Saint Helenian wolf spiders, with description of two new genera and three new species (Araneae: Lycosidae)

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#### Abstract

The lycosid fauna of Saint Helena, consisting of entirely endemic species, is revised. Lycosa ringens Tongiorgi, 1977 and Lycosa elysae Tongiorgi, 1977 are redescribed and transferred to Antembolus gen. nov., creating the new combinations Antembolus elysae comb. nov. and Antembolus ringens comb. nov. Dolocosa dolosa O. Pickard-Cambridge, 1873, Hogna cinica Tongiorgi, 1977, H. inexorabilis (O. Pickard-Cambridge, 1870), H. ligata (O. Pickard-Cambridge, 1870), and H. nefasta Tongiorgi, 1977 are re-diagnosed and illustrated. Hogna sanctaehelenae (Strand, 1909) is confirmed to be a junior synonym of H. ligata, based on examination of photographs of the immature holotype. A remarkable new monotypic lycosine genus, Molearachne gen. nov., with a new species M. sanctaehelenae sp. nov., is described based on both sexes from Prosperous Bay Plain, where it makes unique mounds which have earnt it the local common name Mole Spider. Two further new endemic species are described: Dolocosa joshuai sp. nov., based on the female, and Hogna veseyensis sp. nov., based on both sexes. Thus, the fauna consists of four genera, including three endemic, and nine species, which are all endemic.

Keywords: endemism • island • new combination • new taxa • revision • synonymy restored • taxonomy

## Introduction

Saint Helena is an island in the South Atlantic Ocean, with marked invertebrate diversity (Ashmole & Ashmole, 2000). Spiders of the family Lycosidae Sundevall, 1833 comprise a group with 127 genera and 2454 species currently treated as valid (World Spider Catalog 2023). The lycosid fauna of Saint Helena was first detailed by O. Pickard-Cambridge (1870) who described *Lycosa inexorabilis* O. Pickard-Cambridge, 1870 and *Lycosa ligata* O. Pickard-Cambridge, 1870 without precise localities, the former from the female and the latter from both sexes. Three years later, O. Pickard-Cambridge (1873) described a new genus, *Dolocosa* O. Pickard-Cambridge, 1873 to house the monotypic *Dolocosa dolosa* O. Pickard-Cambridge, 1873, based on a holotype female, again without precise locality.

Melliss (1875: 216–217) listed *Lycosa inexorabilis* and *L. ligata* with little comment but noted that "*L. (Trochosa) dolosa*" is found in burrows on Diana's Peak. Simon (1883: 307, 309) listed *L. inexorabilis*, *L. ligata*, and *L. dolosa* as members of the genus *Lycosa* Latreille, 1804, without further detailed comments. Similarly, Simon (1898: 343) did the same, merely citing these as three species known from Saint Helena. Strand (1909) described *Tarentula sanctae-helenae* Strand, 1909 from Saint Helena without precise locality, based on material collected by the German South Pole Expedition.

As with so many lycosid taxa, the Saint Helenian taxa have a complex taxonomic history. Roewer (1955) transferred *D. dolosa* to *Leaena* Simon, 1885, *Lycosa inexorabilis* to *Lynxosa* Roewer, 1960, *Lycosa ligata* to *Vesubia* Simon, 1909, and *Tarentula sanctae-helenae* to *Xerolycosa* Dahl, 1908 without sufficient justification. Roewer (1960) illustrated four out of the five species (the exception being *X. sanctae-helenae*) in his work, maintaining the generic placements he proposed in his earlier work.

Guy (1966) considered *Lynxosa* a subgenus of *Schizocosa* Chamberlin, 1904 and *Vesubia* (inclusive of *V. ligata*) as a valid genus, the latter thereby in agreement with Roewer (1955, 1960). The former act was not recognised by future workers, although it technically created the new combination *Schizocosa* (*Lynxosa*) *inexorabilis*. Guy (1966) also considered *Dolocosa* a synonym of *Leaena*, noting that Bonnet (1955) had considered *D. dolosa* to belong to the genus *Trochosa* C. L. Koch, 1847. Interestingly, *Leaena* was also previously synonymized with *Arctosa* C. L. Koch, 1847 by Lugetti & Tongiorgi (1965) but this was seemingly not noticed by Guy (1966) nor recognised by other later workers that considered Saint Helena taxa.

Tongiorgi (1977) revised the island's lycosids, illustrating all the historical species except X. sanctae-helenae, which he synonymized with the newly combined Lynxosa ligata, thus rejecting both Roewer (1955, 1960) and Guy (1966), although the reference of the last work to this species is omitted from the synonymy list. The combination Lynxosa inexorabilis was restored (rejecting the proposal of Lynxosa as a subgenus of Schizocosa by Guy (1966)) and Leaena dolosa was restored to Dolocosa (see synonymy list). He also described four new species, Isohogna cinica Tongiorgi, 1977 and Hogna nefasta Tongiorgi, 1977, based only on females, and Lycosa elysae Tongiorgi, 1977 and Lycosa ringens Tongiorgi, 1977, based only on males. These four taxa were the first to be described from a precise locality on Saint Helena. Tongiorgi (1977) also provided precise localities for all the historical taxa he considered valid, representing a big step forward in the understanding of the lycosids on Saint Helena. The genera Isohogna Roewer, 1960 and Lynxosa were declared junior synonyms of Hogna Simon, 1885 by Wunderlich (1992), which meant that I. cinica, L. inexorabilis, and L. ligata were now combined in the same genus as *H. cinica*, *H. inexorabilis*, and *H. ligata*, respectively (World Spider Catalog 2022).

In this work, we revise the lycosids of Saint Helena, redescribing all the historical species and redefining the generic replacements of several of them. We also describe two new genera and three new species.

#### Material and methods

Specimens were examined using stereomicroscopes, images of material in the Natural History Museum, London and Oxford University Museum of Natural History were taken by DS using a Leica M125C auto-montage with images stacked using Helicon Focus. Images of material in the Royal Museum for Central Africa (RMCA) were taken mostly by AH (except the male of *H. inexorabilis*, taken by DS) using a Leica DMC500 digital camera mounted on a Leica MZ16A and stacked using the Leica Application Suite (LAS) v. 4.13. Micro-computed tomography analyses were performed by AH, the palps and epigynes of RMCA samples were dehydrated in graded ethanol (70-95%) and stained with a 1% Lugol's iodine solution for 24 hours. After washing in pure acetone, the samples were air-dried for 24 hours, and then gently fixed with a piece of tape on a carbon stick. The pieces were scanned with an XRE-UniTOM (Tescan XRE, Ghent, Belgium) piloted with Acquila software, at 70 keV and 2 W (additional settings: exposure time: 500-700 ms, voxel size: 0.97-1.52 µm, total of 2000 projections). The obtained model was first processed with the Acquila reconstruction software windows version 1.1, followed by segmentation and mesh generation in the 3D analysis Windows-based software Dragonfly 2019 (Object Research Systems (ORS), Canada, https://www. theobjects.com/dragonfly/index.html). The model was further processed in GOM Inspect (https://www.gom.com). Final 3D model, micro-CT scans and photographs of the RMCA specimens are accessible through the RMCA Virtual Collection website (https://virtualcol.africamuseum.be). Genitalia were rehydrated using the wetting agent trisodium phosphate with Agepon, as described in Jocqué (2008) and Beccaloni (2012). Images of material in the Senckenberg Forschungsinstitut und Naturmuseum and Museum für Naturkunde der Humboldt-Universität were taken by Peter Jäger and Jason Dunlop, respectively. Drawings were made by DVL. Male palps were mostly imaged from the righthand side, with the exceptions being the males of Antembolus gen. nov. in RMCA. Abbreviations: Institutions: MMUE = Manchester Museum, Manchester; NHMUK = Natural History Museum, London; OUMNH = Oxford University Museum of Natural History, Oxford; RMCA = Royal Museum for Central Africa, Tervuren; SHNT = Saint Helena National Trust, Jamestown; SMF = Senckenberg Forschungsinstitut und Naturmuseum, Frankfurt-am-Main; ZMB = Museum für Naturkunde der Humboldt-Universität, Berlin. Structures: AER = anterior row of eyes (formed by AMEs and ALEs), ALE = anterior lateral eves, AME = anterior median eyes, PLE = posterior lateral eyes, PME = posterior median eyes, SER = second row of eyes (formed by PMEs), TER = third row of eyes (formed by PLEs). The terminology of sclerites of the copulatory organs follows Zyuzin (1993) and Logunov (2020); the following abbreviations are used in the text and figures: C = conductor, E = embolus, FD = fertilisation ducts, H = hood, Pl = palea, PR = primary receptacles, Se = synembolus, SB = septal base, SP = septal pedicel, SR = secondary receptacles, T = tegulum, TA = tegular apophysis. We regard the clypeus as the distance between AMEs and the frontal margin of carapace. Other: coll. = collector; colln. = collection; det. = determined by. All measurements in mm. Leg and palp measurements are given as total length, followed by individual segment lengths in brackets (i.e. femur, patella, tibia, metatarsus, tarsus for legs and femur, patella, tibia, tarsus for palps). Leg formulae go from longest to shortest leg, e.g. 4,1,2,3. Abbreviations for museum collections follow Evenhuis (2007).

## Lycosidae Sundevall, 1833

## Antembolus gen. nov.

Lycosa: Tongiorgi, 1977 (in part)

## Type species: Lycosa elysae Tongiorgi, 1977.

*Diagnosis: Antembolus* gen. nov. somewhat resembles *Brevilabus* Strand, 1908 but can be distinguished by the triangular shape of the tegular apophysis (stiletto-like in *Brevilabus*). The female is unknown.

*Etymology*: The generic epithet is derived from the words anterior and embolus, in reference to the position at which point the embolus emerges. The gender is masculine.

Distribution: Saint Helena.

*Remarks*: In the palp conformation, particularly the embolus, both species included in the genus show clear similarity to the east Mediterranean *Hogna effera* (O. Pickard-Cambridge, 1872) (Logunov, 2020: figs. 36–38). Yet, whether *H. effera* could also be assigned to *Antembolus* gen. nov., it is impossible to confirm until the females of both *Antembolus* species have been collected and studied. Our definition of *Brevilabus* is based on a photograph of the holotype male of the type species, *Brevilabus oryx* (Simon, 1886), provided to the senior author by Luis Piacentini (9th July 2022). The non-type male of *B. oryx* described and illustrated by Roewer (1960: 160, fig. 84a) is dubious, and the specimen is in need of re-examination.

Despite co-inhabiting the same island, *Antembolus* gen. nov. cannot be synonymous with *Dolocosa*. First, the type species *D. dolosa* is massive in comparison to the congeners of *Antembolus* gen. nov. The body colour pattern and eye arrangement are totally different, therefore the chance that it could represent an example of extreme sexual dimorphism is highly unlikely. In addition, *D. dolosa* occurs in the cloud forest, whereas *Antembolus* gen. nov. species are found in arid areas only. The placement of the arid-living *D. joshuai* sp. nov. in *Dolocosa* is therefore tentative (see below). Whether it could belong to *Antembolus* gen. nov. cannot be asserted without molecular evidence, which was not available for this study.

Species included: A. elysae (Tongiorgi, 1977), A. ringens (Tongiorgi, 1977).

Antembolus elysae (Tongiorgi, 1977) comb. nov. (Figs. 1–14)

*Lycosa elysae* Tongiorgi, 1977: 106, fig. 46a–d. (♂). *Lycosa elysae*: Brignoli (1983): 449.

*Type material*: Holotype  $\delta$  *Lycosa elysae* (BE\_RMCA\_ARA.Ara.136428), Prosperous Bay Plain, 15°57′S 5°39′W, 305–335 m, 17 May 1967, coll. J. Decelle & N. Leleup, examined.

*Diagnosis: Antembolus elysae* comb. nov. can be distinguished from *A. ringens* comb. nov. by the comparatively reduced tegular apophysis (tegular apophysis comparatively more developed in *A. ringens* comb. nov.) and by the wider base of the embolus (base of embolus narrower in *A. ringens* comb. nov.).

Redescription of holotype male: Total length 8.0. Carapace 4.0 long, 2.7 wide. Eye sizes and interdistances: PME > PLE, PLE > AME, AME > ALE, PME-PME 0.3, PLE-PLE 0.8, PME-PLE 0.3. Chelicera 0.8 long, 0.6 wide (Fig. 5). Abdomen 4.0 long, 2.3 wide. Leg formula 4,1,2,3. Palp: cymbial tip short ( $2.7 \times$  shorter than bulbus), with single claw at tip; tegular apophysis anchor shaped, with triangular ventral spur; synembolus sickle shaped, as long as tegular apophysis; embolus whip shaped, originating at 12 o'clock and making 270° revolution; conductor membranous, low, inconspicuous (Figs. 6-14). Cheliceral teeth 5 (Fig. 5). Colouration in alcohol: legs, opisthosoma cream; opisthosoma with dot markings; legs annulated; carapace with two parallel stripes extending whole length, separated >1.0 times their width; chelicerae of homogenous colour to carapace (Figs. 1-3). Colours in vivo: male with carapace white, with two black markings either side of ocular tubercle, extending entire length of carapace, legs of homogenous colour to opisthosoma, opisthosoma with 4-6 black dots dorsally (intraspecifically variable) (Fig. 4).

Female unknown.

Other material examined: 2 승 (NHMUK AQ ZOO 2022-84), Prosperous Bay Plain, 21 February 2006, Site SBS22: South Basin Samphire, 15°57'22.0"S 5°39'35.0"W, 2650/V; 1 (NHMUK AQ ZOO 2022-84), Prosperous Bay Plain, Basin Yellow Dust, 20-24 November 2003, coll. and colln. P. Ashmole and M. Ashmole, ex. 1710V, 663/V; 2රී් (NHMUK AQ ZOO 2022-84), PBP Stone Hill [= Stone Hill, Prosperous Bay Plain], 16 February 2006, [coll. and colln. P. Ashmole and M. Ashmole], 2605/V; 13, 1 imm. (NHMUK AQ ZOO 2022-84), Prosperous Bay Plain, Samphire Plain, 20 November 2003, coll. and colln. P. Ashmole and M. Ashmole, 1640/V; 13 (MMUE G7572.13485), [Prosperous Bay Plain, although not stated on label], October 2003, coll. P. Ashmole and M. Ashmole - J. Murphy and colln., 478/V, 23877; 1♂ (MMUE F. Murphy G7572.13487), [Prosperous Bay Plain, although not stated on label], October 2003, coll. P. Ashmole and M. Ashmole – J. Murphy and F. Murphy colln., 613/V, 23879.

*Distribution*: Known only from Prosperous Bay Plain, Saint Helena.

*Remarks*: Examination of the above samples indicated little intraspecific variation in the size of the TA, however some variation in the opisthosomal markings was evident. Tongiorgi (1977: 106) gave the following data on spination in *A. elysae* comb. nov. (as *Lycosa elysae*): "Le tibia de la Ire paire est muni ventralement de deux paires d'épines courtes et fines et d'une épine sétiforme apicale." [= The tibia of the first pair is equipped ventrally with two pairs of short and fine spines and an apical setiform spine.].

# Antembolus ringens (Tongiorgi, 1977) comb. nov. (Figs. 15–26)

*Lycosa ringens* Tongiorgi, 1977: 107, fig. 47a–c. (♂). *Lycosa ringens*: Brignoli (1983): 450.

*Type material*: Holotype & *Lycosa ringens* (BE\_RMCA\_ARA.Ara.129358), Fisher's Valley, 15°57'S 5°40'W, 366 m, 11–13 November 1965, coll. P. Basilewsky, P.L.G. Benoit and N. Leleup, examined.

*Diagnosis: Antembolus ringens* comb. nov. can be distinguished from *A. elysae* comb. nov. by the comparatively more developed tegular apophysis (TA comparatively reduced in *A. elysae* comb. nov.) and by the narrower base of the embolus (base of embolus wider in *A. elysae* comb. nov.).

Redescription of holotype male: Total length 3.8. Carapace 1.8 long, 1.4 wide. Eye sizes and interdistances: PME > PLE, PLE > AME, AME > ALE, PME-PME 0.1, PLE-PLE 0.4, PME-PLE 0.2. Chelicera 0.6 long, 0.4 wide. Abdomen 1.6 long, 0.8 wide. Leg formula 4,1,2,3. Palp: cymbial tip short ( $1.6 \times$  shorter than bulbus), single claw at tip; tegular apophysis strong, elongated triangular, with ventral spur; synembolus sickle shaped, as long as tegular apophysis; embolus whip shaped, with twisted tip, originating at 12 o'clock and making 270° revolution; conductor membranous, low, inconspicuous (Figs. 18-26). Cheliceral teeth 3 (Fig. 17). Colouration in alcohol: opisthosoma, legs light brown, opisthosoma with dot markings, legs annulated, carapace with two stripes their entire length >1.0times their width, chelicerae homogenous in colour to carapace (Figs. 15-17). Colours in vivo unknown.

Female unknown.

*Distribution*: Known only from Haute Fisher's Valley, Saint Helena.

*Remarks*: In contrast to *A. elysae* comb. nov. this species remains known from a single specimen and thus nothing is known about intraspecific variation, habitus *in vivo*, or ecology. We are unsure why this species remains elusive, because fieldwork efforts have attempted to locate it. Whilst further sampling is needed, the possibility this species may have disappeared has to be considered. Tongiorgi (1977: 108) gave the following data on spination in *A. ringens* comb. nov. (as *Lycosa ringens*): "Le tibia de la Ire paire est muni ventralement de trois paires de longues épines, d'une épine sétiforme apicale, et d'une paire d'épines sétiformes sous-basales." [= The tibia of the first pair is provided ven-



Figs. 1–8: *Antembolus elysae* (Tongiorgi, 1977) comb. nov., holotype male (BE\_RMCA\_ARA.Ara.136428) (1–3, 5–8), non-type male, not collected (4). **1** habitus, dorsal view; **2** same, lateral view; **3** same, ventral view; **4** live spider; **5** chelicerae, ventral view; **6** palp, prolateral view; **7** same, ventral view; **8** same, retrolateral view. C = conductor, E = embolus, PI = palea, Se = synembolus, T = tegulum, TA = tegular apophysis. Scale bars = 2 mm (1–3), 0.2 mm (5–8).



Figs. 9–14: Antembolus elysae (Tongiorgi, 1977) comb. nov. holotype male (BE\_RMCA\_ARA.Ara.136428), palp micro-CT images. 9 prolateral view; 10 pro-ventral view; 11 ventro-prolateral view; 12 ventral view; 13 retro-ventral view; 14 retrolateral view. Scale bars = 0.2 mm.

trally with three pairs of long spines, an apical bristle spine, and a pair of sub-basal setiform spines.].

Dolocosa dolosa (O. Pickard-Cambridge, 1873) (Figs. 27–43)

*Lycosa dolosa* O. Pickard-Cambridge, 1873: 233. ( $\bigcirc$ ). *Lycosa (Trochosa) dolosa*: Melliss (1875): 216–217. *Leaena dolosa*: Roewer (1955): 264. *Trochosa dolosa*: Bonnet (1959): 7402.

*Dolocosa dolosa*: Roewer (1960): 935, fig. 519a–c. (♀).

*Leaena dolosa*: Guy (1966): 74–75. (not explicitly, resultant by synonymy of *Dolocosa* with *Leaena*, and also inadvertently rejecting synonymy of *Leaena* with *Arctosa*).

*Dolocosa dolosa*: Tongiorgi (1977): 116: fig. 50a–e. (♀).

*Type material*: Holotype  $\bigcirc$  *Lycosa dolosa* (OUMNH 1638), St Helena, coll. J. C. Melliss, O. Pickard-Cambridge colln., examined.

*Diagnosis*: *Dolocosa dolosa* differs from *D. joshuai* sp. nov. by the wider median septum and the hoods separated by their width (hoods situated much closer to each other, touching each other along the midline in *D. joshuai* sp. nov.), the smaller PME–AME ratio (2, *v*. 4 in *D. joshuai* sp. nov.), and by the proximally rounded secondary receptacles (proximally pointed in *D. joshuai* sp. nov.). Furthermore, the epigyne of *D. dolosa* is more than two times larger than that of *D. joshuai* sp. nov. and both species also have different leg formulas (leg I longest in *D. dolosa v.* leg IV longest in *D. joshuai* sp. nov.).



Figs. 15–20: Antembolus ringens (Tongiorgi, 1977) comb. nov., holotype male (BE\_RMCA\_ARA.Ara.129358). **15** habitus, dorsal view; **16** same, lateral view; **17** same, ventral view; **18** palp, prolateral view; **19** same, ventral view; **20** same, retrolateral view. Scale bars = 1 mm (15–17), 0.2 mm (18–20).

*Redescription of holotype female* (OUMNH 1638): Total length 20.2. Carapace 9.4 long, 6.0 wide. Eye sizes and interdistances: PME > PLE, PLE > AME, AME > ALE, PME–PME 0.3, PLE–PLE 1.4, PME–PLE 0.5. Chelicera 2.4 long, 2.1 wide. Abdomen 8.7 long, 4.3 wide. Leg formula 1,4,2,3. Epigyne and vulva: median septum in shape of anchor, longer than wide, lateral sides tapering distally (septal length/width ratio 3.6 in its narrowest part); posterior transverse plate ~6× as long as wide; hoods separated by distance equal to width of each hood (Fig. 31), vulva not examined due to fragility. Cheliceral teeth 5. Colouration in alcohol: brown, opisthosoma lighter in colour than carapace and legs, carapace darker than legs, chelicerae darker than carapace (Figs. 27–28).

Epigyne and vulva of non-type female (NHMUK AQ ZOO 2022-84): epigyne as in holotype (Fig. 33), secondary receptacles short and oval, as wide as insemination ducts;

primary receptacles oval, heavily sclerotized; fertilization ducts prominent, situated near epigastric furrow, directed apically (Figs. 34).

Colours *in vivo*: carapace and opisthosoma dark brown, opisthosoma with orange-brown mottling, legs light orange with weakly developed grey annulation, most noticeable on femora (Figs. 40–42).

Male unknown.

Other material examined:  $2\Im \Im$  (NHMUK AQ ZOO 2022-84), Taylor's 007 Gut [= Taylor's Gut], 752 m, in burrows near Jellico patch, 27 July 2005, coll. and colln. P. Ashmole, 2163;  $1\Im$  (SHNT), Diana's Peak, in burrow on ground to side of path, 23 November 2022, coll. D. Sherwood and P. Leo;  $1\Im$  (SHNT), Diana's Peak, in burrow on ground on path, 24 November 2022, coll. D. Sherwood and M. Johnson;  $1\Im$  (BE\_RMCA\_ARA.Ara.129103), St Helena, Horse Point Plain [locality erroneous], 1300–1400',



Figs. 21–26: Antembolus ringens (Tongiorgi, 1977) comb. nov., holotype male (BE\_RMCA\_ARA.Ara.129358), palp micro-CT images. 21 prolateral view; 22 pro-ventral view; 23 ventral view; 24 ventro-retrolateral view; 25 retro-ventral view; 26 retrolateral view. Scale bars = 0.2 mm.

25 November 1966, coll. P. Basilewsky, P. L. G. Benoit and N. Leleup.

*Distribution*: Diana's Peak and Taylor's Gut, Saint Helena.

*Natural history*: Melliss (1875) stated that *D. dolosa* occurred on Diana's Peak (no locality was mentioned in the original description) in burrows and the aforementioned specimens both in NHMUK (Figs. 33–39) and SHNT match the morphology of the holotype showing only slight variation in the epigyne, namely the width of the septum. *Dolo*-

*cosa dolosa* occurs only in deep (>0.3 m) burrows, in mud banks and even on the ground of the paths themselves (Fig. 43), in contrast to *Hogna ligata*. It is interesting to note that the tarsi of *D. dolosa* are devoid of spinules (*sensu* Zyuzin, 1990) on their ventral sides (Figs. 29–30, 36–37), which is in contrast to many large burrowing wolf spiders (e.g. Logunov 2010). The records from Taylor's Gut represent a new locality for this species. The female in RMCA (Fig. 32) has erroneous label data (Horse Point Plain) and the stated elevation indicates it was instead collected from the cloud



Figs. 27–39: *Dolocosa dolosa* O. Pickard-Cambridge, 1873, holotype female (OUMNH 1638) (27–28, 31), non-type female (NHMUK AQ ZOO 2022-84) (29–30, 33–39), non-type female (BE\_RMCA\_ARA.Ara.129103) (32). **27** habitus, dorsal view; **28** same, ventral view; **29** palpal tarsus, apical view; **30** same, lateral view; **31** epigyne, ventral view; **32** same, ventral view; **33** same, ventral view; **34** vulva, dorsal view; **35** ocular area, anterior view; **36** left tarsus I, ventral view; **37** left tarsus IV, ventral view; **38** chelicerae, ventral view; **39** carapace, lateral view; FD = fertilization ducts, H = hood, PR = primary receptacles, SB = septal base, SP = septal pedicel, SR = secondary receptacles. Scale bars = 2 mm (27–28, 39), 1 mm (30, 35–38), 0.5 mm (29), 0.25 mm (31–34).



Figs. 40-43: Dolocosa dolosa O. Pickard-Cambridge, 1873. 40-42 non-type female (SHNT) in vivo; 43 burrows at Diana's Peak.

forest. No evidence that this species occurs in arid area was found during fieldwork.

Remarks: Dolocosa dolosa has five cheliceral teeth (e.g. Fig. 38). Tongiorgi (1977: 116) gave the following data on spination in D. dolosa: "Les tibias de la Ire paire sont munis ventralement de cinq paires d'épines et de la paire d'épines apicales. Les tibias de la IIe paire sont munis ventralement de quatre paires d'épines. Les tibias de la IIIe paire n'ont pas une véritable épine sur la partie basale du côté dorsal. Les tibias de la IVe paire ont tout au plus une soie dans la partie distale de la face dorsale et sont privés d'épines sur la face ventrale." [= The tibiae of the first pair are provided ventrally with five pairs of spines and the pair of apical spines. The tibiae of the second pair are furnished ventrally with four pairs of spines. The tibiae of the III pair do not have a true spine on the basal part of the dorsal side. The tibiae of the IV pair have at most one bristle in the distal part of the dorsal side and are devoid of spines on the ventral side.]. Furthermore, he figures the ventral leg I of one of the RMCA specimens (Tongiorgi, 1977: 118, fig. 50F), also examined by us, and we find his spination data to be congruent with our own observations.

## Dolocosa joshuai sp. nov. (Figs. 44–52, 177, 181–183)

*Type material*: Holotype  $\bigcirc$  (NHMUK AQ ZOO 2022-84), Prosperous Bay Plain, Stone Hill Springs (Ashmole's Site 20), 02 November 2003, coll. and colln. P. Ashmole and M. Ashmole, Site SHS20: Stone Hill Springs, 15°57'11.0"S 5°39'17.0"W, 950/V; paratypes:  $1^{\circ}_{+}$  (NHMUK AQ ZOO 2022-84), Prosperous Bay Plain, Stone Hill Springs (Ashmole's Site 20), 02 November 2003, coll. and colln. P. Ashmole and M. Ashmole, Site SHS20: Stone Hill Springs, 15°57′06.6″S 5°39′10.2″W, 950/V; 1♀, 1 imm. (NHMUK AQ ZOO 2022-84), Prosperous Bay Plain, Basin Yellow Dust (Ashmole's Site 24), 20 November 2003, coll. and colln. P. Ashmole and M. Ashmole, Site BYD24: Basin Yellow Dust, 15°57′16.6″S 5°39′22.6″W, 1644/V; 1♀ (NHMUK AQ ZOO 2022-84), PBP-SBS 22 [= Prosperous Bay Plain], night, 23 February 2006, [coll. and colln. P. Ashmole and M. Ashmole], 2666/V; 1 imm. ♂, 1 imm. ♀, 1 imm. (NHMUK AQ ZOO 2022-84), Prosperous Bay Plain, Stone Hill Springs (Ashmole's Site 20), 02 November 2003, coll. and colln. P. Ashmole and M. Ashmole, Site SHS20: Stone Hill Springs, 15°57'06.6"S 5°39'10.2"W, 951/V; 2 imm. ♀♀, 1 imm. (NHMUK AQ ZOO 2022-84), Prosperous Bay Plain, Samphire Plain, 20 October 2003, coll. and colln. P. Ashmole and M. Ashmole, lycosids in social burrow system, 612/V; 1<sup>Q</sup> (MMUE G7572.13486), [no precise locality stated on label], Saint Helena, October 2003, coll. P. Ashmole and M. Ashmole - J. Murphy and F. Murphy colln., 801/V, 23878; 1<sup>Q</sup> (SHNT), Louren's Site 12, 15°58'33.4"S 5°41'54.6"W, 03 Ocober 2016, Hogna inexorabilis det. DJP [= David J. Pryce] 06 October 2016.

*Diagnosis*: *Dolocosa joshuai* sp. nov. differs from the holotype female of *D. dolosa* in having the narrower median



Figs. 44–51: *Dolocosa joshuai* sp. nov. holotype female (NHMUK AQ ZOO 2022-84). **44** habitus, dorsal view; **45** same, ventral view; **46** palpal tarsus, lateral view; **47** chelicerae, ventral view; **48** ocular area, anterior view; **49–50** epigyne, ventral views; **51** vulva, dorsal view. Scale bars = 5 mm (44–45), 1 mm (49), 0.5 mm (47), 0.1 mm (50–52).

septum, the hoods situated much closer to each other, touching each other along midline (separated by a width in *D*. *dolosa*), the larger PME–AME ratio (4 v. 2 in *D*. *dolosa*), and by the proximally pointed secondary receptacles (proximally rounded in *D*. *dolosa*). Furthermore, the epigyne of *D*. *joshuai* sp. nov. is more than  $2\times$  smaller than that of *D*. *dolosa* and leg IV is the longest (leg I longest in D. dolosa). *Etymology*: The specific epithet is a patronym honouring Saint Helena conservationist Daryl Joshua (Saint Helena National Trust), part of the new generation of biologists on Saint Helena and who assisted the senior author with her fieldwork whilst on the expedition.

*Description of holotype female*: Total length 9.75. Carapace 4.85 long, 2.75 wide. Eye sizes and interdistances: PLE > PME, PLE > AME, AME > ALE, AME-AME 0.18,



Fig. 52: *Dolocosa joshuai* sp. nov. non-type female (not collected) *in vivo*, Prosperous Bay Plain. Photo courtesy of Philip Ashmole.

AME-ALE 0.25, PME-PME 0.45, PLE-PLE 0.85, PME-PLE 0.38, AER 1.13, SER 1.33, TER 1.55. Chelicera 2.13 long, 0.94 wide (Fig. 47). Abdomen 4.90 long, 2.70 wide. Legs: I – 9.90 (2.75, 1.60, 2.10, 1.85, 1.60); II – 8.30 (2.40, 1.30, 1.80, 175, 1.05); III - 7.15 (2.25, 1.10, 1.30, 1.60, 0.90); IV - 10.45 (2.95, 1.55, 2.50, 2.30, 1.15). Leg formula 4,1,2,3. Epigyne and vulva: median septum in shape of inverted T, longer than wide, with subparallel lateral sides (septal length/width ratio 5.5); posterior transverse plate about 4.2× as long as wide; hoods touch along midline; secondary receptacles ovoid, notably pointed proximally, as wide as insemination ducts; primary receptacles oval, heavily sclerotized; fertilization ducts prominent, situated near epigastric furrow, directed latero-apically (Figs. 49-51). Cheliceral teeth 5 (Fig. 47). Colouration in alcohol: carapace orange-yellow, with pale brown, narrow radial lines; eye field bright yellow; sternum bright yellow; labium and endites orange-yellow, with white apexes; chelicerae dark brown; abdomen dorsum yellow with pale brown reticulate pattern, cardiac mark bright yellow, sides and venter bright yellow; book-lung covers and spinnerets yellow; legs: femora yellow, remaining segments yellow with brownish tinge; palps yellow, with brownish tinge (Figs. 44-46). Spination: ventral tibia I-III with three pairs of spines, additionally with some spine-like setae at apex, ventral metatarsi I-II with two pairs of spines, metatarsus III with three pairs of spines and one triplet of spines at apex ventrally, metatarsus IV with single spine posteriorly, one pair of spines medially, and two pairs of spines at anterior apex ventrally. Some spines present dorsally on femora, patellae and tibia, variable on opposing sides of the specimen (see Fig. 44). Colours in vivo: female overall brown, legs darker than carapace or opisthosoma, annulated, chelicerae darker than carapace, opisthosoma with pattern of interconnecting vertical and horizontal lines and white blotches (Fig. 52).

Saint Helenian wolf spiders

Male unknown.

Distribution: Prosperous Bay Plain, Saint Helena

*Natural history: Dolocosa joshuai* sp. nov. is common on Prosperous Bay Plain (DS and LF pers. obs.) where it occupies short burrows in the gritty dirt (Figs. 181, 183). Some burrows were found completely in the open, whereas others were constructed under rocks, the entrances are much smaller than those of *H. nefasta*. Hitherto, no males have been collected despite concentrated searches.

*Remarks*: The assignment of the new species to *Dolocosa* is tentative, as its eye pattern (Fig. 48) is somewhat different from that of the type species, particularly in the AME-clypeus ratio, which is 3.6 in *D. joshuai* sp. nov. and 0.6 in *D. dolosa*. The comparative distances between AER also differ: AME–PLE is 1.4 times longer than AME–AME in *D. joshuai* sp. nov. while it is equal in *D. dolosa*. The body length of *D. joshuai* sp. nov. is more than 2× smaller than in *D. dolosa*. Nonetheless, based on epigynal morphology, and in the absence of males, we have decided it is best placed in *Dolocosa* at present (however, see remarks for *Antembolus* gen. nov.).

## Molearachne gen. nov.

*Type species: Molearachne sanctaehelenae* sp. nov.

*Diagnosis: Molearachne* gen. nov. belongs to the Lycosinae and differs from all other lycosine genera (and apparently from all the Afrotropical lycosid genera) in having the small eyes of the second and third rows, which are of about the same size as those of anterior row of eyes (Figs. 62, 66), PMEs and PLEs are always much larger in other lycosid genera known to date. Furthermore, the cheliceral armament is also unique, with a single tiny retromarginal and three large promarginal teeth (Figs. 61, 67, *v*. 2–3 medium-sized/large retromarginal teeth in other known genera).

*Etymology*: The generic epithet is a combination of the word 'mole' (because the type species constructs unique earth mounds; Figs. 70–72) and *arachne* (Greek: spider), in recognition that this is a uniquely endemic genus; gender feminine.

Distribution: Saint Helena.

Species included: M. sanctaehelenae sp. nov.

*Remarks*: Whilst spination is slightly variable (exact count can vary by one spine on opposing sides of the specimen), a very striking feature is that tibiae and metatarsi I–II are aspinose both dorsally and ventrally in both sexes. This is in contrast to tibiae and metatarsi III–IV, which are spinose (e.g. Figs. 63–65). A single paratype male (MMUE G7572.13511) has been DNA sequenced, the data is available from BOLD (2023): https://www.boldsystems.org/index.php/Public\_RecordView?processid=HELEN080-23. Given the lack of molecular data for all Saint Helena endemics and the chaotic state of the taxonomy of the family, no attempt was made to infer a precise phylogeny of the island's taxa. Nonetheless, the molecular data provided further evidence that this genus is a lycosid, despite the truly remarkable eye arrangement.



Figs. 53–58: *Molearachne sanctaehelenae* gen. et sp. nov., holotype male and paratype female (NHMUK AQ ZOO 2022-84). **53** right palp, ventral view; **54** same, prolateral view; **55** tegular apophysis, dorsal view; **56** right palp, retrolateral view; **57** same, ventral view; **58** same, prolateral view; **59** epigyne, ventral view; **60** vulva, dorsal view. Scale bars = 0.1 mm.

## Molearachne sanctaehelenae sp. nov. (Figs. 53-72)

Type material: Holotype ♂ (NHMUK AQ ZOO 2022-84), Prosperous Bay Plain, September-December 2003, coll. and colln. P. Ashmole and M. Ashmole, Site SBS22: South Basin Samphire, 15°57'22.0"S 5°39'35.0"W, 1733/V; paratypes: 1∂, 1♀ (NHMUK AQ ZOO 2022-84), Prosperous Bay Plain, South Basin Samphire, 02 March 2006, coll. E. A. Thorpe – P. Ashmole and M. Ashmole colln., 2709/V; 16 (NHMUK AQ ZOO 2022-84), Prosperous Bay Plain, 25 November 2003, coll. and colln. P. Ashmole and M. Ashmole, 1755/V, Site SBS22: South Basin Samphire, 15°57′22.0″S 5°39′35.0″W; 200 (NHMUK AQ ZOO 2022-84), Prosperous Bay Plain, 21 February 2006, coll. and colln. P. Ashmole and M. Ashmole, Site SBS22: South Basin Samphire, 15°57′22.0″S 5°39′35.0″W, 2650/V; 1∂, 1<sup>Q</sup> (NHMUK AQ ZOO 2022-84), Prosperous Bay Plain, South Basin Samphire, 02 March 2006, coll. E. A. Thorpe - P. Ashmole and M. Ashmole colln., 2709/V; 1 imm. (NHMUK AQ ZOO 2022-84), Prosperous Bay Plain, 27 February 2006, coll. and colln. P. Ashmole and M. Ashmole, 2692/V, Site SBS22: South Basin Samphire, 15°57'22.0"S 5°39'35.0"W; 1 $^{\circ}$ , 1  $^{\circ}$  (NHMUK AQ ZOO 2022-84), Prosperous Bay Plain, South Basin Samphire, 02 March 2006, coll. E. A. Thorpe – P. Ashmole and M. Ashmole colln., 4439/V; 1 $^{\circ}$  (MMUE G7572.13511), PBP4 (Earwig Gulley), 27 September 2003–13 October 2003, coll. P. Ashmole and M. Ashmole, 68/V, colln. J. Murphy and F. Murphy, 23898.

#### Diagnosis: As for the genus.

*Etymology*: The specific epithet is an attributive, referring to the island of Saint Helena, where this species is endemic.

*Description of holotype male*: Total length 6.55. Carapace 3.80 long, 2.65 wide. Eye sizes and interdistances: PLE < PME, PLE = AME, AME = ALE, AME-AME 0.03,



Figs. 61–67: *Molearachne sanctaehelenae* gen. et sp. nov., holotype male and paratype female (NHMUK AQ ZOO 2022-84). **61** female chelicerae, ventral view; **62** female ocular area, anterior view; **63** female habitus, dorsal view; **64** same, ventral view; **65** male habitus, dorsal view; **66** male ocular area, anterior view; **67** male chelicerae, ventral view. Scale bars = 2 mm (63–65), 0.2 mm (61–62, 66–67).

AME-ALE 0.04, PME-PME 0.09, PLE-PLE 0.58, PME-PLE 0.30, AER 0.58, SER 0.40, TER 0.78. Chelicera 1.46 long, 0.57 wide. Abdomen 2.75 long, 1.90 wide. Legs: I -11.05 (2.85, 1.60, 2.60, 2.35, 1.65), II - 10.35 (3.20, 1.40, 2.15, 2.20, 1.40), III - 9.15 (2.60, 1.20, 1.65, 2.50, 1.20), IV - 14.00 (3.75, 1.55, 2.75, 41.0, 1.85). Leg formula 4,1,2,3. Palps yellow, with orange-yellow cymbia. Palp cymbial tip short, about equal to bulbus  $(1.2 \times \text{ shorter})$ , lacking claw at tip; tegular apophysis transverse-triangular, with wide base, blade-like tip, spur at base (in apical view); synembolus sickle shaped; embolus with well developed pars pendula, originating at 11-12 o'clock and making about 200° revolution; conductor membranous, wide, low, inconspicuous (Figs. 53-58). Colouration: carapace orange-yellow, covered with white recumbent hairs, without midline band, with pale brown radial lines; sternum yellow, tinged with brown at margins, with pale brown median streak; labium and endites light yellow, with white apexes; chelicerae orange-yellow; abdomen dorsum and sides light yellow, with grey reticulate pattern, venter light yellow, with two inclined grey lines meeting in centre of venter at midline; book-lung covers and spinnerets light yellow; legs light yellow, remaining segments orange-yellow (Fig. 65).

Description of paratype female: Total length 8.20. Carapace 3.75 long, 2.75 wide. Eye sizes and interdistances: PLE < PME, PLE > AME, AME = ALE, AME-AME 0.04, AME-ALE 0.06, PME-PME 0.11, PLE-PLE 0.69, PME-PLE 0.38, AER 0.66, SER 0.41, TER 0.90. Chelicera 2.00 long, 0.80 wide. Abdomen 4.45 long, 2.85 wide. Legs: I -8.45 (2.65, 1.60, 1.80, 1.40, 1.00), II - 8.25 (2.30, 1.35, 1.50, 1.30, 0.90), III - 6.70 (2.05, 1.10, 1.10, 1.60, 0.85), IV - 9.65 (2.85, 1.50, 1.75, 2.40, 1.15). Leg formula 4,1,2,3. Epigyne and vulva: median septum longer than wide, with concave lateral sides (septal length/width ratio 2.6 in narrowest part); hoods touch along midline; secondary receptacles round, with C-shaped ducts 2× as narrow as diameter of each SR; primary receptacles cone shaped, heavily sclerotized; fertilization ducts prominent, situated near epigastric furrow (Figs. 59-60). Colouration as in male but differs as follows: cephalic part of carapace darker (brownish) than thoracic; chelicerae dark brown; sternum entirely yellow, without brownish tinge; palps entirely light yellow (Figs. 63-64).

Colours *in vivo*: Male overall brown, carapace and opisthosoma darker than legs, legs lightly annulated, opisthosoma with large dorso-medial stripe and numerous annulations on dorsal and lateral faces, chelicerae of



Fig. 68: Paratype male of *Molearachne sanctaehelenae* gen. et sp. nov. (NHMUK AQ ZOO 2022-84), *in vivo*, collected from Prosperous Bay Plain. Photo courtesy of Philip Ashmole.

homogenous colour to carapace (Fig. 68). Female not yet photographed alive. Juveniles do not show apparent ontogenetic variation in colouration (DS and LF pers. obs.).

*Distribution*: Prosperous Bay Plain and Bradleys, Saint Helena.

*Natural history*: Perhaps the most famous spider species on Saint Helena, *Molearachne sanctaehelenae* gen. et sp. nov. constructs unique mounds (pers. obs., see also Cairns-Wicks & Lambdon 2012 and Dutton 2020) from the dry earth of its habitat (Figs. 69-72). Based on our current field observations it appears that single specimens can make multiple mounds with interconnecting web tunnels (Fig. 72). Mounds which were observed to have specimens under them on one night are often vacant the next night, with the (presumed) same specimen in a neighbouring mound (DS and LF pers. obs.). Adult males presumably wander and have been collected from under rocks (Cairns-Wicks & Lambdon, 2012). In comparison to A. elysae comb. nov. and D. joshuai sp. nov., which are common throughout Prosperous Bay Plain, populations of M. sanctaehelenae gen. et sp. nov. are much more restricted, predominately in the Central Basin. We have only observed live specimens at Prosperous Bay Plain (where the main population exists) but have observed nearby mounds at Bradley's, which are close enough to the main population for us to conclude they are conspecific (i.e. no significant biogeographical barriers between the sites).

Several years ago, LF found similar mounds at Blue Point, suggesting a separate population likely occurs there, although live specimens have yet to be observed despite a subsequent joint visit (where many mounds were observed) by DS and LF. Thus, until specimens from Blue Point are examined, we cannot rule out the possibility the Blue Point population may be another species of *Molearachne* gen. nov. given the distance from the previously known sites of this species, and the fact that most Saint Helenian lycosids



Figs. 69–72: Habitat of *Molearachne sanctaehelenae* gen. et sp. nov. **69** Prosperous Bay Plain; **70** fresh mound; **71** old mound, inset: uncovered mound with burrow; **72** exposed subterranean web tunnels.



Figs. 73–78: Hogna cinica (Tongiorgi, 1977), holotype female (BE\_RMCA\_ARA.Ara.129184). 73 habitus, antero-lateral view; 74 carapace, dorsal view; 75 epigyne, uncleared, ventral view; 76 epigyne, cleared, ventral view; 77 vulva, cleared, dorsal view; 78 same, dorso-posterior view. Scale bars = 5 mm (79–80), 0.2 mm (81–84).

are short-range endemics. The collection and examination of material from that locality is essential to elucidate its taxonomic identity.

#### Hogna cinica (Tongiorgi, 1977) (Figs. 73-84)

*Isohogna cinica* Tongiorgi, 1977: 121, figs. 52a–d. ( $\bigcirc$ ). *Isohogna cinica*: Brignoli (1983): 447.

*Type material*: Holotype  $\bigcirc$  *Isohogna cinica* (BE\_RM-CA\_ARA.Ara.129184), Prosperous Bay, Bryan's Rock, 15°57'S 5°39'W, 305 m, 14 December 1965, coll. P. Basilewsky, P.L.G. Benoit and N. Leleup, examined; paratypes 2 imm.  $\bigcirc \bigcirc \square$  *Isohogna cinica* (BE\_RMCA\_ARA. Ara.136423), Prosperous Bay, Bryan's Rock, 305 m, 14 November 1965, coll. P. Basilewsky, P.L.G. Benoit and N. Leleup, examined. Note: additional paratype female from High Peak is misidentified specimen of *H. ligata* (see below).

*Diagnosis: Hogna cinica* can be distinguished from the majority of *Hogna* species that have been recently described or revised (e.g. Logunov 2020; Crespo *et al.* 2022), by the relatively short, triangular median septum (compared to long/very long narrow septum in shape of inverted T in other species, or dumbbell shaped, see below). In having the round secondary receptacles, *H. cinica* is most similar to *H. blackwalli* (Johnson, 1863) and *H. heeri* (Thorell, 1875)

(Crespo *et al.* 2022: figs. 6D–E, 9), from which it can be separated by shorter and wider insemination ducts.

Redescription of holotype female (BE RMCA ARA. Ara.129184): Total length 16.4. Carapace 8.1 long, 6.9 wide. Eye sizes and interdistances: PME > PLE, PLE > AME, AME > ALE, PME-PME 0.5, PLE-PLE 1.3, PME-PLE 0.7. Chelicera 2.5 long, 2.1 wide. Abdomen 8.4 long, 3.4 wide. Leg formula 4,1,2,3. Epigyne and vulva: median septum triangular (septal length/posterior transverse plate width ratio 0.8); hoods wide and shallow, separated by septal width; secondary receptacles round, twice as wide as insemination ducts; primary receptacles oval, heavily sclerotized; fertilization ducts prominent, situated near epigastric furrow, directed apically (Figs. 75-84). Colouration in alcohol: brown, opisthosoma darker than carapace and legs, opisthosoma speckled, carapace with light marking on caput extending to fovea, chelicerae darker than carapace and legs (Figs. 73-74). Colours in vivo unknown.

Male unknown.

*Distribution*: Known only from Prosperous Bay Plain, Saint Helena.

*Remarks*: The immature paratype female of *H. cinica* from High Peak is a misidentified specimen of *H. ligata*. Despite concerted recent search efforts by DS and LF and more than 10 years of previous sampling of the area by other workers, no specimens of *H. cinica* have been located since its original description. The possibility it represents a specimen of another more well-known species but with epigynal abnormality either as a result of congenital or parasite infes-



Figs. 79–84: Hogna cinica (Tongiorgi, 1977), holotype female (BE\_RMCA\_ARA.Ara.129184), epigyne and vulva micro-CT images. 79 epigyne, ventral view; 80 same, ventro-posterior view; 81 same, dorso-anterior view; 82 vulva, dorsal view; 83 same, dorso-posterior view; 84 same, dorso-anterior view; Scale bars = 0.2 mm.

tation (e.g. Noordam 2021) is worth considering, or it could have been an occasional introduction of an alien species. As with other species retained in *Hogna* here, we believe that this species may need to be moved to another genus in the future, but this cannot be achieved until *Hogna* is revised globally.

Tongiorgi (1977: 121) gave the following, accurate, data for spination and cheliceral teeth: "Les tibias de la Ire et de la IIe paire sont munis ventralement de trois épines sur la marge antérieure (médiane) et de deux épines sur la marge postérieure; les deux épines apicales sont absentes sur les tibias de la Ire paire (fig. 52c), alors que sur les tibias de la Ire paire on en trouve une seule sur la marge antérieure. Seule une fine épine sétiforme se trouve dans la partie basale de la face dorsale des tibias de la IVe paire, alors que les tibias de la IIe paire sont munis dorsalement de deux épines dont l'épine basale est la plus fine. Les chélicères sont munis de trois dents, tant sur la marge supérieure que sur la marge inférieure." [= The tibiae of the I and II pair are provided ventrally with three spines on the anterior (median) margin and two spines on the posterior margin; the two apical spines are absent on the tibiae of the first pair (fig. 52c), whereas on the tibiae of the first pair only one is found on the anterior margin. Only a fine setiform spine is found in the basal part of the dorsal surface of the tibiae of the fourth pair, whereas the tibiae of the second pair have two spines dorsally, the basal spine of which is the thinnest. The chelicerae are provided with three teeth, two on the upper margin and one on the lower margin.].

## *Hogna inexorabilis* (O. Pickard-Cambridge, 1870) (Figs. 85–96)

*Lycosa inexorabilis* O. Pickard-Cambridge, 1870: 541, pl. 42, fig. 9.  $(\stackrel{\bigcirc}{+})$ .

- Lycosa inexorabilis: Melliss (1875): 217.
- Lycosa inexorabilis: Simon (1883): 307, 309.

Lycosa inexorabilis: Simon (1898): 343.

- Lynxosa inexorabilis: Roewer (1955): 277.
- Lycosa inexorabilis: Bonnet (1957): 2646.
- *Lynxosa inexorabilis*: Roewer (1960): 899, fig. 499a–b.  $(\stackrel{\bigcirc}{+})$ .
- Schizocosa (Lynxosa) inexorabilis: Guy (1966): 88–89. (not explicitly, resultant by synonymy of Lynxosa with Schizocosa).



Figs. 85–88: *Hogna inexorabilis* (O. Pickard-Cambridge, 1870), holotype female (OUMNH 1638). **85** habitus, dorsal view; **86** habitus, ventral view; **87** ocular area, dorsal view; **88** epigyne, ventral view. Scale bars = 2 mm (85–86), 1 mm (87), 0.25 mm (88).

*Lynxosa inexorabilis*: Tongiorgi (1977): 111, fig. 48a–f. ( $\overset{\wedge}{\bigcirc}$ ).

*Type material*: Holotype  $\bigcirc$  *Lycosa inexorabilis* (OUMNH 1638), St Helena, coll. J. C. Melliss, O. Pickard-Cambridge colln., examined.

*Diagnosis: Hogna inexorabilis* can be distinguished from *H. ligata* by the pointed, stiletto-like tegular apophysis in the male (flat, blade shaped in *H. ligata*), and by the notably wider (twice) median septum, hoods separated by septum width (touching in *H. ligata*) and the shorter insemination ducts in the female.

*Redescription of holotype female* (OUMNH 1638): Total length 12.9. Carapace 6.5 long, 4.8 wide. Eye sizes and interdistances: PME > PLE, PLE > AME, AME > ALE, PME–PME 0.4, PLE–PLE 1.2, PME–PLE 0.4. Chelicera 1.7 long, 1.0 wide. Abdomen 6.8 long, 3.8 wide. Leg formula 4,1,2,3. Epigyne median septum wide, anchor shaped (septal length/width ratio 2.8 at narrowest part); posterior transverse plate length/width ratio 6.4; hoods wide, shallow, separated by septal width of narrowest part (Fig. 88), vulva not examined due to fragility. Cheliceral teeth 4. Colouration in alcohol: brown, carapace, legs darker than opisthosoma (Figs. 85–86).

Epigyne and vulva of non-type female (BE\_RMCA\_ARA.Ara.129300): epigyne as in holotype (Fig. 92) vulva S-shaped, with oval secondary receptacles (length/width ratio 1.7) that are  $2\times$  wider than insemination ducts (Fig. 93).

Description of non-type male (BE\_RMCA\_ARA. Ara.129296): Total length 8.6. Carapace 4.7 long, 2.8 wide. Eye sizes and interdistances PME > PLE, PLE > AME, AME > ALE, ALE, PME–PME 0.4, PLE–PLE 0.6, PME– PLE 0.4. Chelicera 1.1 long, 0.8 wide (Fig. 91). Abdomen 3.0 long, 1.8 wide. Leg formula 1,4,2,3. Palp structure: cymbial tip  $\sim$ 1.3× shorter than bulbus; tegular apophysis transverse-triangular, with wide base, pointed tip, triangular ventral spur; synembolus sickle shaped; embolus thin, whip shaped, originating at 10 o'clock, making  $\sim$ 180° revolution; conductor membranous, wide, low (Figs. 94–96). Cheliceral teeth 4. Colouration in alcohol similar to female (Figs. 89–90). Colours *in vivo* unknown.

*Other material examined*:  $1^{\wedge}_{\circ}$  (BE RMCA ARA. Ara.129296), St Helena, Blue Hill, (West Lodge), S, W, 1965.12.8, 1600–1700', coll. P. L. G Benoit, P. Basilewsky and N. Leleup; 1<sup>Q</sup> (BE RMCA ARA.Ara.129297), [same data];  $1^{\bigcirc}$  (BE\_RMCA\_ARA.Ara.129298), [same data]; 1<sup>Q</sup>, 1 imm. (BE\_RMCA\_ARA.Ara.129299), [same data];  $1^{\circ}$  (BE RMCA ARA.Ara.129300), [same data];  $1^{\circ}$  (BE RMCA ARA.Ara.136426), St Helena, Mt Actaeon, High Central Ridge, Mt Actaeon, 2600-2700 m, 15°58'S, 5°42'W, 08 January 1968, coll. Benoit, P. L. G., Basilewsky, P., Leleup, N.; 1♀ (BE\_RMCA\_ARA.Ara.129291), St Helena, Centre, Plantation House, 15°57'S 5°42'W, 06 December 1965, 1700', coll. P. L. G Benoit, P. Basilewsky and N. Leleup; 8  $\bigcirc$  (BE RMCA ARA.Ara.133769 St Helena, Varneys, S, W, 1958, coll. A Loveridge; 1♀ (BE RMCA ARA.Ara.133770), St Helena, Varneys, S, W, 22 July 1959, coll. A. Loveridge; 1♀ (BE RMCA ARA. Ara.133484), St Helena, Varneys, S, W, 1966, coll. A. Loveridge.

*Distribution*: Blue Hill, Mount Actaeon, Plantation House and Varneys, Saint Helena.

*Remarks*: A slide in SMF containing two palps enclosed in resin [(SMF 13525-138), St Helena, coll. J. C. Melliss, C. F. Roewer colln.], currently identified as *H. inexorabilis*, D. Sherwood, A. Henrard, D. V. Logunov & L. Fowler



Figs. 89–96: Hogna inexorabilis (O. Pickard-Cambridge, 1870), non-type male (BE\_RMCA\_ARA.Ara.129296) and non-type female (BE\_RMCA\_ARA. Ara.129300). 89 male habitus, dorsal view; 90 same, ventral view; 91 male chelicerae, ventral view; 92 epigyne, cleared, ventral view; 93 vulva, cleared, dorsal view; 94 right palp, retrolateral view; 95 same, ventral view; 96 same, prolateral view. Scale bars = 2 mm (89–90), 0.2 mm (91–96).

was examined by photographs, but these palps are in such poor condition they do not allow identification to species level. However, Pickard-Cambridge (1873) never described a male specimen and, instead, we suspect these palps were taken from one of the numerous syntype males of *H. ligata* and were mislabelled by Roewer as *H. inexorabilis*. Similarly, an immature female in Oxford University Museum of Natural History [(OUMNH 1581.44), St Helena, coll. J. C. Melliss, O. Pickard-Cambridge colln.] labelled as *H. inexorabilis* may be *H. ligata* but is not definitively identifiable, given it is immature (and thus its morphological structure of the epigyne might be the result of ontogeny) and it has no



Figs. 97–101: *Hogna ligata* (O. Pickard-Cambridge, 1870), lectotype male and paralectotype female (OUMNH 1581). **97** male habitus, dorsal view; **98** male palp (damaged), ventral view; **99** female habitus, dorsal view; **100** same, ventral view; **101** epigyne, ventral view. Scale bars = 2 mm (97, 99–100), 1 mm (98), 0.25 mm (101).

locality data. We were unable to locate the specimen from Cyclondy so are unable to confirm or deny this locality record.

Tongiorgi (1977: 111–112) provided the following spination data: "Les tibias de la Ire paire sont munis ventralement de trois épines sur la marge antérieure (l'épine antérieure latérale étant déplacée ventralement) et de deux épines sur la marge postérieure, en plus de la paire d'épines apicales. L'épine de base est plus fine que les autres. Le métatarse de la Ire paire est muni ventralement de deux paires d'épines, courtes et robustes, en plus d'une paire d'épines apicales." [= The tibiae of the I pair are provided ventrally with three spines on the anterior margin (the lateral anterior spine being displaced ventrally) and with two spines on the posterior margin, in addition to the pair of apical spines. The base spine is finer than the others. The metatarsus of the first pair is provided ventrally with two pairs of spines, short and robust, in addition to a pair of apical spines.].

## Hogna ligata (O. Pickard-Cambridge, 1870) (Figs. 97–124)

Lycosa ligata O. Pickard-Cambridge, 1870: 540, pl. 42, fig. 8. (♂♀). Lycosa ligata: Melliss (1875): 217. Lycosa ligata: Simon (1883): 307, 309. Lycosa ligata: Simon (1898): 343. Tarentula sanctae-helenae Strand, 1909: 588. (imm. ♀). Vesubia ligata: Roewer (1955): 308. Xerolycosa sanctae-helenae: Roewer (1955): 310. Lycosa ligata: Bonnet (1957): 2650. Vesubia ligata: Roewer (1960): 892, fig. 495a–c. (♂♀). Vesubia ligata: Guy (1966): 115. Lynxosa ligata: Tongiorgi (1977): 113, figs. 49a–g. (♂♀).

*Type material*: Lectotype (designated herein)  $\mathcal{S}$ , paralectotypes (designated herein)  $5\mathcal{S}\mathcal{S}$ ,  $3\mathcal{Q}\mathcal{Q}$ , 1 imm.  $\mathcal{Q}$  *Lycosa ligata* (OUMNH 1581), St Helena, coll. J. C. Melliss, O. Pickard-Cambridge colln., examined; 1 slide containing tarsal claw enclosed in resin of paralectotype  $\mathcal{Q}$  *Lycosa ligata* (SMF 13473-138), St Helena, coll. J. C. Melliss, C. F. Roewer colln. examined by photographs [apparently dissected from one of the paralectotype female specimens in OUMNH]; paratype imm.  $\mathcal{Q}$  *Isohogna cinica* (BE\_RMCA\_



Figs. 102–111: Hogna ligata (O. Pickard-Cambridge, 1870), non-type male (NHMUK AQ ZOO 2022-84) and non-type females (NHMUK AQ ZOO 2022-84). 102 right palp, ventral view; 103 same, prolateral view; 104 tegular apophysis, dorsal view; 105 right palp, ventral view; 106 same, retrolateral view; 107 same, prolateral view; 108 epigyne, cleared, dorsal view; 109 vulva, cleared, ventral view; 110 epigyne, cleared, dorsal view; 109 vulva, cleared, ventral view; 110 epigyne, cleared, dorsal view; 111 vulva, cleared, dorsal view. Scale bars = 0.1 mm.



Figs. 112–117: *Hogna ligata* (O. Pickard-Cambridge, 1870), non-type male and non-type female (NHMUK AQ ZOO 2022-84). **112** male habitus, dorsal view; **113** same, ventral view; **114** female habitus, dorsal view, **115** same, ventral view; **116** female chelicerae, ventral view; **117** female ocular area, anterior view. Scale bars = 2 mm (112–115) 1 mm (117), 0.5 mm (116).

ARA.Ara.133330), High Peak, 15°58'S 5°42'W, 731–793 m, March 1967, coll. J. Decelle and N. Leleup, examined; holotype imm.  $\bigcirc$  *Tarentula sanctae-helenae* (ZMB 10515), St Helena, German South Pole Expedition, E. Strand colln., examined by photographs.

*Diagnosis: Hogna ligata* can be distinguished from *H. inexorabilis* by the flat, blade-shaped tegular apophysis (pointed, stiletto-like in *H. inexorabilis*), and by the notably narrower (twice) median septum, hoods touching each other (separated by septum width in *H. inexorabilis*) and the longer insemination ducts.

*Redescription of lectotype male*: Total length 10.8. Carapace 5.1 long, 3.7 wide. Eye sizes and interdistances: PME > PLE, PLE > AME, AME > ALE, PME–PME 0.2, PLE–PLE 1.1, PME–PLE 0.4. Chelicera 1.2 long, 0.8 wide. Abdomen 4.5 long, 2.0 wide. Leg formula 4,1,2,3. Palp cymbial tip as long as bulbus, with two apical claws; tegular apophysis transverse-triangular, with wide base, blade-shaped tip and triangular ventral spur; synembolus sickle shaped, as long as blade part of tegular apophysis; embolus

thin, whip shaped, originating at 10 o'clock, making  $\sim 180^{\circ}$  revolution; conductor membranous, wide, low (Fig. 98). Cheliceral teeth 4. Colouration in alcohol brown, opisthosoma lighter than carapace and legs, carapace darker than legs, legs annulated, chelicerae darker than carapace (Fig. 97).

Palp of non-type male (NHMUK AQ ZOO 2022-84): Since the lectotype has damaged palps, we provide illustrations of a better preserved specimen (Figs. 102–107).

*Redescription of paralectotype female*: Total length 12.5. Carapace 5.0 long, 4.5 wide. Eye sizes and interdistances: PME > PLE, PLE > AME, AME > ALE, PME–PME 0.3, PLE–PLE 1.2, PME–PLE 0.5. Chelicera 1.7 long, 1.0 wide. Abdomen 5.8 long, 3.8 wide. Leg formula 1,4,2,3. Epigyne: median septum wide, anchor shaped (septal length/width ratio 3.3 at narrowest part); posterior transverse plate length /width ratio 5.8; hoods wide, shallow, almost touching along midline (Fig. 101), vulva not examined due to fragility. Cheliceral teeth 4. Colouration in alcohol brown, opisthosoma with cream markings on dorsal face, carapace and legs

120 118 Zool. Mus. Berlin: Kat. Nr 10 515 Species Tarentila Soun toce helenal Strama Fundort 19subad, Holotypu det. Strend 1909 leg 119 Tarenhila sanchar-he. J. Helena 30 - VIII-03 inac Strand ZMB10515

Figs. 118–120: *Tarentula sanctae-helenae* Strand, 1909 (= junior synonym of *H. ligata* syn. conf.), holotype immature (ZMB 10515). **118** habitus, dorsal view; **119** same, ventral view; **120** original labels.

darker, legs annulated, carapace darker than legs, chelicerae darker than carapace (Figs. 99–100).

Epigynes and vulvae of two non-type females (NHMUK AQ ZOO 2022-84): epigynes as in paralectotype but with septum slightly thinner medially (Figs. 108, 110), secondary receptacles round, two times wider than short insemination ducts; primary receptacles short and round, as big as secondary receptacles (Fig. 109, 111).

Colours *in vivo* highly variable, legs always annulated, carapace light or dark brown with cream or white coloured marking stretching from caput past fovea to posterior of carapace, chelicerae light or dark brown, opisthosoma mottled, light or dark brown, usually with white blotches on posterior half arranged in parallel (Figs. 121–124).

Other material examined: 4승승 (NHMUK AQ ZOO 2022-84), Diana's Peak, 16 December 2005-09 March 2006, coll. and colln. P. Ashmole and M. Ashmole, I2 5/3, 4326/V; 19, 3 imm. (NHMUK AQ ZOO 2022-84), Cabbage Tree Road, 22 December 2005, coll. and colln. P. Ashmole and M. Ashmole, in dead Black Cabbage branch, Byrons DPNP, [with] egg sac, 2125/V; 2♂♂, 1 imm. ♀ (NHMUK AQ ZOO 2022-84), Cabbage Tree Road, 16 December 2005–09 March 2006, coll. and colln. P. Ashmole and M. Ashmole, A6 7/1, sweeping, 4327/V; 1<sup>Q</sup> (NHMUK AQ ZOO 2022-84), High Peak, 16 December 2005-09 March 2006, coll. and colln. P. Ashmole and M. Ashmole, H5 9/11, 4331/C; 1♂, 1♀, 2 imm. ♀♀ (NHMUK AQ ZOO 2022-84), Cabbage Tree Road, 16 December 2005-09 March 2006, coll. and colln. P. Ashmole and M. Ashmole, C3/7/1, 5509; 1 imm. ♀ (NHMUK AQ ZOO 2022-84), Deep Valley Head, 12 January 2006, coll. and colln. P. Ashmole and M. Ashmole, in Tree Fern litter, 4317/C; 1♀ (NHMUK AQ ZOO 2022-84), Grapevine Gut, 02 January 2006, coll. and colln. P. Ashmole and M. Ashmole, from Redwood dead twigs, 2466/V; 1<sup>Q</sup> (NHMUK AQ ZOO 2022-84), Cuckhold's Point, 24 December 2005, coll. H. Mendel, P. Ashmole and M. Ashmole – P. Ashmole and M. Ashmole colln., in tree fern litter, 6273/C; 1, 1 imm. (NHMUK AO ZOO 2022-84), Deep Valley (head of), 05 January 2006, coll. H. Mendel, P. Ashmole and M. Ashmole - P. Ashmole and M. Ashmole colln., near gun, night, on Tree Fern, [with egg sac], 2785/V; 1<sup>Q</sup> (NHMUK AQ ZOO 2022-84), Cuckhold's Point, 20 January 2006, coll. H. Mendel, P. Ashmole and M. Ashmole – P. Ashmole and M. Ashmole colln., 2469/V; 13 (NHMUK AQ ZOO 2022-84), Deep Valley (head of), 12 January 2006, coll. H. Mendel, P. Ashmole and M. Ashmole – P. Ashmole and M. Ashmole colln., 2413/V; 1 imm ♀, 3 imm. (NHMUK AQ ZOO 2022-84), Mount Actaeon, 17 December 2005-14 January 2006, coll. H. Mendel, P. Ashmole and M. Ashmole - P. Ashmole and M. Ashmole colln., 5505; 1º (NHMUK AQ ZOO 2022-84), Deep Valley, in dead tree fern, 05 January 2006, [coll. and colln. P. Ashmole and M. Ashmole], 2356/V; 1 imm. (NHMUK AQ ZOO 2022-84), Newfoundland, in Tree fern [2 words illeg.], 20 February 2006, [coll. and colln. P. Ashmole and M. Ashmole], 2625/V; 1 imm. (NHMUK AQ ZOO 2022-84), CTR, Diana's 01, st 03 [= Diana's Peak], 30 December 2005, [coll. and colln. P. Ashmole and M. Ashmole], 2745/V; 1 imm. Q (NHMUK AQ ZOO 2022-84), Mount Vesey, in deadwood of False Gumwood, 10 January 2006, [coll. and colln. P. Ashmole and M. Ashmole], 2429/V; 1 imm. (NHMUK AQ ZOO 2022-84), Cuckhold's Point, 07 January 2006, [coll. and colln. P. Ashmole and M. Ashmole], 2790/V; 1 imm ♀ (NHMUK AQ ZOO 2022-84), High Peak, 17 December 2005–14 January 2006, coll. H. Mendel, P. Ashmole and M. Ashmole – P. Ashmole and M. Ashmole colln., malaise trap, 5502; 1 d (NHMUK AQ ZOO 2022-84), High Peak, January 2006, coll. H. Mendel, P. Ashmole and M. Ashmole - P. Ashmole and M. Ashmole colln., 5517; 13 (NHMUK AQ ZOO 2022-84), High Peak, 27-29 December 2005, coll. H. Mendel, P. Ashmole and M. Ashmole – P. Ashmole and M. Ashmole colln., 2190/V; 1 (NHMUK AQ ZOO 2022-84), High Peak, 23 December 2005, coll. H. Mendel, P. Ashmole and M. Ashmole - P.



Figs. 121–124: *Hogna ligata* (O. Pickard-Cambridge, 1870), colour forms *in vivo* (not collected). **121** typical form; **122** dark form; **123** typical form; **124** light form.

Ashmole and M. Ashmole colln., off dogwood, 2154/V; 13 (NHMUK AQ ZOO 2022-84), Cuckhold's Point, 17 December 2005-14 January 2006, coll. H. Mendel, P. Ashmole and M. Ashmole – P. Ashmole and M. Ashmole colln., 4330/C; 13 (NHMUK AQ ZOO 2022-84), High Peak, December 2005-January 2006, coll. H. Mendel, P. Ashmole and M. Ashmole - P. Ashmole and M. Ashmole colln., 6276/C; 13 (NHMUK AQ ZOO 2022-84), Cuckhold's Point, 16 December 2005-09 March 2006, coll. and colln. P. Ashmole and M. Ashmole, E6.4/3, 4328/C; 1<sup>Q</sup> (NHMUK AQ ZOO 2022-84), Peak Dale, 16 December 2005-09 March 2006, coll. and colln. P. Ashmole and M. Ashmole, F1/2/1, soil and litter, 4329/C;  $1^{\circ}$  (NHMUK AQ ZOO 2022-84), Diana's Peak, 29 December 2005, coll. and colln. P. Ashmole and M. Ashmole, Jellico basking, Diana's 03, 2186/V; 13 (NHMUK AQ ZOO 2022-84), Cuckhold's Point, 01 March 2006, coll. and colln. P. Ashmole and M. Ashmole, Cuckhold's traps, 6301/C; 3 imm. (NHMUK AQ ZOO 2022-84), High Peak, 26 January 2006, coll. and colln. P. Ashmole and M. Ashmole, 4159/C; 1d (NHMUK AQ ZOO 2022-84), High Peak, 16 January 2006, coll. 16 January 2005-09 March 2006, coll. P. Ashmole, M. Ashmole and H. Mendel, P. Ashmole and M. Ashmole colln., Mendel A3/9/4, malaise traps, 4316/C;  $1^{\circ}$ , 1 imm. (NHMUK AQ ZOO 2022-84), Mount Vesey Waterfall, 24 January 2006, coll. and colln. P. Ashmole and M. Ashmole, 2485/V; 4 imm. (NHMUK AQ ZOO 2022-84), High Peak, dead Black Cabbage wood, 26 December 2005, coll. and colln. P. Ashmole and M. Ashmole, 2150/V;  $2 \stackrel{\bigcirc}{\downarrow} \stackrel{\bigcirc}{\downarrow}$  (NHMUK), Varneys, St Helena Id., 19 October 1958, coll. and colln. A. Loveridge;  $2^{\bigcirc}$  (NHMUK), Varneys, St Helena Id., 1963, in crack of door female with prey and eggs, coll. and colln. A. Loveridge; 1 imm.  $\bigcirc$  (NHMUK), St Helena Id., Flagstaff at 2275', coll. and colln. A. Loveridge; 13, 1 imm. (SHNT), Louren's Site 11, 15°58'11.8"S 5°42'10.5"W, 05 October 2016, det. DJP 06 October 2016; 1 (SHNT), Diana's Peak, 22 May 2014, det. D. J. Pryce 07 November 2016; 1♀ (SHNT), GING 07, Ginger Patch, High Peak, 15°58'46.7"S 5°44'07.2"W, malaise trap, det. D. Sherwood 17 November 2022; 1 (SHNT), VINE 07, Upper Grapevine Gut, Diana's



Figs. 125–130: *Hogna nefasta* Tongiorgi, 1977, holotype female (BE\_RMCA\_ARA.Ara.129427). **125** habitus, dorsal view; **126** same, lateral view; **127** same, ventral view; **128** epigyne, cleared, ventral view; **129** vulva, cleared, dorsal view; **130** chelicerae, ventral view. Scale bars = 5 mm (125–127), 0.5 mm (128–130).

Peak, 15°58'14.5"S 5°42'12.8"W, malaise trap, det. D. Sherwood 17 November 2022; 1♂, 1♀ (SHNT), VINE 05, Upper Grapevine Gut, Diana's Peak, 15°58'14.5"S 5°42'12.8"W, malaise trap, det. D. Sherwood 17 November 2022; 1d (SHNT), VINE 06, Upper Grapevine Gut, Diana's Peak, 15°58'14.5"S 5°42'12.8"W, malaise trap, det. D. Sherwood 17 November 2022; 1d (SHNT), FERN 10, Diana's Peak, 15°58'16.2"S 5°42'10.4"W, malaise trap, det. D. Sherwood 17 November 2022; 1 (SHNT), GING 06, det. D. Sherwood 17 November 2022; 1d (SHNT), CABB 03, Cabbage Tree Woodlands, Diana's Peak, 15°58'30.4"S 5°41'55.2"W, malaise trap, det. D. Sherwood 14 November 2022; 1♂ (SHNT), BURN 10, Burnt Rock, 15°57'50.3"S 5°44'45.1"W, malaise trap, det. D. Sherwood 26 November 2022; 1Å (SHNT), HIGH 06, High Hill, 15°58'50.8"S 5°45'27.6"W, malaise trap, det. D. Sherwood 26 November 2022; 1 (SHNT), DINE 00 (NEWC), New Restoration, Diana's Peak, 15°58'13.2"S 5°42'11.5"W, malaise trap, det. D. Sherwood 26 November 2022; 13 (SHNT), St Helena, RS/RJD Key, G. Benjamin arboretum, swept Acacia/Cape Yew, 04 March 2013, det. D. Sherwood 26 November 2022; 16 (SHNT), Casons, Malaise Traps, 06 May 2022, N. Stevens, det. D. Sherwood 26 November 2022; 1 imm. (SHNT), Cuckhold's 14, pitfall October 2022, det. D. Sherwood 28 November 2022; 13 (SHNT), Thompson's Wood malaise trap, open: 03 May 2021, close: 06 May 2021, coll. N. Stevens, det. D. Sherwood 28 November 2022; 13 (SHNT), PEOL 05, Peak Dale Old, 15°59'16.0"S 5°44'09.2"W, malaise trap, det. D. Sherwood 28 November 2022; 233 (SHNT), BLUR 03, Blue Point, 16°00'31.1"S 5°44'35.4"W, malaise trap, det. D. Sherwood 28 November 2022; 2♀♀ (BE RMCA ARA.Ara.129195), St Helena, Cason's Gate, S., W, 12 January 1966, 2100', coll. P. L. G. Benoit, P. Basilewsky and N. Leleup; 1♀ (BE RMCA ARA.Ara.133433), St Helena, Diana's Peak, 15°58'S 5°42'W, 09 February 1967, coll. J. Decelle and N. Leleup; 1 imm. (BE\_RMCA\_ARA.Ara.133449), St Helena, Diana's Peak, 15°58'S 5°42'W, 09 February 1967, coll. J. Decelle and N. Leleup; 2 imm. (BE RMCA ARA.Ara.129530), St Helena, Luffkins, S, W, 15 January 1966, 1700', coll. P. L. G. Benoit, P. Basilewsky and N. Leleup; 1 imm.  $\bigcirc$  (BE RMCA\_ARA.Ara.136427), St Helena, Varneys, S, W, 1958, coll. A. Loveridge; 1 imm. (BE RMCA ARA. Ara.129106), St Helena, Thompsons Wood, S, W, 23 November 1965, 1700-1800', coll. P. L. G. Benoit, P. Basilewsky and N. Leleup.



Figs. 131–133: *Hogna nefasta* Tongiorgi, 1977, non-type female (NHMUK AQ ZOO 2022-84). **131** habitus, dorsal view; **132** same, ventral view; **133** ocular area, anterior view. Scale bars = 2 mm (131–132), 1 mm (133).

*Distribution*: Cabbage Tree Road, Cason's, Cuckhold's Point, Deep Valley Head, Diana's Peak, Grapevine Gut, High Peak, Luffkins, Mount Actaeon, Mount Vesey Waterfall, Newfoundland, Peak Dale, Varneys, and Oak Bank (visual record only by DS), Saint Helena.

Natural history: The most common and widely distributed lycosid on the island (DS and LF pers. obs.). Colour in alcohol of recently preserved specimens in NHMUK is also shown here (Figs. 112-115) alongside the eye arrangement and chelicerae of a female (Figs. 116-117). Unlike other species, it does not appear to be a obligate burrower and we have seen adult specimens on various types of vegetation and wandering in leaf litter. Some females show intraspecific variation in the width of the septum, in some specimens it can be very constricted, especially specimens from Diana's Peak (see above). Specimens recorded from Mt Vesey Waterfall were from the vegetation and leaf litter in the forest near to the waterfall, not at the waterfall itself, and the presence of *H. ligata* only in the surrounding forest was confirmed by DS and LF (pers. obs.) during field work. This is in stark contrast to Hogna veseyensis sp. nov. which occurs only on the wall of the waterfall and its runoff, in specialised microhabitat under water-logged rocks.

*Remarks*: The immature holotype of *Tarentula sanctae-helenae* Strand, 1909 (Figs. 118–120) lacks precise locality data and the opisthosomal patterning is unmistakeable for juveniles of *H. ligata* and thus the synonymy proposed by Tongiorgi (1977) is reconfirmed **syn. conf.** 

Tongiorgi (1977: 115) described the spination of *H. ligata* as follows: "Les tibias de la Ire paire sont munis ventralement de deux paires d'épines, longues et fines, en plus de la paire d'épines apicales. L'épine basale antérieure est plus longue et plus mince que les autres. Les métatarses de la Ire paire sont munis ventralement de deux longues paires d'épines, d'une épine apicale ventrale courte et de deux épines latérales. L'extrémité des épines de la paire basale rejoint et dépasse la base de la paire médiane." [= The tibiae of the first pair are equipped ventrally with two pairs of spines, long and thin, in addition to the pair of apical spines. The anterior basal spine is longer and thinner than the others. The metatarsi of the first pair have two long pairs of spines ventrally, a short ventral apical spine and two lateral spines. The tips of the spines of the basal pair join and exceed the base of the middle pair.]. The spination data given by Tongiorgi is in keeping with our own observations, although we noted some slight variation in the number of pairs of spines in some specimens, although occasional exceptions are to be expected given the large amount of material examined, and the genitalic evidence provides no doubt the specimens with slightly different spination are conspecific. Hogna ligata has four cheliceral teeth (e.g. Fig. 116).

Hogna nefasta Tongiorgi, 1977 (Figs. 125-146, 179-180)

*Hogna nefasta* Tongiorgi, 1977: 119, fig. 51a–d. (♀). *Hogna nefasta*: Brignoli (1983): 446.

*Type material*: Holotype  $\bigcirc$  (BE\_RMCA\_ARA. Ara.129427), Prosperous Bay Plain, 15°57'S 5°39'W, 274 m, 02 December 1965, coll. P. Basilewsky, P. L. G. Benoit and N. Leleup, examined; paratypes  $3 \bigcirc \bigcirc$  (BE\_RM-CA\_ARA.Ara.136424), [same data], examined; paratypes  $8 \bigcirc \bigcirc$  (BE\_RMCA\_ARA.Ara.133390), [same data], 305–335 m, 17 May 1967, coll. J. Decelle and N. Leleup, examined.

*Diagnosis: Hogna nefasta* can be distinguished from the majority of *Hogna* species that have been recently described or revised (e.g. Logunov 2020; Crespo *et al.* 2022) by the dumbbell-shaped median septum (compared to long/very long narrow septum in shape of inverted T in other species,



Figs. 134–137: *Hogna nefasta* Tongiorgi, 1977, non-type females (NHMUK AQ ZOO 2022-84). **134** epigyne, cleared, ventral view; **135** vulva, cleared, dorsal view; **136** epigyne, cleared, ventral view; **137** vulva, cleared, dorsal view. Scale bars = 0.5 mm.

or triangular, see above). In having the narrow and elongated secondary receptacles, *H. nefasta* is most similar to *H. ackermanni* Logunov, 2020 (Logunov 2020: fig. 27), from which it can be separated by much more robust primary receptacles.

Redescription of holotype female (BE\_RMCA\_ARA. Ara.129427): Total length 14.9. Carapace 5.9 long, 4.2 wide. Eye sizes and interdistances: PME > PLE, PLE > AME, AME > ALE, PME-PME 0.3, PLE-PLE 1.1, PME-PLE 0.5. Chelicera 2.5 long, 1.2 wide (Fig. 130). Abdomen 6.5 long, 3.9 wide. Leg formula 1,4,2,3. Epigyne median septum dumbbell shaped; septum length and posterior transverse plate width equal; hoods wide and shallow, separated by septal width at its waist; secondary receptacles elongated (length/width ratio 2.5), as wide as insemination ducts; primary receptacles oval, heavily sclerotized and larger than SR; fertilization ducts prominent, situated near epigastric furrow, directed apically (Figs. 128-129, 138-143). Cheliceral teeth: 5 (Fig. 130). Colouration in alcohol brown, carapace and legs darker than opisthosoma, opisthosoma bespeckled, legs lighter than carapace, chelicerae darker than carapace (Figs. 125–127).

Colours *in vivo*: Female overall grey, carapace mostly dark grey, borders light grey, caput with cream marking extending backwards past fovea to posterior edge of the carapace, legs annulated, opisthosoma dorsally with white lines vertically on posterior half and white medial stripe in anterior half, numerous parallel white spots across entire length, chelicerae lighter than carapace (Figs. 144–146).

## Male unknown.

*Other material examined*: 1<sup>Q</sup> (NHMUK AQ ZOO 2022-84), Prosperous Bay Plain, Government Garage Flat, 11-15 October 2003, coll. and colln. P. Ashmole and M. Ashmole, 568/V;  $2 \stackrel{\bigcirc}{_{+}} \stackrel{\bigcirc}{_{+}}$  (NHMUK AQ ZOO 2022-84), Prosperous Bay Plain, Samphire Plain, 20 October 2003, coll. and colln. P. Ashmole and M. Ashmole, 614/V; 1<sup>Q</sup> (NHMUK AQ ZOO 2022-84), Prosperous Bay Plain, Samphire Plain (Ashmole's Site 8), 06-10 October 2003, coll. and colln. P. Ashmole and M. Ashmole, 479/V; 1º (NHMUK AQ ZOO 2022-84), Prosperous Bay Plain, Benevolent View, 27 February 2006, [coll. and colln. P. Ashmole and M. Ashmole], 2685/V; 1<sup>Q</sup> (NHMUK AQ ZOO 2022-84), PBP-SBS 22 [= Prosperous Bay Plain], night, 23 February 2006, [coll. and colln. P. Ashmole and M. Ashmole], 2665/V; 1♀ (NHMUK AQ ZOO 2022-84), PBP Stone Hill [= Stone Hill, Prosperous Bay Plain], 16 February 2006, [coll. and colln./ P. Ashand M. Ashmole], 2605/V;  $1^{\circ}$ mole (MMUE G.7572.13518), [no precise locality data stated on label], Saint Helena, October 2003, coll. P. Ashmole and M. Ashmole – J. Murphy and F. Murphy colln., 326/V, 23907; 1



Figs. 138–143: *Hogna nefasta* Tongiorgi, 1977, holotype female (BE\_RMCA\_ARA.Ara.129427), epigyne and vulva micro-CT images. **138** epigyne, ventral view; **139** same, dorso-posterior view; **140** same, dorso-anterior view; **141** vulva, dorsal view; **142** same, dorsal, slightly posterior view; **143** vulva, dorso-anterior view. Scale bars = 0.25 mm.

(BE\_RMCA\_ARA.Ara.129221), Prosperous Bay Plain, 274 m, 13 January 1966, coll. P. Basilewsky, P. L. G. Benoit and N. Leleup; 1 (BE\_RMCA\_ARA.Ara.129338), Horse Point Plain, 15°55′60″S 5°39′W, 396–427 m, 27 December 1965, coll. P. Basilewsky, P. L. G. Benoit and N. Leleup; 1 (BE\_RMCA\_ARA.Ara.129520), Prosperous Bay Plain, 244–274 m, 26 November 1965, coll. P. Basilewsky, P. L. G. Benoit and N. Leleup; 1 (BE\_RMCA\_ARA.Ara.129544), Prosperous Bay Plain, 274 m, 02 November 1965, coll. P. Basilewsky, P. L. G. Benoit and N. Leleup; 1 (SHNT), P. B. Plain, 23 January 2018, coll. L. J. Fowler, det. L. J. Fowler, 15 February 2018; 1 (SHNT), Horse Point Plain, St Helena, under stone, collected by hand, 09 November 2022, coll. D. Sherwood and L. Fowler, det. D. Sherwood 14 November 2022;  $1^{\circ}$  (SHNT), Horse Point Plain, St Helena, on ice plant nr burrow at night, 27 November 2022, coll. D. Sherwood, det. D. Sherwood 28 November 2022;  $1^{\circ}$  (SHNT), Horse Point Plain, St Helena, on creeper, at night, by hand, 27 November 2022, coll. L. Fowler, det. D. Sherwood 28 November 2022;  $2^{\circ}_{\circ}_{\circ}$  (SHNT), Horse Point Plain, St Helena, on ice plant nr burrow at night, coll. L. Fowler, det. D. Sherwood 28 November 2022;  $1^{\circ}_{\circ}$  (SHNT), Horse Point Plain, St Helena, on ice plant nr burrow at night, 27 November 2022, coll. N. Stevens, det. D. Sherwood 28 November 2022.



Figs. 144-146: Hogna nefasta Tongiorgi, 1977, non-type females in vivo (not collected). Photos courtesy of Roger Key.

*Distribution*: Horse Point Plain and Prosperous Bay Plain, Saint Helena.

*Natural history*: The largest lycosid species on the island, male specimens are still unknown despite continued searches. Like *Dolocosa joshuai* sp. nov., this species constructs burrows in the dry and gritty ground, typically under rocks but, given its large size, the burrows are much larger. Complementary photos of recently preserved material in habitus and details of the epigyne and vulva, all of NHMUK specimens, are presented here (Figs. 131–137).

*Remarks*: Tongiorgi (1977: 119–120) gave the following data on leg spination: "Les métatarses de la Ire paire sont munis ventralement de deux paires d'épines en plus d'une épine apicale flanquée de deux épines latéro-ventrales. Les tibias de la Ire paire présentent ventralement deux paires d'épines sétiformes, en plus d'une paire d'épines apicales, courtes et robustes. À l'exception des fémurs, qui présentent dorsalement trois épines, la face dorsale des autres articles

des deux premières paires de pattes est mutique." [= The metatarsals of the first pair are equipped ventrally with two pairs of spines in addition to an apical spine flanked by two latero-ventral spines. The tibiae of the first pair have two pairs of setiform spines ventrally, in addition to a pair of short, robust apical spines. With the exception of the femora, which have three spines dorsally, the dorsal surface of the other segments of the first two pairs of legs is aspinose.]. This is generally congruent with our examination of type and non-type specimens.

## Hogna veseyensis sp. nov. (Figs. 147-171)

*Type material*: Holotype  $\mathcal{J}$  (SHNT), Mt Vesey Waterfall, St Helena, under rock in water, below waterfall, 01 December 2022, coll. L. Fowler; paratypes  $3\mathfrak{Q}\mathfrak{Q}$  (NHMUK AQ ZOO 2022-84), Mount Vesey Waterfall base, 17 December 2005–14 January 2006, coll. H. Mendel, P. Ashmole and M.



Figs. 147–154: *Hogna veseyensis* sp. nov., holotype male (SHNT) and paratype female (NHMUK AQ ZOO 2022-84). **147** palp, ventral view; **148** same, prolateral view; **149** tegular apophysis, dorsal view; **150** palp, retrolateral view; **151** same, ventral view; **152** same, prolateral view; **153** vulva, dorsal view; **154** epigyne, ventral view. Scale bars = 0.25 mm (153–154), 0.1 mm (147–152).

Ashmole – P. Ashmole and M. Ashmole colln., 5520; paratype  $\mathcal{Q}$  (SHNT), Mt Vesey Waterfall, St Helena, under rock in water, below waterfall, 01 December 2022, coll. L. Fowler.

*Diagnosis: Hogna veseyensis* sp. nov. resembles *Arctosa capensis* Roewer, 1960 from South Africa (see Roewer 1960: fig. 365a–c), which was undoubtedly misclassified and mistakenly assigned by Roewer to the genus *Arctosa* C. L. Koch, 1847. From that species, *H. veseyensis* sp. nov. can be distinguished easily by the shorter posterior transverse plate in the female (Figs. 153–154) and the longer distal half of tegular apophysis with bifurcated tip in the male (Figs.

149, 151; v. not bifurcated in *A. capensis*). The female of *H. veseyensis* sp. nov. is also similar to that of the West African taxon *Geolycosa togonia* Roewer, 1960, another misclassified species described by Roewer (1960: fig. 410) that does not belong to the genus *Geolycosa* Montgomery, 1904, from which it can be distinguished by the  $2 \times$  narrower posterior transverse plate of the epigyne. From other lycosids of Saint Helena, *H. veseyensis* sp. nov. differs in having the stronger and comparatively shorter, stiletto-like embolus and the fanshaped median septum of the epigyne (Figs. 149–152).

Etymology: The specific epithet refers to Mt Vesey Waterfall, the type locality of the new species.



Figs. 155–163: *Hogna veseyensis* sp. nov., holotype male (SHNT) and paratype female (NHMUK AQ ZOO 2022-84). **155** male habitus, dorsal view; **156** same, ventral view; **157** male carapace, dorsal view; **158** male ocular area, anterior view; **159** female ocular area, anterior view; **160** male chelicerae, ventral view; **161** female chelicerae, ventral view; **162** male palp, ventral view; **163** cymbium, ventral view, showing setae. Scale bars = 2 mm (155–157), 1 mm (158–159), 0.5 mm (160–161), 0.1 mm (162–163).

*Description of holotype male*: Total length 9.00. Carapace 4.75 long, 3.55 wide. Eye sizes and interdistances: PME > PLE, PLE > AME, AME > ALE, AME-AME 0.10, AME-ALE 0.13, PME-PME 0.30, PLE-PLE 0.85, PME-PLE 0.28, AER 1.00, SER 1.13, TER 1.40 (Fig. 158). Che-

licera 2.02 long, 0.78 wide (Fig. 160). Abdomen 4.25 long, 2.80 wide. Legs: I – 15.10 (4.00, 1.80, 3.70, 3.60, 2.00), II – 13.20 (3.55, 1.65, 3.10, 3.15, 1.75), III – 11.80 (3.35, 1.40, 2.35, 3.25, 1.45), IV – 16.95 (4.55, 1.70, 3.50, 5.10, 2.10). Leg formula 4,1,2,3. Palp cymbial tip almost as long as



Figs. 164–167: Hogna veseyensis sp. nov., holotype male (SHNT) and paratype female (SHNT), in vivo. 164–166 female; 167 male.

bulbus ( $1.1 \times$  shorter), with spoon-shaped apical claw; tegular apophysis transverse-triangular, with wide base and blade-shaped, slightly bifurcated tip (in apical view), ventral spur; synembolus well developed, pointed, as long as blade part of tegular apophysis; embolus stiletto shaped, originating at 10 o'clock and making ~180° revolution; conductor membranous, wide, low, inconspicuous (Figs. 149-151, 162–163). Cheliceral teeth 6 (Fig. 160). Colouration in alcohol: carapace light brown, with thin, dark brown radial lines and yellow longitudinal median stripe bearing two longitudinal brown bars behind PLEs; sternum yellow brownish, with longitudinal bright yellow stripe in anterior two thirds; labium dark brown, with white apex; endites yellow, with white apexes; abdomen yellow, with brown reticulate pattern, especially notable on dorsum and sides, cardiac mark bright yellow; book-lung covers orange, spinnerets yellow; legs light brown, with yellow (semi)rings and patches; palps yellow, tinged with brown; cymbium darker, brownish (Figs. 155-157).

Description of paratype female (NHMUK AQ ZOO 2022-84): Total length 14.25. Carapace 6.00 long, 4.40 wide. Eye sizes and interdistances: PME > PLE, PLE > AME, AME > ALE, AME-AME 0.18, AME-ALE 0.23, PME-PME 0.30, PLE-PLE 1.00, PME-PLE 0.45, AER 1.23, SER 1.25, TER 1.65 (Fig. 159). Chelicera 3.00 long, 1.19 wide (Fig. 161). Abdomen 8.25 long, 5.20 wide. Legs: I – 15.25 (4.30, 2.20, 3.55, 3.30, 1.90), II – 14.20 (4.15, 2.10, 3.15, 3.15, 1.65), III – 13.60 (3.85, 1.75, 2.75, 3.60, 1.65), IV – 19.50 (5.10, 2.25, 4.15, 5.60, 2.40). Leg formula: 4,1,2,3. Epigyne and vulva: median septum wide, fan-shape (septal length/width ratio 5.3 at its narrowest part); posterior

transverse plate length/width ratio 5.8; hoods wide, archshaped, shallow, touching along midline; secondary receptacles bean shaped,  $1.4 \times$  longer than wide; insemination ducts very short, inconspicuous; primary receptacles small, round; fertilization ducts conspicuous, directed medio-apically (Figs. 153–154). Cheliceral teeth 6 (Fig. 161). Colouration as in male, differing as follows: labium, endites yellow brownish, abdomen entirely yellowish brownish, with bright yellow cardiac mark, book-lung yellow.

Colours *in vivo*: overall brown, legs annulated, carapace with thin orange-brown longitudinal stripe dorso-medially, extending its entire length, opisthosoma with orange-brown vertical dorso-medial stripe on anterior half in both sexes. Male with black mottling and white blotches on opisthosoma (Fig. 167). Female without mottling or blotches, most of opisthosoma (excepting dorso-medial stripe) slate grey (Fig. 164–166).

*Distribution*: Known only from the type locality, Mt Vesey Waterfall, Saint Helena.

*Natural history: Hogna veseyensis* sp. nov. lives only under Mt Vesey Waterfall (Fig. 168) and its run-off; juveniles occupy cracks in the stone of the wall itself (DS and Martina Peters pers. obs.), whereas adults were found underneath waterlogged rocks (Figs. 169–171). Thus, this species lives in a remarkable microhabitat in comparison to other Saint Helenian lycosids.

*Remarks*: The assignment of this species to *Hogna* Simon 1885 is provisional. It has most of the diagnostic characters of the genus (*sensu* Logunov, 2020): it is a medium-sized to large spider (9 mm body length in the male and 14.25 mm in the female); the cheliceral retromargin has



Figs. 168–171: Habitat of *Hogna veseyensis* sp. nov. **168** the senior author and Martina Peters (Saint Helena National Trust) observing juveniles on the face of the waterfall, **169–171** detail of microhabitat where the holotype male was found.

three teeth (Figs. 160–161); the AME/clypeus ratio >0.7; macrosetae are present on the cymbial apex (Fig. 163); in the epigyne the septal pedicel is longer than the septal base (Fig. 154) and the palp has a single, sickle-shaped synembolus (Figs. 149, 151). On the other hand, the midline band of the carapace contains paired dark markings (Figs. 155, 157, 164-167), similar to those described for the genus Trochosa C. L. Koch, 1847 (see Nentwig et al. 2023), which is where the senior author originally thought it might belong when observing it in the field. However, this species cannot be assigned to Trochosa because it lacks its main diagnostic characters (sensu Dondale & Redner, 1990): the embolus coiled at its tip (see Marusik & Nadolny 2020), leg I in males often/usually darkened, AER = SER (slightly narrower in the new species), vulva slender, tapered and extending anteriorly (bean shaped and not extended in this species). It is likely that the new species could belong to a separate genus, together with some similar lycosine species which were misclassified by Roewer (1960) to either Arctosa or Geolycosa (see above diagnosis). The matter requires special attention in the future when the African lycosine fauna has been revised and better understood. The majority of Afrotropical Hogna, Trochosa, Geolycosa, Lycosa, and Arctosa species (see World Spider Catalog 2023) are in need of revision.

## Lycosidae spp. indet.

*Material examined*: 2 imm. (BE\_RMCA\_ARA. Ara.133474), St Helena, Lot's Wife Wood, S, W, 1967.4.4, coll. J. Decelle and N. Leleup; 1 imm. (BE\_RMCA\_ARA. Ara.129409), Prosperous Bay, St Helena East, Prosperous Bay plain, S, W, 25 November 1965, 900', coll. P. L. G. Benoit, P. Basilewsky and N. Leleup; 2 imm. (BE\_RMCA\_ ARA.Ara.136429), St Helena, 15°57'S 5°42'W, March 1937, 1800', coll. P. Gosse; 1 imm. (BE\_RMCA\_ARA. Ara.129114), St Helena, Prosperous Bay Plain, East-S.W. 15°57'S 5°39'W, December 1965, 1100', coll. P. L. G. Benoit, P. Basilewsky and N. Leleup; 1 imm. (BE\_RMCA\_ ARA.Ara.133456), St Helena, West-lodge, West Lodge, S, W, 13 May 1967, coll. J. Decelle and N. Leleup.

*Remarks*: This material consists of juveniles which cannot be identified to the species level. All of them have Tongiorgi determination labels indicating they were *H. inexorabilis*, but this cannot be confirmed based on their life stage. Furthermore, whilst Tongiorgi initially thought the specimens from Lot's Wife Wood were *H. inexorabilis*, in his publication he later attributed them as "*Lycosa* sp." (Tongiorgi 1977: 123).



Figs. 172–176: Panoramas of habitats of Lycosidae on Saint Helena. **172** Prosperous Bay Plain; **173** Horse Point Plain; **174–175** the Peaks cloud forest; **176** Prosperous Bay Plain (Central Basin).



Figs. 177–183: Behaviours of Saint Helenian Lycosidae (no pictured specimens collected). 177 burrows of *Dolocosa joshuai* sp. nov. at night, showing abundant glowing eyes; 178 immature lycosid at night on *Carpobrotus edulis* (creeper); 179–180 Hogna nefasta non-type females with spiderlings at night, second on *Mesembryanthemum guerichianum* (ice plant); 181 Dolocosa joshuai sp. nov. burrow; 182 Dolocosa joshuai sp. nov. adult female eating the earwig Euborellia annulipes on Carpobrotus edulis at night; 183 Dolocosa joshuai sp. nov. non-type juvenile at entrance of burrow at night. Figure 181 courtesy of Philip Ashmole.

## Discussion

The Lycosidae of Saint Helena are a highly charismatic group, which have historically endured many complex and contradictory taxonomic placements. This is in no small part likely due to the chaos of 20th century lycosid taxonomy and the use of specimens from unknown localities in most original descriptions from the 19th century. Saint Helena hosts a bountiful array of diverse habitats (Figs. 172–176), each with their own unique microhabitats and this is undoubtedly reflected in the diversity of wolf spiders on the island. Here, we take the first steps in resolving the species diversity and distribution of its lycosids, which resulted in the need for description of two new genera and three new species. Most notable of these is the unique ecological behaviour and morphological character states (i.e. ocular dimensions and cheliceral armature) found in M. sanctaehelenae gen. et sp. nov. Furthermore, it has been established that all Saint Helena taxa are restricted to two general habitat types: dry and arid (A. elysae comb. nov., A. ringens comb. nov., D. joshuai sp. nov., H. cinica, H. nefasta, M. sanctaehelenae gen. et sp. nov.) and in the moist cloud forest, or just below it, (D. dolosa, H. ligata, H. vesevensis sp. nov.). The most widespread species is H. ligata, which occurs throughout the entire Peaks National Park; Hogna inexorabilis is also found further afield, including a historical record from an area close to (but not immediately located at) Plantation House.

Saint Helena is interesting insofar as no non-native lycosid species are known from the island; instead, comprising wholly of endemic species. This, in combination with the large proportion of endemic genera on the island, is greatly different to the two other islands which collectively form the British Overseas Territory of Saint Helena, Ascension, and Tristan da Cunha. Ascension has only one, non-native, species (Duffey 1964) in a genus with a European type species recorded (currently undergoing taxonomic investigation, Sherwood *et al.* in prep.), and Tristan da Cunha, where lycosids have not been formally reported at the species-level for any of its islands.

However, further work is required. The collection and description of the missing sexes of some taxa and the molecular characterization of all known species are important further steps in fully elucidating the evolutionary and natural history of Saint Helenian Lycosidae. Furthermore, *A. ringens* comb. nov. and *H. cinica* remain known from single adults (the paratypes of *H. cinica* are all immature) collected in the 1960s, meaning nothing is known of whether they still occur on the island or, indeed, were occasionally introduced to the island in the past. Again, future fieldwork efforts and molecular work should aim to resolve these questions.

Given the restricted distribution and occupation of habitat niches of many species, we consider, much like Ashmole & Ashmole (2004), that lycosids on the island require special care in their conservation management. Long-term studies on their ecology are crucial to further understand the pressures individual taxa face and the best way to ensure their survival. Almost nothing is known about the bionomics and diet of most species and whether this runs parallel to the abundance of other endemic invertebrates, which would have wider-ranging implications for invertebrate conservation generally on Saint Helena. We present some figures of burrows and specimens in situ (Figs. 177-182), one of which represents the first formal prey record for D. joshuai sp. nov., namely the Ring-legged Earwig Euborellia annulipes (Lucas, 1847), which DS and LF observed at Horse Point Plain (Fig. 182) during night surveys. The unmistakeable nature of lycosid spiders, particularly those such as the endemic *Molearachne sanctaehelenae* gen. et sp. nov. can serve to exemplify them as flagship species to show the wider scientific commnity the great faunal diversity found on this island and the necessity to preserve it for future generations. Indeed, *M. sanctaehelenae* gen. et sp. nov. in particular also serves as an eminent species for the arid habitat type in which it occurs, demonstrating this undervalued and understudied habitat hosts remarkable invertebrate fauna.

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