



The South African genus *Lepthercus* Purcell, 1902 (Araneae: Mygalomorphae): phylogeny and taxonomy

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Abstract

After more than a century, the genus *Lepthercus* Purcell, 1902 is revised. *Lepthercus dregei* Purcell, 1902 and *L. rattrayi* Hewitt, 1917 are redescribed; with the female of *L. dregei* described for the first time. Nine new species of *Lepthercus* are described. A phylogenetic analysis with morphological characters using implied weights and parsimony as optimality criteria, suggests the separation of the genus in two clades. The first clade is formed by *L. dippenarae* **sp. nov.**, *L. engelbrechti* **sp. nov.**, *L. haddadi* **sp. nov.**, *L. rattrayi* Hewitt, 1917 and *L. sofiae* **sp. nov.**, here denominated “Group haddadi”. The species *L. confusus* **sp. nov.**, *Lepthercus dregei* Purcell, 1902, *Lepthercus filmeri* **sp. nov.**, *Lepthercus kwazuluensis* **sp. nov.**, *Lepthercus lawrencei* **sp. nov.** and *Lepthercus mandelai* **sp. nov.**, form the second clade, here denominated “Group dregei”. The “Group haddadi” is characterized by males with a curved metatarsus I, and a swollen tibia I. The “Group dregei” is supported by the presence of small maxillary cuspules in males. A new diagnosis is provided for *Lepthercus* as well as an identification key for all species of the genus. New distribution maps for the genus in the country are also presented.

Key words: Biodiversity, Morphology, South Africa, Phylogeny, Taxonomy

Resumen

Luego de más de una década, se revisa el género *Lepthercus* Purcell, 1902. Se describen las especies *Lepthercus dregei* Purcell, 1902 y *L. rattrayi* Hewitt, 1917; con la descripción por primera vez de la hembra correspondiente a *L. dregei*. Nueve nuevas especies de *Lepthercus* son descritas. El análisis filogenético usando caracteres morfológicos bajo pesos implicados, y usando parsimonia como criterio de optimalidad, sugiere la separación del género en dos clados. El primer clado formado por *L. dippenarae* **sp. nov.**, *L. engelbrechti* **sp. nov.**, *L. haddadi* **sp. nov.**, *L. rattrayi* Hewitt, 1917 y *L. sofiae* **sp. nov.**, aquí denominado “Grupo haddadi”. Las especies *L. confusus* **sp. nov.**, *Lepthercus dregei* Purcell, 1902, *Lepthercus filmeri* **sp. nov.**, *Lepthercus kwazuluensis* **sp. nov.**, *Lepthercus lawrencei* **sp. nov.** y *Lepthercus mandelai* **sp. nov.**, forman el segundo clado, aquí denominado “Grupo dregei”. El “Grupo haddadi” se caracteriza por presentar machos con el metatarso I curvado y la tibia I engrosada. El “Grupo dregei” va a estar soportado por machos con cúspides maxilares pequeñas. Se proporciona una nueva diagnosis para *Lepthercus*, así como una clave de identificación para todas las especies del género. Se presentan además nuevos mapas de distribución para el género en el país.

Palabras claves: Biodiversidad, Morfología, South África, Filogenia, Taxonomía

Introduction

The family Nemessidae, with 431 species, is the second most diverse family within the spider infraorder Mygalomorphae (WSC, 2020). This family has a worldwide distribution and was proposed by Raven (1985a) transferring several genera from families as Dipluridae, Ctenizidae, Barychelidae, Pycnothelidae (Goloboff, 1995; Indicatti & Lucas, 2005). Currently the old family Nemessidae has been split into many families under the Nemesoidina clade

(Opatova et al. 2019). In South Africa the representatives of the Nemesoidina clade comprise the families, “Pycnothelidae” and “Entypesidae,” including four genera and 33 species. The family “Entypesidae” has been proposed by Bond, Opatova, and Hedin, 2019 (Opatova et al. 2019) and include the genera *Entypesa* Simon, 1902, and likely *Hermacha* Simon, 1889 and *Lepthercus* Purcell, 1902 (Opatova et al. 2019).

Lepthercus was originally proposed by Purcell (1902) to accommodate his new species *L. dregei* Purcell, 1902; this genus has been neglected for more than a century. He described it from a single male from Doornnek in the Zuurberg of the Eastern Cape Province. Fifteen years later, Hewitt (1917) added another species, *L. rattrayi* Hewitt, 1917, from East London, also in the Eastern Cape Province. Hewitt (1917, p. 699) noted differences between both male specimens, principally in the maxillary cuspules, the dentition of the chelicerae and, more importantly, the modifications of the first metatarsus. There have been no subsequent studies of the taxonomy of this genus.

The nemesiid faunas (sensus Raven, 1985b) from South America (Goloboff, 1995; Indicatti & Lucas, 2005; Montes de Oca & Pérez-Miles, 2013; Indicatti et al. 2015; Ferretti, 2015), Australasia (Raven, 1981, 1984a,b,c; 1985a,b; Main, 1975, 1982, 1983, 1985, 1986, 2004, 2008; Castalanelli et al. 2017; Harvey et al. 2018) and Eurasia (Zonstein 1987, 2009, 2017, Zonstein et al. 2018a; Decae & Cardoso, 2006) are relatively well known. In contrast, the African fauna has mostly been neglected (Dippenaar-Schoeman, 2002; Zonstein, 2016).

The study presented here is based on new material primarily from South African museum collections. The previously species of the genus: *Lepthercus dregei* Purcell, 1902 and *L. rattrayi* Hewitt, 1917 are redescribed, and the female of *L. dregei* is described for the first time. Nine new species of *Lepthercus* are described and a key for all species is provided.

Material and methods

Taxonomic methods

All measurements are given in millimeters (mm) and were taken from the sinistral side of the specimen. Total length was measured without spinnerets. The proportion of the tibia I or palp tibia (width/length) was measured taking into account the maximum width and length of the segment. Photographs were taken using a high-resolution microscopy camera AxioCam MRc5 mounted on a Zeiss Axio Zoom V16 microscope. Extended focal range images were stacked using the accompanying ZEN module Z-stack software. The serrula photographs were taken in a Phenom Desktop SEM. Lengths of leg articles are always given in the same order: femur, patella, tibia, metatarsus, tarsus, and total. The male copulatory bulb and female genitalia were separated using a microscalpel. The bulbs were illustrated from photographs taken following the approach of Goloboff (1995) and Ríos-Tamayo & Goloboff (2018). Spermathecae were clarified by immersion in clove oil, thus making the opaque glandular tissues that cover the structure transparent.

Abbreviations and notation for leg spines follow Goloboff and Platnick (1987) and Ríos-Tamayo & Goloboff (2018); legs are described from I to IV and from proximal to distal (i.e. from femur to tarsus within each leg, from basal to apical within each segment); the sequence prolateral-dorsal-retrolateral-ventral (P–D–R–V) is always followed, using lowercase letters (p–d–r–v), when referring to bristles instead of spines. The filiform trichobotria present on the metatarsi follow a pattern of alternating long and short trichobotria; in text the numbers of short trichobotria are presented in parentheses followed by the numbers of long trichobotria, from proximal to distal ends [e.g. (3)1(2)1 refers to three short trichobotria, followed by a long trichobotrium, followed by two short, and one long].

In indicating material examined, coordinates provided on specimen labels are indicated in parentheses. Localities without coordinates were georeferenced in Google Earth and are indicated in square brackets. Distribution maps were prepared in QGIS V3.0 (QGIS Development Team, 2018). Species distributions were mapped using different symbols for localities where each species was recorded. Where localities for different species overlapped one symbol was moved and its original placement indicated on the map with a solid black line. To demonstrate potential climatic associations of the two genera, records for each genus were plotted on a map of mean austral summer rainfall for the months October to April, using Worldclim V2.0 monthly rainfall values (Fick and Hijmans, 2017).

Phylogenetic analysis

The analysis comprised eleven taxa from *Lepthercus* genus: *L. confusus* sp. nov., *L. dippenarae* sp. nov., *L. dregei* Purcell, 1902, *L. engelbrechti* sp. nov., *L. filmeri* sp. nov., *L. haddadi* sp. nov., *L. kwazuluensis* sp. nov., *L. lawrencei* sp. nov., *L. mandelai* sp. nov., *L. rattrayi* Hewitt, 1917, and *L. sofiae* sp. nov. We also included the genera *Hermacha* and *Acanthogonatus*+*Stanwellia* (scored from the morphological characters made by Raven, 1985a). Taking into account the current reclassification by Opatva et al. 2019, we included the families Microstigmatidae Roewer, 1942 (by Ixamatinae, scored from the morphological characters made by Raven, 1985a), Anamidae Simon, 1889 (scored from the morphological characters made by Raven, 1985a for the subfamily Anamini) and “Entypesidae” Bond et al., 2019 (by the genus *Entypesa*, scored taking into account the descriptions made by Raven, 1983 and Zonstein, 2018b). The analysis was rooted using the genus *Acanthogonatus*. A morphological matrix of 42 characters was constructed. Missing or inapplicable characters were scored as “?”.

The cladistic analysis was carried out with TNT version 1.5 (Goloboff, Farris & Nixon, 2008; Goloboff & Catalano, 2016), using parsimony as the optimality criterion. The tree searches were carried out with exact solution algorithms under implied weight ($k = 5$ to 8). The support values were estimated using a combined Bremer support (Goloboff, 2004), and the *nozero* option of the *resample* command in TNT. The combined bremer support, combines values from the absolute (Bremer 1994) and relative (Goloboff and Farris 2001) in a single value, producing in simple cases evaluations that approximate the results of jackknifing (Farris et al. 1996). The *nozero* option performs a reweighting of the characters (doubling or halving the weight with equal probability; see Goloboff et al. 2003) without deleting any characters. This method is useful when the dataset contains numerous missing entries and poorly supported groups, because only groups that are contradicted by at least one character can have a support below 100%. The results of the resampling are summarized by means of the GC statistic (Goloboff et al. 2003).

Abbreviations

Morphology. ALE—anterior lateral eyes; AME—anterior median eyes; D—dorsal; D INF—dorsal inferior; D M—dorsal medial; Mt—metatarsus; P—prolateral; P A—prolateral apical; P A INF—prolateral apical inferior; P INF—prolateral inferior; PLE—posterior lateral eyes; PLS—posterior lateral spinnerets; P M—prolateral medial; PME—posterior median eyes; PMS—posterior median spinnerets; P SUP—prolateral superior; P V—prolateral ventral; OQ—ocular quadrangle; R—retrolateral; R A—retrolateral apical; R INF—retrolateral inferior; R SUP—retrolateral superior; R V—retrolateral ventral; T—tarsus; V—ventral; V A—ventral apical; V A ANT—ventral apical anterior; V B—ventral basal; V POST—ventral posterior. For notation of leg spines, an expression like D–R, D–P indicates that the spines occupy the dorsal inferior to retrolateral superior surfaces, or the prolateral superior to dorsal inferior surfaces; 1:2 A, 3:4 B indicates that the spines or scopula referenced are in the apical half or basal three-fourths.

Repositories. NCA—National Collection of Arachnida, Pretoria, South Africa (Petro Marais); NMBA—National Museum, Bloemfontein, Free State, South Africa (Jan-Andries Neethling); NM—Natal Museum, Pietermaritzburg, KwaZulu-Natal, South Africa (Kirstin Williams and Matabaro Ziganira); SAMC—Iziko Museums of South African, Cape Town, South Africa (Aisha Mayekiso).

Results

List of characters and character states. Codification of characters Table I.

Both sexes

0 Eye tubercle (based on the characters provided by Raven 1985a for *Ixamatus*, *Stanwellia*; Zonstein 2018 and Raven 1983 for *Entypesa*): (0) low; (1) well defined. **1** Rastellum: (0) absent; (1) weak. **2** Serrula (modified from Goloboff, 1995: 33, character # 26, Fig. 2D–K): (0) present in male and female; (1) present in female only. **3** Labial cuspules: (0) both sexes absent; (1) both sexes present. **4** Fovea shape: (0) procurved; (1) straight; (2) slightly procurved or recurved. **5** Metatarsal preening combs (Raven, 1985a: 44, character # 27, Fig. 2A): (0) absent; (1) present. **6** Maxillary cuspules (Raven, 1985a: 44, character # 35): (0) extend back onto produced heel; (1) confined to anterior inner corner. **7** Maxillary cuspules in females: (0) few (about 0-60); (1) many (over 70).

TABLE 1. Matrix of character and character states used in the cladistic analysis of *Lepthercus* spp (?) unknown, treated as missing data in the analysis.

Character:	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4							
Taxon:	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1												
<i>Acanthogonatus</i>	1	1	0	1	?	1	1	?	?	0	0	?	?	0	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?							
Microstigmati- dae	0	0	0	0	?	0	1	?	?	1	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?						
Stanwellia	0	0	0	1	?	1	1	?	?	0	0	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?						
Araninidae	1	0	0	1	?	1	0	?	1	?	0	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?					
Entypesa	0	0	0	0	1	1	0	1	1	1	1	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?				
Hermacha	1	1	?	0	0	1	0	?	0	0	?	?	1	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?					
L_rattrayi	1	0	1	1	2	1	1	0	1	1	0	1	1	0	2	0	1	1	0	0	1	1	0	1	0	1	0	0	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
L_dregei	1	0	1	0	2	1	1	0	1	1	0	0	0	?	1	1	1	1	0	0	1	0	0	1	0	0	1	0	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
L_confusus	1	0	1	0	2	1	1	0	1	0	1	0	0	?	1	1	1	1	0	0	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?		
L_kwazuluensis	1	0	1	1	2	1	1	0	1	0	1	0	0	?	1	0	1	1	0	0	1	0	0	1	0	0	1	0	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
L_mandelai	1	0	1	1	2	1	1	0	1	0	1	0	0	1	0	?	1	1	1	0	0	1	0	0	1	0	0	1	0	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
L_dippenaarae	1	0	1	0	2	1	1	1	1	0	1	1	0	1	1	0	0	2	0	1	1	0	0	1	1	0	0	1	1	0	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
L_lawrencei	1	0	1	?	2	1	1	1	?	1	0	?	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??		
L_filmeri	1	0	1	?	2	1	1	0	?	1	0	?	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??	??		
L_engelberchti	1	0	0	0	2	1	1	1	1	1	0	0	0	1	2	0	0	1	1	1	0	1	1	1	1	0	1	1	0	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
L_haddadi	1	0	0	0	2	1	1	1	1	1	0	0	0	1	2	0	0	1	1	1	1	0	1	1	1	0	1	1	0	1	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
L_soffae	1	0	0	?	2	1	1	?	1	1	0	0	1	0	1	2	0	0	1	1	1	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?

Males

8 Maxillary cuspules: (0) very small (as in Fig. 2C); (1) normal (as in Fig. 2B). **9** Intercheliceral tumescence: (0) pallid; (1) well-marked (Figs. 3C; 5C; 9C; 9C; 12C; 14C; 17C; 19C; 21C; 23C). **10** Scopula tarsi III (Raven, 1985a: 44, character # 13): (0) entire; (1) sparse or absent. **11** Intercheliceral tumescence: (0) small (Figs. 3C; 5C; 9C; 12C; 17C; 19C; 23C); (1) long (Figs. 14C; 21C). **12** Cheliceral denticles: (0) few (about 0-18); (1) many (over 20). **13** Cymbium spines: (0) absent; (1) present. **14** Palpal tibia base wide: (0) dorsally slightly convex (Figs. 14D; 21D); (1) dorsally very convex (Figs. 17D; 19E; 23D). **15** Palpal tibia base: (0) slender (as in *Hermacha*); (1) normal (Figs. 3D, E; 5D, E; 9D, E; 12D, E); (2) wide (Figs. 14D, E; 17D, E; 19E, F; 21D, E; 23D, E). **16** Dorsal setae on male palpal tibia: (0) thin (Figs. 3D; 5D; 9D; 12D; 17D; 19E; 23D); (1) thick (Figs. 14D; 21D). **17** Prolateral setae on male palpal tibia: (0) absent (17E, 19F, 23E); (1) thin setae (Figs. 3E; 5E; 6A; 9E; 12E; 14E; 21E); (2) thickened setae or spines (present in *Hermacha* and *Entypesa*). **18** Proventral setae on male palpal tibia (modified from Goloboff, 1995: 35, character # 62): (0) few (Figs. 17E; 19E; 23E); (1) abundant (Figs. 3E; 5E; 9E; 12E; 14E; 21E). **19** Form of male palpal tibia: (0) normal (Figs. 3D; 5D; 9D; 12D; 14D; 21D); (1) incrassate with development of the anterior part of the retrolateral side of ventral excavation (Figs. 17D, E; 19E, F; 23D, E). **20** Palpal tibia excavation: (0) shallow; (1) deep. **21** Metatarsus I protuberance: (0) absent; (1) present (Figs. 5J; 9J; 12J; 14J; 17I; 19J; 21I; 23I). **22** Metatarsal protuberance: (0) without blunt spines (Figs. 5J; 9J; 12J); (1) present with blunt spines (Figs. 14I, J; 17I; 19J; 21I; 23I). **23** Metatarsal protuberance, position: (0) medial-basal (Figs. 5J; 9J; 12J; 14J); (1) apical (Figs. 17I; 19J; 21I; 23I). **24** Metatarsus I: (0) curved (Figs. 14I; 17I; 19J; 21I; 23I); (1) straight. **25** Tibial mating clasper: (0) spines; (1) spur. **26** Tibia I: (0) normal (Figs. 3I; 5I, J; 6C, D; 9I, J; 12I); (1) swollen (Figs. 14I; 17I, J; 19J, K; 21I, 23I, J). **27** Tibia I spur: (0) short (Figs. 3I; 14I; 17I; 19J; 21I, 23I, J); (1) long (Figs. 5I, J; 6C, D; 9I, J; 12I, J). **28** Tibia I, spine+spur: (0) absent; (1) present (Figs. 17J; 19K; 23J). **29** Tibia I, megaspine: (0) slender (Figs. 3I; 5I, J; 6C, D; 9I, J; 12I, J; 14I; 21I); (1) robust (Figs. 17I, J; 19J, K; 23I, J). **30** Copulatory bulb: (0) short; (1) large (Figs. 17F–H; 19G–I, 23F–H). **31** Bulb embolus: (0) straight (as in *Hermacha*); (1) curved (Figs. 3F–H; 5F–H; 9F–H; 12F–H; 14F–H; 21F–H); (2) twisted (Figs. 17F–H; 19G–I, 23F–H). **32** Bulb keels (modified from Goloboff, 1995: 38, character # 87): (0) absent (Figs. 5F–H; 17F–H; 19G–I); (1) parallel keels (Figs. 3F, G; 9G, H; 12G; 14F–H; 21F, G). **33** Male bulb, ridges along the embolus (modified from Goloboff, 1995: 38, character # 87): (0) absent; (1) present (Figs. 3H; 5F, H). **34** Metatarsus III-IV, scopulae: (0) absent, (1) present. **35** PME-PLE, posterior part: (0) joined (0.01); (1) separated (0.03). **36** Leg tarsi of males (Raven 1985a: 44, character # 29): (0) pseudosegmented; (1) integral.

Female

37 Cheliceral denticles: (0) few (until 0-20); 1, many (over 25). **38** Spermathecae: (0) straight (as in *Hermacha*); (1) curved (Figs. 18D; 20D); (2) twisted (Figs. 4E; 8E, 10D, 11D, 15E, 22E). **39** Spermathecae: (0) short (Fig. 18D); (1) long (Fig. 20D). **40** Spermathecae base: (0) dome-shaped (Fig. 13D); (1) with a slight transition to the stalk (Figs. 4E; 7C; 8E; 10D; 11D; 15E; 22D). **41** Ocular pattern width: (0) until 0.75; (1) over 0.80.

Phylogenetic results

The only previous morphological analysis that provide a phylogenetic framework for most of the African genera was performed by Raven (1985a). Goloboff's (1995) analysis included a single South African genus, *Hermacha*, placing it in a polytomy with *Stanwellia*, and a group formed by *Pycnothele*, Chamberlin, 1917, *Rachias* Simon, 1892 and *Stenoterommata* Holmberg, 1881. Harvey et al (2018) phylogenetically analyzed all Anaminae sensu Raven (1985a) genera present in Australia but no genera from South Africa were included. In the current redefinition of the Nemesiidae family (Opatova et al. 2019), the authors used only the South African genus *Entypesa*, creating the family "Entypesidae" and transferring the genera *Lepthercus* and *Hermacha* to this new family.

With our morphological data, the aim of this work is not to test the relationships or placement of all genera present in South Africa or make a comparison with previous analyses, but instead simply to provide important morphological information and a first estimation of the relationship within genus *Lepthercus*.

The phylogenetic analysis under implied weight ($k = 5$ to 8) resulted in two equally parsimonious trees of 72 steps; $k = 6$ resulted in only one tree (Ci=66, Ri=75; Fig. 1), this tree was selected as our preferred tree. The low values of combined Bremer support in some branches, indicates that there is significant character conflict and homoplasy in the characters for the species included in the matrix. The analysis supports the monophyly of *Lepthercus*. The synapomorphies suggested for the genus are: (i) over 70 maxillary cuspules in females, (ii) presence of thin prolateral setae on male palpal tibia, (iii) metatarsus I of males with a protuberance, and (iv) tibia I of males with a spur like mating clasper. The cladogram suggests two branches; one comprising *L. dippenarae* **sp. nov.**, *L. rattrayi*, *L. engelbrechti* **sp. nov.**, *L. haddadi* **sp. nov.** and *L. sofiae* **sp. nov.**, here denoted as “Group haddadi” and another with *L. confusus* **sp. nov.**, *L. dregei*, *L. filmeri* **sp. nov.**, *L. lawrencei* **sp. nov.**, *L. mandelai* **sp. nov.** and *L. kwazuluensis* **sp. nov.**, here denominated “Group dregei”.

The “Group haddadi” is supported by: (i) a curved metatarsus I in males, and (ii) a swollen tibia I in males. *L. dippenarae* **sp. nov.**+*L. rattrayi* appear monophyletic and supported by (i) a long intercheliceral tumescence and (ii) over 20 cheliceral denticles in males. The monophyletic group formed by *L. haddadi* **sp. nov.** (*L. sofiae* **sp. nov.**+*L. engelbrechti* **sp. nov.**) is characterized by: (i) absence of prolateral setae on male palp tibia, (ii) male palp tibia incrassate, with development of the anterior part of the retrolateral side of ventral excavation and (iii) a deep palp tibia ventral excavation, (iv) tibia I of males with a spine in the base of the spur, (v) spur with a robust megaspine, (vii) a large copulatory bulb with a (vi) twisted embolus, (vii) scopulae of metatarsus III-IV in males absent and (viii) females with curved spermathecae. This group is distributed in southern South Africa.

The “Group dregei” is supported only by the presence of a very small maxillary cuspules in males. The monophyletic group of *L. lawrencei* **sp. nov.** and *L. kwazuluensis* **sp. nov.** is supported by the presence of >25 cheliceral denticles in females. *Lepthercus mandelai* **sp. nov.** is the sister group of *L. confusus* **sp. nov.** (*L. dregei*+ *L. confusus* **sp. nov.**), which are together characterized by: (i) presence of strong dorsal setae on male palp tibia and (ii) copulatory bulb with ridges along the embolus. *L. confusus* **sp. nov.** is the sister species of *L. dregei*+ *L. confusus* **sp. nov.**; these two species are supported by the presence of about 0-60 maxillary cuspules in females. This group is distributed in the middle-northern part of South Africa, being *L. filmeri* the northernmost distribution record for the country.

Taxonomic results

Key for identification of *Lepthercus* spp

Males (males of *Lepthercus lawrencei* **sp. nov.** and *Lepthercus filmeri* **sp. nov.** are unknown)

1	Tibia I swollen (Group haddadi, Fig. 1)	2
—	Tibia I not swollen (Group dregei, Fig. 1)	6
2	Tibia I spur with an associated strong spine (Figs. 17J; 19K; 23J); retroventral side of palpal tibia developed (Fig. 17D, E; 19E, F; 23D, E)	3
—	Tibia I spur without an associated strong spine; retroventral side of palpal tibia normal	5
3	Metatarsus I without protuberance, only short setae (Fig. 23I), copulatory bulb with two keels (Fig. 23G, H)	<i>Lepthercus sofiae</i> sp. nov.
—	Metatarsus I with a protuberance covered by blunt spinules (Fig. 17I, 19J), copulatory bulb without keels (Figs. 17G, H; 19H, I)	4
4	Tibia I moderately swollen, with a prolateral megaspine near the spur (Fig. 17J)	<i>Lepthercus engelbrechti</i> sp. nov.
—	Tibia I very swollen (Fig. 19J, K); without a prolateral megaspine near the spur	<i>Lepthercus haddadi</i> sp. nov.
5	Copulatory bulb with a developed lateral keel delimiting a concave area (Fig. 14F-H)	<i>Lepthercus dippenarae</i> sp. nov.
—	Copulatory bulb with a long lateral keel, not delimiting a concave area (Fig. 21F, G)	<i>Lepthercus rattrayi</i> Hewitt, 1917.
6	Cuticular spur long (Figs. 5I, J; 6C, D; 9I, J; 12I, J)	7
—	Cuticular spur small (Fig. 3I)	<i>Lepthercus confusus</i> sp. nov.
7	Embolus with many longitudinal keels (Fig. 5F, H); maxillary cuspules normal (as in Fig. 2B)	<i>Lepthercus dregei</i> Purcell, 1902.
—	Embolus with one keel; maxillary cuspules minute (as in Fig. 2C)	8
8	Embolus with a small apical keel (12G)	<i>Lepthercus mandelai</i> sp. nov.
—	Embolus with a long lateral keel (Fig. 9G, H)	<i>Lepthercus kwazuluensis</i> sp. nov.

Females (female of *Lepthercus sofiae* sp. nov. is unknown)

- 1 Spermathecae tubular; without stalk (Fig. 18D, 20D) 2
- Spermathecae not tubular; with a stalk (Fig. 4E, 7C, 8E, 10D, 11D, 13D, 15E, 22D) 3
- 2 Spermathecae with a short duct (Fig. 18D), no labial cuspules. *Lepthercus engelbrechti* sp. nov.
- Spermathecae with a long duct (Fig. 20D), one labial cuspule. *Lepthercus haddadi* sp. nov.
- 3 Labial cuspules present. 4
- Labial cuspules absent. 8
- 4 Few maxillary cuspules (until 60). 5
- Many maxillary cuspules (over 80). 6
- 5 Few cheliceral denticles (15); spermathecae with a wide base (Fig. 8E). *Lepthercus filmeri* sp. nov.
- Many cheliceral denticles (28); spermathecae with a narrow base (Fig. 22D) *Lepthercus rattrayi* Hewitt, 1917.
- 6 Spermathecal base with an apical projection (Fig. 10D); stalks curved outward with oval receptacles, maxillary cuspules (100) *Lepthercus kwazuluensis* sp. nov.
- Spermathecal base without an apical projection 7
- 7 Many chelicerae denticles (45), spermathecae with stalk twisted inward twice, circular receptacles (Fig. 11D) *Lepthercus lawrencei* sp. nov.
- Few chelicerae denticles (12), spermathecae with straight stalks, base domed (Fig. 13D). *Lepthercus mandelai* sp. nov.
- 8 Spermathecal stalk attached to the posterior side of the spermathecae base, stalks straight, curved outward with truncate receptacles (Fig. 7C), few maxillary cuspules (54). *Lepthercus dregei* Purcell, 1902.
- Spermathecal stalk not attached to the posterior side of the spermathecae base (with a transition to the stalk), stalk twisted. . 8
- 9 Spermathecal receptacles irregular, stalk twisted twice (Fig. 4E), chelicerae denticles (18). *Lepthercus confusus* sp. nov.
- Spermathecae receptacles oval, stalk twisted inward once (Fig. 15E), chelicerae denticles (12) *Lepthercus dippenaarae* sp. nov.

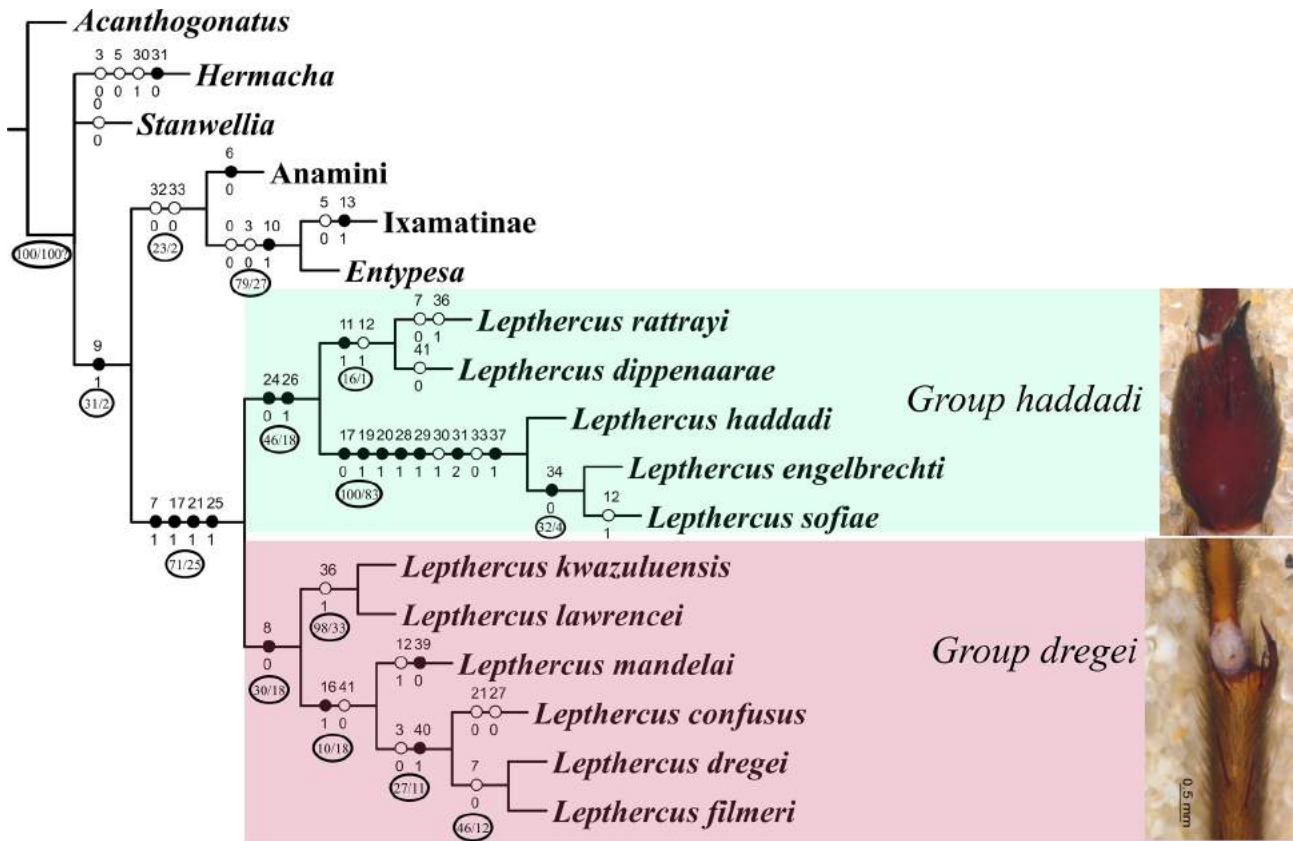


FIGURE 1. Most parsimonious trees obtained under implied weight ($k = 6$) by TNT. Numbers inside of circles are positive *nozero* support values/combined Bremer support. Above each branch are the character numbers and below are the states of characters defining each branch. Black circles indicate synapomorphies, white circles homoplasious changes.

Genus *Lepthercus*

<http://zoobank.org/urn:lsid:zoobank.org:act:E3F3DEC2-513B-4D9C-9F4C-06A47508996B>

Lepthercus Purcell, 1902: 379. Type species: *Lepthercus dregei* by original designation. Hewitt, 1917: 699. Raven, 1985a: 86.

Diagnosis. Males can be distinguished from the genera *Hermacha* and *Entypesa*, by possessing a megaspine on a raised cuticular spur on tibia I (absent in *Hermacha* and *Entypesa*), thin prolateral spiniform setae on male palp tibia (Figs. 3E, 5E, 9E, 12E, 14E, 21E; thick in *Hermacha* and *Entypesa*) and presence of a protuberance on metatarsus I of males (Figs. 5J, 9J, 12J, 14J, 17I, 19J, 21I, 23I; absent in *Hermacha* and *Entypesa*). *Leptercus* differs too by *Hermacha*, by the presence of preening combs in both sexes (Fig. 2A), and from *Entypesa* by the presence of a dense scopula on tarsi I-II (less dense than *Hermacha*).

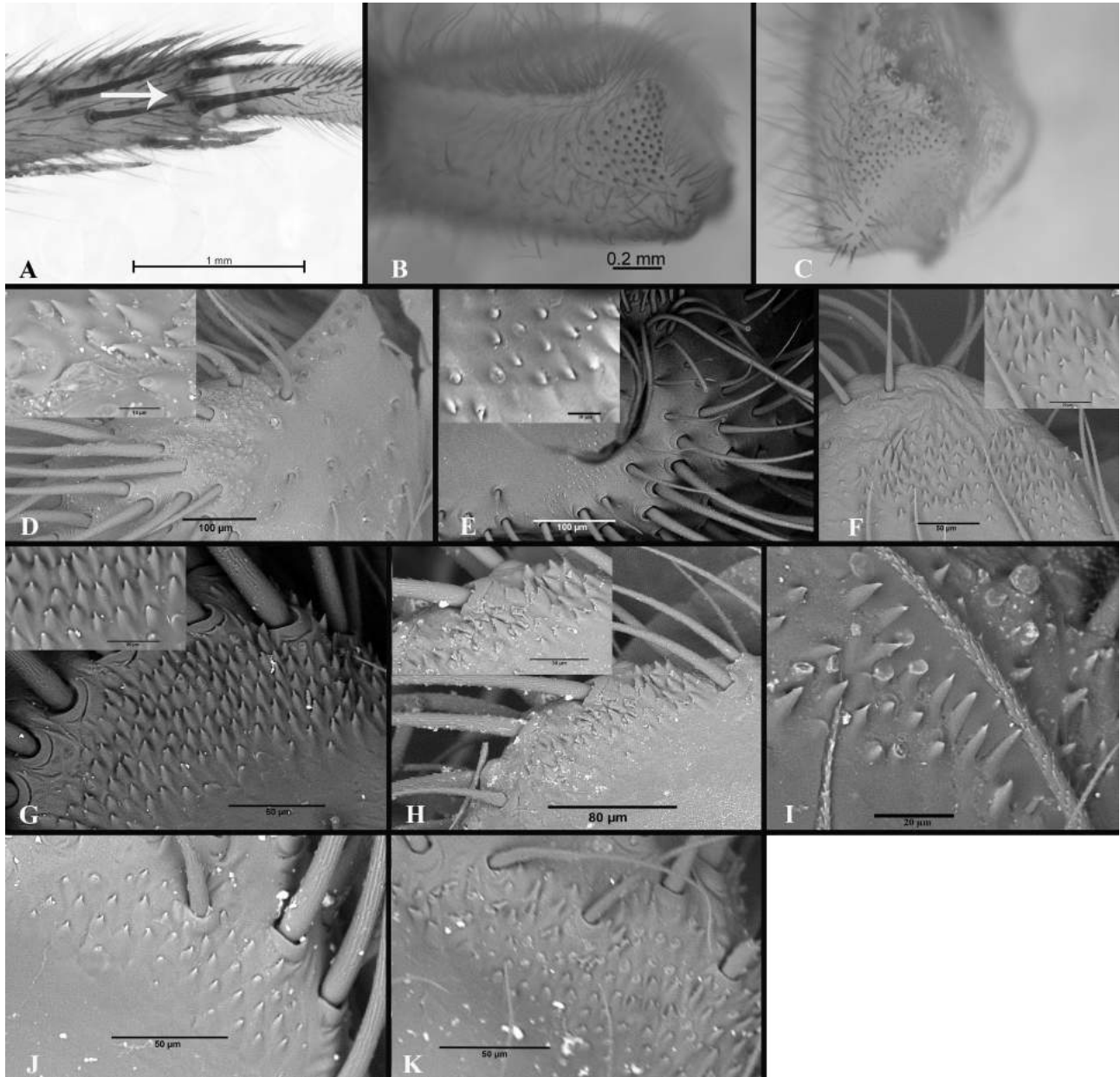


FIGURE 2. Preening comb. **A** *Leptercus haddadi* sp. nov. (female paratype, NCA 2007/3847). Maxillary cuspules (males). **B** *L. dippenarae*. **C** *L. kwazuluensis*. Serrula. **D** *L. mandelai* sp. nov. (female, NCA 2014/415A); **E** *L. filmeri* sp. nov. (female, NCA 91/1437); **F** *L. haddadi* sp. nov. (male, NCA 2007/1486); **G** *L. haddadi* sp. nov. (female, NCA 2007/3847); **H** *L. engelbrechti* sp. nov. (female, NCA 2018/385); **I** *L. engelbrechti* sp. nov. (male, NCA 2018/384); **J** *L. dregei* Purcell, 1902 (female, NCA 2012/2333); **K** *L. softae* sp. nov. (male, NCA 97/395).

Description. Fovea short, more or less straight. Clypeus narrow with some bristles on the edge. Eye tubercle raised, well defined. Usually no cuspules on labium (1–3 if present). Maxillae rectangular; anterior lobe rounded, prolateral face of females slightly curved or curved, with a short or long soft area. Serrula present in females (Fig. 2D–K); in *L. engelbrechti* sp. nov., *L. haddadi* sp. nov., and *L. softae* sp. nov., is present in both sexes. Maxillae with numerous cuspules on inner corner, not on mound (minute in males of *L. kwazuluensis* sp. nov., *L. confusus* sp.

nov. and *L. mandelai* **sp. nov.**; Fig. 2C). Postlabial sigilla consisting of a pair of well-marked depressions, almost meeting in the center. Sternum covered with black hairs and bristles, with posterior sigilla marginal, small and well defined. Chelicerae without rastellum. Males with a small and setose intercheliceral tumescence (Figs. 3C, 5C, 9C, 12C, 14C, 17C, 19D, 21C, 23C; absent in females).

Leg formula 4123; all legs covered with sparse hairs. Cymbium short without spines; palp tarsi of females with two basal spines. Palp tibia of males normal (Group dregei, Fig. 3D) or wide, dorsally very convex (Group haddadi, Fig. 17D); slender in *Hermacha* and *Entypesa*. Thin spiniform setae usually present in the prolateral side of the palp tibia of males (Figs. Figs. 3E, 5E, 9E, 12E, 14E, 21E; absents in *L. engelbrechti* **sp. nov.**, *L. haddadi* **sp. nov.**, and *L. sofiae* **sp. nov.**). Palpal tibia with abundant rigid setae proventrally (Fig. 3E, 5E, 9E, 12E, 14E, 21E) and thin setae dorsally (thick in *L. dippenaarae* **sp. nov.** and *L. ratrayi*, Fig. 14D, 21D). Males of *L. engelbrechti* **sp. nov.**, *L. haddadi* **sp. nov.**, and *L. sofiae* **sp. nov.** with the palp tibiae strongly incrassate, ventrally excavated and with the posterior part of the ventral excavation produced (Fig. 17D, E; 19E, F; 23D, E). Males with a short (Fig. 3I) or elongated cuticular spur (Figs. 5I, J, 6C, D, 9I, J, 12I, J, 14I, 21I), with an apical megaespine on tibiae I. Tibiae I of males can be swollen (Group haddadi) or not (Group dregei). Males of *L. engelbrechti* **sp. nov.**, *L. haddadi* **sp. nov.**, and *L. sofiae* **sp. nov.** present a strong spine near the base of the megaspine (Fig. 17J; 19K; 23J).

Metatarsus I is usually elongate and straight (Group dregei) or short and slightly bowed (Group haddadi). In the medial-basal part of the segment of all species (except *L. confusus* **sp. nov.**) a prolateral protuberance (knob) is present and covered with short, black setae (Group Dregei, Figs. 5J, 9J, 12J) or in the 1/3 A of the segment covered by black and blunt spinules (Group haddadi, Figs. 14I, J, 17I, 19J, 21I, 23I). Both sexes with two rows of teeth on all paired claws; third claw short, curved. Scopulae on metatarsi I-II of females dense (sparse in males) and uniformly distributed along the length of the segment (sometimes with scattered, long, thin, emergent setae); III-IV sparse (1:2 A, sometimes divided) or absent. Tarsi I-II (both sexes) with dense scopulae, uniformly distributed throughout the segment; III-IV, less dense than I-II, uniformly distributed, and divided by band of setae. Tarsal organ low, tarsi integral. Trichobothria filiform; tibia in two rows; metatarsi with one straight line, tarsi with a zigzag row along full length. Metatarsal preening combs present in both sexes on legs II-IV (e.g. Fig. 2A).

Copulatory bulb pyriform, embolus relatively short and tapering with lateral keels (Figs. 3F, G, 9G, H, 12G, 14F-H, 21F, G) or parallel ridges (Figs. 3F, H, 5F, H). In the species *L. engelbrechti* **sp. nov.**, *L. haddadi* **sp. nov.**, and *L. sofiae* **sp. nov.** the copulatory bulb is generally smooth, with an embolus long and slightly twisted (keels present only in *L. sofiae* **sp. nov.**, Fig. 23G-H). Females with two separate and small spermathecae, with a small base, a thin stalk, and an oval to rounded receptaculum (Figs. 4E, 7C, 8E, 10D, 11D, 13D, 15D, 22D) or tubular curved and without stalk (Figs. 18D, 20D). Apical segment of PLS elongated.

Distribution. Western Cape, Eastern Cape, Kwazulu-Natal, Free State and Mpumalanga Provinces, South Africa (Fig. 24, 25).

Species included. *Lepthercus confusus* **sp. nov.**, *Lepthercus dippenaarae* **sp. nov.**, *Lepthercus dregei* Purcell, 1902, *Lepthercus engelbrechti* **sp. nov.**, *Lepthercus filmeri* **sp. nov.**, *Lepthercus haddadi* **sp. nov.**, *Lepthercus kwazuluensis* **sp. nov.**, *Lepthercus lawrencei* **sp. nov.**, *Lepthercus mandelai* **sp. nov.**, *Lepthercus ratrayi* Hewitt, 1917, *Lepthercus sofiae* **sp. nov.**

“Group dregei”

This group is composed by six species: *Lepthercus confusus* **sp. nov.**, *Lepthercus dregei* Purcell, 1902, *Lepthercus filmeri* **sp. nov.**, *Lepthercus kwazuluensis* **sp. nov.**, *Lepthercus lawrencei* **sp. nov.**, and *Lepthercus mandelai* **sp. nov.**

Lepthercus confusus **sp. nov.**

(Figs. 3A-I, 4A-E, 24)

<http://zoobank.org/urn:lsid:zoobank.org:act:19380CC0-30E8-412C-8509-F69267536BC6>

Material examined. Type material: Holotype ♂. SOUTH AFRICA: KwaZulu-Natal Province, Sani Pass (29°35'S 29°17'E, 2700m), 22.vi.2009, UP students *leg.*, (NCA 2011/318).—Paratypes. SOUTH AFRICA: KwaZulu-Natal

Province: Weza, Ngeli Forest [30°34'S 29°42'E], x.1962, Lawrence R.F. *leg.*, 3 ♀♀ (NM8787); Same data as holotype: 22.i.2010, 1 ♂ (NCA 2010/4443); 20.i.2008, 1 ♂ (NCA 2010/3642); same data as holotype 3 ♂♂ (NCA 2010/3640); same data as holotype 22.i.2009, 2 ♂♂ (NCA 2011/379); same data as holotype (29°36'S 29°18'E, 2400m), 24.i.2006, 2 ♂♂ (NCA 2010/3735).

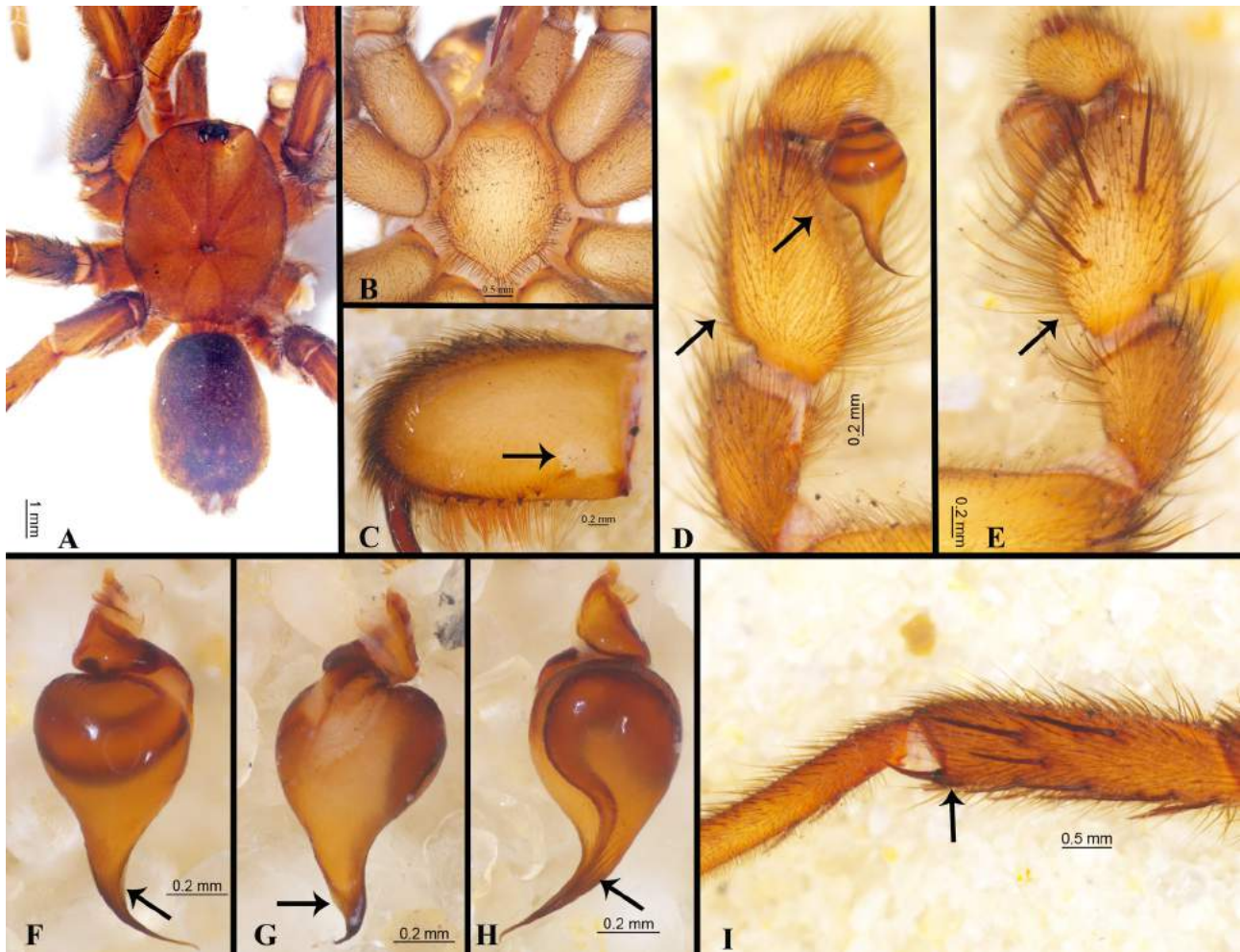


FIGURE 3. *Lepthercus confusus* sp. nov. (male holotype, NCA 2011/318). **A** cephalothorax and abdomen, dorsal view; **B** sternum, ventral view; **C** chelicerae, prolateral view, arrow indicates the intercheliceral tumescence; **D** right pedipalp, arrow indicates the small dorsal setae, and a normal anterior part of the retrolateral side of ventral excavation, retrolateral view; **E** right pedipalp, prolateral view, arrow indicates the abundant proventral rigid setae; **F–H** copulatory bulb; **F** retrolateral view, **G** ventral view, **H** prolateral view; **F, H** arrow indicates the longitudinal keels along the embolus, **G** arrow indicates the small lateral keel; **I** Tibia I, arrow indicates the small cuticular spur.

Etymology. The specific epithet refers to the great confusion felt in the beginning stages of this work about the placement of this species.

Diagnosis. Males of *L. confusus* sp. nov., can be distinguished from males of “Group dregei” by a short bulb with a tapering embolus with longitudinal keels (Fig. 3F, H) similar to *L. dregei* but differs by their slender embolus, with a small lateral keel (Fig. 3F, G). Further it is differentiated by the presence of a small cuticular spur on tibia I (Fig. 3I, longer in others). Females can be distinguished by the shape of their spermathecae with a base with a slight transition to the stalk, straight stalks twisted and oval receptacles inwardly curved (Fig. 4E).

Description. Male holotype (NCA 2011/318, Fig. 3A–I). Total length 11.40. *Carapace* (Fig. 3A): length 5.21, width 4.17, lateral marginal bristles present, with sparse pubescence. *Cephalic region*: length 3.28; clypeus short with 5 bristles on the edge, numerous long bristles in front of the OQ and between the PME, dorsal line of bristles until the fovea. *Fovea*: width 0.45, short and almost straight. *Ocular measurements*: AME 0.14, ALE 0.21, PME 0.17, PLE 0.19, OQ length 0.48, 0.78 width; AME–ALE 0.05, PME–PLE 0.05, AME–PME 0.07, ALE–PLE 0.08, AME–AME 0.11, OMP–OMP 0.31. *Chelicerae*: length 2.72, width 1.53, dorsal-anterior bristles present, interc-

heliceral tumescence small, well-marked and with setae (Fig. 3C). Fang groove with 6 promarginal teeth and 7 basomedial denticles. *Labium*: length 0.35, width 0.80, without cuspsules. *Maxillae*: length 1.60, width 0.72, with about 65 minuscule cuspsules on inner corner, prolateral face slightly curved, with long uniformly distributed hairs. *Sternum* (Fig. 3B): length 2.71, maximum width 2.14. *Abdomen*: length 4.42. PMS: length 0.57; PLS: length of basal:medial:apical segments 0.80:0.75:1.11; total length 2.66. *Lengths of legs and palp*: I 4.16, 2.24, 3.06, 3.13, 2.43, 15.02. II 3.95, 2.35, 2.67, 2.93, 2.21, 14.11. III 3.54, 1.89, 2.39, 3.39, 2.01, 13.22. IV 4.41, 2.15, 3.38, 4.77, 2.24, 16.95. Palp 2.23, 1.26, 1.39, —, 0.76, 5.64.

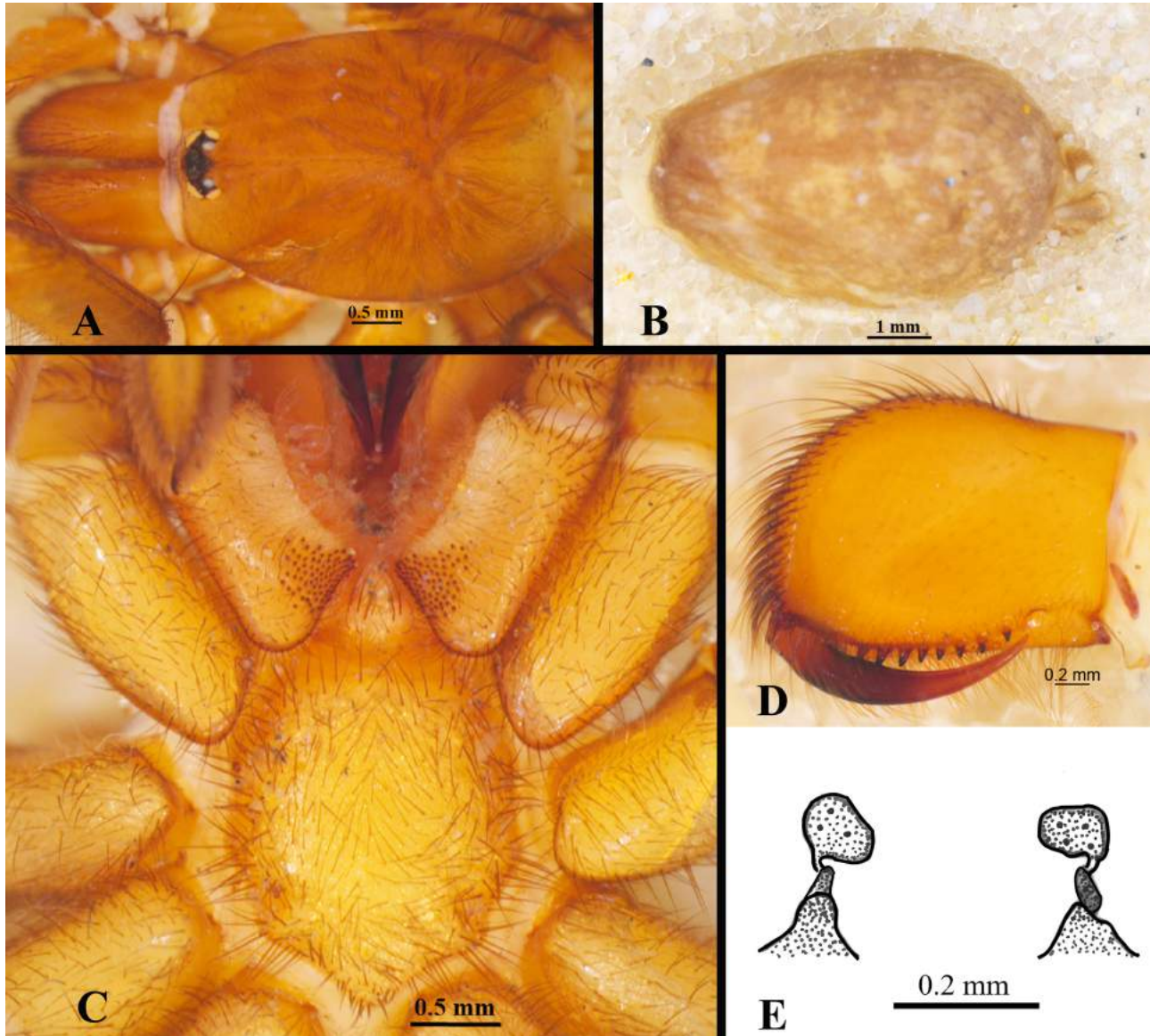


FIGURE 4. *Lepthercus confusus* sp. nov. (female paratype, NM 8787). **A** cephalothorax, dorsal view; **B** sternum, arrow indicates the anterior maxillary edge slightly concave, ventral view; **C** abdomen, dorsal view; **D** spermathecae.

Chaetotaxy: Leg I: femur, 1-1-1-1-1-1-1-1-1 d (centrals), 1-1-1-2 P SUP, 1-0-1-1 R SUP; patella, 1 P A; tibia, 1-1-2 P, 1-1 R, 1-2-1-2-3-2 V, a small spur, with an apical long and curved spine (longer than the spur, Fig. 3I); metatarsus, 1-1-0-1 V POST, straight without protuberance; tarsus, 0. Leg II: femur, 1-1-1-1-1-1 d, 1-0-1-1 P SUP, 1-1-1 R SUP; patella, 1 P A; tibia, 1-1 P, 2-2-1-4 V; metatarsus, 1 D M, 2-2-2 V; tarsus, 0. Leg III: femur, 1-1-1-1 d, 1-1-1-1 P SUP, 1-1-1-1 R SUP; patella, 1-1-2 P, 1 R; tibia, 1-1 P, 1-1 D, 1-1 R, 2-1-2-3 V; metatarsus, 1-1-1 P, 2-1-2-2 D, 2-1-1-3 V; tarsus, 0. Leg IV: femur, 1-1-1-1-1 d, 1-1-1-1 P SUP, 1-1-1-1 R SUP; patella, 1 R; tibia, 1 P, 1-1-1 R, 2-2-3 V; metatarsus, 1-1 P, 1-1-2-1-2 D, 2-2-1-3 V; tarsus, 0. Palp (Fig. 2D, E): femur, 1-1-1-3 d; patella, 1 p; tibia, 1-2 P, 1 RA, 1 v, (width/length: 0.56); tarsus, 0.

Scopulae: Metatarsi: I–II, dense, uniformly distributed throughout the segment; III, sparse (1:3A), divided

by narrow band of setae; IV, sparse (A), divided by a wide band of setae. Tarsi: I-II, dense, uniformly distributed throughout the segment; III, sparse, uniformly distributed and divided by narrow band of setae; IV, sparse, uniformly distributed and divided by a narrow band of setae. *Trichobothria*: Tibiae: I-II 10-11; III 10-10; IV 12-12. Metatarsi: I (4)1(1)1(2)1; II (5)1(3)1(5)1; III (6)1(2)1(6)1; IV (4)1(3)1(4)1(6)1. Tarsi: I-II 13; III-IV 12. *Preening combs*: III 2 R V–2 P V, IV 3/2 R V. *Copulatory bulb*: small, with a short and acuminate embolus with basal keels and the tip curved (Fig. 3F–H), spermatic duct slightly curved. *Color*: Carapace and legs brown-orange. Abdomen dorsally dark without bands, covered with short and long dark hairs; sternum and ventral abdomen lighter; spinnerets yellowish with dark spots.

Female paratype (NM8787, Fig. 4A–E). Total length 12.07. *Carapace* (Fig. 4A): length 4.06, width 2.74, with small marginal bristles and sparse pubescence. *Cephalic region*: length 2.61, clypeus small (almost absent) with 3 marginal bristles; 4 bristles in front of the OQ and 3 between the PME, line of small bristles until the fovea. *Fovea*: width 0.34, almost straight (slightly procurved). *Ocular measurements*: AME 0.10, ALE 0.23, PME 0.13, PLE 0.17, OQ length 0.36, width 0.72; AME–ALE 0.04, PME–PLE 0.03, AME–PME 0.06, ALE–PLE 0.02, AME–AME 0.09, PME–PME 0.28. *Chelicerae* (Fig. 4D): length 2.30, width 1.46; with dorsal-retrolateral dark bristles. Fang groove with 8 promarginal teeth and 18 mesobasal denticles. *Labium*: length 0.27, width 0.67, dorsally slightly concave without cuspules. *Maxillae*: length 1.43, width 0.69, with 85 cuspules on posterior inner corner, prolateral face concave, soft, with long uniformly distributed hairs, serrula present on anterior inner corner. *Sternum* (Fig. 4C): length 1.98, maximum width 1.64. *Abdomen* (Fig. 4B): length 6.43, with small hairs in the dorsum. PMS: length 0.61; PLS: length of basal:medial:apical segments 1.23:0.79:1.16; total length 3.18. *Lengths of legs and palp*: I: 2.63, 1.72, 1.85, 1.38, 0.98, 8.56. II: 2.41, 1.45, 1.51, 1.33, 0.98, 7.68. III: 2.21, 1.35, 1.36, 1.80, 1.02, 7.74. IV: 2.88, 1.66, 2.04, 1.74, 1.15, 9.47. Palp: 1.88, 1.21, 1.14, —, 1.24, 5.47.

Chaetotaxy: Leg I: femur, 1-1-1-1-1 d, 1 P A; patella, 0; tibia, 1 p, 1-1-2 v; metatarsus, 2-1-1 V; tarsus, 0. Leg II: femur, 1-1-1-1-1-1 d, 1 P A; patella, 0; tibia, 1 p, 2-2-3 v; metatarsus, 2-2-2 V; tarsus, 0. Leg III: femur, 1-1-1-1 d, 1 P A, 1-1 R A; patella, 1-1 P, 1 R; tibia, 1-1 P, 1-1-1 D, 1 R, 2-2-3 V (thins); metatarsus, 2-1-1-1 P, 1-1-1 D–P, 2-1-2 D–R, 3-3-3 V; tarsus, 0. Leg IV: femur, 1-1-1-1-1 d, 1 R A; patella, 1 R; tibia, 1-1 P, 1-1 R, 2-2-3 V; metatarsus, 1-1-1-1 P, 1-1-1 D–P, 1-1-0-1 D–R, 1-1-1 R, 4-1-2-3 V; tarsus, 0. Palp: femur, 1-1-1 d, 1 pa; patella, 0; tibia, 1-1 P, 2-3 V (1:2A); tarsus, 2 V B.

Scopulae: Metatarsi: I, dense, uniformly distributed and divided by bristles; II, dense (1:2 A), divided by band of setae; III–IV, no present. Tarsi: I, dense, uniformly distributed and divided by bristles; II, sparse, uniformly distributed and divided by setae; III, sparse (1:3 A) and divided by a narrow band of setae; IV, sparse (3:4 A) and divided by a wide band of setae. *Trichobothria*: Tibiae: palp 7-8; I 10-9; II 9-9; III 8-8; IV 10-9. Metatarsi: I (3)1(1)1(4)1; II-III (4)1(2)1(4)1; IV (4)1(2)1(3)1(5)1. Tarsi: palp 8; I 12; II-IV 11. *Preening combs*: metatarsus: II 5 P V; III 3 P V–3 R V; IV 2 P V–3 R V. *Spermathecae*: as in Fig. 4E. *Color*: Overall orange-yellowish, sternum lighter. Abdomen brown mottled with light spots on dorsal side, spinnerets light brown.

Distribution. KwaZulu-Natal Province, South Africa (Fig. 24).

***Lepthercus dregei* Purcell, 1902**

(Figs. 2J, 5A–J, 6A–D, 7A–C, 24)

Lepthercus dregei Purcell, 1902: 379. Raven, 1985a: 86, figs. 44–49.

Material examined. Type material: Holotype ♂. SOUTH AFRICA: Eastern Cape Province, from Doornnek in the Zuurbergen[Zuurberg], Alexandria Div., Cape Colony now [33°22'S 25°43'E], 1902, W.F. Purcell *leg.*, (SAM-ENW-X005692), examined.

Other material examined: SOUTH AFRICA: Eastern Cape Province, Asante Sana Private Game Reserve, but-tress bet. Waterkloof & Zuurkloof (32°16'S 24°58'E, 1613m), 23.x.2010, J. Midgley, *leg.*, 2 ♂♂ (NCA 2012/3206); same data (1618m), 15.iv.2010, J. Midgley, *leg.*, 1 ♀ (NCA, 2012/2333); same data, 1 ♂ (NCA 2012/3239); same data (1406m), 2 ♂♂ (NCA 2012/3231); same data (1620m), 1 ♂ (NCA, 2012/3215); same data (32°14'S 24°56'E, 1802m), 3 ♂♂ (NCA 2012/3226); same data (1806m), 1 ♂ (NCA 2012/2351); same data (1613m), 2 ♂♂ (NCA 2012/3207); Same data (1608m), 2 ♂♂ (NCA 2012/3218) same data (1614m), 3 ♂♂ (NCA, 2012/3220); same data (1204m), 1 ♂ (NCA, 2012/3209); same data (32°17'S 24°58'E, 1202m), 1 ♂ (NCA 2012/3208) same data (32°15'S

24°57'E, 1613m), 1 ♂ (NCA0 2012/3214); same data (32°15' S 25°00' E, 2013m), 1 ♂ (NCA 2012/3228); same data (32°14'S 24°56'E, 2001m), 1 ♂ (NCA 2012/3213); same data (1628m), 3 ♂♂ (NCA 2012/3216); same data, 1 ♂ (NCA 2012/3217); same data (1807m), 1 ♂ (NCA 2012/3222); same data (32°14'S 24°56'E, 1795m), 1 ♂ (NCA, 2012/3221); same data (32°15'S 24°58'E, 2001m), 25.xi.2009, same collector, 1 ♂ (NCA, 2012/3210); same data (32°14'S 24°56'E, 2001m), 1 ♂ (NCA, 2012/3212); same data (32°16'S 24°58'E, 1618m), 1 ♂ (NCA 2012/3205); same data (32°15'S 24°58'E, 1999m), 1 ♂ (NCA 2012/3211); same data (32°15'S 25°00'E, 1801m), 23.x.2010, same collector, 1 ♂ (NCA, 2012/3227); same data (32°15'S 24°58'E, 1801m), 1 ♂ (NCA, 2012/3240); same data (32°14'S 24°56'E, 1802m), 1 ♂ (NCA 2012/3225); same data, (32°15'S 25°00'E, 1792m), 1 ♂ (NCA 2012/3229); same data, (32°16' S 25°00' E, 1406m), 2 ♂♂ (NCA 2012/3230); same data, Southern Karoo Riviere, Riverine Woodland (32°16'S 24°57'E), 7.iv-28.vii.2010, S. Van Noort leg., ASA09-WOO1-Y13, 1 ♂ (SAM-ENW-C007744).

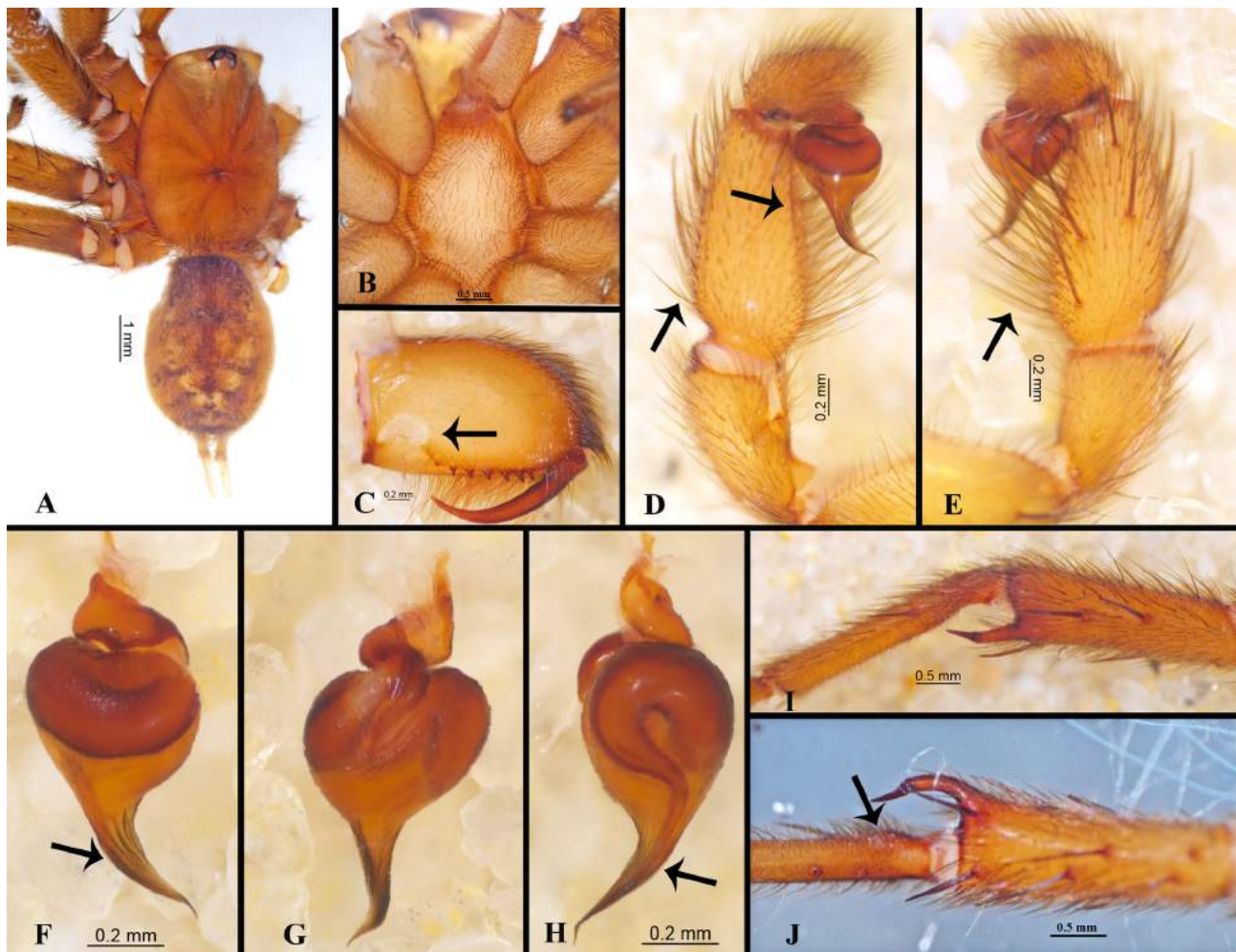


FIGURE 5. *Lepthercus dregei* Purcell, 1902. (male, NCA 2012/3206). **A** habitus, dorsal view; **B** sternum, ventral view; **C** chelicerae, prolateral view, arrow indicates the intercheliceral tumescence; **D** left pedipalp, arrow indicates the small dorsal setae, and a normal anterior part of the retrolateral side of ventral excavation, retrolateral view; **E** right pedipalp, arrow indicates the abundant proventral rigid setae, prolateral view; **F–H** copulatory bulb, **F** retrolateral view, arrow indicates the ridges along the embolus, **G** ventral view, **H** prolateral view, arrow indicates the ridges along the embolus; **I, J** tibia–metatarsus I, arrow indicates the base of the metatarsus slightly swollen with small dark setae,

Remarks. The type specimen (SAM-ENW-X005692, Fig. 6A–D) is in poor condition, appearing to be bleached, resulting in a white coloration. The legs are very soft (Fig. 6A–D) and both bulbs have the embolus broken (Fig. 6B). To preserve the type specimen, the described male is based on NCA 2012/3206 from Asante Sana Private Game Reserve, 135 km N of the type locality. This specimen shares all the characters observed in the holotype.

Diagnosis. Males of *L. dregei* can be recognized inside the “Group dregei” by a short copulatory bulb with longitudinal keels extending along the embolus (Fig. 5F–H). It further differs from *L. confusus* sp. nov., by the strong bulb in lateral view, without a lateral keel (Fig. 5F, H). Females can be distinguished by the spermathecae with a

base with an abrupt transition to the stalk; stalks curved outward with truncate receptacles (Fig. 7C). This species is similar to *L. kwazuluensis* sp. nov., but differs in the absence of the apical projection present in the base and by their truncate receptacles.

Description. Male (NCA 2012/3206, Fig. 5A–J). Total length 10.01. *Carapace* (Fig. 5A): length 4.40, width 3.31, with lateral marginal bristles. *Cephalic region*: length 2.70; clypeus short with 5 bristles in the edge, 2 long bristles in front of the OQ. *Fovea*: width 0.47, almost straight. *Ocular measurements*: AME 0.14, ALE 0.21, PME 0.16, PLE 0.21, OQ length 0.43, 0.68 width; AME–ALE 0.04, PME–PLE 0.04, AME–PME 0.07, ALE–PLE 0.08, AME–AME 0.08, OMP–OMP 0.28. *Chelicerae*: length 2.19, width 1.25, with dorsal-anterior bristles, intercheliceral tumescence small, well-marked and with setae (Fig. 5C). Fang groove with 6 promarginal teeth (2 smaller in the apex) and 11 mesobasal denticles. *Labium*: length 0.41, width 0.64, dorsally slightly concave. *Maxillae*: length 1.33, width 0.61, with about 45 cuspules on inner corner, prolateral face slightly curved, soft area small, with long uniformly distributed hairs. *Sternum* (Fig. 5B): length 2.21, maximum width 1.73. *Abdomen*: length 3.83, with small and long hair (longer in the anterior side). PMS: length 0.54; PLS: length of basal:medial:apical segments 0.85:0.50:0.94; total length 2.29. *Lengths of legs and palp*: I: 3.73, 2.15, 2.53, 2.88, 1.99, 13.28. II: 3.50, 1.87, 2.43, 2.74, 2.10, 12.64. III: 3.12, 1.59, 1.96, 2.88, 1.99, 11.54. IV: 4.14, 1.82, 3.25, 3.88, 2.11, 15.20. Palp: 1.85, 1.01, 1.23, —, 0.69, 4.78.

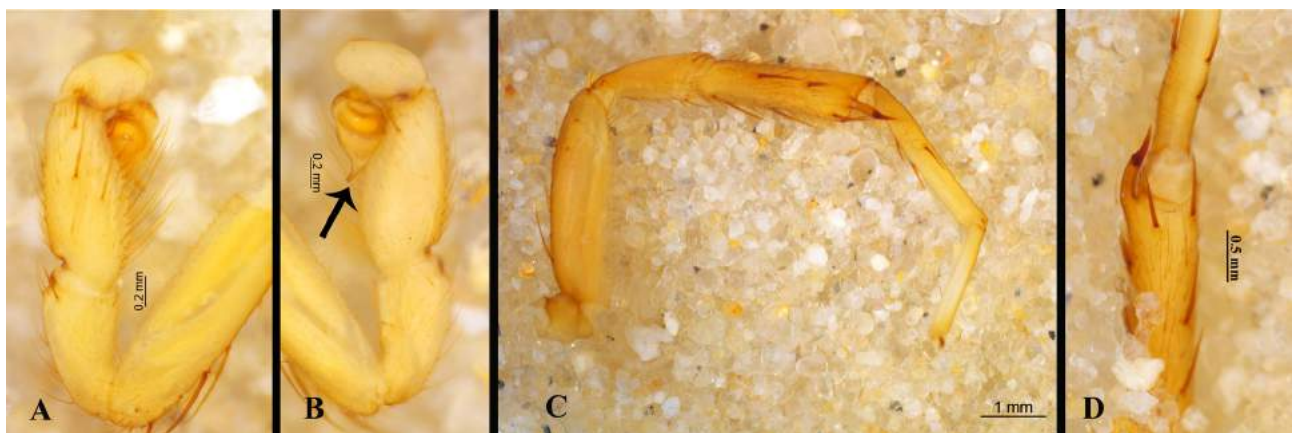


FIGURE 6. *Lepthercus dregei* Purcell, 1902. (male holotype: SAM-ENW-X005692). **A** left pedipalp, prolateral view; **B** left pedipalp, retrolateral view, arrow indicates the copulatory bulb with the embolus broken; **C** left leg I, prolateral view; **D** left leg I, showing the curved spur with an apical megaespine.

Chaetotaxy: Leg I: femur, 1-1-1-1 d, 1-1-1 D–R, 0-1-1 D–P; patella, 1 P A (short); tibia, 1-1 P, 1-1 R, 2-2-2 V, a long cuticular spur, slightly curved outwards, with an apical long spine (Fig. 5I, J); metatarsus, 1 P (1:3B), 1-1-0-1 V, straight, 1/3 basal posterior slightly swollen with small dark setae (Fig. 5J); tarsus, 0. Leg II: femur, 1-1-1-1 d, 1-0-1-1 D–P, 1-1-1 D–R; patella, 1 P A (short); tibia, 1-1 P, 2-1-3 V; metatarsus, 2-2-0-2 V, 1 P (1:3B); tarsus, 0. Leg III: femur, 1-1-1-1 d, 1-1-1-1 D–P, 1-1-1-1 D–R; patella, 1-1 P (shorts), 1 R; tibia, 1-1 P, 1-1 D, 1-1 R, 2-2-3 V; metatarsus, 1-1 D (1:2B), 1-1-1 D–R, 1-1-1-1 D–P, 2-2-3 V; tarsus, 0. Leg IV: femur, 1-1-1-1 d, 1-1-1-1 P, 1-1-1 R; patella, 1 R; tibia, 1-1 P, 2-2-2 V, 1-1 R; metatarsus, 1-1-1 P, 1-1-1 D–R, 1-1-1 D–P, 2-1-1-3 V; tarsus, 0. Palp (Fig. 5D, E): femur, 1-1-3 d; patella, 1 D INF; tibia, 1-1 P, 1-1 P INF, 1-1 D, 1 R A, (width/length: 0.49); tarsus, 0.

Scopulae: Metatarsi: I–II, dense, uniformly distributed throughout the segment, with some long and fine setae; III, sparse (1:3A), IV, sparse A, divided by a wide band of setae. Tarsi: I–II, dense, uniformly distributed throughout the segment; III, sparse, uniformly distributed and divided by a narrow band of setae; IV, sparse, uniformly distributed and divided by a wide band of setae. *Trichobothria*: Tibiae: I 7-8; II 9-7; III 8-8; IV 10-10. Metatarsi: I (3)1(2)1(4)1; II (3)1(1)1(4)1; III (3)1(1)1(2)1(4)1; IV (3)1(1)1(2)1(5)1. Tarsi: I–III 12; IV 13. *Preening combs*: metatarsus: III, 2/3 P V; IV, 2 R V. *Copulatory bulb*: small, with a short and acuminate embolus with basal ridges and the tip curved (Fig. 5F–H). *Color*: Overall light orange-yellowish (ventrally lighter). Abdomen light dark with 3-4 posterior light bands, light yellow spinnerets.

Female (NCA 2012/2333, Figs. 2J, 7A–C). Total length 10.77. *Carapace* (Fig. 7A): length 4.37, width 3.02, with lateral marginal bristles. *Cephalic region*: Length 2.77, clypeus small with 6 marginal bristles; five bristles in front of the OQ. *Fovea*: width 0.45, almost straight. *Ocular measurements*: AME 0.13, ALE 0.27, PME 0.19, PLE 0.22, OQ length 0.43, width 0.75; AME–ALE 0.04, PME–PLE 0.02, AME–PME 0.08, ALE–PLE 0.03, AME–AME

0.10, PME–PME 0.30. *Chelicerae*: length 2.84, width 1.81; with dorsal–retrolateral bristles. Fang groove with 8 promarginal teeth and 11 mesobasal denticles. *Labium*: length 0.37, width 0.79, dorsally slightly concave. *Maxillae*: length 1.78, width 0.79, with 54 cuspules on inner corner, prolateral face slightly curved, soft with long uniformly distributed hairs; serrula as Fig. 2J. *Sternum* (Fig. 7B): length 2.28, maximum width 1.93. *Abdomen* (Fig. 7A): length 4.67, globose, with small bristles in the dorsum. PMS: length 0.53; PLS: length of basal:medial:apical segments 0.71:0.50:0.83; total length 2.04. *Lengths of legs and palp*: I: 3.09, 1.91, 1.98, 1.75, 1.39, 10.14. II: 2.78, 1.77, 1.63, 1.68, 1.38, 9.24. III: 2.20, 1.28, 1.26, 1.71, 1.24, 7.70. IV: 2.98, 1.59, 2.11, 2.54, 1.28, 10.50. Palp: 2.04, 1.13, 1.14, —, 1.37, 5.69.

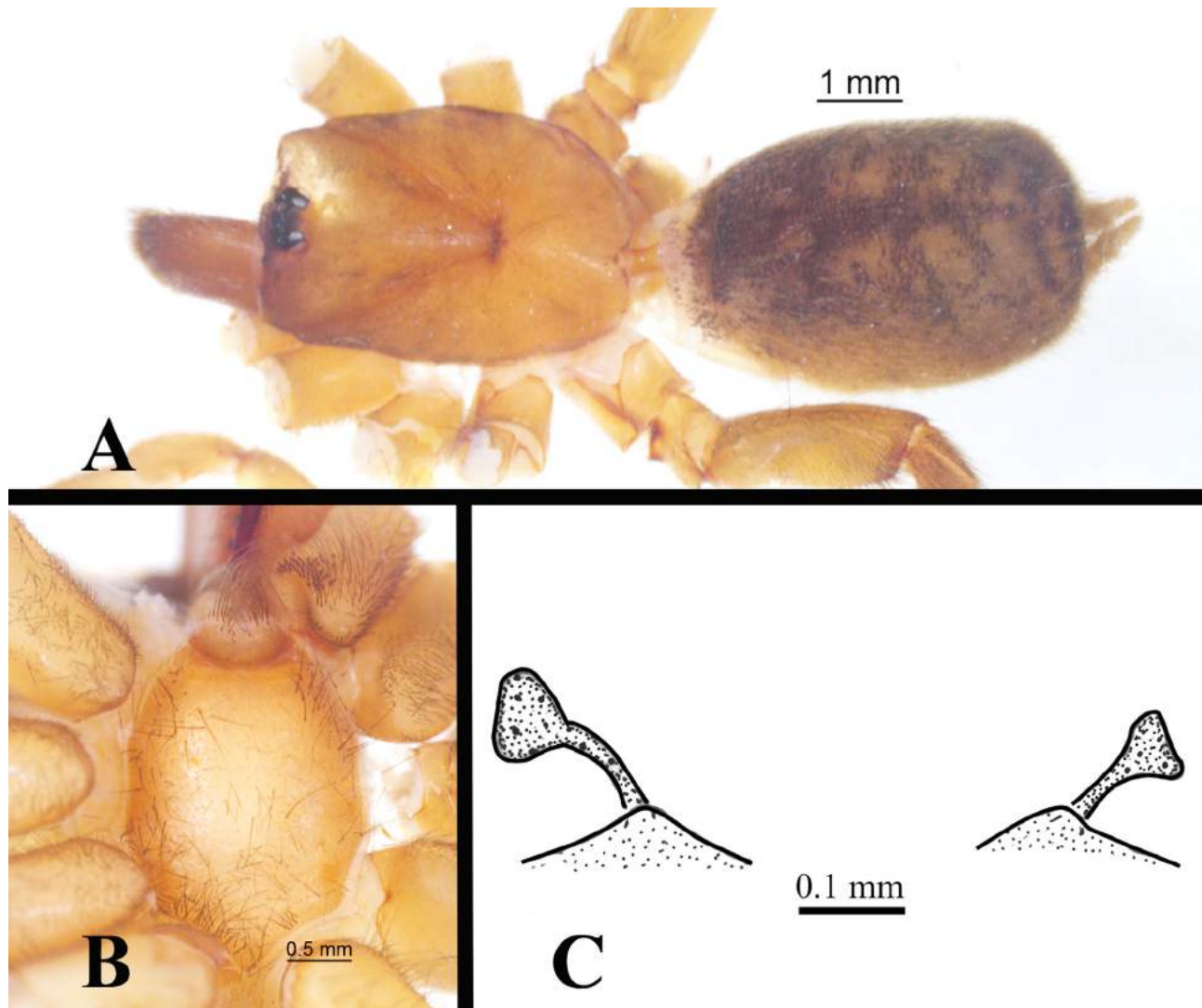


FIGURE 7. *Lepthercus dregei* Purcell, 1902. (female, NCA 2012/2333). **A** habitus, dorsal view; **B** sternum, ventral view; **C** spermathecae.

Chaetotaxy: Leg I: femur, 1-1-1-1 d, 1 pa; patella, 0; tibia, 1p, 1-2 v; metatarsus, 1-1-1 V; tarsus, 0. Leg II: femur, 0; patella, 0; tibia, 1 P, 1-1-1-2 v; metatarsus, 2-2-2 V; tarsus, 0. Leg III: femur, 1-1-1-1 d; patella, 1 P, 2-1 R; tibia, 1 P (1:2 A), 1 D (1:2 A), 1-1 R, 2-2-3 V; metatarsus, 2-2-2 D, 1-1-1 R, 2-2-3 V; tarsus, 0. Leg IV: femur, 1-1-1-1-1-1 d; patella, 0; tibia, 2-2-2 V, 1-1-1 R; metatarsus, 1-1-1 P, 2-2-2 D, 2-2-3 V; tarsus, 0. Palp: femur, 0; patella, 0; tibia, 2 P M, 2-3 v, 3 V A; tarsus, 2 V B.

Scopulae: Metatarsi: I–II, dense, uniformly distributed with some long and fine bristles; III, sparse A; IV, no present. Tarsi: I, dense, uniformly distributed; II, dense, uniformly distributed, divided by a row band of setae; III, sparse, uniformly distributed and divided by a narrow band of setae; IV, sparse, uniformly distributed and divided by a wide band of setae. *Trichobothria*: Tibiae: palp 8-9; I 7-9; II 9-10; III 9-8; IV 11-10. Metatarsi: I (5)1(2)1(5)1; II (4)1(2)1(4)1; III (6)1(2)1(5)1; IV (4)1(3)1(2)1(6)1. Tarsi: palp 13; I 13; II 14; III 14; IV 13. *Preening combs*:

metatarsus: II 3 P V; III 2 P V–5 R V; IV, 2/3 R V. *Spermathecae*: as in Fig. 7C. *Color*: Overall light orange–yellowish (carapace litter dark), sternum lighter. Abdomen brown dark with 3–5 posterior light bands, spinnerets light yellow.

Distribution. Eastern Cape Province, South Africa (Fig. 24).

***Lepthercus filmeri* sp. nov.**

(Figs. 2E, 8A–E, 24)

<http://zoobank.org/urn:lsid:zoobank.org:act:C0534EB5-4A0D-4EFE-A7C5-28B8CC73908A>

Material examined. Type material: Holotype ♀. SOUTH AFRICA. Mpumalanga Province, Belfast [25°40'S 30°2'E], 1 Jun 1991, Filmer, M. leg., (NCA 91/1437). — Paratypes. Same data as holotype, Leeuwenbank [25°48'S 29°57'E], 2.ii.1990, Filmer, M. leg., 3 ♀♀ (NCA 91/560). Same data, 2.vi.1991, Filmer, M. leg., 1 ♀ (NCA 91/1440).

Etymology. The specific epithet is a noun in the genitive case in honor of Martin R. Filmer, who was a prominent South African amateur arachnologist and who collected the specimens that this species is described from.

Diagnosis. *L. filmeri* sp. nov., can be recognized inside of “Group dregei” by the shape of their spermathecae with strong and twisted stalks with a developed receptacle (Fig. 8E). It can be differentiated too, by the presence of labial cuspules (only one), similar to *L. lawrencei* sp. nov., but differ in the less number of maxillary cuspules (97 vs 59) and chelicerae denticles (45 vs 15). Males are unknown.

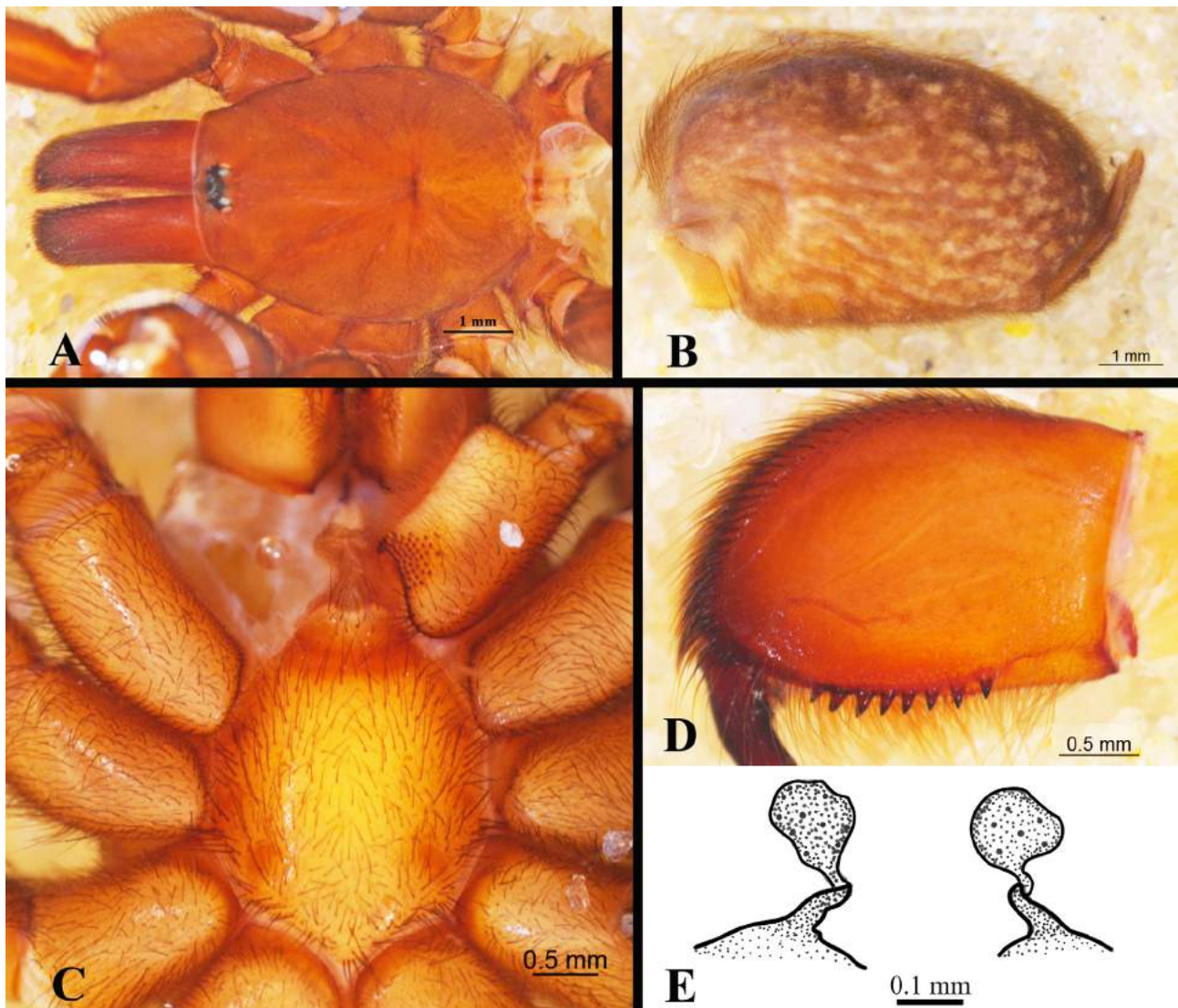


FIGURE 8. *Lepthercus filmeri* sp. nov. (female holotype, NCA 91/1437). **A** cephalothorax, dorsal view; **B** abdomen, lateral view; **C** sternum, ventral view; **D** chelicerae, prolateral view; **E** spermathecae.

Description. Female holotype (NCA 91/1437, Fig. 8A–E). Total length 14.47. *Carapace* (Fig. 8A): length 4.87, width 3.71, with small marginal bristles and soft pubescence. *Cephalic region*: length 3.14, clypeus small (almost absent) with 4 marginal bristles; 6 bristles in front of the OQ and 7 between the PME, line of bristles until fovea. *Fovea*: width 0.43, almost straight (slightly procurved). *Ocular measurements*: AME 0.10, ALE 0.24, PME 0.18, PLE 0.17, OQ length 0.42, width 0.74; AME–ALE 0.07, PME–PLE 0.02, AME–PME 0.08, ALE–PLE 0.02, AME–AME 0.14, PME–PME 0.31. *Chelicerae* (Fig. 8D): length 2.99, width 1.83; with dorsal-retrolateral dark bristles. Fang groove with 8 promarginal teeth and 15 mesobasal denticles. *Labium*: length 0.39, width 0.90, dorsally slightly concave with 1 cusp. *Maxillae*: length 1.65, width 0.95, with 59 cuspules posterior on inner corner, prolateral face straight, soft area long, with long uniformly distributed hairs, serrula present on anterior inner corner (Fig. 2E). *Sternum* (Fig. 8C): length 2.35, maximum width 2.09. *Abdomen* (Fig. 8B): length 7.24, with small bristles in the dorsum. PMS: length 0.68; PLS: length of basal:medial:apical segments 0.87:0.86:1.03; total length 2.76. *Lengths of legs and palp*: I: 3.15, 2.06, 2.14, 1.64, 1.15, 10.14. II: 2.88, 1.87, 1.78, 1.63, 1.20, 9.36. III: 2.61, 1.63, 1.49, 2.01, 1.26, 9.00. IV: 3.42, 1.90, 2.38, 2.52, 1.31, 11.53. Palp: 2.19, 1.38, 1.38, —, 1.38, 6.33.

Chaetotaxy: Leg I: femur, 1-1-1-1-1 d, 1 P A; patella, 1 pa; tibia, 2-1-3 v; metatarsus, 2-1-1 V; tarsus, 0. Leg II: femur, 1-1-1-1-1 d, 1 P A; patella, 1 P A; tibia, 1 P, 2-2-3 V; metatarsus, 2-1-2 V; tarsus, 0. Leg III: femur, 1-1-1-1-1 d, 1 P A; patella, 1 P, 1 R; tibia, 1-1 P, 1 D, 1 R, 2-2-3 V; metatarsus, 1-1 P, 1-1-1 D–P, 1-1-1 D–R, 2-1-3 V; tarsus, 0. Leg IV: femur, 1-1-1-1 d, 1 R A; patella, 1 R; tibia, 1 P, 1-1-1 R, 2-2-3 V; metatarsus, 1-1-1-1 P, 1-1-1 D–P, 1-1 D–R (1:2 A), 1-2 R (1:2 A), 2-2-3 V; tarsus, 0. Palp: femur, 1-1-1-1 d, 1 P A; patella, 0; tibia, 1 P, 2-2-3 V; tarsus, 2 V B.

Scopulae: Metatarsi: I, dense, uniformly distributed and divided by bristles; II, dense (3:4 A) and divided by band of bristles; III–IV, 0. Tarsi: I–II dense, uniformly distributed and divided (I, narrow band; II wide band of bristles); III–IV, sparse, uniformly distributed and divided by a wide band of setae. *Trichobothria*: Tibiae: palp 7–8; I 9–10; II 9–8; III 9–9; IV 10–10. Metatarsi: I (4)1(2)1(4)1; II (4)1(2)1(5)1; III (4)1(2)1(4)1; IV (4)1(2)1(4)1(4)1. Tarsi: palp 10; I–II 11; III–IV 11. *Preening combs*: metatarsus: II 3 P V; III 4 P V–3 R V; IV 2 P V–3 R V. *Spermathecae*: as in Fig. 8E. *Color*: Overall brown–orange (chelicerae darker), sternum lighter. Abdomen and spinnerets light brown. Abdomen dorsally spotted with light spots, and covered with small hair and bristles, ventrally lighter.

Remarks. In the lack of any other data to support the georeference, the coordinates added to the paratype are based on the proximity of the locality (Leeuwenbank) to Belfast. There are several farms called Leew[en]bank around the country also.

Distribution. Mpumalanga Province, South Africa (Fig. 24).

Lepthercus kwazuluensis sp. nov.

(Figs. 2C, 9A–J, 10A–D, 24)

<http://zoobank.org/urn:lsid:zoobank.org:act:9465C34C-22D2-4A26-8356-A245F6C97412>

Material examined. Type material: Holotype ♂. SOUTH AFRICA: KwaZulu-Natal Province, Sani Pass (29°36'S 29°17'E, 3000m), 24.vi.2006, UP students *leg.*, (NCA 2010/3732). – Paratype. SOUTH AFRICA: KwaZulu-Natal Province, Pietermaritzburg, Town Bush [29°34'S 30°19'E], 16.x.1969, Lamoral, B.H. *leg.*, 1 ♀ (NM 9807).

Other material examined: SOUTH AFRICA: **Free State Province:** Golden gate, 16.viii.1985, Mus. Staff *leg.*, 1 ♂ (NMBA00917). Same data, 4.vii.1985, 1 ♂ (NMBA00775). Harrismith, S of Mt. Pierre (28°32'S 28°39'E), 12.i.1992, Lotz, L. N. *leg.*, 1 imm (NMBA 05550). **KwaZulu-Natal Province:** Sani Pass (29°35'S 29°17'E, 2700m), 22.i.2010, UP students *leg.*, 1 ♂ (NCA 2011/376). Same data, 1 ♂ (NCA 2011/376). Same data, 1 ♂ (NCA 2011/377). Same data, 24.i.2006, 2 ♂♂ (NCA 2010/3733). Same data, 1 ♂ (NCA 2010/3734). No specific locality, (29°39'2.73"S 29°58'33.88"E), v.2014, Yekwayo, I. *leg.*, 1 ♀ (NCA 2015/1542). La Mercy [29°38'S 31°7'E], viii.1996, Beje, S. *leg.*, 1 ♀ (NCA 97/182). Umzinto, Vernon Crookes Nat. Res (30°16'S 30°35'E), 28.ix.1995, Lotz, L. *legs.*, 1 ♀ (NMBA07771). Pietermaritzburg, Town Bush [29°34'S 30°19'E], xi.1936, Lawrence, R.F & Rump, W.G. *leg.*, 1 ♀ (NM1321). Same data, x.1960, Lawrence, R.F. *leg.*, 2 ♀♀ (NM8057). Same data, (29°37'S 30°22'E, 2400ft), 23.viii.1983, Croeser, P.M.C & C.E. Griswold. *leg.*, 2 ♀♀, 1 imm (NM16636). Same data, vii.1968, Lamoral, B.H. *leg.*, 1 ♀ (NM12465). Pietermaritzburg, Bisley [29°42'S 30°17'E], vi.1951, Lawrence, R.F. *leg.*, 1 ♀ (NM5452). Durban [29°51'S 31°1'E], 1925, Akerman, C. *leg.*, 1 ♀, 1 imm (NM16643). Cathkin Peak [29°4'S 29°21'E], i.1938, Lawrence, R.F. *leg.*, 1 ♀ (NM2171). Champagne Castle Hostel [29°2'S 29°25'E], i.1958, Lawrence, R.F. *leg.*, 1

♀ (NM6976). Same data, i.1957, Lawrence, A.Y, R.F. Lawrence & J.Y. Lawrence. *leg.*, 2 ♀♀ (NM6424). Dargle [29°28'S 30°6'E], 12.xi.1942, Lawrence, R.F & W.G. Rump. *leg.*, 1 ♀ (NM3836). Same data, Lawrence, R.F. *leg.*, 1 ♀ (NM3849). Pietermaritzburg, Worlds view, Waltle Forest (29°36'S 30°23'E), 7.i.1970, Lamoral, B. *leg.*, 1 ♀ (NM12507). Same data, vi.1942, Lawrence, R.F. & C. Holliday. *leg.*, 1 ♀ (NM3808). Natal (no locality or collector), 1905, 2 ♀♀ (NM1355). Umhlali, Sheffield Beach [29°29'S 31°15'E], vii.1937, Lawrence, R.F. *leg.*, 1 ♀ (NM1552). Umhlali, Chakas Rock [29°31'S 31°13'E], vii.1951, Lawrence, R.F. & A.Y. Lawrence. *leg.*, 1 ♀ (NM5618). Margate [30°50'S 30°22'E], Rump, W.G. *leg.*, 2 ♀♀ (NM2913). Port Shepstone (30°42'S 30°27'E), x.1936, Lawrence, R.F. *leg.*, 1 ♀, 2 imm (NM1139). **Eastern Cape Province:** Komga, Kei Mouth (32°40'S 28°22'E), 12.ii.2006, Lotz, L. *leg.*, 1 ♀ (NMBA10084). Eagles Grag (30°48'S 27°45'E), 17.viii.1985, Mus. Staff *leg.*, 1 ♂ (NMBA 00974).

Etymology. The specific epithet is a noun in apposition referring to Kwazulu-Natal province, where the species is most abundant.

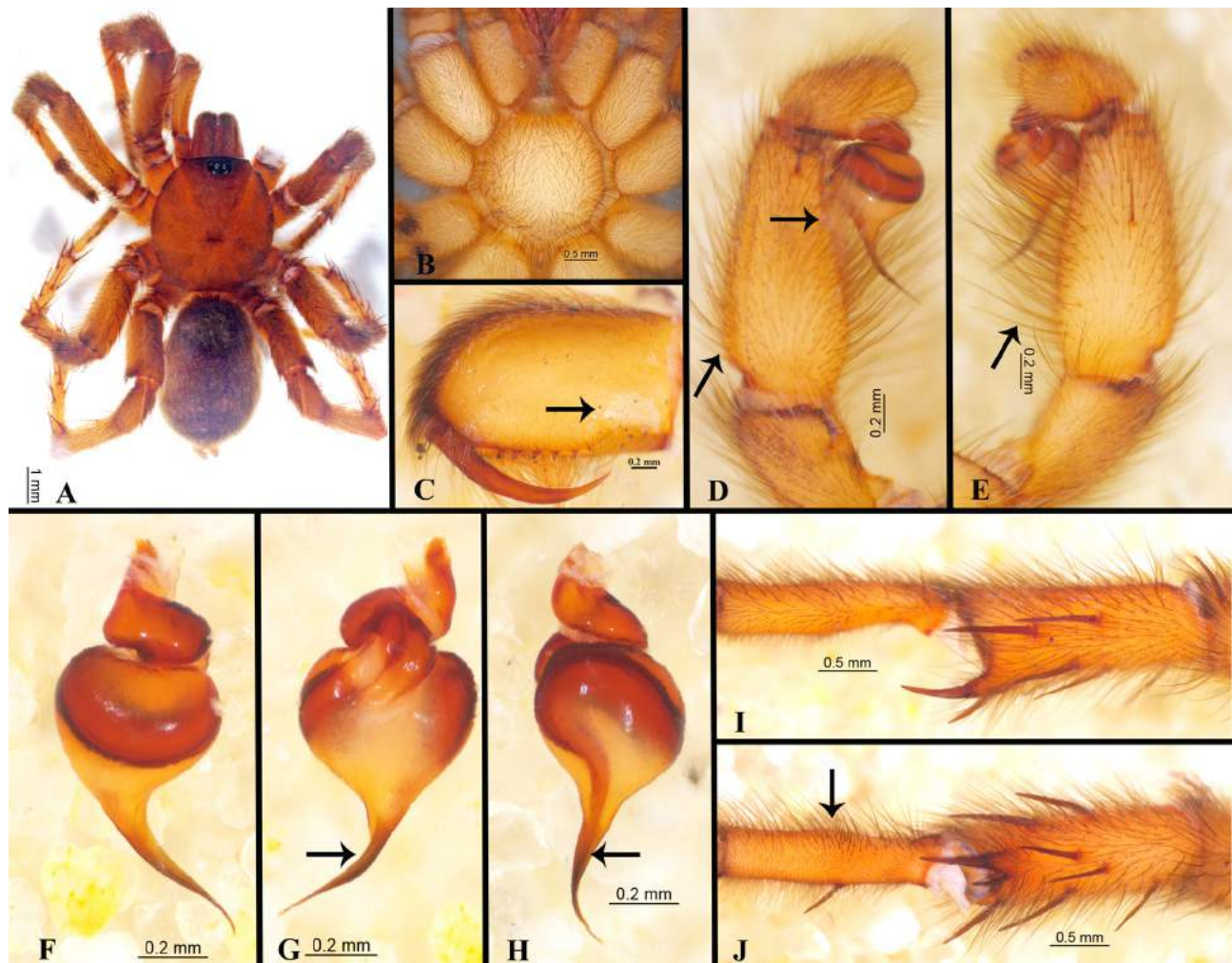


FIGURE 9. *Lepthercus kwazuluensis* **sp. nov.** (male holotype, NCA 2010/3732). **A** cephalothorax, dorsal view; **B** sternum, ventral view; **C** chelicerae, prolateral view, arrow indicates the intercheliceral tumescence; **D** right pedipalp, arrow indicates the small dorsal setae, and a normal anterior part of the retrolateral side of ventral excavation, retrolateral view; **E** right pedipalp, arrow indicates the abundant proventral rigid setae, prolateral view; **F–H** copulatory bulb, **F** retrolateral view, **G** ventral view, **H** prolateral view, arrow indicates the lateral keel; **I, J** tibia–metatarsus I, arrow indicates the metatarsus swollen in the mid-prolateral part, with small setae.

Diagnosis. Males of *L. kwazuluensis* **sp. nov.**, can be distinguished by the presence of a tapering embolus with a long lateral keel (Fig. 9G, H), similar to *L. mandelai* **sp. nov.**, but differs in the low number of chelicerae denticles (5 vs 30) and low number of prolateral spiniform setae on the pedipalp tibiae (Fig. 9E). Females can be differentiated for others species in “Group dregei” by the presence of a spermathecae with a base with an abrupt transition to the stalk, and the base with an apical projection (Fig. 10D), stalks curved outward with oval receptacles.

Description. Male holotype (NCA 2010/3732, Fig. 9A–J). Total length 9.16. *Carapace* (Fig. 9A): length 3.72, width 3.38, rounded, with lateral marginal bristles, with a little pubescence. *Cephalic region*: length 2.35; clypeus short with 4 bristles on the edge, numerous long bristles in front of the OQ and between the PME. *Fovea*: width 0.39, short and straight. *Ocular measurements*: AME 0.10, ALE 0.17, PME 0.14, PLE 0.12, OQ length 0.39, 0.62 width; AME–ALE 0.05, PME–PLE 0.03, AME–PME 0.07, ALE–PLE 0.10, AME–AME 0.09, OM–OMP 0.25. *Chelicerae*: length 2.11, width 1.15, with dorsal-anterior bristles, intercheliceral tumescence small, well-marked and with setae (Fig. 9C). Fang groove with 6 promarginal teeth and 5 basomedial denticles. *Labium*: length 0.26, width 0.70, with one cuspule. *Maxillae*: length 1.26, width 0.64, with about 68 minuscule cuspules on inner corner (Fig. 2C), prolateral face slightly curved, soft area small, with long uniformly distributed hairs. *Sternum* (Fig. 9B): rounded, length 2.12, maximum width 1.19. *Abdomen*: length 4.11, covered by dense brown hair and bristles. PMS: length 0.53; PLS: length of basal:medial:apical segments 0.70:0.45:0.60; total length 1.75. *Lengths of legs and palp*: I: 3.29, 1.67, 1.77, 2.25, 1.51, 10.49. II: 3.11, 1.58, 1.86, 2.00, 1.47, 10.02. III: 2.71, 1.44, 1.64, 2.35, 1.25, 9.39. IV: 3.24, 1.62, 2.33, 3.20, 1.63, 12.02. Palp: 1.95, 1.03, 1.39, —, 0.74, 5.11.

Chaetotaxy: Leg I: femur, 1-1-1-1 d (centrals), 1 P A; patella, 1 P A; tibia, 1-1 P, 1-3-2 V, a cuticular spur, with an apical long and curved spine (longer than the spur) (Fig. 9I, J); metatarsus, 1-1 V POST, slightly curved, swollen in the mid-prolateral part of the segment, with small setae (Fig. 9F, G); tarsus, 0. Leg II: femur, 1-1-1-1 d, 1 P A; patella, 1-1-1 P SUP; tibia, 1-1 P, 1-2 V (1:2B), 2 V A ANT; metatarsus, 1-1-1 P, 2-1-3 V; tarsus, 0. Leg III: femur, 1-3-1-2 d, 1-2-2-2 D; patella, 1-1-1 P (shorts), 1 R; tibia, 1-1 P, 1-1 D, 1-1 R, 2-2-3 V; metatarsus, 1-1-1 P, 2-2-1-2 D, 2-2-3 V; tarsus, 0. Leg IV: femur, 1-1-1-1 d; patella, 0; tibia, 1-1 R, 1-2-2 V; metatarsus, 1-1-1-1-1 P, 1-2-1-1-1-2 D, 2-2-3 V; tarsus, 0. Palp (Fig. 9D, E): femur, 1-1-1-3 d; patella, 1 d; tibia, 1 P, 1 R A, (width/length: 0.45); tarsus, 0.

Scopulae: Metatarsi: I–II, sparse, uniformly distributed throughout the segment; III, sparse (1:3A), divided by narrow band of setae; IV, sparse (1:2A), divided by a wide band of setae. Tarsi: I–II, dense, uniformly distributed throughout the segment; III, sparse, uniformly distributed and divided; IV, sparse, uniformly distributed and divided by a wide band of setae. *Trichobothria*: Tibiae: I 6-7; II 8-7; III 6-7; IV 8-8. Metatarsi: I (2)1(1)1(3)1; II (3)1(2)1(4)1; III (3)1(2)1(4)1; IV (3)1(3)1(5)1. Tarsi: I 12; II 9; III-IV 12. No preening combs. *Copulatory bulb*: small, with an embolus slightly acuminate and curved, with a long lateral keel (Fig. 9G, H), spermatic duct almost straight. *Color*: Carapace and legs orange–yellow. Abdomen dorsally dark; Sternum and center of abdomen lighter; spinnerets ventrally dark.

Female paratype (NM9807, Fig. 10A–D). Total length 17.88. *Carapace* (Fig. 10A): length 5.88, width 3.79. *Cephalic region*: length 3.79, clypeus small, with 5 marginal bristles; 5 bristles in front of the OQ and 3 between the PME, line of dorsal setae until the fovea. *Fovea*: width 0.50. *Ocular measurements*: AME 0.16, ALE 0.31, PME 0.22, PLE 0.32, OQ length 0.65, width 1.10; AME–ALE 0.09, PME–PLE 0.03, AME–PME 0.10, ALE–PLE 0.06, AME–AME 0.15, PME–PME 0.43. *Chelicerae* (Fig. 10C): length 4.27, width 2.56; with dorsal–retrolateral bristles. Fang groove with 9 promarginal teeth and 35 mesobasal denticles. *Labium*: length 0.71, width 0.94, with 3 cuspules. *Maxillae*: length 2.34, width 1.07, with 100 cuspules on posterior inner corner, prolateral face curved, soft area small, with long uniformly distributed hairs, serrula present. *Sternum* (Fig. 10B): length 3.38, maximum width 2.90. *Abdomen*: length 8.23, with small bristles in the dorsum. PMS: length 0.94; PLS: length of basal:medial:apical segments 1.56:0.59:1.28; total length 3.43. *Lengths of legs and palp*: I: 4.60, 2.91, 2.96, 2.65, 1.77, 14.89. II: 4.07, 2.63, 2.40, 2.24, 1.70, 13.04. III: 3.56, 2.08, 1.80, 2.45, 1.44, 11.33. IV: 4.66, 2.43, 3.12, 3.70, 1.65, 15.56. Palp: 3.13, 1.86, 1.75, —, 1.93, 8.67.

Chaetotaxy: Leg I: femur, 1-1-1-1-1-1 d, 1 P A; patella, 0; tibia, 2 P (thins), 1-1-3 V (thins); metatarsus, 1-1-1 V; tarsus, 0. Leg II: femur, 1-1-1-1-1-1 d, 1 P A; patella, 1 pa; tibia, 1-1 P, 2-3 V (thins); metatarsus, 1-2-2 V; tarsus, 0. Leg III: femur, 1-1-1 d, 1 pa, 1 ra; patella, 1-1-1 P, 1 R; tibia, 1-1 P, 1-1 D, 1-1 R, 2-1-2-3 V; metatarsus, 1-1-1 P, 1-1-1 D–P, 1-1-1 D–R, 2-2-3 V; tarsus, 0. Leg IV: femur, 0; patella, 1-1 R; tibia, 1-1-2-1-1 R, 2-2-2 V; metatarsus, 2-1-1 P (3:4 A), 1-1-1 D–P (3:4 A), 1-1-2-1-1-1 D–R, 2-2-2-4 V; tarsus, 0. Palp: femur, 1-1-1-1 d, 1 P A; patella, 0; tibia, 1-2-1 P, 2-2-4 V; tarsus, 1 V B, 1 P INF (1:3 B).

Scopulae: Metatarsi: I–II, dense, uniformly distributed; III, sparse (A), divided by a wide band of setae; IV, 0. Tarsi: I–II dense, uniformly distributed; III, sparse, uniformly distributed and divided by a narrow band of setae; IV, sparse, uniformly distributed and divided by a wide band of setae (more than tarsi III). *Trichobothria*: Tibiae: palp 9-10; I 10-10; II 10-11; III 9-10; IV 12-11. Metatarsi: I (4)1(1)1(2)1(4)1; II (3)1(2)1(3)1(5)1; III (4)1(2)1(5)1; IV (6)1(2)1(3)1(6)1. Tarsi: palp 12; I 13; II-III 12; IV 16. *Preening combs*: metatarsus: II 4 P V; III 4 P V–3 R V. *Spermathecae*: as in Fig. 10D. *Color*: Overall brown-reddish, sternum reddish. Abdomen and spinnerets light brown, spotted.

Distribution. Free State; KwaZulu-Natal and Eastern Cape Provinces, South Africa (Fig. 24).

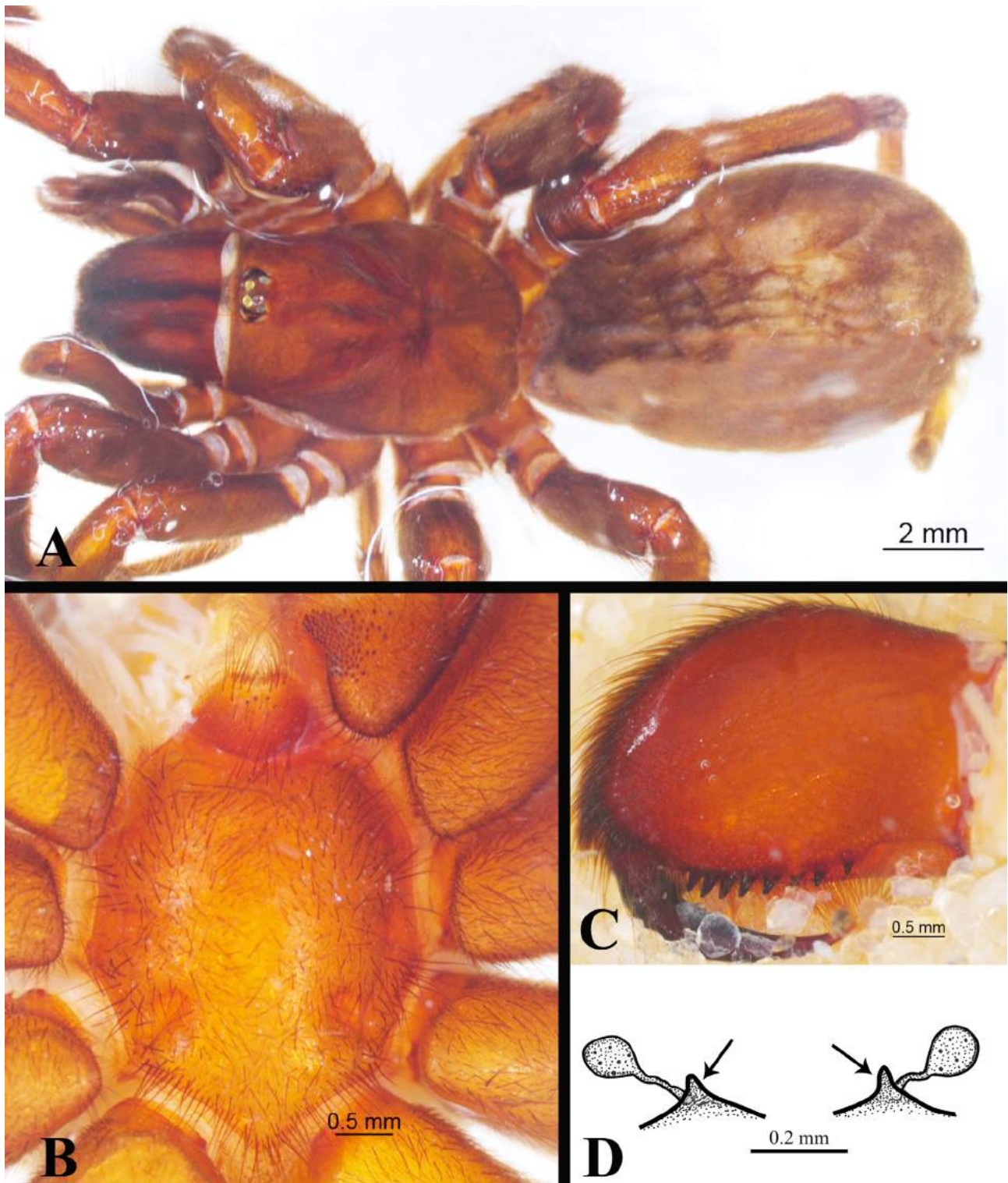


FIGURE 10. *Lepthercus kwazuluensis* **sp. nov.** (female paratype, NM 9807). **A** habitus, dorsal view; **B** sternum, ventral view; **C** chelicerae, prolateral view; **D** spermathecae, arrows indicate the base with an apical projection.

***Lepthercus lawrencei* sp. nov.**

(Fig. 11A–D, 24)

<http://zoobank.org/urn:lsid:zoobank.org:act:590720F3-F15E-406B-858F-CC8A3425A7E3>

Material examined. Type material: Holotype ♀. SOUTH AFRICA: Eastern Cape Province: Silaka Nature Reserve

[31°39'S 29°30'E], 25.xi.2014, du Preez, B. *leg.*, (NCA 2016/1710). – Paratypes. SOUTH AFRICA: Eastern Cape Province, Umtata, Kambi Forest [31°36'S 28°46'E], xi.1961, Lawrence R.F. *leg.*, 1 ♀ (NM8099); Port St Johns [31°37'S 29°32'E], vii.1945, Lawrence R.F. *leg.*, 1 ♀ (NM4560).

Etymology. The specific epithet is a noun in the genitive case in honor of Dr. Reginald Frederick Lawrence for his contributions to arachnology in South Africa, and who collected many of the specimens examined for this study.

Diagnosis. Females of *L. lawrencei* **sp. nov.**, can be differentiated from species of “Group *dregei*” by the shape of their spermathecae, which has a twisted stalk and circular receptacles (Fig. 11D). It is most similar to *L. mandelai* **sp. nov.**, but differ in the twisted stalks of the spermathecae. It can also be separated from all other species in having the highest number of cheliceral denticles (45). Males are unknown.

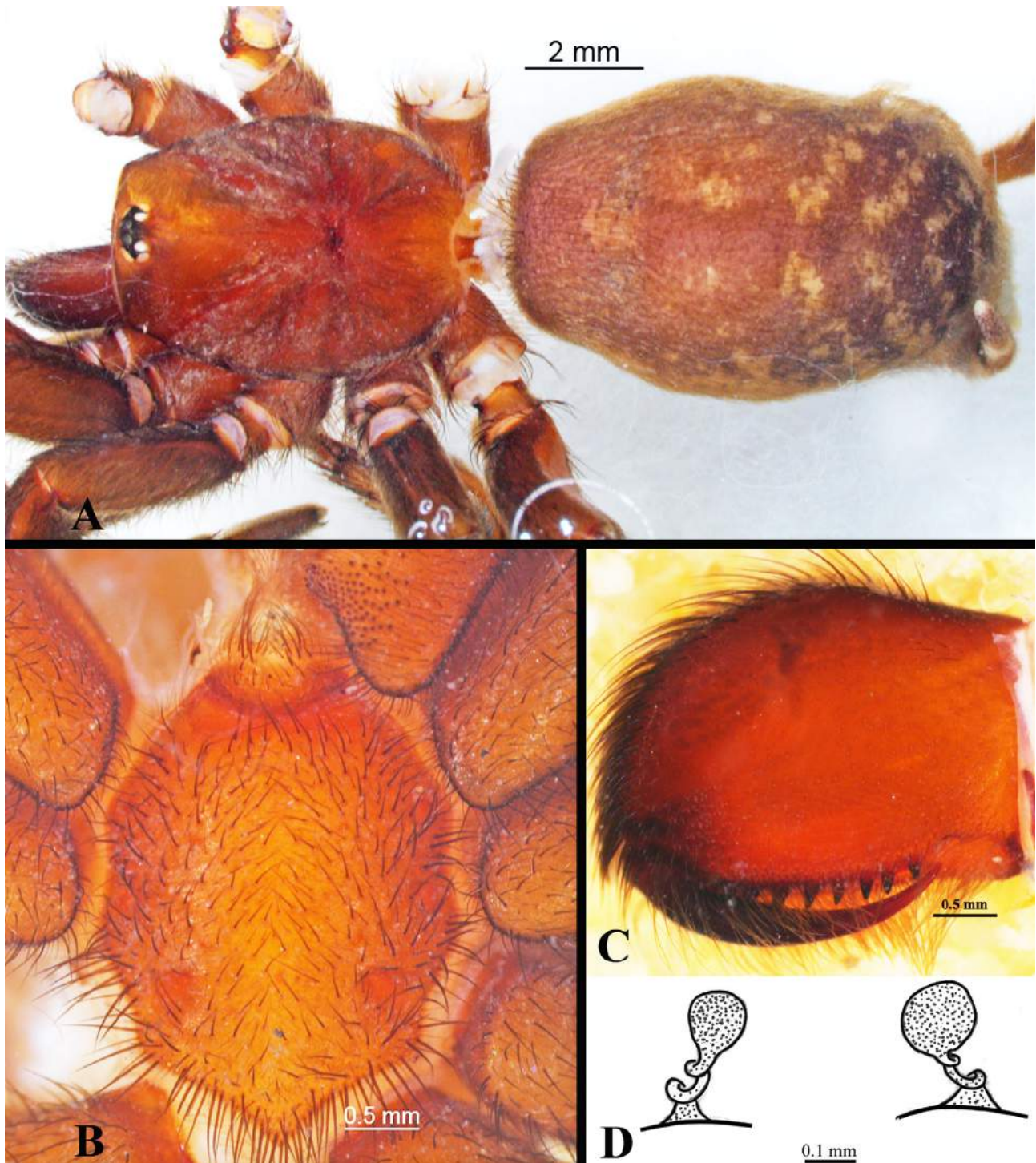


FIGURE 11. *Lepthercus lawrencei* **sp. nov.** (female holotype, NCA 2016/1710). **A** habitus, dorsal view; **B** sternum, ventral view; **C** chelicerae, prolateral view; **D** spermathecae.

Description. Female holotype (NCA 2016/1710, Fig. 11A–D). Total length 16.26. *Carapace* (Fig. 11A): length 6.02, width 4.59, with small marginal bristles. *Cephalic region*: length 3.80, clypeus small (almost absent) with 5 marginal bristles; 1 bristles in front of the OQ and 3 between the PME, line of bristles until fovea. *Fovea*: width 0.50, almost straight. *Ocular measurements*: AME 0.15, ALE 0.32, PME 0.20, PLE 0.22, OQ length 0.52, width 1.02; AME–ALE 0.05, PME–PLE 0.03, AME–PME 0.08, ALE–PLE 0.04, AME–AME 0.10, PME–PME 0.37. *Chelicerae* (Fig. 11C): length 3.54, width 2.30; with dorsal-retrolateral dark bristles. Fang groove with 9 promarginal teeth and 45 mesobasal denticles. *Labium*: length 0.46, width 0.97, dorsally slightly concave with 1 cusp. *Maxillae*: length 2.18, width 1.01, with 97 cuspules on posterior inner corner, prolateral face slightly curved, soft area small, with long uniformly distributed hairs, serrula present on anterior inner corner. *Sternum* (Fig. 11B): length 2.88, maximum width 2.39. *Abdomen*: length 8.38, covered with dark hairs and bristles. PMS: length 0.84; PLS: length of basal:medial:apical segments 1.41:1.05:1.50; total length . *Lengths of legs and palp*: I: 3.69, 2.44, 2.23, 2.14, 1.46, 11.96. II: 4.00, 2.78, 2.78, 2.09, 1.61, 13.26. III: 3.23, 2.01, 1.93, 2.68, 1.47, 11.32. IV: 4.15, 2.38, 2.96, 3.83, 1.71, 15.03. Palp: 2.81, 1.77, 1.80, —, 1.87, 8.25.

Chaetotaxy: Leg I: femur, 1-1-1-1-1-1-1 d, 1 P A; patella, 1 P A; tibia, 1 P, 1-1-1-3 V (thins); metatarsus, 2-2-2 V; tarsus, 0. Leg II: femur, 1-1-1-1-1-1 d, 1 P A; patella, 1 P A; tibia, 1-1 P, 2-2-3 V; metatarsus, 2-0-2 V; tarsus, 0. Leg III: femur, 1-1-1-1-1 d, 1 P A; patella, 1-1 P, 1 R; tibia, 1-1 P, 1-2 D, 1-1 R, 2-2-3 V; metatarsus, 1-1-1 P, 1-1-1 D–P, 1-1 D–R (1:2 A), 1-1-1 R, 2-2-3 V; tarsus, 0. Leg IV: femur, 1-1-1-1-1 d, 1-1 R A; patella, 1 R; tibia, 1-1 P, 1-1-2-1 R, 2-2-3 V (thins); metatarsus, 1-1-1-1-1 P, 1-1-1-1 D–P, 1-1-1-1 D–R, 1-1-1 R, 2-2-3 V; tarsus, 0. Palp: femur, 1-1-1-1-1-1-1 d, 1 P A; patella, 1 P A; tibia, 1-2 P, 2-2-4 V; tarsus, 2 V B.

Scopulae: Metatarsi: I, dense, uniformly distributed and divided by bristles; II, dense (3:4 A), and divided by setae; III–IV, 0. Tarsi: I–II dense, uniformly distributed and divided by a narrow band of bristles; III–IV, sparse, uniformly distributed and divided by a wide band of setae. *Trichobothria*: Tibiae: palp 9-9; I 10-11; II 11-11; III 9-10; IV 13-13. Metatarsi: I (3)1(0)1(2)1(3)1; II (3)1(1)1(3)1(4)1; III (4)1(0)1(3)1(5)1; IV (5)1(2)1(4)1(5)1. Tarsi: palp 12; I-II 14; III-IV 13. *Preening combs*: metatarsus: II, 4 P V; III 4 P V–3 R V; IV 2 P V–3 R V. *Spermathecae*: as in Fig. 11D. *Color*: Overall brown–orange (chelicerae darker), sternum lighter. Abdomen brown mottled with posterior light bands, spinnerets light brown.

Distribution. Eastern Cape Province, South Africa (Fig. 24).

Lepthercus mandelai sp. nov.

(Figs. 2D, 12A–J, 13A–D, 24)

<http://zoobank.org/urn:lsid:zoobank.org:act:4095EBFE-6144-47FF-A13F-8A2E4CE3396B>

Material examined. Type material: Holotype ♂. SOUTH AFRICA: Eastern Cape Province, Amatola mountains, Hogsback, Never Daunted Guest House (32°35.6'S 26°55.8'E, 1250m), 20-23.iv.2013, Haddad, C., J. Neethling & R. du Preez. *leg.*, (NCA 2014/415B). – Paratype. SOUTH AFRICA: Same data as holotype, 3 ♀♀ (NCA 2014/415A).

Etymology. The specific epithet is a noun in the genitive case in honor of Nelson Rolihlahla Mandela, first president of the democratic, post-apartheid South Africa.

Diagnosis. Males of *L. mandelai* sp. nov., can be recognized from all species in “Group dregei” by a copulatory bulb with a rounded tegulum, and the embolus with a small apical keel (Fig. 12G). Females can be differentiated by the shape of their spermathecae, with a slightly curved stalk and circular receptacles (Fig. 13D), similar to *L. lawrencei* sp. nov., but differs in the straight stalk; also can be recognized by the low number of cheliceral denticles (12), similar to *L. dregei*.

Description. Male holotype (NCA 2014/415b, Fig. 12A–J). Total length 11.30. *Carapace* (Fig. 12A): length 4.96, width 3.83, with lateral marginal bristles, with a little pubescence. *Cephalic region*: length 3.12; clypeus short with 6 bristles on the edge, 5 long bristles in front of the OQ. *Fovea*: width 0.44, short, almost straight (slightly recurved). *Ocular measurements*: AME 0.13, ALE 0.21, PME 0.13, PLE 0.14, OQ length 0.41, 0.72 width; AME–ALE 0.06, PME–PLE 0.03, AME–PME 0.10, ALE–PLE 0.13, AME–AME 0.10, OMP–OMP 0.31. *Chelicerae* (Fig. 12C): length 2.61, width 1.39, with dark dorsal-anterior bristles, intercheliceral tumescence small, well-marked and with setae (Fig. 12C). Fang groove with 10 promarginal teeth and 30 denticles (1:2B). *Labium*: length 0.38, width 0.79, with 3 small cuspules. *Maxillae*: length 1.56, width 0.76, with about 74 minuscule cuspules on inner corner, prolateral face slightly curved, soft area small with long uniformly distributed hairs. *Sternum* (Fig. 12B): length

2.47, maximum width 2.14. *Abdomen* (Fig. 12A): length 4.58, covered with dark hairs and bristles. PMS: length 0.62; PLS: length of basal:medial:apical segments 1.11:0.86:1.14; total length . *Lengths of legs and palp*: I: 4.53, 2.45, 3.29, 3.62, 2.79, 16.68. II: 4.10, 2.19, 3.14, 3.25, 2.68, 15.36. III: 3.50, 1.76, 2.24, 3.13, 2.16, 12.79. IV: 4.57, 2.60, 3.73, 4.37, 2.25, 17.52. Palp: 2.25, 1.22, 1.54, —, 0.65, 5.85.

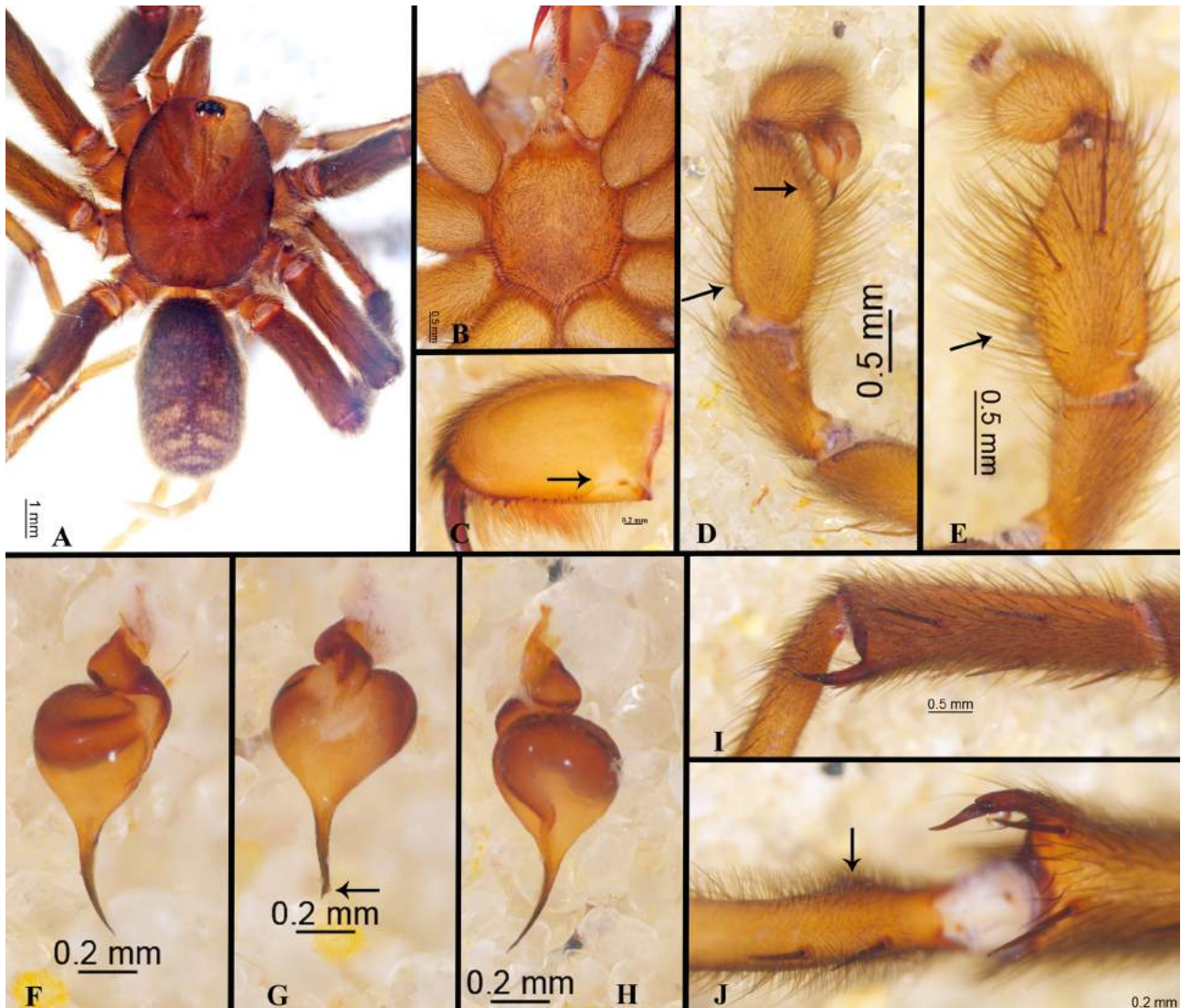


FIGURE 12. *Lepthercus mandelai* sp. nov. (male holotype, NCA 2014/415B). **A** habitus, dorsal view; **B** sternum, ventral view; **C** chelicerae, prolateral view, arrow indicates the intercheliceral tumescence; **D** right pedipalp, arrow indicates the small dorsal setae, and a normal anterior part of the retrolateral side of ventral excavation, retrolateral view; **E** right pedipalp, arrow indicates the abundant proventral rigid setae, prolateral view; **F–H** copulatory bulb, **F** retrolateral view, **G** ventral view, **H** prolateral view, arrow indicates the small apical keel; **I, J** tibia–metatarsus I, arrow indicate the metatarsus base swollen with small dark setae, **I** ventral view, **J** prolateral view.

Chaetotaxy: Leg I: femur, 1-1-1-1 d (centrals), 2-2-2 D; patella, 0; tibia, 1-1 P, 2-2-2 V, a long cuticular spur, slightly curved outwards, with an apical long and curved spine (Fig. 12I, J); metatarsus, 1-1-0-1 R V, 1:3 basal posterior swollen with small dark setae (Fig. 12J); tarsus, 0. Leg II: femur, 1-1-1-1 d, 1-2-2 D; patella, 1 R; tibia, 1-1 P, 2-2-3 V; metatarsus, 1 P (1:2B), 2-2-0-2 V; tarsus, 0. Leg III: femur, 1-1-1-1 d, 1-2-2-2 D; patella, 1-1-1 P (shorts), 1 R; tibia, 1-1 P, 1-1 D, 1-1 R, 2-2-3 V; metatarsus, 1-1-1 P, 2-2-1-2 D, 2-2-3 V; tarsus, 0. Leg IV: femur, 1-1-1-1 d, 1-2-2 D; patella, 1 R; tibia, 1-1 P (1:2A), 2-2-2 V, 1-1 R; metatarsus, 1-1-1 P, 2-2-1-2 D, 2-2-3 V; tarsus, 0. Palp (Fig. 12D, E): femur, 1-1-1-1 d, 1 P A; patella, 0; tibia, 3-1 P, 1 V, (width/length: 0.42); tarsus, 0.

Scopulae: Metatarsi: I-II, dense, uniformly distributed throughout the segment, with some long and fine setae; III, sparse (1:3A), divided by narrow band of setae; IV, sparse (1:2A), divided by a wide band of setae. Tarsi: I-II, dense, uniformly distributed throughout the segment; III, dense, uniformly distributed; IV, sparse, uniformly dis-

tributed and divided by a narrow band of setae. *Trichobothria*: Tibiae: I 10-10; II 9-10; III 8-9; IV 11-11. Metatarsi: I (5)1(1)1(4)1(5)1; II (4)1(2)1(3)1(4)1; III (4)1(2)1(3)1(5)1; IV (4)1(3)1(3)1(6)1. Tarsi: I-IV 14. *Preening combs*: metatarsus: III, 4 P V. *Copulatory bulb*: small, embolus abruptly acuminate with a small apical keel (Fig. 12F–H), spermatic duct slightly curved. *Color*: Overall brown–reddish, sternum dark. Abdomen brown dark with 3 posterior light bands; spinnerets light yellow.

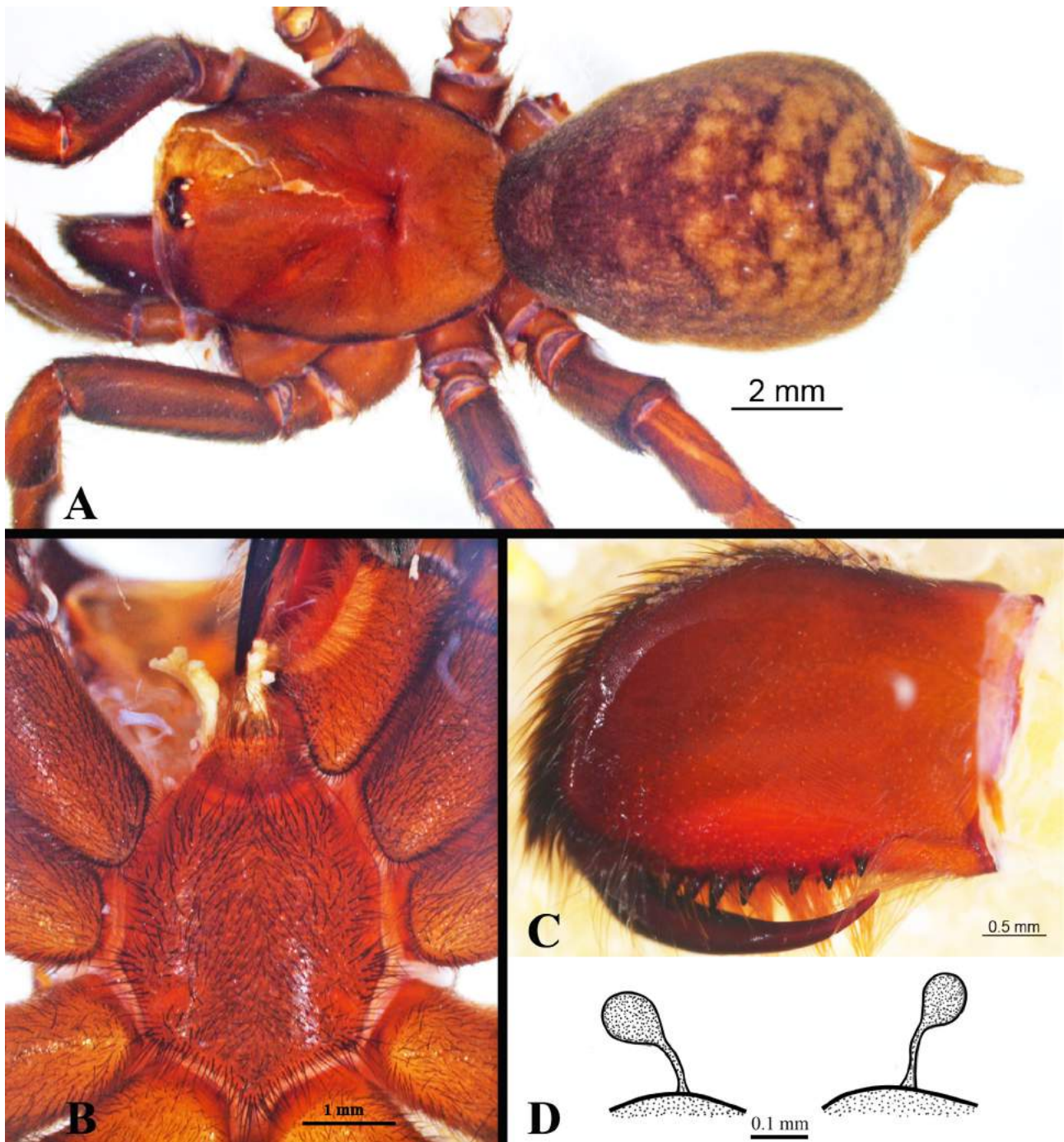


FIGURE 13. *Leptercus mandelai* sp. nov. (female paratype, NCA 2014/415A). **A** habitus, dorsal view; **B** sternum, ventral view; **C** chelicerae, prolateral view; **D** spermathecae.

Female paratype (NCA 2014/415A, Fig. 13A–D). Total length 16.05. *Carapace* (Fig. 13A): length 6.36, width 4.68, with small marginal bristles. *Cephalic region*: length 4.23, clypeus small (almost absent) with 9 marginal bristles; numerous small bristles in front and back of the OQ. *Fovea*: width 0.70, almost straight (slightly procurved). *Ocular measurements*: AME 0.15, ALE 0.29, PME 0.18, PLE 0.23, OQ length 0.39, width 0.53; AME–ALE 0.09, PME–PLE 0.02, AME–PME 0.12, ALE–PLE 0.06, AME–AME 0.12, PME–PME 0.39. *Chelicerae* (Fig. 13C):

length 4.16, width 2.58; with dorsal-retrolateral dark bristles. Fang groove with 7 promarginal teeth and 12 meso-basal denticles. *Labium*: length 0.59, width 1.31, dorsally slightly concave with 2 cuspules. *Maxillae*: length 2.35, width 1.05, with +110 cuspules on inner corner, prolateral face curved, soft with long uniformly distributed hairs, serrula present on anterior inner corner (Fig. 2D). *Sternum* (Fig. 13B): length 3.16, maximum width 2.81. *Abdomen*: length 7.62, with small bristles and hair in the dorsum. PMS: length 0.92; PLS: length of basal:medial:apical segments 1.16:0.60:1.45; total length 3.21. *Lengths of legs and palp*: I: 4.72, 3.01, 3.14, 2.95, 2.10, 15.92. II: 4.35, 2.74, 2.76, 2.66, 1.99, 14.50. III: 3.59, 2.14, 1.90, 2.48, 1.70, 11.81. IV: 4.38, 2.56, 3.44, 3.54, 1.86, 15.78. Palp: 3.03, 1.94, 1.85, —, 2.09, 8.91.

Chaetotaxy: Leg I: femur, 0; patella, 0; tibia, 1-1 R, 1-1-2 V; metatarsus, 1-1-1 V; tarsus, 0. Leg II: femur, 0; patella, 0; tibia, 1-1 P, 1-1-3 V; metatarsus, 1-2-2 V; tarsus, 0. Leg III: femur, 1-1-1 d, 1-2 D (1:2A); patella, 1-1-1-1 P, 1 R; tibia, 1-1 P, 1-1 D, 1 R, 2-2-3 V; metatarsus, 1-1-1 P, 2-2-2 D, 2-2-3 V; tarsus, 0. Leg IV: femur, 0; patella, 0; tibia, 1-1 R, 2-2-2 V; metatarsus, 1-1 P (1:2B), 1-1-1-2 D, 2-2-3 V; tarsus, 0. Palp: femur, 0; patella, 1pb; tibia, 1-2 P, 1-3 V; tarsus, 2 V B.

Scopulae: Metatarsi: I–II, dense, uniformly distributed; III, sparse (1:2A), divided by setae; IV, sparse A. Tarsi: I–II dense, uniformly distributed; III, dense, uniformly distributed and divided by a narrow band of setae; IV, dense, uniformly distributed and divided by a wide band of setae. *Trichobothria*: Tibiae: palp 10-10; I 10-10; II 12-11; III 11-11; IV 13-13. Metatarsi: I (3)1(4)1(6)1; II (5)1(1)1(3)1(6)1; III (5)1(1)1(3)1(6)1; IV (5)1(1)1(3)1(6)1. Tarsi: palp 11; I 16; II 15; III 15; IV 16. *Preening combs*: metatarsus: II 2 P V; III 3 P V; IV 4 R V–2 P V. *Spermathecae*: as in Fig. 13D. *Color*: Overall brown–reddish (chelicerae darker), sternum dark. Abdomen brown dark with 3 posterior light bands, spinnerets slightly dark.

Distribution. Eastern Cape Province, South Africa (Fig. 24).

“Group haddadi”

This group is composed by five species: *Lepthercus dippenarae* sp. nov., *Lepthercus engelbrechti* sp. nov., *Lepthercus haddadi* sp. nov., *Lepthercus rattrayi* Hewitt, 1917, and *Lepthercus sofiae* sp. nov.

Lepthercus dippenarae sp. nov.

(Figs. 2B, 14A–J, 15A–E, 24)

http://zoobank.org/urn:lsid:zoobank.org:act:24775E74-F40C-453D-A86C-51027B1C586B

Material examined. Type material: Holotype ♂. SOUTH AFRICA: Eastern Cape Province, Komga, Kei Mouth (32°41'S 28°22'E), 1-5.vi.2003, Haddad, C. leg., (NMBA 09339B). – Paratype. SOUTH AFRICA: Eastern Cape Province, Same data as holotype, 1 ♀ (NMBA09339 A).

Other material examined: SOUTH AFRICA: Eastern Cape Province, Cwebe Natural Reserve, The Haven (32°15'14.85"S 28°52'37.76"E), 30.x.2006, Haddad, C. leg., 2 ♀♀ (NCA 2007/301); Mazeppa Bay (32°28'12.30"S 28°38'24.12"E), 28.x.2006, Haddad, C. leg., 1 ♀ (NCA 2007/237).

Etymology. The specific epithet is a noun in the genitive case in honor of Dra Ansie Dippenaar-Schoeman for her development of arachnology in Southern Africa and her contribution to our knowledge of African spiders.

Remarks. The male specimens labeled: Gauteng Province, Pretoria National Botanical Garden [25°44'S 28°16'E], 10.x.2007, Spider Club and others. leg., 2 ♂♂ (NCA 2009/5366) are considered conspecific with *L. dippenarae* sp. nov. They share important characters, such as the copulatory bulb shape and tibiae I; but the collection locality is too far from the localities of others specimens. We believe could be a label error.

The vial NMBA 09339a contains the female paratype and other male with the same shaped bulb as the type. However, in the unique leg I present in the male specimen, we can observe a different tibia I spur. In the absence of additional specimens, it seems best to include them in *L. dippenarae* sp. nov.

Diagnosis. Males of *L. dippenarae* sp. nov., differ from all other species in “Group haddadi” by the presence of the embolus with a developed lateral keel delimiting a concave area (Fig. 14F–H). Females can be distinguished by the shape of their spermathecae, with the base with a slight transition to the stalk and twisted inward receptacles

(Fig. 15E). The females are similar to *L. rattrayi*, but differ in the higher number of maxillary cuspules (110 vs 54) and lower number of cheliceral denticles (12 vs 28).

Description. Male holotype (NMBA 09339 B, Fig. 14A–J). Total length 10.76. *Carapace* (Fig. 14A): length 4.08, width 3.46, with lateral marginal bristles, with a little pubescence. *Cephalic region*: length 2.47; clypeus short with 3 bristles on the edge, 2 long bristles in front of the OQ. *Fovea*: width 0.36, short, almost straight (slightly re-curved). *Ocular measurements*: AME 0.09, ALE 0.22, PME 0.14, PLE 0.19, OQ length 0.37, 0.74 width; AME–ALE 0.05, PME–PLE 0.02, AME–PME 0.08, ALE–PLE 0.03, AME–AME 0.09, OMP–OMP 0.29. *Chelicerae*: length 2.09, width 1.16, with dark dorsal–anterior bristles, intercheliceral tumescence square, developed, well-marked and with setae (Fig. 14C). Fang groove with 7 promarginal teeth and 30 denticles (mesobasal). *Labium*: length 0.27, width 0.65 with 1 cusp. *Maxillae*: length 1.34, width 0.62, with about 53 cuspules on posterior inner corner (Fig. 2B), prolateral face slightly curved, with long uniformly distributed hairs, no serrula. *Sternum* (Fig. 14B): length 2.18, maximum width 1.79. *Abdomen*: Length 3.96, covered with short and long dark hairs. PMS: length 0.59; PLS: length of basal:medial:apical segments 1.28:0.94:1.67; total length 3.89. *Lengths of legs and palp*: I: 3.12, 1.99, 2.24, 2.08, 1.77, 11.20. II: 2.91, 1.83, 1.95, 2.01, 1.52, 10.22. III: 2.74, 1.49, 1.80, 2.57, 1.57, 10.17. IV: 3.56, 1.87, 2.72, 3.68, 1.77, 13.60. Palp: 1.45, 0.87, 0.94, —, 0.73, 3.99.

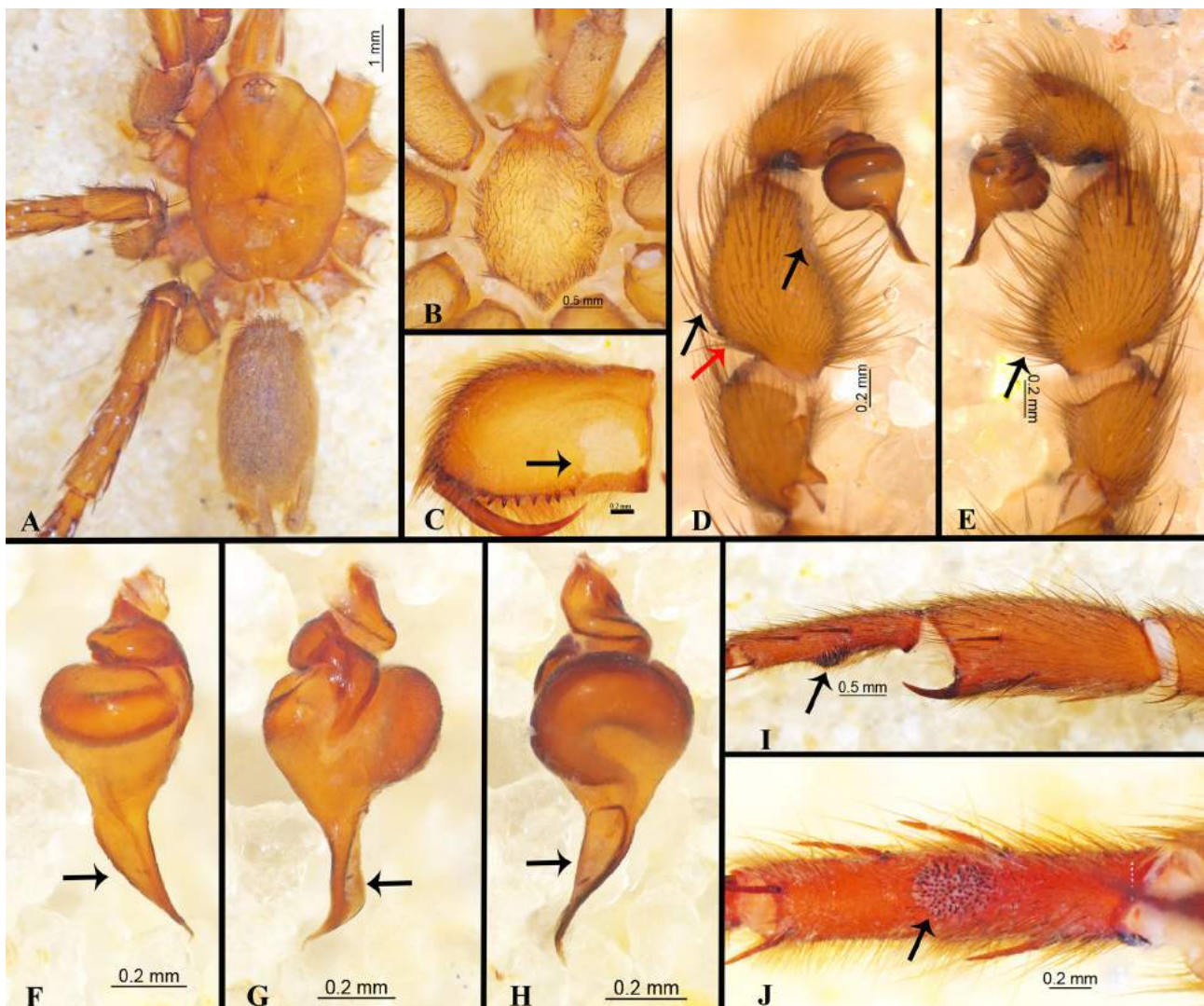


FIGURE 14. *Lepthercus dippenarae* sp. nov. (male holotype, NMBA 09339B). **A** habitus, dorsal view; **B** sternum, ventral view; **C** chelicerae, prolateral view, arrow indicates the intercheliceral tumescence; **D** right pedipalp, black arrow indicates the long dorsal setae and a normal anterior part of the retrolateral side of ventral excavation, red arrow indicates the palpal tibia base dorsally very convex, retrolateral view; **E** right pedipalp, arrow indicates the abundant proventral rigid setae, prolateral view; **F–H** copulatory bulb, **F** retrolateral view, **G** ventral view, **H** prolateral view, arrows indicates the developed lateral keel delimiting a concave area; **I**, **J** tibia–metatarsus I, arrows indicates the ventral protuberance covered by blunt spinules.

Chaetotaxy: Leg I: femur, 1-1-1-1-1 d (centrals), 1-1 P A; patella, 1 P A; tibia, 1 P, 2-2-2 V, a small spur, with an apical long and curved spine (Fig. 14I); metatarsus, 1-1 P INF, 1-1-2 V, a medial protuberance with small dark spinules (Fig. 14I, J); tarsus, 0. Leg II: femur, 1-1-1-1 d, 1-1-1 P A; patella, 1-1 P; tibia, 1-1 P, 2-1-3 V; metatarsus, 1-1 P, 2-2-2 V; tarsus, 0. Leg III: femur, 1-1-1-1 d, 1-1 P A, 1-1-1-1 R SUP; patella, 1-1-1 P (shorts), 1 R; tibia, 1-2 P, 1-1 D, 1-1-1 R, 2-2-3 V; metatarsus, 2-1-1 P, 1-1-1-1 D-P, 1-1-1 D-R, 1-1 R, 2-2-3 V; tarsus, 0. Leg IV: femur, 1-1-1-1 d, 1-1-1 P SUP, 1-2 R A; patella, 1 P A, 1 R; tibia, 1-1-1 P, 1-1 D, 1-1-1-1 R, 2-2-3 V; metatarsus, 1-1-1-1 P, 1-1-1-1-1 D-P, 1-1-1-1-1 D-R, 1-1-1 R, 3-1-1-2-3 V; tarsus, 0. Palp (Fig. 14D, E): femur, 1-1-1-1-1 d, 1 P A; patella, 1 P A; tibia, 1-1 P A, 1 R A, (width/length: 0.80); tarsus, 0.

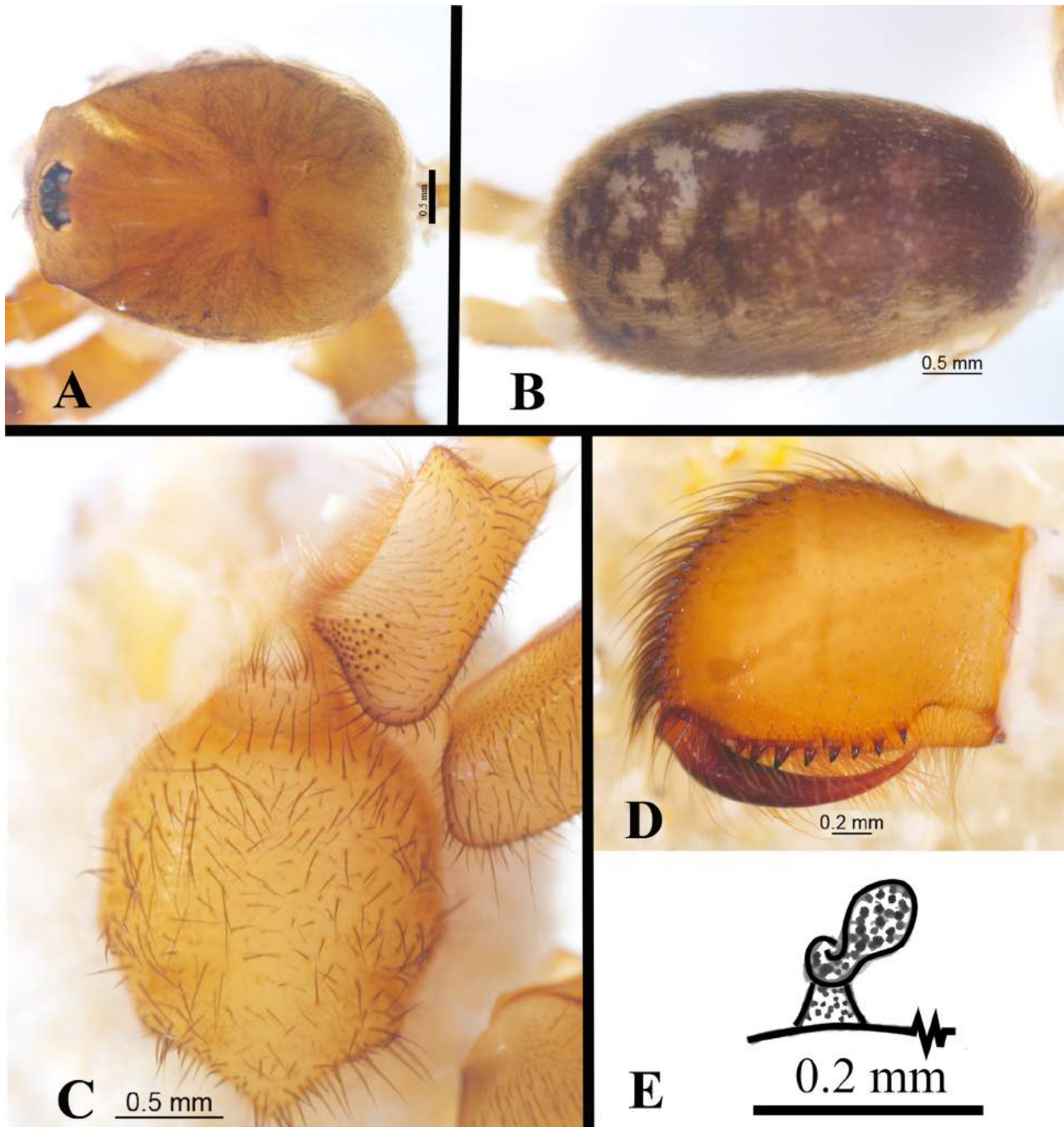


FIGURE 15. *Lepthercus dippenaarae* sp. nov. (female paratype, NMBA 09339A). **A** cephalothorax, dorsal view; **B** abdomen, dorsal view; **C** sternum, ventral view; **D** chelicerae, prolateral view; **E** spermathecae.

Scopula: Metatarsi: I–II, sparse 1:2 A (more abundante im the apex), II divided by bristles; III, sparse (A); IV, no preset. Tarsi: I–II, dense, uniformly distributed throughout the segment; III, sparse, uniformly distributed

and divided by a narrow band of setae; IV, sparse, uniformly distributed and divided by a narrow band of setae. *Trichobothria*: Tibiae: I 10-10; II 10-9; III 9-9; IV 10-10. Metatarsi: I (4)1(2)1(4)1; II (4)1(5)1(3)1(4)1; III (4)1(2)1(5)1; IV (6)1(3)1(4)1(5)1. Tarsi: I-IV 13. *Preening combs*: metatarsus: II, 3 P V; III, 3 P V–4 R V; IV, 2 P V–4 R V. *Copulatory bulb* (Fig. 14F–H): Embolus with a developed lateral keel delimiting a concave area. *Color*: Overall orange-yellowish. Abdomen completely brown; spinnerets brown-yellowish.

Female paratype (NMBA 09339 A, Fig. 15A–E). Total length 16.05. *Carapace* (Fig. 15A): length 6.36, width 4.68, with small marginal bristles. *Cephalic region*: length 4.23, clypeus small with 9 marginal bristles; 3 bristles in front of the OQ and numerous small bristles between the PME. *Fovea*: width 0.70, almost straight (slightly procurved). *Ocular measurements*: AME 0.15, ALE 0.29, PME 0.18, PLE 0.23, OQ length 0.39, width 0.53; AME–ALE 0.09, PME–PLE 0.02, AME–PME 0.12, ALE–PLE 0.06, AME–AME 0.12, PME–PME 0.39. *Chelicerae* (Fig. 15D): length 4.16, width 2.58; with dorsal-retrolateral dark bristles. Fang groove with 7 promarginal teeth and 12 mesobasal denticles. *Labium*: length 0.59, width 1.31, dorsally slightly concave without cuspules. *Maxillae*: length 2.35, width 1.05, with +110 cuspules on inner corner, prolateral face slightly curved, soft area developed, with long uniformly distributed hairs, serrula present on anterior inner corner. *Sternum* (Fig. 15C): rounded, length 3.16, maximum width 2.81. *Abdomen* (Fig. 15B): length 7.62, with small bristles in the dorsum. PMS: length 0.92; PLS: length of basal:medial:apical segments 1.16:0.60:1.45; total length 3.21. *Lengths of legs and palp*: I: 4.72, 3.01, 3.14, 2.95, 2.10, 15.92. II: 4.35, 2.74, 2.76, 2.66, 1.99, 14.50. III: 3.59, 2.14, 1.90, 2.48, 1.70, 11.81. IV: 4.38, 2.56, 3.44, 3.54, 1.86, 15.78. Palp: 3.03, 1.94, 1.85, —, 2.09, 8.91.

Chaetotaxy: Leg I: femur, 0; patella, 0; tibia, 1-1 R, 1-1-2 V; metatarsus, 1-1-1 V; tarsus, 0. Leg II: femur, 0; patella, 0; tibia, 1-1 P, 1-1-3 V; metatarsus, 1-2-2 V; tarsus, 0. Leg III: femur, 1-1-1 d, 1-2 D (1:2A); patella, 1-1-1-1 P, 1 R; tibia, 1-1 P, 1-1 D, 1 R, 2-2-3 V; metatarsus, 1-1-1 P, 2-2-2 D, 2-2-3 V; tarsus, 0. Leg IV: femur, 0; patella, 0; tibia, 1-1 R, 2-2-2 V; metatarsus, 1-1 P (1:2B), 1-1-1-2 D, 2-2-3 V; tarsus, 0. Palp: femur, 0; patella, 1pb; tibia, 1-2 P, 1-3 V; tarsus, 2 V B.

Scopulae: Metatarsi: I–II, dense, uniformly distributed; III, sparse (1:2A), divided by setae; IV, sparse A. Tarsi: I–II dense, uniformly distributed; III, dense, uniformly distributed and divided by a narrow band of setae; IV, dense, uniformly distributed and divided by a wide band of setae. *Trichobothria*: Tibiae: palp 10-10; I 10-10; II 12-11; III 11-11; IV 13-13. Metatarsi: I (3)1(4)1(6)1; II (5)1(1)1(3)1(6)1; III (5)1(1)1(3)1(6)1; IV (5)1(1)1(3)1(6)1. Tarsi: palp 11; I 16; II 15; III 15; IV 16. *Preening combs*: metatarsus: II 2 P V; III 3 P V; IV 4 R V–2 P V. *Spermathecae*: as in fig. 15E. *Color*: Overall brown–orange (chelicerae darker), sternum lighter. Abdomen dark, mottled with light spots in the dorsal posterior side, ventral light, spinnerets slightly dark.

Distribution. Known only from the Eastern Cape Province (Fig. 24).

Lepthercus engelbrechti sp. nov.

(Figs. 2H, I, 16A, B, 17A–K, 18A–C, 24)

<http://zoobank.org/urn:lsid:zoobank.org:act:5CC73DE1-28E2-4FA2-9784-BA1C58B0F910>

Material examined. Type material: Holotype ♂. SOUTH AFRICA: Western Cape Province, Swellendam District; ca. 3km W of Bonnievale; S slope of hill on S side of tar road (33°55'19.70"S 20°4'3.90"E), 19.v.2013, Engelbrecht, I., Correia, M. *leg.*, (NCA 2018/384). – Paratype. SOUTH AFRICA: same data as holotype, 1 ♀ (NCA 2018/385).

Other material examined: SOUTH AFRICA: Western Cape Province: Swellendam, Bontebok N.P (34°04'S 20°27'E), 27.x.1987, Entomology Staff *leg.*, 1 ♂♀ (NMBA 17794); Swellendam District; ca. 3km W of Bonnievale; S slope of hill on S side of tar road (33°55'19.70"S 20°4'3.90"E), 19.v.2013, Engelbrecht, I. *leg.*, 3 ♂♂, 7 ♀♀ (NCA 2018/383).

Etymology. The specific epithet is a patronymic in honor of Dr Ian Engelbrecht who collected the type specimens and for his contribution to arachnology in South Africa.

Diagnosis. Males of *L. engelbrechti* sp. nov., can be recognized from all other species in “Group haddadi”, by the presence of a curved megaspine with the apex flattened laterally (Fig. 17I, J); the presence of one prolateral strong and curved spine, near the spur (Fig. 17I, J) and by the presence of a shorter copulatory bulb (Fig. 17F–H). Females can be distinguished from *L. haddadi* sp. nov., by the shape of their spermathecae with a short stalk (Fig. 18D).



FIGURE. 16. *Lepthercus engelbrechti* sp. nov., in vivo. A male; B female. (photos courtesy Ian Engelbrecht).

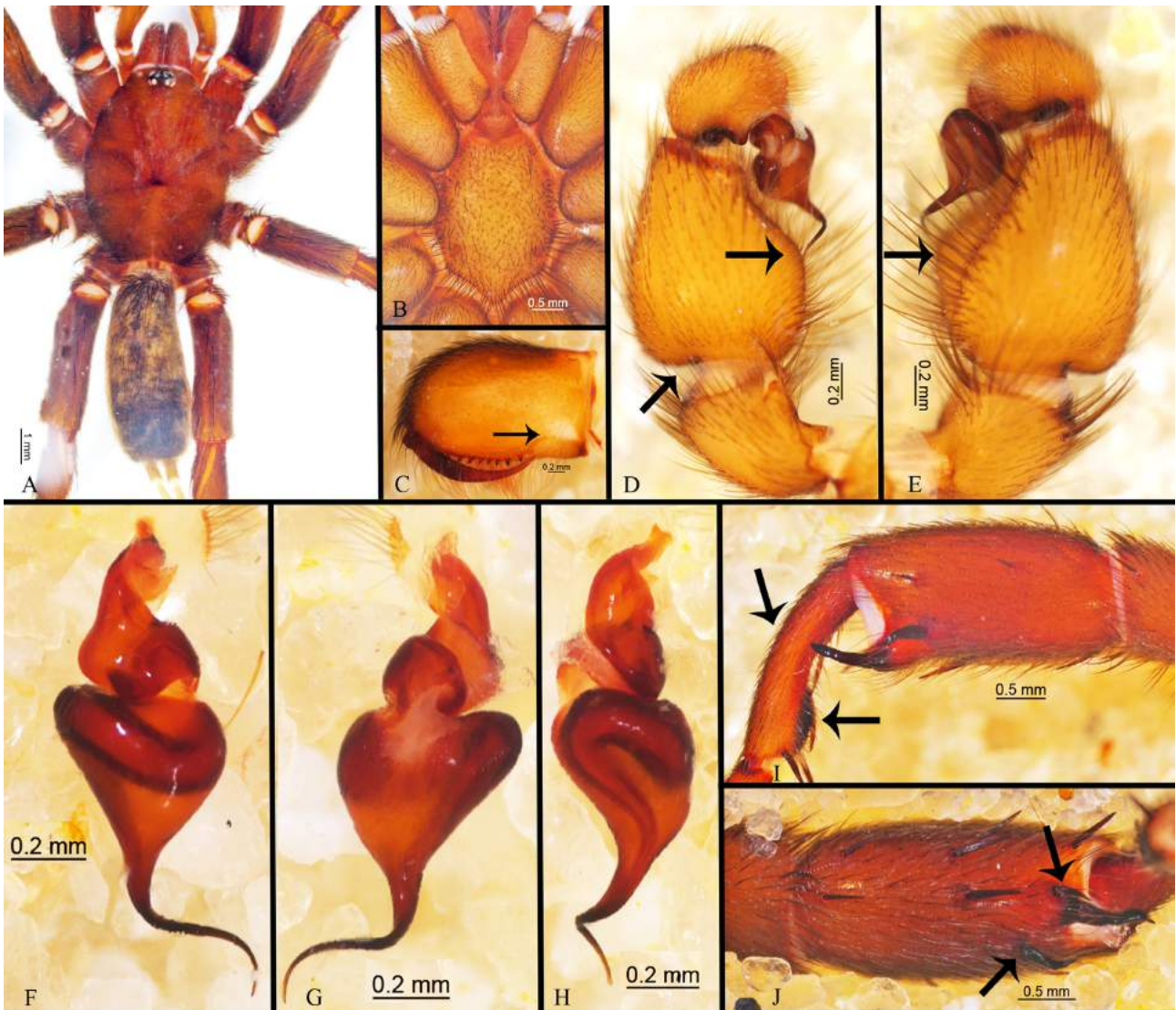


FIGURE. 17. *Lepthercus engelbrechti* sp. nov. (male holotype, NCA 2018/384). A habitus, dorsal view; B sternum, ventral view; C chelicerae, prolateral view, arrow indicates the intercheliceral tumescence; D right pedipalp, arrows indicates the palpal tibia base dorsally very convex and a development of the anterior part of the retrolateral side of ventral excavation; E right pedipalp, arrow indicates the development of the anterior part of the retrolateral side of ventral excavation, prolateral view; F–H copulatory bulb, F retrolateral view, G ventral view, H prolateral view; I tibia-metatarsus I, arrow indicates the curved metatarsus and the apical patch of numerous black blunt spinules, prolateral view; J tibia I, arrow indicates the strong curved spine near of the base of the megaspine and the prolateral strong spine, ventral view.

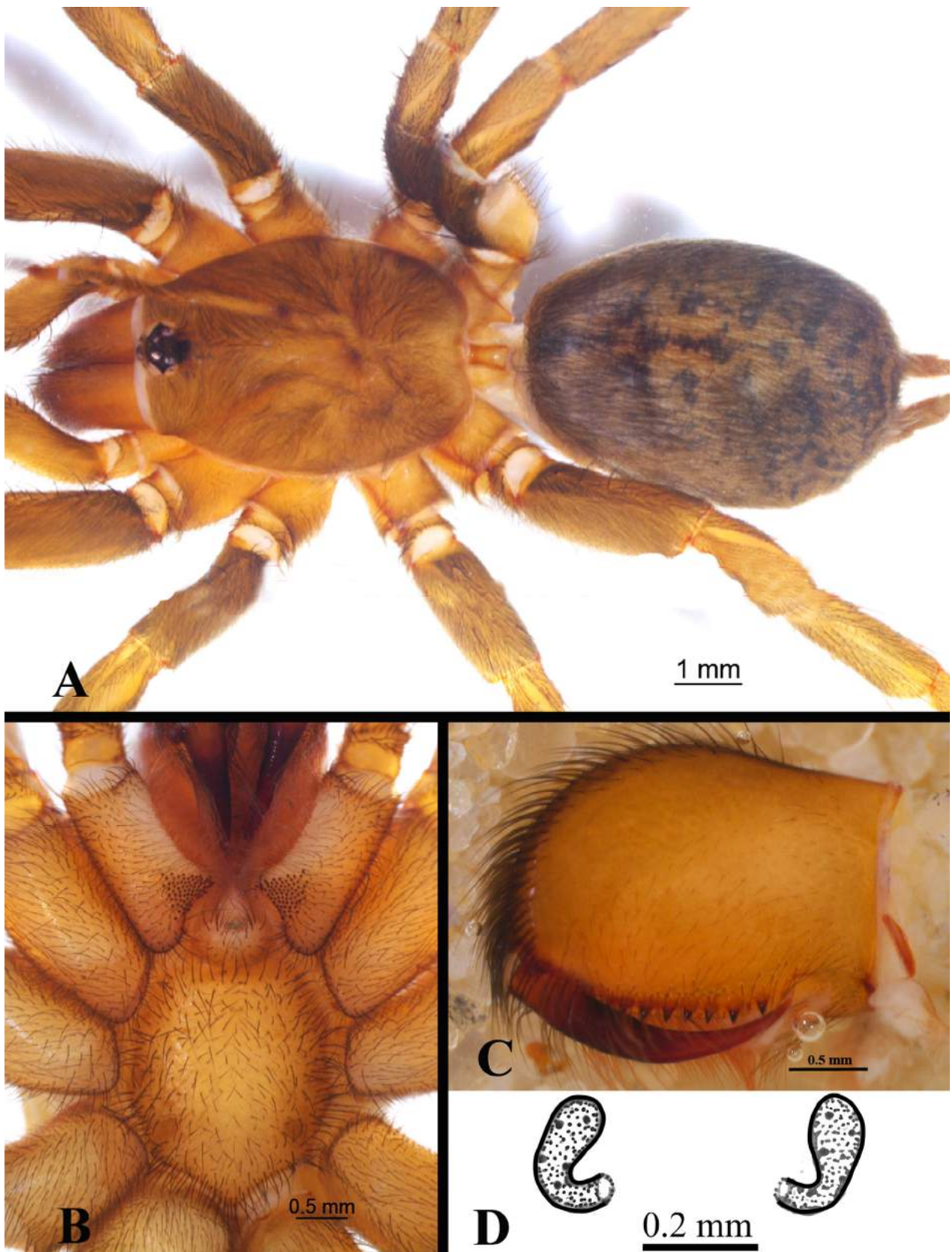


FIGURE 18. *Lepthercus engelbrechti* sp. nov. (female paratype, NCA 2018/385). **A** habitus, dorsal view; **B** sternum, ventral view; **C** chelicerae, prolateral view; **D** spermathecae.

Description. Male holotype (NCA 2018/384, Figs. 17A–J). Total length 12.38. *Carapace* (Fig. 17A): length 5.52, width 4.05, with lateral dark marginal bristles, with a little pubescence. *Cephalic region*: length 3.29; clypeus almost absent, without bristles on the edge, 4 bristles in front of the OQ and 5 between the PME. *Fovea*: width 0.39, short, slightly recurved. *Ocular measurements*: AME 0.14, ALE 0.24, PME 0.18, PLE 0.22, OQ length 0.45, 0.75 width; AME–ALE 0.04, PME–PLE 0.00, AME–PME 0.05, ALE–PLE 0.03, AME–AME 0.09, OMP–OMP 0.29. *Chelicerae*: length 2.35, width 1.36, with dark dorsal–anterior bristles, intercheliceral tumescence small, well-marked with setae (Fig. 17C). Fang groove with 8 promarginal teeth and 18 mesobasal denticles. *Labium*: length 0.41, width 0.72. *Maxillae*: length 1.64, width 0.71, with about 71 short cuspules on inner corner, prolateral face slightly curved, soft area small, with long uniformly distributed hairs, serrula present (Fig. 2I). *Sternum* (Fig. 17B): length 2.66, maximum width 2.05. *Abdomen*: length 5.28, covered with small dark hair and bristles. PMS: length 0.54; PLS: length of basal:medial:apical segments 1.02:0.63:1.23; total length 2.88. *Lengths of legs and palp*: I: 3.47, 2.18, 2.66 (width/length: 0.53), 2.42, 1.60, 12.33. II: 3.40, 2.06, 2.25, 2.17, 1.48, 11.36. III: 3.08, 1.79, 1.88, 2.66, 1.47, 10.88. IV: 3.88, 2.19, 2.71, 3.51, 1.68, 13.97. Palp: 1.76, 1.01, 1.41, —, 0.80, 4.98.

Chaetotaxy: Leg I: femur, 1-1-1-1 d (centrals), 1 PA; patella, 1 PA; tibia, 1-1 P, 2-3-1 V, a small spur, with an apical megaspine with the apex flattened laterally. Presence of a strong curved spine near of the base of the megaspine and with another prolateral strong curved spine, near the spur (Fig. 17I, J); metatarsus, 1-1-2 V, presence of numerous black blunt spinules (1:3A, Fig. 17I); tarsus, 0. Leg II: femur, 1-1-1-1 d, 1-1 PA; patella, 1 PA; tibia, 1-1 P, 2-2-3 V; metatarsus, 1-1-1 P, 2-3-2 V; tarsus, 0. Leg III: femur, 1-1-1-1 d, 1-1 PA; patella, 1-1 P, 1 R; tibia, 1-1 P, 1-1 D, 1-1 R, 2-2-3 V; metatarsus, 1-1-1 P, 1-1-1 D-P, 1-1-1-1 D-R, 2-3-1-3 V; tarsus, 0. Leg IV: femur, 1-1-1-1 d, 1-1 RA; patella, 1 R; tibia, 1-1 R, 2-2-2 V; metatarsus, 2-1-1-1 P, 1-1-1 D-P, 1-1-0-1 D-R, 1-1 R, 2-3-3 V; tarsus, 0. Palp (Fig. 17D, E): femur, 1-1-1 d (1:2A), 1 PA; patella, 1 pa; tibia, 1 P, (width/length: 0.80); tarsus, 0.

Scopulae: Metatarsi: I, sparse, around the black blunt spinules; II, sparse (3–4 A), more abundant in the anterior part, with some long and fine setae; III, sparse (A); IV, absent. Tarsi: I–II, dense, uniformly distributed throughout the segment; III, sparse, uniformly distributed and divided by a narrow band of setae; IV, sparse, uniformly distributed and divided by a wide band of setae. *Trichobothria*: Tibiae: I 11-11; II 10-10; III 9-9; IV 11-11. Metatarsi: I (3)1(2)1(4)1; II (5)1(2)1(3)1; III (4)1(2)1(5)1; IV (6)1(2)1(3)1(6)1. Tarsi: I 13; II 12; III-IV 13. *Preening combs*: metatarsus: II, 3 PV; III, 3 PV–2 RV; IV, 2 PV–3 RV. *Copulatory bulb*: with a curved embolus tapering gradually (Fig. 17F–H), spermatic duct slightly curved. *Color*: Overall brown-reddish (Mt-T I darker). Abdomen mottled with light spots forming wide bands; spinnerets light yellow with ventral dark longitudinal bands.

Female paratype (NCA 2018/385, Figs. 18A–D). Total length 12.85. *Carapace* (Fig. 18A): length 4.88, width 3.62. *Cephalic region*: length 3.20, clypeus small (almost absent) with 5 marginal bristles; 7 bristles in front of the OQ and numerous small ones between the PME. *Fovea*: width 0.34, almost straight (slightly procurved). *Ocular measurements*: AME 0.13, ALE 0.28, PME 0.19, PLE 0.25, OQ length 0.45, width 0.80; AME–ALE 0.06, PME–PLE 0.00, AME–PME 0.06, ALE–PLE 0.03, AME–AME 0.12, PME–PME 0.30. *Chelicerae* (Fig. 18C): length 2.64, width 1.71; with dorsal-retrolateral dark bristles. Fang groove with 8 promarginal teeth (one small between 7th and 8th) and 15 mesobasal denticles. *Labium*: length 0.40, width 0.81. *Maxillae*: length 1.71, width 0.75, with 75 cuspules on inner corner, prolateral face curved, soft area long, with long uniformly distributed hairs, serrula present on anterior inner corner (Fig. 2H). *Sternum* (Fig. 18B): length 2.36, maximum width 1.99. *Abdomen*: length 5.60, with small bristles in the dorsum. PMS: length 0.64; PLS: length of basal:medial:apical segments 1.00:0.58:1.00; total length 2.58. *Lengths of legs and palp*: I: 3.24, 2.06, 2.06, 1.48, 1.03, 9.87. II: 2.82, 1.79, 1.68, 1.43, 1.06, 8.78. III: 2.05, 1.44, 1.36, 1.92, 1.15, 7.92. IV: 3.31, 1.98, 2.19, 2.76, 1.31, 11.55. Palp: 2.21, 1.36, 1.29, —, 1.31, 6.17.

Chaetotaxy: Leg I: femur, 0; patella, 0; tibia, 1-2 vant; metatarsus, 2-1-2 V; tarsus, 0. Leg II: femur, 1 pa; patella, 1 pa; tibia, 1 P, 1-2 vant; metatarsus, 2-2-3 V; tarsus, 0. Leg III: femur, 1-1-1 d, 1-1 ra; patella, 1-1 P, 1 R; tibia, 1-1 P, 1-1 D, 1 R, 2-2-3 V; metatarsus, 2-1-1 P, 1-1-1 D-P, 1-1-1-1 D-R, 2-3-3 V; tarsus, 0. Leg IV: femur, 1-1-1-1 d, 1 ra; patella, 1 R; tibia, 1-1 R, 2-2-2 V; metatarsus, 1-1-1 P, 1-1-1 D-P, 1-1-1-0-1 D-R, 1 R (1:3A), 2-3-3 V; tarsus, 0. Palp: femur, 1-1-1-1 d (1:2A), 1 pa; patella, 0; tibia, 1-3 V; tarsus, 0.

Scopulae: Metatarsi: I, dense, uniformly distributed, divided by setae; II–IV, without scopula. Tarsi: I, dense, uniformly distributed, divided by setae; II dense, uniformly distributed, divided by a narrow band of setae; III–IV, sparse, uniformly distributed and divided by a wide band of setae. *Trichobothria*: Tibiae: palp 8-7; I 9-9; II 9-10; III 9-8; IV 10-10. Metatarsi: I (3)1(2)1(4)1; II (4)1(2)1(4)1; III (4)1(2)1(5)1; IV (4)1(1)1(2)1(6)1. Tarsi: palp 11; I 12; II 11; III 12; IV 11. *Preening combs*: metatarsus: II 3 PV; III 3 PV–3 RV; IV 2 PV–3 RV. *Spermathecae*: small, tubulars and curved (Fig. 18D). *Color*: Overall orange-yellowish (chelicerae darker). Abdomen mottled with light spots forming wide bands, spinnerets light yellow with dark, longitudinal bands ventrally.

Distribution. Eastern and Western Cape Provinces, South Africa (Fig. 24).

***Lepthercus haddadi* sp. nov.**

(Figs. 2A, F, G, 19A–K, 20A–C, 24)

<http://zoobank.org/urn:lsid:zoobank.org:act:4ADBA1C9-2B18-41FA-B2AC-2A597B8D8B38>

Material examined. Type material: Holotype ♂. SOUTH AFRICA: Western Cape Province, De Hoop Nature Reserve, Koppie Alleen cottage, De Hoop Vlei, S shore (34°17'S 20°17'E), 25.iii.2005, Haddad, C. *leg.*, (NCA 2007/1486).— Paratype. SOUTH AFRICA: De Hoop Nature Reserve, Koppie Alleen cottage (34°17'S 20°17'E), 26.viii.2007. Haddad, C. *leg.*, 1 ♀ (NCA 2007/3847): same data as the male holotype, 1 ♀ (subadult), 1 ♂, 1 imm. (NCA 2007/1486).

Other material examined: SOUTH AFRICA: Western Cape Province: Bredasdorp Distr, Duinehuisie Guest Farm, Farm Rondekop; ca. 12 km SE Bredasdorp; east of farm buildings (34°35'37,12"S 20°9'15.31"E), 23.viii.2017, Engelbrecht, I., N. Calver, D. Calver, P. Bester, A. Cilliers. *leg.*, 1 ♂ (NCA 2019/40).

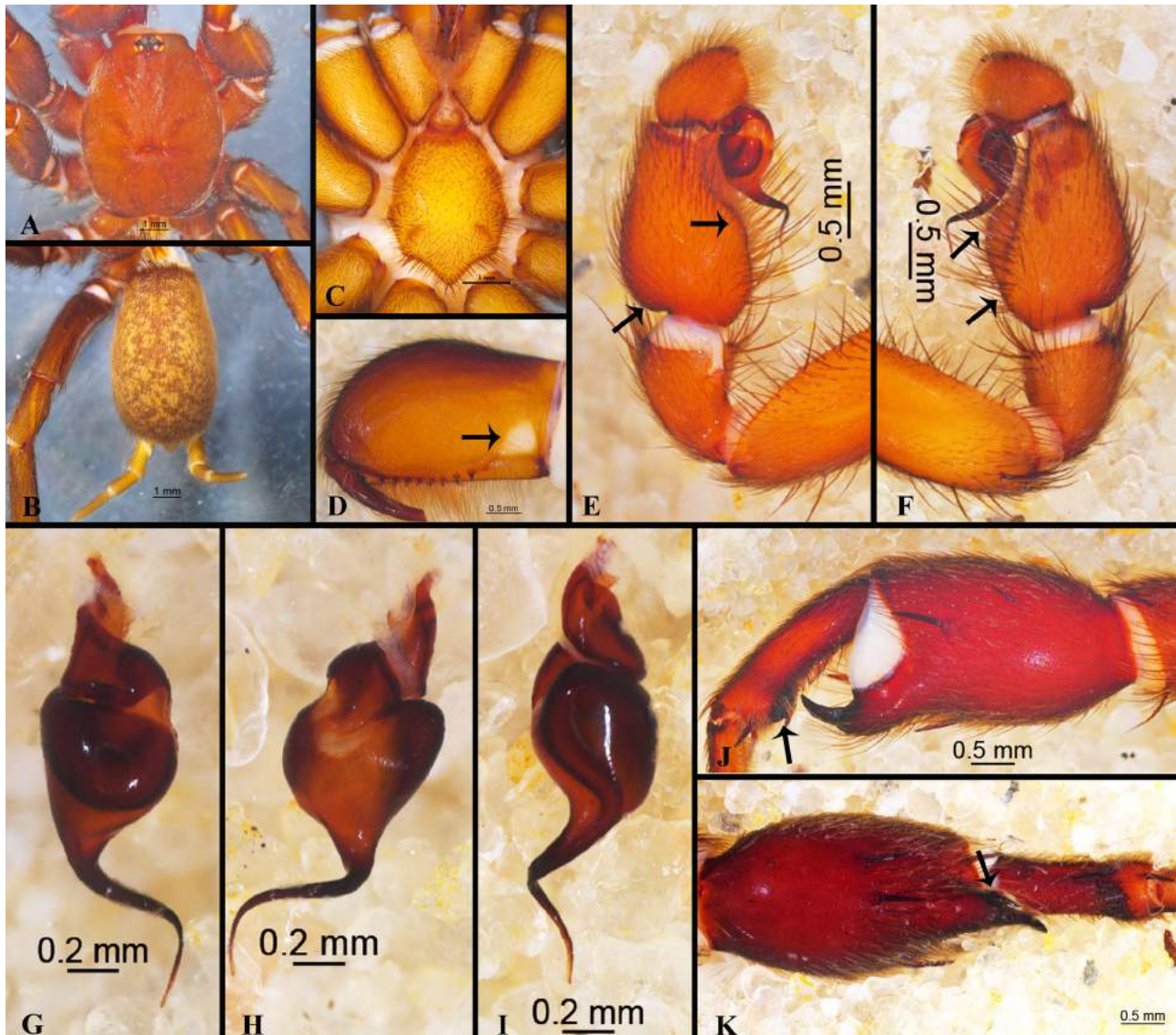


FIGURE 19. *Lepthercus haddadi* sp. nov. (male holotype, NCA 2007/1486). **A** cephalothorax, dorsal view; **B** abdomen, dorsal view; **C** sternum, ventral view; **D** chelicerae, arrow indicates the intercheliceral tumescence with setae, prolateral view; **E** right pedipalp, arrows indicates the palpal tibia base dorsally very convex and the development of the anterior side of the retrolateral side of the ventral excavation, retrolateral view, **F** right pedipalp, arrows indicates the few proventral setae and the development of the anterior side of the retrolateral side of the ventral excavation, prolateral view; **G–I** copulatory bulb, **G** retrolateral view, **H** ventral view, **I** prolateral view; **J** tibia-metatarsus I, showing the very robust tibia with a robust spur, arrow indicates the patch of numerous black blunt spinules, prolateral view; **K** tibia I, arrow indicates the strong curved spine near of the base of the megaspine, ventral view.

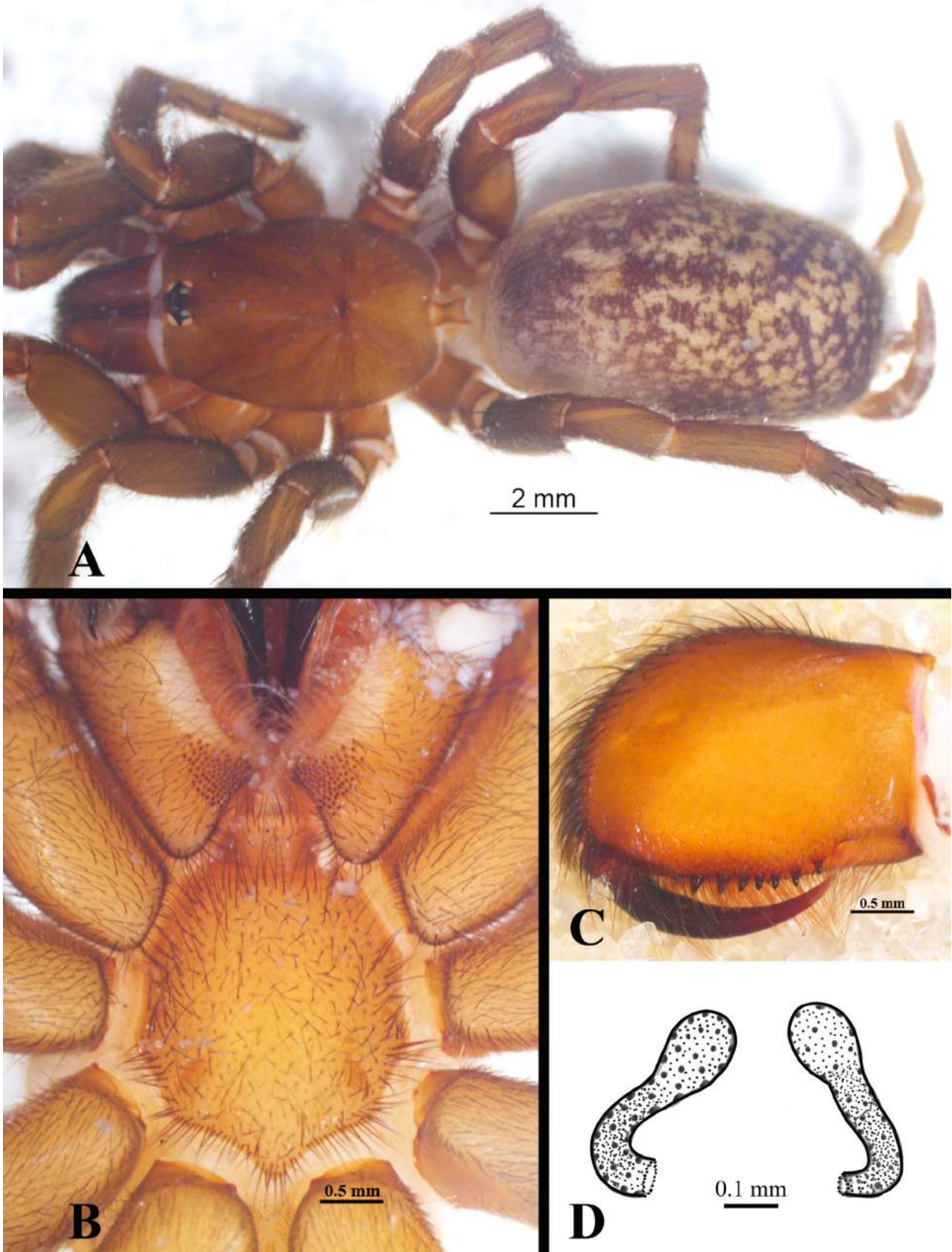


FIGURE. 20. *Lepthercus haddadi* sp. nov. (female paratype, NCA 2007/3847). **A** habitus, dorsal view; **B** sternum, ventral view; **C** chelicerae, prolateral view; **D** spermathecae.

Etymology. The specific epithet is a patronymic in honor of Dr Charles Haddad who collected the type specimens and for his contribution to arachnology in South Africa.

Diagnosis. Males of *L. haddadi* sp. nov., can be recognized inside of the “Group haddadi” by a very robust, darkly coloured tibia I (Fig. 19J, K) with a robust spur; and by a more elongated copulatory bulb (Fig. 19G–I). Females can be distinguished from *L. engelbrechti* sp. nov., by the shape of their spermathecae with a longer stalk (Fig. 20D).

Description. Male holotype (NCA 2007/1486, Fig. 19A–K). Total length 15.95. *Carapace* (Fig. 19A): length 6.09, width 4.71, with lateral dark marginal bristles, with a little pubescence. *Cephalic region*: length 3.80; clypeus almost absent, with 6 bristles on the edge, 2 bristles in front of the OQ and 4 between the PME, line of bristles until de fovea. *Fovea*: width 0.45, almost straight (slightly recurved). *Ocular measurements*: AME 0.16, ALE 0.29, PME 0.20, PLE 0.26, OQ length 0.57, 1.03 width; AME–ALE 0.07, PME–PLE 0.04, AME–PME 0.09, ALE–PLE 0.08, AME–AME 0.10, OMP–OMP 0.39. *Chelicerae*: length 3.53, width 1.93, with dark dorsal–anterior bristles, intercheliceral tumescence small, well-marked with setae (Fig. 19D). Fang groove with 8 promarginal teeth and 14 mesobasal denticles. *Labium*: length 0.45, width 0.81. *Maxillae*: length 1.98, width 0.85, with 70 cuspules on inner corner, prolateral face slightly curved, without soft area, with long uniformly distributed hairs, serrula present (Fig. 2F). *Sternum* (Fig. 19C): length 3.20, maximum width 2.56. *Abdomen* (Fig. 19B): length 6.32, covered by dark hair and bristles. PMS: length 0.69; PLS: length of basal:medial:apical segments 1.33:1.04:1.64; total length 4.01. *Lengths of legs and palp*: I: 4.20, 2.68, 2.85 (width/length: 0.69), 2.44, 1.70, 13.87. II: 4.09, 2.47, 2.52, 2.57, 1.66, 13.31. III: 3.68, 1.93, 2.18, 3.06, 1.59, 12.44. IV: 4.44, 2.24, 3.05, 3.85, 1.77, 15.35. Palp: 2.28, 1.20, 1.69, —, 0.91, 6.08.

Chaetotaxy: Leg I: femur, 1-1-1-1 d (centrals), 1 PA; patella, 1 PA; tibia, 1-1 P, 1-2-1 V, very swollen, a strong cuticular spur, with an apical curved megaspine and a strong curved spine near of the base of the megaspine (Fig. 19K); metatarsus, 1-1-2 V, presence of a protuberance (nearly two-thirds of the segment from its base), covered with numerous black blunt spinules (Fig. 19J); tarsus, 0. Leg II: femur, 1-1-1-1 d, 1-1 PA; patella, 1-1 P; tibia, 1-1 P, 1-1-3 V; metatarsus, 1-1-1 P, 2-3-3 V; tarsus, 0. Leg III: femur, 1-3-2-3 D; patella, 1-1 P, 1 R; tibia, 1-1 P, 1-1 D, 1-1 R, 2-2-2 V; metatarsus, 1-1-1-1 P, 1-1-1 D-P, 1-1-1-1 D-R, 2-3-3 V; tarsus, 0. Leg IV: femur, 1-1-1-1 D; patella, 1 R; tibia, 1-1 P, 1-1 R, 2-2-2 V; metatarsus, 1-1-1-1 P, 1-1-1 D-P, 1-2-1-1 D-R, 2-1-2-3 V; tarsus, 0. Palp (Fig. 19E, F): femur, 1-1-1-1 d, 1 PA; patella, 1 pa; tibia, 1 R, (width/length: 0.68); tarsus, 0.

Scopulae: Metatarsi: I, sparse, around the black blunt spinules; II, dense (1:2 A), more abundant in the anterior part, divided by fine setae; III–IV, 0. Tarsi: I–II, dense, uniformly distributed throughout the segment; III, dense, uniformly distributed and divided by a narrow band of setae; IV, sparse, uniformly distributed and divided by a wide band of setae. **Trichobothria:** Tibiae: I 10-11; II 10-10; III 10-11; IV 12-11. Metatarsi: I (6)1(2)1(4)1; II (3)1(2)1(4)1; III (4)1(1)1(3)1(6)1; IV (4)1(3)1(6)1. Tarsi: I 13; II 12; III 11; IV 13. **Preening combs:** metatarsus: II, 4 PV; III, 2 PV-3 RV; IV, 2 PV-3 RV. **Copulatory bulb:** long, with a curved embolus tapering gradually (Fig. 19G–I), spermatic duct slightly curved. **Color:** Overall dark brown–reddish (chelicerae, Metatarsus–Tarsus I darker). Abdomen mottled with light spots distributed in all the dorsum; spinnerets orange, ventrally dark.

Female paratype (NCA 2007/3847, Fig. 20A–D). Total length 15.46. *Carapace* (Fig. 20A): length 5.18, width 3.61. *Cephalic region*: length 3.24, clypeus small (almost absent) with 6 marginal bristles; 7 bristles in front of the OQ and 6 between the PME. *Fovea*: width 0.28, almost straight (slightly procurved). *Ocular measurements*: AME 0.11, ALE 0.29, PME 0.19, PLE 0.22, OQ length 0.50, width 0.87; AME–ALE 0.06, PME–PLE 0.04, AME–PME 0.07, ALE–PLE 0.06, AME–AME 0.10, PME–PME 0.29. *Chelicerae* (Fig. 20C): length 3.08, width 1.95; with dorsal–retrolateral dark bristles. Fang groove with 8 promarginal teeth and 12 mesobasal denticles. *Labium*: length 0.41, width 0.80 with one cuspule. *Maxillae*: length 1.87, width 0.91, with 86 cuspules on inner corner, prolateral face slightly curved, soft area long, with long uniformly distributed hairs, serrula present on anterior inner corner (Fig. 2G). *Sternum* (Fig. 20B): length 2.47, maximum width 2.17. *Abdomen* (Fig. 20A): length 7.42, with small bristles in the dorsum. PMS: length 0.77; PLS: length of basal:medial:apical segments 1.26:0.79:1.45; total length 3.50. *Lengths of legs and palp*: I: 3.42, 2.32, 2.26, 1.74, 1.21, 10.95. II: 3.05, 1.99, 1.88, 1.63, 1.14, 9.69. III: 2.71, 1.59, 1.50, 2.12, 1.10, 9.02. IV: 3.37, 2.05, 2.43, 2.92, 1.21, 11.98. Palp: 2.56, 1.55, 1.44, —, 1.53, 7.08.

Chaetotaxy: Leg I: femur, 1-1-1-1-1-1-1 d, 1 PA; patella, 0; tibia, 1-3 v; metatarsus, 2-1-2 V; tarsus, 0. Leg II: femur, 1-1-1-1-1-1-1 d, 1-1 PA; patella, 1 pa; tibia, 1-1 P, 1-2 V; metatarsus, 2-2-3 V; tarsus, 0. Leg III: femur, 1-1-1-1 d, 1-1 RA; patella, 1-1 P, 1 R; tibia, 1-1 P, 1-1 D, 1 R, 2-2-3 V; metatarsus, 1-1-1 P, 1-1-1 D-P, 1-1-1 D-R, 2-3-3 V; tarsus, 0. Leg IV: femur, 1-1-1-1-1-1 d; patella, 1 P; tibia, 1-1 P, 2-2-2 V; metatarsus, 1-1-1 P, 1-1-1 D-P, 1-1-1 D-R, 1-1-1 R, 2-3-3 V; tarsus, 0. Palp: femur, 1 pa; patella, 0; tibia, 1p, 2-2v, 3 VA; tarsus, 2 VB.

Scopulae: Metatarsi: I, dense, uniformly distributed, divided by setae; II, dense (1:2A), divided by setae; III–IV,

without scopula. Tarsi: I, dense, uniformly distributed; II dense, uniformly distributed, divided by setae; III–IV, sparse, uniformly distributed and divided by a wide band of setae (IV wider). *Trichobothria*: Tibiae: palp 9–9; I 11–10; II 10–10; III 9–10; IV 10–11. Metatarsi: I (6)1(2)1(3)1; II (6)1(2)1(5)1; III (4)1(2)1(7)1; IV (5)1(1)1(4)1(6)1. Tarsi: palp 11; I 13; II 12; III 12; IV 13. *Preening combs* (Fig. 2A): metatarsus: II 4 PV; III 4 PV–3 RV; IV 3 PV–2 RV. *Spermathecae*: small, tubulars and curved (Fig. 20D). *Color*: Overall orange–yellowish (chelicerae darker). Abdomen mottled with light spots distributed in all the dorsum; spinnerets orange, ventrally dark.

Distribution. Eastern and Western Cape Provinces, South Africa (Fig. 22B).

***Lepthercus rattrayi* Hewitt, 1917**

Figs. 21A–J, 22A–C, 24

Lepthercus rattrayi Hewitt, 1917: 699, pl. 47, f. 1–2, f. 3A–E.

Material examined. Type material: Holotype ♂. SOUTH AFRICA: Eastern Cape Province, East London [33°2'S 27°51'E], v.1916, Dr. Geo. Rattray and Master G. Rattray. *leg.*, (NM 1317). examined. – Allotype. SOUTH AFRICA: same data as holotype, 1 ♀ (NM 16647), examined.

Other material examined: SOUTH AFRICA: Eastern Cape Province: East London, Delbome, 5 Parkview Road [33°2'S 27°51'E], 5.viii.1978, P. Croeser. *leg.*, 1 ♀ (NM16637); Kwahleke Ranch, along R346, ca 15 km due W of East London, area on S side of road (33°00'37.7"S 27°44'01.0"E), 1.v.2003, Engelbrecht, I. *leg.*, 3 ♀♀, 3 ♂♂ (NCA 2019/39).

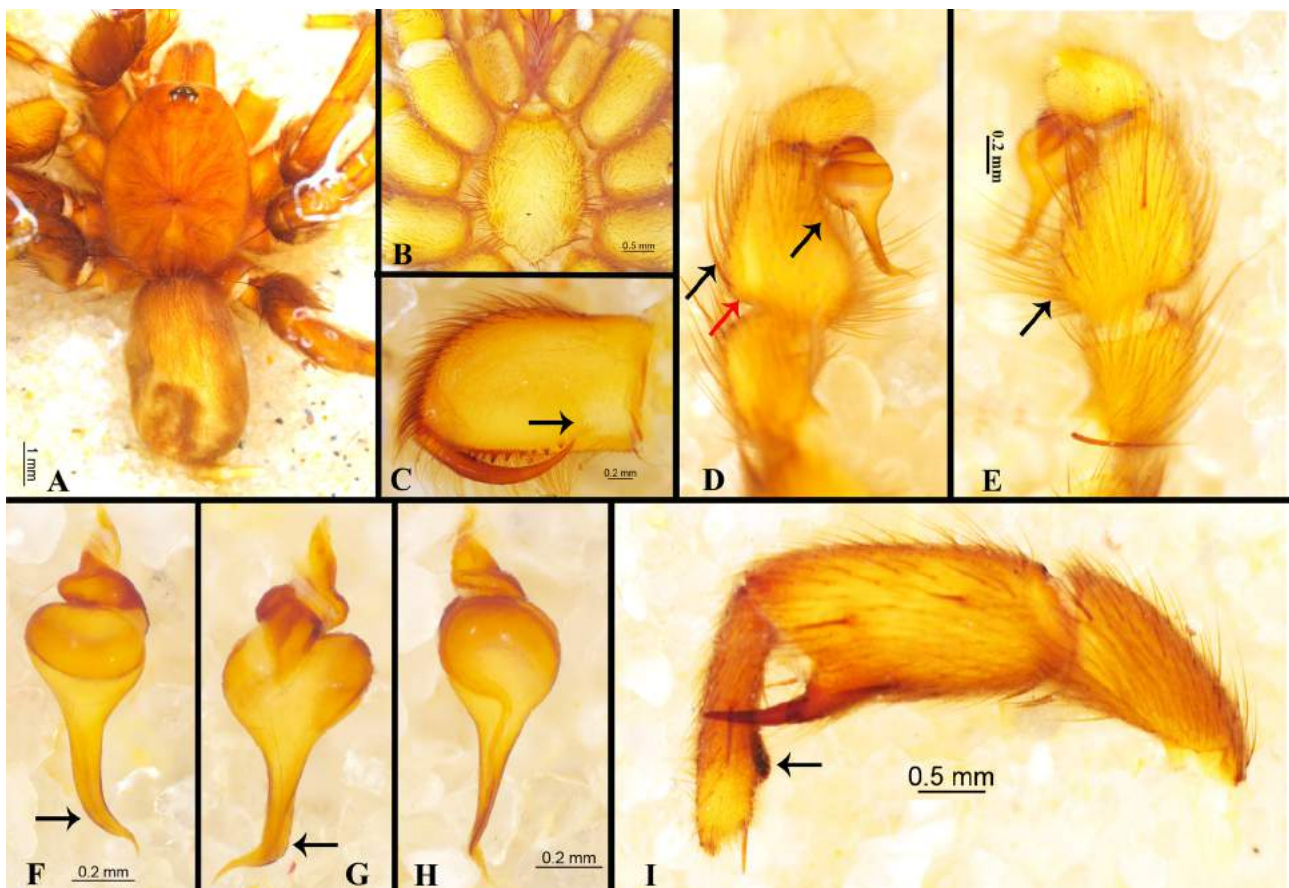


FIGURE 21. *Lepthercus rattrayi* Hewitt, 1917. (male holotype, NM 1317). **A** cephalothorax, dorsal view; **B** sternum, ventral view; **C** chelicerae, prolateral view, arrow indicate the intercheliceral tumescence; **D** right pedipalp, black arrow indicates the long dorsal setae, the normal anterior side of the retrolateral side of the ventral excavation, red arrow indicate the palpal tibia base dorsally very convex, retrolateral view; **E** right pedipalp, arrow indicates the abundant proventral setae, prolateral view; **F–H** copulatory bulb, **F** retrolateral view, **G** ventral view, **H** prolateral view, arrows indicate the long lateral keel; **I** tibia–metatarsus I, arrow indicates the metatarsus with a protuberance covered by blunt spines.

Remarks. The female specimen (NM 16647) appears to be collected shortly after molting as evidenced by what appear to parts of the old exuvia still attached to the body. This may be the reason for its pale colour, or it may be a result of long term preservation.

Diagnosis. Males of *L. rattrayi* can be distinguished from all species inside of “Group haddadi” by the copulatory bulb shape, with a long embolus bearing a long lateral keel (Fig. 21F–H). Females can be differentiated by the shape of their spermathecae with a small twisted stalk, with oval receptacles (fig. 22D). It is similar to *L. dippenarae* **sp. nov.**, but differs in the presence of labial cuspules.

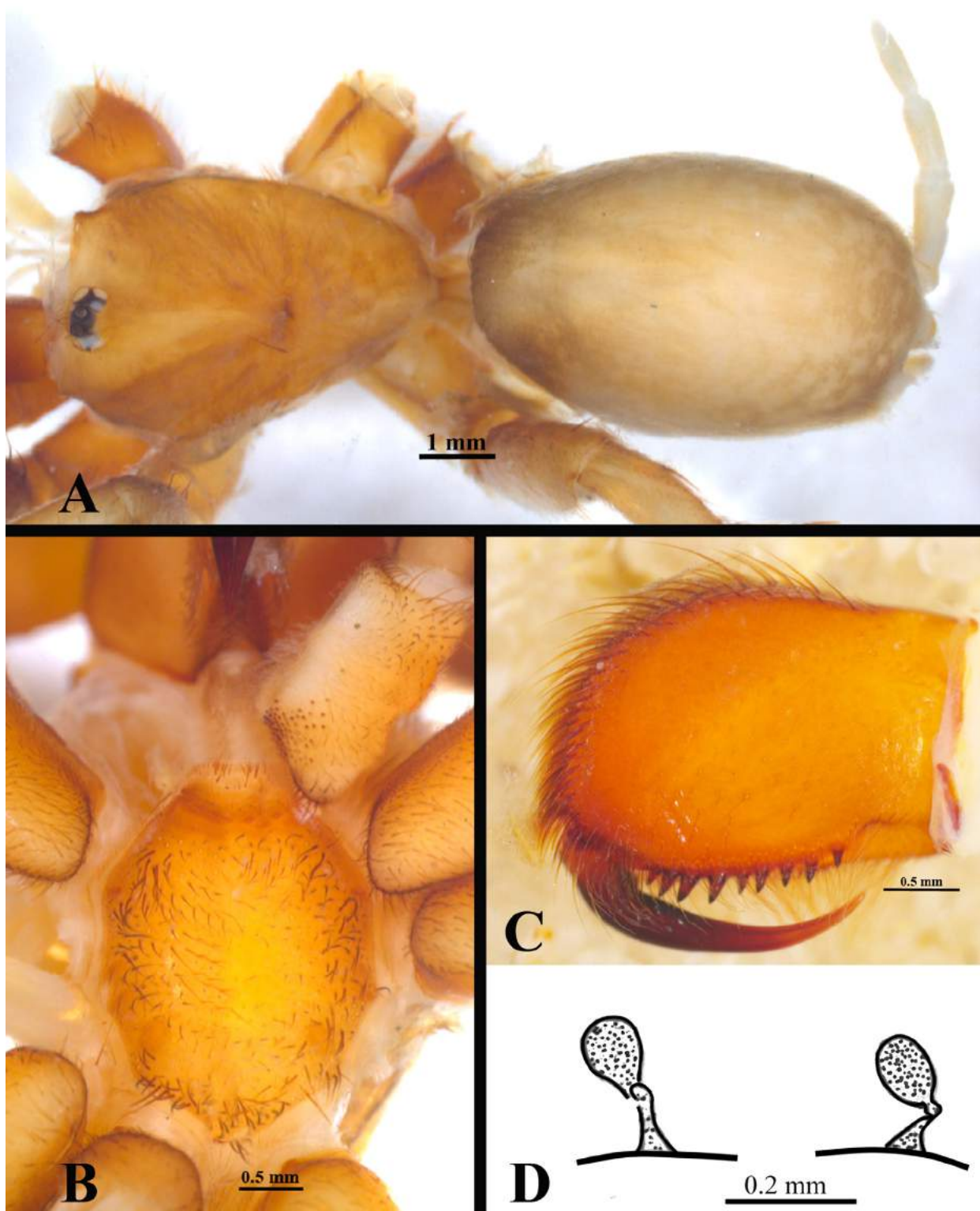


FIGURE 22. *Lepthercus rattrayi* Hewitt, 1917. (female paratype, NM 16647). **A** habitus, dorsal view; **B** sternum, ventral view; **C** chelicerae, prolateral view; **D** spermathecae.

Description. Male holotype (NM 1317, Figs. 21A–I). Total length 9.60. *Carapace* (Fig. 21A): length 4.46, width 3.38, with small marginal bristles, covered with a little pubescence. *Cephalic region*: length 2.68; clypeus short with 4 bristles on the edge, 3 long bristles in front of the OQ and 5 between the PME. *Fovea*: width 0.31, short, almost straight (slightly recurved). *Ocular measurements*: AME 0.12, ALE 0.21, PME 0.14, PLE 0.18, OQ length 0.39, 0.72 width; AME–ALE 0.04, PME–PLE 0.03, AME–PME 0.06, ALE–PLE 0.03, AME–AME 0.08, OMP–OMP 0.29. *Chelicerae*: length 2.03, width 1.15, intercheliceral tumescence small, well-marked with setae (Fig. 21C). Fang groove with 9 promarginal teeth and 20 denticles (1/2B). *Labium*: length 0.34, width 1.79, with one cuspule. *Maxillae*: length 1.52, width 0.60, with about 43 normal cuspules on inner corner, prolateral face straight, soft area long, with long uniformly distributed hairs. *Sternum* (Fig. 21B): length 2.26, maximum width 1.79. *Abdomen* (Fig. 21A): length 4.42, covered by fine hair, and anterior bristles. PMS: length 0.42; PLS: length of basal: medial: apical segments 0.91:0.71:0.73; total length 2.35. *Lengths of legs and palp*: I: 3.13, 1.98, 2.40, 1.97, 1.77, 11.25. II: 2.95, 1.82, 1.84, 1.92, 1.37, 9.90. III: 2.69, 1.28, 1.73, 2.33, 1.45, 9.48. IV: 3.40, 1.69, 2.47, 3.31, 1.70, 12.57. Palp: 1.51, 0.84, 0.91, —, 0.56, 3.82.

Chaetotaxy: Leg I: femur, 1-1-1-1 d (centrals), 1 P A; patella, 1 P A; tibia, 1-1 P, 2-3-1 V, a small spur, with an apical long and curved spine (Fig. 21I); metatarsus, 1 P, 1-1-2 V, presence of a protuberance (nearly two-thirds of the segment from its base), covered with numerous black blunt spinules (Fig. 21I); tarsus, 0. Leg II: femur, 1-1-1-1-1-1 d, 1-1 P A; patella, 0; tibia, 1-1 P, 2-1-3 V; metatarsus, 1-1 P, 3-2-2-2 V; tarsus, 0. Leg III: femur, 1-1-1-1-1 d, 1-1-1 P SUP, 1-1-1 R SUP; patella, 1-2 P, 1 R; tibia, 1-1 P, 1-1 D, 1-1 R, 2-2-3 V; metatarsus, 1-1-1 P, 1-1-1-1 D–P, 1-1-1-1 D–R, 1-1-1 R, 3-3-3 V; tarsus, 0. Leg IV: femur, 1-1-1-1 d, 1-1-1 P SUP, 1-1 R SUP; patella, 1 P, 1 R; tibia, 1-1 P, 1-1-2 R, 2-2-3 V; metatarsus, 1-1-1 P, 1-1-1-1 D–P, 1-1-1-1 D–R, 1-1-1-1 R, 1-2-2-1-3 V; tarsus, 0. Palp (Fig. 21D, E): femur, 1-1-1-1 d, 1 P A; patella, 0; tibia, 1-2 P, 1 R A, (width/length: 0.88); tarsus, 0.

Scopulae: Metatarsi: I–II, sparse (3:4A); III–IV, 0. Tarsi: I–II, sparse, uniformly distributed throughout the segment, II divided by central bristles; III, sparse, uniformly distributed and divided by a narrow band of setae; IV, sparse, uniformly distributed and divided by a narrow band of setae. *Trichobothria*: Tibiae: palp: 8-8; I–II 9-10; III 8-9; IV 11-11. Metatarsi: I (5)1(2)1(5)1; II (3)1(1)1(2)1(4)1; III (4)1(4)1(5)1; IV (5)1(2)1(4)1(5)1. Tarsi: I 16; II 13; III 14; IV 15. *Preening combs*: metatarsus: II, 4 P V; III, 3 P V–2 R V; IV, 2 P V–3 R V. *Copulatory bulb*: long, embolus gradually tapering with a dorsal flange (Fig. 21F–H), spermatheca slightly curved. *Color*: Overall orange-yellowish. Abdomen light brown; spinnerets light yellow.

Female allotype (NM 16647, Fig. 22A–D). Total length 13.68. *Carapace* (Fig. 22A): length 5.02, width 3.60, with small marginal bristles. *Cephalic region*: length 3.06, clypeus small with 5 marginal bristles; 3 small bristles in front OQ. *Fovea*: width 0.49, almost straight (slightly procurved). *Ocular measurements*: AME 0.13, ALE 0.30, PME 0.20, PLE 0.23, OQ length 0.48, width 0.89; AME–ALE 0.07, PME–PLE 0.05, AME–PME 0.06, ALE–PLE 0, AME–AME 0.12, PME–PME 0.33. *Chelicerae* (Fig. 22C): length 2.96, width 1.92; with dorsal–retrolateral dark bristles. Fang groove with 9 promarginal teeth and 28 mesobasal denticles. *Labium*: length 0.42, width 0.82 with one cuspule. *Maxillae*: length 1.79, width 0.90, with 54 cuspules on inner corner, prolateral face straight, soft area long, with long uniformly distributed hairs, serrula present, prolateral side straight. *Sternum* (Fig. 22B): length 2.43, maximum width 2.09. *Abdomen* (Fig. 22A): length 5.71, with small bristles in the dorsum. PMS: length 0.68; PLS: length of basal: medial: apical segments 1.39:0.95:1.08; total length . *Lengths of legs and palp*: I: 3.20, 2.23, 2.23, 1.83, 1.24, 10.73. II: 3.01, 1.83, 1.86, 1.76, 1.16, 9.62. III: 2.17, 1.65, 1.55, 2.17, 1.21, 9.28. IV: 3.57, 2.06, 2.43, 3.25, 1.45, 12.76. Palp: 2.35, 1.33, 1.44, —, 1.41, 6.53.

Chaetotaxy: Leg I: femur, 1-1-1-1 d, 1 P A; patella, 0; tibia, 1 P, 1-1-3 V; metatarsus, 2-1-2 V; tarsus, 0. Leg II: femur, 1-1-1-1 d, 1 P A; patella, 1 P A; tibia, 1 P, 1-1-3 V; metatarsus, 2-1-2 V; tarsus, 0. Leg III: femur, 1-1-1-1 d, 1 P A, 1-1 R A; patella, 1-1 P, 1 R; tibia, 1-1 P, 1-1 D, 1-1 R, 2-2-3 V; metatarsus, 1-1-1 P, 1-1-1-1 D–P, 1-1-1 D–R, 1-1-1 R, 3-2-3 V; tarsus, 0. Leg IV: femur, 1-1-1-1-1 d, 1 R A; patella, 1 R; tibia, 1-1 P, 1-1-1 R, 2-2-3 V; metatarsus, 1-1 P, 1-1-1-1 D–P, 1-1-1-1 D–R, 1-1-1 R, 3-3-3 V; tarsus, 0. Palp: femur, 1-1-1-1 d (1:2A); patella, 0; tibia, 2-2 P, 1-2-3 V; tarsus, 2 V B.

Scopulae: Metatarsi: I, dense, uniformly distributed, divided by bristles; II, sparse (1:2A), divided by narrow band of setae; III–IV, 0. Tarsi: I–II dense, uniformly distributed divided by bristles; III, rare, uniformly distributed and divided by a narrow band of setae; IV, sparse, uniformly distributed and divided by a wide band of setae. *Trichobothria*: Tibiae: palp 8-8; I 11-10; II 10-10; III 11-11; IV 11-10. Metatarsi: I (4)1(2)1(5)1; II (3)1(1)1(4)1; III (4)1(2)1(5)1; IV (3)1(1)1(3)1(5)1. Tarsi: palp 10; I 12; II 11; III 12; IV 11. *Preening combs*: metatarsus: II 2 P V; III 4 P V–3 R V; IV 2 P V–2 R V. *Spermathecae*: as in Fig. 22D. *Color*: Overall orange–yellowish (chelicerae darker). Abdomen yellowish mottled with some light brown spots, spinnerets slight yellow.

Distribution. Eastern Cape Province, South Africa (Fig. 24).

Lepthercus sofiae sp. nov.

(Figs. 2K, 23A–J, 24)

<http://zoobank.org/urn:lsid:zoobank.org:act:D717E390-D4BE-4507-A1FC-7C567BEC818B>

Material examined. Type material: Holotype ♂. SOUTH AFRICA: Western Cape Province, Lily Vlei Nature Reserve, Gouna State Forest, N of Knysna (33°55'S 23°2'E), iii.1984, Koen, J. H. leg., (NCA 97/395). – Paratype. SOUTH AFRICA: same data as holotype, 2 ♂♂ (NCA 97/395).

Other material examined: SOUTH AFRICA: Western Cape Province: Groeneweide Forest Station, NE of George (33°57'S 22°27'E), vi.1987, Koen, J. H. leg., 2 ♂♂ (NCA 97/291); Groeneweide Forest Station, Groenkop, NE of George (33°57'S 22°27'E), vii.1986, Koen, J. H. leg., 7 ♂♂ (NCA 97/331); Lily Vlei Nature Reserve, Gouna State Forest, N of Knysna (33°55'S 23°2'E), ii.1984, Koen, J. H. leg., 1 ♂ (NCA 97/283); Groeneweide Forest Station, Groenkop, NE of George (33°57'S 22°27'E), v.1987, Koen, J. H. leg., 2 ♂♂ (NCA 97/244); Knysna (Ara019) (33°57'S 23°3'E), 1.xi.2014, Swart, R. C. leg., 8 ♂♂ (NCA 2017/1609); same data (33°55'S 22°44'E), 4 ♂ (NCA 2017/1611).

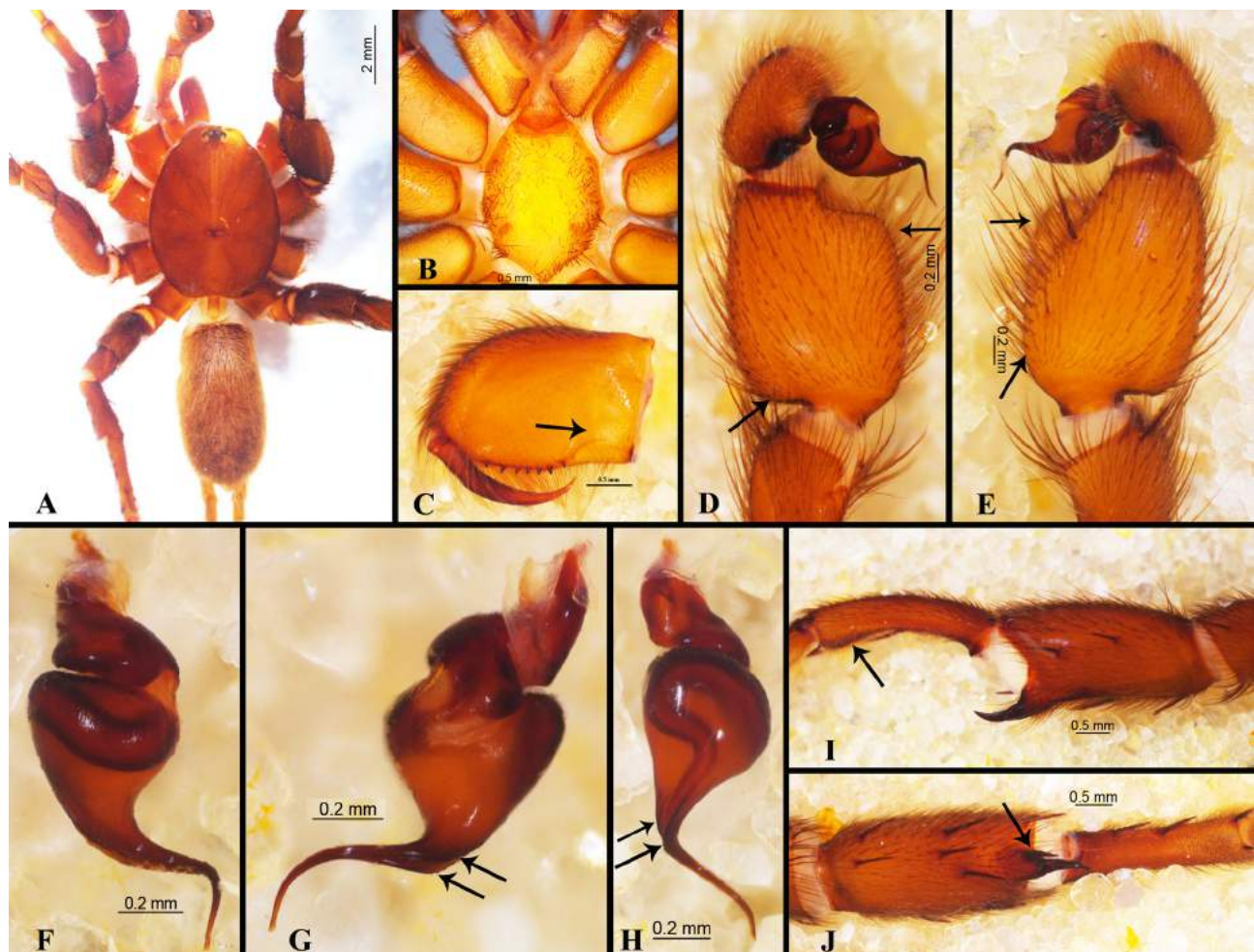


FIGURE 23. *Lepthercus sofiae* sp. nov. (male holotype, NCA 97/395). **A** habitus, dorsal view; **B** sternum, ventral view; **C** chelicerae, arrow indicates the pallid intercheliceral tumescence, prolateral view; **D** right pedipalp, arrow indicates the palpal tibia base dorsally very convex and the development of the anterior side of the retrolateral side of the ventral excavation, retrolateral view; **E** right pedipalp, arrows indicates the few proventral setae and the development of the anterior side of the retrolateral side of the ventral excavation, prolateral view; **F–H** copulatory bulb, **F** retrolateral view, **G** ventral view, **H** prolateral view, arrows indicate the two keels in the embolus; **I** tibia-metatarsus I, showing the curved metatarsus, arrow indicate the numerous ventral short and strong setae, prolateral view; **J** tibia I, arrow indicates the strong curved spine near of the base of the megaspine, ventral view.

Etymology. The specific epithet is a patronym in honour of Sofia Casadey Bollati, the first author's partner, for her continuing support.

Diagnosis. Males of *L. sofiae* sp. nov., can be distinguished from species present in "Group haddadi" by a metatarsus I with the presence of numerous short, strong setae ventrally 1:2A of the segment (Fig. 23I; cf. blunt spines in others), and by the higher number of maxillae cuspules (140). It can also be recognized by a very developed, almost square palp tibia (Fig. 23D, E) and by a more rounded bulb with two well marked keels on the embolus (Fig. 23F–H). Females are unknown.

Description. Male holotype (NCA 97/395, Fig. 23A–J). Total length 13.90. *Carapace* (Fig. 23A): length 5.87, width 4.40, with lateral dark marginal bristles, with a little pubescence. *Cephalic region*: length 3.59; clypeus almost absent, with 7 bristles on the edge, 6 bristles in front of the OQ and 6 between the PME. *Fovea*: width 0.45, short, almost straight (slightly recurved). *Ocular measurements*: AME 0.17, ALE 0.31, PME 0.19, PLE 0.24, OQ length 0.47, 0.88 width; AME–ALE 0.04, PME–PLE 0.00, AME–PME 0.07, ALE–PLE 0.05, AME–AME 0.08, OMP–OMP 0.40. *Chelicerae*: length 2.55, width 1.55, with dark dorsal–anterior bristles, intercheliceral tumescence small, little marked with setae (Fig. 23C). Fang groove with 7 or 8 promarginal teeth and >30 mesobasal denticles. *Labium*: length 0.39, width 0.86. *Maxillae*: length 1.77, width 0.65, with about 140 cuspules on inner corner, pro-lateral face slightly curved, soft area long, with long uniformly distributed hairs, serrula present (Fig. 2K). *Sternum* (Fig. 23B): length 2.93, maximum width 2.31. *Abdomen*: length 5.42, covered with short hair. PMS: length 0.78; PLS: length of basal:medial:apical segments 1.22:0.98:1.51; total length 3.71. *Lengths of legs and palp*: I: 3.46, 2.20, 2.97 (width/length: 0.47), 2.87, 1.79, 13.29. II: 3.77, 2.10, 2.46, 2.48, 1.80, 12.61. III: 3.60, 1.93, 2.15, 2.97, 1.69, 12.34. IV: 4.21, 2.22, 3.03, 4.04, 2.00, 15.50. Palp: 2.20, 1.07, 1.56, —, 0.90, 5.73.

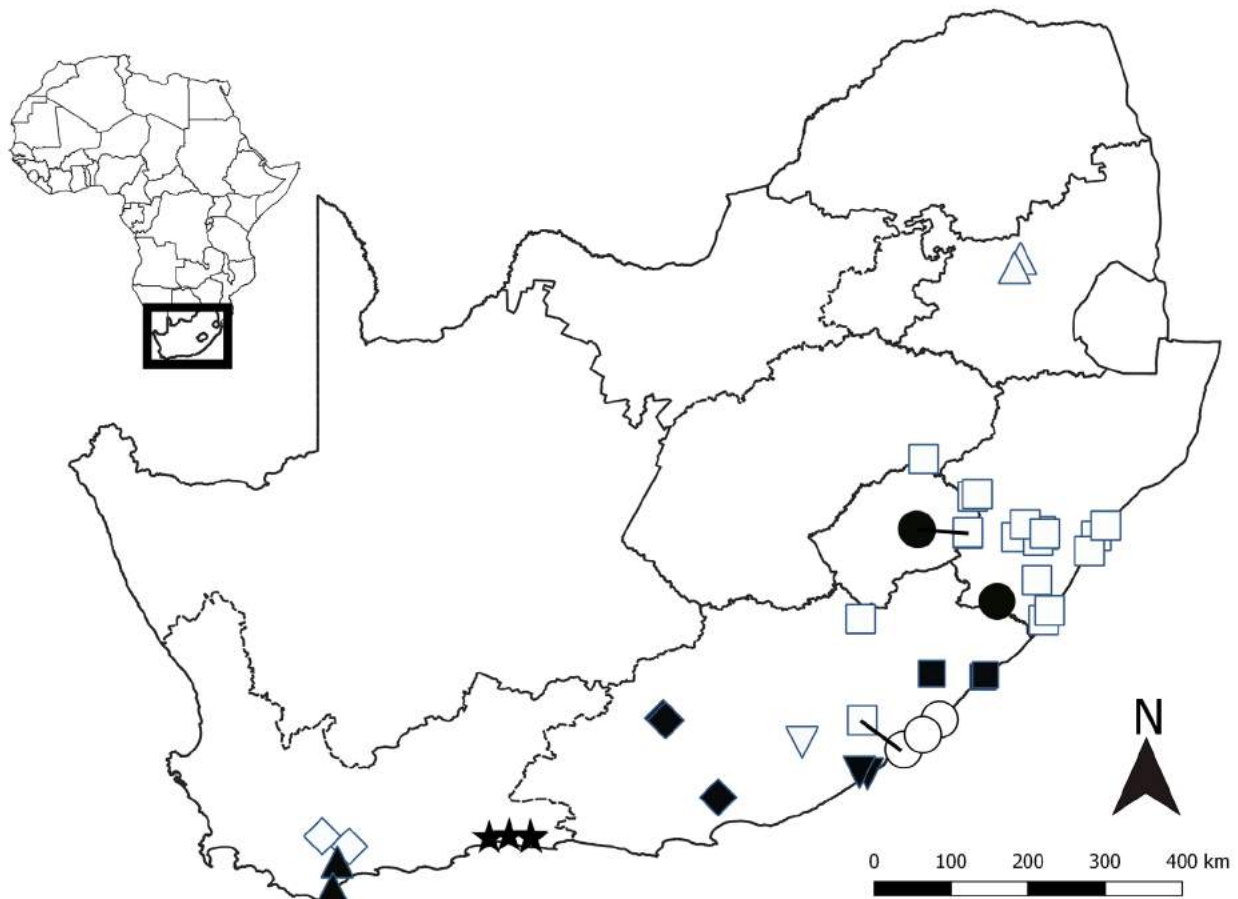


FIGURE 24. Distribution map of *Lepthercus* spp: ● *Lepthercus confusus* sp. nov., ○ *Lepthercus dippenarae* sp. nov., ◆ *Lepthercus dregei* Purcell, 1902, ◇ *Lepthercus engelbrechti* sp. nov., △ *Lepthercus filmeri* sp. nov., ★ *Lepthercus haddadi* sp. nov., □ *Lepthercus kwazuluensis* sp. nov., ■ *Lepthercus lawrencei* sp. nov., ▽ *Lepthercus mandelai* sp. nov., ▼ *Lepthercus rattrayi* Hewitt, 1917, ▲ *Lepthercus sofiae* sp. nov. Solid black line indicates the two species overlapped.

Chaetotaxy: Leg I: femur, 1-1-1-1 d (centrals), 1-1 PA; patella, 1 PA; tibia, 1-1 P, 2-3-1 V, a short and robust cuticular spur, with an apical megaspine with a strong curved spine at the base of the spur (Fig. 23J); metatarsus, 1-1-2 V, presence of numerous short and strong setae (1:2A, Fig. 23I); tarsus, 0. Leg II: femur, 1-1-1-1 d, 1-1-1 PA; patella, 1-1 PA; tibia, 1-1 P, 2-2-3 V; metatarsus, 1 P, 2-2-2 V; tarsus, 0. Leg III: femur, 1-1-1-1 d (thick), 1-1-1 D-P, 1-1-1-1-1 D-R; patella, 1-1 P, 1 R; tibia, 1-1 P, 1-1 D, 1-1 R, 2-2-3 V; metatarsus, 1-1-1-1 P, 1-1-1 D-P, 1-1-1-1 D-R, 2-3-3 V; tarsus, 0. Leg IV: femur, 1-1-1-1-1 d, 1 PA, 1-1 D-R A; patella, 1 R; tibia, 1-1 P, 1-1 R, 2-2-2 V; metatarsus, 1-1-1 P, 1-1-1-1 D-P, 1-1-1-1 D-R, 2-3-3 V; tarsus, 0. Palp (Fig. 23D, E): femur, 1-1-1-1 d, 1 PA; patella, 1 PA; tibia, 2 P, (width/length: 0.79); tarsus, 0.

Scopulae: Metatarsi: I, sparse, uniformly distributed, more abundant around the strong setae; II, sparse (3:4 A), more abundant in the anterior part; III–IV, absent. Tarsi: I–II, dense, uniformly distributed throughout the segment; III, dense, uniformly distributed and divided by a narrow band of setae; IV, sparse, uniformly distributed and divided by a wide band of setae. *Trichobothria*: Tibiae: I 9–10; II 11–12; III 10–11; IV 11–10. Metatarsi: I (3)1(1)1(2)1(5)1; II (4)1(2)1(5)1; III (5)1(0)1(2)1(5)1; IV (6)1(2)1(2)1(5)1. Tarsi: I 13; II 12; III 12; IV 13. *Preening combs*: metatarsus: II, 4 PV; III, 4 PV–4 RV; IV, 3 PV–5 RV. *Copulatory bulb*: long, with a curved embolus tapering gradually with 2 keels (Fig. 23G, H), spermatheca curved. *Color*: Overall orange–yellowish (chelicerae darker). Abdomen light brown, with spots, spinnerets dorsally light yellowish.

Distribution. Western Cape Province, South Africa (Fig. 24).

Discussion

The current contribution clearly does not solve the taxonomy or phylogenetic problems of the African nemessids, but is the first revision of the genus *Lepthercus* in over a century, and incorporates new characters to aid in the identification of this genus. *Lepthercus* is easily distinguishable from other South African genera present in the Nemesoidina clade by the presence of a developed cuticular spur on tibia I of males (Raven, 1985a; Dippenaar-Schoeman, 2002).

The presence/absence of metatarsal preening comb and serrula are important characters of generic/species significance in the taxonomy of mygalomorph spiders (Raven, 1983, 1985a, 1978). A preening comb is formed by several bristles set on a common base on the distal ventral edge of metatarsi (Raven, 1984c). During our extensive review of *Lepthercus* specimens, we observed that contrary to Raven (1985a:86), Dippenaar-Schoeman (2002:96) and Zonstein (2012:95), the genera possess metatarsal preening combs (Fig. 2A; absent in *Hermacha*, pers. Obs.) and present serrula (Fig. 2D–K; only in females, and present in both sexes in *L. engelbrechti* **sp. nov.** and *L. haddadi* **sp. nov.**).

Many characters found in this study showed a distinctive pattern. The metatarsal protuberance present in leg I of males was seen as an important taxonomic character for the genus. The “Group dregei” possess a protuberance with black short hairs whereas the “Group haddadi” have a protuberance with black blunt spines. The form of the palp tibia in males is another character with taxonomic implications; the “Group haddadi” possess a wide palpal tibia base, whereas in “Group dregei” it is normal (slenderer in *Hermacha* and *Entypesa*). The development of the anterior part of the retrolateral side of the ventral palpal tibia excavation is another character known exclusively for *L. haddadi* **sp. nov.** (*L. engelbrechti* **sp. nov.** + *L. sofiae* **sp. nov.**) inside of the “Group haddadi”. Together these characters – a curved metatarsus I and the swollen shape of the tibia I of males present in “Group haddadi” – could be sufficient for the erection of a new genus. Maybe, in the future when new evidence been added (molecular data or new specimens), this group of species can be described as a new genus.

Although *L. rattrayi* and *L. dregei* belonging to the same genus, Hewitt (1917) pointed to discrepancies in important characters in these two species. These differences were re-examined in this study. The number of maxillary cusps was found to similar with 43 in *L. rattrayi* and 45 in *L. dregei*; but differences in the number of cheliceral teeth were as indicated by Hewitt with nine in *L. rattrayi* and seven in *L. dregei*. The most important differences were found in the first leg. *L. rattrayi* possesses a slightly bowed metatarsus I (straight in *L. dregei*), with a ventral protuberance covered by black spinules (absent in *L. dregei*). Our morphological analysis also revealed differences in the tibia I diameter (width/length: 0.88 *L. rattrayi* and 0.49 *L. dregei*), metatarsus I length (1.92 *L. rattrayi* and 2.74 *L. dregei*), and the shape of the palp tibia and the intercheliceral tumescence (longer in *L. rattrayi*). These differences are the basis for their separation into different groups within the genus.

The geographic distributions of these two groups in South Africa is interesting and follows some important biogeographic zones (Fig. 25). “Group haddadi” appears to be more related to the Fynbos Biome of the Western Cape Province and the Indian Ocean Coastal Belt Biome. This first Biome includes three vegetation complexes: fynbos, renosterveld and strandvel, and receives the majority of its rainfall during winter, and is recognized as one of the most floristically rich regions of the world (Mucina & Rutherford, 2006). The Indian Ocean Coastal Belt Biome is a high-level vegetation unit comprises a dominant forest cover interrupted by edaphically or hydrologically controlled areas of grassland, with at least a significant part of the belt being open to dense savanna vegetation, interspersed with many areas of forest and grassland (Mucina & Rutherford, 2006).

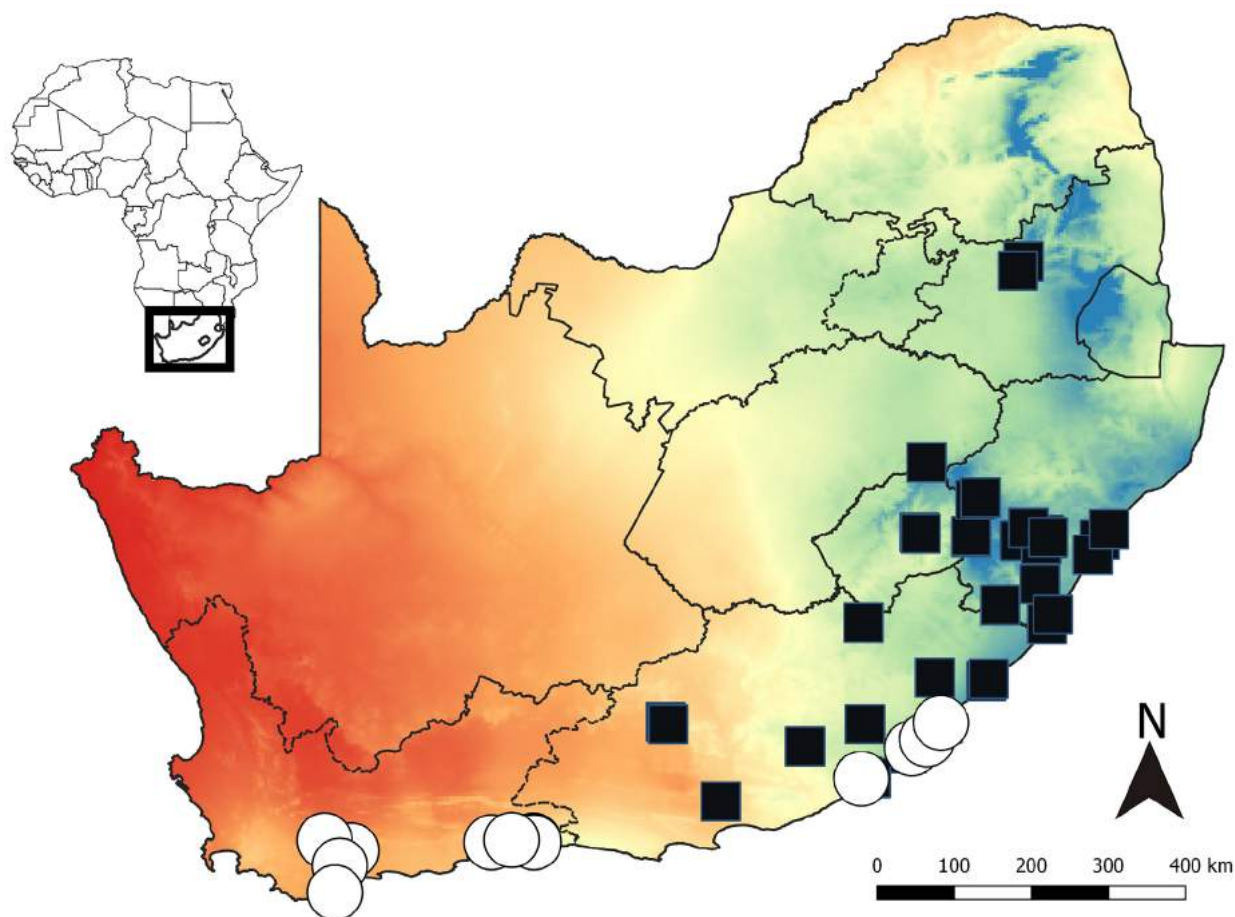


FIGURE. 25. Map of mean austral summer rainfall for the months October to April. ■ “Group dregei”, ○ “Group haddadi”.

The “Group dregei” is related to the eastern high summer rainfall areas of the country, and largely limited to the Grassland and Savanna Biomes. Grassland Biome occurs mainly on the high central plateau, the inland areas of the eastern seaboard, the mountainous areas of KwaZulu-Natal and the central parts of Eastern Cape. The topography is mainly flat to rolling and are dominated by a single layer of grasses. Savanna Biome is the largest biome in South Africa, covering 32.8% of the country (about 399 600 km²). It is a mixture of grasses and trees or shrubs. Occupies most of the far-northern part of the Northern Cape, the Western and northeastern parts of North-West Province, extreme western parts of the Free State Province, northern Gauteng, almost the entire Limpopo Province, north-western and northeastern Mpumalanga, low-altitude parts of the eastern seaboard, inland of the Indian Ocean Belt in KwaZulu-Natal and the Eastern Cape Provinces, and with the southernmost extension abutting Albany Thicket of the Komga to Albany Districts. Rain falls in summer and varies greatly across the region, from about 235 mm per year in the Kalahari to over 1000 mm per year in the east (Mucina & Rutherford, 2006).

Exceptions are *L. rattrayi* and *L. dregei*, with the *L. rattrayi* occurring within the Albany Thicket biome, and the type locality for *L. dregei* occurring on the transition between Fynbos and Albany Thicket on the Zuurberg mountains. Importantly though, biomes only represent very broad biogeographic patterns and can include smaller patches of unusual vegetation which may be occupied by these spiders. For example, *L. rattrayi* has been observed in both grassland and forest within its range (I. Engelbrecht pers. comm.). *L. dregei* also appears to occur in a transition area between the higher summer rainfall areas and the more arid Nama Karoo biome.

Of particular interest that two species of *Lepthercus*; *L. confusus* **sp. nov.** and *L. kwazuluensis* **sp. nov.**, appear to occur in sympatry on the Sani Pass of the Drakensberg mountains, whereas other species are largely allopatric. It is not clear whether these species are syntopic in the field, or whether there is some form of ecological niche separation between the two. Investigations might lead to insights into the mechanisms of speciation within the genus. Also, of interest is apparent distributional gap between *L. kwazuluensis* **sp. nov.** and *L. filmeri* **sp. nov.** This is likely an effect of undersampling in the intervening escarpment mountains.

Although there has been some recent work on African mygalomorphs, their taxonomy is poorly resolved and most of the genera still require revision (Engelbrecht & Prendini, 2011; Dippenaar-Schoeman, 2002). The present work substantially improves current knowledge of nemesiid diversity in South Africa and adds new information about their morphology and geographical distribution. The cladistic analysis presented here provides a basis for ongoing investigations of this diversity and deeper interrogation of previous phylogenetic work (Raven, 1985a; Goloboff, 1995; Harvey et al. 2018, Opatova et al. 2019). The number of new species discovered during this study suggests that a broader reanalysis of the Nemesoidina clade as a whole is required, and that species diversity might be significantly undersampled for the region. This will be important to better understand South African mygalomorph diversity.

Acknowledgements

This research was made possible through scholarships awarded to the senior author: CONICET, Partial financial support for short stays of research; Res D N° 4367, 28 dic. 2017. Special thanks to Petro Marais for access to the National Collection of Arachnida, ARC, Pretoria, where the senior author was hosted during his visit. Thanks to Pablo A. Goloboff for the help provided in the earlier stages of the draft, and to Ian Engelbrecht for collecting many of the specimens, by his comments, the access to the SEM at the South African National Biodiversity Institute and by the great photographs of African spiders. We also thank all the curators who provided specimens of Nemesiidae from South Africa on loan. Thanks to the comments of the anonymous reviewers and the Editor Jason Bond that helped to improve the ms.

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