First record and new species of the hitherto American endemic genus *Hibana* Brescovit, 1991 from Ascension Island (Araneae: Anyphaenidae)

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Abstract

A new species of the genus *Hibana* Brescovit, 1991, previously known only from the Americas, is described from Ascension Island, based on both sexes: *Hibana ascensionensis* **sp. nov.** complemented with colour photographs of specimen habitus, male chelicera, and the copulatory organs of both sexes. Hitherto, the family Anyphaenidae Bertkau, 1878 had not been recorded from Ascension Island, nor any other mid-Atlantic island. The new species is related to, but distinct from, *H. tenuis* (L. Koch, 1866) and *H. talmina* Brescovit, 1991. The unusual indentation of male chelicerae in *Hibana* is documented and figured in detail for the first time.

Keywords: morphology ● spinnerets ● taxonomy ● United Kingdom Overseas Territory

Introduction

The family Anyphaenidae Bertkau, 1878 currently contains 58 genera and 635 extant species (and four fossil species), distributed predominately in the Americas (World Spider Catalog 2024). Previously, this family has not been recorded from Ascension Island (a remote volcanic island in the South Atlantic Ocean, with its closest neighbour being Saint Helena) despite detailed surveys of the spiders of the island by Duffey (1964) and Ashmole & Ashmole (1997, 2000). Recently, one of the authors, Adam Sharp, collected many spiders across the island during extensive invertebrate surveys. In these samples, both sexes of a morphospecies of anyphaenid were collected. These specimens, subsequently sent to the senior author in London for identification, were found to belong to *Hibana* Brescovit, 1991, but match no known species. *Hibana* is a genus previously only known from the Americas, with records from Canada through to Brazil (Brescovit 1991; World Spider Catalog 2024).

In this work, we describe this taxon as *Hibana ascensionensis* sp. nov., simultaneously providing the first confirmed records of the family from Ascension Island and the mid-Atlantic islands as a whole.

Material and methods

Specimens were examined under a binocular stereomicroscope. Images were made by the senior author using a Canon EOS 6D Mark II attached to a Leica MZ12.5 stereomicroscope, with images stacked using Helicon Focus software. Type specimens are deposited in ASC. Abbreviations: ASC = Ascension Island Conservation invertebrate collection, Georgetown, Ascension Island (it is intended in the future that the ASC invertebrate collection will be donated and moved to the Saint Helena National Trust, Jamestown, Saint Helena), At = atrium, CD = copulatory ducts, Cym = cymbium, Eb = embolic base, Em = embolus, Gl = gland (of copulatory duct), Hd = hood, Ma = median apophysis, leg. = legit (collected by), Rc = retrolateral cutout (of embolic base), Re = receptacle, RTA = retrolateral tibial apophysis, Sc = scape, Sd = sperm duct. Spination: d = dorsal, v = ventral, spines are organised in posterior, median and anterior thirds (e.g. 1–2–3). Total lengths include chelicerae but exclude spinnerets. Measurements are in millimetres.

Hibana Brescovit, 1991

Hibana Brescovit, 1991: 730.

Type species: *Clubiona gracilis* Hentz, 1847, by original designation.

Diagnosis: See Brescovit (1991, 1993).

Remarks: *Hibana* is medium sized genus with 19 valid species and 15 synonyms (World Spider Catalog 2024). The genus is well studied, all species have recent proper illustrations mostly by Brescovit (1991, 1993) and his coauthors (Brescovit & Lise 1993; Galvis & Brescovit 2020) (with the exception of *H. banksi* (Strand, 1906) known only from the juvenile). All species considered in the genus are restricted to the Americas and known from southern Canada to Brazil (World Spider Catalog 2024).

Hibana ascensionensis **sp. nov.** (Figs. 1–5)

Type material: Holotype ♂ (ASC G16 3 HPU) ASCENSION ISLAND: Travellers Hill, -7.94° -14.37°, 246 m, trachyte rock with abundant *Prosopus juliflora* trees, hanging trap, 11 March 2022, leg. A. Sharp; allotype ♀ (ASC G16 1 VB) same locality, -7.94° -14.37°, 186 m, intermediate Zr/Nb mafic flow with *Prosopus juliflora* trees, tree beating, 08 March 2023, leg. A. Sharp. Paratypes: ASCENSION ISLAND: 1 imm. ♂, 1♀ (ASC L16 1 HC), -7.94° -14.33°,

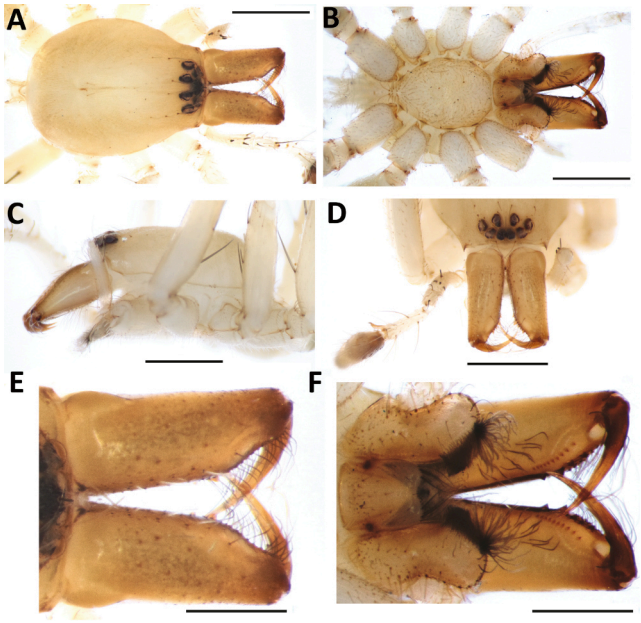

Fig. 1: *Hibana ascensionensis* sp. nov., holotype male. **A** carapace and chelicerae, dorsal view; **B** labium, sternum, coxae, and chelicerae, ventral view; **C** carapace and chelicerae, lateral view; **D** chelicerae and eyes, frontal view; **E** chelicerae close-up, dorsal view; **F** same, ventral view. Scale bars = 1 mm (A–D), 0.5 mm (E–F).

472 m, trachyte and rhyolite flows and domes, 21 February 2022, leg. A. Sharp; 1♀ (ASC E15 3 VB), -7.93° -14.39°, 119 m, beaten vegetation in barren habitat, 07 January 2022, leg. A Sharp; 1 imm. ♂ (ASC L16 1 VB), -7.94° -14.33°, 427 m, beaten vegetation in barren habitat, 21 February 2022, leg. A Sharp; 3♀♀ 1 imm. ♀ (ASC F17 1 VB), -7.93° -14.39°, 164 m, beaten scrub, intermediate Zr/Nb mafic flows (Younger flows), 28 February 2022, leg. A Sharp; 1♀ (ASC K19 1 HC), -7.94, -14.33, 91 m, beaten vegetation in barren habitat, 15 February 2022, leg. A Sharp; 1♂ (ASC E19 2 VB), -7.97, -14.33, 246 m, hand picking, Dark Slope Crater mafic flows, 11 January 2022, leg. A. Sharp; 1 imm. ♂, 1♀, 1 imm. (ASC NE600), North East Cottage, Ascension Island, -7.946701° -14.341985°, 600 m, mixed woodland, *Eucalyptus*, 16 August 2022, leg. A Sharp; 4♂♂ 3 imm. ♂♂, 2 imm. (ASC S500), War Path, -7.957918° -14.343908°, 500 m, *Juniperus bermudiana*, 26 July 2022, leg. A. Sharp; 1♀ (ASC NE700), Elliots Path, Ascension Island, -7.949797° -14.342478°, 700 m, mixed woodland, 16 August 2022 leg. A. Sharp; 1♂, 2 imm. ♀♀ (ASC NW450), Slimey Wall, -7.941365° -14.336895°: algae, guava, 09 August 2022, leg. A. Sharp; 1 imm. ♂ (ASC), Mars Bay, 01 August 2019, leg. unknown member of public; 1♂ (ASC), Georgetown, 11 July 2019, leg. unknown member of public.

Diagnosis: Males of *Hibana ascensionensis* sp. nov. resemble those of *H. tenuis* (L. Koch, 1866) and, more distantly, *H. talmina* Brescovit, 1933, both from South America, by shape of the male palp. However, *H. ascensionensis* sp. nov. can be distinguished from *H. tenuis* by the shape of the embolic base, with a pronounced retrolateral cutout (*v.* retrolateral cutout weakly developed), apex of embolus with a curve just before tip (*v.* no curve near tip), palpal tibia shorter than the cymbium (*v.* longer than cymbium), and by

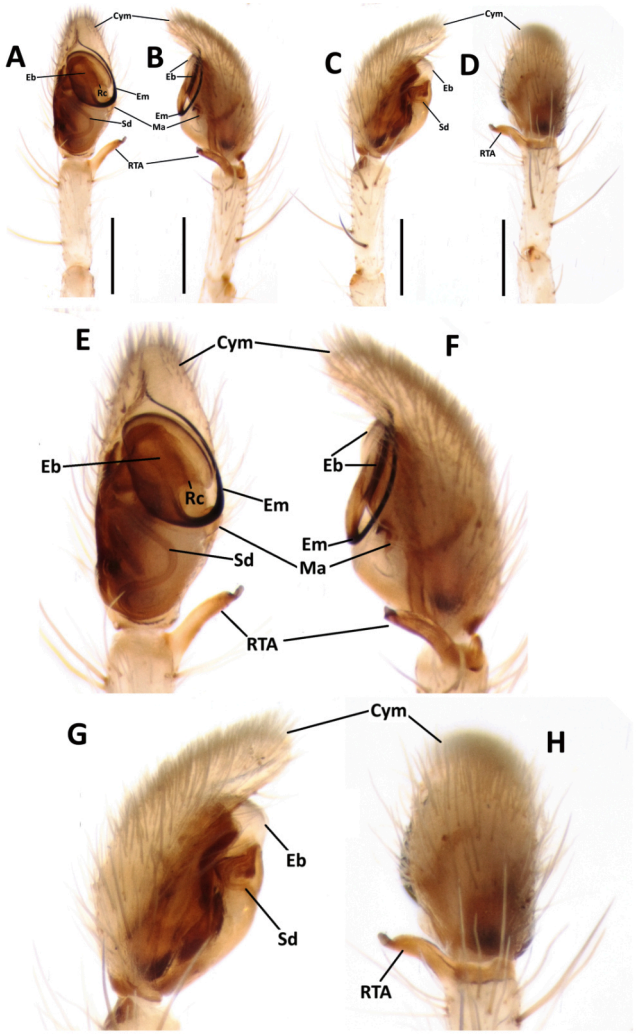

Fig. 2. *Hibana ascensionensis* sp. nov., holotype male. **A** palp, ventral view; **B** same, retrolateral view; **C** same, prolateral view; **D** same, dorsal view; **E** close-up of palpal bulb and distal tibia, ventral view; **F** same, retrolateral view; **G** same, prolateral view; **H** same, dorsal view. Scale bars = 1 mm (A–D), 0.5 mm (E–G).

the different course of the sperm duct. *Hibana ascensionensis* sp. nov. differs from males of *H. talmina* by the absence of a projection at the base of the embolus (*v.* present) and, further, by differences in the shape of the sperm duct and shape of the embolic base. Females of *H. ascensionensis* sp. nov. have an epigyne similar to those of *H. tenuis* and *H. talmina* but can be distinguished by the proportions of the atrium, being 1.2× longer than wide (*v.* 2.0× in *H. tenuis* and 1.38× in *H. talmina*), there are also differences in the shape and position of the epigynal hood between these species.

Etymology: The specific epithet is Latin and refers to the island on which the species occurs.

	Fe	Pa	Ti	Mt
I	N/A	N/A	N/A	N/A
II	d 1–2–2	d 1–0–1	d 1–2–2, v 4–4–4	d 3–2–0
III	d 1–2–3	d 1–1–1	d 2–1–1, v 3–4–3	d 2–3–2, v 3–2–4
IV	d 1–1–3	d 1–1–1	d 1–2–3, v 4–4–2	d 2–3–3, v 2–4–4

Table 1: Spination [leg I missing (see remarks)] of holotype male of *Hibana ascensionensis* sp. nov.

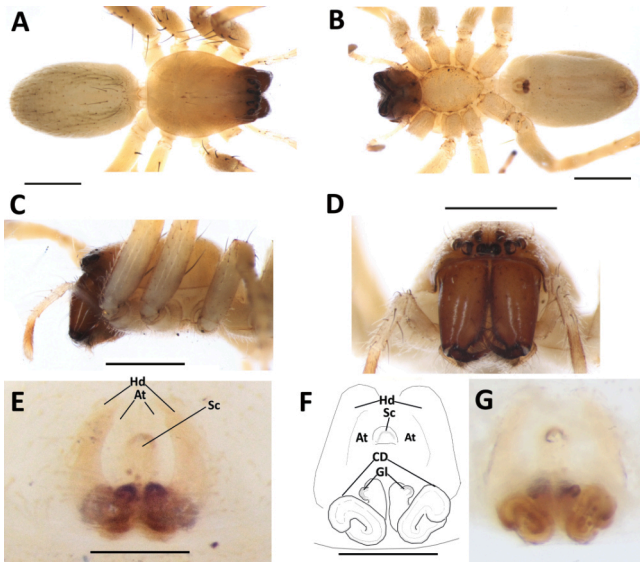

Fig. 3: *Hibana ascensionensis* sp. nov., allotype female ASC G16 1 VB. **A** habitus, dorsal view; **B** same, ventral view; **C** carapace and chelicerae, lateral view; **D** chelicerae and eyes, frontal view; **E** epigyne (uncleared), ventral view; **F** illustration of endogyne, dorsal view; **G** photograph of endogyne, dorsal view. Scale bars = 1 mm (A–D), 0.5 mm (E–F).

Description of holotype male: Total length >3.35 (abdomen missing). Carapace 2.32 long, 1.79 wide. Eye sizes and interdistances: ALE 0.11, AME 0.09, PLE 0.14, PME 0.12, AME–AME 0.07, PME–PME 0.13, ALE–AME 0.04, PLE–PME 0.15. Chelicera 1.06 long, 0.42 wide, modified, elongate and protruding, 2× longer than maxilla in ventral view, 6 promarginal teeth, 10 small retromarginal teeth. (Figs. 1A–F). Abdomen missing. Leg lengths: [leg I missing (see remarks)], II 5.73 (1.74, 0.46, 1.63, 1.37, 0.53), III 4.08 (1.21, 0.49, 0.93, 1.04, 0.41), IV 6.22 (1.74, 0.67, 1.54, 1.83, 0.44). Spination: see Table 1. Colour (in alcohol): overall beige, carapace and chelicerae darker than legs, chelicerae darker than carapace (Fig. 1A–B).

Palp femur 0.94, patella 0.25, tibia, 1.45, cymbium 1.94. Tibia 0.75× shorter than cymbium, 3.75× longer than wide, retrolateral tibial apophysis long (~0.3× tibia length), thin with parallel margins, roundly bent ventrally, tip slightly bent; cymbium 2.3× longer than wide, widest at middle part, anterior part wider than base, with groove encompassing tip of embolus; bulb oval, almost 2× longer than wide, more wide anteriorly; subtegulum invisible in ventral view; sperm duct gradually tapering, forming three round bands in ventral view; median apophysis small, located retrolaterally at mid part of bulb, as long as wide; embolic base longer than half of bulb, retrolateral cutout (Rc) of embolic base almost round (Fig. 2F–G).

Description of paratype male (ASC E19 2 VB): Total length 5.28. Carapace 2.24 long, 1.73 wide. Abdomen 2.80 long, 1.17 wide. Measurements of leg I 9.60 (2.38, 1.16, 2.80, 2.25, 1.01). Spination of leg I: see Table 2.

	Fe	Pa	Ti	Mt
I	d 1–2–4	d 1–0–1	d 3–3–2, v 2–4–2	d 2–2–0, v 2–2–2

Table 2: Spination of leg I of paratype male of *Hibana ascensionensis* sp. nov.

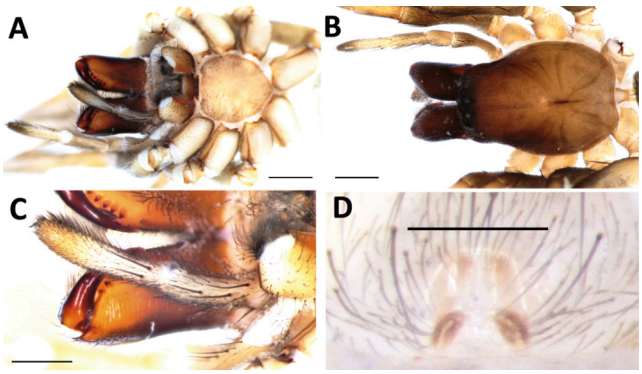

Fig. 4: *Hibana ascensionensis* sp. nov., paratype immature female ASC F17 1 VB, with morphological anomaly. **A** cephalothorax, ventral view; **B** same, dorsal view; **C** close-up of anomalous palp and maxilla, ventral view; **D** pre-epigyne, ventral view. Scale bars = 1 mm (A–C), 0.5 mm (D).

Description of female allotype: Total length 4.68. Carapace 2.04 long, 1.55 wide. Eyes: ALE 0.06, AME 0.06, PLE 0.13, PME 0.11, AME–AME 0.06, PME–PME 0.08, ALE–AME 0.05, PLE–PME 0.14. Chelicera 0.78 long, 0.45 wide, 4 promarginal teeth, 8 small retromarginal teeth (Fig. 3A–D). Abdomen 2.29 long, 1.37 wide. Leg measurements: I 5.43 (1.13, 0.83, 1.66, 1.24, 0.57), II 4.82 (1.12, 0.75, 1.36, 1.11, 0.48), III 3.76 (1.02, 0.60, 0.82, 0.97, 0.35), IV 6.19 (1.39, 0.83, 1.47, 1.94, 0.56). Spination: see Table 3. Colour (in alcohol): overall light brown, chelicerae reddish brown, carapace and legs darker than opisthosoma, anterior quarter of carapace reddish brown, homogenous to colour of chelicerae, abdomen with weakly developed pattern composed by pair of sublateral dark stripes in anterior half. (Fig. 3A–B).

Epigynal plate as long as wide, with broad lateral margins, wider than hood; atrium terminating at posterior ⅓ of plate, 1.5× longer than wide; hood located almost in mid part of atrium; endogyne with two long and gently curved copulatory ducts, each terminating in a laterally situated gland (Fig. 3E–F).

Distribution: Ascension Island.

Remarks: One of the paratypes (ASC F17 1 VB; Fig. 4A–D), an immature female, has a morphological anomaly. The palp on the left hand side is missing. Instead, a second anomalous palp is emergent from the median coxa of the normal right hand palp. This abnormal palp has spination and a tarsal claw. Until just a few weeks before submitting this paper, we only had two specimens of the male sex: the holotype and a paratype. A parcel containing final samples of Ascension spiders was received by DS at this time, which contained additional males of *H. ascensionensis* sp. nov. which we could examine and thereby designate herein as paratypes. Given that the morphology of the copulatory

	Fe	Pa	Ti	Mt
I	d 1–1–3	d 1–0–1	d 1–2–2, v 2–2–2	d 2–2–0, v 2–0–0
II	d 1–1–2	d 1–0–1	d 0–2–1, v 2–2–1	d 1–2–0, v 2–1–0
III	d 1–1–3	d 1–1–1	d 2–2–1, v 1–2–2	d 2–3–2, v 2–2–4
IV	d 1–1–3	d 1–1–1	d 0–2–2, v 1–2–2	d 2–2–3, v 2–4–4

Table 3: Spination of allotype female of *Hibana ascensionensis* sp. nov.

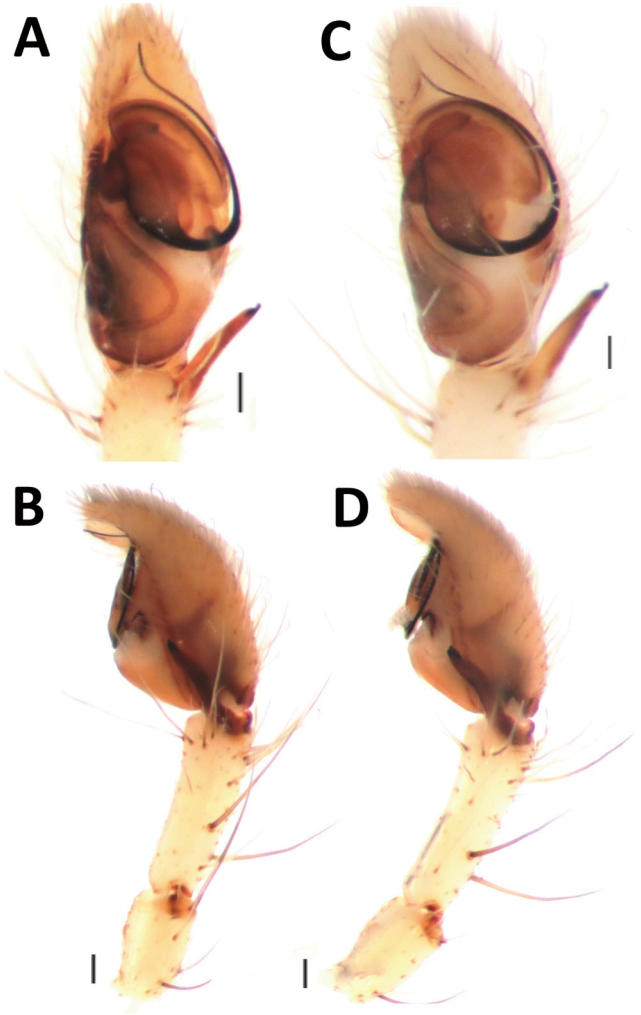

Fig. 5: *Hibana ascensionensis* sp. nov., intraspecific variation of palp in two paratype males ASC S500. **A** first male, ventral view; **B** same, retrolateral view; **C** second male, ventral view; **D** same, retrolateral view. Scale bars = 0.1 mm.

organs are the primary characters for delimitation, we decided to not change designation of the specimen we had already decided to be the holotype (i.e. a male specimen missing the abdomen, which has no delineative value in the taxonomy of this group) which had already been measured and photographed. The constant morphology of the male palpal structures described herein was further confirmed through the examination of the most recently received material and we present complimentary figure of two palps from paratypes (Fig. 5). Variation in the length and width of the abdomen, and in leg spination further demonstrated these were not informative for the diagnosis of the new species.

Like many congeners, and also species of the related genus *Anyphaena* Sundevall, 1833, *H. ascensionensis* sp. nov. occurs on trees, and was most commonly collected on *Prosopis juliflora*, better known as Mexican Thorn. It is possible that this species was not recorded before 2022 because dedicated invertebrate surveys involving beating and sweeping of vegetation were not being undertaken. We considered the possibility that this new species may be introduced and be indigenous to Latin America, especially since it was found mostly in urban areas, but Antonio Brescovit (pers. comm.) suggests it may instead be a natural element of the island. In any case, it is new to science and is apparently widespread on Ascension.

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