

A new *Pterinochilus* species from South Africa (Araneae, Theraphosidae, Harpactirinae)

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Summary

A new Southern African *Pterinochilus* species, *P. lapalala* sp. n., is described, illustrated and diagnosed from its congeners. The available distribution data suggest this species is limited to the Waterberg mountains of Limpopo Province and appears to demonstrate some degree of habitat specialisation. It represents the most southerly recorded *Pterinochilus* species.

Introduction

With the revision of the African theraphosid spider genus *Pterinochilus* Pocock, 1897, and subsequent papers (Gallon, 2002, 2008, 2009), the genus currently comprises nine species: *P. alluaudi* Berland, 1914, *P. andrewsmithi* Gallon, 2009, *P. chordatus* (Gerstäcker, 1873), *P. cryptus* Gallon, 2008, *P. lugardi* Pocock, 1900, *P. murinus* Pocock, 1897, *P. raygabrieli* Gallon, 2009, *P. simoni* Berland, 1917 and *P. vorax* Pocock, 1897.

In 2006 an additional, undescribed, species was discovered in the Waterberg region of Limpopo Province, South Africa. This species is described here, thus bringing the number of *Pterinochilus* species recorded from South Africa to three: *P. murinus*, *P. lugardi* and *P. lapalala* sp. n.

Methods

Methods follow Gallon (2002), except that ocular and somatic measurements were obtained microscopically using an eyepiece graticule (± 0.01 mm and ± 0.1 mm respectively).

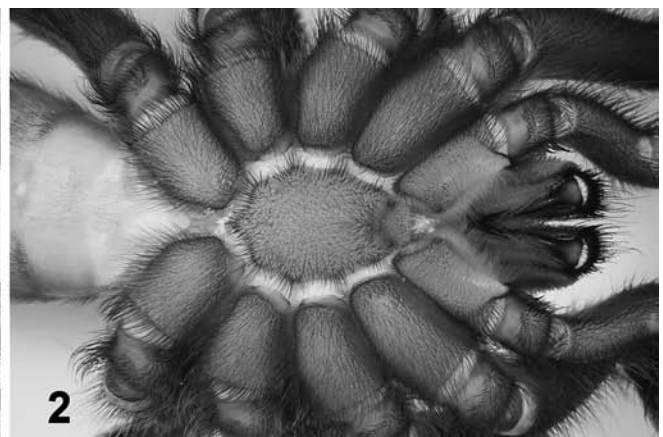
Abbreviations: Eyes: AME=anterior median, ALE=anterior lateral, PME=posterior median, PLE=posterior lateral. Leg spines: DPV=distal proventral, DRL=distal retrolateral, DRV=distal retroventral, PPL=proximal prolateral, PPV=proximal proventral, MPV=medial proventral, MRD=medial retrodorsal, MRV=medial retroventral, MPL=medial prolateral, DMV=distal midventral, DPD=distal prodorsal, DRD=distal retrodorsal. R=right, L=left. Spinnerets: DS=distal segment. Collections: OUMNH=Hope Museum, Oxford, UK; TM=Transvaal Museum – Ditsong National Museum of Natural History, Pretoria, South Africa.

Pterinochilus lapalala sp. n. (Plates 1–11, Figs. 1–9)

Etymology: Honouring the Lapalala Wilderness School, in recognition of their work in promoting and preserving wilderness habitat in the Waterberg. The specific epithet is a noun in apposition.

Type material: Holotype ♂ (TM 23479) from South Africa, Limpopo Province, Waterberg District, Lapalala Private Nature Reserve, hill N. of Wilderness School, Waterberg, 1080 m a.s.l. [23° 52' S, 28° 19' E], 25 September 2006. Reared to maturity by I. Engelbrecht (I. Engelbrecht, S. Foord, E. Stam, University of Venda students, Collector No.: IE06-241). Paratypes: 1♀ 1 imm. ♂ (TM 23479) with same data; 1♂ 1♀ (OUMNH-2010-035) from South Africa, Limpopo Province, Waterberg District, Farm Slangfontein 641, on R517 to Vaalwater, c. 37 km due SSW of Lephalale (Ellisras), September 2009 (P. Gildenhuys).

Diagnosis: In females the unlobed spermathecae of *Pterinochilus lapalala* sp. n. provide distinction from its congeners with lobed spermathecae: *Pterinochilus lugardi*, *P. simoni* and *P. vorax*. The straight, narrow,



Plates 1–2: *Pterinochilus lapalala* sp. n., holotype male (TM 23479). **1** Carapace, dorsal view; **2** Cephalothorax, ventral view. Carapace width 11.2 mm, sternum width 4.7 mm.



Plate 3: *Pterinochilus lapalala* sp. n., holotype male. Palp, retrolateral view (TM 23479). Tibia length 5.2 mm.

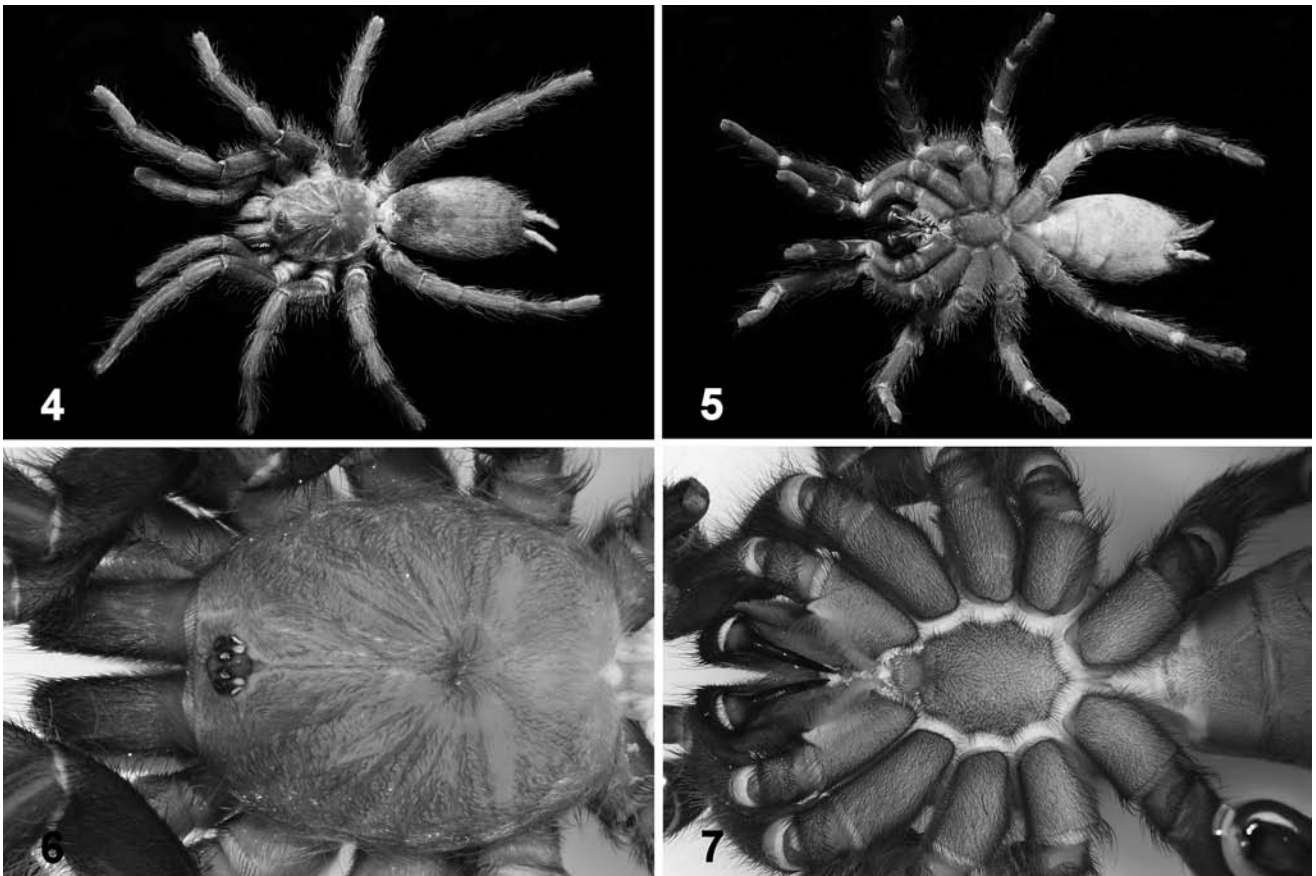
elongated form of the spermathecae readily distinguishes *P. lapalala* sp. n. from *P. murinus* and *P. andrewsmithi* which have inwardly curved and broad squat spermathecae respectively. Female *P. lapalala* sp. n. are distinguished from those of *P. chordatus* by a reduced number of labial cuspules (27 & 13 as opposed to *c.* 60) and low carapace profile. The spermathecae of *P. chordatus* are usually proportionally wider.

In males the elongated, gently curved, filiform embolus of *P. lapalala* sp. n. provides distinction from *P. alluaudi*, *P. murinus* and *P. raygabrieli*. Males of *P. lugardi*, *P. chordatus* and *P. vorax* usually possess an incrassate femur III, whereas this segment is unmodified

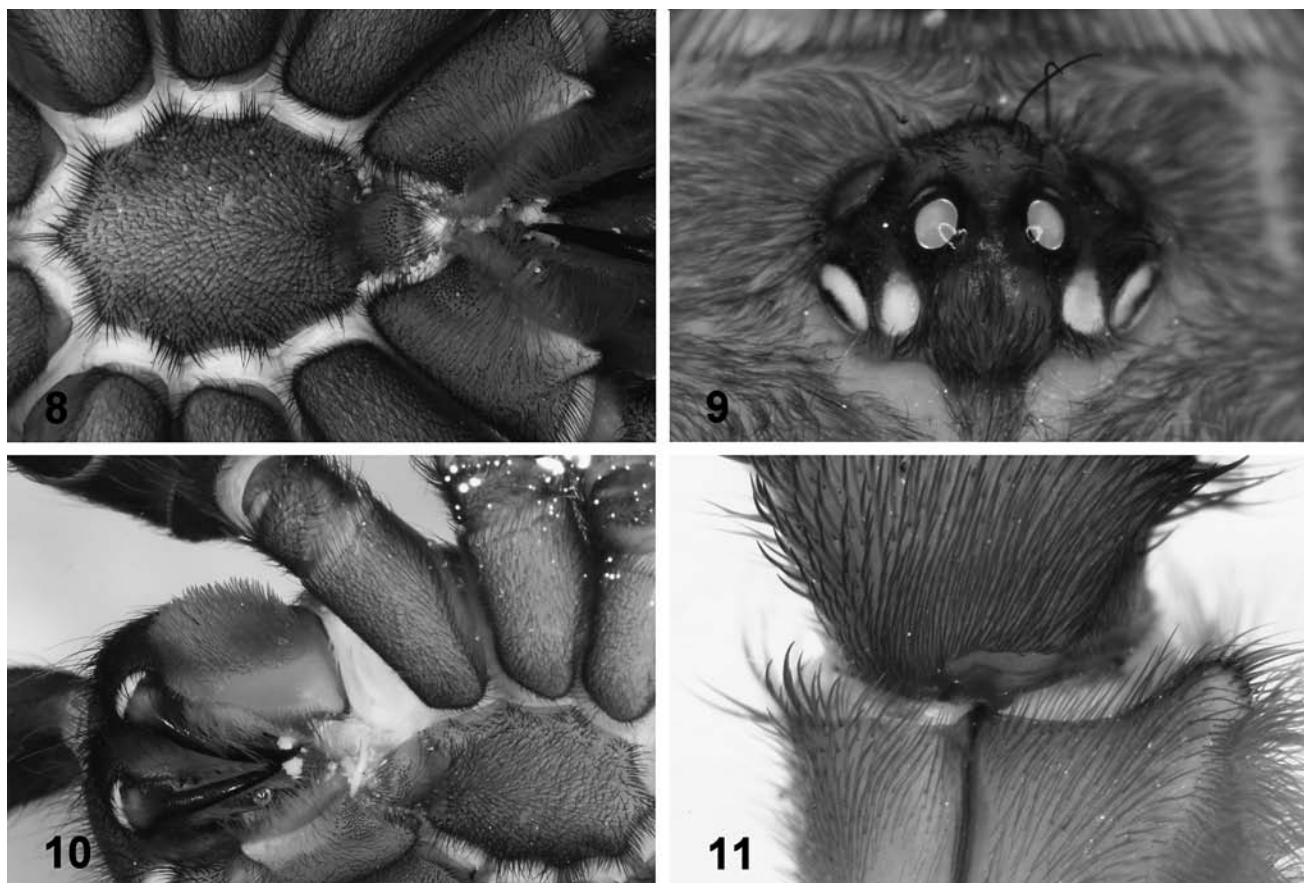
in *P. lapalala* sp. n. In males of *P. chordatus* and *P. vorax* metatarsus I is distinctly bowed (viewed dorsally), but is straight in *P. lapalala* sp. n. The smoothly tapering, slightly curved embolus of *P. cryptus* provides distinction from that of *P. lapalala* sp. n. where the embolus narrows more abruptly and is more strongly curved retrolaterally.

The absence of distal prolateral spike setae on the maxilla provides additional distinction from *P. murinus*. The absence of a longitudinal line of stiff setae bisecting the scopula on the prolateral face of the palpal trochanter provides additional distinction from *P. simoni*.

Description: Holotype male (TM 23479) (Plates 1–3): Total length 30.9. Carapace profile low, length 12.5, width 11.2 (Plate 1). Abdomen length 15.0, width 9.4. Fovea deep transverse pit. Ocular tubercle length 1.41, width 1.96. Clypeus 0.35. Eye sizes: AME 0.50, ALE 0.58, PME 0.41, PLE 0.44. Sternum with three pairs of oval submarginal sigilla (Plate 2). Labium with 16 cuspules. Maxilla with *c.* 90 cuspules. DS of posterior spinneret digitiform. Chelicerae with 9R, 11L teeth on promargin. Stridulatory scopula of well-developed plumose setae on retrolateral cheliceral face, corresponding with scopula of similar plumose setae on prolateral trochanteral face of palp. Leg and palp segment lengths in Table 1. Palpal tibia slightly swollen proximoventrally (Plate 3). Metatarsus I straight viewed dorsally and laterally (Fig. 1), without DPV tumid protuberance. Femur III not incrassate. Tarsal scopulae: tarsi I–III integral; tarsus IV divided longitudinally by band of



Plates 4–7: *Pterinochilus lapalala* sp. n., paratype female (TM 23479). **4** Dorsal view; **5** Ventral view; **6** Carapace, dorsal view; **7** Cephalothorax, ventral view. Carapace width 12.2 mm, sternum width 5.4 mm.



Plates 8–11: *Pterinochilus lapalala* sp. n., paratype female (TM 23479). **8** Sternum, ventral view; **9** Ocular tubercle, dorsal view; **10** Cephalothorax, showing retrolateral cheliceral surface, ventrolateral view; **11** Palp maxilla and trochanter, prolateral view. Sternum width 5.4 mm, ocular tubercle width 2.08 mm, proximal width of palp trochanter 2.23 mm.

setae in proximal half. Metatarsal scopulae: leg I 90%, leg II 87%, leg III 75%, leg IV 66% (I–III integral, IV bisected longitudinally by band of stiff setae). Paired claws smooth, third claw absent. All tarsi with paired claw tufts. Clavate trichobothria: restricted to U-shaped region on apical half of all tarsi (tarsus I, 34R, 26L). Spination: palp tibia 1DPV; leg I tibia 1DRV; leg II tibia 1DRV, 1DPV; leg III tibia 2DRV, 1DPV, metatarsus 1MPV, 1DRV, 1DMV, 1DPV, 2PPL (0R), 1MPL, 1MRD, 1DPD, 1DRD; leg IV tibia 2DRV, 1DPV, metatarsus 1PPV (0L), 2MPV (3R), 1MRV, 1DRV, 1DMV, 1DPV, 1PPL, 1MRD, 1MPL, 1DPD, 1DRD. Remaining leg segments aspinose. Tibial spur (Fig. 1): DPV apophysis long; surmounted megaspine long and curved, protruding proventrally. Coloration: as female, except abdominal setae more shaggy and dorsal abdominal marks more ill-defined. Palpal bulb (Figs. 2–4): tegulum pyriform with retrolateral bulge at base of embolus. Embolus robust basally, becoming filiform

distally, medially curved retrolaterally. Embolus oval in cross-section, without keels.

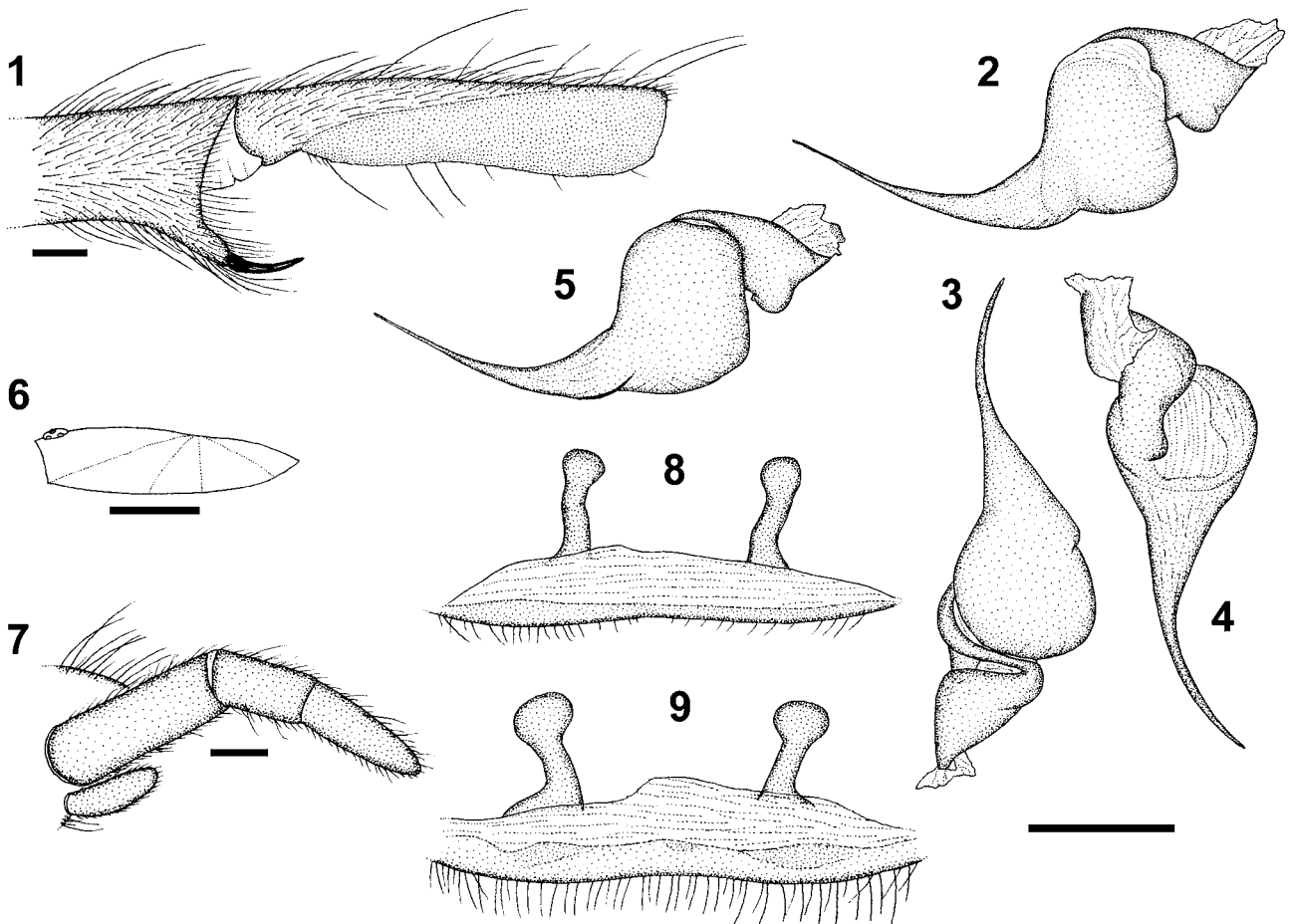
Paratype female (TM 23479) (Plates 4–11): Total length 37.1. Carapace profile low (Fig. 6), length 14.1, width 12.2 (Plate 6). Abdomen length 18.8, width 11.6. Fovea deep transverse pit. Ocular tubercle length 1.49, width 2.08 (Plate 9). Clypeus 0.44. Eye sizes: AME 0.53, ALE 0.56, PME 0.45, PLE 0.49. Sternum with three pairs of oval submarginal sigilla (Plate 7). Labium with 27 cuspules. Maxilla with *c.* 120 cuspules (Plate 8). DS of posterior spinneret digitiform (Fig. 7). Chelicerae with 9R, 11L teeth on promargin. Stridulatory scopula of well-developed plumose setae on retrolateral cheliceral face, corresponding with scopula of similar plumose setae on prolateral trochanteral face of palp (Plates 10–11). Leg and palp segment lengths in Table 2. Tarsal scopulae: tarsi I–III integral; tarsus IV divided longitudinally by band of setae in proximal half. Metatarsal scopulae: leg I 87%, leg II 87%, leg III 75%, leg IV 66%

	Fe	Pa	Ti	Mt	Ta
I	10.7	6.2	9.2	8.0	6.0
II	10.2	5.7	7.6	8.0	5.9
III	9.3	4.8	6.8	8.8	5.7
IV	11.3	5.4	9.0	11.5	6.8
Palp	7.2	4.3	5.2	–	3.1

Table 1: *Pterinochilus lapalala* sp. n. Lengths of leg and palp segments of holotype male (TM 23479).

	Fe	Pa	Ti	Mt	Ta
I	10.0	6.5	7.5	6.7	5.4
II	9.2	6.0	6.7	6.3	5.5
III	8.4	5.2	6.0	7.3	5.7
IV	10.6	5.8	8.3	10.3	6.2
Palp	7.3	4.7	4.9	–	6.4

Table 2: *Pterinochilus lapalala* sp. n. Lengths of leg and palp segments of paratype female (TM 23479).



Figs. 1–9: *Pterinochilus lapalala* sp. n. **1** Tibial spur on leg I, prolateral view; **2–5** Palpal bulb: **2, 5** Retrolateral views; **3** Ventral view; **4** Dorsal view; **6** Carapace, lateral view; **7** Spinnerets prolateral view; **8–9** Spermathecae, dorsal views (**1–4** holotype male (TM 23479); **5** paratype male (OUMNH-2010-035); **6–8** paratype female (TM 23479); **9** paratype female (OUMNH-2010-035)). Scale lines = 1 mm (1–5, 7–9), 5 mm (6).

(I–III integral, IV bisected longitudinally by band of stiff setae). Paired claws smooth, third claw absent. All tarsi with paired claw tufts. Clavate trichobothria: restricted to U-shaped region on apical half of all tarsi (tarsus I, 36R, 31L). Spination: palp tibia 1DRV (0R), 1DPV; leg I tibia 1DRV, 1DPV; leg II tibia 1DRV, 1DPV; leg III tibia 2DRV, 1DPV, metatarsus 1MPV, 1DRV, 1DMV, 1DPV, 1MPL, 1DPD, 1DRD; leg IV tibia 2DRV (3L), 1DPV, metatarsus 1MPV (3L), 1DRV, 1DMV, 1DPV, 1PPL (0R), 1MRD, 1MPL, 1DPD, 1DRD. Remaining leg segments aspinose. Coloration (Plates 4–5): uniformly greyish beige, with more golden coloration on dorsal surfaces of limbs and chelicerae. Carapace with weakly defined paler radial striae. Dorsum of abdomen with ill-defined dark markings of bars, spots and reticulations; ventral surface predominantly yellow-brown, with few isolated dark speckles. Spermathecae (Fig. 8): paired, unlobed and narrowly elongated with rounded termini. Flattened in cross-section. Setal fringe on posterior margin of epigastric scutum composed of short inwardly curved setae.

Paratype male (OUMNH-2010-035). As holotype except: Total length 28.6. Carapace length 13.2, width 11.5. Abdomen length 12.4, width 6.4. Ocular tubercle length 1.41, width 2.09. Clypeus 0.44. Eye sizes: AME 0.47, ALE 0.62, PME 0.44, PLE 0.54. Labium with 14 cuspules. Maxilla with *c.* 130 cuspules. Chelicerae with

8R, 9L teeth on promargin. Leg and palp segment lengths in Table 3. Tarsal scopula IV divided longitudinally by band of setae in proximal quarter. Metatarsal scopulae: leg I 95%, leg II 90%, leg III 75%, leg IV 70%. Clavate trichobothria on tarsus I, 29R, 26L. Spination: palp tibia 1DPV; leg I tibia 1DRV; leg II tibia 1DRV, 1DPV, metatarsus 1DMV (0L); leg III tibia 2DRV, 1DPV, metatarsus 1MPV, 1DRV, 1DMV, 1DPV, 1MPL, 1MRD, 1DPD, 1DRD; leg IV tibia 2DRV, 1DPV, metatarsus 1PPV (0R), 1MPV, 1DRL (0R), 1DRV, 1DMV, 1DPV, 1PPL, 1MRD, 1MPL, 1DPD, 1DRD. Remaining leg segments aspinose. Palpal bulb (Fig. 5): tegulum without retrolateral bulge at base of embolus. Single keel begins at retrolateral base of embolus, spirals retrolaterally and terminates ventrally one-third along embolus.

	Fe	Pa	Ti	Mt	Ta
I	10.6	6.2	8.3	8.5	6.0
II	10.0	5.8	7.6	8.0	5.8
III	9.1	5.0	6.8	9.0	6.0
IV	11.2	5.5	9.2	12.1	6.4
Palp	6.8	4.4	5.5	–	3.2

Table 3: *Pterinochilus lapalala* sp. n. Lengths of leg and palp segments of paratype male (OUMNH-2010-035).

Paratype female (OUMNH-2010-035): As paratype female (TM 23479) except: Total length 42.9. Carapace length 15.5, width 13.3. Abdomen length 22.1, width 14.1. Ocular tubercle length 1.67, width 2.36. Clypeus 0.55. Eye sizes: AME 0.50, ALE 0.69, PME 0.51, PLE 0.62. Labium with 13 cuspules. Maxilla with *c.* 135 cuspules. Chelicerae with 10R, 8L teeth on promargin. Leg and palp segment lengths in Table 4. Metatarsal scopulae: leg I 85%, leg II 83%, leg III 75%, leg IV 66%. Clavate trichobothria on tarsus I, 27R, 27L. Spination: palp tibia 1DRV, 1DPV; leg I tibia 1DRV, 1DPV; leg II tibia 1DRV, 1DPV; leg III tibia 2DRV, 1DPV, metatarsus 1MPV, 1DRV, 1DMV, 1DPV, 1MRD, 1MPL, 1DPD, 1DRD; leg IV tibia 2DRV, 1DPV, metatarsus 1MPV (2L), 1DRV, 1DMV, 1DPV, 1PPL (0R), 1MRD, 1MPL, 1DPD, 1DRD. Remaining leg segments aspinose. Spermathecae (Fig. 9).

Distribution (Map 1): South Africa, Limpopo Province, Waterberg mountain range. *Pterinochilus lapalala* sp. n. represents the most southerly occurring species in the genus *Pterinochilus*.

Ecology: *Pterinochilus lapalala* sp. n. occurs on gentle to steep, very rocky slopes in the Waterberg mountain range. The plant community at the type locality is dominated by the trees *Acacia nigrescens*, *Olea europea* and *Papea capensis*, whilst the dominant grass is *Heteropogon contortus* (A. Roberts, pers. comm.). This vegetation community represents a sweetveld on a dolerite intrusion. This habitat type is relatively rare in the Waterberg which is made up predominantly of sourveld communities of the Waterberg Mountain Bushveld

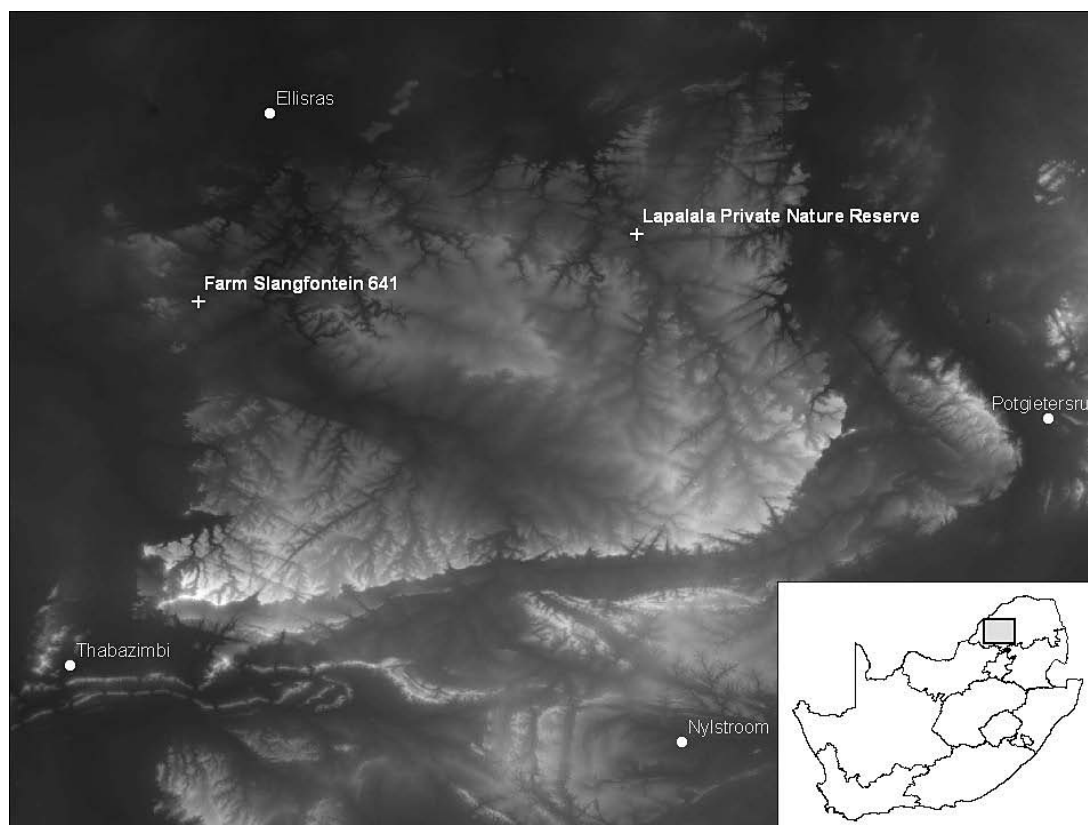
	Fe	Pa	Ti	Mt	Ta
I	10.7	6.9	7.9	7.1	5.5
II	10.0	6.4	7.1	6.9	5.4
III	9.1	5.6	6.5	8.2	5.7
IV	11.5	6.2	9.0	11.5	6.4
Palp	7.9	5.3	5.5	–	6.4

Table 4: *Pterinochilus lapalala* sp. n. Lengths of leg and palp segments of paratype female (OUMNH-2010-035).

Vegetation type occurring on Waterberg sandstones (Mucina & Rutherford, 2006). Average annual rainfall in the region is 400 mm, mean minimum temperature in the coldest month is 2°C and mean maximum temperature in the hottest month is 30°C.

Specimens were collected from under loose rocks where they had constructed messy sheet webs filling the cavity under the rock. They live in this sheet web, and dash around rapidly when the rock is turned, retreating into cavities in the ground if these are available. One adult female was found with an egg-sac which produced *c.* 70 offspring. The male specimen matured in captivity in April.

The rocky habitat, particular plant community, nature of the sheet web retreat and generally flattened habitus of these spiders suggest that it is a specialist lapidicolous species. Habitat specialisation appears to be rare in the southern African theraphosids. Only *Ceratomyrus paulseni* Gallon is known to exhibit narrow habitat requirements, occurring in black clay soils of the Arcadia form (I. Engelbrecht pers. obs.).



Map 1: Distribution of *Pterinochilus lapalala* sp. n. in the Waterberg region of South Africa (+). Background is 90 m SRTM Digital Elevation Model with lighter areas indicating mountains and ridges. Towns indicated with ●.

Acknowledgements

Stefan Foord, Judy van Schalkwyk, Sylvie Geerrens and Roger Collinson organised the expedition where the Lapalala type specimens were collected. Anthony Roberts provided plant community and vegetation data for the type locality. Patrick Gildenhuys provided the specimens from Slangfontein. Darren Mann, James Hogan and Zoë Simmons (OUMNH) and Robin Lyle (TM) provided secure type depositories.

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