

Heterothele erdosi, a new species of *Heterothele* Karsch, 1879 from Nigeria (Araneae: Theraphosidae)

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Abstract: A new species of theraphosid spider in the genus *Heterothele* Karsch, 1879 is described from Ibadan, Nigeria, *Heterothele erdosi* sp. nov. (♂), representing only the second *Heterothele* species known from Nigeria. It is the smallest known species of *Heterothele*.

Keywords: spider, taxonomy, morphology, tarantula, West Africa

Introduction

The genus *Heterothele* Karsch, 1879 currently contains nine valid species: *Heterothele affinis* Laurent, 1946 (♂♀, Congo, and Tanzania), *Heterothele atropa* Simon, 1907 (♀, Democratic Republic of the Congo), *Heterothele darcheni* (Benoit, 1966) (♀, Gabon), *Heterothele decemnotata* (Simon, 1891) (♀, Democratic Republic of the Congo), *Heterothele gabonensis* (Lucas, 1858) (♂♀, Gabon), *Heterothele honesta* (♂♀, Democratic Republic of the Congo; type species), *Heterothele hullwilliamsi* Smith, 1990 (♂, Cameroon), *Heterothele ogbunikia* Smith, 1990 (imm. ♂ [erroneously described as adult female], Nigeria), and *Heterothele spinipes* Pocock, 1897 (♂, Tanzania). A single species is currently regarded as a nomen dubium, *Heterothele villosella* Strand, 1907 (♂, Tanzania) (see NENTWIG et al. 2020) but this species is in fact recognisable and will be revalidated in a future work. Presently, the only species formally recorded from Nigeria is *H. ogbunikia* (World Spider Catalog, 2025), although *H. hullwilliamsi* from neighbouring Cameroon is also likely to occur there.

In this work, a new species of *Heterothele* is described from Ibadan, Nigeria, based on a holotype and paratype deposited in the Natural History Museum, London (NHMUK) and further paratypes in the personal collection of the second author. It represents the second congener formally recorded from Nigeria and is the smallest known species of the genus.

Materials and methods

Specimens examined under binocular microscopes. Photographs were made by DS with a Canon EOS 6D Mark II attached to a Leica MZ12.5, with images stacked using Helicon Focus. Description style follows SHERWOOD et al. (2020).

Abbreviations:

Repositories of material examined:

NHMUK – Natural History Museum, London, United Kingdom;

RGPC – Richard Gallon Private Collection, Llandudno, Wales, UK.

Structures: ALE – anterior lateral eyes, AME – anterior median eyes, PLE – posterior lateral eyes, PME – posterior median eyes. Other: leg. – legit (collected by).

Palpal bulb terminology follows BERTANI (2000): A – apical keel, PS – prolateral superior keel.

All measurements are in mm. Maps were made using SHORTHOUSE (2010); ecoregional framework follows DINERSTEIN et al. (2017). In accordance with the International Code of Zoological Nomenclature, this work was preregistered in ZooBank: urn:lsid:zoobank.org:pub:E45B991C-817E-41E1-A8B7-156A1CF46288

Taxonomy

Heterothele erdosi sp. nov.

ZooBank: urn:lsid:zoobank.org:act:2A56AFA0-FDE7-4F51-A4A4-F3F94B63610E

Type material: Holotype ♂ (NHMUK), Ibadan, CIOR Site 11TA, Nigeria, fallow bush, July 1973, leg. A. Russell-Smith, Theraphosidae sp. det. Pedroso 05 November 2013; paratype 1 ♂ (NHMUK), “from Nigeria, coll. A. Russell-Smith”; paratypes 4 ♂♂ (RGPC), Ibadan, Nigeria, secondary forest, April 1981, leg. A. Russell-Smith, *Heterothele* sp. det. Gallon 15 December 2005.

Diagnosis: *Heterothele erdosi* sp. nov. can be distinguished from males of *H. affinis* Laurent, 1946, *H. honesta* Karsch, 1879, and *H. hullwilliamsi* Smith, 1990 by the embolus twice the length of the base of the bulb (equal to or only slightly longer than base of bulb in *H. affinis*, *H. honesta*, and *H. hullwilliamsi*), from those of *H. gabonensis* (Lucas, 1858) by the developed curvature in the apical third of the embolus (weakly developed in *H. gabonensis*), and from *H. spinipes* Pocock, 1897 by the palpal tibia not more than twice as long as the palpal bulb. The male of *H. erdosi* sp. nov. is further distinguished from those of *H. honesta*, *H. hullwilliamsi*, *H. spinipes* and *H. villosella* (currently regarded as a nomen dubium) in having an incrassate femur III (unmodified in *H. honesta*, *H. hullwilliamsi*, *H. spinipes* and *H. villosella*), and additionally from *H. hullwilliamsi* and *H. villosella* in lacking a prolateral scopula tuft on metatarsus I (present in *H. hullwilliamsi* and *H. villosella*). *Heterothele atrophæ* Simon, 1907, *H. darcheni* (Benoit, 1966), *H. decemnotata* (Simon, 1891), and *H. ogbunikia* Smith, 1990 are all known only from the female (*H. atrophæ*, *H. darcheni* and *H. decemnotata*) or an immature male (*H. ogbunikia*). The latter three species can be distinguished from the male of *H. erdosi* sp. nov. by the following characters: *H. darcheni* by the presence of a ventral and dorsal abdominal pattern, *H. decemnotata* by the presence of 10 shell-like spots on the dorsal abdominal surface, and *H. ogbunikia* by the presence of a herring-bone abdominal pat-

tern. The description of *H. atroph*a is too poor for a full diagnosis, but *H. erdosi* **sp. nov.** can be distinguished from this species, and indeed all other known congeners, biogeographically by its distribution in the Nigerian Lowland Forests ecoregion (see below), being the only species west of the River Niger and simultaneously representing the northernmost and westernmost record for the genus.

Etymology: The specific epithet is an eponym in honour of the legendary Hungarian mathematician Paul Erdős (1913–1996) who published over 1500 papers, making him the most prolific mathematical researcher who ever lived. Erdős was famous for his love of collaboration and worked with quite literally hundreds of coauthors, spurning the invention of the Erdős number, which charts mathematical collaboration. Equally famous was his lifelong nomadic travel between institutions, the high quality of his research, his affection for colleagues, and his endearing eccentricities. The dedication Erdős gave to his field of mathematics is a constant inspiration and example to the author DS in her field of arachnology.

Description of holotype male: Total length including chelicerae: 13.6. Carapace: length 5.0, width 4.3. Caput: slightly raised. Ocular tubercle: raised, length 0.5, width 1.0. Eyes: ALE > AME, AME > PLE, PLE > PME, anterior eye row procurved, posterior row slightly recurved. Clypeus: narrow; clypeal fringe: long. Fovea: deep, slightly recurved. Chelicera: length 2.4, width 0.8. Abdomen: length 6.2, width 3.3. Maxilla with 60–70 cuspules covering approximately 57% of the proximal edge. Labium: length 0.5, width 0.8, with 80–90 cuspules most separated by 0.5–1.0 × the width of a single cuspule. Labio-sternal mounds: separate. Sternum: length 2.2, width 2.3, with three pairs of sigilla. Tarsi I–IV divided by a band of setae. Tarsal claws serrated, third claw absent. Metatarsal scopulae: I 100%; II 79%; III 26%; IV ascopulate. Lengths of legs and palpal segments: see table 1, legs 4,1,2,3. Spination: tibia I v 0–2–2, r 1–1–0, II v 0–3–3, p 1–1–0, r 1–1–0, III v 1–2–3, p 1–1–0, IV v 1–2–3, p 1–1–0, r 1–1–0, palp p 0–0–1, metatarsus v 0–0–1 (apical), p 0–1–0, r 0–0–2, II v 0–0–1 (apical), p 0–1–0, r 0–1–0, III v 1–2–3 (apical), p 1–1–0, IV v 2–4–4 (3 apical), p 1–1–0, r 1–1–0. Femur III: incrassate. Palpal tibia: unmodified, slightly longer than palpal bulb. Palpal cymbium: unmodified. Metatarsus I: straight, unmodified. Posterior lateral spinnerets with three segments, basal 1.2, median 0.8, digitiform apical 0.7. Posterior median spinnerets with one segment. Palpal bulb with rounded base, tegular heel absent; embolus approximately twice as long as base of bulb with developed vertical curvature in anterior third; PS and A weakly developed; prolateral crease wide in basal half, extremely narrow, constricted by ventral face of subtegulum in anterior half. Colour: overall alcohol preserved brown; abdomen abraded but with some irregular brown mottling present, lacking any obvious dorsal or ventral patterning.

Table 1: *Heterothele erdosi* **sp. nov.** holotype male (NHMUK), length of legs and palp.

	I	II	III	IV	Palp
Femur	3.7	3.5	2.9	3.5	2.9
Patella	2.2	2.2	1.4	1.4	1.4
Tibia	2.7	2.7	1.8	2.9	2.1
Metatarsus	2.0	2.1	2.2	3.9	–
Tarsus	1.8	1.8	1.6	2.1	0.7
Total	12.4	12.3	9.9	14.0	6.7

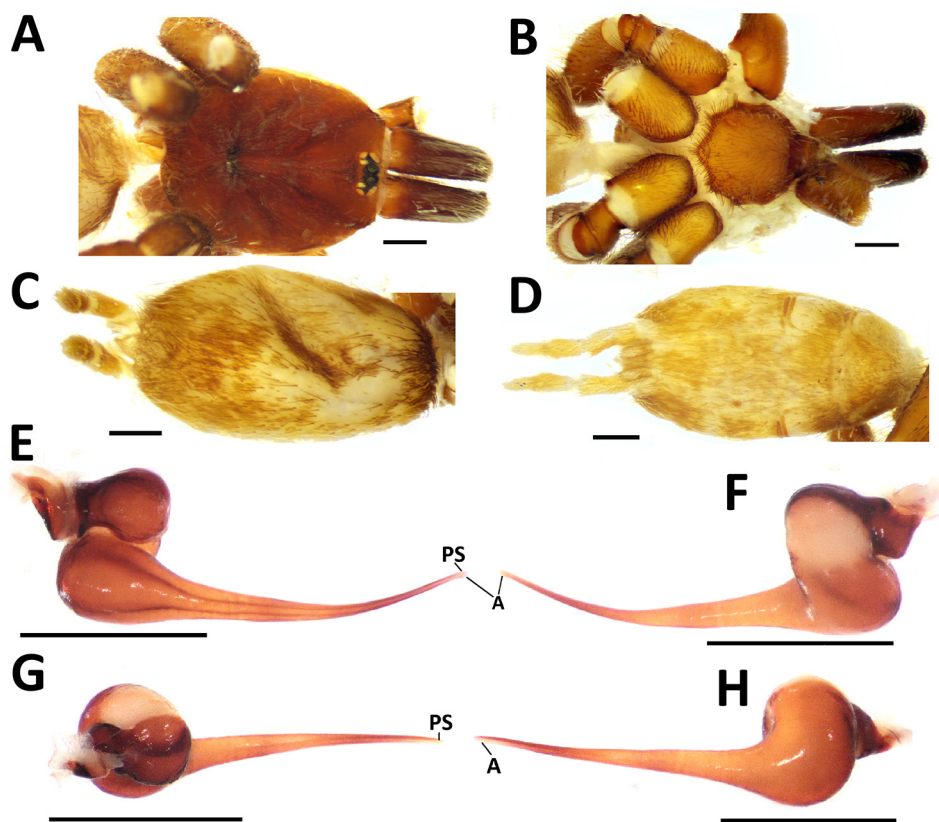


Fig. 1: *Heterothele erdosi* sp. nov. holotype male (NHMUK). A – carapace dorsal view, B – labium, sternum, and maxilla, ventral view, C – abdomen, dorsal view, D – Idem, ventral view, E – palpal bulb (left-hand side), prolateral view, F – palpal bulb (left-hand side), retro-lateral view, G – Idem, dorsal view, H – Idem, ventral view. Scale bars = 1 mm.

Female: Unknown.

Distribution: Known only from the type locality, Ibadan, Nigeria.

Remarks: The holotype of this new species was discovered by DS when she was conducting work for a taxonomic review of *Acontius* Karsch, 1879 (Cyrtaucheniidae) which is imminent. A second [paratype] male was found shortly after in another sample of the same species of *Acontius*. Both specimens were in jars otherwise containing only cyrtaucheniids but have since been recurated. The paratype male hails from a tube which has an original label (a rudimentary, ripped, piece of paper) which simply states the country of origin and the collector, without a date or precise locality. However, the samples can be confirmed with certainty to originate from Ibadan based on questioning of the collector (A. Russell-Smith pers. comm. to DS) and further supported by fact the cyrtaucheniids in the tube are conspecific with that of other *Acontius* samples in two different museums known with certainty to have been collected in Ibadan (*Acontius*

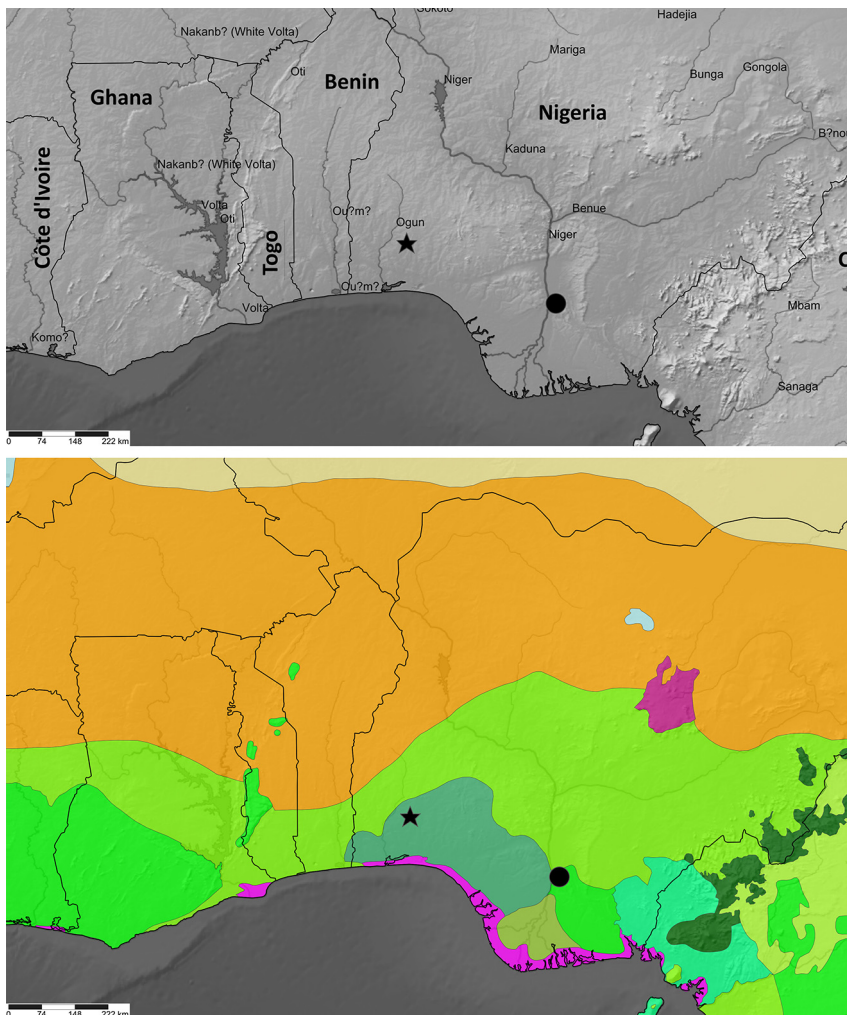


Fig. 2: Distribution of *Heterothele* species in Nigeria. A – grey-scale map with labelled rivers, B – map showing ecoregional classification of area, *sensu* DINERSTEIN et al. (2017); black circle = *H. ogbunikia* Smith, 1990, black star = *Heterothele erdosi* sp. nov.

demonstrates pronounced short-range endemism, SHERWOOD et al. in prep.). Leg I of the holotype was interpreted and measured from the right-hand side as the left-hand leg I is missing, the rest of the data derives from left-hand appendages. The type locality of *Heterothele erdosi* sp. nov. is situated in the Nigerian Lowland Forests ecoregion (*sensu* DINERSTEIN et al. 2017), the River Niger creates a significant barrier between it and the type locality of *H. ogbunikia* which is situated in the Cross-Niger Transition Forests ecoregion.

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