A review of the scorpion fauna of Saudi Arabia

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ABSTRACT

The scorpions of Saudi Arabia were surveyed in the major regions of Jazan, Al-Medina, Al-Baha, Hail, and Riyadh, in addition to nine provinces surveyed more superficially. Jazan (1,440 specimens) had 10 buthids and two scorpionid species and subspecies; Al-Medina (867) had seven buthid and two scorpionid species and subspecies, one of which, the scorpionid Scorpio maurus (palmatus?), needs further confirmation of identity. The Al-Baha region (2421 specimens) contained five buthids and two scorpionid species and subspecies; Hail (1,921) had eight buthid and two scorpionid species and subspecies - the most common subspecies here was Scorpio maurus kruglovi. Androctonus crassicauda and Leiurus quinquestriatus were only found in Hail and Al-Baha; Androctonus bicolor was newly recorded in Hail and Riyadh. Riyadh (4,164 specimens) had nine buthid, one scorpionid and at least two hemiscorpiid species and subspecies. The Saudi fauna was found to comprise at least 28 species and subspecies of the families Buthidae, Scorpionidae and Hemiscorpiidae.

Keywords: Buthidae, Scorpionidae, Diplocentridae

INTRODUCTION

Arachnologists have been puzzling over the relationships of arachnids for over a century and for an appreciable time the problem seemed no closer to a satisfactory resolution (Shultz 1990). Some have speculated that arachnids are a polyphyletic grade of terrestrial chelicerate (Savory 1971, Krauss 1976, Manton 1977, Van der Hammen 1977a). Weygoldt & Paulus (1979a), whose works were based on information derived from an extensive review of chelicerate biology, were the first to apply cladistic reasoning to the arachnid problem and they discovered the evidence that arachnids are monophyletic. Van der Hammen (1977a), who was the most prolific of the workers in this field (Weygoldt & Paulus 1979b, Van der Hammen 1977b, 1979, 1969, 1982, 1985a, 1985b) has rejected cladistics as too rigid and atomistic to offer a solution for the problems of arachnid evolution, and (1986a) suggested that “discovery of unexpressed potentialities” holds the key to understanding macroevolutionary change. The conclusions of Van der Hammen went unchallenged apart from Lindquist (1986b), but Shultz (1990) admitted that arachnids are probably monophyletic.

The phylogenetic position of scorpions was in dispute but the order limits were clear (Shultz 1990). Weygoldt & Paula (1979a) thought that fossil scorpions were more closely related to Eurypterida than to recent scorpions, but the more recent works of Kjellesvig-Waering (1989) have proved this inappropriate, based on the peltical presence in fossil scorpions, in addition to the stomotheca, transverse carapacial furrow and biocondylar femoropatellar joints. Recent scorpions have major differences from other arachnids, such as the flagellar spermatozoa, opisthosomal venom glands, etc. (Van der Hammen 1985c, Shultz 1990).

Detailed recent information about scorpions is available in scorpiological websites (Arachnodata 2009a, 2009b; Euscorpius 2009, ITG Library 2009, WRBU 2009, The scorpion fauna 2009). A lot of controversy has accumulated recently on scorpion taxonomy, especially in higher level systematics and in relation to other arthropods (Fet &

As regards the scorpions of Saudi Arabia, earlier reports by several investigators (including Vachon 1979, and more recently Al-Hajjaj 2005, Al-Sadoon & Al-Farraj 2008) indicate the presence of only two medically important species (Androctonus crassicauda and Leiurus quinquestriatus: both Buthidae) in the Riyadh region. Other buthid species such as Buthacus leptochelys and Vachoniolus (Buthacus) minipectinibus were not reported from this region, but were reported to be extant in other regions (Vachon 1979). Buthidae is the largest of the scorpion families (Fet and Lowe 2000, Polis 1990) spreading over many regions, and widespread in the Old World, especially in Asia and Tropical Africa. The recent and continuing studies of Hendrixson (2002, 2006, 2008) and El-Hennawy (2009) on scorpions of the Arabian Peninsula were helpful and useful guides in our work.

Medically important species have been reported in the older literature (Al-Asmari et al. 2007, 2009a, 2009b), but species that are allegedly unimportant medically turn out to produce medically serious outcomes in Saudi Arabia, such as intracranial bleeding and other complications (Annobil 1993, Annobil et al. 1991) and other works and information from personal contacts report the same for other species (e.g. Compsobuthus werneri, Apistobuthus pterygocercus, Scorpio maurus kruglovi, Scorpio maurus (palmatus?) and Hemiscorpius spp.).

MATERIALS & METHODS

The bases of scorpion classification have changed in recent years. The important methods and keys of Vachon (1979) and Sissom (1990) were based on three trichobothrial patterns and other morphological features referring to their distribution and dimensions on the body (Figs. 1 & 2). Preliminary work done in the Arabian Peninsula and Saudi Arabia in particular were based on these keys (Al-Asmari et al. 2007, 2009a). Recent changes to higher classification were adopted by The Scorpion Files (2009), following Fet & Soleglad (2005), but recent work in the Arabian Peninsula used the work of Hendrixson (2002, 2006, 2008). Here we adopt the higher classification of The Scorpion Files (2009):

Infraorder: Orthosterni Pocock, 1911 (extant scorpions)
Parvorder: Buthida Soleglad et Fet, 2003
  Superfamily: Buthoidea C. L. Koch, 1837
    Family: Buthidae C. L. Koch, 1837 (thick-tailed scorpions)
Parvorder: Iurida Soleglad et Fet, 2003
Superfamily: Scorpioidea Latreille, 1802
  Family: Scorpionidae Latreille, 1802 (burrowing scorpions or pale-legged scorpions)
    Subfamily: Diplcentrinae Karsch, 1880
      Tribe: Nebini Kraepelin, 1905
    Subfamily: Scorpioninae Latreille, 1802
  Family: Hemiscorpiidae Pocock, 1893 (= Ischnuridae, =Liochelidae)
    (Rock scorpions, creeping scorpions, or tree scorpions)
    Subfamily: Hemiscorpiinae Pocock, 1893
RESULTS & DISCUSSION

It was not our intention to keep scorpions in captivity, but this happened almost accidentally during the processes of unloading field batches, classifying and milking them (Al-Asmari et al. 2007, 2009a, 2009b). Some species were successfully reared to maturity, mated and their offspring reared (Al-Asmari et al. 2007, 2009a, 2009b), feeding them on the mealworms of previous methodologies (Lyon 1991, 1997). We have not confirmed scorpion parthenogenesis in Saudi Arabian populations, although this had been observed by some workers elsewhere (Lourenço 1994, 2008; Lourenço et al. 1996, 2000).

The total number of scorpions studied (Al-Asmari et al., 2007, 2009a, 2009b) in the five regions of Jazan, Al-Medina, Al-Baha, Hail and Riyadh (Figs. 3-5) was 10,813 specimens, in addition to other specimens reviewed from an extra nine localities. There were at least 28 species and subspecies recognized from these 14 locations, summarized in Table 1: they belong to three families - Buthidae, Hemiscorpiidae and Scorpionidae.
Figure 3: Map of Jazan and Al-Medina Al-Munawwara regions, showing Jazan [Baish, Samtah, Abu Ariesh, Feifa, Bani Malik, Jazan City (Plantations), Sabia, Al-Khoba, Uhud Al-Masarha and Forasan Isles] and Al-Medina Al-Munawwara [Mahd Addahab, Tabouk Road, Yanbou Road, City (Medina) Road, City Center (Plantations), Uhud and Jedda Road].

Figure 4: Map of Hail and Al-Baha regions, showing Al-Baha [Al-Quied, Al-Qura, Al-Mandag, Al-Makhwaa, Galwaa, Al-Baha and Baljurashy cities] and Hail [Hail city, Baqaa, Al-Shenan and Al-Ghazala].

Figure 5: Map of Riyadh (Central) region, showing the sectors of Riyadh and locations of collections [Quasiem Road, Ramah road, Nazeem Road, Airport Road, Ben Ban, Dirab, Al-Ha'er, Al-Thumama, Janadria Road, Muzahimiya Road, Al-Kharj and Khashm Al-Aan].
Table 1. List of scorpion species and subspecies collected and identified in Saudi Arabia.

<table>
<thead>
<tr>
<th>Species</th>
<th>Family</th>
<th>Region/Province</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Androctonus amoureuxi</td>
<td>Buthidae</td>
<td>Al-Gunfuda</td>
</tr>
<tr>
<td>2 Androctonus australis</td>
<td>Buthidae</td>
<td>Al-Gunfuda, Aseer, Al-Medina</td>
</tr>
<tr>
<td>3 Androctonus bicolor</td>
<td>Buthidae</td>
<td>Aseer, Eastern R, Hail, Najran, Quassiem, Riyadh, Tabuk</td>
</tr>
<tr>
<td>5 Apistobuthus pterygocercus</td>
<td>Buthidae</td>
<td>Hail</td>
</tr>
<tr>
<td>6 Buthacus leptochelys</td>
<td>Buthidae</td>
<td>Aseer, Attai, Eastern R, Hail, Jazan, Al-Medina, Quassiem, Riyadh</td>
</tr>
<tr>
<td>7 Buthacus leptochelys nitzani?</td>
<td>Buthidae</td>
<td>Al-Baha, Al-Gunfuda</td>
</tr>
<tr>
<td>8 Buthacus yotvatensis nigroaculeatus</td>
<td>Buthidae</td>
<td>Eastern R, Hafr Al-Batin, Riyadh</td>
</tr>
<tr>
<td>9 Butheolus arabicus</td>
<td>Buthidae</td>
<td>Jazan</td>
</tr>
<tr>
<td>10 Butheolus gallagheri</td>
<td>Buthidae</td>
<td>Jazan</td>
</tr>
<tr>
<td>11 Butheolus thalassinus</td>
<td>Buthidae</td>
<td>Jazan</td>
</tr>
<tr>
<td>12 Compsobuthus arabicus?</td>
<td>Buthidae</td>
<td>Hafr Al-Batin, Hail, Al-Medina, Quassiem, Riyadh, Tabuk</td>
</tr>
<tr>
<td>13 Compsobuthus arabicus arabis</td>
<td>Buthidae</td>
<td>Riyadh</td>
</tr>
<tr>
<td>14 Compsobuthus werneri</td>
<td>Buthidae</td>
<td>Al-Baha, Aseer, Attai, Hafr Al-Batin, Jazan, Al-Medina, Najran, Riyadh, Tabuk</td>
</tr>
<tr>
<td>15 Hottentotta jayakari</td>
<td>Buthidae</td>
<td>Jazan</td>
</tr>
<tr>
<td>17 Orthochirus innesi</td>
<td>Buthidae</td>
<td>Al-Baha, Aseer, Eastern R, Hail, Jazan, Al-Medina, Quassiem, Riyadh, Tabuk</td>
</tr>
<tr>
<td>18 Orthochirus scrobiculusus</td>
<td>Buthidae</td>
<td>Hail</td>
</tr>
<tr>
<td>19 Parabuthus liosoma</td>
<td>Buthidae</td>
<td>Al-Gunfuda, Aseer, Jazan</td>
</tr>
<tr>
<td>20 Unidentified</td>
<td>Buthidae</td>
<td>Eastern R</td>
</tr>
<tr>
<td>21 Vachoniolus minispectinibus</td>
<td>Buthidae</td>
<td>Al-Baha, Eastern R</td>
</tr>
<tr>
<td>22 Vachoniolus spp?</td>
<td>Buthidae</td>
<td>Eastern R</td>
</tr>
<tr>
<td>23 Hemiscorpius arabicus</td>
<td>Hemiscorpiidae</td>
<td>Riyadh</td>
</tr>
<tr>
<td>24 Hemiscorpius lepturus?</td>
<td>Hemiscorpiidae</td>
<td>Riyadh</td>
</tr>
<tr>
<td>25 Nebo hierichonticus</td>
<td>Scorpionidae</td>
<td>Al-Baha, Aseer, Attai, Jazan, Al-Medina, Najran, Tabuk</td>
</tr>
<tr>
<td>26 Scorpio maurus fuscus</td>
<td>Scorpionidae</td>
<td>Al-Baha, Aseer, Attai, Jazan, Najran, Tabuk</td>
</tr>
<tr>
<td>27 Scorpio maurus kruglovi</td>
<td>Scorpionidae</td>
<td>Hafr Al-Batin, Hail, Al-Medina, Quassiem, Riyadh, Tabuk</td>
</tr>
<tr>
<td>28 Scorpio maurus palmatus?</td>
<td>Scorpionidae</td>
<td>Attaif, Hail, Tabuk</td>
</tr>
</tbody>
</table>

The Jazan region

The scorpions of Jazan (including the Forsan Isles) were identified as 12 species and subspecies (Figure 6). Three species were new records for the region (Butheolus arabicus, Butheolus thalassinus and Butheolus gallagheri). There were six black species (Androctonus crassicauda, Nebo hierichonticus, Orthochirus innesi, Butheolus arabicus, Butheolus thalassinus and Butheolus gallagheri), ranging in length from 2.1 (Orthochirus) to 13.5 cms (Nebo). Nebo hierichonticus (Scorpionidae) is implicated in serious outcomes including death (Annobil, 1993, Annobil et al., 1991) even though its venom toxicity is not very high.

Buthidae Koch, 1837
Parabuthus Pocock, 1890
Hottentotta Birula, 1908
Figure 6: The scorpion species collected from the Jazan region including the Forasan Isles.
The scorpions of this region comprised nine species and subspecies (Figure 7): three of these are black, two large (Androctonus crassicauda at 9.9 cms, and Androctonus bicolor at 8.3 cms long) and one smaller (Orthochirus innesi at 2.5 – 3.3 cms long). All the other species are yellow.

**Buthidae**

*Leiurus* H. and E., 1829

*Androctonus* Ehrenberg, 1828

*Orthochirus* Karsch, 1891

*Buthacus* Birula, 1908

*Compsobuthus* Vachon, 1949

*Androctonus* Ehrenberg, 1828

*Leiurus quinquestriatus* H. and E., 1828 and 1829

*Androctonus crassicauda* Olivier, 1807

*Orthochirus innesi* Simon, 1910

*Buthacus leptochelys* Ehrenberg, 1829

*Compsobuthus arabicus* Levy et al., 1973

*Compsobuthus werneri* Birula, 1908

*Androctonus australis* Linnaeus, 1758
Al-Baha Region
In this region there were seven species and subspecies (Figure 8), with only two black species, one large (Nebo hierichonticus, mean length 11.3 cm) and one small (Orthochirus innesi, 3.2 cm); all other species were yellow. Nebo hierichonticus along with hemiscorpiid scorpions lead to complications, intracranial haemorrhage and death (Arachnodata 2009a, 2009b; ITG Library 2009, Annobil 1993, Annobil et al. 1991, Navidpour et al. 2008). Buthacus leptochelys nitzani is reported from cooler places in Palestine, Jordan and Israel, and were found to inhabit similar habitat in Al-Baha and Al-Gunfuda (western Sarawat Ranges) in Saudi Arabia.

Buthidae Koch, 1837
Leiurus H. and E., 1829
Buthacus Birula, 1908
Compsobuthus Vachon, 1949
Orthochirus Karsch, 1891
Vachoniolus Levy et al., 1973

Leiurus quinquestriatus H. and E., 1828 and 1829
Buthacus leptochelys nitzani
Compsobuthus werneri Birula, 1908
Orthochirus innesi Simon,1910
Vachoniolus minipectinibus Levy et al., 1973
Figure 8: The scorpion species collected from Al-Baha Region.
Hail Region
There were 10 species and subspecies in this region (Figure 9), including one new record, *Orthochirus scrobiculosus*. The subspecies *Orthochirus scrobiculosus persa* is found on the eastern side of the gulf (Iran), but we do not know yet whether the Hail specimens belong to this subspecies. Three were black species, two large (*Androctonus crassicauda* 8.5 cms and *Androctonus bicolor* 8.3 cms in length) and two smaller (*Orthochirus innesi* and *Orthochirus scrobiculosus* (both 2.8 – 3.0 cm long). All the other species are yellow.

**Buthidae Koch, 1837**
*Androctonus* Ehrenberg, 1828  
*Orthochirus* Karsch, 1891  
*Compsobuthus* Vachon, 1949  
*Buthacus* Birula, 1908  
*Leiurus* H. and E., 1829  
*Apistobuthus* Finnegan, 1932  
*Orthochirus* Karsch, 1891

**Scorpionidae Pocock, 1893**
*Scorpio* Linnaeus, 1758  
*Leiurus quinquestriatus* Olivier, 1807  
*Androctonus bicolor* Ehrenberg, 1828  
*Orthochirus innesi* Simon, 1910  
*Compsobuthus arabricus* Levy et al., 1973  
*Buthacus leptochelys* Ehrenberg, 1829  
*Leiurus quinquestriatus* H. and E., 1828 and 1829  
*Apistobuthus pterygocercus* Finnegan, 1932  
*Orthochirus scrobiculosus* Grube, 1873

**Figure 9:** The scorpion species collected from Hail region.

![Scorpionidae](image_url)
Riyadh region

Twelve species and subspecies were recognised from the Riyadh region (Figure 10), including three black buthids (*Androctonus crassicauda* 9.5-11 cms long, *Androctonus bicolor* 7.4-8.6 cms and *Orthochirus innesi* 2.1-3.3 cms), two of which are medically important but the small *Orthochirus innesi* is not. All three families were represented, although the scorpionid *Scorpio maurus kruglovi* and the hemiscorpiid *Hemiscorpius arabicus* only occurred at very low densities; two species are as yet unidentified. The two *Androctonus* species and *Hemiscorpius arabicus* have not been recorded from elsewhere in Saudi Arabia. A third medically important species occurs, albeit at low densities, namely *Leiurus quinquestriatus*, famously dangerous worldwide, known as the "Death Stalker" or the lethal killer. All three species are highly venomous (Beaver, 1981, Dittrich et al., 1995, Simard & Watt, 1990, Karatas & Colak, 2005) and hence their high medical importance.

One of the three hemiscorpiid specimens had stung a patient in the Riyadh region, who was then hospitalized in with a serious medical outcome. This specimen is still unconfirmed to species (*Hemiscorpius lepturus*?). More specimens, in good condition are required to accomplish full identification. Recent reports and personal contacts from the Addurahmia
sector on the periphery of Riyadh City provide preliminary information about the existence of a population of this genus. *Hemiscorpius lepturus* is only known from nearby on the eastern side of the Gulf, i.e. the southern provinces (especially Khuzestan) of Iran: it is well known for producing medical complications that include haemolysis, renal failure and coma with extensive damage to the skin and subcutaneous tissue (Arachnodata 2009a, 2009b; Navidpour *et al.* 2008, Halse *et al.* 1980). Verification and comparative work on these two species awaits further surveys.

Two buthids (*Compsobuthus werneri* and *Orthochirus innesi*) are rare, whilst three others are rather more frequent (*Compsobuthus arabicus*, *Buthacus yotvatensis nigroaculeatus* and *Buthacus leptochelys*). The toxicity of these less common species demands further clarification, though several investigators (Arachnodata 2009a, Karatas & Colak 2005, Koch 1977, Lamoral 1980, Levy & Amitai 1980, Karatas 2003, Kovarik 2005, Teruel & Tietz 2008) have described their toxicity elsewhere.

**Buthidae Koch, 1837**

*Leiurus* H. and E., 1829

*Compsobuthus* Vachon, 1949

*Androctonus* Ehrenberg, 1828

*Buthacus* Birula, 1908

*Buthacus* Birula, 1908

*Orthochirus* Karsch, 1891

*Leiurus quinquestriatus* H. and E., 1828 and 1829

*Compsobuthus arabicus* Levy *et al.*, 1973

*Compsobuthus werneri* Birula, 1908

*Compsobuthus arabicus arabicus* Levy *et al.*, 1973

*Androctonus crassicauda* Olivier, 1807

*Androctonus bicolor* Ehrenberg, 1828

*Buthacus yotvatensis nigroaculeatus* Levy *et al.*, 1973

*Buthacus leptochelys* Ehrenberg, 1829

*Orthochirus innesi* Simon, 1910

**Scorpionidae Pocock, 1893**

*Scorpio* Linnaeus, 1758

*Scorpio maurus kruglovi* Birula, 1910

**Hemiscorpiidae Pocock, 1893**

*Hemiscorpius* Peters, 1861

*Hemiscorpius arabicus* Pocock, 1899

*Hemiscorpius lepturus*? Peters, 1861

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**Figure 10:** The scorpion species collected from the Riyadh region

![Hemiscorpius arabicus (♀)](image1)  ![Leiurus quinquestriatus (♂)](image2)
Compsobuthus arabicus (♀)  Compsobuthus werneri (♂)

Androctonus crassicauda (♀)  Androctonus bicolor (♂)

Buthacus yotvatensis nigroaculeatus (♀)  Buthacus leptochelys (♂)

Orthochirus innesi (♀)  Scorpio maurus kruglovi (♂)
Some specimens, such as *Compsobuthus arabicus arabicus*? (Riyadh region), *Hemiscorpius lepturus*? and *Vachoniolus* spp?, could not be identified to species and subspecies due to their damage, and new specimens will be necessary to confirm their identity.

**Scorpion venom glands**


Figure 11 illustrates the structure of scorpion venom glands from specimens collected from the Al-Baha region. The cross section of the *Compsobuthus wernerii* telsa (Buthidae) reflects complexly folded glands, while those of *Scorpio maurus fuscus* and *Nebo hierichonticus* (Scorpionidae) show no or only simple folding, but the cuticle of *Nebo* is very thick. The telsa section of *Leiurus quinquestriatus* (Buthidae) showed very distinct complexly folded glands.

**Figure 11:** Cross sections of the telsa (venom glands) of scorpions collected from Al-Baha.

![Cross sections of the telsa (venom glands) of scorpions collected from Al-Baha.](image-url)
Figure 12 shows the structure of scorpion venom glands from specimens collected from Hail. The cross sections of *Buthacus leptochaelys* and *Compsobuthus wernerii* (Buthidae) again reflect complexly folded glands, whilst that of *Scorpio mauros kruglovi* (Scorpionidae) showed no or only simple folding. Sections of *Leiurus quinquestriatus* (Buthidae) showed very distinct complexly folded glands similar to those of the buthid species *Androctonus crassicauda* and *Androctonus bicolor*.

**Figure 12:** Cross sections of the telsa (venom glands) of scorpions collected from Hail region.

Figure 13 shows the structure of scorpion venom glands from specimens collected from the Riyadh region. The cross sections of the buthids *Compsobuthus arabicus*, *Compsobuthus wernerii*, *Leiurus quinquestriatus*, *Androctonus crassicauda*, *Androctonus bicolor*, *Buthacus yotvatensis nigroaculeatus*, *Buthacus leptochaelys* and *Orthochirus innesi* all reflect complexly folded glands. Those of *Leiurus quinquestriatus*, *Androctonus crassicauda* and *Androctonus*
bicolor showed very distinct and densely folded glands. The section of the scorpionid *Scorpio maurus kruglovi* showed no or only simple folding, with very thick cuticle.

**Figure 13:** Cross sections of the telsa (venom glands) of scorpions collected from the Riyadh region.
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دراسة مجموعة العقارب بمنطقة المملكة العربية السعودية

الباحثون: عبد الرحمن بن خازم الاسمري، عبد العزيز عبد الله السيف، نصر الدين محمد عبد الله، خلف ردين المطيري، نايف عبيد الحربي.

المملكة العربية السعودية

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2. قسم الطب الباطني، مدينة الأمير سلطان الطبية العسكرية، الرياض، المملكة العربية السعودية.
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4. إدارة الصيدلية، كلية العلوم الصحية، جامعة الملك سعود.

الخلاصة:
تم إجراء دراسة شاملة للعقارب بمناطق المملكة العربية السعودية، شملت جازان، المدينة، الباحة، حائل، الرياض بالإضافة إلى إجراء دراسة مسحية لعدد تسعة من المحافظات بالمملكة. أظهرت العينات البالغ عددها (0441) عينة تم جمعها من منطقة جازان وجود 01 نوع من العقارب من فصيلة BUTHIDAE ونوعين رئيسيين وفصيلة SCORPIONIDAE. وفيما أظهرت العينات البالغ عددها (678) عينة تم جمعها من منطقة المدينة المنورة أظهرت وجود سبع فصائل من العقارب من فصيلة BUTHIDAE ونوعين رئيسيين وفصيلة SCORPIONIDAE.

الخلاصة:

SCORPION MAURUS KRUGLOVI

منطقة جازان، المدينة، الباحة، حائل، الرياض، الرياض، الرياض، الرياض، الرياض، الرياض.

SCORPION MAURUS PALMATUS

منطقة جازان، المدينة، الباحة، حائل، الرياض، الرياض، الرياض، الرياض، الرياض.

الخلاصة:

SCORPION MAURUS KRUGLOVI

منطقة جازان، المدينة، الباحة، حائل، الرياض، الرياض، الرياض، الرياض، الرياض.

الخلاصة:

SCORPION MAURUS PALMATUS

منطقة جازان، المدينة، الباحة، حائل، الرياض، الرياض، الرياض، الرياض، الرياض.

الخلاصة:

SCORPION MAURUS KRUGLOVI

منطقة جازان، المدينة، الباحة، حائل، الرياض، الرياض، الرياض، الرياض، الرياض.

الخلاصة:

SCORPION MAURUS PALMATUS

منطقة جازان، المدينة، الباحة، حائل، الرياض، الرياض، الرياض، الرياض، الرياض.
أشارت الدراسة إلى أن كلا من العقارب السوداء ANDROCTONUS CRASSICAUDA والعقارب البنية LEIURUS قاملا من منطقة حائل والباحة بالإضافة إلى أنه تم مؤخرا تسجيل وجود العقارب نوع QUINQUESTRIATUS، منطقتي حائل والرياض.

أظهرت العينات البالغ عددها (4164) عينة تم جمعها من منطقة الرياض أن عدد أنواع العقارب من فصيلة BUTHIDAE ونوع HEMISCORPIIDAE واحد من فين هم العقارب من نوع ANDROCTONUS BICOLOR، نوع HEMISCORPIUS ونوعين فرعيين كذلك. لم تذكر أي من الدراسات الميدانية التي أجريت سابقا بأن هذا العدد من أنواع العقارب موجود فعليا بالمملكة العربية السعودية. 

قد أتضح بأن مملكة العقارب السعودية تشمل العقارب من عائلات BUTHIDAE، SCORPIONIDAE، HEMISCORPIIDAE. هناك على الأقل 28 نوعاً رئيسيما وفرعياً من الأنواع تنتمي إلى عائلات العقارب المذكورة أعلاه.

الكلمات الدليلية: أنواع العقارب، مناطق المملكة العربية السعودية، العقارب من فصيلة BUTHIDAE، SCORPIONIDAE، HEMISCORPIIDAE. DIPLOCENTRIDAE.