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SCORPIONS (ARACHNIDA: SCORPIONES) AS STOWAWAYS ACCIDENTLY IMPORTED INTO THE UNITED KINGDOM

Danniella Sherwood[1,2,*] & Luis F. de Armas[2,3]

[1] Arachnology Research Association, London, United Kingdom. danni.sherwood@hotmail.com
[2] Fundación Ariguanabo, San Antonio de los Baños, Artemisa, Cuba
[3] P.O. Box 4327, San Antonio de los Baños, Artemisa 38100, Cuba. luisdearmas1945@gmail.com
Corresponding author: danni.sherwood@hotmail.com

Abstract. Previous and new records of scorpions detected as stowaways in the United Kingdom are presented and discussed. Five taxa are recorded in the scientific literature for the first time: *Centruroides insulanus* (Thorell, 1876, *Centruroides* sp. (*nigrovariatus* species group), *Hottentotta* cf. *tamulus* (Fabricius, 1798), *Mesobuthus* sp. and *Cercophonius squama* (Gervais, 1844). Also, we discuss a sixth undeterminable scorpion of which only a single photograph was available.
Key words: Buthidae, Bothriuridae, *Centruroides, Cercophonius, Hottentotta, Mesobuthus*, invasive species.

Escorpiones (Arachnida: Scorpiones) como polizones importados accidentalmente al Reino Unido
Resumen. Se presentan y discuten registros previos y nuevos de escorpiones detectados como polizones en el Reino Unido. Se registran por primera vez cinco taxones: *Centruroides insulanus* (Thorell, 1876), *Centruroides* sp. (*nigrovariatus* species group), *Hottentotta* cf. *tamulus* (Fabricius, 1798), *Mesobuthus* sp. y *Cercophonius squama* (Gervais, 1844). Además, se menciona una sexta especie indeterminadable, de la que solamente se dispuso de una fotografía.
Palabras clave: Buthidae, Bothriuridae, *Centruroides, Cercophonius, Hottentotta, Mesobuthus*, especies invasoras.

Introuction

The arachnid fauna of the United Kingdom is diverse (Lavery, 2019; Legg, 2019; Davidson, 2019), but presently only one scorpion is known to be established – the non-native *Tetratrichobothrius flavicaudis* (De Geer, 1778) (Wanless, 1977; Benton, 1992; Dupré, 2022; DS, pers. obs.), which is restricted to small colonies in a handful of locations, predominately on the Isle of Sheppey. As *T. flavicaudis* has been established for two centuries, we do not consider it a stowaway for the purposes of this work, as it has long been part of the British fauna. However, other foreign scorpions, which are not established, are occasionally imported accidentally into the United Kingdom as stowaways, and generally this is not well recorded in the literature. The only formal report appears to be Trujillo *et al*. (2017) who report a gravid female stowaway of *Centruroides thorellii* (Kraepelin, 1891) discovered in luggage on public transport by tourists who returned from Guatemala. The authors did note of previous "scorpions in wood shipments" but precise details and identifications were not elaborated (Trujillo *et al*., 2017: 4). At least one case is also reported in the news media, with The Guardian (2015) reporting a case where a woman was stung by an adult male of *Centruroides* sp. found in Kent in bananas likely imported from southern Mexico.

In the present contribution, some new cases of stowaways are reported, mostly on the basis of historical specimens examined and recurated by the senior author in the Natural History Museum, London (NHMUK). For confirmation or identification of some species, taxonomists on each group were consulted.

Preserved specimens were photographed using a Canon EOS 6D Mark II attached to a Leica MZ12.5 with images stacked using Helicon Focus software. Labels are transcribed as written, with the emphasis of the authors between brackets [ ].

Records

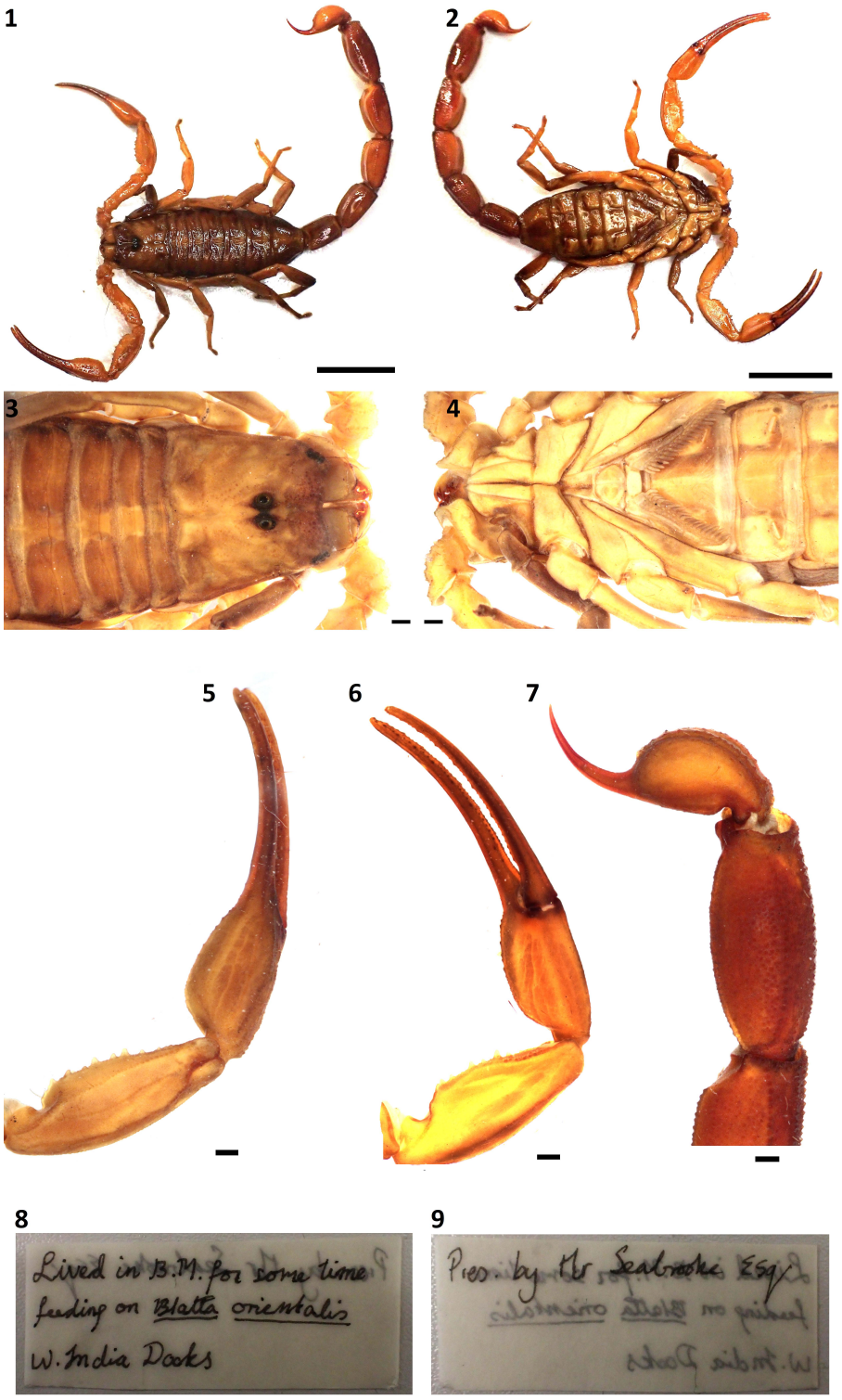
Family **Buthidae** C. L. Koch, 1837

***Centruroides thorellii* (Kraepelin, 1891)**
REMARKS**:** A single gravid adult female of this Central American bark scorpion was discovered in luggage and sent to a pet shop, as reported by Trujillo *et al*. (2017).

***Centruroides insulanus* (Thorell, 1876)**
MATERIAL EXAMINED: 1 ♀ (NHMUK 015212236), W. India Docks, lived in B.M. [= BMNH, now NHMUK] for some time feeding on *Blatta orientalis*.
REMARKS**:** A single female specimen of *C. insulanus* detected as a stowaway is deposited in the museum (Figs. 1–9) and based on the age of the labels and the handwriting was received in the 20th Century. Hitherto, it appears not to have been recorded in the published literature and is thus formally reported here. This species is a Jamaican endemic (Dupré & Armas, 2021) and Jamaica was one of the predominate sources of fruit importation to the United Kingdom during the 20th Century.

***Centruroides* sp. (*nigrovariatus* species group)**
REMARKS: A single adult male of this Neotropical bark scorpion was discovered among a package of bananas packets opened in Crayford, Kent, where it stung the finger of a young woman, but without serious consequences (The Guardian, 2015). Unfortunately, only the published picture was available to us, but the specimen is similar to some Mexican scorpions belonging to the *Centruroides nigrovariatus* species group.

***Hottentotta* cf. *tamulus* (Fabricius, 1798)**
MATERIAL EXAMINED: 1 ♀ (NHMUK 015212237), BMNH 1924.10.3.15 on barge of wheat at dockhead [*sic*], Bermondsey, H. D. White, *'Buthus* nr. *saulcyi* Sim[on]. ?'.



Figs. 1–9: *Centruroides insulanus* (Thorell, 1876) adult female (NHMUK 015212236), **1** habitus, dorsal view, **2** habitus, ventral view, **3** carapace, dorsal view, **4** pectines, ventral view, **5** chela, dorsal view, **6** chela, ventral view, **7** telson, lateral view, **8** front of data label, **9** back of data label. Scale bars = 10mm (1–2), 1mm (3–7).

REMARKS: A single female of *Hottentotta* cf. *tamulus* (Fabricius, 1798) was found in London during the 1920s and sent to the museum where it was tentatively identified as being related to *Buthus saulcyi* [= *Hottentotta saulcyi* (Simon, 1880)] (Figs. 10–18). It has not previously been recorded in the scientific literature and is reported for the first time here. Its real identity was stablished by F. Kovarík in April 2023 in email correspondence with us.

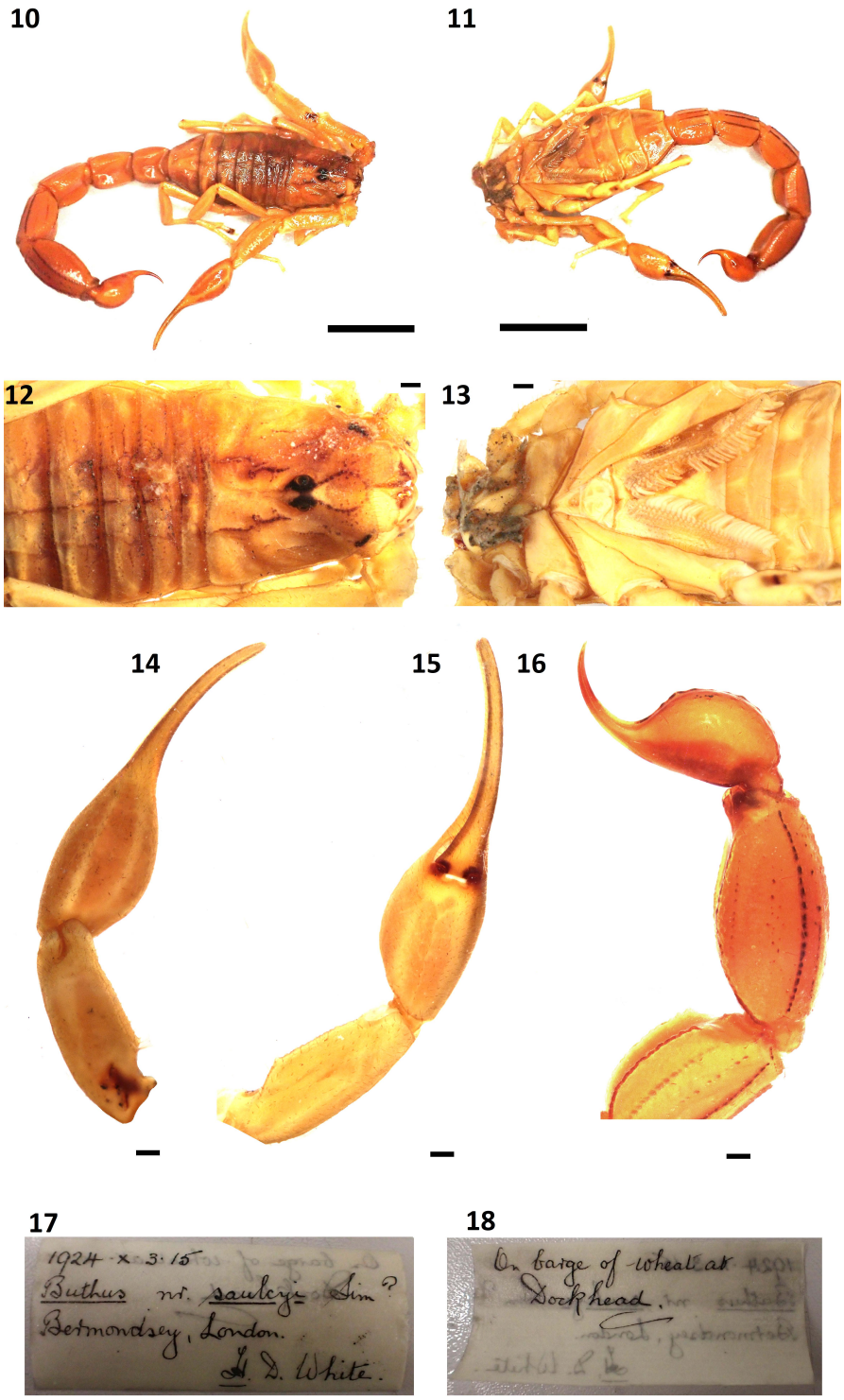
***Mesobuthus* sp.**

REMARKS: Photographs of a scorpion (Fig. 19) found by Sam Booth in his garden in Sheffield, United Kingdom were sent to the senior author in 2020. The scorpion was identifiable as a female of the genus *Mesobuthus* Vachon, 1950, but species level identification was not possible from photographs alone (Andrea Rossi pers. comm., June 2020). The specimen was still alive and was sent to a reptile facility for onwards care.

Family **Bothriuridae** Simon, 1880

***Cercophonius squama* (Gervais, 1844)**

MATERIAL EXAMINED: 1 ♀ (NHMUK015212238), imported alive in box of Tasmania apples, 3.7.1954, [found in] Gorlenton, G[rea]t. Yarmouth, E. A. Ellis, *C. squama* det. L. E. Koch, *C. squama* det. E. Maury.



Figs. 10–18: *Hottentotta* cf. *tamulus* (Fabricius, 1798) adult female (NHMUK 015212237), **10** habitus, dorsal view, **11** habitus, ventral view, **12** carapace, dorsal view, **13** pectines, ventral view, **14** chela, dorsal view, **15** chela, ventral view, **16** telson, lateral view, **17** front of data label, **18** back of data label. Scale bars = 10 mm (10–11), 1 mm (12–16).

REMARKS: A single adult female is present in the museum (Figs. 20–27), and was previously identified as *Cercophonius squama* (Gervais, 1844) by both Emilio A. Maury and L. E. Koch. The taxonomy of bothriurids is primarily defined on the morphology of the male spermatophore (Andrés Ojanguren-Affilastro, pers. comm., April 2023), but we confirm the species-level identification based on the fact that *C. squama* is the only known congener to occur in Tasmania (Acosta, 1990). It is worth noting that the donator of the specimen to the museum was Edward Augustine (Ted) Ellis (1909–1986) a well-known British naturalist who dedicated his life to studying and educating the public about Norfolk's wildlife. It is unsurprising that such an unusual discovery in Great Yarmouth was referred to him.

In addition to the above records, verifiable to species or genus level, we are also aware of one record of an apparent stowaway scorpion on the citizen science platform iNaturalist. A single photograph of a scorpion (Fig. 28) in Liskeard, Cornwall is accompanied by information from the observer stating the scorpion was from goods from Indonesia and was approximately 1 centimetre in length. Unfortunately, this photograph is not clear enough to identify the scorpion even at the family level (F. Kovařík, pers. comm., April 2023).

It is apparent that with two definite exceptions thus far, all stowaway scorpions herein reported belong to the medically significant family Buthidae. This family is found

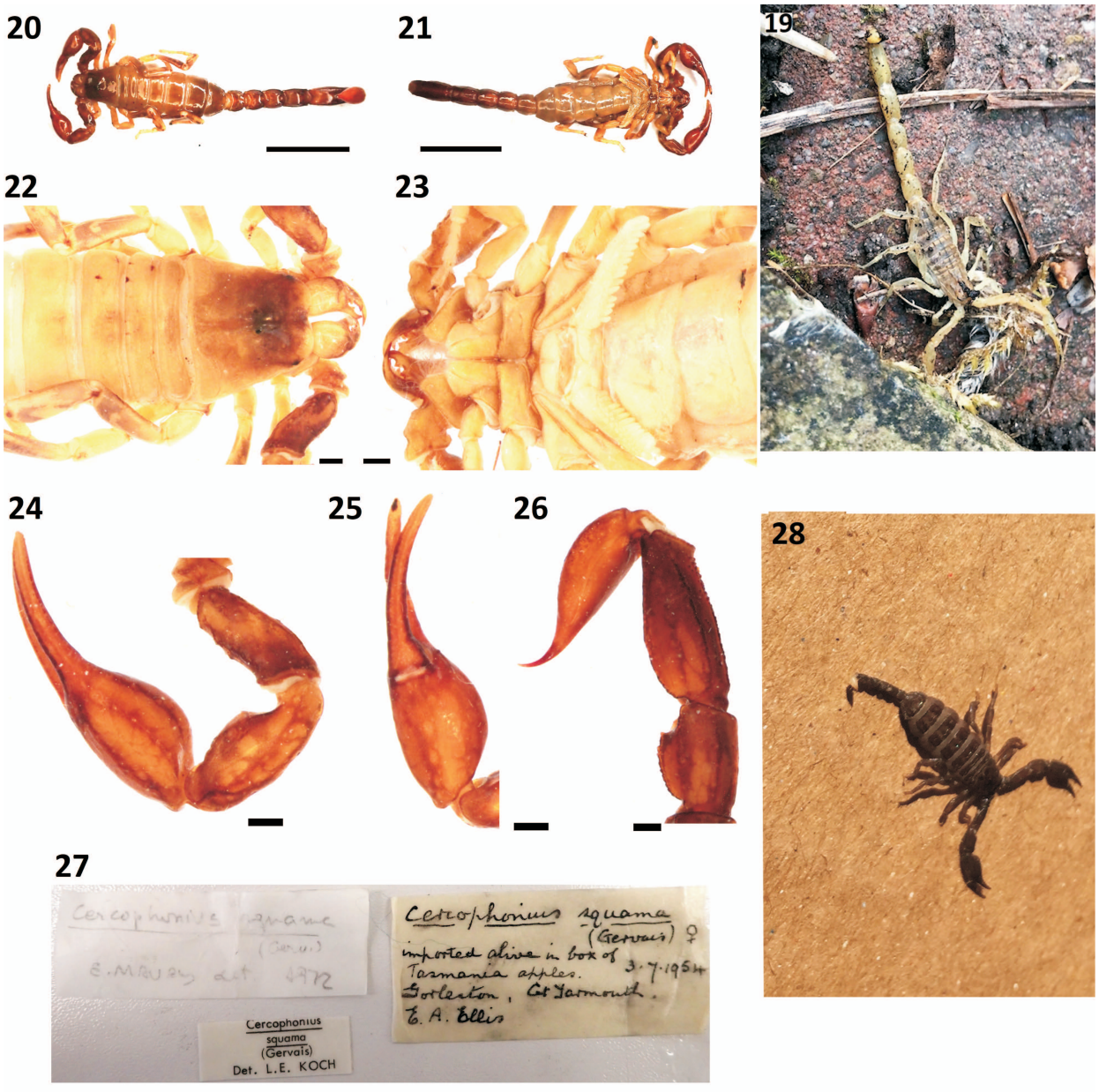


Fig. 19: *Mesobuthus* sp. adult female, found in garden in United Kingdom. Photo by courtesy of Sam Booth. **Figs. 20–27:** *Cercophonius squama* (Gervais, 1844) adult female (NHMUK015212238), **20** habitus, dorsal view, **21** habitus, ventral view, **22** carapace, dorsal view, **23** pectines, ventral view, **24** chela, dorsal view, **25** chela, ventral view, **26** telson, lateral view, **27** data labels. Scale bars = 10 mm (20–21), 1mm (22–26). **Fig. 28:** Unidentifiable scorpion of unknown sex and life-stage recorded on iNaturalist (https://www. inaturalist.org/observations/48666865), photo by user 'andymack', CC BY-NC 4.0.

worldwide, although only lesser than 2% of its known species are confirmed to be life-threatening to humans (Ponce-Saavedra *et al*., 2016). The majority occurrence of buthids is congruent with stowaway reports from other European countries (Teruel & Ove Rein, 2009; Nolan, 2013; Teruel & de Biurrun Baquedano, 2015; Dupré, 2022).

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