vaalwater, 2328CA, female, TM 16369, VIII.1987; Zuurverdiend 167KP, Thabazimbi, 2426DB, two females, TM 16386 & 16387, 20.IX.1989; Rust 167KP, Thabazimbi, 2426DB, female, TM 16388,

20.IX.1989; Elandsfontein, Thabazimbi, female, NCA 81/656, 5.IX.1979; Marken, Potgietersrust, 2328CB, female, no number, 25.V.1990; Northwest of Mica, Eastern Transvaal, 2430BB, female, NMZ/A 1507, XII.1977; Transvaal, female, MRAC 154648, 1979; Cape Province: Unterberg, Sangwana, 2929CD, four specimens, TM 7365, XI.1934; Between Springbok and Komaggas, Little Namakwaland, 2428DA, female, TM 7784, 25-26.VIII.1937; 5 miles North of Kwang Pan, 2520BC, female, NM 13744, 4.V.1970; Tweerivieren, Kalahari Gemsbok National Park, female, NM 13745, VII.1968; Nossob river near Nossob Camp, Kalahari Gemsbok National Park, 2620DC, five females, NM 16007, NM 16015-16018, IV.1970; Nossob Camp, Kalahari Gemsbok National Park, 2620DC, female, TM 9763, 7.I.1967-; Natal: Mkuzi Game Reserve, Mkuzi, 2732CA, female NM 13818, 22.IV.1969; BOTSWANA: Gabani, 2425DB, male, TM 6018, 11.III.30; Kuke (=Khutse) Pan South East Kalahari, 2122AB, adult male, TM 6019, 19.III.30; Kuke (=Khutse) Pan South East Kalahari, 2122AB, female, TM 6020, 24.III.30; Kuke (=Khutse) Pan South East Kalahari, 2122AB, female, TM 6021, 25.III.30; Kuke (=Khutse) Pan South East Kalahari, 2122AB, female, TM 6022, 26.III.30; Gemsbok Pan, TM 6032, 1.V.30; Machumi Pan, Lothlekane, male, TM 6034, 5.V.30; Orapa, 2125AD, male, no number, 29.IV.90; Metsimaklaba river, between Gaborone and Molepolole, 2425DA, female, TM 6017, 6.III.30; Gabani, near Gaborone, 2425DB, two females, TM 6018, 11.III.30; Mathapa Pan, female, TM 6023, 27.III.30; Gomodimo Pan, 2223DB, female, TM 6024, 3.IV.30; Kaotwe (=Kgaotwe) Pan, 2222CD, female, TM 6025, 11.IV.30; Kaotwe (=Kgaotwe) Pan, 2222CD, two females, TM 6026 & 6027, 12.IV.30; Mothlatlogo, on Lake Ngami, South Ngamiland, female, TM 6035, 15.V.30; Mahalapye, 2326BB, two females, TM 8946 & 8947, 17.I.1958; Aha mountains, 1921CC, two females, TM 9075 & 9076, 22.IX.61; Dekar, Ghanzi, 2121DB, female, TM 9172, 28.X.61; Tierputs, four miles Southwest of Ghanzi, two females, TM 9188 & 9189, 1.XI.1961; Gaborone 2425DB, female, MRAC 154647, X.1980; Damara Pan, West Central Kalahari, 2222AA, female, TM 6028, 18.IV.30; NAMIBIA: Andara Rest Camp, 1821AB, male, SMN 35243, 23.IV.65; Waterberg 416, Otjiwarongo, 2017CB, male, SMN 35674, 1417.XI.72; Good Hope 397, Gobabis, 2219AB, male, SMN 35758; Eava 383, Gobabis, 2218BB, female, SMN 35010, 29.X.65; Eava 383, Gobabis, 2218BB, female, SMN 35205; Ondekaremba, Otjiwarongo, 2217AD, female, SMN 35384, 2.IV.72; Wendelstein 171, Gobabis, 2219AC, female, TM 10983, 1.II.1975; ZIMBABWE: Majoda School, 10 kilometres North of West Nicholson, 2129AB, two males, NMZ/A 5606, 27.II.1987; Newlands, Harare, 1731CC, female, NMZ/A 2198; Haroni River, Chimanimani Mountains, 1933CC, female, NMZ/A 7750, 28.IV.66; Highlands, Salisbury (=Harare), 1731CC, female, NMZ/A 1496, 3.III.70; MOÇAMBIQUE: Panda, male, NM 13742, V.1966.

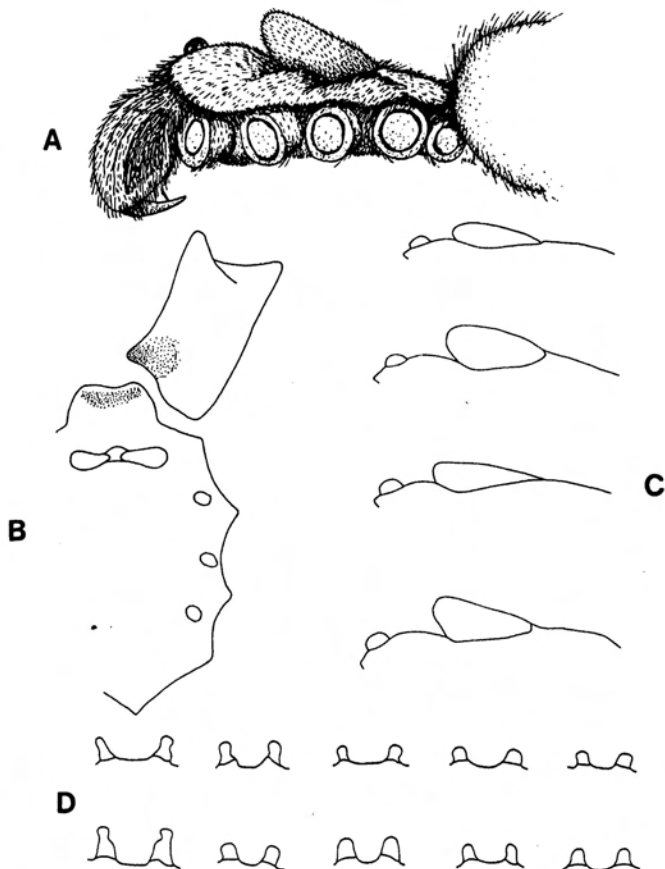


Fig. 8. (A-D). *Ceratogyrus brachycephalus* Hewitt, female. (A), Lateral view of carapace. (B), Ventral view of cephalothorax. (C), Shape of foveal horn, variation. (D), Spermathecae, variation.

Ceratogyrus brachycephalus Hewitt (Figs. 8&9).

Ceratogyrus brachycephalus Hewitt, 1919:103 (here designated, lectotype female TM 2992, and paralectotype females TM 2993 and TM 2994, Njelele River, South Africa). Lessert, 1936:208. Roewer, 1942:268. Bonnet, 1957:1022. Smith, 1986a:128, 1990:70.

Diagnosis: Female with foveal tubercle a longitudinal horn inclined anteriorly (Fig. 8A).

Description: Female (lectotype TM 2992): Total length 40,06. Integument reddish-brown, covered with short, creamy setae dorsally. Abdomen with reticulated pattern of

dark markings dorsally, abdomen ventrally dark reddish-brown with epigastric area and posterior pair booklungs as well as anal area and spinnerets a paler brown. Chelicerae covered with short greyish-white setae interspersed with longer, setae, dark brown at the base and greyish-white distally. Sternum and coxae densely covered with short, dark, reddish-brown setae, interspersed with longer setae of the same colour. Trochanters of palp, legs I and II with a band of setae of similar colour, trochanters of legs III and IV with setae a paler brown. Femur, patella, tibia of palp, and leg I and II covered with short, dark, reddish-brown setae prolaterally, rest of legs covered with creamy setae interspersed with longer setae, brown basally and creamy distally.

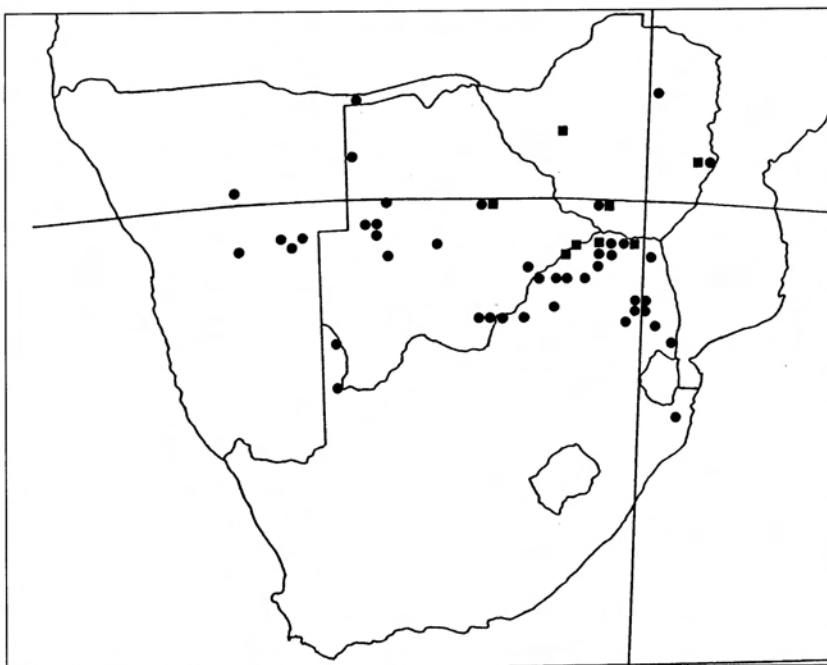


Fig. 9. Known geographical distribution of *Ceratogyrus bechuanicus* Purcell (●) *C. brachycephalus* Hewitt (■).

Carapace 20,20 long, 15,00 wide, 9,52 high. Clypeus 1,28 wide. Ocular area 1,86 long, 2,32 wide; AME round, 0,37 in diameter; ALE 0,55 long, 0,25 wide; PME 0,37 long, 0,31 wide; PLE 0,43 long, 0,31 wide. Distance between eyes: AM-AL 0,37, AM-AM 0,55, AM-PM 0,25, AL-PL 0,37, PM-PL 0,62, PM-PM 1,17. Foveal tubercle 8,44 long, 4,62 wide, 3,24 high; anterior edge of foveal tubercle to anterior edge of carapace 5,38, posterior edge of foveal tubercle to posterior edge of carapace 6,38. Sternum 8,82 long, 8,12 wide; sigilla small, three pairs, situated next to coxae I, II and III (Fig. 8B). Promargin of chelicera with 9 large teeth and a group of about 37 smaller teeth laterad. Labium 2,76 long, 3,88 wide. Labial serrula with about 90 cuspules and maxillary serrula with about 190 cuspules. Abdomen 19,86 long, 14,46 wide, 12,04 high. Lengths of PLS segments: proximal 3,14, medial 2,40, distal 3,33, total length of PLS 8,87; ALS 2,09 long. Spermathecae very simple, 3,39 wide, 1,23 apart, 1,05 orifice, 1,11 long.

Metatarsi and tarsi I to IV with dense scopulae ventrally; tarsi I to IV covered com-

pletely, metatarsus I covered 72% distally, metatarsus II covered 88% distally, metatarsus III covered 60% distally, metatarsus IV covered 58% distally; metatarsus IV with a band of setae dividing scopula, scopulae on other leg segments undivided. Paired tarsal claws on all legs smooth and covered by clawtufts.

Spination on legs:

| | | Proximal | Medial | Distal |
|----------------|--------------|----------|--------|--------|
| Tibia I | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 1 |
| Tibia II | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 1 |
| Tibia III | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 2 |
| Metatarsus III | prodorsal | 0 | 0 | 1 |
| | retrodorsal | 0 | 0 | 1 |
| | proventral | 1 | 0 | 0 |
| | midventral | 0 | 0 | 1 |
| | prolateral | 0 | 0 | 1 |
| Tibia IV | retrolateral | 0 | 0 | 1 |
| | proventral | 0 | 0 | 2 |
| Metatarsus IV | retroventral | 0 | 0 | 2 |
| | prodorsal | 0 | 0 | 1 |
| Metatarsus IV | retrodorsal | 0 | 1 | 1 |
| | proventral | 0 | 1 | 0 |
| | midventral | 0 | 0 | 1 |

| | | | |
|--------------|---|---|---|
| prolateral | 0 | 1 | 1 |
| retrolateral | 0 | 0 | 1 |

Leg measurements:

| | PALP | I | II | III | IV |
|------------|-------|-------|-------|-------|-------|
| Femur | 9,06 | 12,96 | 11,46 | 9,92 | 11,80 |
| Patella | 6,20 | 8,24 | 17,84 | 6,22 | 7,22 |
| Tibia | 6,20 | 9,26 | 8,32 | 6,02 | 8,88 |
| Metatarsus | - | 8,34 | 7,88 | 7,96 | 11,00 |
| Tarsus | 5,64 | 5,22 | 4,94 | 4,82 | 5,50 |
| Total | 27,10 | 44,02 | 50,44 | 34,94 | 44,40 |

Variation (female): Integument with virtually no variation in specimens examined. Carapace 17,46-23,46 long, 13,30-18,40 wide, 09,62-10,74 high. Cheliceral teeth on promargin 9-10; group of smaller teeth laterad 10-37; Labial serrula with 71-112 cuspules, maxillary serrula with 175-193 cuspules. Foveal horn and spermathecae varies as in Fig. 8C&D. Tibia IV, proventral side, with 1 or 2 spines distally and metatarsus IV, retrolateral side, with 0 or 2 spines medially.

Male: Smith (1990) gave a short description of the male. However, this is a mistake as the material he referred to are female.

Distribution: central Botswana, southern Zimbabwe and northern Transvaal, South Africa (Fig. 9).

Material examined: SOUTH AFRICA: Transvaal: Njelele River, Zoutpansberg, three females, TM 2992-2994, VIII.1919; Messina Nature Reserve, Messina, 2230AC, two females, TM 16389 & 16390, 18.II.88; Dover 44MT, Messina, 2230 AC, immature, TM 16391, 9.I.89; Tulbach 135MR, 2228CC, two females, TM 16392 & 16393, 22.III.89; Ons Eigegrond, Pontdrift, Messina, immature, NCA 80/153, 18.VI.1979; Altever 103MR, Maasstroom, 2228CB, female, NCA 76/1519, 24.VIII.76; Maasstroom, Northern Transvaal, 2228CB, female, MRAC 16212, XI.76; ZIMBABWE: Birchenough Bridge, 1932CD, three females, TM 8160-8163; Ghandazi River five miles east of Birchenough Bridge, 1932CD, two females, TM 8194 & 8195; Bulawayo, 2028 BB, immature, NMZ/A 1217, IX.1979; Doddieburn HQ, Doddieburn Ranch, 2129AD, immature, NMZ/A 4001, 39.XII.1985; BOTSWANA: Orapa, 2125AD, male, no number, 29.IV.1990.

Ceratogyrus cornuatus spec. nov. (Figs. 10 & 12).

Holotype female NMZ/A 2269, Cross Kopje, Mutare 1832DC. Paratypes: female SAM/B

9126 Penhalonga, Umtali (=Mutare) 1832DC and female NMZ/A 2270 Hillcrest School, Mutare, 1832DC

Etymology: Latin *cornuatus*, horn-shaped, referring to the very prominent horn-shaped foveal tubercle.

Diagnosis: Female with vertical horn-shaped tubercle slightly curved posteriorly with a round base (Fig. 10A).

Description: Female (holotype NMZ/A 2269): Total length 47,92. Integument reddish-brown, carapace covered with grey and black setae dorsally. Abdomen with reticulated pattern of dark markings dorsally, ventrally dark brown, epigastric area and booklungs yellowish-cream, area between posterior booklungs pale brown. Chelicerae covered with short pale grey setae interspersed with long setae, setae dark brown basally and white distally, retrolateral scapula brownish-grey. Sternum and coxae densely covered with short black setae interspersed with longer setae of same colour. Trochanters of palp, legs I, II and III with a band of black setae, and trochanters of legs III and IV with pale grey and black setae. Femur and patella I, II, and III with short black setae prolaterally, rest of legs covered with short greyish-white setae interspersed with longer black setae.

Carapace 22,62 long, 17,94 wide, 14,46 high. Clypeus 1,42 wide. Ocular area 2,20 long, 2,86 wide; AME round 0,43 in diameter; ALE 0,74 long, 0,36 wide; PME 0,49 long, 0,37 wide; PLE 0,49 long, 0,49 wide. Distance between eyes: AM-AL 0,31, AM-AM 0,49, AM-PM 0,12, AL-PL 0,43, PM-PL 0,12, PM-PM 1,29. Foveal tubercle 5,30 long, 5,70 wide, 8,40 high; anterior edge of foveal tubercle to anterior edge of carapace 10,14, posterior edge of foveal tubercle to posterior edge of carapace 7,18. Sternum 10,54 long, 9,16 wide; sigilla small, three pairs, next to coxae I, II and III (Fig. 10B). Cheliceral teeth in promargin of chelicera with 10 large teeth and a group of about 70 smaller teeth laterad. Labium 2,82 long, 3,54 wide. Labial serrula with about 80 cuspules

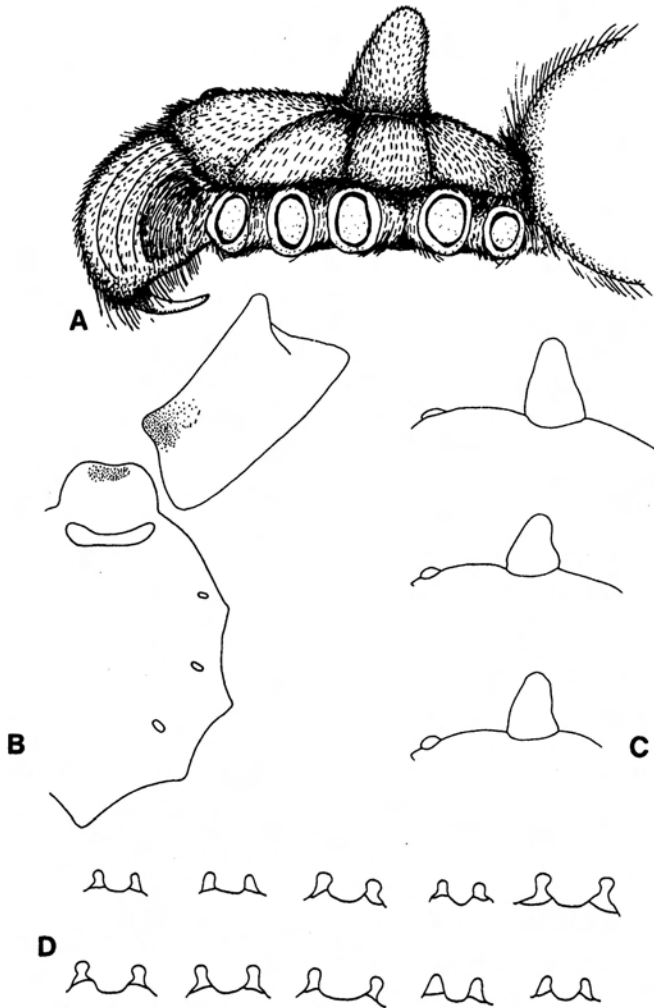


Fig. 10 (A-D). *Ceratogyrus cornuatus* spec. nov., female. (A), Lateral view of carapace. (B), Ventral view of cephalothorax. (C), Shape of foveal horn, variation. (D), Spermathecae, variation.

and maxillary serrula with about 250 cuspules. Abdomen 25,30 long, 17,88 wide, 16,78 high. Lengths of PLS segments: proximal 4,00, medial 1,97, distal 2,77, total length of PLS 8,14; ALS 2,40 long. Spermathecae 3,81 wide, 0,86 apart, 1,48 orifice, 1,48 long.

Metatarsi and tarsi I to IV with dense scopulae ventrally; tarsi I to IV covered completely, metatarsus I covered 78% distally, metatarsus II covered 72% distally, metatarsus III covered 58% distally, metatarsus IV

covered 58% distally; metatarsus IV with a band of setae dividing the scopula; scopulae on other leg segments undivided. Paired tarsal claws on all legs smooth and covered by claw tufts.

Spination on legs:

| | | Proximal | Medial | Distal |
|-----------|--------------|----------|--------|--------|
| Tibia I | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 1 |
| Tibia II | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 1 |
| Tibia III | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 2 |

| | | | | |
|----------------|--------------|---|---|---|
| Metatarsus III | prodorsal | 0 | 0 | 1 |
| | retrodorsal | 0 | 0 | 1 |
| | proventral | 1 | 0 | 0 |
| | midventral | 0 | 0 | 1 |
| | prolateral | 0 | 1 | 1 |
| | retrolateral | 0 | 0 | 1 |
| Tibia IV | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 2 |
| Metatarsus IV | prodorsal | 0 | 0 | 1 |
| | retrodorsal | 0 | 1 | 1 |
| | proventral | 0 | 1 | 0 |
| | midventral | 0 | 0 | 1 |
| | prolateral | 0 | 1 | 1 |
| | retrolateral | 0 | 1 | 1 |

Leg measurements:

| | PALP | I | II | III | IV |
|------------|-------|-------|-------|-------|-------|
| Femur | 9,58 | 15,10 | 12,94 | 10,84 | 13,66 |
| Patella | 6,52 | 9,00 | 7,42 | 6,62 | 7,32 |
| Tibia | 5,92 | 10,38 | 8,00 | 5,94 | 9,84 |
| Metatarsus | - | 8,86 | 7,86 | 8,44 | 11,90 |
| Tarsus | 6,78 | 6,28 | 6,64 | 5,34 | 6,30 |
| Total | 28,80 | 49,62 | 42,86 | 36,82 | 49,02 |

Variation: (female). Integument reddish-brown in all specimens examined. No distinctive variation in colour of setae. Carapace 19,40-23,66 long, 14,24-19,76 wide, 11,10-14,70 high. Cheliceral teeth on promargin 9-10; group of smaller teeth laterad 31-70. Labial serrula with 61-87, maxillary serrula with 233-250. Little variation in shape of foveal horn (Fig. 10C). Spermathecae varies as in Fig. 10D. Metatarsus III, proventral side I spine proximal or medial.

Male: Unknown.

Distribution: eastern Zimbabwe in the vicinity of Mutare (Fig. 12).

Material examined: ZIMBABWE: Penhalonga, Umtali (=Mutare), 1832DC, three females, SAM/B 9125-9127; Penhalonga, Mutare, 1832DC, female (three specimens), NMZ/A 2217, 8.II.1984; Hillcrest School, Mutare, 1832 DC, female, NMZ/A 2038, 5.XII.1983; Hillcrest School, Mutare, 1832DC, female, NMZ/A 2216, 19.II.1984; Hillcrest School, Mutare, 1832DC, female, NMZ/A 2270, 8.III.1984; Hillcrest School, Mutare, 1832DC, female, NMZ/A 2271, 13.IV.1984; Greenside, Mutare, 1832DC, female, NMZ/A 2215, 6.II.1984; Cross Kopje, Mutare, 1832DC, female, NMZ/A 2269, 21.IV.1984; Post Office, Nyazura, 1832CA, female, NMZ/A 2039, 17.XII.1983; White Rose Motel, Odzi, 1832CD, female, NMZ/A 3411, 5.V.1985.

Ceratogyrus darlingii Pocock (Figs. 11&12).

Ceratogyrus darlingii Pocock, 1897:754 (here designated lectotype female, Enkeldoorn (=Chivu), 1930BB, Zimbabwe. BMNH 1897/4/6/3/5). Purcell, 1902a:340. Simon, 1903:947, 948. Petrunkevitch, 1928:83. Roewer, 1942:268. Bonnet, 1957:1022. Smith, 1986a:128, 1990:71.

Diagnosis: Female with foveal tubercle a slender straight conical horn, inclined posteriad (Fig. 11A).

Description: Female (lectotype BMNH 1897/4/6/3/5): Total length 44,84, abdomen damaged. Integument reddish-brown, carapace covered with yellowish-brown setae dorsally. Abdomen with reticulated pattern of darker markings dorsally, ventrally reddish-brown with epigastric area and booklungs yellowish-brown. Chelicerae covered with reddish-brown setae; retrolateral scopulae reddish-brown. Sternum and coxae densely covered with short reddish-brown setae, interspersed with longer setae of same colour. Trochanters with band of reddish-brown setae. Femur of palp, leg I and II covered with short reddish-brown setae prolaterally, rest of legs covered with short yellowish-brown setae interspersed with longer setae of same colour.

Carapace 25,18 long, 19,84 wide, 14,28 high. Clypeus 1,50 wide. Ocular area 2,42 long, 2,88 wide; AME round, 0,67 in diameter; ALE 0,74 long, 0,43 wide; PME 0,37 long, 0,31 wide; PLE 0,55 long, 0,31 wide. Distance between eyes: AM-PL 0,37, AM-PM 0,18, AL-PL 0,31, PM-PL 0,06. Foveal tubercle 5,08 long, 4,80 wide, 5,20 high; anterior edge of foveal tubercle to anterior edge of carapace 14,10, posterior edge of foveal tubercle to posterior edge of carapace 6,00. Sternum 11,86 long, 9,16 wide; sigilla small, 3 pairs, next to coxae I, II and III (Fig. 11B). Promargin of chelicera with 9 large teeth and a group of about 50 smaller teeth laterad. Labium 4,32 long, 4,80 wide. Labial serrula with about 70 cuspules and maxillary serrula with about 230 cuspules. Abdomen damaged,

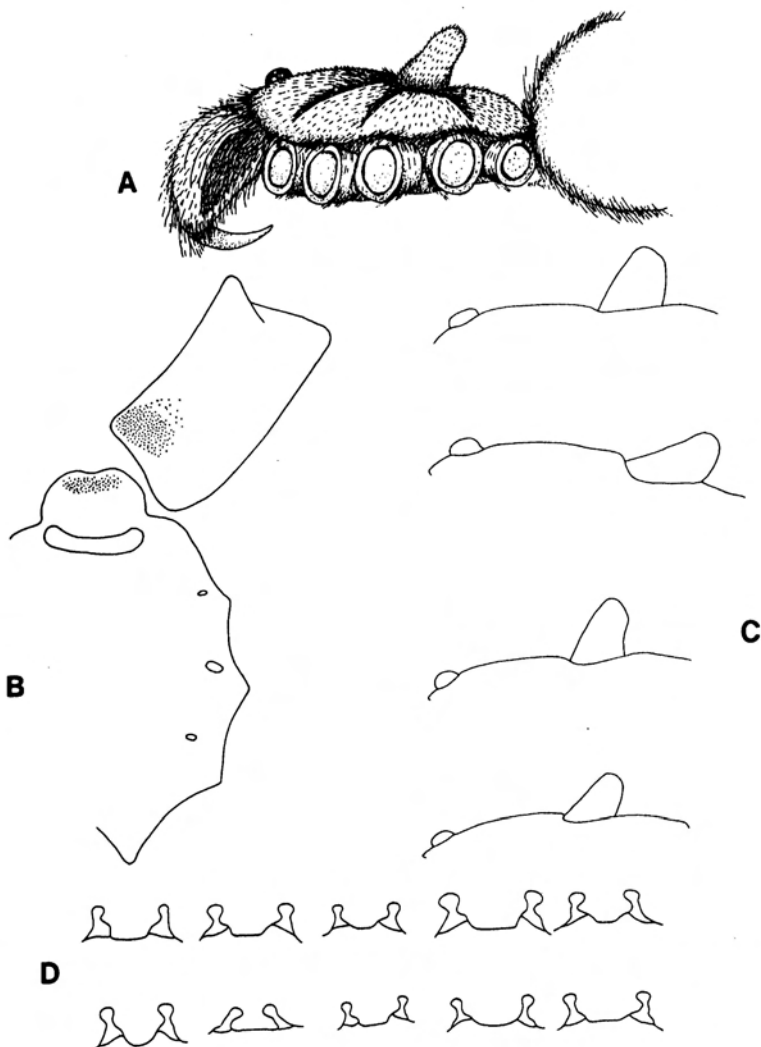


Fig. 11(A-D). *Ceratogyrus darlingii* Pocock, female. (A), Lateral view of carapace. (B), Ventral view of cephalothorax. (C), Shape of foveal horn, variation. (D), Spermathecae, variation.

19,66 long, 14,24 wide, 11,86 high. Lengths of PLS segments: proximal 4,13, medial 1,66, distal 3,70, total length of PLS, 9,49; ALS 2,59 long. Spermathecae 4,31 wide, 1,72 apart, 1,29 orifice, 1,54 long.

Metatarsi and tarsi I to IV with dense scopulae ventrally; metatarsus I and tarsi I to IV covered completely, metatarsus II covered 73% distally, metatarsus III covered 65% distally, metatarsus IV covered 65% distally, metatarsus IV with a band of setae dividing the scopula, scopulae on other leg segments

undivided. Paired tarsal claws on all legs smooth and covered by claw tufts.

Spination on legs:

| | | Proximal | Medial | Distal |
|----------------|--------------|----------|--------|--------|
| Tibia I | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 1 |
| Tibia II | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 1 |
| Tibia III | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 2 |
| Metatarsus III | prodorsal | 0 | 0 | 1 |
| | retrodorsal | 0 | 0 | 1 |

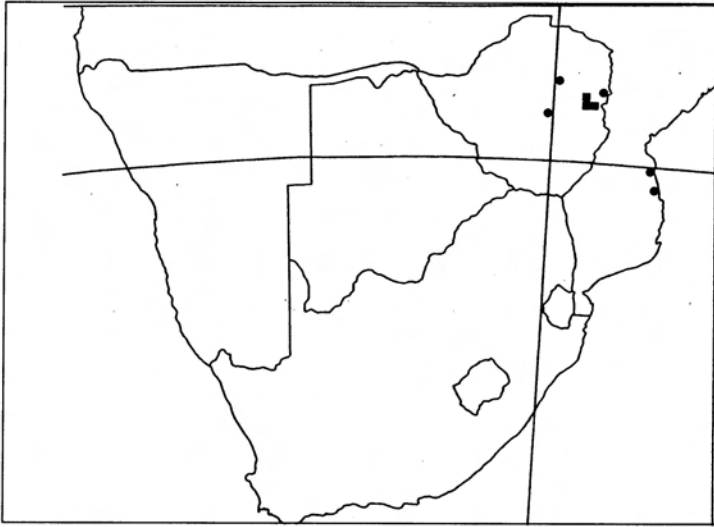


Fig. 12. Known geographical distribution of *Ceratogyrys cornuatus* spec. nov. (■) and *C. darlingii* Pocock (●).

| | | | | |
|---------------|--------------|---|---|---|
| | proventral | 0 | 1 | 0 |
| | midventral | 0 | 0 | 1 |
| | prolateral | 0 | 1 | 1 |
| | retrolateral | 0 | 0 | 1 |
| Tibia IV | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 1 |
| Metatarsus IV | prodorsal | 0 | 0 | 1 |
| | retrodorsal | 0 | 0 | 1 |
| | proventral | 0 | 1 | 0 |
| | midventral | 0 | 0 | 1 |
| | prolateral | 0 | 1 | 1 |
| | retrolateral | 0 | 1 | 1 |

Leg measurements:

| | PALP | I | II | III | IV |
|------------|-------|-------|-------|-------|-------|
| Femur | 6,78 | 18,26 | 15,50 | 13,62 | 16,14 |
| Patella | 7,38 | 7,36 | 9,72 | 7,62 | 8,82 |
| Tibia | 7,54 | 12,40 | 9,88 | 7,82 | 11,50 |
| Metatarsus | - | 9,74 | 8,84 | 9,14 | 12,80 |
| Tarsus | 7,74 | 5,56 | 6,32 | 6,38 | 6,06 |
| Total | 29,44 | 53,32 | 50,26 | 44,58 | 55,32 |

Variation: (female) Integument similarly coloured in all specimens examined, mid brown to dark brown. Abdomen ventrally with uniformly mid brown to black interspersed with grey setae. Carapace 21,82-25,18 long, 16,60-19,84 wide, 12,22-14,88 high. Cheliceral teeth on promargin 8-13; group of smaller teeth laterad 18-25. Labial serrula with 70-84 cuspsules, maxillary serrula with about 230-256 cuspsules. Tibia III retroventrally with 0 to 2 spines distally. Metatarsus III proventrally with 1 spine proximally or me-

dially. Tibia IV proventrally with 1 or 2 spines distally. Metatarsus IV proventrally with 1 spine proximally or medially and retrodorsally with 0 to 1 spine medially. Foveal horn and spermathecae varies as in Fig. 11C&D.

Male: Smith (1990) gave a short description of the male based on a specimen housed in the BMNH (12-4-10-1). Although several attempts were made, no male specimens could be obtained for this study.

Distribution: central and eastern Zimbabwe and central Moçambique (Fig. 12).

Material examined: ZIMBABWE: Enkeldoorn (=Chivhu), 1930BB, female, BMNH 1897/4/6/3/5; Harare, 1731CC, female, NM 9866; Haroni river near Sam's kraal, female, NM 13747, 9.IX.1969; Harare, 1731 CC, female, NMZ/A 1712, 7.II.1982; Harare, 1731CC, female, NMZ/A 1713, 10.I.1982; Police Barracks, Harare, 1731CC, female, NMZ/A 1225, 5.IV.1961; Waterfalls, Harare, 1731CC, female, NMZ/A 1310, 2.VIII.1969; Borrowdale, Harare, 1731CC, female, NMZ/A 1428, 19.XI.1968; Borrowdale, Harare, 1731CC, female, NMZ/A 1475, 3.XII.1969; Mutare area, female, NMZ/A 1483, VI.1971; Inyanga, 1832BD, female, NMZ/A 1574, Gilmore, IV.1968; MOÇAMBIQUE: Rampusasa turn off, Maputo, 2135CC, female, NM 16009, 22-26.VI.1971; 10 miles South Vila Franca do Save, 2134BB, female, NM 16028, 29.VI.1971.

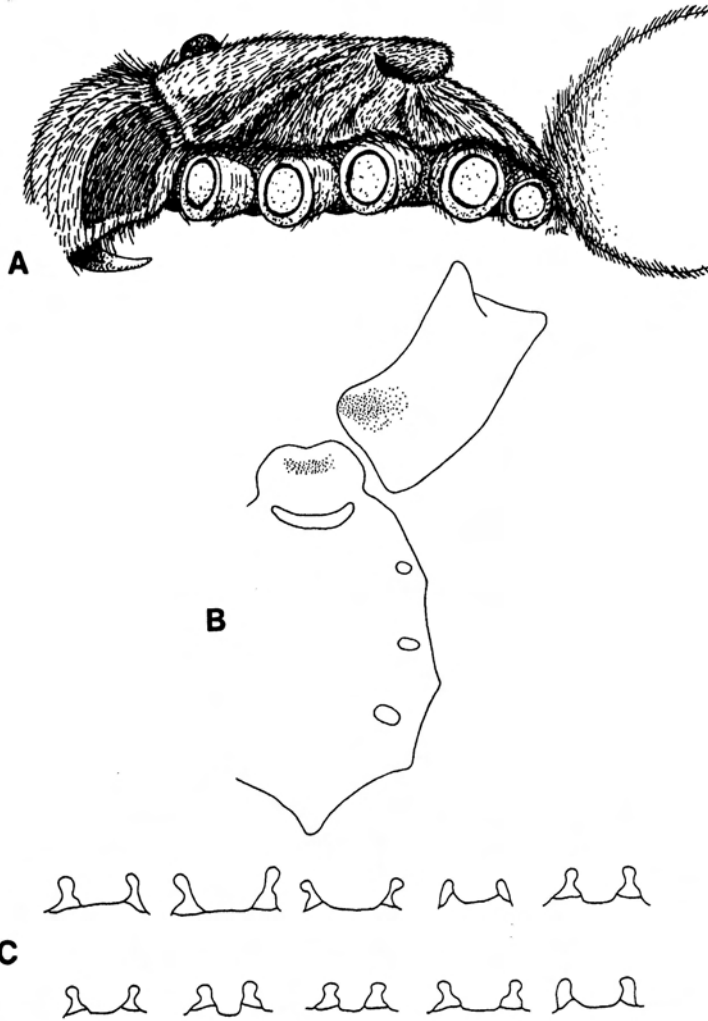


Fig. 13(A-C). *Ceratogyrus dolichocephalus* Hewitt, female. (A), Lateral view of carapace. (B), Ventral view of cephalothorax. (C), Spermathecae, variation.

Ceratogyrus dolichocephalus Hewitt (Figs. 13&14).

Ceratogyrus dolichocephalus Hewitt, 1919:104. (here designated lectotype female, TM 2990 and paralectotype female, TM 2991, Victoria, Zimbabwe. Roewer, 1942:268. Bonnet, 1957:1022. Smith 1986 a:128, 1990:73.

Diagnosis: Female with cephalic region extended so that foveal horn forms a horizontal

tubercle posteriad over a procurved U-shaped foveal groove (Fig. 13A).

Description: Female (lectotype TM 2990). Total length 43,78 but abdomen shrivelled up. Integument reddish-brown, carapace covered with white and rusty brown short setae with longer pale brown setae dorsally. Abdomen with reticulated dark pattern dorsally, ventrally reddish-brown with epigastric area paler brown. Chelicerae covered with short white and dark grey setae interspersed with long reddish-brown setae. Sternum and coxae

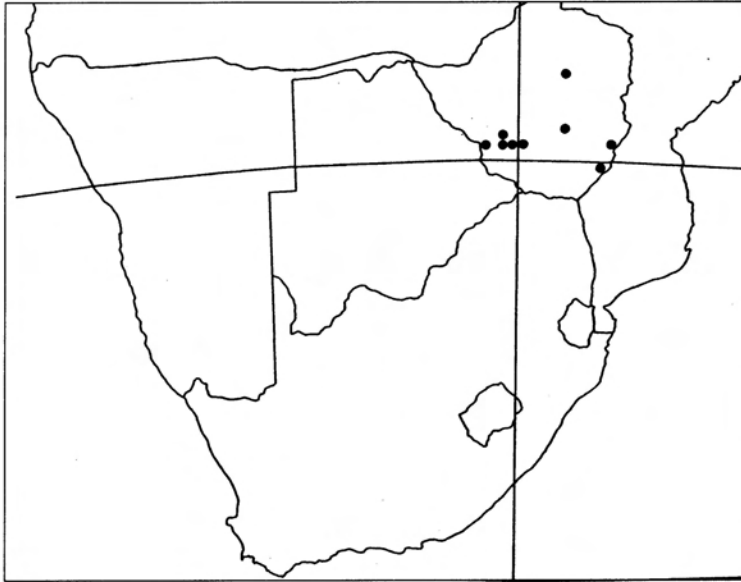


Fig. 14. Known geographical distribution of *Ceratogyrus dolichocephalus* Hewitt.

densely covered with short, reddish-brown setae, interspersed with long setae of same colour. Trochanters with a band of reddish-brown setae.

Carapace 21,88 long, 16,20 wide and 11,78 high. Clypeus 1,60 wide. Ocular area 2,00 long, 2,50 wide; AME round, 0,43 in diameter; ALE 0,73 long, 0,37 wide; PME 0,43 long, 0,31 wide; PLE 0,55 long, 0,37 wide. Distance between eyes, AM-AL 0,31, AM-AM 0,55, AM-PM 0,12, AL-PL 0,37, PM-PL 0,06, PM-PM 1,29. Foveal tubercle 7,68 long, 4,16 wide, 2,48 high; anterior edge of foveal tubercle to anterior edge of carapace 12,08; posterior edge of foveal tubercle to posterior edge of carapace 5,40. Sternum 9,44 long, 8,28 wide. Sigilla small, one pair next to coxae II and one pair next to coxae III (Fig. 13B). Promargin of chelicera with 9 large teeth and a group of about 25 smaller teeth laterad. Labium 2,26 long, 3,52 wide. Labial serrula with about 60 cuspules and maxillary serrula with about 180 cuspules. Abdomen shrivelled up. Lengths of PLS segments: proximal 3,36, medial 1,28, distal 1,34, total length of PLS 5,98; ALS 1,53 long. Spermathecae 3,39 wide, 1,54 apart, 1,11 orifice, 1,42 long.

Metatarsi and tarsi I to IV with dense scopulae ventrally; metatarsus I and tarsi I to IV covered completely, metatarsus II covered 80% distally, metatarsus III covered 65% distally, metatarsus IV covered 65% distally, metatarsus IV with a band of setae diving the scopula, scopulae on other leg segments undivided. Paired tarsal claws on all legs smooth and covered by claw tufts.

Spination on legs:

| | | Proximal | Medial | Distal |
|----------------|--------------|----------|--------|--------|
| Tibia I | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 1 |
| Tibia II | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 1 |
| Tibia III | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 2 |
| Metatarsus III | prodorsal | 0 | 0 | 1 |
| | retrodorsal | 0 | 0 | 1 |
| | proventral | 0 | 1 | 0 |
| | midventral | 0 | 0 | 1 |
| | prolateral | 0 | 1 | 1 |
| | retrolateral | 0 | 0 | 1 |
| Tibia IV | proventral | 0 | 0 | 2 |
| | retroventral | 0 | 0 | 2 |
| Metatarsus IV | prodorsal | 0 | 0 | 1 |
| | retrodorsal | 0 | 0 | 0 |
| | proventral | 1 | 1 | 0 |
| | midventral | 0 | 0 | 2 |
| | prolateral | 0 | 1 | 1 |
| | retrolateral | 0 | 1 | 2 |

Leg measurements:

| | PALP | I | II | III | IV |
|------------|-------|-------|-------|-------|-------|
| Femur | 10,82 | 15,12 | 12,84 | 10,68 | 14,62 |
| Patella | 6,60 | 9,46 | 8,34 | 7,44 | 7,90 |
| Tibia | 6,70 | 10,28 | 8,24 | 6,60 | 10,06 |
| Metatarsus | - | 9,28 | 8,38 | 8,82 | 12,22 |
| Tarsus | 6,58 | 6,34 | 5,90 | 4,72 | 5,78 |
| Total | 30,70 | 50,48 | 43,70 | 38,26 | 50,8 |

Variation: (female). Integument pale brown to dark reddish-brown. Abdomen ventrally with greyish-brown to dark brown setae. Sternum with dark brown to black setae. Carapace 17,80-21,88 long, 14,42-17,72 wide, 11,16-13,64 high. Cheliceral teeth on promargin 9-11; group of smaller teeth laterad

17-30. Labial serrula with about 60-100 cuspsules, maxillary serrula with about 180-272 cuspsules. No distinct variation in shape of foveal horn. Spermathecae varies as in Fig. 13C. Tibia IV prolaterally with 1 to 2 spines distally. Metatarsus IV retrodorsally with 0 to 1 spine distally, midventrally with 1 to 2 spines distally, retrolaterally with 1 to 2 spines distally; retrolaterally with 0 to 1 spine medially and proventrally with 0 to 1 spine medially; proventrally with 0 to 2 spines in a longitudinal line proximally.

Male: Smith (1990) gave a short description of the male based on a specimen housed in

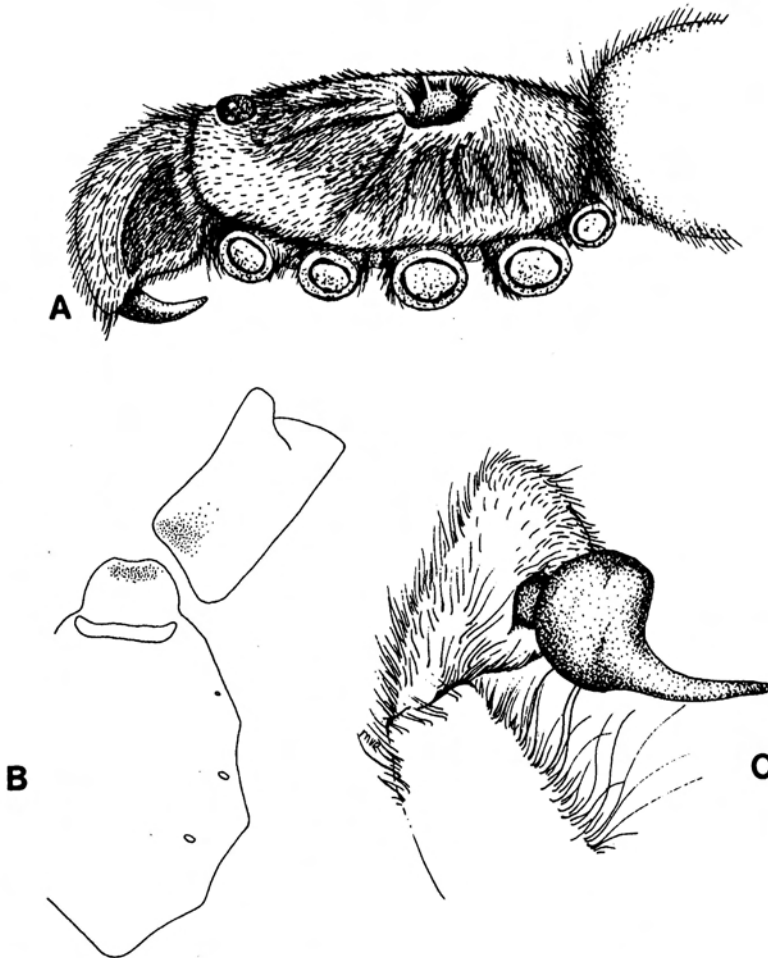


Fig. 15(A-C). *Ceratogyrus marshalli* Pocock, male. (A), Lateral view of carapace. (B), Ventral view of cephalothorax. (C), Palpal organ.

the BMNH (1907-6-9-6). Although several attempts were made, no male specimens could be obtained for this study.

Distribution: Zimbabwe (Fig. 14).

Material examined: ZIMBABWE: Victoria, two females, TM 2990 & 2991, 9.X.1913; Lake MacIlwane, 1730DD, female, NMZ/A 5444, III.1987; Falcon College, Esegodini, 2028BD, female, NMZ/A 2763, 10.X.1984; Fernhill Pumpstation, Esegodini, 2028BD, female, NMZ/A 1910, 29.IX.1983; Kasipiti, Chimanimani, female, NM 13746, XI.1970; Bulawayo, 2028BA, female, NMZ/A 1740, IV.1983; Hope Fountain, 2028BC, female, NMZ/A 1274, I.1974; Bulawayo, 2028BA, female, NMZ/A 1511, V.1944; 15 kilometres North of Masvingo on Harare road, 1930DD, female, NMZ/A 7704, 29.VI.89; Bulawayo, 2028BA, female, NMZ/A 1737, 12.V.1983; Bulawayo, 2028BA, immature, NMZ/A 1224, XI.1966; Bulawayo, 2028BA, immature, NMZ/A 7855, 1.V.1990; Bulawayo, 2028BA, female, NMZ/A 662, P. Mhlanga, 25.III.1980; Girl's College, Bulawayo, 2028BA, female, NMZ/A 6422, 1.VI.88; Heany Junction, Bulawayo, 2028BB, female, NMZ/A 1308, VII.1941; Riverside, Bulawayo, 2028BA, female, NMZ/A 2740, I.1985; Matsheumhlope, Bulawayo, 2028BA, female, two specimens, MNZ/A 1235, 24.VIII.1980; Tuli road, Gumtree, female, NMZ/A 63, 22.VII.79; Save/Runde rivers confluence, Ghonarezhou Nature Reserve, 2132AD, female, NMZ/A 7754, 3.IX.1971; Houtberg farm, 2032BC, immature, NMZ/A 5282, 24.XI.1986; Plumtree town, 2027BD, female, NMZ/A 2628, 6.XI.1984; Noelvale, Zvishavane, 2030AC, female, NMZ/A 2895, 1516.XII.1984; Matopos R.E.P.S., 2028BC, female, NMZ/A 644, 13.X.1979.

***Ceratogyrus marshalli* Pocock (Figs. 15&18).**

Ceratogyrus marshalli Pocock, 1897:754 (here designated lectotype male: Salisbury (=Harare) 1731CC, Zimbabwe. BMNH 1897/4/6/1). Purcell, 1902:340. Roewer, 1942:268. Bonnet, 1957:1022. Smith, 1986a:128, 1990:74.

Diagnosis: Male with tubercle in thoracic fovea a low round dome surrounded by foveal groove (Fig. 15A).

Description: Male (lectotype BM 1897/4/6/1): Total length: 42,02. Integument uniformly dark brown. Carapace covered with paler brown setae. Setae on carapace of type specimen worn off. Abdomen dorsally and ventrally uniformly brown, with epigas-

tric area and spinnerets lighter brown. Chelicerae covered with short, pale brown setae. Sternum and coxae densely covered with short dark brown setae, uniformly interspersed with longer blackish setae. Trochanters with aband of dark brown setae.

Carapace 18,74 long, 14,76 wide, 9,64 high. Clypeus 1,00 wide. Ocular area 1,83 long, 2,32 wide. AME round, 0,43 in diameter; ALE 0,50 long, 0,30 wide; PME 0,50 long, 0,37 wide; PLE 0,50 long, 0,20 wide. Distance between eyes: AM-AL 0,37, AM-PM 0,24, AL-PL 0,37, PM-PL 0,06. Foveal tubercle round 2,52 in diameter, scarcely visible laterally. Anterior edge of foveal tubercle to anterior edge of carapace 10,02, posterior edge of foveal tubercle to posterior edge of carapace 6,94. Sternum 8,36 long; 6,32 wide. Sigilla small, three pairs, next to coxae I, II and III (Fig. 15B). Promargin of chelicera with 9 large teeth and a group of about 10 smaller teeth laterad. Labium 2,08 long 2,48 wide. Labial serrula with about 80 cuspules and maxilla with about 200 cuspules. Abdomen 15,18 long, 9,34 wide, 8,40 high. Lengths of PLS segments: proximal 1,95, medial 1,34, distal 2,44, total length of PLS 5,73; ALS 1,53 long.

Palp: bulb fully sclerotised with slender embolus (Fig. 15C). Metatarsi and tarsi I to IV with dense scopulae ventrally; metatarsus I and tarsi I to IV covered completely; metatarsus II covered 80% distally; metatarsus III covered 60% distally; metatarsus IV covered 50% distally; metatarsus IV with a band of setae dividing the scopula, scopulae on other leg segments undivided. Paired tarsal claws on all legs smooth and covered by claw tufts. Tibia I with distal proventral spine modified into tibial spur.

Spination on legs:

| | | Proximal | Medial | Distal |
|----------------|--------------|----------|--------|--------|
| Tibia I | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 1 |
| Tibia II | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 1 |
| Tibia III | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 2 |
| Metatarsus III | prodorsal | 0 | 0 | 1 |
| | retrodorsal | 0 | 0 | 1 |
| | proventral | 0 | 1 | 0 |

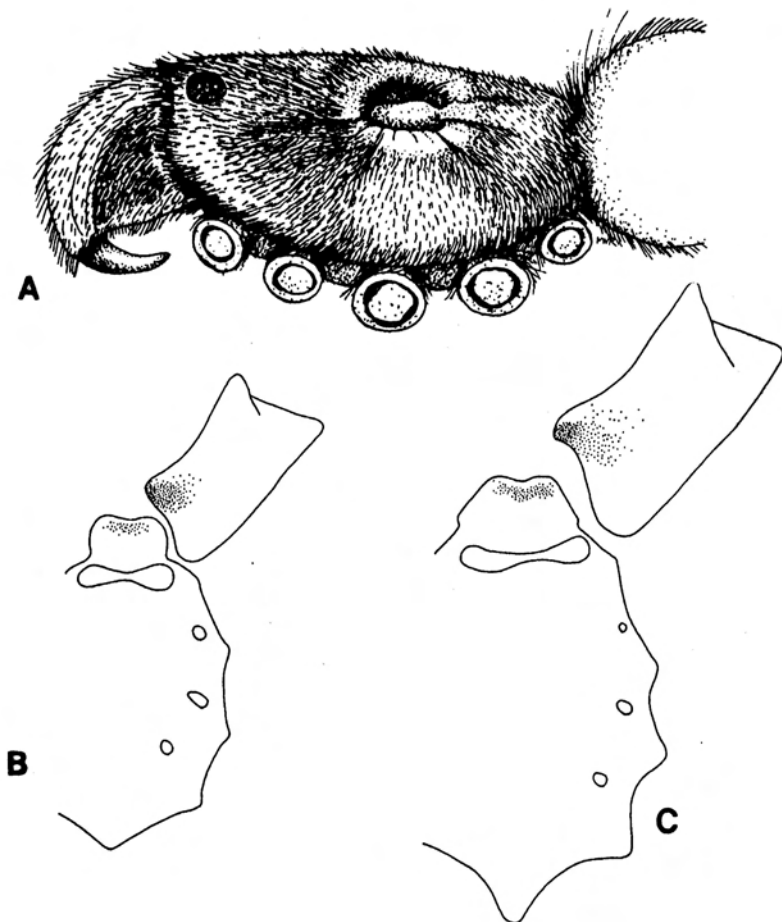


Fig. 16(A-C). *Ceratogyrus sanderi* Strand, male and female. (A), Lateral view of carapace, female. (B), Ventral view of cephalothorax, male. (C), Ventral view of cephalothorax, female.

| | | | | |
|---------------|---------------------|---|---|---|
| | midventral | 0 | 0 | 1 |
| | prolateral | 0 | 1 | 1 |
| | <u>retrolateral</u> | 0 | 0 | 1 |
| Tibia IV | proventral | 0 | 0 | 1 |
| | <u>retroventral</u> | 0 | 0 | 2 |
| Metatarsus IV | prodorsal | 0 | 0 | 1 |
| | retrodorsal | 0 | 0 | 1 |
| | proventral | 1 | 1 | 0 |
| | midventral | 0 | 0 | 1 |
| | prolateral | 0 | 1 | 1 |
| | <u>retrolateral</u> | 0 | 1 | 1 |

Leg measurements:

| | PALP | I | II | III | IV |
|------------|------|-------|-------|-------|-------|
| Femur | 9,42 | 15,72 | 14,00 | 11,76 | 15,00 |
| Patella | 5,48 | 8,78 | 7,84 | 5,90 | 7,26 |
| Tibia | 7,28 | 11,18 | 9,12 | 7,14 | 10,62 |
| Metatarsus | - | 10,36 | 8,66 | 8,94 | 12,66 |

| | | | | | |
|--------|-------|-------|-------|-------|-------|
| Tarsus | 3,62 | 6,42 | 5,54 | 5,94 | 6,98 |
| Total | 25,80 | 52,46 | 45,16 | 39,68 | 52,52 |

Variation: (male). Integument similarly coloured in all specimens examined. Carapace 15,66-20,50 long, 12,12-16,74 wide, 7,94-11,18 high. Cheliceral teeth on promargin 8-9; group of smaller teeth laterad 17-26. Labial serrula with 71-84 cuspules, maxillary serrula with 192-210 cuspules. No clear variation was found in the shape of the foveal horn in the specimens examined.

Female: Smith (1990) gave a short description of the female based on a specimen housed in the BMNH (not numbered). Al-

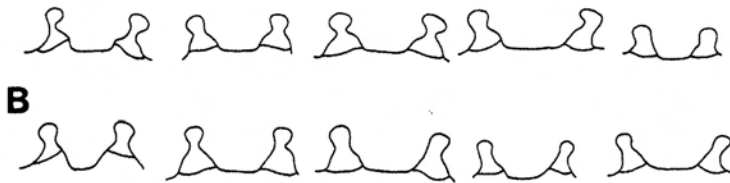
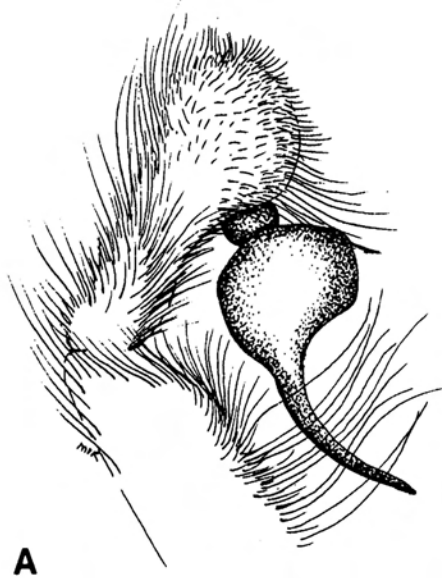


Fig. 17(A&B). *Ceratogyrus sanderi* Strand, male and female. (A), Palpal organ. (B), Spermathecae, variation.

though several attempts were made, no female specimens could be obtained for this study.

Distribution: Zimbabwe, in the districts of Mutare, Odzi, Harare and in the Chimanimani Mountains (Fig. 18).

Material examined: ZIMBABWE: Salisbury (=Harare), 1731CC, male, BMNH 1897/4/6/1; Logan Park, Harare, 1731CC, male, NMZ/A 1431, 18.IV.1969; Harare 1731CC, male, NMZ/A7757, 8.IV.1972; Cranborne, Harare, 1731CC, male, NMZ/A 7749, 16.IV.1972; Belvedere, Salisbury (=Harare), 1731CC, male, NMZ/A 1263, 10.IV.1961; Borrowdale, Salisbury (=Harare), 1731CC, immature, NMZ/A 1226, 24.I.1961; Chisawasha, 1731CC, immature, NMZ/A 2012, 20.XI.1983; City Centre, Mutare, 1832DC, male, NMZ/A 2368, 21.V.1984; Mutare, 1832CB, male, NMZ/A 1223, IV.1965; Gutu Mission, 1931CA,

male, NMZ/A 7316, 8.II.1989; Eickhoff Avenue, Mutare, 1832DC, male, NMZ/A 7755, 14.V.1971; Greenside, Mutare, 1832DC, immature, NMZ/A 2263, 11.IV.1984; East Makurupini River, Chimanimani Mountains, 2033AA, immature, NM 16027, 25.VIII.69; Odzi, 1832CD, immature, NMZ/A 7758, 22.I.1971.

Ceratogyrus sanderi Strand (Figs. 16-18).

Ceratogyrus sanderi Strand 1906:23. Roewer, 1942:268. Bonnet, 1957:1022. Smith, 1986a:129, 1990:75.

Note:

According to Strand (1906) the type material of the male was kept in Stuttgart Museum and the female (Strand 1907) in Lübeck Museum. Dr. Franz Renner (*pers. comm.*) could how-

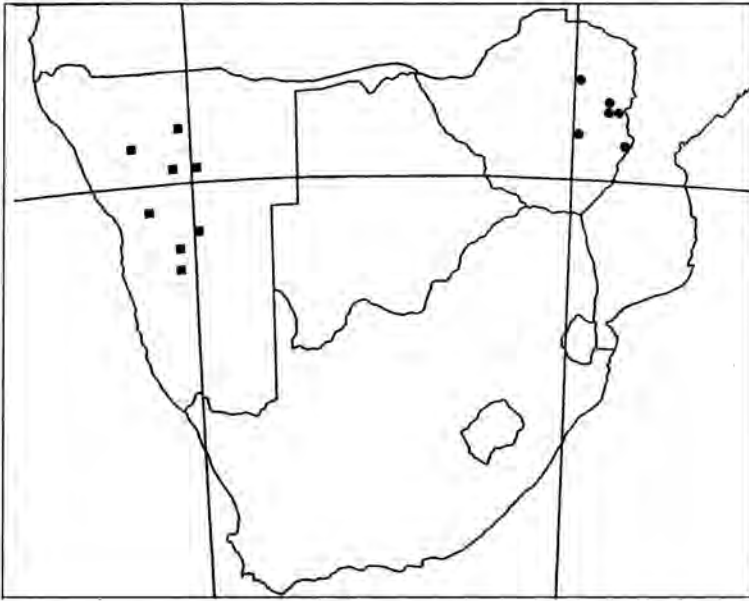


Fig. 18. Known geographical distribution of *Ceratogyrus marshalli* Pocock (●) and *C. sanderi* Strand (■).

ever not find any evidence of this in museum catalogues that survived World War II. Although there is mention of four specimens of spiders from Windhoek, none were marked as type material. As these specimens were destroyed during World War II it is assumed that they were the type material. Redescriptions are based on male specimen, SMN 35270 and female specimen SMN 36454, Windhoek, Namibia.

Diagnosis: Male and female with foveal tubercle a rectangular low dome surrounded by a recurved U-shaped groove (Fig. 16A).

Description: Male (SMN 35270): Total length 40,00. Integument reddish-brown, covered with pale grey setae dorsally. Abdomen with reticulated pattern of dark markings dorsally, ventrally dark brown; epigastric area and posterior pair booklungs as well as anal area and spinnerets yellowish-cream. Chelicerae covered with off-white setae; retrolateral scopula also off-white. Sternum and coxae densely covered with short chocolate-brown setae, interspersed with long setae of same colour. Trochanters with a band of chocolate-brown setae. Femur of palp, leg I and II covered with short chocolate-brown

setae prolaterally, rest of legs covered with short off-white setae interspersed with long setae of same colour but with chocolate-brown base.

Carapace 17,22 long, 14,08 wide, 8,88 high. Clypeus 1,18 wide. Ocular area anteromedially on carapace, 1,83 long, 1,83 wide; AME round, 0,37 in diameter; ALE 0,55 long, 0,31 wide; PME 0,43 long, 0,31 wide PLE 0,55 long, 0,31 wide. Distance between eyes: AM-AL 0,18, AM-AM 0,31, AM-PM 0,06; AL-PL 0,24 PM-PL 0; PM-PM 0,92. Foveal tubercle a low mound 4,22 long, 2,64 wide; anterior edge of foveal tubercle to anterior edge of carapace 7,92, posterior edge of foveal tubercle to posterior edge of carapace 6,18. Sternum 7,96 long, 2,44 wide; sigilla small, three pairs, next to trochanters I, II and III (Fig. 16B). Promargin of chelicera with 8 large teeth and a group of about 17 smaller teeth laterad. Labium 3,00 long, 2,44 wide. Labial serrula with about 40 cuspsules and maxillary serrula with about 200 cuspsules. Abdomen 17,42 long, 11,36 wide, 8,78 high. Lengths of PLS segments: proximal 3,78, medial 2,32, distal 3,05, total length of PLS 9,15; ALS 1,77 long.

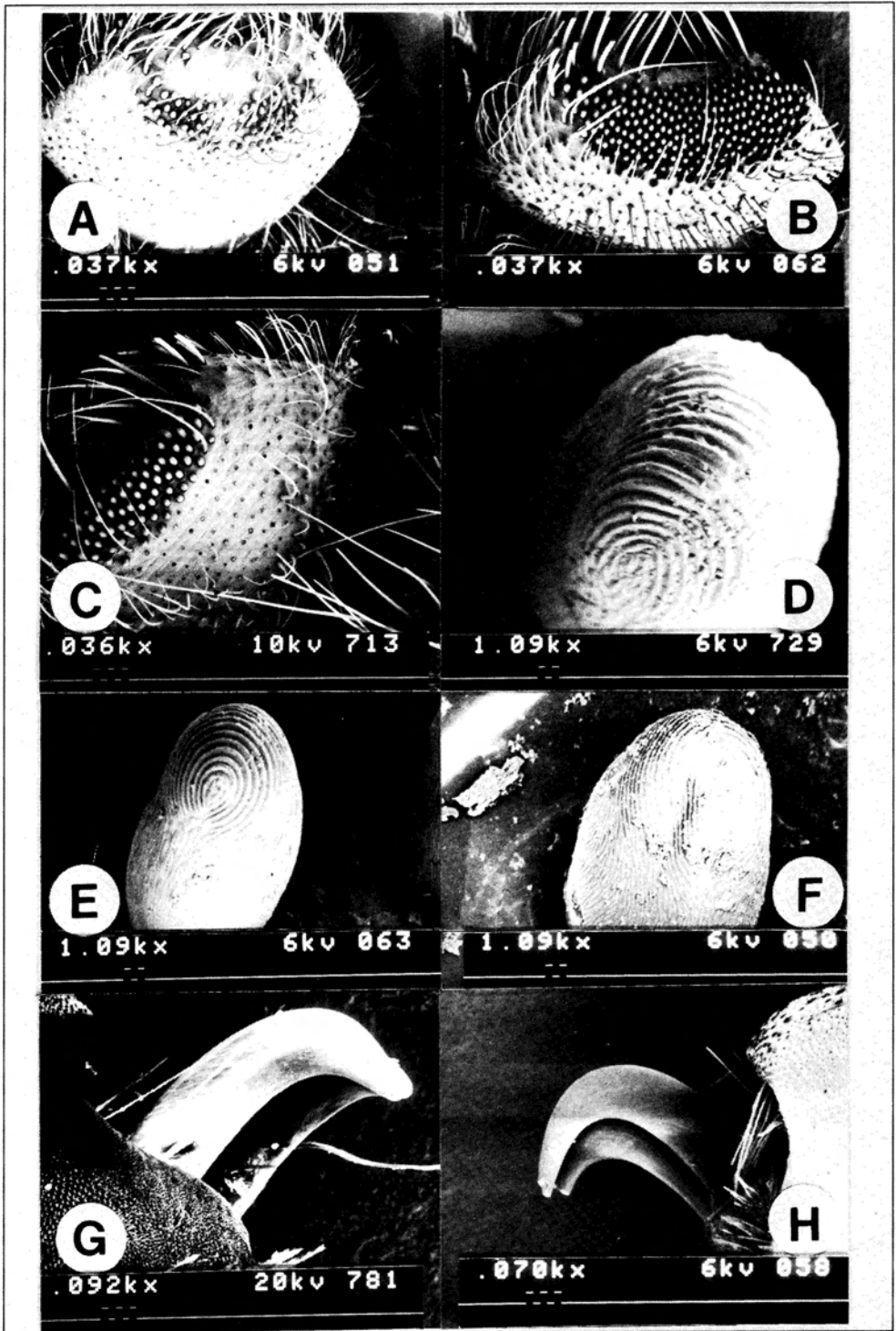


Fig. 19(A-H). *Ceratogyrus*, *Harpactira* and *Pterinochilus* spp., characters illustrating possible relationships. (C,D,G), *Ceratogyrus* spp.: (C), Labium. (D), Labial cuspule. (G), Tarsal claw. (A&F), *Pterinochilus* spp.: (A), Labium. (F), Labial cuspule. (B,E,H), *Harpactira* spp.: (B), Labium. (E), Labial cuspule. (H), Tarsal claw.

Palp: bulb fully sclerotised with slender embolus (Fig. 17A). Metatarsi I to IV with dense scopulae ventrally; metatarsus I and tarsi I to IV covered completely, metatarsus II covered 70% distally, metatarsus III covered 50% distally; metatarsus IV covered 50% distally; metatarsus IV with band of setae dividing scopula, scopulae on other leg segments undivided. Paired tarsal claws on all legs smooth and covered by claw tufts. Tibia I with distal proventral spine modified into tibial spur.

Spination on legs:

| | | Proximal | Medial | Distal |
|----------------|--------------|----------|--------|--------|
| Tibia I | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 1 |
| Tibia II | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 1 |
| Tibia III | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 2 |
| Metatarsus III | prodorsal | 0 | 0 | 1 |
| | retrodorsal | 0 | 0 | 1 |
| | proventral | 0 | 0 | 0 |
| | midventral | 0 | 0 | 1 |
| | prolateral | 0 | 1 | 1 |
| | retrolateral | 0 | 1 | 1 |
| Tibia IV | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 2 |
| Metatarsus IV | prodorsal | 0 | 0 | 1 |
| | retrodorsal | 0 | 0 | 1 |
| | proventral | 0 | 0 | 0 |
| | midventral | 0 | 1 | 1 |
| | prolateral | 0 | 1 | 1 |
| | retrolateral | 0 | 1 | 1 |

Leg measurements:

| PALP | I | II | III | IV | |
|------------|-------|-------|-------|-------|-------|
| Femur | 8,52 | 15,14 | 14,00 | 11,92 | 14,32 |
| Patella | 5,66 | 8,18 | 7,50 | 6,06 | 7,10 |
| Tibia | 7,14 | 11,38 | 9,52 | 7,36 | 10,36 |
| Metatarsus | - | 10,28 | 9,68 | 10,28 | 13,82 |
| Tarsus | 2,42 | 6,10 | 6,08 | 5,14 | 6,30 |
| Total | 23,74 | 51,0 | 46,78 | 35,62 | 51,90 |

Variation: Integument pale yellowish-brown to chocolate-brown. Abdomen ventrally with pale brown to black setae. Sternum with dark brown to black setae. Carapace 13,74-17,74 long, 11,26-15,16 wide, 6,98-9,08 high. Cheliceral teeth on promargin 8-10; group of smaller teeth laterad 16-26. Cuspules in labial serrula 40-73; cuspules in maxillary serrula 140-200. No clear variation can be seen in the foveal tubercle.

Female (SMN 36454): Total length 49,94. Entire spider slightly darker than male except for chelicerae that is similarly coloured as male; anal area and spinnerets brown.

Carapace 21,20 long, 16,10 wide and 12,36 high. Clypeus 1,30 wide. Ocular area 2,26 long, 2,32 wide; AME round, 0,43 in diameter; ALE 0,61 long, 0,49 wide; PME 0,49 long, 0,31 wide; PLE 0,55 long, 0,31 wide. Distance between eyes: AM-AL 0,24, AM-AM 0,49, AM-PM 0,24, AL-PL 0,18, PM-PL 0,12, PM-PM 1,17. Foveal tubercle 4,32 long, 3,00 wide; anterior edge of foveal tubercle to anterior edge of carapace 10,58, posterior edge of foveal tubercle to posterior edge of carapace 6,60. Sternum 10,56 long, 8,88 wide; sigilla small, next to coxae I, II and III (Fig. 16C). Promargin of chelicera with 13 teeth and with a group of about 21 smaller teeth laterad. Labium 2,46 long, 3,36 wide. Labial serrula with about 66 cuspules and maxillary serrula with about 200 cuspules. Abdomen 18,74 long, 11,42 wide, 11,78 high. Length of PLS segments: proximal 3,90, medial 2,07, distal 3,17 total length of PLS 9,14; ALS 2,44 long. Spermathecae 3,63 wide, 1,48 apart, 1,29 orifice, 1,36 long.

Metatarsi and tarsi I to IV with dense scopulae ventrally; metatarsi I and tarsi I to IV covered completely, metatarsus II covered 80% distally, metatarsus III covered 70% distally, metatarsus IV covered 60% distally; metatarsus IV with a band of setae dividing scopula, scopulae of other leg segments undivided. Paired tarsal claws on all legs smooth and covered with claw tufts.

Spination on legs:

| | | Proximal | Medial | Distal |
|----------------|--------------|----------|--------|--------|
| Tibia I | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 1 |
| Tibia II | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 1 |
| Tibia III | proventral | 0 | 0 | 1 |
| | retroventral | 0 | 0 | 2 |
| Metatarsus III | prodorsal | 0 | 0 | 1 |
| | retrodorsal | 0 | 0 | 1 |
| | proventral | 0 | 0 | 0 |
| | midventral | 0 | 1 | 1 |
| | prolateral | 0 | 1 | 1 |
| | retrolateral | 0 | 0 | 1 |
| Tibia IV | proventral | 0 | 0 | 1 |

| | | | | |
|---------------|---------------------|---|---|---|
| | <u>retroventral</u> | 0 | 0 | 2 |
| Metatarsus IV | prodorsal | 0 | 0 | 1 |
| | retrodorsal | 0 | 0 | 1 |
| | proventral | 0 | 0 | 0 |
| | midventral | 0 | 1 | 1 |
| | prolateral | 0 | 1 | 1 |
| | <u>retrolateral</u> | 0 | 1 | 1 |

Leg measurements:

| | PALP | I | II | III | IV |
|------------|-------------|-------------|-------------|-------------|-------------|
| Femur | 9,28 | 15,14 | 12,76 | 11,30 | 13,20 |
| Patella | 5,84 | 8,48 | 7,66 | 6,78 | 7,76 |
| Tibia | 6,28 | 10,46 | 8,08 | 6,58 | 9,46 |
| Metatarsus | - | 9,98 | 7,80 | 9,02 | 11,82 |
| Tarsus | <u>7,44</u> | <u>5,60</u> | <u>4,94</u> | <u>5,52</u> | <u>5,48</u> |
| Total | 28,84 | 49,66 | 41,24 | 39,20 | 47,72 |

Variation: Integument pale yellow to to dark chocolate-brown. Abdomen ventrally dark brown to black. Sternum with dark brown to black setae. Carapace 17,86-25,86 long, 13,06-21,06 wide, 8,60-13,24 high. Cheliceral teeth on promargin 9-12, group of smaller teeth laterad 22-32. Labial serrula with 53-82

cuspsules, maxillary serrula with 187-250 cuspsules. No clear variation in foveal tubercle. Spermathecal variation is shown in Fig. 17B.

Distribution: Namibia (Fig. 18).

Material examined: NAMIBIA: Windhoek, 2217CA, male, SMN 35270; Bellerode farm, Windhoek 2217CA male NMZ/A 1271, 9.III.1975; Windhoek, 2217CA, male, SMN 35009, IV.1965; Windhoek, 2217CA, male, SMN 35206, 3.IV.1965; Windhoek, 2217CA, male, SMN 35269; Windhoek, 2217CA, female, SMN 35014; Windhoek, 2217CA, female, SMN 35018, 21.II.1964; Windhoek, 2217CA, female, SMN 35171, IV.1965; Windhoek, 2217CA, female, SMN 35207, 7.II.66; Windhoek, 2217CA, female, SMN 36454, 7.II.82; Daan Viljoen Park, Windhoek, 2217CA, male, SMN 35012, 15.VI.1965; Glynberg 327, Windhoek, 2217CA, male, SMN 36344, VI.1977; Colorado Pt.1 Glynberg 327, Windhoek, 2217CA, male, SMN 36401, 22.IV.1978; 15 mi. South-west of Windhoek, 2217CA, immature, CAS no number, 25.XII.1966; Suiderhof, Windhoek, 2217CA, female, SMN 35827, 5.XII.1973; Kamanjab, 1914DB, female, NM 8838; Sandamap

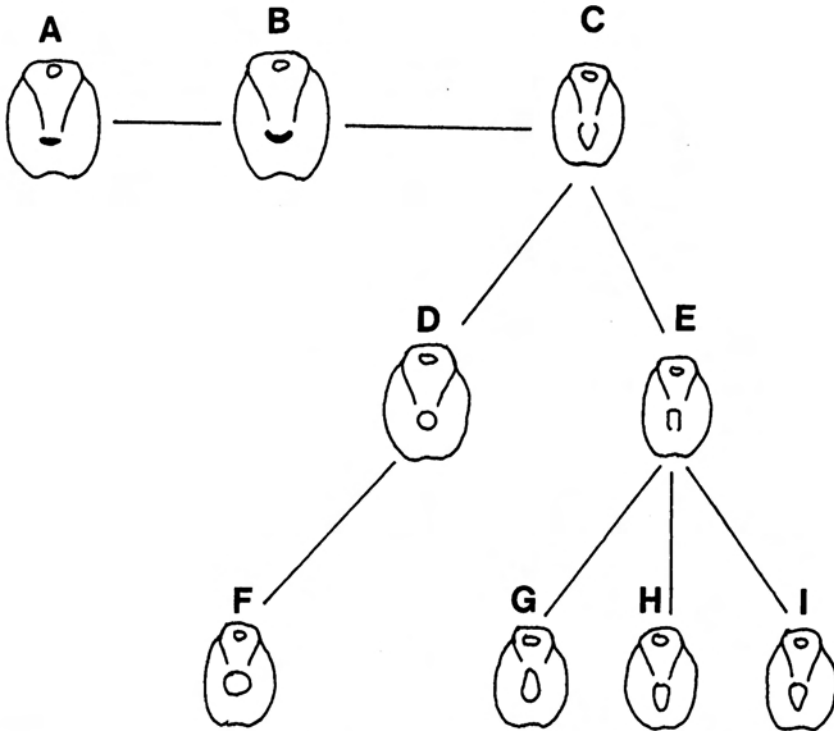


Fig. 20(A-I). Schematic representation of *Pterinochilus*, *Coelogenium* and *Ceratogyrus*. Shape of foveal groove, illustrating possible relationships. (A), *Pterinochilus* spp. (B), *Coelogenium* spp. (C), *Ceratogyrus dolichocephalus*. (D), *C. marshalli*. (E), *C. sanderi*. (F), *C. cornuatus*. (G), *C. brachycephalus*. (H), *C. bechuanicus*. (I), *C. darlingii*.

Farm, Karibib, 2115CD, immature, NM 11522, 13.II.1969; Spitzkoppen, Maltahohe, 2416AB, immature, NM 11538, 11.II.1969; Portsmut, Hakos Mountains, 3316AD, immature, NM 16008, 7.II.1969; Retreat, Okahandja, female, SMN 35172, 1.II.1964; Halali, 1916BA, female, SMN 40759, III.1987; Omatjenne, 2016AD, female, TM 7412, VI.1964; Waterberg, Otjiwarongo, 2017AD, immature, TM 7498, 14.V.1937.

Relationships

SEM studies on *Harpactira*, *Pterinochilus* and *Ceratogyrus* were undertaken. Unfortunately *Coelogenium* material was not available. The following morphological characters are very similar: all three genera possess similar scopulae on the chelicerae and the cheliceral teeth are similar in number and structure. The labial and maxillary serrulae resemble each other in number and structure, although the species of *Harpactira* examined has distinctly more cuspules in the labial serrula (Fig. 19A-C). The microscopic ultra structure of the labial cuspules as seen through the SEM showed similar ridges in all three genera (Fig. 19D-F). The paired tarsal claws of the legs of all three genera are smooth and curved distally and are similar in shape for *Ceratogyrus* (Fig. 19G), *Harpactira* (Fig. 19H) and *Pterinochilus*.

In comparison, the foveal groove of *Harpactira* and *Pterinochilus* (Fig. 20A) is more or less straight, in *Coelogenium* (Fig. 20B) it is procurved and in *Ceratogyrus dolichocephalus* (Fig. 20C) it is strongly procurved. In *C. dolichocephalus* the area medially surrounded by the groove is however raised to form a protruding structure (Fig. 4C). In other species of *Ceratogyrus*, except *C. sanderi* (Fig. 20E), the foveal groove completely surrounds the foveal horn. A schematic representation of the possible relationships of the different, related genera, within the Harpactirinae is shown in Fig. 20A-I. However, further work needs to be done on the other Mygalomorph taxa to establish whether unique characters are shared by two or more of the genera concerned.

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