

## Notas / Notes

### Range extension of *Harpactirella insidiosa* (Denis, 1960) (Araneae: Mygalomorphae: Theraphosidae): a poorly known endemic spider from Morocco

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#### ABSTRACT

We provide a new record of the poorly studied theraphosid *Harpactirella insidiosa* (Denis, 1960) from Morocco, which was previously known only from its type locality in the surroundings of Ben Slimane. The new record, based on two adult females, extends the species distribution 210 km southwest from the type locality. These specimens were found at the Doukkala plain, 14 km southwest of Oualidia, and compared with topotypic specimens. In addition, we provide the first pictures of living specimens of the species and discuss its taxonomic status.

**Keywords:** *Luphocemus*; spiders; North Africa; Doukkala plain; new record; geographic distribution.

#### RESUMEN

**Ampliación del rango de distribución de *Harpactirella insidiosa* (Denis, 1960) (Araneae: Mygalomorphae: Theraphosidae): una araña endémica de Marruecos poco conocida.**

En este trabajo presentamos una nueva cita de *Harpactirella insidiosa* (Denis, 1960), un terafósido escasamente estudiado de Marruecos, solamente conocido de la localidad tipo, situada en los alrededores de Ben Slimane. Este nuevo registro, basado en dos hembras adultas, amplía el área de distribución de la especie 210 km al suroeste de la localidad tipo. Ambos ejemplares fueron encontrados en la llanura de Doukkala, 14 km al sur de Oualidia, y comparados con topotipos de la especie. Esta nota se acompaña con las primeras imágenes de la especie *in vivo* y se discute, además, su situación taxonómica.

**Palabras clave:** *Luphocemus*; arañas; Norte de África; llanura de Doukkala; nuevo registro; distribución geográfica.

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The spiders of the family Theraphosidae from Morocco are largely understudied and comprise two genera: *Ischnocolus* Ausserer, 1871 and *Harpactirella* Purcell, 1902. Guadanucci & Wendt (2014) and Zonstein (2018) conducted a taxonomic revision of

Moroccan *Ischnocolus* species based on morphological data, and recorded the presence of three taxa: *I. valentinus* (Dufour, 1820), *I. elongatus* (Simon, 1873) and *I. hancocki* Smith, 1990. Whereas a considerable contribution to the taxonomy and biology of

this genus in the Middle East has been recently published (see Montemor *et al.*, 2019), basic aspects of the biology, natural history and geographic distribution of the Moroccan species of *Ischnocolus* remain almost unknown. Similarly, no studies concerning the only species of the genus *Harpactirella* from Morocco, *Harpactirella insidiosa* (Denis, 1960), have been published since its original description (Denis, 1960) and subsequent taxonomic reassessment (Benoit, 1965), being one of the least known species of Theraphosidae in the world.

The enigmatic spider and Moroccan endemic *H. insidiosa* was originally described in the monotypic genus *Luphocemus* Denis, 1960 [type species = *Luphocemus insidiosus*]. Denis (1960) described *Luphocemus* as follows: “Pièces buccales et chelicères des *Leptopelma* (= *Ischnocolus sensu* Denis, 1960); Hauteur de bandeau inférieure au double du grand axe des yeux latéraux antérieurs; Yeux postérieurs subégaux; Intervalle des yeux latéraux de chaque côté inférieur au diamètre des yeux latéraux postérieurs; Article terminal des filières supérieures plus long que l'article médian” [Mouthparts and chelicerae as in

*Leptopelma* (= *Ischnocolus sensu* Denis, 1960); length of clypeus less than twice the distance between anterior-lateral eyes; sub-equal posterior eyes; distance between the lateral eyes of each side (anterior and posterior ones) less than the diameter of the posterior lateral eyes; distal segment of spinnerets larger than the medial segment]. Five years later, Benoit (1965) synonymized *Luphocemus* with *Harpactirella*, where it is currently allocated, based on some shared morphological traits between both taxa, namely a distal segment of spinnerets larger than the medial segment, and a similar morphology and relative position of the ocular tubercle and eyes.

*Harpactirella insidiosa* is only known from two female specimens collected at two localities from Northern Morocco in the surroundings of Ben Slimane: one at Boulhaut, collected on 30 December 1951, and the second one at Sokhrat Nemra, collected on 18 March 1955 (Denis, 1960). Males of *H. insidiosa* remain unknown.

In this article, we provide a new record based on the observation of two adult females of *H. insidiosa* far from their type locality. Both specimens

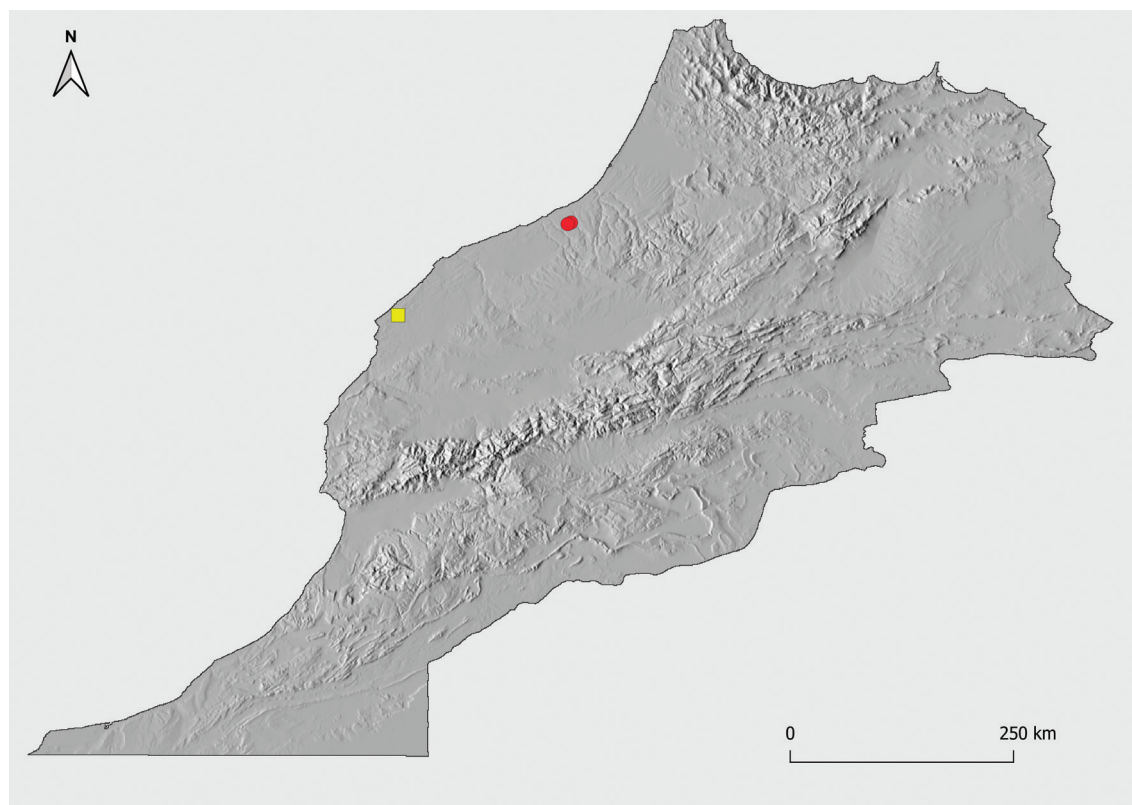


Fig. 1.— Map of Morocco showing known localities for *Harpactirella insidiosa*. Red dots represent literature records (Denis, 1960). The yellow square corresponds to the new record at Doukkala plain.

Fig. 1.— Mapa de Marruecos con las localidades conocidas de *Harpactirella insidiosa*. Los puntos rojos representan registros bibliográficos (Denis, 1960). El cuadrado amarillo corresponde al nuevo registro de la llanura de Doukkala.

were found in the Doukkala plain, 14 km southwest of Oualidia [approximate coordinates: 32°36'N, 09°0'W] (Fig. 1). The first one was observed under a rock on 29 December 2018 (Fig. 2), whereas the second recorded specimen was found within its burrow on 25 February 2020 (Fig. 3A). These findings extend the distribution of the species approximately 210 km southwest from the type locality. Measurements were taken from the first collected specimen, which had a total body length (carapace + abdomen) of approximately 20 mm, of which 9 mm correspond to the carapace (Fig. 1). Both specimens were compared with four topotypes collected from their burrows in Ben Slimane on 26 February 2020 (Fig. 4A–B). All examined individuals present the traits described for the types of the species (Denis, 1960). These topotypes exhibit similar

colour patterns, except different brownish hues (Fig. 4C). The specimens from southern Oualidia slightly differ from the topotypes in the shape of the anterior-lateral eyes, which are more oval, and in their coloration, by showing a dorsal pattern of the opisthosoma with four distinctive oval dark marks, decreasing in size towards the posterior region, which are longitudinally arranged and bordered by additional transversal dark stripes. These marked transversal dark stripes on the abdominal sides are lacking in the topotype specimens which, in contrast, show a dotted abdominal pattern [Denis' (1960) description only noted a brownish abdomen]. The ventral side of the abdomen is uniformly brown in the specimens from Oualidia (Fig. 2C). Burrows of both the Oualidia and topotype specimens were carefully excavated after checking for

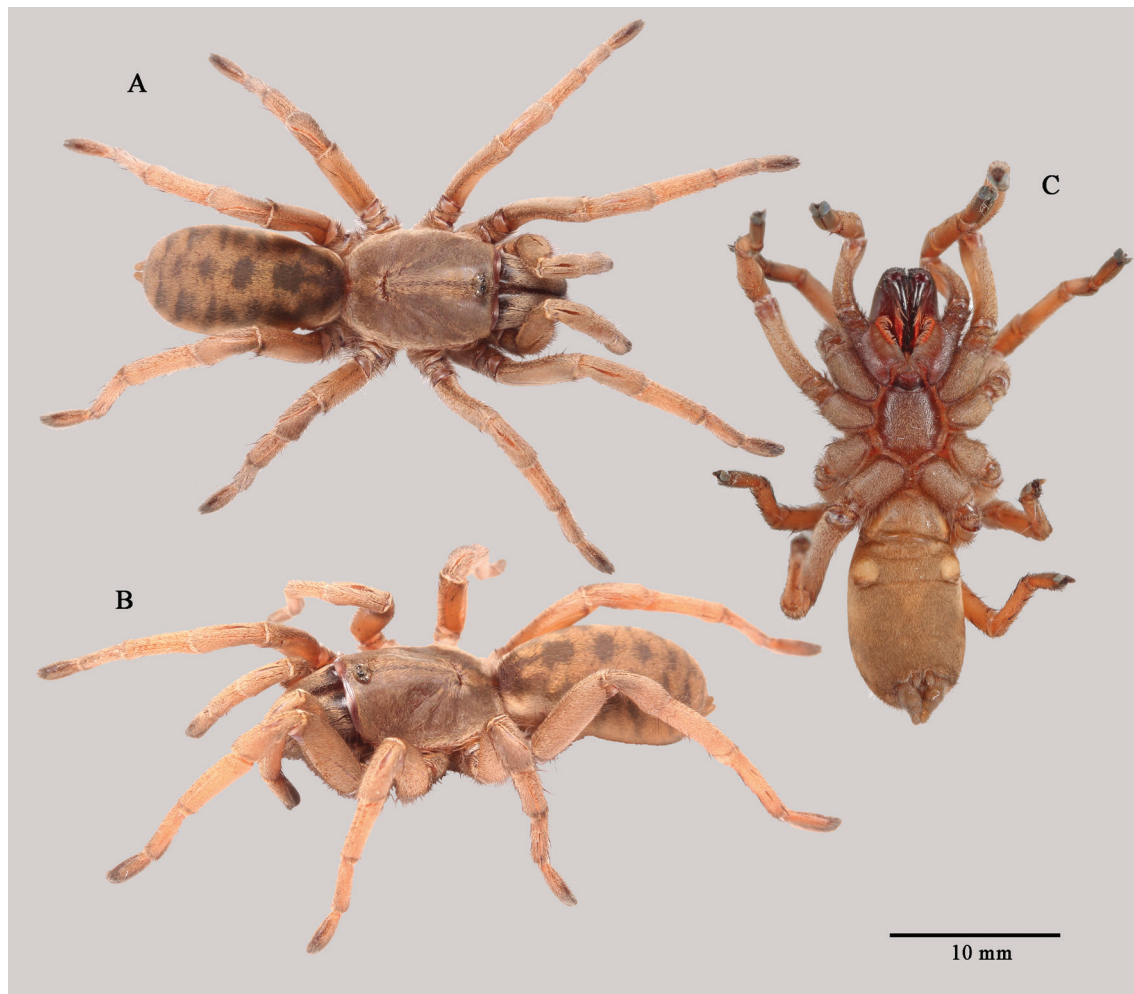


Fig. 2.— Adult female of *Harpactirella insidiosa* from Doukkala plain, Morocco. A: dorsal view; B: dorsolateral view; C: ventral view (Photographs AS-V).

Fig. 2.— Hembra adulta de *Harpactirella insidiosa* de la llanura de Doukkala, Marruecos. A: vista dorsal; B: vista dorsolateral; C: vista ventral (Fotografías AS-V).





Fig. 3.— Burrow entrance (A) and habitat of *Harpactirella insidiosa* (B) in Doukkala plain, Morocco (Photographs AS-V).

Fig. 3.— Entrada de la madriguera (A) y hábitat de *Harpactirella insidiosa* (B) en Doukkala plain, Morocco (Fotografías AS-V).

their entrances (Figs. 3A, 4A). The structure of the burrows consisted of a vertical or sub-vertical tunnel 15–25 cm deep, covered by silk, with a single small chamber at its end (pers.obs).

The Doukkala plain has a semiarid climate (Escoriza & Ben-Hassine, 2019) and is mostly composed by limestone (Fakir *et al.*, 2002) with grasslands dominated by *Asphodelus* L. and scrubs of *Chamaerops humilis* L. and *Olea europaea* L., among others (Fig. 3B). The natural areas of the region are negatively impacted by agricultural development, *Eucalyptus* plantations, and urbanization in littoral areas (Hinckley *et al.*, 2016). Unfortunately, the lack of any biological information, including the ecological requirements of *H. insidiosa*, difficult the identification of potential threats that the species may be facing, preventing the proposal of specific conservation actions.

The finding of the presence of *H. insidiosa* in a semiarid climate, distinct from the warm Mediterranean climate predominant on the previously known localities, suggests that this species may be more broadly distributed that previously

considered. However, molecular studies should be undertaken to confirm that the newly found population is conspecific with the northern populations of *H. insidiosa*. It should be borne in mind, however, that molecular studies in other mygalomorph taxa have revealed deep genetic divergences within single morphologically delimited species, usually corresponding to geographically restricted populations (Arnedo & Ferrández, 2007; Hamilton *et al.*, 2011; Harvey *et al.*, 2015; Ferretti *et al.*, 2019). These studies suggest that the current diversity of mygalomorph spiders may have been grossly underestimated. Further integrative studies combining molecular and morphological, but also ecological and behavioural data may shed new light into the taxonomic status of the Doukkala population of *H. insidiosa*.

Molecular data may also contribute to resolve another important question posed by Moroccan *Harpactirella*. Except for the Moroccan *H. insidiosa*, the genus *Harpactirella* is exclusively composed of Afrotropical species, all of them endemic from South Africa, namely *H. treleaveni* Purcell, 1902, *H. karrroika* Purcell, 1902, *H. lightfooti* Purcell, 1902, *H. longipes* Purcell, 1902, *H. magna* Purcell, 1903, *H. helenae* Purcell, 1903, *H. domicola* Purcell, 1903, *H. schwarzi* Purcell, 1904, *H. lapidaria* Purcell, 1908, *H. spinosa* Purcell, 1908, and *H. overdijki* Gallon, 2010 (World Spider Catalog, 2020). If Benoit's (1965) inclusion of the Moroccan species in *Harpactirella* holds true, the resulting disjunct distribution showed by this genus represents an interesting biogeographic pattern that merits further investigation. Nevertheless, because of the rampant homoplasy of the few variable traits in an otherwise highly conserved phenotype (Raven, 1985; Bond & Opel, 2002; Hamilton *et al.*, 2011), mygalomorph taxonomy has proven to be a challenging task (Hendrixson *et al.*, 2013; Harvey *et al.*, 2015; Ferretti *et al.*, 2019). The scrutiny of traditional taxonomic groups with new molecular information has revolutionized our understanding of the classification of mygalomorph spiders (e.g. Opatova *et al.*, 2019). In this regard, the synonymy of *Luphocemus* and *Harpactirella*, which was mostly based on two main morphological traits, may not resist a more detailed, molecular based re-examination.

The aforementioned observations highlight (1) the necessity of improving the taxonomic information on *H. insidiosa*, both at intra- and supra-specific levels, (2) the importance of compiling notes on its natural history, through carefully planned field work across the known localities and ecologically similar regions, (3) and the urgent need for measures to ensure conservation of this rare and poorly known species, inhabiting a vulnerable and highly disturbed region, outside natural protected areas.





Fig. 4.— Burrow entrance of a topotype specimen (A). Surroundings of Ben Slimane, type locality of *Harpactirella insidiosa* (B). Two topotypes of *Harpactirella insidiosa* (C) (Fotografías AS-V).

Fig. 4.— Entrada de la madriguera de un ejemplar topotipo (A). Alrededores de Ben Slimane, localidad tipo de *Harpactirella insidiosa* (B). Dos topotipos de *Harpactirella insidiosa* (A) (Fotografías AS-V).

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