



Scorpions of Iran (Arachnida: Scorpiones): Annotated checklist, DELTA database and identification key

Hossein Barahoei¹, Shahrokh Navidpour², Mansour Aliabadian^{1,3},
Roohollah Siah sarvie^{1,4} & Omid Mirshamsi^{1,3*}

¹ Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran. barahoei2015@mail.um.ac.ir

² Razi Reference Laboratory of Scorpion Research, Razi Vaccine and Serum Research Institute, Agricultural Research Education and Extension Organization, Karaj, Iran. navid1038@hotmail.com

³ Research Department of Zoological Innovations (RDZI), Institute of Applied Zoology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran. aliabadi@um.ac.ir; mirshams@um.ac.ir

⁴ Rodentology Research Department (RRD), Institute of Applied Zoology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran. siahsarvie@um.ac.ir

ABSTRACT. An updated checklist of the scorpiofauna of Iran is presented. The checklist is based on records of scorpion species which their presence have been confirmed in Iran through field expeditions, examination of scorpion collections, literature review, and personal communications with researchers. According to the presented checklist the scorpion fauna of Iran consists of 68 valid species (41 endemic to Iran) belonging to 19 genera and four families and 6 doubtful reports (belong family Buthidae). *Hemiscorpius gaillardi* (Vachon, 1974) and *Compsobuthus jakesi* Kovařík, 2003 reported for the first time from Hormozgan province. *Odontobuthus tavighiae* Navidpour et al., 2013 collected for the first time from Fars province. *Kraepelinia palpator* (Birula, 1903) and *O. tigrari* Mirshamsi et al., 2013 were new records for South Khorasan province fauna. The list is dominated by members of the family Buthidae (58 species) with 85.3% of total species. The level of regional endemism exceeds 60.3%. A dichotomic identification key to the Iranian species on the basis of a DELTA database has been provided.

Key words: Scorpiones, identification key, valid species, doubtful report, fauna, taxonomy, Iran

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Introduction

According to the published works the evolutionary history of scorpions goes back to 430 million years ago (Silurian), they can now be found on all continents except Antarctica (Dunlop, 2010). A total of 2540 species in 21 families have been described, worldwide (<https://www.ntnu.no/ub/scorpion-files>). Although the taxonomic studies of scorpions in Iran have been initiated in the early nineteenth century, this taxon has not yet been studied comprehensively in Iran. Therefore, estimating the exact number of species is still

Corresponding author: Omid Mirshamsi, E-mail: mirshams@um.ac.ir

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impossible, given the fact that the taxonomic validity or identification of some recorded species is questionable and should be considered as provisional. Moreover, Iran's political boundaries include the main part of the Iranian plateau, and it is located in the transition zone of three important zoogeographic regions: Afrotropical, Oriental and western Palearctic regions (Berberian & King, 1981; Zehzad et al., 2002). The geological history, topographic and climatic characteristics of the Iranian plateau have led to the formation of a variety of habitats that accommodate a rich biota. The studies on the scorpions of desert and semi-desert regions of Iran revealed very high species diversity and a significant degree of endemism (Mirshamsi et al., 2011b). The latest published checklists on the scorpions of Iran indicate that there are at least 68 valid species are belonging to four families, which is dominated by the members of family Buthidae (Farzanpay, 1990; Kovařík, 1997a; Mirshamsi et al., 2011b; Karataş & Moradi-Gharkheloo, 2013; Mirshamsi et al., 2013; Navidpour et al., 2013, 2019; Mir et al., 2014; Teruel et al., 2014; Yağmur et al., 2016; Kovařík et al., 2017, 2018, 2019a, 2019b; Fet et al., 2018; Cokendolpher et al., 2019; Kovařík & Navidpour, 2020). There are several publications and checklists are dealing with the scorpions of Iran, these data have never been completely summarized.

In the present paper, we provide an updated list for Iranian scorpions. Moreover, taxonomic notes about species and an identification key to the scorpions of Iran based on a DELTA database are presented.

Material and methods

DELTA database

DELTA database was compiled using the data obtained from published works and the examination of different species. DELTA program accessed via <http://delta-intkey.com>. In order to provide the DELTA database, all valid scorpion species were included. In the final database 90 diagnostic characters were included. Identification key was generated with the help of the DELTA program.

Checklist format

All published works on the scorpions from Iran were studied and their data including the geographic localities were extracted. Data of some collected material during 2016–2018 were added. Species marked with an asterisk are endemic species. In the case of each species the species name and its authorship, type locality and repository, records in Iran and geographic distribution outside Iran (Fig. 1) were presented. When necessary, comments on species distribution, species status or possible misidentifications were presented. The distribution maps for each species were created using DIVA-GIS 7.5 (Hijmans et al., 2001) using layers depicting political boundaries.

Abbreviations of specimen repositories:

AMNH: American Museum of Natural History, New York, USA.

AZMM: Alaşehir Zoological Museum, Manisa, Turkey.

BMNH: British Museum of Natural History, London, United Kingdom.

FKCP: František Kovařík Collection, Praha, Czech Republic.

MCSN: Museo Civico de Storia Naturale Giacomo Doria, Genova, Italy.

MHNG: Museum d'Histoire Naturelle de Geneve, Geneva, Switzerland.

MNHN: Muséum National d'Histoire Naturelle, Paris, France.

MZUF: Museo Zoologico La Specola, Sezione del Museo di Storia Naturale, University of Florence, Italy.

NHMW: Naturhistorisches Museum Wien, Vienna, Austria.

RRLS: Razi Reference Laboratory of Scorpion Research, Razi Vaccine and Serum Research Institute, Sepah St., Hejrat Sq., Ahvaz, Khuzestan, Iran.

USNM: United States National Museum, Washington, DC, USA.

UZMH: Zoological Museum, Helsinki University, Helsinki, Finland.

ZISP: Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia.

ZMFUM: Zoological Museum, Ferdowsi University of Mashhad, Mashhad, Iran.

ZMHB: Zoological Museum, Humboldt University, Berlin, Germany.

ZMUH: Zoologisches Institut und Zoologisches Museum, Universität Hamburg, Germany.

ZDNU: Zoology Department of Niğde University, Niğde, Turkey.

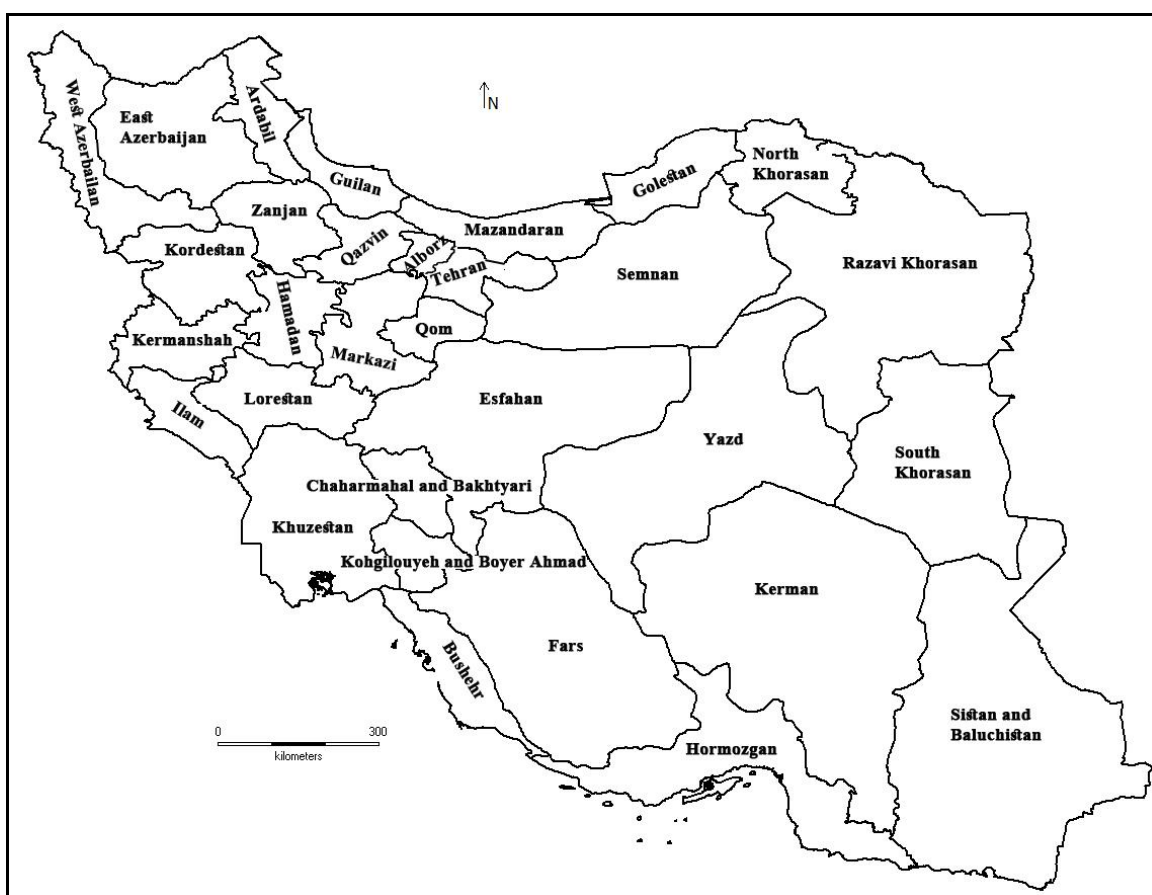


Figure 1. Map of provinces of Iran.

Results

Totally, 68 valid species listed here alphabetically.

I. Family Buthidae C. L. Koch, 1837

Genus *Androctonus* Hemprich et Ehrenberg, 1828

Androctonus baluchicus (Pocock, 1900)

Type locality and repository: Northern Baluchistan (now Pakistan); BMNH.

Material examined: Sistan and Baluchistan Province, 1♀: Zabol, Herati village, 30°57' N, 61°29' E, 1580 m a.s.l., 03.IX.2018, E. Mirshekar leg.; 1♀: Niatak Jungle, 31°07' N, 61°37' E, 1582 m a.s.l., 20.IV.2016, Z. Mir leg.; 1♂: Zahedan, Ghargharouk village, 29°57' N, 60°53' E, 719 m a.s.l., 02.IV.2016, N. Herati leg. (Fig. 2); ZMFUM.

Distribution in Iran: Sistan and Baluchistan province (Habibi, 1971:42; Yağmur et al., 2016:1) (Fig. 5).

Distribution outside Iran: Afghanistan, Pakistan (Fet & Lowe, 2000:67; Lourenço, 2005).

Comments: One immature sample from Kashan (Esfahan) was recorded as *Androctonus amoreuxi baluchicus*, by Vachon (1966) this identification doubted by Farzanpay (1990). Other report by Kovářik (1997a:39), was corrected to *A. crassicauda* by Vignoli et al., (2003:4). Reports of *A. amoreuxi* by Dehghani et al. (2008:176) from Kerman seem to be misidentifications. Yağmur et al. (2016:1) reported one male sample as *A. robustus*, which is misidentification.

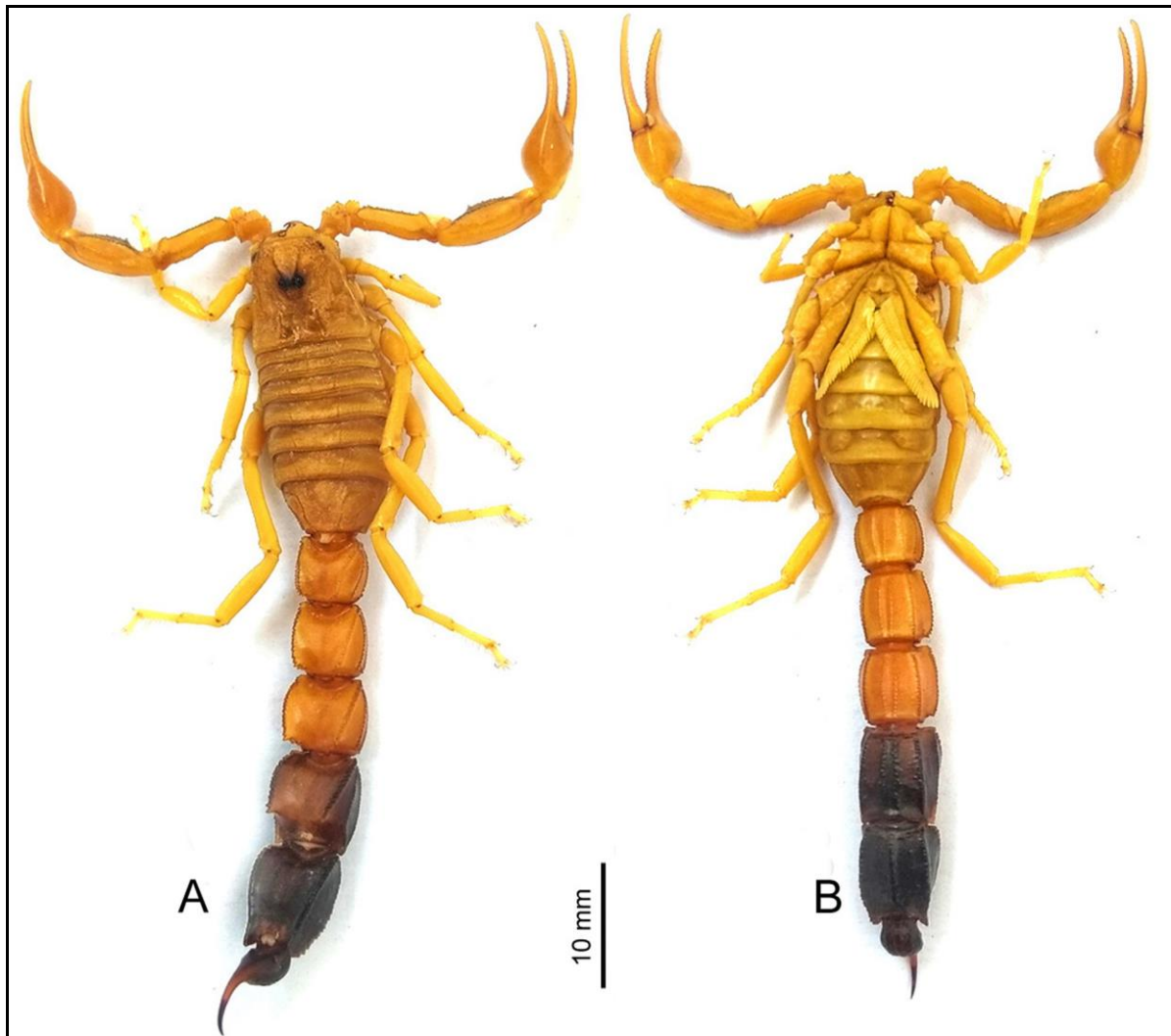


Figure 2. Habitus of male *Androctonus baluchicus* (Pocock, 1900): **A.** dorsal view, **B.** ventral view.

Androctonus crassicauda (Olivier, 1807)

Type locality and repository: Persia (now Iran), Esfahan province, Kashan; MNHN.

Material examined: **Hormozgan** province, 2♀♀: Bandar Abbas, Chahchakur village, 27°16' N, 56°20' E, 33 m a.s.l., 11.V.2018, Kh. Bornavard leg.; 2♀♀: Sarkhoun village, 27°24' N, 56°24' E, 74 m a.s.l., 12.II.2018; 1♀: Qeshm, Ghar-e Kharbas, 26°54' N, 56°10' E, -10 m b.s.l., 08.IV.2018; 2♀♀: Bandar-e Moallem, 26°40' N, 55°04' E, -3 m b.s.l., 10.IV.2018, H. Barahoei leg.; **Khuzestan** province, 1♀: Ahvaz, Ommolgharib village, 31°30' N, 48°58' E, 20 m a.s.l., 24.V.2017, H. Maddahi leg.; 1♂: Ramhormoz, Environmental Station, 31°15' N, 49°22' E, 128 m a.s.l., 13.VII.2017, 1♂, 1♀: Shush, Environmental Station, 32°04' N, 48°14' E, 81 m a.s.l., 15.VII.2017, H. Barahoei leg.; **Razavi Khorasan** province, 1♀: Khaf, 34°32' N, 60°09' E, 958 m a.s.l., 04.VI.2017, H. Zanganeh leg.; **Sistan and Baluchistan** province, 1♀: Zabol, Sefidabeh village, 30°58' N, 60°31' E, 856 m a.s.l., 05.VII.2017; 1♀: Zahedan, Cheshmeh Ziarat village, 29°26' N, 60°30' E, 1843 m a.s.l., 03.II.2018, H. Barahoei leg.; 1♀: Ghale Bid village, 28°36' N, 60°46' E, 1779 m a.s.l., 09.VII.2017, M.A. Daryanoush Barahoei leg.; 1♂, 2♀♀: 30km North of Khash, 28°22' N, 61°01' E, 1604 m a.s.l., 25.IX.2017; H. Barahoei leg.; 2♂♂: Iranshahr, Tomp-e Rigan, 27°15' N, 60°43' E, 617 m a.s.l., 01.VIII.2017, H. Barahoei leg.; 1♀: Daman village, 21°19' N, 60°45' E, 677 m a.s.l., 27.X.2017, H. Barahoei leg. (Fig. 3); 1♂, 1♀: Espakeh, 26°50' N, 60°10' E, 767 m a.s.l., 26.III.2017, H. Barahoei leg.; 1♂: Iranshahr to Rask road, 26°58' N, 60°53' E, 975 m a.s.l., 15.XI.2017, H. Barahoei leg.; 1♀: Seravan, Mourti village, 26°49' N, 62°45' E, 1289 m a.s.l., 10.VI.2017, Dorrazahi leg.; 1♀: Nikshahr, Tabaktel village, 26°03' N, 59°46' E, 245 m a.s.l., 13.VI.2017, H. Houti leg.; 2♀♀: Tabak village, 26°05' N, 60°01' E, 360 m a.s.l., 03.V.2017; 1♀: Tablag-e Bala village, 26°03' N, 59°46' E, 245 m a.s.l., 06.VI.2017; ZMFUM.

Distribution in Iran: Not exactly defined (Kraepelin, 1899:16; Vachon, 1966:209; Farzanpay, 1987:141; Farzanpay, 1990:4), **Alborz** (Navidpour et al., 2019:2), **Ardabil** (Habibi, 1971:31,42; Asslan faal et al., 2015:168), **Bushehr** (Habibi, 1971:31,42; Akbari et al., 1997:112; Navidpour et al., 2008b:3), **Chaharmahal and Bakhtiari** (Akbari et al., 2001:26; Jazayeri-Jounghani, 2009:31; Pirali-Kheirabadi et al., 2009:3; Pirali-Kheirabadi et al., 2013:48), **East Azerbaijan** (Habibi, 1971:31,42; Karataş et al., 2012:111-112; Mohammadi-Bavani et al., 2017:374), **Esfahan** (Habibi, 1971:31,42; Dehghani et al., 1998:126; Vignoli et al., 2003:2; Lourenço, 2005:149; Karataş et al., 2012:112; Ahmadimarzale et al., 2017:339), **Fars** (Habibi, 1971:31,42; Akbari et al., 1997:112; Karataş et al., 2012:111; Navidpour et al., 2012:3; Ebrahimi et al., 2015:42; Kassiri et al., 2015:100), **Gilan** (Karataş et al., 2012:111-112), **Hamadan** (Karataş et al., 2012:111; Nazari et al., 2015:257; Nazari et al., 2018:306), **Hormozgan** (Habibi, 1971:31,42; Akbari et al., 1997:112; Shahi et al., 2008:211; Zarei et al., 2009:48; Fekri et al., 2012:137; Navidpour et al., 2013:3), **Ilam** (Akbari et al., 1997:112; Navidpour et al., 2008c:3; Gohari, 2011:59; Karataş et al., 2012:111; Mozaffari et al., 2013:5413; Sharifinia et al., 2017:245), **Kerman** (Birula, 1900:355; Birula, 1905:120; Habibi, 1971:31,42; Akbari et al., 1997:112; Dehghani et al., 2008:176; Navidpour et al., 2011:3; Nazari & Hajizadeh, 2017:179), **Kermanshah** (Birula, 1905:120; Birula, 1918:28; Habibi, 1971:31,42; Akbari et al., 1997:112; Karataş et al., 2012:112), **Khuzestan** (Birula, 1905:120; Habibi, 1971:31,42; Akbari et al., 1997:112; Pooladgar, 1999:176; Kovařík, 2002:5; Navidpour et al., 2008a:5; Dehghani et al., 2009:274; Karataş et al., 2012:112; Nejati et al., 2018:7140), **Kohgiluyeh and Boyer Ahmad** (Akbari et al., 1997:112; Akbari et al., 2001:26; Azizi et al., 2001:8; Navidpour et al., 2008d:3), **Kurdistan** (Habibi, 1971:31,42), **Lorestan** (Habibi, 1971:31,42; Akbari et al., 1997:112; Navidpour et al., 2010:3; Taherian et al., 2014:48; Nazari & Rastegar, 2016:7), **Markazi** (Navidpour et al., 2019:2), **Qazvin** (Habibi, 1971:31,42; Farzanpay & Pretzmann, 1974:215; Karataş et al., 2012:112), **Qom** (Habibi, 1971:31,42; Karataş

et al., 2012:111–112), **Razavi Khorasan** (Birula, 1900:355; Ramezani et al., 2010:57), **Semnan** (Karataş et al., 2012:111–112), **Sistan and Baluchistan** (Birula, 1903:67; Habibi, 1971:31,42; Akbari et al., 1997:112; Mir et al., 2014:19; Nejati et al., 2014:219), **South Khorasan** (Habibi, 1971:31,42; Moghaddam et al., 2016:112), **Tehran** (Habibi, 1971:31,42; Karataş et al., 2012:112; Navidpour et al., 2019:2), **West Azerbaijan** (Karataş et al., 2012:111–112; Mohammadi-Bavani et al., 2017:374; Moradi et al., 2018:1), **Yazd** (Habibi, 1971:31,42; Karimi et al., 2001:115; Vignoli & Crucitti, 2005:3; Karataş et al., 2012:112) and **Zanjan** (Habibi, 1971:31,42; Karataş et al., 2012:112; Moradi et al., 2015:12) provinces (Fig. 5).

Distribution outside Iran: **Armenia** (Kraepelin, 1899:17; Fet, 1988:79; Fet & Lowe, 2000:73; Lourenço & Leguin, 2015:273), **Azerbaijan** (Fet, 1988:79; Fet & Lowe, 2000:73), **Bahrain** (El-Hennawy, 1992:101; Crucitti & Vignoli, 2002:439; Hendrixson, 2006:39), **Egypt** (El-Hennawy, 1992:97; Fet & Lowe, 2000:73; Kaltsas et al., 2008:213; Badry et al., 2017:2), **Iraq** (Penther, 1912:110; Khalaf, 1962:1; Khalaf, 1963:60; Vachon, 1966:210; El-Hennawy, 1992:101; Fet & Lowe, 2000:73; Lourenço, 2005:149; Al-Azawi, 2016:50), **Israel** (Vachon, 1966:210; Levy & Amitai, 1980:23; El-Hennawy, 1992:101; Kovařík, 2002:5; Fet & Lowe, 2000:73), **Jordan** (Vachon, 1966:210; El-Hennawy, 1992:101; Amr & El-Oran, 1994:187; Fet & Lowe, 2000:73; Amr & Baker, 2004:238; Amr et al., 2016:32), **Kuwait** (El-Hennawy, 1992:101; Fet & Lowe, 2000:73; Hendrixson, 2006:39), **Lebanon**, **Qatar** (El-Hennawy, 1992:101), **Libya** (Kaltsas et al., 2008:213), **Oman** (El-Hennawy, 1992:101; Hendrixson, 2006:39), **Palestine** (El-Hennawy, 1992:101; Qumsiyeh et al., 2013:71), **Saudi Arabia** (Kraepelin, 1899:17; Vachon, 1966:210; El-Hennawy, 1992:101; Kovařík, 2002:5; Fet & Lowe, 2000:73; Hendrixson, 2006:39; Al-Asmari et al., 2013:5), **Syria** (Vachon, 1966:210; Simon, 1892:83; Kraepelin, 1899:17; El-Hennawy, 1992:101; Kabakibi et al., 1999:80; Kovařík, 2002:5; Fet & Lowe, 2000:73; Lourenço, 2005:149), **Turkey** (Vachon, 1966:210; Pocock, 1902:373; Kovařík, 1996:54; Kovařík, 1997b:178; Fet & Lowe, 2000:73; Yağmur et al., 2007:93; Yağmur et al., 2008a:14), **Turkmenistan** (Fet, 1988:79), **United Arab Emirates** (El-Hennawy, 1992:101; Hendrixson, 2006:40) and **Yemen** (Birula, 1937:101; Al-Safadi, 1992:96; El-Hennawy, 1992:101; Fet & Lowe, 2000:73; Hendrixson, 2006:40).

Genus *Anomalobuthus* Kraepelin, 1900

Anomalobuthus talebii* Teruel et al., 2014

Type locality and repository: Iran, South Khorasan province, Hemmatabad Desert, close to the Afghanistan border; FKCP.

Distribution in Iran: **South Khorasan** province (Teruel et al., 2014:2) (Fig. 5).

Distribution outside Iran: Endemic to Iran.

Genus *Apistobuthus* Finnegan, 1932

***Apistobuthus susanae* Lourenço, 1998**

Type locality and repository: Iran, Khuzestan province, Ahvaz; ZMUH.

Distribution in Iran: Not exactly defined (Farzanpay, 1990:4), **Ilam** (Navidpour et al., 2008c:5), **Khuzestan** (Habibi, 1971:29,42; Farzanpay, 1987:143; Lourenço, 1998:242; Pooladgar, 1999:176; Navidpour et al., 2008a:7; Navidpour & Lowe, 2009:49) and **Lorestan** (Farzanpay, 1987:143) provinces (Fig. 5).

Distribution outside Iran: **Kuwait** (Navidpour & Lowe, 2009:49,57).

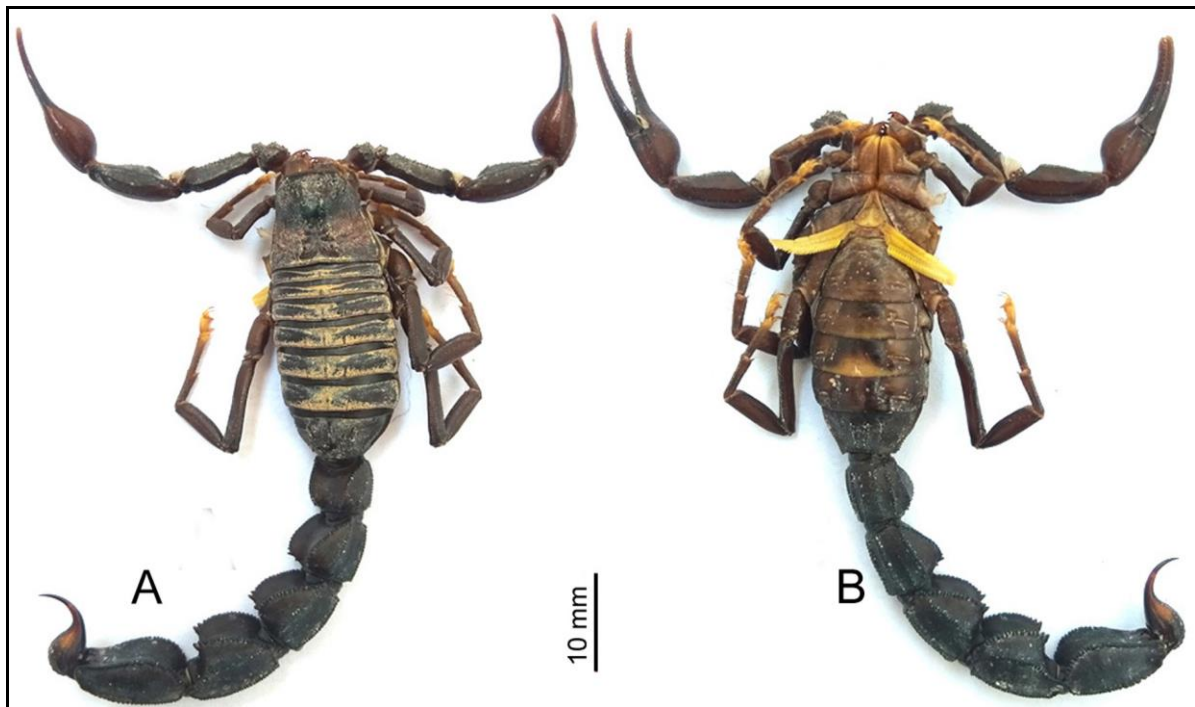


Figure 3. Habitus of female *Androctonus crassicauda* (Olivier, 1807): **A.** dorsal view, **B.** ventral view.

Genus *Buthacus* Birula, 1908

***Buthacus leptochelys* (Ehrenberg, 1829)**

Type locality and repository: Egypt, Sinai Peninsula (labeled as *Androctonus leptochelys*, Syrien, Ehrenberg, No. 152); ZMHB.

Distribution in Iran: Not exactly defined (Farzanpay, 1990:4; Vachon, 1966:210; Habibi, 1971:25,43), Hormozgan (Khaghani, 2001:111; Farzanpay, 1987:145; Khaghani et al., 2005:9; Zarei et al., 2009:48) and Khuzestan (Farzanpay, 1987:145) provinces (Fig. 5).

Distribution outside Iran: Not exactly defined (Kovařík, 2002:5), Algeria (Kraepelin, 1899:17; Fet & Lowe, 2000:84; Kovařík, 2005:3), Bahrain, Chad, Niger, Lebanon, Qatar, United Arab Emirates (Fet & Lowe, 2000:84), Egypt (Kraepelin, 1899:17; Vachon, 1966:210; Fet & Lowe, 2000:84; Kovařík, 2005:3; Kaltsas et al., 2008:214; Badry et al., 2017:3), Iraq (Khalaf, 1962:1; Khalaf, 1963:62; Vachon, 1966:210; Fet & Lowe, 2000:84; Mohammad et al., 2017:223), Israel (Vachon, 1966:210; Levy et al., 1973:126; Fet & Lowe, 2000:84), Jordan (Amr and El-Oran, 1994:187; Fet & Lowe, 2000:84; Amr & Baker, 2004:239), Kuwait (Fet & Lowe, 2000:84; Kovařík, 2005:3), Libya (Fet & Lowe, 2000:84; Kovařík, 2005:3; Kaltsas et al., 2008:214), Mauritania (Fet & Lowe, 2000:84), Morocco (Fet & Lowe, 2000:84; Kovařík, 2005:3), Saudi Arabia (Fet & Lowe, 2000:84; Al-Asmari et al., 2013:5), Sudan (El-Hennawy, 1992:97; Fet & Lowe, 2000:84), Syria (Vachon, 1966:210; Kabakibi et al., 1999:82; Fet & Lowe, 2000:84) and Tunisia (Kraepelin, 1899:17).

***Buthacus macrocentrus* (Ehrenberg, 1828)**

Type locality and repository: Egypt, Sinai Peninsula (labeled as *Androctonus macrocentrus*, Sinai, No. 153); ZMHB.

Material examined: Hormazgan province, 1♀: Qeshm, Giahdaran village, 25°54' N, 56°03' E, 13 m a.s.l., 08.IV.2018, H. Barahoei leg.; 1♂: Bandar-e Khamir to Bandar-e Lengeh road, Hasham Hodou village, 26°40' N, 55°04' E, -3 m b.s.l., 10.IV.2018, H. Barahoei leg. (Fig. 4); Khuzestan province, 1♀: Ahvaz, Ommolghorayb village, 31°30' N, 48°58' E, 20 m a.s.l., 27.V.2017, H. Maddahi leg.; ZMFUM.

Distribution in Iran: Not exactly defined (Vachon, 1966:210; Habibi, 1971:25,43; Farzanpay, 1990:4), Bushehr (Kovařík, 2005:8; Navidpour et al., 2008b:5), Hormozgan (Navidpour et al., 2013:6), Ilam (Navidpour et al., 2008c:5; Gohari, 2011:62; Sharifinia et al., 2017:245), Khuzestan (Birula, 1905:136; Navidpour et al., 2008a:7; Nejati et al., 2018:7140) and Lorestan (Taherian et al., 2014:48) provinces (Fig. 5).

Distribution outside Iran: Iraq (Penther, 1912:112; Vachon, 1966:210; El-Hennawy, 1992:101; Fet & Lowe, 2000:85; Kovařík, 2005:8), Israel (Vachon, 1966:210; Levy et al., 1973:130; Levy & Amitai, 1980:90; Fet & Lowe, 2000:85), Jordan (El-Hennawy, 1992:101; Fet & Lowe, 2000:85; Amr et al., 2016:32), Palestine (El-Hennawy, 1992:101), Syria (Simon, 1892:84; El-Hennawy, 1992:101; Kabakibi et al., 1999:82; Fet & Lowe, 2000:85; Kovařík, 2002:5; Kovařík, 2005:8) and Turkey (Crucitti & Vignoli, 2002:440; Yağmur et al., 2008a:16).

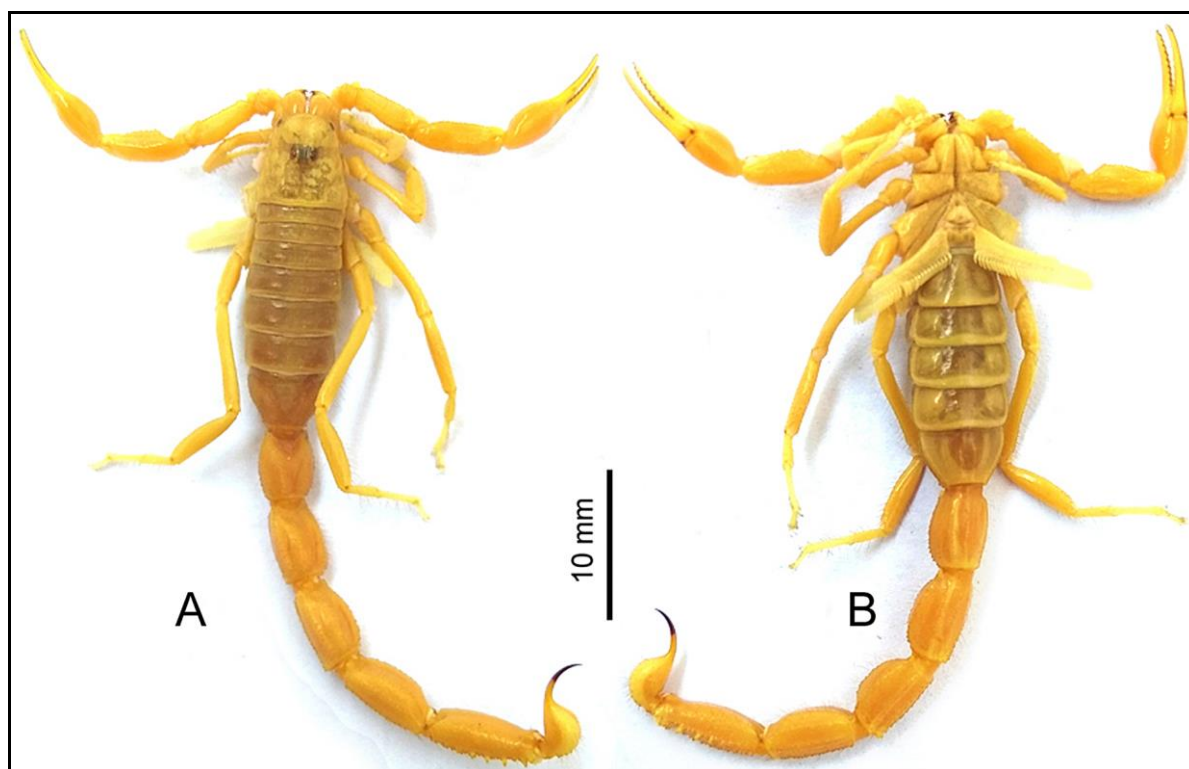


Figure 4. Habitus of male *Buthacus macrocentrus* (Ehrenberg, 1828): **A.** dorsal view, **B.** ventral view.

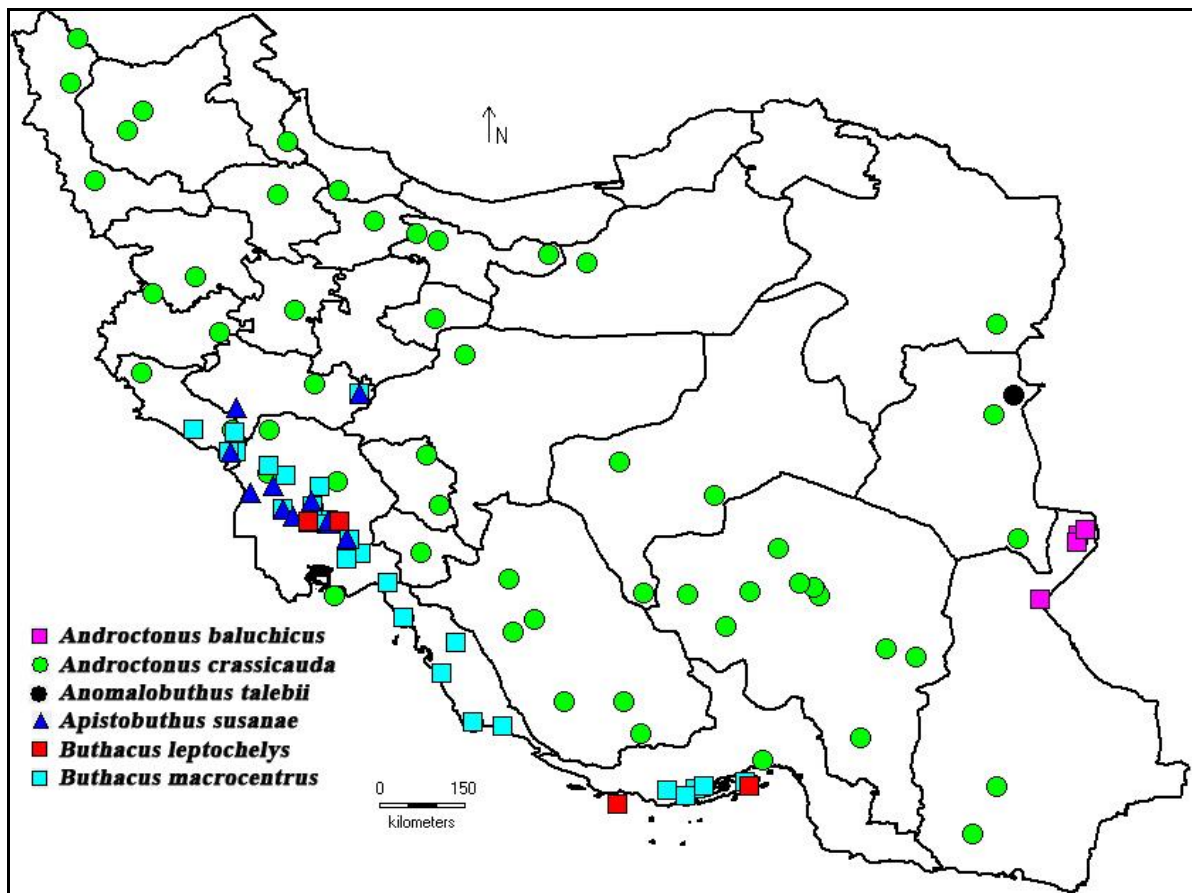


Figure 5. Distribution records of *Androctonus baluchicus* (Pocock, 1900), *A. crassicauda* (Olivier, 1807), *Anomalobuthus talebii* Teruel et al., 2014, *Apistobuthus susanae* Lourenço, 1998, *Buthacus leptochelys* (Ehrenberg, 1829) and *B. macrocentrus* (Ehrenberg, 1828) in Iran.

Genus *Compsobuthus* Vachon, 1949

Compsobuthus jakesi Kovařík, 2003

Type locality and repository: Iraq, Najaf province, Ash-Shabakah; FKCP.

Material examined: Hormazgan province, 1♂: Qeshm, Giahدران village, 26°53' N, 56°02' E, 49 m a.s.l., 08.IV.2018, H. Barahoei leg. (Fig. 6); ZMFUM.

Distribution in Iran: Bushehr (Navidpour, 2008a:30; Navidpour et al., 2008b:9), Ilam (Navidpour et al., 2008c:8), Hormozgan (current study) and Khuzestan (Navidpour, 2008a:31; Navidpour et al., 2008a:9) provinces (Fig. 7).

Distribution outside Iran: Iraq (Kovařík, 2003:91).

Compsobuthus kaftani Kovařík, 2003*

Type locality and repository: Iran, Esfahan province, Jafar abad; FKCP.

Distribution in Iran: Esfahan (Kovařík, 2003:95; Vignoli et al., 2003:2), Kerman (Navidpour et al., 2011:6; Nazari & Hajizadeh, 2017:179), Tehran (Navidpour et al., 2019:3), and Yazd (Vignoli & Crucitti, 2005:5) provinces (Fig. 7).

Distribution outside Iran: Endemic to Iran.

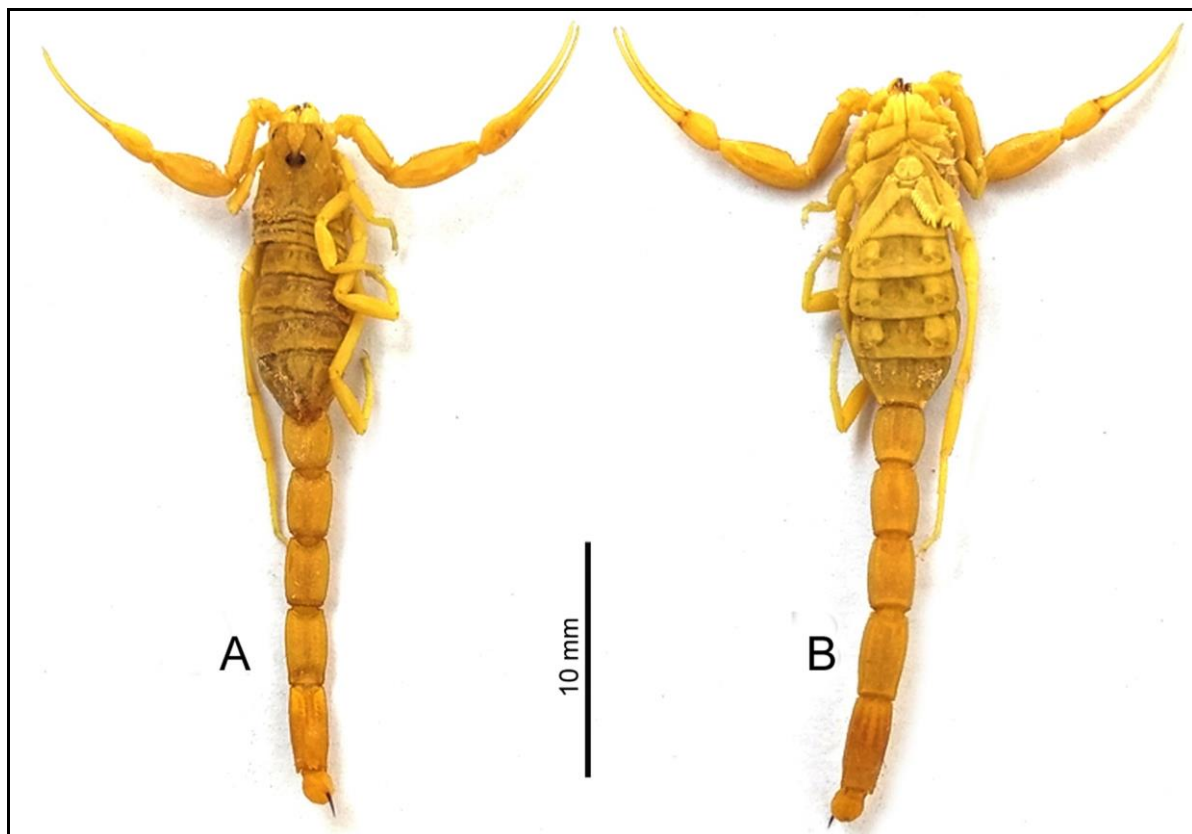


Figure 6. Habitus of male *Compsobuthus jakesi* Kovařík, 2003: **A.** dorsal view, **B.** ventral view.

***Compsobuthus matthiesseni* (Birula, 1905)**

Type locality and repository: Iran, Kum, province Irak-Adschemi (now Qom); ZISP.

Distribution in Iran: Not exactly defined (Vachon, 1966:211; Habibi, 1971:26,43; Farzanpay, 1987:149; Farzanpay, 1990:5), Alborz (Navidpour et al., 2019:3), Bushehr (Navidpour, 2008a:34; Navidpour et al., 2008b:9), Chaharmahal and Bakhtiyari (Birula, 1905:142; Sissom & Fet, 1998:4; Akbari et al., 2001:26; Pirali-Kheirabadi et al., 2009:5; Pirali-Kheirabadi et al., 2013:49), Esfahan (Vignoli et al., 2003:2; Ahmadimarzale et al., 2017:339), Fars (Farzanpay & Pretzmann, 1974:216; Akbari et al., 1997:112; Kovařík, 1997a:40; Kovařík, 2003:100; Navidpour, 2008a:34; Navidpour et al., 2012:7; Kassiri et al., 2015:100; Sanaei-Zadeh et al., 2017:2; Nazari et al., 2018:306), Hamadan (Kovařík, 1997a:40; Kovařík, 2003:100), Hormozgan (Shahi et al., 2008:211), Ilam (Akbari et al., 1997:112; Navidpour et al., 2008c:8; Gohari, 2011:56; Karataş et al., 2012:112; Mozaffari et al., 2013:5414; Sharifinia et al., 2017:245), Kerman (Navidpour et al., 2011:9; Karataş et al., 2012:112), Kermanshah (Birula, 1905:142; Sissom & Fet, 1998:4; Kovařík, 2003:100), Khuzestan (Birula, 1905:142; Akbari et al., 1997:112; Sissom & Fet, 1998:4; Pooladgar, 1999:176; Lourenço & Vachon, 2001:180; Navidpour, 2008a:34; Navidpour et al., 2008a:9; Dehghani et al., 2009:274; Karataş et al., 2012:112), Kohgiluyeh and Boyer Ahmad (Akbari et al., 2001:26; Azizi et al., 2001:8; Navidpour et al., 2008d:5), Lorestan (Akbari et al., 1997:112; Kovařík, 1997a:40; Kovařík, 2003:100; Navidpour et al., 2010:5; Nazari & Rastegar, 2016:7), Qom (Birula, 1905:142; Sissom & Fet, 1998:4), Sistan

and Baluchistan (Birula, 1918:25; Nejati et al., 2014:219) and South Khorasan (Moghaddam et al., 2016:112) provinces (Fig. 7).

Distribution outside Iran: Iraq (Birula, 1905:142; Khalaf, 1962:2; Khalaf, 1963:63; Vachon, 1966:211; El-Hennawy, 1992:101; Kovařík, 1997b:179; Sissom & Fet, 1998:4; Fet & Lowe, 2000:127; Kovařík, 2003:100), Syria (Kovařík, 2002:7; Kovařík, 2003:100), Turkey (Kovařík, 1996:53; Kovařík, 2003:100; Fet & Lowe, 2000:127; Crucitti & Vignoli, 2002:441; Yağmur et al., 2007:94) and Yemen (Birula, 1937:107).

Compsobuthus persicus Navidpour et al., 2008*

Type locality and repository: Iran, Bushehr province, Borazjan, Dalaki; RRLS and FKCP.

Material examined: Hormazgan province, 1♀: Bandar-e Moallem, 26°40' N, 55°04' E, 13 m a.s.l., 11.IV.2018, H. Barahoei leg.; ZMFUM.

Distribution in Iran: Bushehr (Navidpour, 2008a:32; Navidpour et al., 2008b:9), Fars (Navidpour, 2008a:32; Navidpour et al., 2012:6) and Hormozgan (Navidpour et al., 2013:7) provinces (Fig. 7).

Distribution outside Iran: Endemic to Iran.

Compsobuthus petrioli Vignoli, 2005*

Type locality and repository: Iran, Fars province, Persepolis, Takht-e Gamshid; MZUF.

Distribution in Iran: East Azerbaijan, Qom, West Azerbaijan (Karataş et al., 2012:112) and Fars (Vignoli, 2005:80; Navidpour et al., 2012:7) provinces (Fig. 7).

Distribution outside Iran: Endemic to Iran.

Compsobuthus plutenkoi Kovařík, 2003*

Type locality and repository: Iran, Hormozgan province, Beshagerd Mts., Davari village; FKCP.

Distribution in Iran: Hormozgan (Kovařík, 2003:100; Navidpour et al., 2013:7) province (Fig. 7).

Distribution outside Iran: Endemic to Iran.

Compsobuthus rugosulus (Pocock, 1900)

Type locality and repository: Pakistan, Sind province, Hyderabad; BMNH.

Distribution in Iran: Not exactly defined (Vachon, 1966:211; Habibi, 1971:26,43; Farzanpay, 1987:149; Farzanpay, 1990:5), Fars (Kassiri et al., 2015:100), Khuzestan (Birula, 1905:141) and Lorestan (Nazari & Rastegar, 2016:7) provinces (Fig. 7).

Distribution outside Iran: Afghanistan (Fet & Lowe, 2000:128), India (Pocock, 1900:21; Tikader & Bastawade, 1983:173; Fet & Lowe, 2000:128) and Pakistan (Lourenço & Monod, 1998:790; Fet & Lowe, 2000:128).

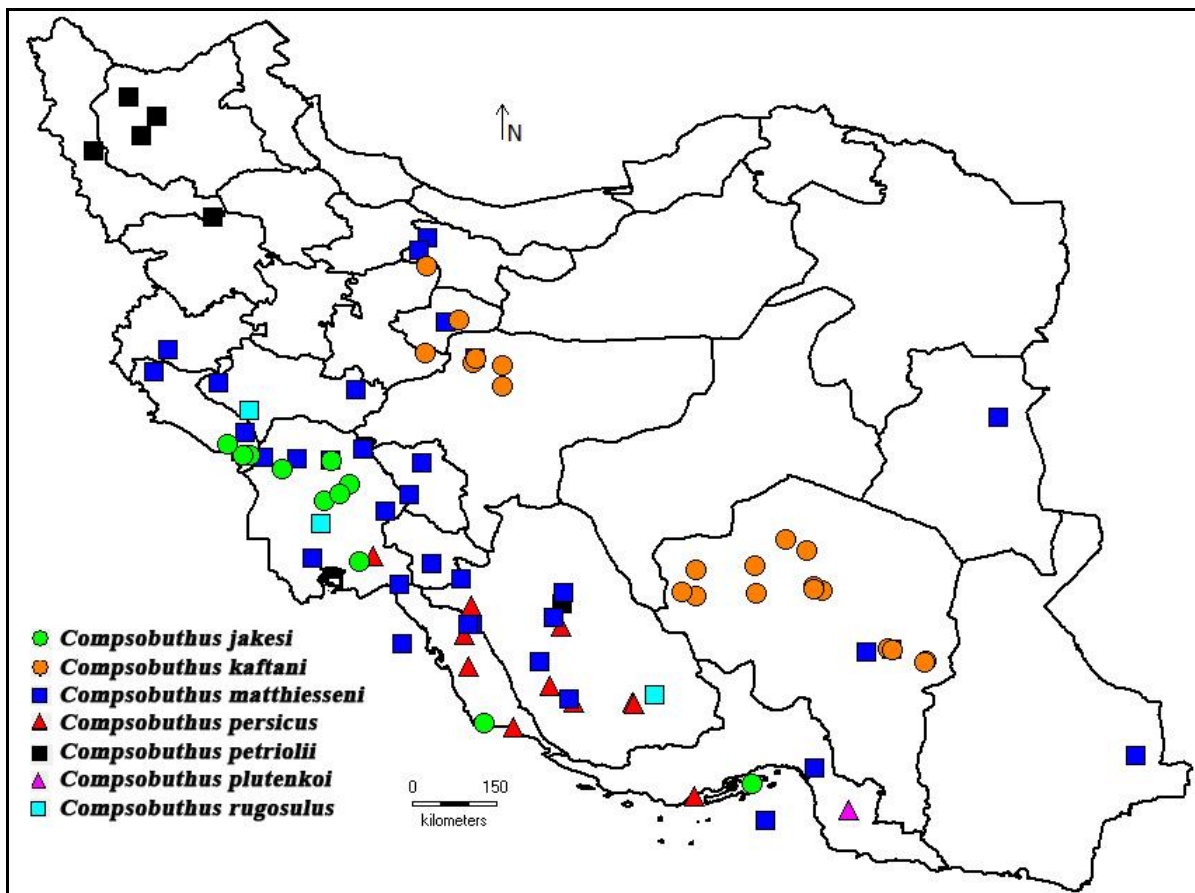


Figure 7. Distributin records of *Compsobuthus* Vachon, 1949 species in Iran.

Genus *Hottentotta* Birula, 1908

Hottentotta juliae Kovařík et al., 2019*

Type locality and repository: Iran, Fars province, 10 km east of Sivand village, FKCP.

Distribution in Iran: Fars (Kovařík, 2007:69; Karataş et al., 2012:114; Navidpour et al., 2012:9; Kovařík et al., 2019b:19) and Khuzestan (Navidpour et al., 2008a:10) provinces (Fig. 12).

Distribution outside Iran: Endemic to Iran.

Hottentotta khoozestanus Navidpour et al., 2008*

Type locality and repository: Iran, Khuzestan province, Behbahan-Dailam road; RRLS.

Distribution in Iran: Khuzestan province (Navidpour et al., 2008a:11) (Fig. 12).

Distribution outside Iran: Endemic to Iran.

Comment: *H. khoozestanus* was described based on one female sample and it has not been reported again.

Hottentotta lorestanus Navidpouret al., 2010*

Type locality and repository: Iran, Lorestan province, Borujerd, Wenoiei village; RRLS.

Distribution in Iran: Lorestan province (Navidpour et al., 2010:7) (Fig. 12).

Distribution outside Iran: Endemic to Iran.

Hottentotta navidpouri Kovarik et al., 2018*

Type locality and repository: Iran, Hormozgan province, Lengeh port; FKCP.

Material examined: Hormozgan province, 2♂♂: Bandar Abbas, Chahchakour village, 27°16' N, 56°20' E, 33 m a.s.l., 29.IX.2018, H. Barahoei leg. (Fig. 8); ZMFUM.

Distribution in Iran: Hormozgan province (Kovářík et al., 2018:4) (Fig. 12).

Distribution outside Iran: Endemic to Iran.

Comment: *H. navidpouri* does not show clear differences with *H. khoozestanus*. The reported localities are near and have same climates.

Hottentotta saulcyi (Simon, 1880)

Type locality and repository: Iraq, Mosul province, Mosul; MNHN, ZMUH.

Material examined: Hormozgan province, 2♂♂, 8♀♀: 2 km east of Bandar-e Moallem, 26°40' N, 55°04' E, -3 m b.s.l., 10.IV.2018, H. Barahoei leg. (Fig. 9); ZMFUM.

Distribution in Iran: Not exactly defined (Vachon, 1966:210; Farzanpay, 1987:147; Farzanpay, 1990:5), Alborz (Navidpour et al., 2019:3), Ardabil (Habibi, 1971:31,43; Asslan faal et al., 2015:168), Bushehr (Navidpour et al., 2008b:13; Kovarik et al., 2018:11), Chaharmahal and Bakhtiari (Pirali-Kheirabadi et al., 2009:6; Pirali-Kheirabadi et al., 2013:46), East Azerbaijan, Esfahan (Habibi, 1971:31,43), Fars (Akbari et al., 1997:112; Kovarik, 2007:65; Navidpour et al., 2012:9; Sanaei-Zadeh et al., 2017:2), Hamadan (Kovarik, 1997a:40; Kovarik, 2007:65; Kovarik et al., 2018:12), Hormozgan (Kovarik, 2007:65; Shahi et al., 2008:211; Navidpour et al., 2013:7), Ilam (Akbari et al., 1997:112; Kovarik, 2007:65; Navidpour et al., 2008c:8; Gohari, 2011:54; Karatas et al., 2012:113; Mozaffari et al., 2013:5413; Sharifinia et al., 2017:245; Kovarik et al., 2018:12), Kerman (Habibi, 1971:31,43; Dehghani et al., 2008:176), Kermanshah (Birula, 1918:30; Habibi, 1971:25,31,43; Akbari et al., 1997:112; Kovarik, 2007:65; Kovarik et al., 2018:12), Khuzestan (Akbari et al., 1997:112; Pooladgar, 1999:176; Karatas & Moradi-Gharkheloo, 2006:86; Navidpour et al., 2008a:10; Dehghani et al., 2009:274; Karatas et al., 2012:114; Kovarik et al., 2018:12; Nejati et al., 2018:7140), Kohgiluyeh and Boyer Ahmad (Akbari et al., 1997:112; Navidpour et al., 2008d:5; Kovarik et al., 2018:12), Kurdistan (Habibi, 1971:31,43; Karatas & Moradi-Gharkheloo, 2006:86), Lorestan (Akbari et al., 1997:112; Kovarik, 1997a:40; Kovarik, 2007:65; Navidpour et al., 2010:10; Taherian et al., 2014:48; Nazari & Rastegar, 2016:7; Kovarik et al., 2018:12), Markazi (Navidpour et al., 2019:3), Mazandaran (Karatas & Moradi-Gharkheloo, 2006:86), North Khorasan (Karatas & Moradi-Gharkheloo, 2006:86), Qazvin (Karatas et al., 2012:114), Sistan and Baluchistan (Nejati et al., 2014:219), Tehran (Habibi, 1971:31,43), West Azerbaijan (Habibi, 1971:31,43; Mohammadi-Bavani et al., 2017:374; Moradi et al., 2018:2) and Zanzan (Moradi et al., 2014:8; Moradi et al., 2015:12) provinces.

Distribution outside Iran: Afghanistan (Kovarik, 1997a:40; Kovarik, 2007:61), Armenia (Lourenço & Leguin, 2015:274), Iraq (Simon, 1880:378; Kraepelin, 1899:19; Vachon, 1966:210; Farzanpay, 1987:147; Khalaf, 1962:2; Khalaf, 1963:64; El-Hennawy, 1992:101; Fet & Lowe, 2000:143; Karatas & Moradi-Gharkheloo, 2006:86; Kovarik, 2007:61), Syria (El-Hennawy, 1992:101; Fet & Lowe, 2000:143) and Turkey (Crucitti & Vignoli, 2002:446; Karatas & Moradi-Gharkheloo, 2006:86; Yağmur et al., 2008b:2).

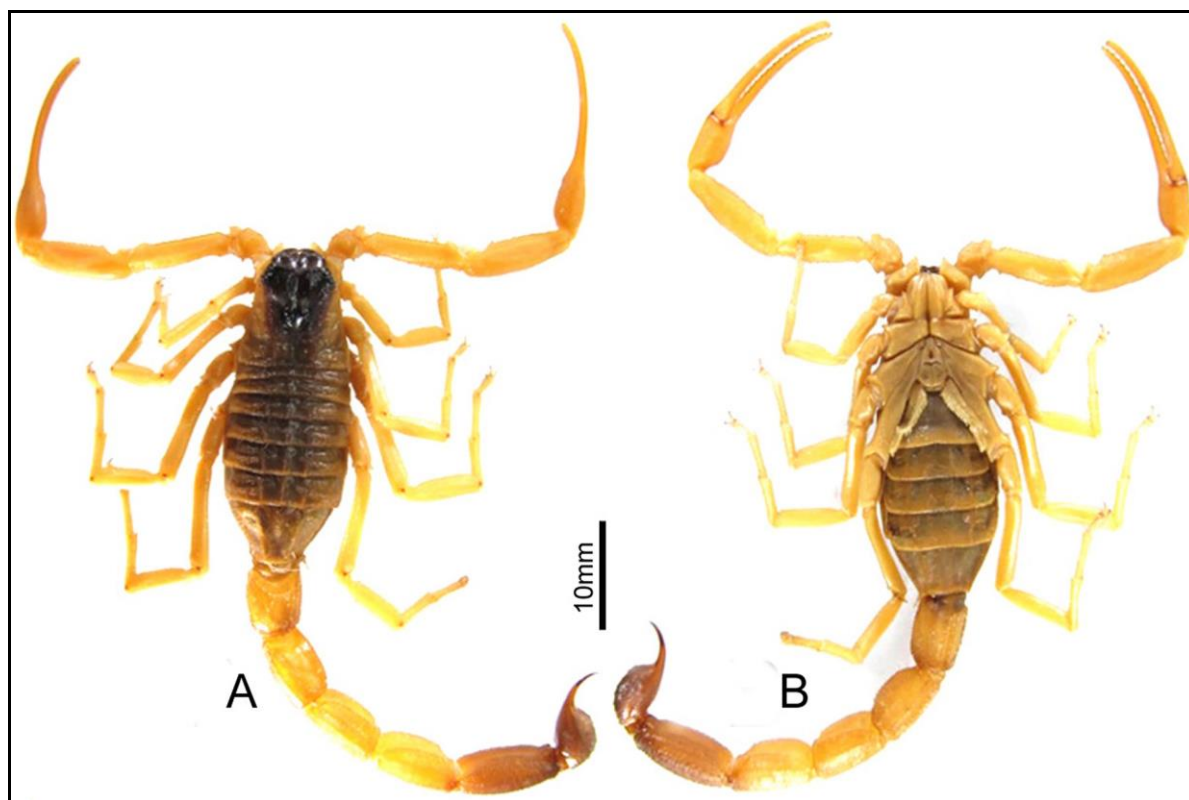


Figure 8. Habitus of female *Hottentotta navidpouri* Kovarik et al., 2018: **A.** dorsal view, **B.** ventral view.

Comments: *H. saulcyi* have wide distribution and show extensive variation, therefore need more investigation. Description of new species based on color is questionable. The need to molecular studies is essential to confirm new species of this genus.

Comments: Specimens from Sistan and Baluchistan province (Nejati et al., 2014:219), must be *Hottentotta sistansensis*.

Hottentotta schach (Birula, 1905)

Type locality and repository: Iran, Arabistan, now Khuzestan province, Dech-i-Dis (now Dehdez); ZISP.

Material examined: Chaharmahal and Bakhtiari province, 1♂: Shahr-e Kord, Bazoft, 25.VI.2019, M. Amiri leg. (Fig. 10); ZMFUM.

Distribution in Iran: Not exactly defined (Vachon, 1966:211; Farzanpay, 1987:147; Farzanpay, 1990:5), Chaharmahal and Bakhtiari (Akbari et al., 2001:26), Esfahan (Habibi, 1971:31,43), Fars (Habibi, 1971:25,31,43; Farzanpay & Pretzmann, 1974:215; Akbari et al., 1997:112; Kovařík, 1997a:40; Kovařík, 2007:69; Karataş et al., 2012:114), Khuzestan (Birula, 1905:134; Habibi, 1971:43; Akbari et al., 1997:112; Pooladgar, 1999:176; Dehghani et al., 2009:274; Nejati et al., 2018:7140; Kovařík et al., 2019b:14) and Kohgiluyeh and Boyer Ahmad (Akbari et al., 1997:112; Akbari et al., 2001:26; Azizi et al., 2001: 8) provinces (Fig. 12).

Distribution outside Iran: Iraq (Vachon, 1966:211; Farzanpay, 1987:147; El-Hennawy, 1992:101; Fet & Lowe, 2000:144).

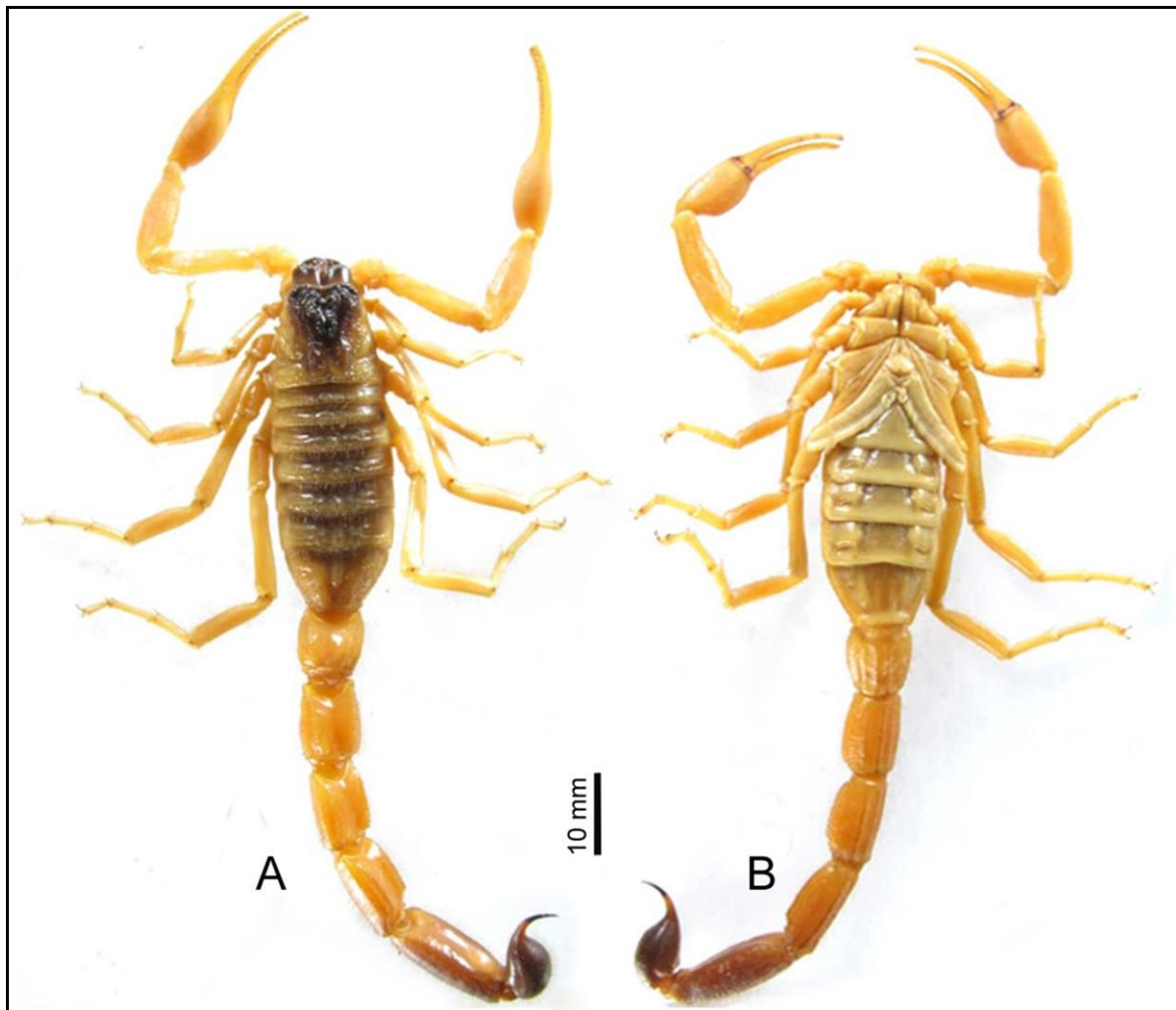


Figure 9. Habitus of male *Hottentotta saulcyi* (Simon, 1880): **A.** dorsal view, **B.** ventral view.

Hottentotta sistansensis* Kovarik et al., 2018

Type locality and repository: Iran, Sistan and Baluchestan province, Sirkan; AZMM.

Material examined: Sistan and Baluchistan province, 1♂, 1♀: Mehrestan, Kalatak village, 26°52' N, 62°17' E, 1225 m a.s.l., 03.IV.2017, S. Dorrazahi leg.; ZMFUM.

Distribution in Iran: Sistan and Baluchestan province (Kovářik et al., 2018:9) (Fig. 12).

Distribution outside Iran: Endemic to Iran.

Comment: The locality of type sample of *H. sistansensis* is Baluchistan not Sistan.

***Hottentotta zagrosensis* Kovářik, 1997**

Type locality and repository: Iran, Fars province, Zagros Mountains, Abshar village; FKCP.

Material examined: Chaharmahal and Bakhtiari province, 1♂: Shalamzar, 32°03' N, 50°49' E, 2043 m a.s.l., 17.VII.2017; Kohgiluyeh and Boyer Ahmad province, 2♂♂, 1♀: Yasuj, Loodab, 30°56' N, 50°54' E, 1395 m a.s.l.; 11.VII.2017, H. Barahoei leg. (Fig. 11); ZMFUM.

Distribution in Iran: Chaharmahal and Bakhtiari (Jazayeri-Jounghani, 2009:34; Pirali-Kheirabadi et al., 2009:6; Pirali-Kheirabadi et al., 2013:48), Fars (Kovářík, 1997a:41; Kovářík, 2007:86; Navidpour et al., 2012:9; Sanaei-Zadeh et al., 2017:2; Nazari et al., 2018:306), Khuzestan (Kovářík, 2007:86; Navidpour et al., 2008a:10), Kohgiluyeh and Boyer Ahmad (Navidpour et al., 2008d:5), Lorestan (Navidpour et al., 2010:13), Qazvin (Karataş et al., 2012:114), West Azerbaijan (Kovářík, 2007:86) and Zanzan (Moradi et al., 2014:8; Moradi et al., 2015:12) provinces (Fig. 12).

Distribution outside Iran: Iraq (Al-Azawi, 2016:51).

Comments: *H. zagrosensis* and *H. schach* do not show clear morphometric differences and have same distribution area. Specimens from Qazvin (Karataş et al., 2012:114), West Azerbaijan (Kovářík, 2007:86) and Zanzan (Moradi et al., 2014:8; Moradi et al., 2015:12) provinces need more consideration.



Figure 10. Habitus of male *Hottentotta schach* (Birula, 1905): **A.** dorsal view, **B.** ventral view.

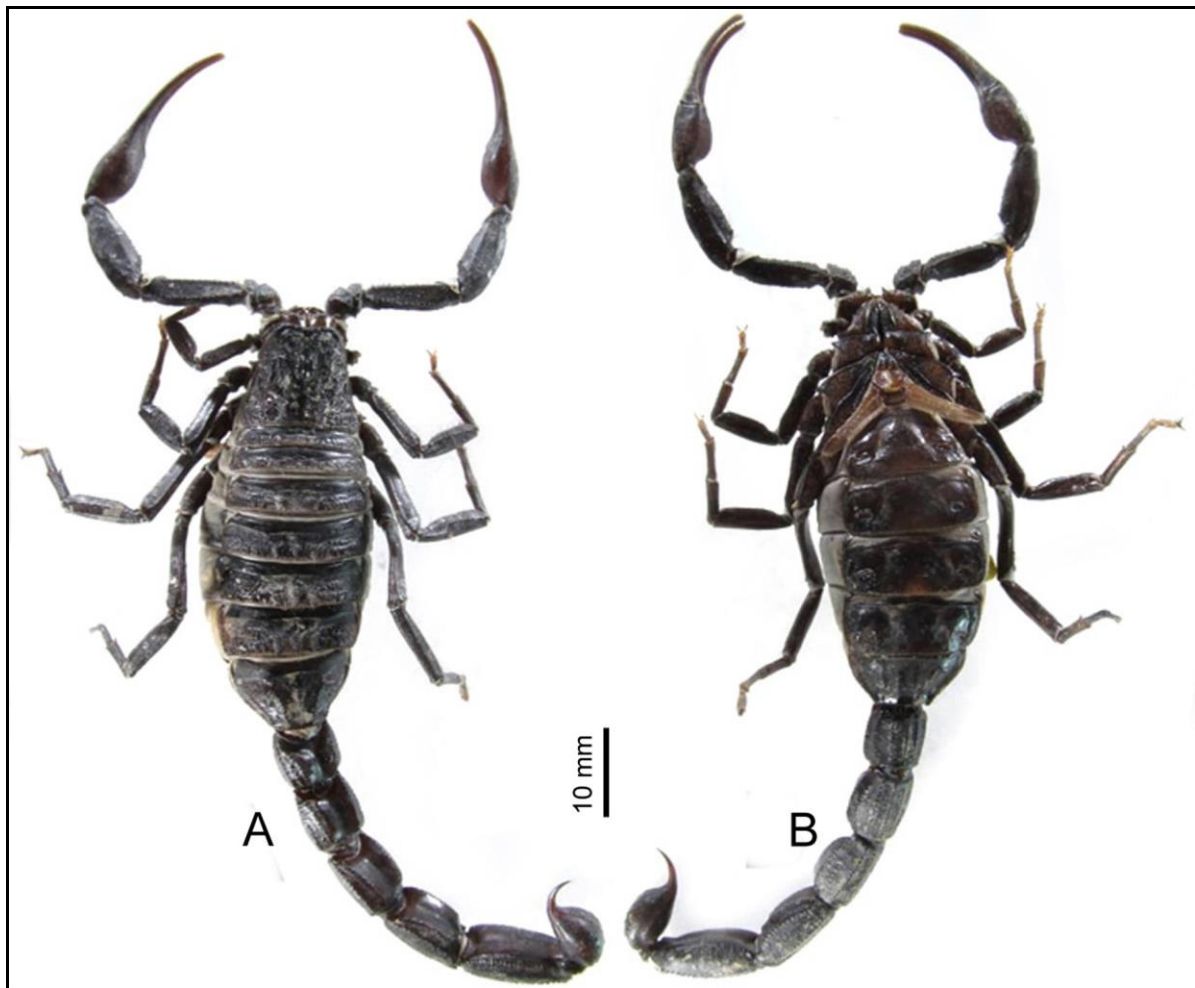


Figure 11. Habitus of female *Hottentotta zagrosensis* Kovařík, 1997: **A.** dorsal view, **B.** ventral view.

Genus *Iranobuthus* Kovařík, 1997

Iranobuthus krali* Kovařík, 1997

Type locality and repository: Iran, Fars province, Sivand village; FKCP.

Distribution in Iran: Alborz, Markazi, Tehran (Navidpour et al., 2019:3–4), Esfahan (Vignoli et al., 2003:2), Fars (Kovařík, 1997a:44; Navidpour & Masihipour, 2009:98; Navidpour et al., 2012:9), Hormozgan (Navidpour et al., 2013:7) and Qom (Karatas et al., 2012:114) provinces (Fig. 14).

Distribution outside Iran: Endemic to Iran.

Comment: Based on wide distribution of *I. krali*, from north to south of Iran, in different climates, this genus may include more than one species.

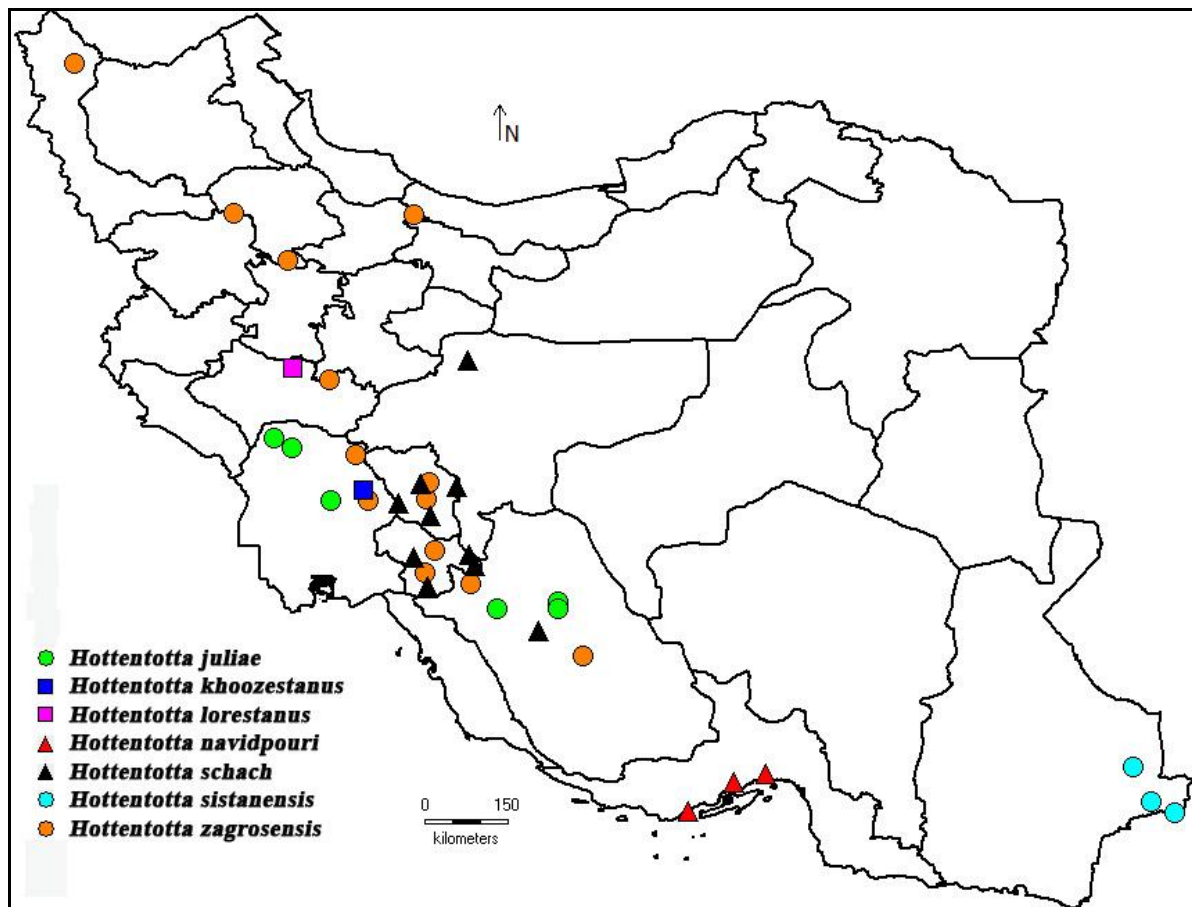


Figure 12. Distributin records of *Hottentotta* Birula, 1908 species in Iran.

Genus *Kraepelinia* Vachon, 1974

Kraepelinia palpator (Birula, 1903)

Type locality and repository: Persia (now Iran), Sistan and Baluchestan province, between Sia-Kuhi (Godar-i-Sia-Kuhi) Pass and Bid (Kale-i-Bid); ZISP.

Material examined: **Sistan and Baluchistan** province, 1♂, 1♀: Zabol, Dowlat Abad, Peer-e Sabz village, 30°51' N, 61°20' E, 477 m a.s.l., 27.XI.2017 (Fig. 13); 1♀: 21.III.2018; 1♂: 10.V.2018; 2♂♂, 1♀: Loutak, Rahmat Abad village, 30°45' N, 61°21' E, 481 m a.s.l., 23.II.2017; 4♀♀: 18.XI.2017; 1♀: 04.IV.2018; 1♂: 08.VI.2018; 2♀♀: 05.VII.2018, H. Barahoei leg.; **South Khorasan** province, 6♂♂, 2♀♀: 20 km east of Khezri, 34°01' N, 59°02' E, 1488 m a.s.l., 01.VII.2018, H. Barahoei leg.; ZMFUM.

Distribution in Iran: Not exactly defined (Vachon, 1966:210; Habibi, 1971:25,43; Farzanpay, 1990:6; Fet, 1988:83), Esfahan (Vignoli et al., 2003:3), Kerman (Farzanpay, 1987:150; Birula, 1903:72; Navidpour et al., 2011:9), Sistan and Baluchistan (Birula, 1903:72; Fet, 1984:43; Fet, 1994:531; Mir et al., 2014:19) and South Khorasan (this study) provinces (Fig. 14).

Distribution outside Iran: Turkmenistan (Fet, 1984:43; Fet, 1988:82; Fet, 1994:531; Fet & Lowe, 2000:154).

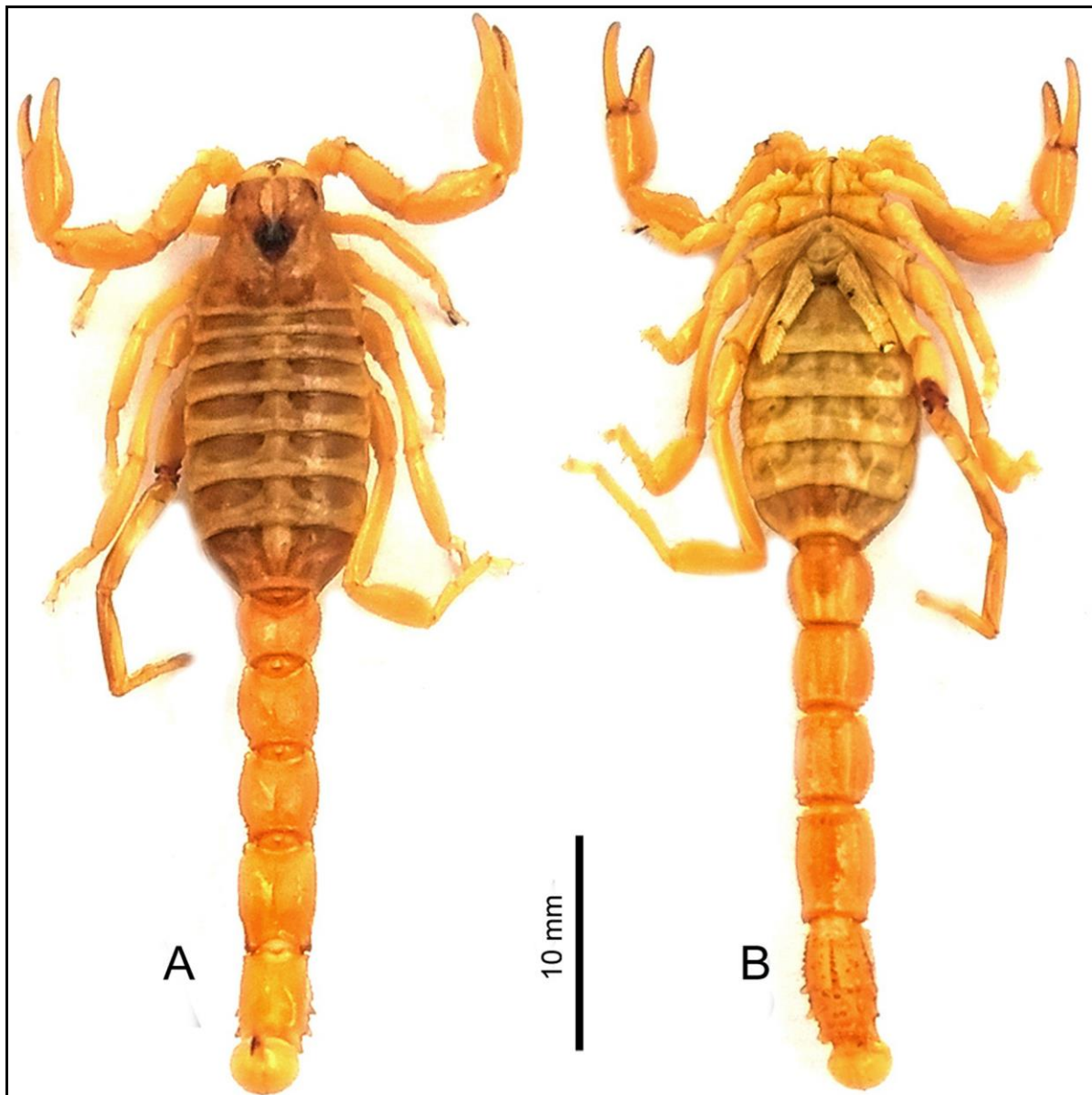


Figure 13. Habitus of female *Kraepelinia palpator* (Birula, 1903): **A.** dorsal view, **B.** ventral view.

Genus *Liobuthus* Birula, 1898

***Liobuthus kessleri* Birula, 1898**

Type locality and repository: Turkmenistan, Ashkhabad (now Ashgabat); ZISP.

Distribution in Iran: Not exactly defined (Vachon, 1966:212; Habibi, 1971:26,43; Farzanpay, 1990:6), Razavi Khorasan (Vachon, 1958a:422; Farzanpay, 1987:151; Fet, 1994:530) province (Fig. 14).

Distribution outside Iran: Kazakhstan, Uzbekistan (Fet, 1988:83–84; Fet, 1994:530; Fet & Lowe, 2000:158) and Turkmenistan (Vachon, 1958a:425; Farzanpay, 1987:151; Fet, 1988:83; Fet, 1994:530; Fet & Lowe, 2000:158).

Comment: *L. kessleri* has not been reported again after the first report from Iran

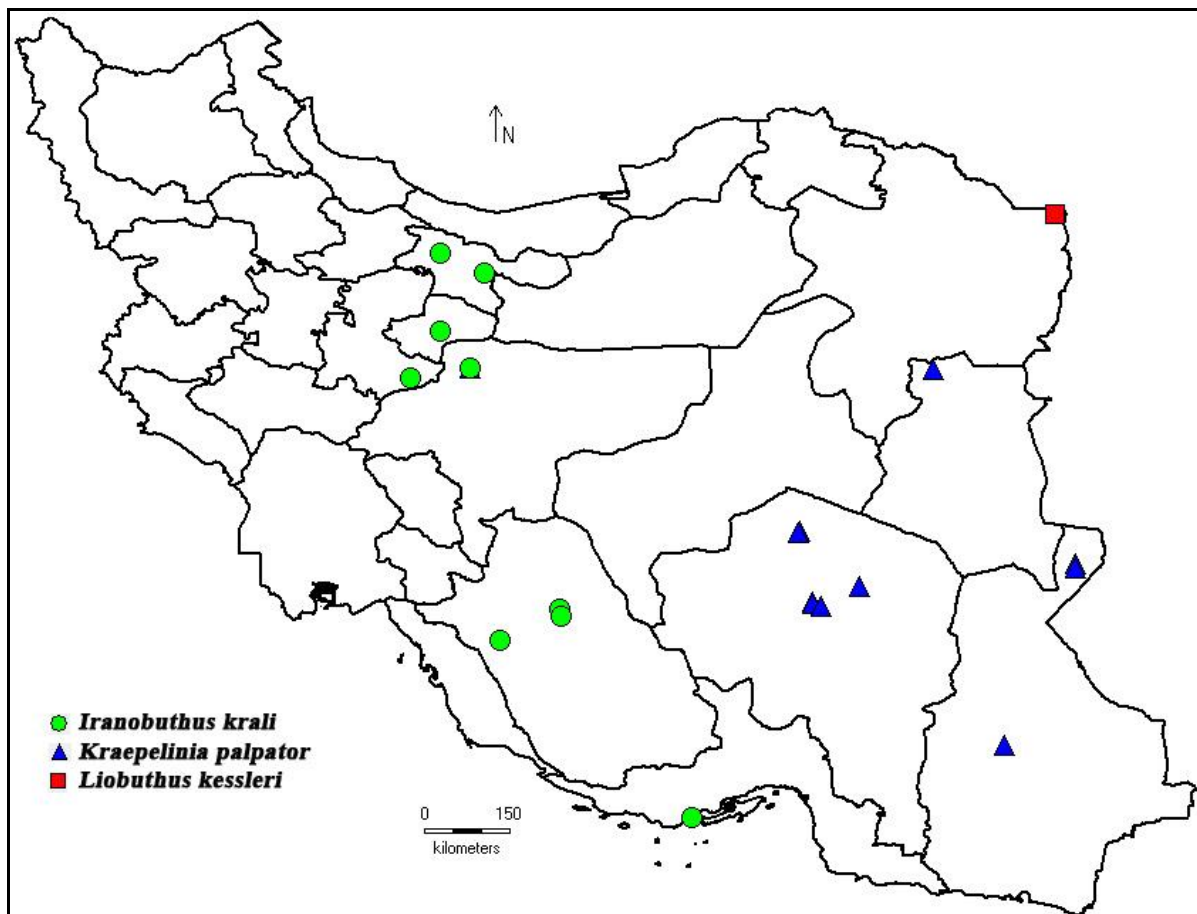


Figure 14. Distributin records of *Iranobuthus krali* Kovařík, 1997, *Kraepelinia palpator* (Birula, 1903) and *Liobuthus kessleri* Birula, 1898 in Iran.

Genus *Mesobuthus* Vachon, 1950

Mesobuthus brutus Fet et al., 2018*

Type locality and repository: Iran, Qazvin province, Alamut; FKCP.

Distribution in Iran: Qazvin and Zanjan provinces (Fet et al., 2018:7) (Fig. 17).

Distribution outside Iran: Endemic to Iran.

Mesobuthus caucasicus (Nordmann, 1840)

Type locality and repository: Georgia, Tbilisi province, Tiflis (now Tbilisi); UZMH.

Distribution in Iran: Not exactly defined (Kraepelin, 1899:25; Farzanpay, 1990:7; Fet, 1988:106,111), Ardabil (Habibi, 1971:31,43), East Azerbaijan (Birula, 1918:24; Habibi, 1971:31,43; Karataş et al., 2012:114; Mohammadi-Bavani et al., 2017:374; Fet et al., 2018:9), Esfahan (Habibi, 1971:43; Dehghani et al., 1998:126; Kovařík, 2002:9; Ahmadimarzale et al., 2017:339), Fars (Habibi, 1971:31,43; Kassiri et al., 2015:100; Sanaei-Zadeh et al., 2017:2; Nazari et al., 2018:306), Kermanshah (Habibi, 1971:31,43), Kohgiluyeh and Boyer Ahmad (Azizi et al., 2001:8), Khuzestan (Habibi, 1971:31,43), Markazi (Farzanpay, 1987:157), Qom (Habibi, 1971:31,43), Semnan (Karataş et al., 2012:114), Sistan and Baluchistan (Mir et al., 2014:19), South Khorasan (Habibi, 1971:31; Moghaddam et al., 2016:112); Tehran (Habibi, 1971:31,43),

West Azerbaijan (Habibi, 1971:31,43; Farzanpay & Pretzmann, 1974:216; Farzanpay, 1987:157; Karataş et al., 2012:114; Mohammadi-Bavani et al., 2017:374; Moradi et al., 2018:3; Fet et al., 2018:9) and **Yazd** (Habibi, 1971:31,43) provinces (Fig. 17).

Distribution outside Iran: Armenia, Azerbaijan, Georgia, Ukraine (Fet, 1988:105; Fet et al., 2018:9), **Russia** (Fet, 1988:105,108) and **Turkey** (Kraepelin, 1899:25; Vachon, 1966:212; Crucitti & Vignoli, 2002:458; Karataş, 2005:5; Fet et al., 2018:9).

Comments: All samples, except northwest specimens, need further investigation. They may represent other species or new species. Specimens from Qazvin (Habibi, 1971:31,43) province seem be *M. brutus*.

Mesobuthus eupeus (C. L. Koch, 1839)

Type locality and repository: Northeastern Persia (now Iran), between Harirud River and Meshed; BMNH.

Material examined: **Hormozgan** province, 1♂, 2♀♀: Bandar Abbas, Sarkhoun village, 27°24' N, 56°24' E, 74 m a.s.l., 12.II.2018; 11♂♂, 10♀♀: Qeshm, Ghar-e Kharbas, 26°54' N, 56°10' E, -10 m b.s.l., 08.IV.2018; 1♂, 14♀♀: Bandar-e Moallem, 26°40' N, 55°04' E, -3 m b.s.l., 10.IV.2018, H. Barahoei leg.; **Kohgiluyeh and Boyer Ahmad** province, 2♂♂, 3♀♀: Yasuj, Loodab, 30°56' N, 50°54' E, 1395 m a.s.l.; 11.VII.2017, H. Barahoei leg.; **Razavi Khorasan** province, 2♂♂, 2♀♀: Khaf, Ebrahimi village, 34°35' N, 60°02' E, 1024 m a.s.l., 04.VI.2017, H. Zanganeh leg.; 3♂♂: Torbat Heidariyeh, Malekabad village, 35°17' N, 59°22' E, 1369 m a.s.l., 29.III.2017, A. Arabi leg.; 3♀♀: Torbat Jaam, Bezd village, 35°11' N, 60°24' E, 1407 m a.s.l., 29.III.2017; 2♀♀, 3♂♂: Gonabad, Ghosd Jungle, 34°25' N, 58°44' E, 1035 m a.s.l., 30.VI.2018, H. Barahoei leg.; **Sistan and Baluchistan** province, 5♂♂, 5♀♀: Zabol, Dowlat Abad, Peer-e Sabz village, 30°51' N, 61°20' E, 477 m a.s.l., 27.IX.2017 (Fig. 15); 4♂♂, 1♀: Loutak, Rahmat Abad village, 30°45' N, 61°21' E, 481 m a.s.l., 23.II.2017; 1♀: Zabol, Sefidabeh village, 30°58' N, 60°31' E, 856 m a.s.l., 05.VII.2017; 1♀: Zahedan, Cheshmeh Ziarat village, 29°26' N, 60°30' E, 1843 m a.s.l.; 03.II.2018; H. Barahoei leg.; 1♀: Nikshahr, Tabaktel village, 26°03' N, 59°46' E, 245 m a.s.l., 13.VI.2017, H. Houti leg.; 6♂♂, 1♀: Mehrestan, Kalatak village, 26°52' N, 62°17' E, 1225 m a.s.l., 03.IV.2017, S. Dorrazahi leg.; 1♀: Chabahar, Kizhdap village, 30°51' N, 61°26' E, 482 m a.s.l., 04.IV.2018, H. Barahoei leg.; **South Khorasan** province, 6♀♀: 20 km east of Khezri, 34°01' N, 59°02' E, 1488 m a.s.l., 01.VII.2018, H. Barahoei leg.; **Yazd** province, 2♀♀: Mehriz, Posht-e Kouh village, 31°31' N, 54°24' E, 1559 m a.s.l., 28.III.2017, H. Fattahi leg.; ZMFUM.

Distribution in Iran: Not exactly defined (Kraepelin, 1899:23; Farzanpay, 1987:153; Farzanpay, 1990:6; Farzanpay, 1988:43; Fet, 1988:90,99; Fet, 1994:526), **Alborz** (Habibi, 1971:31,43; Navidpour et al., 2019:4), **Ardabil** (Habibi, 1971:31,43; Karataş et al., 2012:115; Asslan faal et al., 2015:168; Mohammadi-Bavani et al., 2017:374), **Bushehr** (Kovařík, 1997a:46), **Chaharmahal and Bakhtiari** (Akbari et al., 2001:26), **East Azerbaijan** (Pocock, 1899:405; Habibi, 1971:31,43; Karataş et al., 2012:115; Mohammadi-Bavani et al., 2017:374), **Esfahan** (Habibi, 1971:27,31,43; Kovařík, 1997a:46; Dehghani et al., 1998:126; Vignoli et al., 2003:3; Mirshamsi et al., 2010:2855; Ahmadimarzale et al., 2017:339), **Fars** (Habibi, 1971:31,43; Farzanpay & Pretzmann, 1974:216; Akbari et al., 1997:112; Kovařík, 1997a:46; Mirshamsi et al., 2010:2857; Navidpour et al., 2012:11; Kassiri et al., 2015:100; Sanaei-Zadeh et al., 2017:2; Nazari et al., 2018:306), **Golestan** (Birula, 1905:122,127; Birula, 1918:13–14; Habibi, 1971:44; Kovařík & Fet, 2006b:2), **Gilan** (Birula, 1905:122,124; Karataş et al., 2012:115), **Hamadan** (Habibi, 1971:31,43; Farzanpay & Pretzmann, 1974:216; Kovařík, 1997a:46; Karataş et al.,

2012:115; Nazari et al., 2015:257), **Hormozgan** (Habibi, 1971:31,43; Farzanpay & Pretzmann, 1974:216; Akbari et al., 1997:112; Zargan et al., 2003:22; Shahi et al., 2008:211; Zarei et al., 2009:48; Fekri et al., 2012:137; Navidpour et al., 2013:8), **Ilam** (Akbari et al., 1997:112; Karataş et al., 2012:115; Mozaffari et al., 2013:5414; Sharifinia et al., 2017:245), **Kerman** (Birula, 1900:364; Birula, 1905:122,126; Habibi, 1971:27,31,43; Farzanpay & Pretzmann, 1974:216; Akbari et al., 1997:112; Dehghani et al., 2008:176; Mirshamsi et al., 2010:2856; Mirshamsi et al., 2011a:9; Navidpour et al., 2011:11; Karataş et al., 2012:115; Nazari & Hajizadeh, 2017:179), **Kermanshah** (Akbari et al., 1997:112), **Khuzestan** (Birula, 1905:122,125,128; Birula, 1918:11; Habibi, 1971:31,43; Akbari et al., 1997:112; Kovařík, 1997a:46; Kovařík, 2002:9; Pooladgar, 1999:176; Dehghani et al., 2009:274; Mirshamsi et al., 2010:2856; Karataş et al., 2012:115; Nejati et al., 2018:7140), **Kohgiluyeh and Boyer Ahmad** (Akbari et al., 1997:112; Kovařík, 1997a:46; Akbari et al., 2001:26; Azizi et al., 2001:8), **Kurdistan** (Habibi, 1971:31,43), **Lorestan** (Habibi, 1971:43; Akbari et al., 1997:112; Taherian et al., 2014:48), **Markazi** (Farzanpay & Pretzmann, 1974:216; Birula, 1905:122; Navidpour et al., 2019:4), **Mazandaran** (Habibi, 1971:43; Farzanpay & Pretzmann, 1974:216; Fet, 1988:100; Kovařík, 1997a:46; Motevalli Haghi et al., 2004:93; Mirshamsi et al., 2010:2855; Mirshamsi et al., 2011a:8; Kovařík et al., 2011:3), **North Khorasan** (Habibi, 1971:31,43); **Qazvin** (Karataş et al., 2012:115), **Qom** (Habibi, 1971:31,43; Karataş et al., 2012:115), **Razavi Khorasan** (Birula, 1900:359; Habibi, 1971:27,43; Fet, 1988:99; Vatani & Khoobdel, 2009:9; Mirshamsi et al., 2010:2856; Mirshamsi et al., 2011a:8; Ramezani et al., 2010:56; Kovařík et al., 2011:2), **Semnan** (Birula, 1918:14; Mirshamsi et al., 2010:2856; Mirshamsi et al., 2011a:9; Karataş et al., 2012:115), **Sistan and Baluchistan** (Birula, 1900:360; Birula, 1903:69; Birula, 1905:122,128; Habibi, 1971:27,31,43; Akbari et al., 1997:112; Mirshamsi et al., 2010:2855; Mirshamsi et al., 2011a:9; Mir et al., 2014:19; Nejati et al., 2014:219), **South Khorasan** (Birula, 1903:68; Habibi, 1971:43; Moghaddam et al., 2016:112), **Tehran** (Habibi, 1971:31,43; Kovařík, 2002:9; Karataş et al., 2012:115; Navidpour et al., 2019:4), **West Azerbaijan** (Birula, 1918:11; Habibi, 1971:27,31,43; Farzanpay & Pretzmann, 1974:216; Kovařík, 1997a:46; Mirshamsi et al., 2010:2856; Mirshamsi et al., 2011a:8; Karataş et al., 2012:115; Mohammadi-Bavani et al., 2017:374; Moradi et al., 2018:2), **Yazd** (Habibi, 1971:31,43; Farzanpay & Pretzmann, 1974:216; Karimi et al., 2001:115; Vignoli & Crucitti, 2005:5; Mirshamsi et al., 2010:2856; Mirshamsi et al., 2011a:9) and **Zanjan** (Kovařík et al., 2011:2; Karataş et al., 2012:115; Moradi et al., 2015:12) provinces.

Distribution outside Iran: **Afghanistan** (Kraepelin, 1899:23; Farzanpay, 1988:44; Fet, 1988:99; Fet, 1994:526; Kovařík, 1993:202; Fet & Lowe, 2000:172), **Armenia** (Kraepelin, 1899:23; Fet, 1988:87; Fet, 1994:526; Kovařík, 1997b:180; Fet & Lowe, 2000:172; Kovařík et al., 2011:2; Lourenço & Leguin, 2015:274), **Azerbaijan, Georgia** (Fet, 1988:88,90; Fet, 1994:526; Fet & Lowe, 2000:172; Kovařík et al., 2011:2), **Kazakhstan** (Fet, 1988:91; Fet, 1994:526; Fet & Lowe, 2000:175; Gantenbein et al., 2003:413), **China** (Fet, 1988:99; Fet, 1994:526; Fet & Lowe, 2000:175; Zhi-Yong et al., 2014:7), **Iraq** (Penther, 1912:111; Khalaf, 1962:2; Farzanpay, 1988:44; Fet, 1994:526; Al-Azawi, 2016:51), **Kyrgyzstan** (Fet, 1988:93; Fet, 1994:526; Fet & Lowe, 2000:175), **Mongolia** (Fet, 1994:526), **Oman** (Farzanpay, 1988:45), **Pakistan** (Pocock, 1900:20; Farzanpay, 1988:44; Fet, 1994:526; Fet & Lowe, 2000:174), **Russia** (Farzanpay, 1988:45; Fet, 1988:90,94; Fet, 1994:526; Fet & Lowe, 2000:175), **Tajikistan** (Fet, 1988:94; Fet, 1994:526; Fet & Lowe, 2000:175), **Turkey** (Kraepelin, 1899:23; Vachon, 1966:212; Farzanpay, 1988:44; Fet, 1988:90; Fet, 1994:526; Kovařík, 1996:54; Kovařík, 1997b:180; Fet & Lowe, 2000:172; Karataş & Karataş, 2001:297; Crucitti & Vignoli, 2002:453; Karataş & Karataş, 2003:2; Gantenbein et al., 2003:413; Yağmur et al., 2007:98; Kovařík et al., 2011:2; Mirshamsi et al., 2010:2857), **Turkmenistan** (Fet, 1988:94,99,100; Fet, 1994:526; Kovařík, 1997b:180; Fet & Lowe,

2000:172,175; Gantenbein et al., 2003:413; Mirshamsi et al., 2010:2857; Mirshamsi et al., 2011a:9) and **Uzbekistan** (Fet, 1988:98; Fet, 1994:526; Kovařík, 1997b:180; Fet & Lowe, 2000:175; Gantenbein et al., 2003:413).

Comments: *M. eupeus* has eight subspecies (*M. eupeus afghanus*, *M. eupeus eupeus*, *M. eupeus iranensis*, *M. eupeus kirmanensis*, *M. eupeus pachysoma*, *M. eupeus persicus*, *M. eupeus philipowitschi* and *M. eupeus thersites*) with wide distribution in Iran. It needs molecular studies and revision to describe new species. The record for *M. eupeus* from Oman by Farzanpay (1988: 45) is questionable. There have been no records of naturally occurring populations of *Mesobuthus* in the Arabian Peninsula after report of Simon (1902). It is likely that this old isolated record may have been spurious, or may represent an introduction by human transport. Kovařík et al. (2011:2) placed Sorkhedizaj village in Alborz province, while it is in the Zanzan province.

***Mesobuthus macmahoni* (Pocock, 1900)**

Type locality and repository: Northern Baluchistan (now Pakistan), Mekran, Ormara; BMNH.

Distribution in Iran: **Kerman** (Habibi, 1971:31,44; Navidpour et al., 2011:13) and **Sistan and Baluchistan** (Vachon, 1958b; Habibi, 1971:44) provinces (Fig. 17).

Distribution outside Iran: **Afghanistan** (Vachon, 1958b; Fet & Lowe, 2000:177) and **Pakistan** (Pocock, 1900:19; Fet & Lowe, 2000:177).

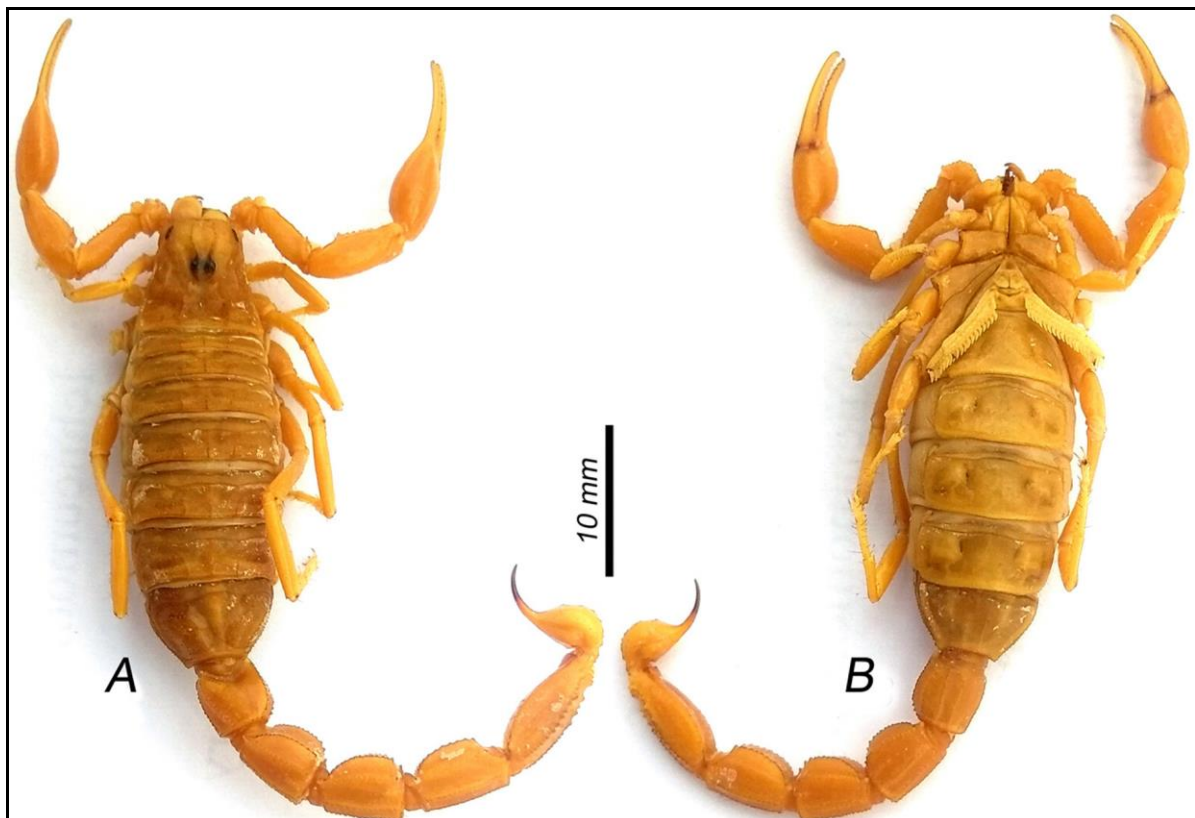


Figure 15. Habitus of female *Mesobuthus eupeus* (C. L. Koch, 1839): **A.** dorsal view, **B.** ventral view.

Mesobuthus parthorum (Pocock, 1889)

Type locality and repository: Iran, Razavi Khorasan province, between Harirud Valley and Meshed; BMNH.

Material examined: Razavi Khorasan province, 1♀: Torbat Heidariyeh, 35°20' N, 59°12' E, 1480 m a.s.l., 28.III.2017, V. Ghaemitalab leg.; ZMFUM.

Distribution in Iran: Razavi Khorasan (Birula, 1903:70; Habibi, 1971:26,43; Farzanpay, 1987:157; Kovařík, 2002:9; Vatani & Khoobdel, 2009:9; Fet et al., 2018:48) and South Khorasan (Moghaddam et al., 2016:112) provinces (Fig. 17).

Distribution outside Iran: Afghanistan (Fet, 1994:528; Fet & Lowe, 2000:192; Fet et al., 2018:48), Turkmenistan (Fet, 1988:104,107; Fet, 1994:528; Fet & Lowe, 2000:191; Fet et al., 2018:48).

Mesobuthus phillipsii (Pocock, 1889) (Fig. 16)

Type locality and repository: Iran, Bushir (now Bushehr) province, Farsistan; BMNH.

Distribution in Iran: Not exactly defined (Vachon, 1966:213; Farzanpay, 1987:153), Bushehr (Pocock, 1889a:341; Kraepelin, 1899:24; Navidpour et al., 2008b:15; Kovařík et al., 2011:5), Chaharmahal and Bakhtiari (Jazayeri-Jounghani, 2009:30; Kovařík et al., 2011:6; Pirali-Kheirabadi et al., 2009:9; Pirali-Kheirabadi et al., 2013:46), Esfahan (Kovařík et al., 2011:6), Fars (Kovařík et al., 2011:6; Navidpour et al., 2012:12), Hormozgan (Navidpour et al., 2013:11), Ilam (Navidpour et al., 2008c:11; Gohari, 2011:58; Kovařík et al., 2011:6), Khuzestan (Birula, 1905:131; Habibi, 1971:44; Navidpour et al., 2008a:12; Kovařík et al., 2011:6), Kohgiluyeh and Boyer Ahmad (Navidpour et al., 2008d:7; Kovařík et al., 2011:6) and Lorestan (Navidpour et al., 2010:13) provinces.

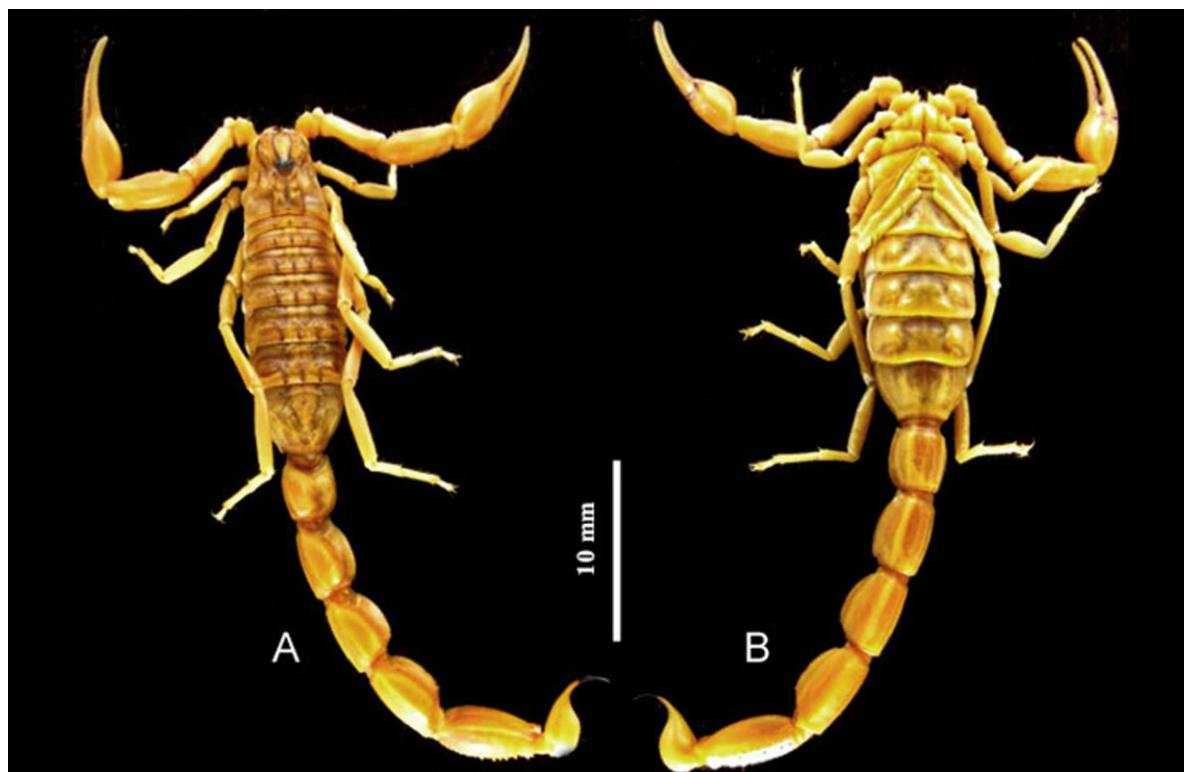


Figure 16. Habitus of male *Mesobuthus phillipsii* (Pocock, 1889): **A.** dorsal view, **B.** ventral view.

Distribution outside Iran: Iraq (Fet & Lowe, 2000:175; Kovařík et al., 2011:8), Syria and Turkey (Kovařík et al., 2011:8) (Fig. 17).

Mesobuthus vesiculatus (Pocock, 1899)

Type locality and repository: Russia, Astracan; BMNH.

Distribution in Iran: Not exactly defined (Vachon, 1966:213; Habibi, 1971:27,44; Farzanpay, 1990:7), East Azerbaijan, West Azerbaijan (Karataş & Moradi-Gharkheloo, 2012:579; Karataş et al., 2012:116), Esfahan (Vignoli et al., 2003:3) and Yazd (Vignoli & Crucitti, 2005:6) provinces (Fig. 17).

Distribution outside Iran: Russia (Pocock, 1899:406).

Comment: Specimens of East and West Azerbaijan provinces (Karataş & Moradi-Gharkheloo, 2012:579; Karataş et al., 2012:116), may be *M. caucasicus*.

Genus *Odontobuthus* Vachon, 1950

Odontobuthus bidentatus (Lourenço & Pérez, 2002)

Type locality and repository: Iraq, 180 km north of Bagdad, Khanagin-Dyala; MHNG.

Material examined: Bushehr province, 1♂, 1♀: 20 km north of Bandar-e Deylam, 30°12' N, 50°10' E, 44 m a.s.l., 15.IV.2018, H. Barahoei leg. (Fig. 18); ZMFUM.

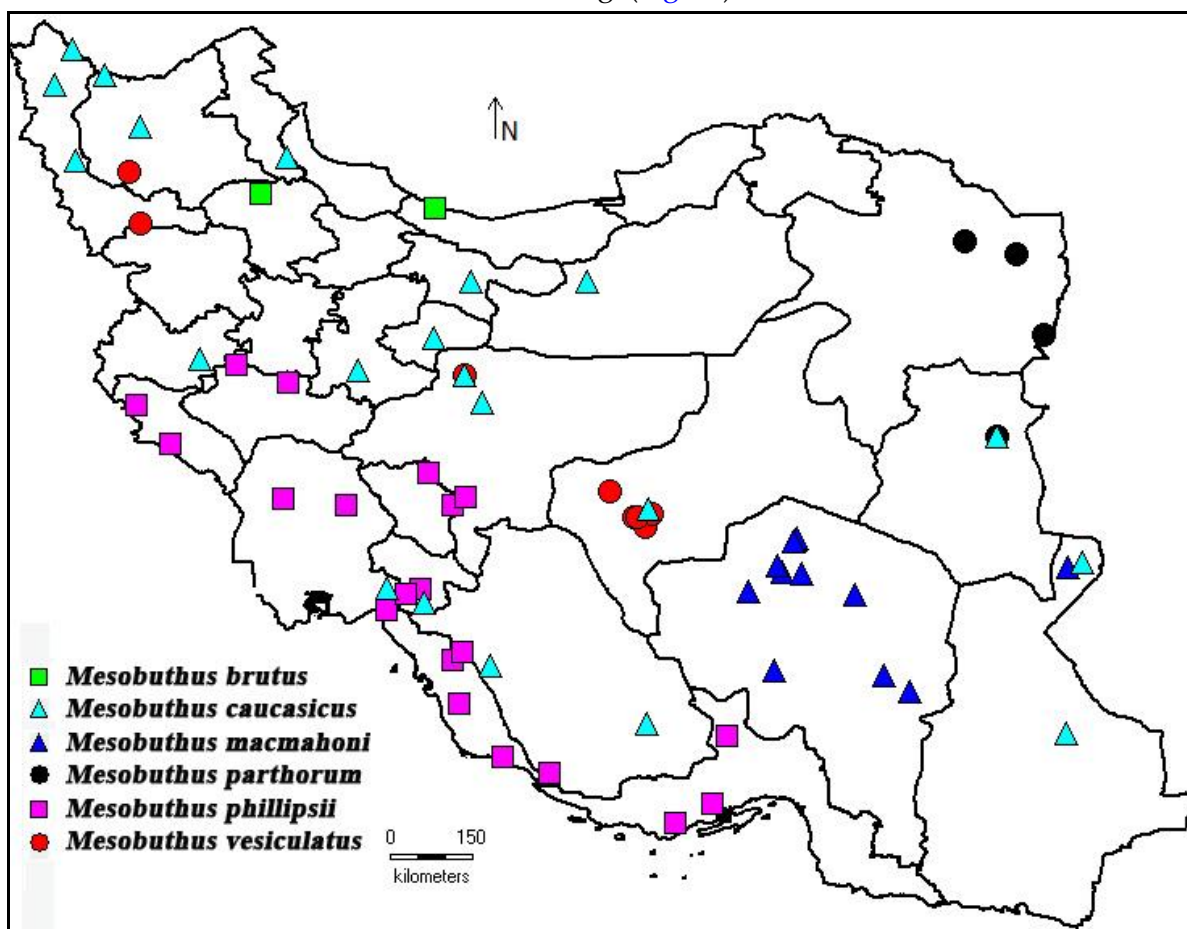


Figure 17. Distributin records of *Mesobuthus* Vachon, 1950 species in Iran.

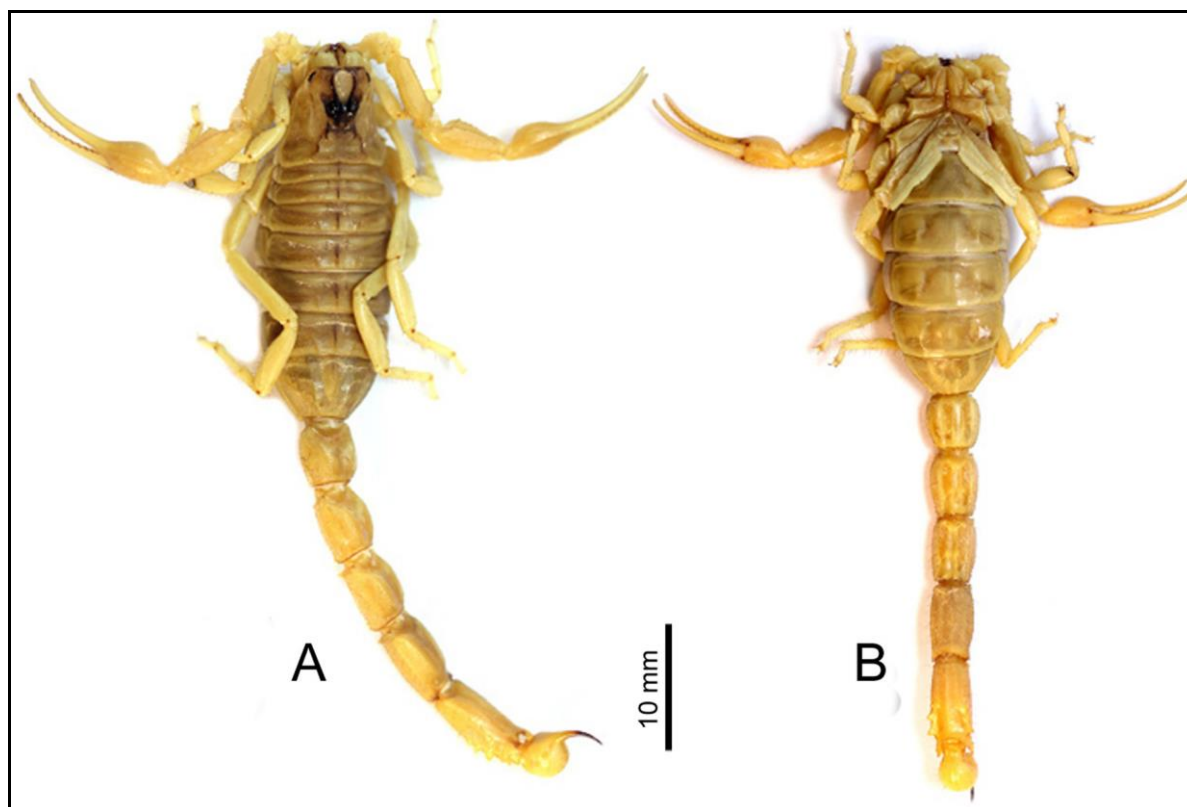


Figure 18. Habitus of male *Odontobuthus bidentatus* (Lourenço & Pérezier, 2002): **A.** dorsal view, **B.** ventral view.

Distribution in Iran: Not exactly defined (Farzanpay, 1990:7), **Bushehr** (Habibi, 1971:31,44; Farzanpay, 1987:156; Akbari et al., 1997:112; Kovařík, 1997a:47; Lourenço & Pérezier, 2002:118; Navidpour et al., 2008b:15; Lowe, 2010:22), **Fars** (Akbari et al., 1997:112; Navidpour et al., 2012:14; Azghadi et al., 2014:171; Kassiri et al., 2015:100), **Ilam** (Navidpour et al., 2008c:11; Gohari, 2011:63; Karataş et al., 2012:116; Sharifinia et al., 2017:245), **Khuzestan** (Farzanpay, 1987:156; Akbari et al., 1997:112; Pooladgar, 1999:176; Navidpour et al., 2008a:13; Lowe, 2010:22; Azghadi et al., 2014:171; Ahmadi et al., 2016:1568; Nejati et al., 2018:7140; Barahoei et al., 2020:3) and **Kohgiluyeh and Boyer Ahmad** (Navidpour et al., 2008d:7) provinces (Fig. 20).

Distribution outside Iran: Iraq (Lourenço & Pérezier, 2002:118).

Odontobuthus doriae (Thorell, 1876)*

Type locality and repository: Iran, Teheran; MCSN.

Material examined: Semnan province, 2♀♀: Mehdishahr, Darjazin, 35°37' N, 53°21' E, 4388 m a.s.l., 05.VIII.2018, M. Amiri leg. (Fig. 19); ZMFUM

Distribution in Iran: Not exactly defined (Kraepelin, 1899:27; Vachon, 1966:213; Farzanpay, 1990:7; Kovařík, 2002:9), **Alborz** (Habibi, 1971:31,44; Karataş et al., 2012:116; Navidpour et al., 2019:5), **Chaharmahal and Bakhtiari** (Jazayeri-Jounghani, 2009:33; Pirali-Kheirabadi et al., 2009:10; Pirali-Kheirabadi et al., 2013:48), **East Azerbaijan** (Habibi, 1971:44; Lowe, 2010:22), **Esfahan** (Habibi, 1971:28,31,44; Kovařík, 1997a:47; Dehghani et al., 1998:126; Dehghani et al., 2017:115; Lourenço & Pérezier, 2002:116; Lowe, 2010:22; Ahmadimarzale et

al., 2017:339; Dehghani & Kassiri, 2017:435), **Fars** (Lourenço & Pézier, 2002:116; Navidpour et al., 2012:15), **Hamadan** (Karataş et al., 2012:116; Nazari et al., 2015:257), **Ilam** (Mozaffari et al., 2013:5414), **Kermanshah** (Habibi, 1971:31,44), **Lorestan** (Lourenço & Pézier, 2002:116), **Markazi** (Habibi, 1971:31,44; Navidpour et al., 2019:6), **Qazvin** (Habibi, 1971:31,44; Lourenço & Pézier, 2002:116), **Qom** (Habibi, 1971:31,44), **Semnan** (Habibi, 1971:44; Lowe, 2010:22; Azghadi et al., 2014:171), **Tehran** (Pocock, 1900:16; Habibi, 1971:31,44; Farzanpay, 1987:155; Lourenço & Pézier, 2002:116; Lowe, 2010:22; Karataş et al., 2012:116; Azghadi et al., 2014:171; Navidpour et al., 2019:8; Barahoei et al., 2020:3), **Yazd** (Vignoli & Crucitti, 2005:6) and **Zanjan** (Moradi et al., 2014:8; Moradi et al., 2015:13) provinces (Fig. 20).

Distribution outside Iran: Endemic to Iran.

Comments: Specimens collected from Kerman province (Birula, 1905:121; Habibi, 1971:31; Lourenço & Pézier, 2002:116; Dehghani et al., 2008:176; Navidpour et al., 2011:13; Fekri et al., 2012:137), confirmed as new species by Azghadi et al. (2014) and Barahoei et al. (2020). Also, Hormozgan province reports (Shahi et al., 2008:211; Fekri et al., 2012:137; Navidpour et al., 2013:12), are new species (Barahoei et al., 2020). Other reports such as East Azerbaijan, Fars, Kermanshah, Ilam, Lorestan, Yazd and Zanjan provinces need to great consideration.

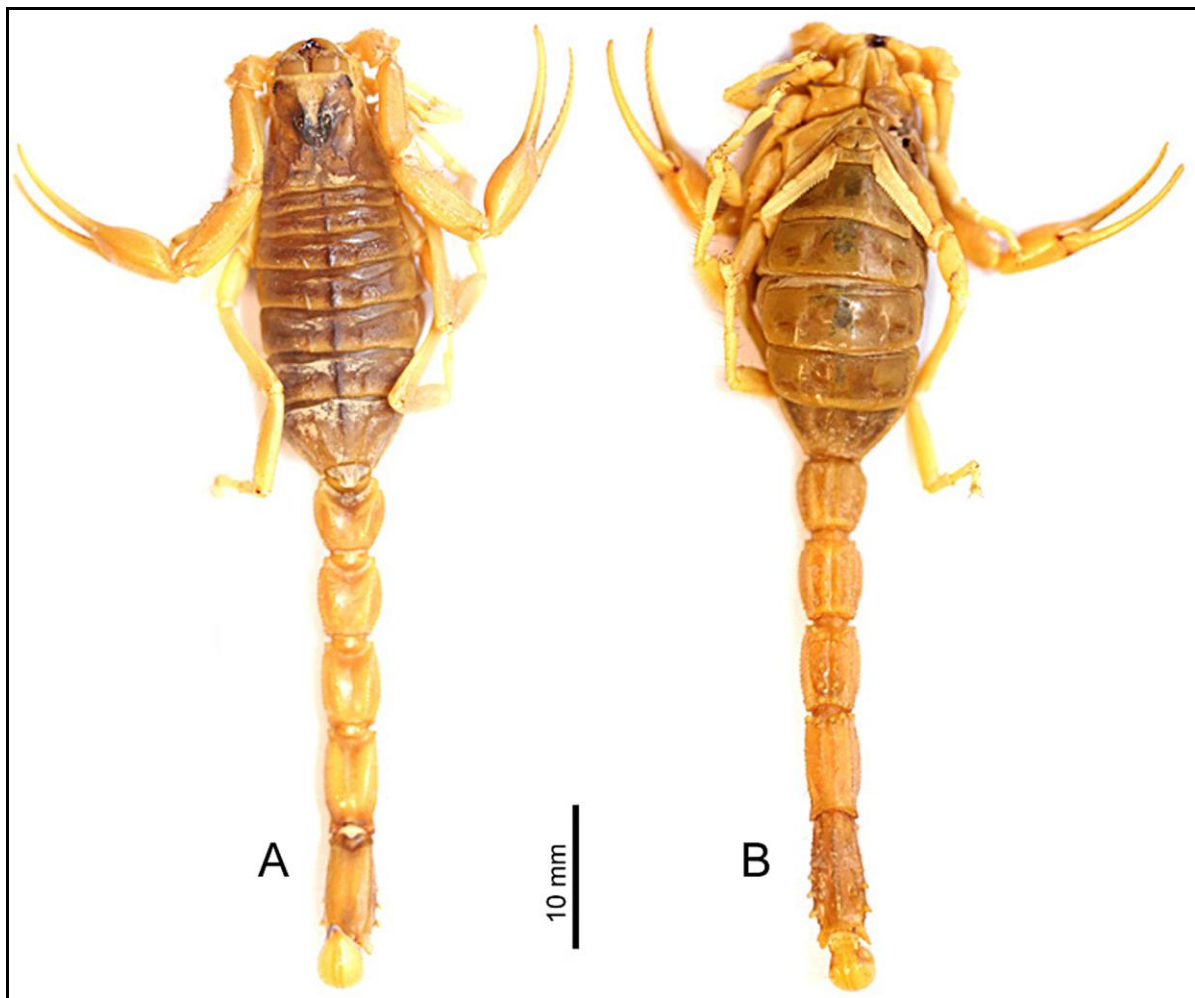


Figure 19. Habitus of female *Odontobuthus doriae* (Thorell, 1876): **A.** dorsal view, **B.** ventral view.

Odontobuthus tavighiae* Navidpour et al., 2013

Type locality and repository: Iran, Hormozgan province, Lengeh Port; FKCP and RRLS.

Material examined: Hormozgan province, 1♂, 3♀♀: Hameyran, 27°01' N, 53°43' E, 224 m a.s.l., 12.IV.2018; Fars province, 1♂, 3♀♀: Mohr, 27°31' N, 52°54' E, 445 m a.s.l., 13.IV.2018, H. Barahoei leg.; ZMFUM.

Distribution in Iran: Hormozgan (Navidpour et al., 2013:11,13; Navidpour & Mirshamsi, 2014:112; Azghadi et al., 2014:171; Barahoei et al., 2020:3) and Fars provinces (This study) (Fig. 20).

Distribution outside Iran: Endemic to Iran.

Odontobuthus tirgari* Mirshamsi et al., 2013

Type locality and repository: Iran, Razavi Khorasan province, Gonabad, Kakhk; ZMFUM and AMNH.

Material examined: Sistan and Baluchistan province, 2♂♂, 1♀: Zahedan, Manzel Aab village, 29°18' N, 60°47' E, 1605 m a.s.l., 24.VII.2017; 1♂, 1♀: Iranshahr, Zimdan village, 26°49' N, 60°58' E, 1390 m a.s.l., 14.XI.2018; Razavi Khorasan province, 1♂, 1♀: Gonabad, Kakhk-Ostad road, 34°07' N, 58°46' E, 06.IV.2011; South Khorasan province, 1♂, 2♀♀: Shosf, 31°45' N, 60°04' E, 1501 m a.s.l., 14.VII.2018, H. Barahoei leg.; ZMFUM.

Distribution in Iran: North Khorasan (Karatas et al., 2012:116), Razavi Khorasan (Vatani & Khoobdel, 2009:9; Ramezani et al., 2010:56; Mirshamsi et al., 2013:158; Navidpour & Mirshamsi, 2014:112; Azghadi et al., 2014:171) and Sistan and Baluchistan (Birula, 1900:357; Nejati et al., 2014:219; Mir et al., 2014:19; Barahoei et al., 2020:3) provinces (Fig. 20).

Distribution outside Iran: Endemic to Iran.

Comment: Nejati et al. (2014:219) reported samples as *O. odonturus*, which was result of misidentification.

Genus *Orthochirus* Karsch, 1891***Orthochirus carinatus* Navidpour et al., 2019***

Type locality and repository: Iran, Tehran province, Tehran to Firoozkooh, Absard-Keylan; FKCP.

Distribution in Iran: Alborz and Tehran provinces (Navidpour et al., 2019:8) (Fig. 22).

Distribution outside Iran: Endemic to Iran.

Comment: The species diagnosis is mainly based on a single morphological character, i.e., the presence of complete ventrolateral carinae on metasomal segment V. Further study is needed to evaluate its status, and clarify its relationship to the morphologically similar but biogeographically disjunct species *O. zagrosensis*.

Orthochirus farzanpayi* (Vachon & Farzanpay, 1987)

Type locality and repository: Iran, Hormozgan province, 215 km north of Bandar Abbas; NHMW.

Distribution in Iran: Not exactly defined (Farzanpay, 1990:9), Bushehr (Akbari et al., 1997:112; Navidpour et al., 2008b:16), Fars (Kovařík, 1997a:48; Kovařík, 2004:20; Navidpour et al., 2012:17), Hormozgan (Farzanpay, 1987:163; Lourenço & Vachon, 1995:301; Kovařík & Fet, 2006a:1; Shahi et al., 2008:211; Fekri et al., 2012:137; Navidpour et al., 2013:14), Kerman

(Kovařík & Fet, 2006a:3; Navidpour et al., 2011:15), Khuzestan (Navidpour et al., 2008a:15) and Kohgiluyeh and Boyer Ahmad (Kovařík & Fet, 2006a:3) provinces (Fig. 22).

Distribution outside Iran: Endemic to Iran.

Comment: Description of *O. sobotniki* (Kovařík, 2004:20) is doubtful and its synonym of *O. farzanpayi*.

***Orthochirus fuscipes* (Pocock, 1900)**

Type locality and repository: Northern Baluchistan (now Pakistan); BMNH.

Material examined: Sistan and Baluchistan province, 1♂: Zabol, Dowlat Abad, Peer-e Sabz village, 30°51' N, 61°20' E, 477 m a.s.l., 16.IX.2016; 3♀♀: 09.IV.2017; 1♂, 1♀: 23.V.2017; 1♂, 5♀♀: 11.VII.2017; 3♂♂, 9♀♀: 02.V.2018 (Fig. 21); 2♂♂, 4♀♀: Loutak, Rahmat Abad village, 30°45' N, 61°21' E, 481 m a.s.l., 08.VI.2017; 2♂♂, 7♀♀: 05.VII.2018; 1♀: Koush-e Sofla village, 30°51' N, 61°26' E, 482 m a.s.l., 19.IX.2017; 1♀: Iranshahr, Chanf, Goank village, 26°38' N, 60°27' E, 1199 m a.s.l., 03.VIII.2017; 2♂♂, 2♀♀: Chabahar, Kizhdap village, 30°51' N, 61°26' E, 482 m a.s.l., 04.IV.2018, H. Barahoei leg.; ZMFUM.

Distribution in Iran: Sistan and Baluchistan province (Kovařík, 2004:11) (Fig. 22).

Distribution outside Iran: India (Kovařík, 2004:11) and Pakistan (Pocock, 1900:29; Fet & Lowe, 2000:195; Kovařík, 2004:11).

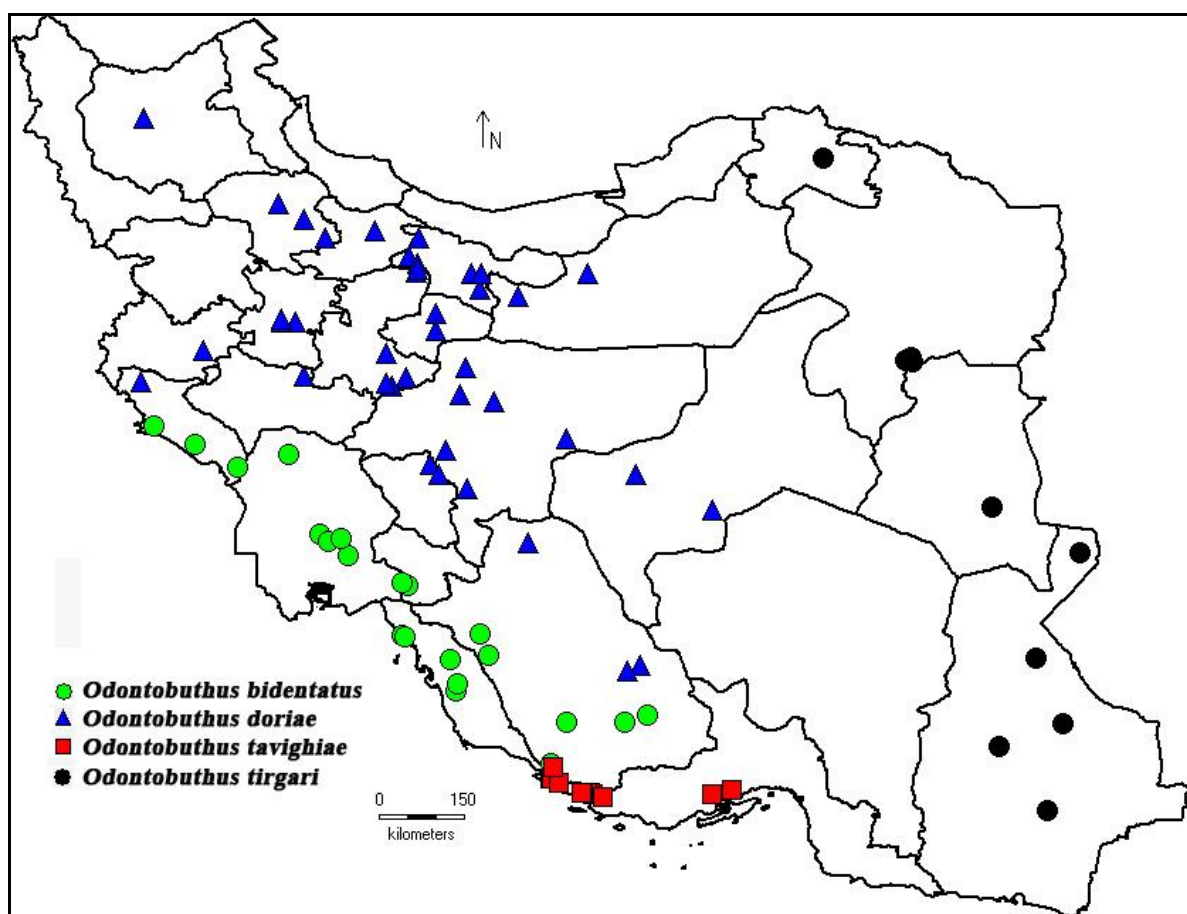


Figure 20. Distributin records of *Odontobuthus* Vachon, 1950 species in Iran.

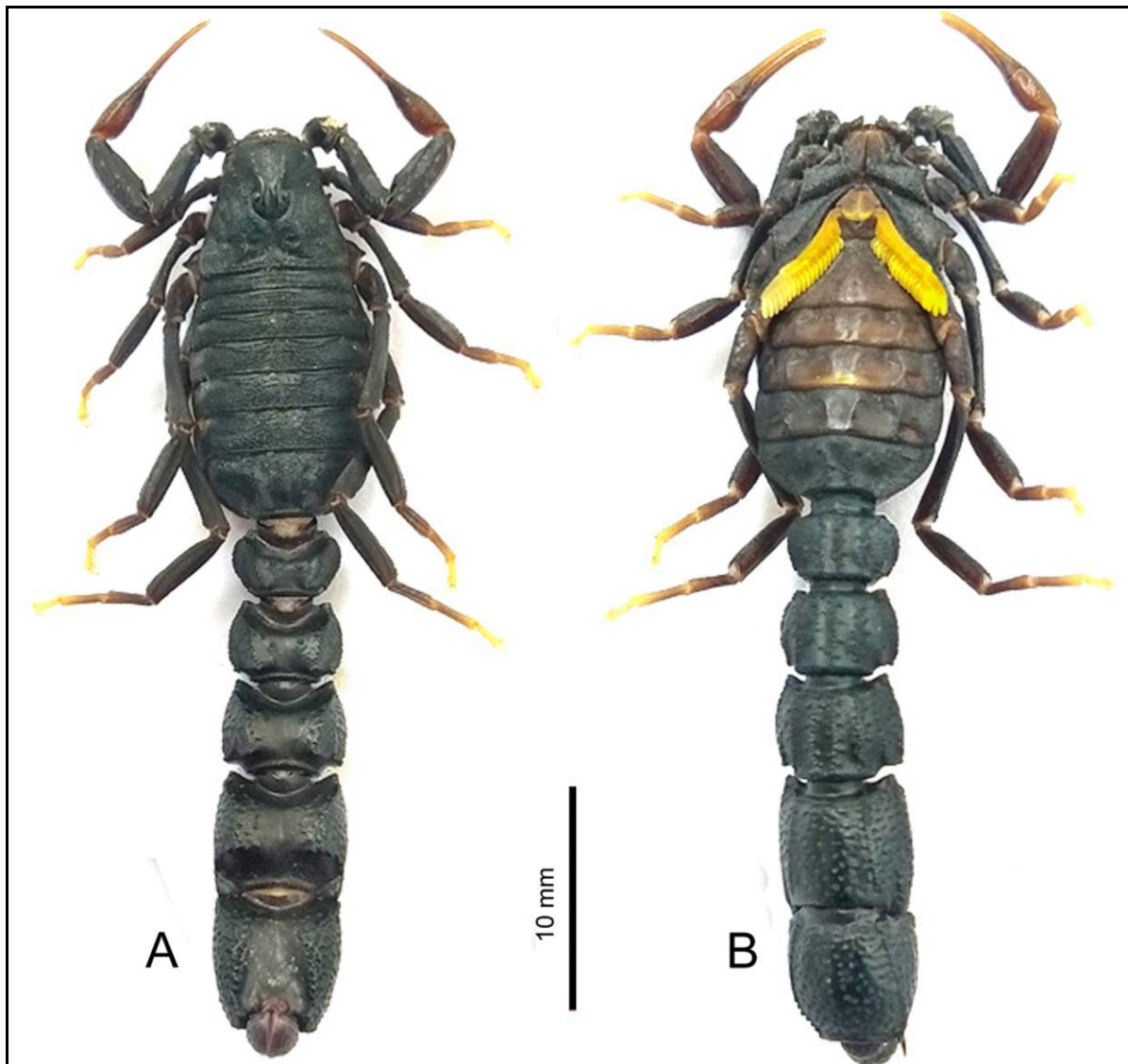


Figure 21. Habitus of female *Orthochirus fuscipes* (Pocock, 1900): **A.** dorsal view, **B.** ventral view.

Orthochirus gantenbeini Kovarik et al., 2019*

Type locality and repository: Iran, Khuzestan province, Dezful District, Shahyoon village; FKCP.

Distribution in Iran: Khuzestan province (Navidpour et al., 2008a:20; Kovařík et al., 2019a:7) (Fig. 22).

Distribution outside Iran: Endemic to Iran.

Comment: This species before reported as *O. stockwelli* by Navidpour et al. (2008a:20).

Orthochirus gruberi Kovařík & Fet, 2006*

Type locality and repository: Iran, Kerman province, near Ğoupār; FKCP.

Distribution in Iran: Kerman province (Kovařík & Fet, 2006a:4; Navidpour et al., 2011:15) (Fig. 22).

Distribution outside Iran: Endemic to Iran.

Orthochirus hormozganensis Kovařík & Navidpour, 2020*

Type locality and repository: Iran, Hormozgan province, Shahre Babak; FKCP.

Distribution in Iran: Hormozgan province (Kovařík & Navidpour, 2020:3) (Fig. 22).

Distribution outside Iran: Endemic to Iran.

Orthochirus iranus Kovařík, 2004*

Type locality and repository: Iran, Bushehr province, Bandar-e Ganaveh; FKCP.

Distribution in Iran: Bushehr (Kovařík, 1997a:47; Kovařík, 2004:13; Navidpour et al., 2008b:17; Kovařík et al., 2019a:12), Ilam (Navidpour et al., 2008c:11; Gohari, 2011:60; Sharifinia et al., 2017:245), Khuzestan (Kovařík, 1997a:47; Kovařík, 2004:13; Navidpour et al., 2008a:17; Kovařík et al., 2019a:12), Kohgiluyeh and Boyer Ahmad (Navidpour et al., 2008d:7) and Lorestan (Navidpour et al., 2010:15; Taherian et al., 2014:48) provinces (Fig. 23).

Distribution outside Iran: Endemic to Iran.

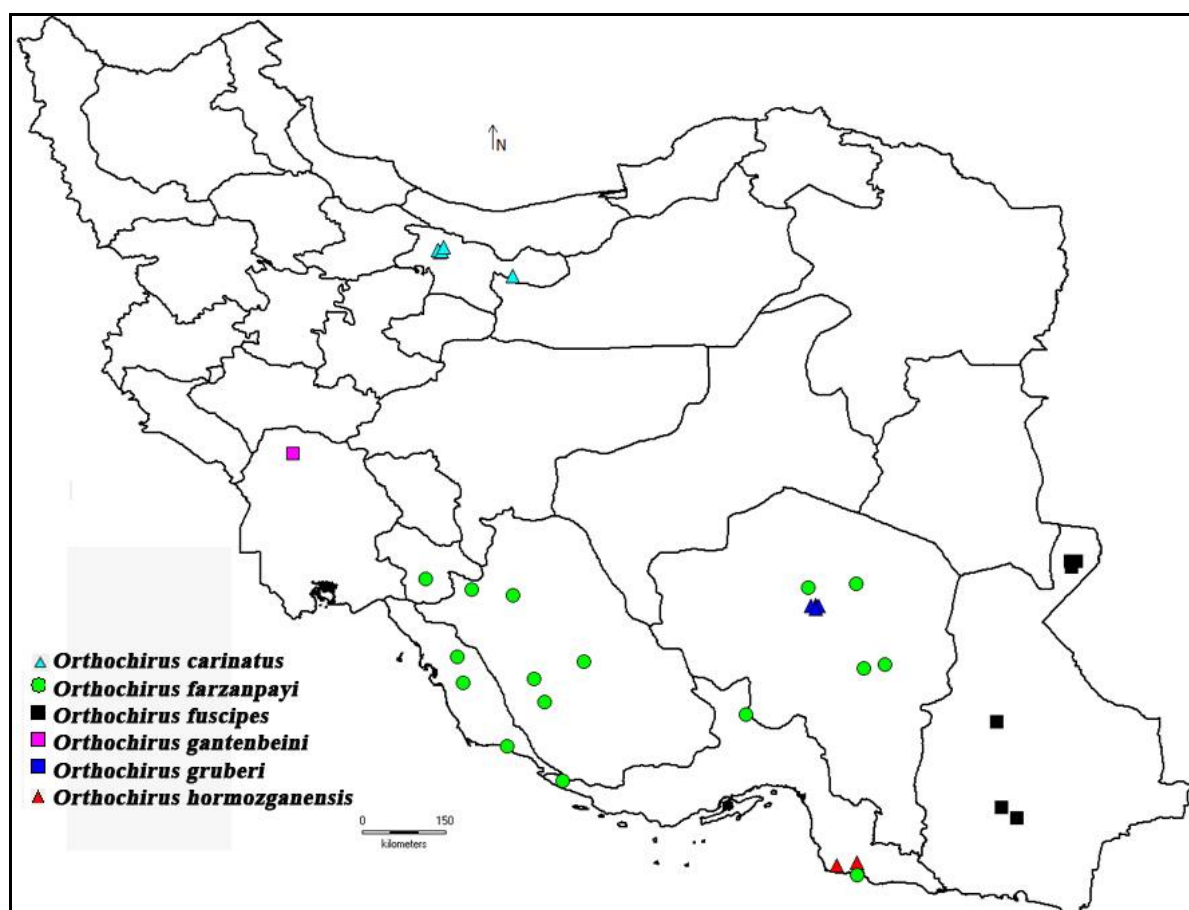


Figure 22. Distributin records of *Orthochirus* Karsch, 1891 species in Iran.

Orthochirus kermanensis Kovařík & Navidpour, 2020*

Type locality and repository: Iran, Kerman province, Shahre Babak-Anar road; FKCP.

Distribution in Iran: Kerman province (Kovařík & Navidpour, 2020:8) (Fig. 23).

Distribution outside Iran: Endemic to Iran.

Orthochirus kuceraei Kovařík & Navidpour, 2020*

Type locality and repository: Iran, Kerman province, Bam, Khajeh Askar village; FKCP.

Distribution in Iran: Kerman province (Kovařík & Navidpour, 2020:15) (Fig. 23).

Distribution outside Iran: Endemic to Iran.

Orthochirus mashipouri Kovařík & Navidpour, 2020*

Type locality and repository: Iran, Bushehr province, Behbahan-Genaveh road; FKCP.

Distribution in Iran: Bushehr province (Navidpour et al., 2008b:17; Kovařík & Navidpour, 2020:21) (Fig. 23).

Distribution outside Iran: Endemic to Iran.

Orthochirus mesopotamicus Birula, 1918

Type locality and repository: Iran, Khuzestan province, Karun River, Kut-e Gazaie, camp of Sheikh Gazal near Ahvaz; ZISP.

Distribution in Iran: Ilam (Navidpour et al., 2008c:11; Kovařík et al., 2019a:16) and Khuzestan (Navidpour et al., 2008a:17; Kovařík et al., 2019a:16) provinces (Fig. 23).

Distribution outside Iran: Iraq (Kovařík et al., 2019a:16).

Comment: This species before reported as *O. iranusi* by Navidpour et al. (2008a:17) and Navidpour et al. (2008c:11).

Orthochirus navidpouri Kovarik et al., 2019*

Type locality and repository: Iran, Lorestan province, Koramabad, Haftcheshmeh village; FKCP.

Distribution in Iran: Khuzestan (Kovařík et al., 2019a:22) and Lorestan (Navidpour et al., 2010:15; Kovařík et al., 2019a:22) provinces (Fig. 23).

Distribution outside Iran: Endemic to Iran.

Comment: This species before reported as *O. iranusi* by Navidpour et al. (2010:15).

Orthochirus scrobiculosus (Grube, 1873)

Type locality and repository: Kazakstan, Novoaleksandrovskoye (now Mangyshlak Region); ZISP.

Material examined: Razavi Khorasan province, 1♂: Torbat Heidariyeh, Malekabad village, 35°17' N, 59°22' E, 1369 m a.s.l., 29.III.2017, A. Arabi leg.; 1♀: Gonabad, Ghosd Jungle, 34°25' N, 58°44' E, 1035 m a.s.l., 30.VI.2018, H. Barahoei leg.; South Khorasan province, 1♂, 5♀♀: 30 km east of Khezri, 34°01' N, 59°02' E, 1488 m a.s.l., 01.VII.2018, H. Barahoei leg. (Fig. 24); ZMFUM.

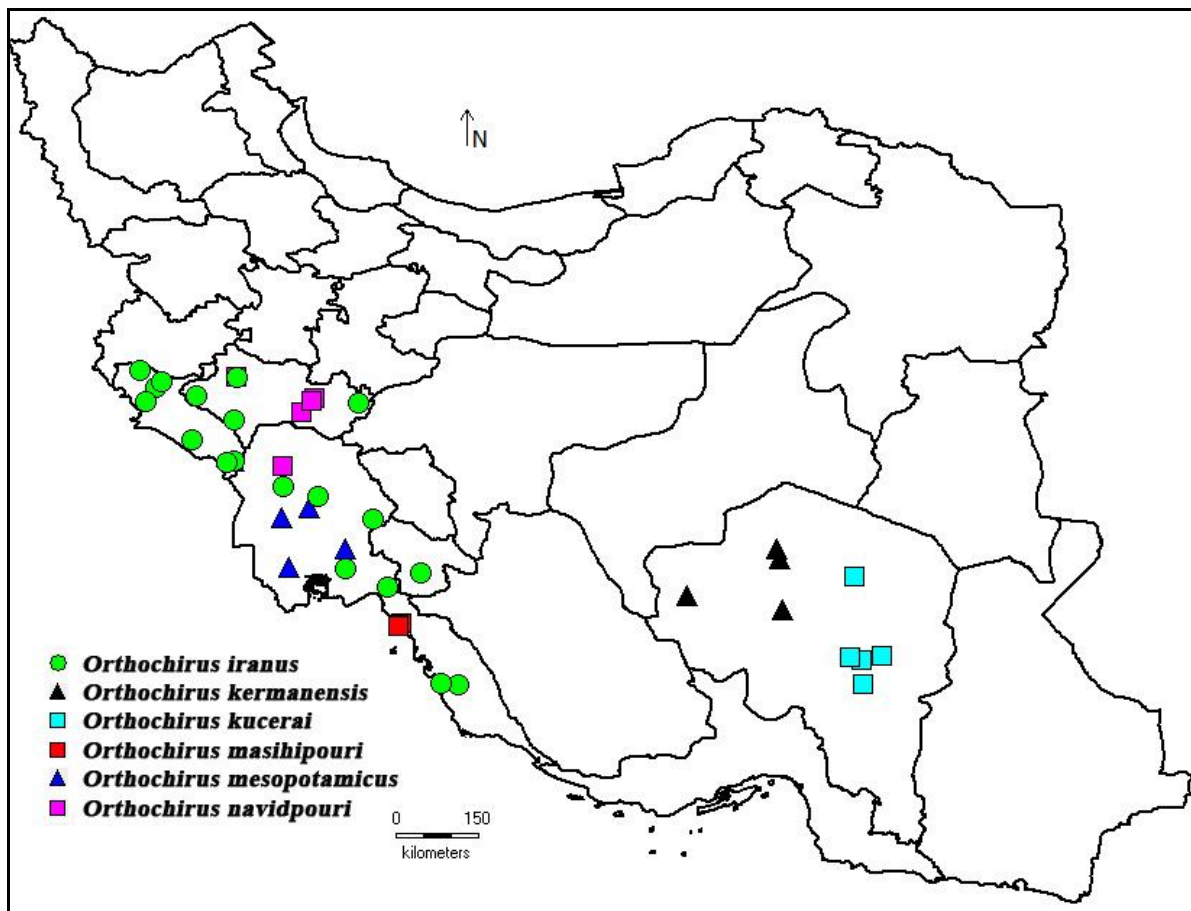


Figure 23. Distributin records of *Orthochirus* Karsch, 1891 species in Iran.

Distribution in Iran: Not exactly defined (Vachon, 1966:213; Farzanpay, 1987:159; Farzanpay, 1990:8; Fet, 1988:116; Fet, 1994:529), Chaharmahal and Bakhtiari (Akbari et al., 2001:26), Esfahan (Habibi, 1971:44; Dehghani et al., 1998:126; Ahmadimarzale et al., 2017:339), Fars (Farzanpay & Pretzmann, 1974:216; Akbari et al., 1997:112), Golestan (Kovařík & Fet, 2006a:8), Hormozgan (Shahi et al., 2008:211), Ilam (Akbari et al., 1997:112), Kerman (Birula, 1900:374; Habibi, 1971:44; Farzanpay & Pretzmann, 1974:216; Akbari et al., 1997:112; Dehghani et al., 2008:176), Khuzestan (Birula, 1905:145; Habibi, 1971:44; Akbari et al., 1997:112; Pooladgar, 1999:176; Dehghani et al., 2009:274), Kohgiluyeh and Boyer Ahmad (Akbari et al., 2001:26; Azizi et al., 2001:8), Lorestan (Nazari & Rastegar, 2016:7), Razavi Khorasan (Pocock, 1889b:118; Kovařík, 2004:20; Vatani & Khoobdel, 2009:9), Sistan and Baluchistan (Birula, 1900:374–375; Birula, 1903:75; Habibi, 1971:44; Mir et al., 2014:19; Nejati et al., 2014:219) and South Khorasan (Birula, 1903:74; Moghaddam et al., 2016:112) provinces.

Distribution outside Iran: Afghanistan (Pocock, 1889b:118; Pocock, 1900:29; Kovařík, 1993:202; Fet, 1994:529; Kovařík, 2004:20), China (Zhi-Yong et al., 2014:8), Egypt (Kraepelin, 1899:36; El-Hennawy, 1992:99; Kaltsas et al., 2008:221; Badry et al., 2017:6), India (Tikader & Bastawade, 1983:134; Fet, 1994:529; Fet & Lowe, 2000:198), Iraq (Penther, 1912:114; Khalaf, 1962:2; Khalaf, 1963:64; Vachon, 1966:213; El-Hennawy, 1992:102; Fet, 1994:529; Fet & Lowe, 2000:199; Al-Azawi, 2016:51), Israel (Levy & Amitai, 1980:94; Fet, 1994:529), Jordan (Amr & El-Oran, 1994:187; Fet, 1994:529; Amr & Baker, 2004:239), Kazakhstan, Tajikistan (Fet, 1988:117,118; Fet, 1994:529; Fet & Lowe, 2000:198), Libya (Kaltsas et al., 2008:221), Pakistan (Kraepelin, 1899:36; Fet, 1994:529), Palestine (Kraepelin, 1899:36; Qumsiyeh et al., 2013:71),

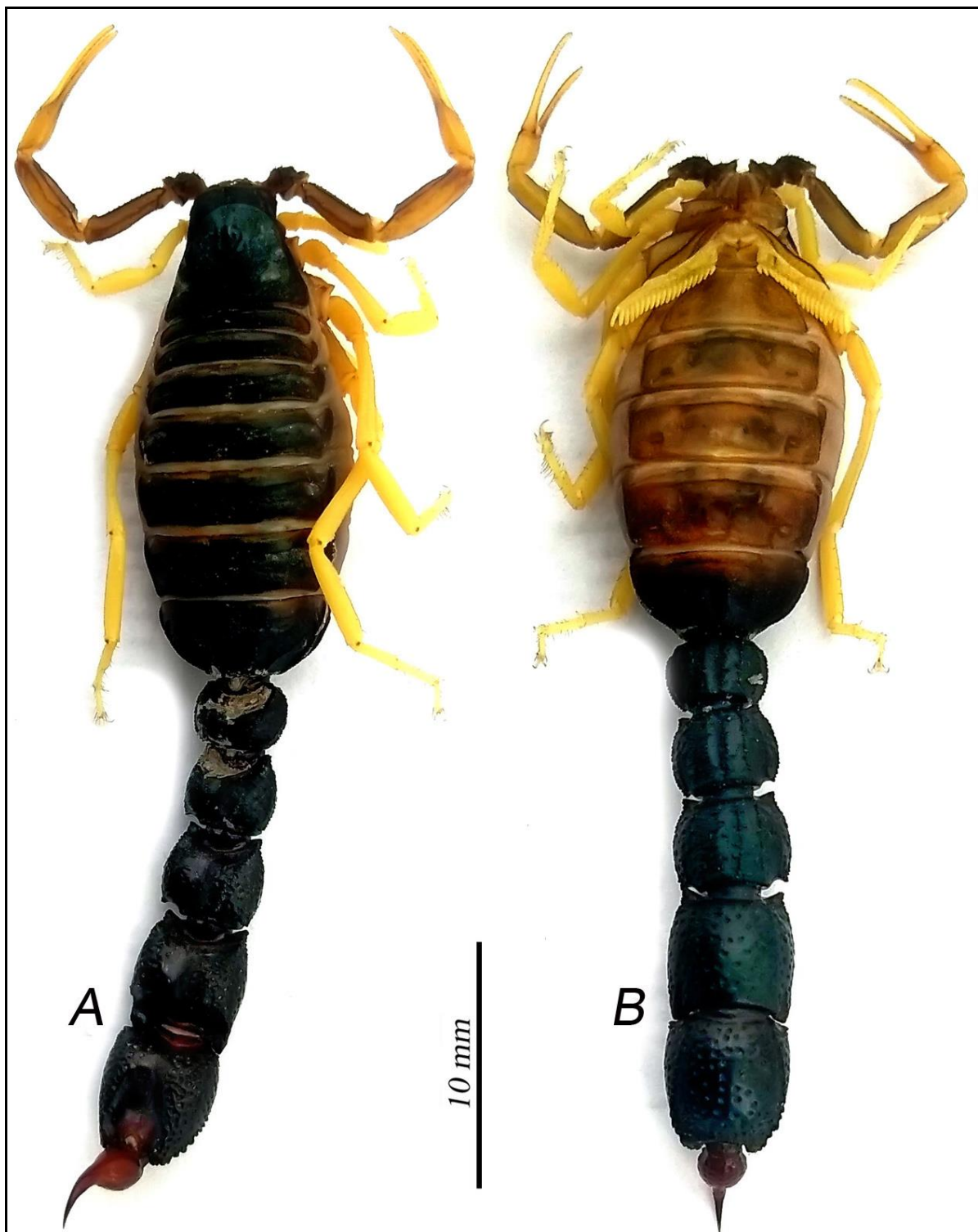


Figure 24. Habitus of female *Orthochirus scrobiculosus* (Grube, 1873): **A.** dorsal view, **B.** ventral view.

Russia (Fet, 1988:117), **Saudi Arabia** (Kraepelin, 1899:36; Vachon, 1966:213; Fet & Lowe, 2000:199; Al-Asmari et al., 2013:5), **Turkmenistan** (Simon, 1889:386; Fet, 1988:117,118; Fet,

1994:529; Fet & Lowe, 2000:198; Kovařík, 2004:20) and **Uzbekistan** (Fet, 1988:117,118; Fet, 1994:529; Fet & Lowe, 2000:198; Kovařík, 2004:20).

Comment: Based on wide distribution of *O. scrobiculosus*, this species needs more investigation.

Orthochirus semnanensis* Kovařík & Navidpour, 2020

Type locality and repository: Iran, Semnan province, Garmsar; FKCP.

Distribution in Iran: Semnan province (Kovařík & Navidpour, 2020:23) (Fig. 27).

Distribution outside Iran: Endemic to Iran.

Orthochirus stockwelli* (Lourenco & Vachon, 1995)

Type locality and repository: Iran, Hormozgan province, Bandar Abbas; MNHN.

Material examined: Hormozgan province, 1♀: Bandar Abbas, Geno mountain, 27°23' N, 56°09' E, 1107 m a.s.l., 17.II.2018; 1♂, 2♀♀: Qeshm, Dafari village, 26°55' N, 56°12' E, 3 m a.s.l., 09.IV.2018 (Fig. 25); 1♀: Bandar-e Moallem, 26°40' N, 55°04' E, -3 m b.s.l., 10.IV.2018, H. Barahoei leg.; ZMFUM.

Distribution in Iran: Bushehr (Navidpour et al., 2008b:17) and Hormozgan (Lourenço & Vachon, 1995:299; Navidpour et al., 2013:15) provinces (Fig. 27).

Distribution outside Iran: Endemic to Iran.

Orthochirus varius* Kovařík, 2004

Type locality and repository: Iran, Hormozgan province, Beshagerd Mountains, Davari village; FKCP.

Distribution in Iran: Hormozgan province (Kovařík, 2004:21; Navidpour et al., 2013:16) (Fig. 27).

Distribution outside Iran: Endemic to Iran.

Orthochirus vignolii* Kovařík & Navidpour, 2020

Type locality and repository: Iran, Yazd province, Kosk Abad village; FKCP.

Material examined: Yazd province, 1♀: Mehriz, Posht-e Kouh village, 31°31' N, 54°24' E, 1559 m a.s.l., 28.III.2017, H. Fattahi leg. (Fig. 26); ZMFUM.

Distribution in Iran: Yazd province (Kovařík, 2004:22; Kovařík & Navidpour, 2020:27) (Fig. 27).

Distribution outside Iran: Endemic to Iran.

Orthochirus zagrosensis* Kovařík, 2004

Type locality and repository: Iran, Fars province, Dasht-e Arzhan; FKCP.

Distribution in Iran: Chaharmahal and Bakhtiari (Jazayeri-Jounghani, 2009:32; Pirali-Kheirabadi et al., 2009:10; Pirali-Kheirabadi et al., 2013:46), Esfahan (Kovařík, 2004:22), Fars (Kovařík, 2004:22; Kovařík & Fet, 2006a:8; Navidpour et al., 2012:17), Kerman (Kovařík & Fet, 2006a:8; Navidpour et al., 2011:17; Nazari & Hajizadeh, 2017:179), Khuzestan (Kovařík et al., 2019a:26) and Kohgiluyeh and Boyer Ahmad (Kovařík, 1997a:47; Kovařík, 2004:22; Navidpour et al., 2008d:7) provinces (Fig. 27).

Distribution outside Iran: Endemic to Iran.

Comment 1: The original description of *O. zagrosensis* (Kovářík, 2004:22) gave the type locality as Khuzestan province, while Dasht-e Arzhan is in the Fars province (Navidpour et al., 2008a:20).

Comment 2: Many species in the genus *Orthochirus* appear outwardly similar, and the diagnoses of 'cryptic' species were based on relatively few traditional morphological and morphometric characters, without detailed analysis of variation or a study of genetics. The status of many species (such as *O. carinatus*, *O. gantenbeini*, *O. hormozganensis*, *O. iran*, *O. kermanensis*, *O. kucera*, *O. masihipouri*, *O. navidpour*, *O. semnanensis*, *O. vignolii* and *O. zagrosensis*) therefore needs more rigorous testing by additional sampling, molecular studies and overall detailed investigation.



Figure 25. Habitus of male *Orthochirus stockwelli* (Lourenco & Vachon, 1995): **A.** dorsal view, **B.** ventral view.

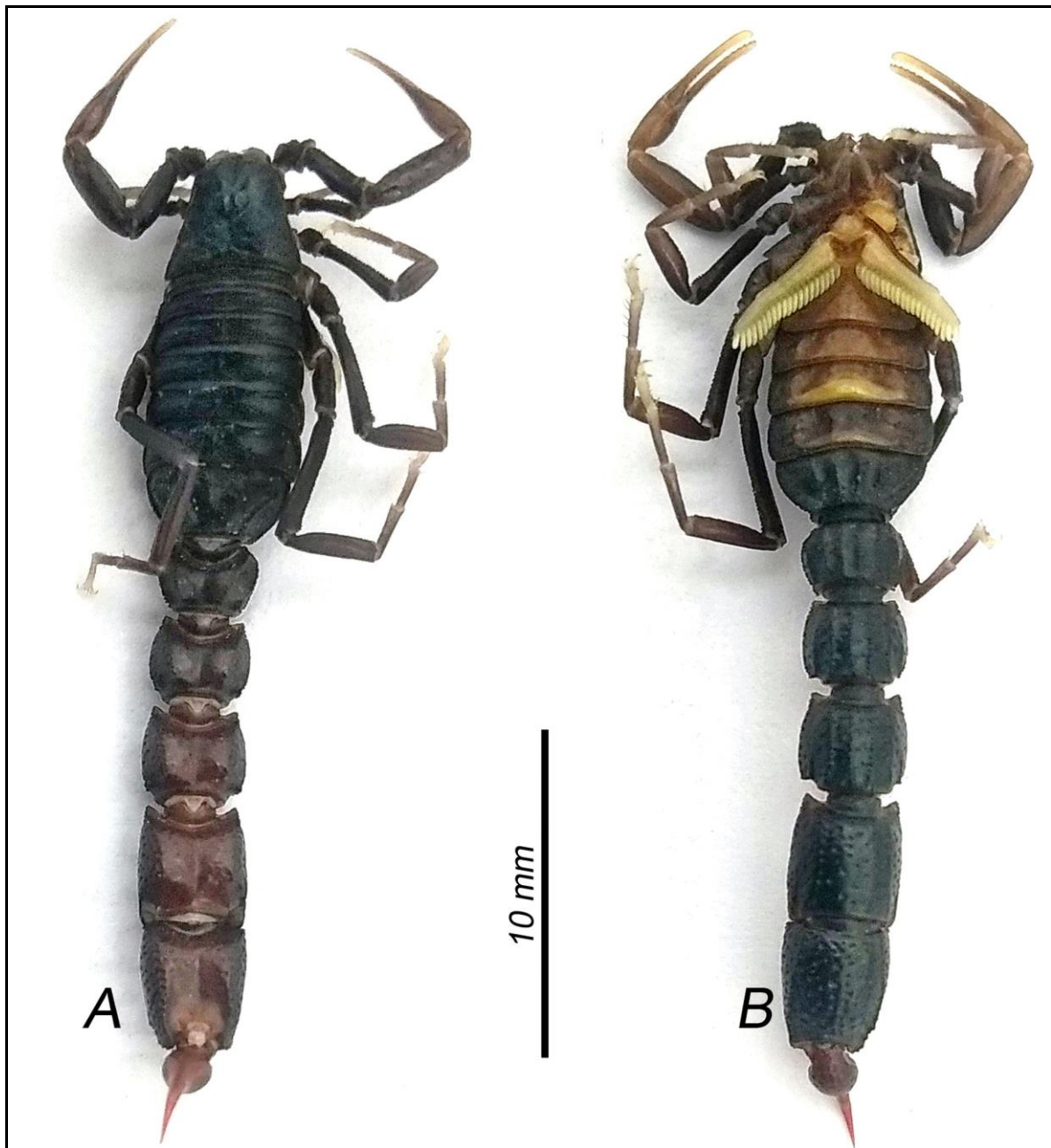


Figure 26. Habitus of male *Orthochirus vignolii* Kovařík & Navidpour, 2020: **A.** dorsal view, **B.** ventral view.

Genus *Polisius* Fet et al., 2001

Polisius persicus Fet et al., 2001*

Type locality and repository: Iran, Sistan and Baluchistan province, 85 km north of Zahedan; USNM.

Distribution in Iran: Esfahan (Vignoli et al., 2003:5), Ilam (Navidpour et al., 2008c:13; Sharifinia et al., 2017:245), Kerman (Navidpour et al., 2011:17) and Sistan and Baluchistan (Fet et al., 2001:187) provinces (Fig. 30).

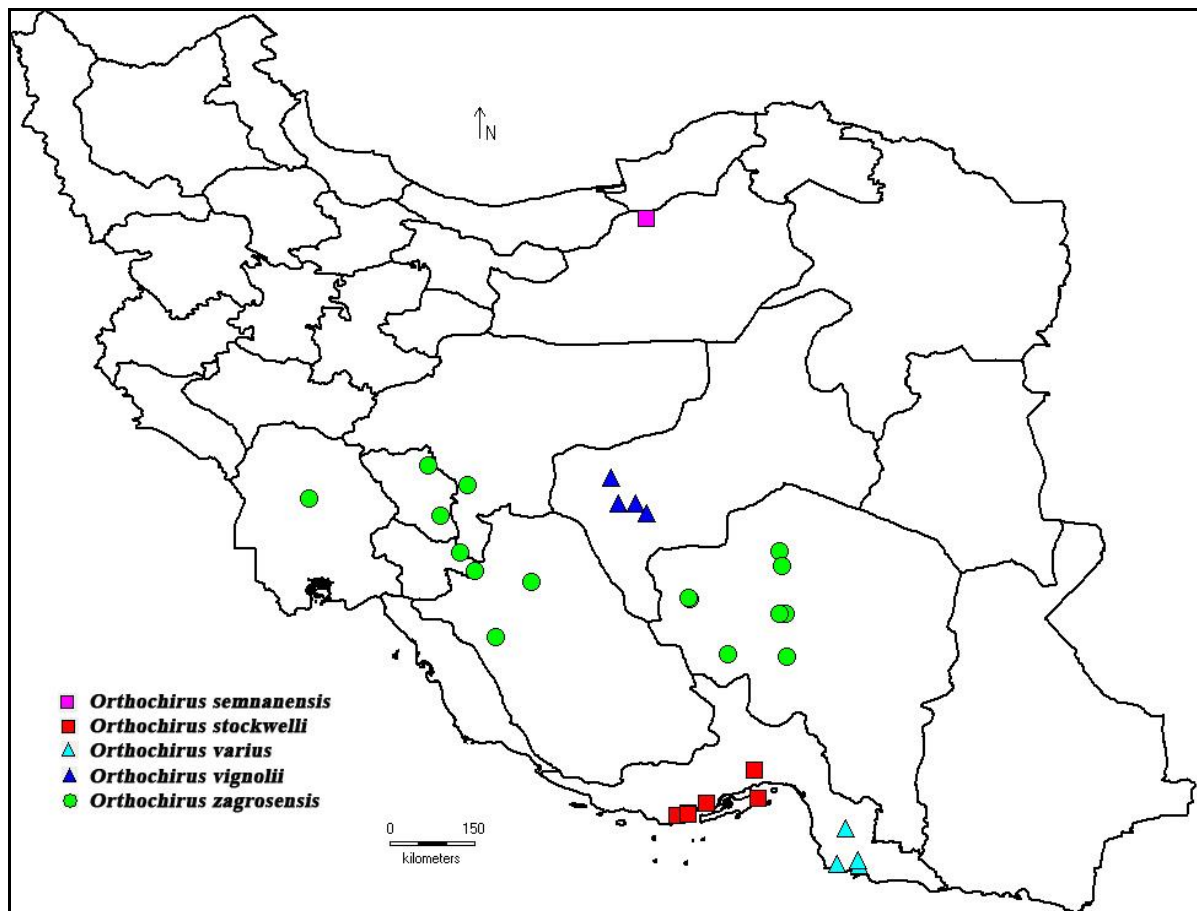


Figure 27. Distributin records of *Orthochirus* Karsch, 1891 species in Iran.

Distribution outside Iran: Endemic to Iran.

Comment: Report of *P. persicus* from Ilam province is questionable. It may represent either an undescribed species, or the result of misidentification.

Genus *Razianus* Farzanpay, 1987

Razianus zarudnyi Farzanpay, 1987 (Fig. 28)

Type locality and repository: Persia (now Iran), Kalagan province (now Sistan and Baluchistan province) between Kala-Eybi and Mushkutuk in Kugak district; ZISP.

Distribution in Iran: Not exactly defined (Vachon, 1966:211; Habibi, 1971:26,43; Farzanpay, 1990:8), **Bushehr** (Navidpour et al., 2008b:18), **Chaharmahal and Bakhtiari** (Pirali-Kheirabadi et al., 2009:10; Pirali-Kheirabadi et al., 2013:49), **Fars** (Fet, 1997:67; Akbari et al., 1997:112; Navidpour et al., 2012:17; Nazari et al., 2018:306), **Hamadan** (Nazari et al., 2015:257), **Hormozgan** (Farzanpay, 1987:160; Navidpour et al., 2013:16), **Ilam** (Navidpour et al., 2008c:14; Gohari, 2011:65; Tahir et al., 2014:19; Sharifinia et al., 2017:245), **Khuzestan** (Birula, 1905:144; Farzanpay, 1987:160; Lourenço, 1996:94; Fet, 1997:67; Akbari et al., 1997:112; Pooladgar, 1999:176; Navidpour et al., 2008a:21; Karataş et al., 2012:117; Tahir et al., 2014:19), **Kohgiluyeh and Boyer Ahmad** (Akbari et al., 2001:26; Navidpour et al., 2008d:11), **Lorestan** (Navidpour et al., 2010:16) and **Sistan and Baluchistan** (Birula, 1903:75; Fet, 1997:67) provinces (Fig. 30).

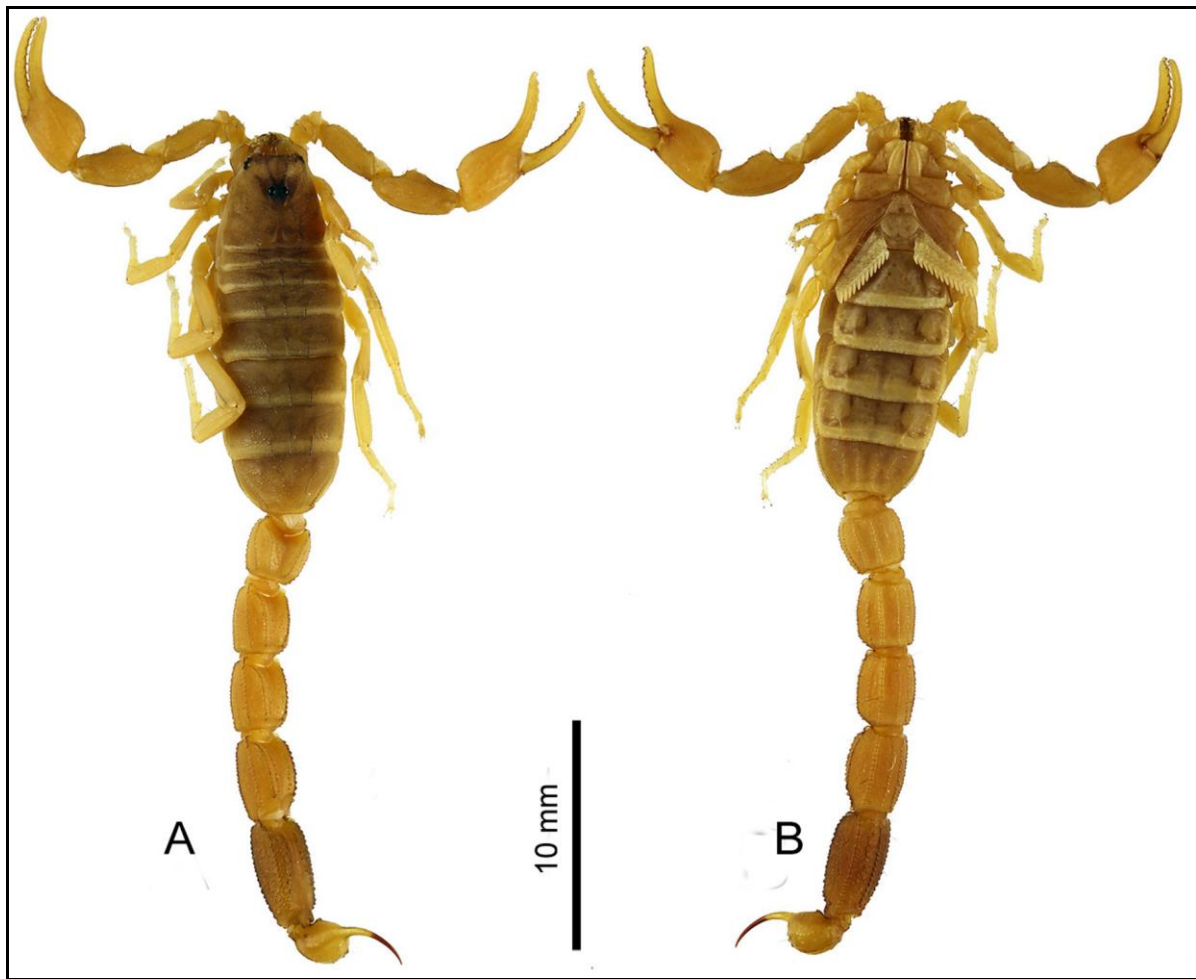


Figure 28. Habitus of female *Razianus zarudnyi* Farzanpay, 1987: **A.** dorsal view, **B.** ventral view.

Distribution outside Iran: Iraq (Tahir et al., 2014:19).

Comment: Based on wide distribution of *R. zarudnyi* in southern part of Iran with different climate, this genus can have more than one species in Iran.

Genus *Sassanidotus* Farzanpay, 1987

***Sassanidothus gracilis* (Birula, 1900)**

Type locality and repository: Eastern Persia (now Iran), Sistan (now Sistan and Baluchistan province), Nasirabad (now Zabol); ZISP.

Material examined: **Sistan and Baluchistan** province, 1♀: Zabol, Dowlat Abad, Peer-e Sabz village, 30°51' N, 61°20' E, 477 m a.s.l., 10.V.2018; 4♂♂, 3♀♀: Loutak, Rahmat Abad village, 30°45' N, 61°21' E, 481 m a.s.l., 01.IX.2017 (Fig. 29); 1♀: 03.VI.2018; 1♀: Iranshahr, Chahshour village, 27°09' N, 60°10' E, 477 m a.s.l., 02.VI.2017; 1♀: Ahmad Abad village, 27°09' N, 60°10' E, 477 m a.s.l., 03.IV.2018, H. Barahoei leg.; ZMFUM; **Hormozgan** province, 2♂♂: Bandar Abbas, Kalmatali village, 27°07' N, 55°47' E, 11 m a.s.l., 20.XI.2017; 1♂: Bandar-e Pol, 27°01' N, 55°44' E, 2 m a.s.l., 07.IV.2018; 3♂♂, 4♀♀: Qeshm, Kharbas Cave, 26°54' N, 56°10' E, -10 m b.s.l., 08.IV.2018, H. Barahoei leg.; ZMFUM.

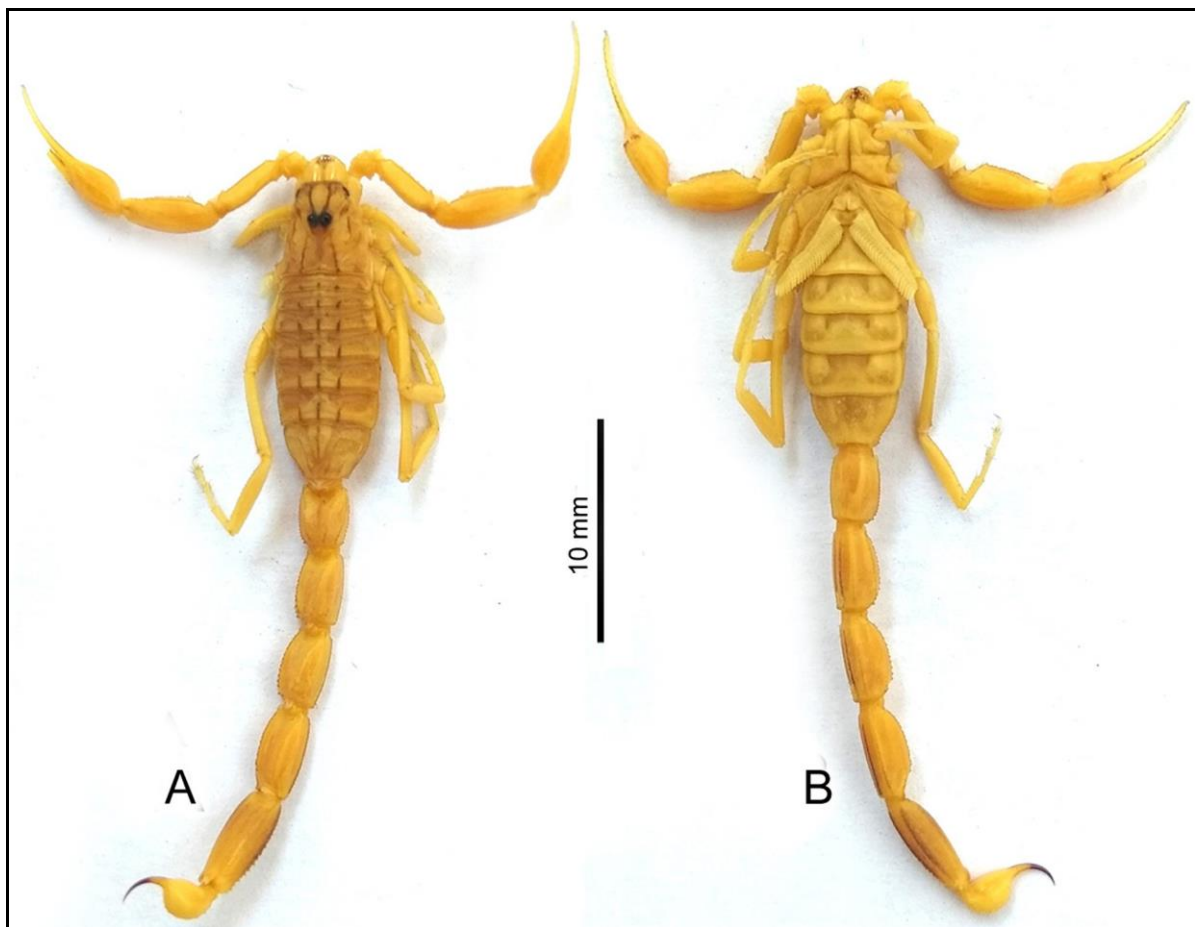


Figure 29. Habitus of male *Sassanidothus gracilis* (Birula, 1900): **A.** dorsal view, **B.** ventral view.

Distribution in Iran: Not exactly defined (Vachon, 1966:211,213; Farzanpay, 1990:6), Hormozgan (Navidpour et al., 2013:17), Kerman (Habibi, 1971:27; Navidpour et al., 2011:19) and Sistan and Baluchistan (Birula, 1900:368; Birula, 1903:70–71; Habibi, 1971:27,31,44; Kovařík, 2003:94,103; Kovařík & Fet, 2006b:6) provinces (Fig. 30).

Distribution outside Iran: Afghanistan (Vachon, 1958b:141; Fet & Lowe, 2000:223) and Pakistan (Fet & Lowe, 2000:223; Kovařík & Fet, 2006b:6).

Comments: Description of *C. kafkai* (Kovařík, 2003:94) and *C. sobotniki* (Kovařík, 2003:103) are doubtful and they are synonyms of *S. gracilis*. Report of this species from Tehran (Habibi, 1971:44) province is incorrect.

Sassanidothus zarudnyi* (Birula, 1900)

Type locality and repository: Eastern Persia (now Iran), Sistan (now Sistan and Baluchistan province), Nasirabad (now Zabol); ZISP.

Material examined: Sistan and Baluchistan province, 2♀♀: Zabol, Dowlat Abad, Peer-e Sabz village, 30°51' N, 61°20' E, 477 m a.s.l., 24.IV.2017; 2♀♀: Loutak, Rahmat Abad village, 30°45' N, 61°21' E, 481 m a.s.l., 23.II.2017; 1♀: Ramshar, 30°45' N, 61°21' E, 481 m a.s.l., 17.V.2017, H. Barahoei leg.; ZMFUM.

Distribution in Iran: Not exactly defined (Vachon, 1966:213; Farzanpay, 1990:7,8), **Fars** (Kassiri et al., 2015:100), **Esfahan** (Ahmadimarzale et al., 2017:339), **Hormozgan** (Akbari et al., 1997:112), **Khuzestan** (Pooladgar & Hakim, 1998:132; Pooladgar, 1999:176) and **Sistan and Baluchistan** (Birula, 1903:70; Farzanpay, 1987:162; Kovařík & Fet, 2006b:4) provinces (Fig. 30).

Distribution outside Iran: Endemic to Iran.

Genus *Vachoniolus* Levy et al., 1973

Vachoniolus iranus Navidpour et al., 2008*

Type locality and repository: Iran, Khuzestan province, near Masdjed soleyman; RRLS.

Distribution in Iran: **Ilam** (Navidpour, 2008b:2; Navidpour et al., 2008c:14) and **Khuzestan** (Navidpour, 2008b:2; Navidpour et al., 2008a:22) provinces (Fig. 30).

Distribution outside Iran: Endemic to Iran.

II. Family Diplocentridae Karsch, 1880

Genus *Nebo* Simon, 1878

Nebo henjamicus Francke, 1980*

Type locality and repository: Iran, Henjam Island in the Persian Gulf; BMNH.

Distribution in Iran: **Hormozgan** province (Francke, 1980:46) (Fig. 30).

Distribution outside Iran: Endemic to Iran.

Comment: One adult and two juvenile specimens belonging genus *Nebo* were collected by Dehghani et al. (2008:176) from Kerman and recorded as *Nebo* sp.

III. Family Hemiscorpiidae Pocock, 1893

Genus *Hemiscorpius* Peters, 1861

Hemiscorpius acanthocercus Monod & Lourenço, 2005*

Type locality and repository: Iran, Hormozgan province, Abad-Geno, 38 km north of Bandar Abbas; NHMW.

Distribution in Iran: **Hormozgan** (Monod & Lourenço, 2005:874; Navidpour et al., 2013:17), **Kerman** (Salari & Sampour, 2017:104) and **Khuzestan** (Karataş et al., 2012:118) provinces (Fig. 33).

Distribution outside Iran: Endemic to Iran.

Comments: Report of *H. acanthocercus* from Zanjan province (Moradi et al., 2014:8) is incorrect. Report this species from Khuzestan province (Karataş et al., 2012:118) seem be result of misidentification.

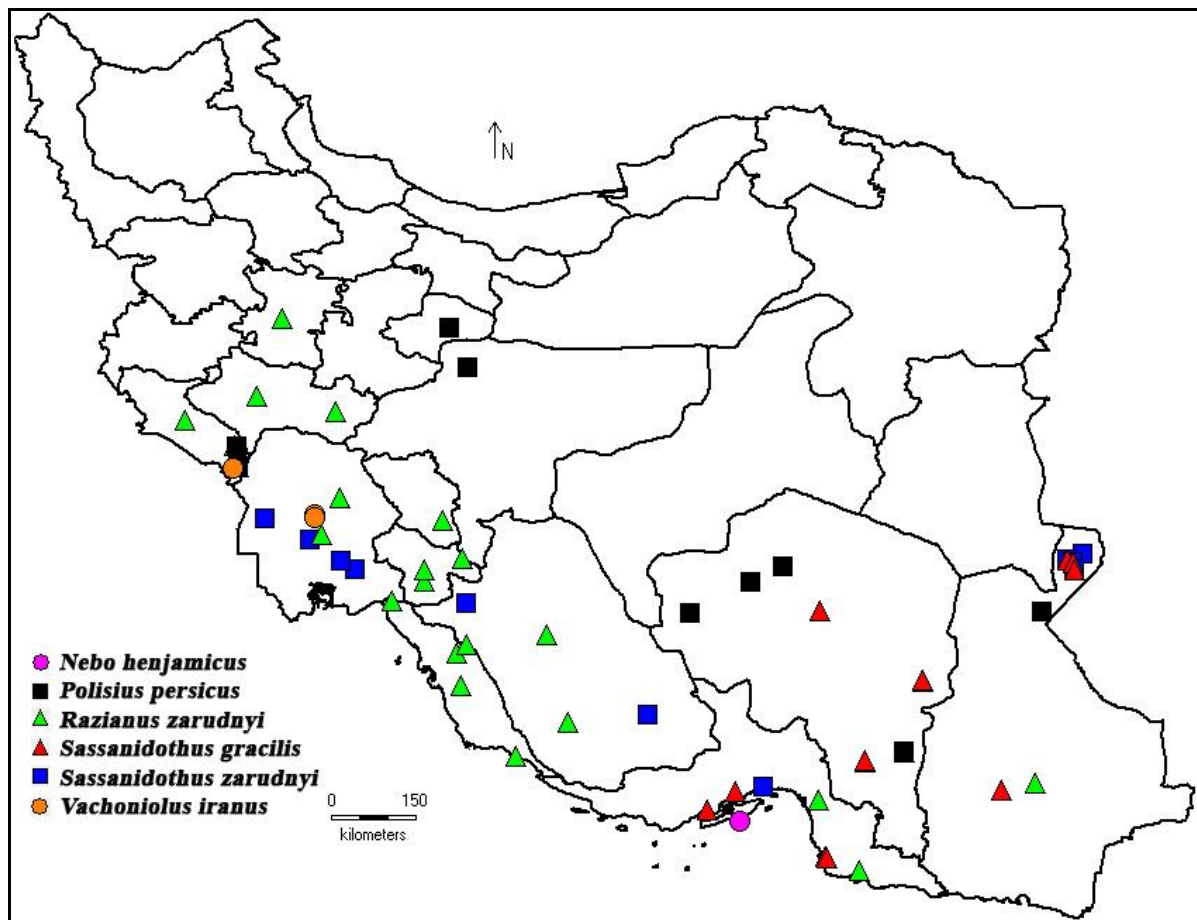


Figure 30. Distributin records of *Nebo henjamicus* Francke, 1980, *Polisius persicus* Fet et al., 2001, *Razianus zarudnyi* Farzanpay, 1987, *Sassanidothus gracilis* (Birula, 1900), *S. zarudnyi* (Birula, 1900) and *Vachoniolus iranensis* Navidpour et al., 2008 in Iran.

Hemiscorpius enischnochela Monod & Lourenço, 2005*

Type locality and repository: Iran, Hormozgan province, ca. 115 km east of Bandar Abbas; NHMW.

Distribution in Iran: Hormozgan (Monod & Lourenço, 2005:886; Navidpour et al., 2013:17), Kerman (Salari & Sampour, 2017:103) and Khuzestan (Monod & Lourenço, 2005:886) provinces (Fig. 33).

Distribution outside Iran: Endemic to Iran.

Hemiscorpius gaillardi (Vachon, 1974)*

Type locality and repository: Iran, Sistan and Baluchistan province, Chabahar, MNHN.

Material examined: Hormazgan province, 1♀: Bandar Abbas, Khargo village, 27°33' N, 56°26' E, 238 m a.s.l., 09.II.2018, H. Barahoei leg. (Fig. 31); ZMFUM.

Distribution in Iran: Not exactly defined (Farzanpay, 1990:9; Monod & Lourenço, 2005:896), Fars (Navidpour et al., 2012:20), Hormazgan (this study) and Sistan and Baluchistan (Farzanpay, 1987:169) provinces (Fig. 33).

Distribution outside Iran: Endemic to Iran.

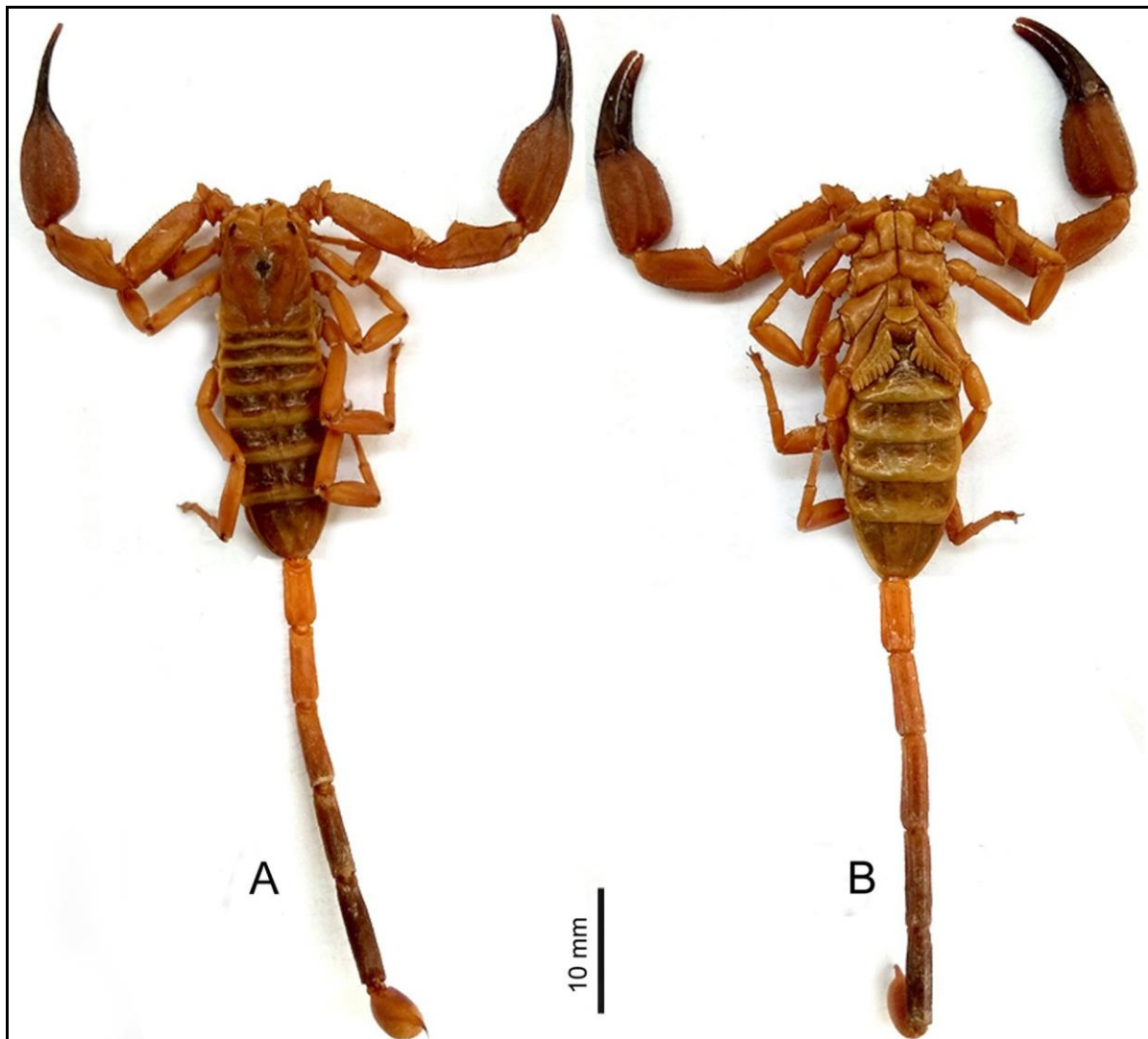


Figure 31. Habitus of female *Hemiscorpius gaillardi* (Vachon, 1974): **A.** dorsal view, **B.** ventral view.

Hemiscorpius kashkayi* Karataş & Moradi-Gharkheloo, 2013

Type locality and repository: Iran, Khuzestan province, Andimeshk, Garm village; ZDNU.

Distribution in Iran: Khuzestan province (Karataş & Moradi-Gharkheloo, 2013:16) (Fig. 33).

Distribution outside Iran: Endemic to Iran.

***Hemiscorpius lepturus* Peters, 1861**

Type locality and repository: Iraq, "Mendeli bei Baghdad" (Mendeli near Baghdad); ZMHB.

Distribution in Iran: Not exactly defined (Vachon, 1966:214; Farzanpay, 1990:10), Ardabil (Karataş et al., 2012:118), Bushehr (Habibi, 1971:44; Akbari et al., 1997:112; Navidpour et al., 2008b:20), Chaharmahal and Bakhtiari (Akbari et al., 2001:26; Pirali-Kheirabadi et al., 2009:13; Pirali-Kheirabadi et al., 2013:49), Fars (Habibi, 1971:44; Farzanpay & Pretzmann,

1974:217; Farzanpay, 1987:168; Akbari et al., 1997:112; Kovařík, 1997a:48; Monod & Lourenço, 2005:902; Navidpour et al., 2012:20; Kassiri et al., 2015:100; Nazari et al., 2018:306), **Gilan** (Monod & Lourenço, 2005:902), **Hamadan** (Kovařík, 1997a:48), **Hormozgan** (Farzanpay & Pretzmann, 1974:217; Farzanpay, 1987:168; Akbari et al., 1997:112; Shahi et al., 2008:211; Zarei et al., 2009:48; Fekri et al., 2012:137; Navidpour et al., 2013:18), **Ilam** (Akbari et al., 1997:112; Navidpour et al., 2008c:15; Gohari, 2011:68; Karataş et al., 2012:118; Mozaffari et al., 2013:5414; Sharifinia et al., 2017:245), **Kerman** (Dehghani et al., 2008:176; Navidpour et al., 2011:21; Salari & Sampour, 2017:103), **Kermanshah** (Akbari et al., 1997:112), **Khuzestan** (Birula, 1905:146; Habibi, 1971:44; Farzanpay, 1987:168; Akbari et al., 1997:112; Pooladgar, 1999:176; Kovařík, 2002:14; Monod & Lourenço, 2005:902; Navidpour et al., 2008a:26; Dehghani et al., 2009:274; Karataş et al., 2012:118; Nejati et al., 2018:7140), **Kohgiluyeh and Boyer Ahmad** (Kovařík, 1997a:48; Akbari et al., 2001:26; Azizi et al., 2001:8; Monod & Lourenço, 2005:902; Navidpour et al., 2008d:14) and **Lorestan** (Farzanpay, 1987:168; Kovařík, 1997a:48; Akbari et al., 1997:112; Navidpour et al., 2010:17; Taherian et al., 2014:48; Nazari & Rastegar, 2016:7) provinces (Fig. 33).

Distribution outside Iran: **Iraq** (Peters, 1861:426; Kraepelin, 1899:142; Khalaf, 1962:2; Khalaf, 1963:68; Vachon, 1966:214; El-Hennawy, 1992:102; Fet & Lowe, 2000:429; Monod & Lourenço, 2005:902), **Yemen** (Fet & Lowe, 2000:429; Monod & Lourenço, 2005:902) and **Saudi Arabia** (Al-Asmari et al., 2013:5).

Comment: The distribution of *H. lepturus* in Pakistan by Fet & Lowe (2000:429) not confirmed by Monod & Lourenço (2005:904). Report of this species from Zanjan province (Moradi et al., 2014:8) is incorrect. Reports from Ardabil and Gilan provinces need more investigations.

Hemiscorpius persicus (Birula, 1903)*

Type locality and repository: Persia (now Iran), Baluchistan, Prov. Ssarbas (now Sistan and Baluchistan province), subad; ZISP.

Material examined: **Sistan and Baluchistan** province, 1♀: Nikshahr, Chahan, Tabaktel village, 26°03' N, 59°46' E, 245 m a.s.l., 13.VI.2017, H. Houti leg. (Fig. 32); ZMFUM.

Distribution in Iran: Not exactly defined (Vachon, 1966:215; Habibi, 1971:29,44; Farzanpay, 1990:9), **Hormozgan** (Farzanpay & Pretzmann, 1974:217; Farzanpay, 1987:170; Akbari et al., 1997:112; Fekri et al., 2012:137) and **Sistan and Baluchistan** (Birula, 1903:77; Monod & Lourenço, 2005:913) provinces (Fig. 33).

Distribution outside Iran: Endemic to Iran.

Comment: Report of *H. persicus* from Zanjan province (Moradi et al., 2014:8) is incorrect.

Hemiscorpius shahii Kovařík et al., 2017*

Type locality and repository: Iran, Hormozgan province, Beshagard; FKCP.

Distribution in Iran: **Hormozgan** province (Kovařík et al., 2017:2) (Fig. 33).

Distribution outside Iran: Endemic to Iran.

Comments: Validity of species of genus *Hemiscorpius* is questionable and needs more sampling, molecular studies and great investigation.

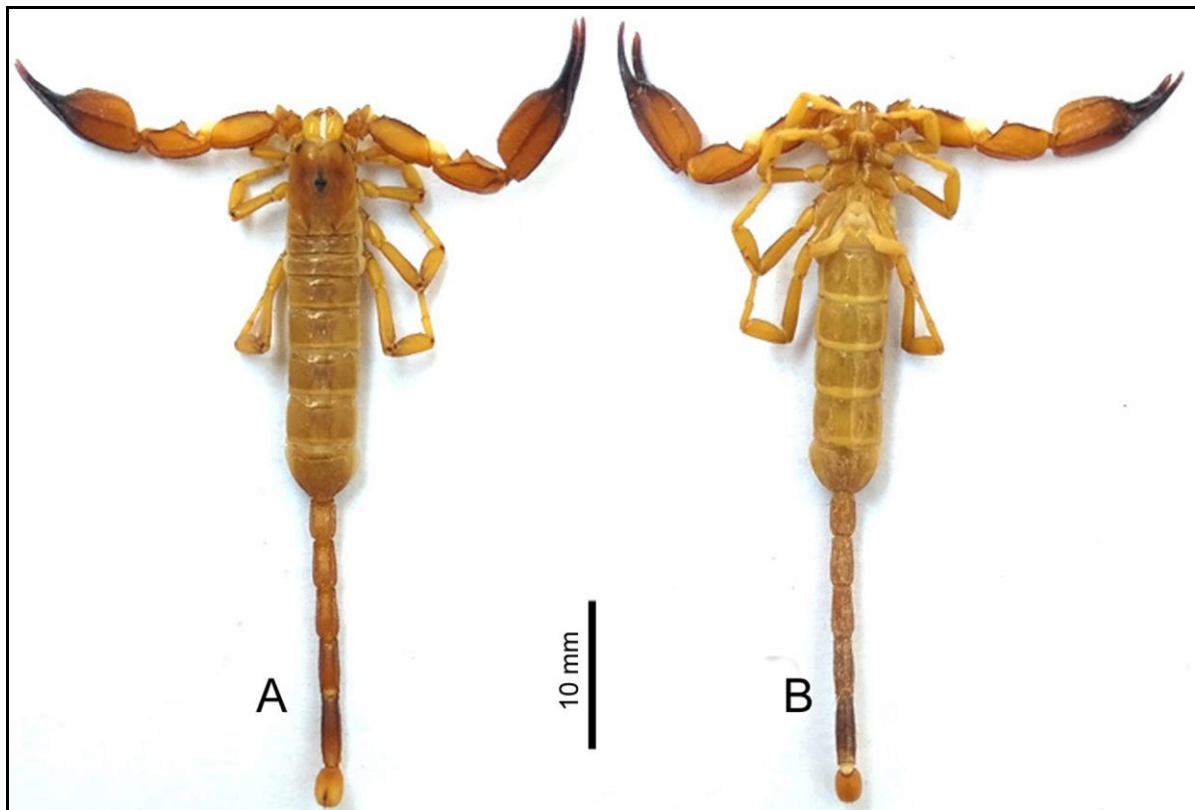


Figure 32. Habitus of female *Hemiscorpius persicus* (Birula, 1903): **A.** dorsal view, **B.** ventral view.

IV. Family Scorpionidae Latreille, 1802

Genus *Scorpio* Linnaeus, 1758

Scorpio kruglovi Ehrenberg, 1829

Type locality and repository: Iraq, Deir Al-Zour; ZISP.

Distribution in Iran: Alborz (Karataş et al., 2012:117; Navidpour et al., 2019:12), Hamadan, Kermanshah, Mazandaran, North Khorasan, Qazvin, Semnan, (Karataş et al., 2012:117), Kurdistan, Razavi Khorasan (Habibi, 1971:44), Markazi (Navidpour et al., 2019:13) and Tehran (Navidpour et al., 2019:18) provinces (Fig. 35).

Distribution outside Iran: Iraq (Khalaf, 1962:2; Vachon, 1966:215; El-Hennawy, 1992:103; Fet & Lowe, 2000:477; Mohammad et al., 2017:223), Kuwait, Qatar (El-Hennawy, 1992:103; Fet & Lowe, 2000:477), Jordan (El-Hennawy, 1992:103; Fet & Lowe, 2000:477; Talal et al., 2015:235; Amr et al., 2016:36), Syria (Birula, 1910:180; El-Hennawy, 1992:103; Fet & Lowe, 2000:477; Talal et al., 2015:235), Saudi Arabia (Fet & Lowe, 2000:477), Turkey (Talal et al., 2015:235).

Comments: Previous this species was subspecies of *Scorpio maurus* and elevated to species level by Talal et al. (2015:235). Vachon (1966:215) recorded *S. kruglovi* from Iraq and only listed *S. maurus townsendi* (Pocock, 1900) for Iran.

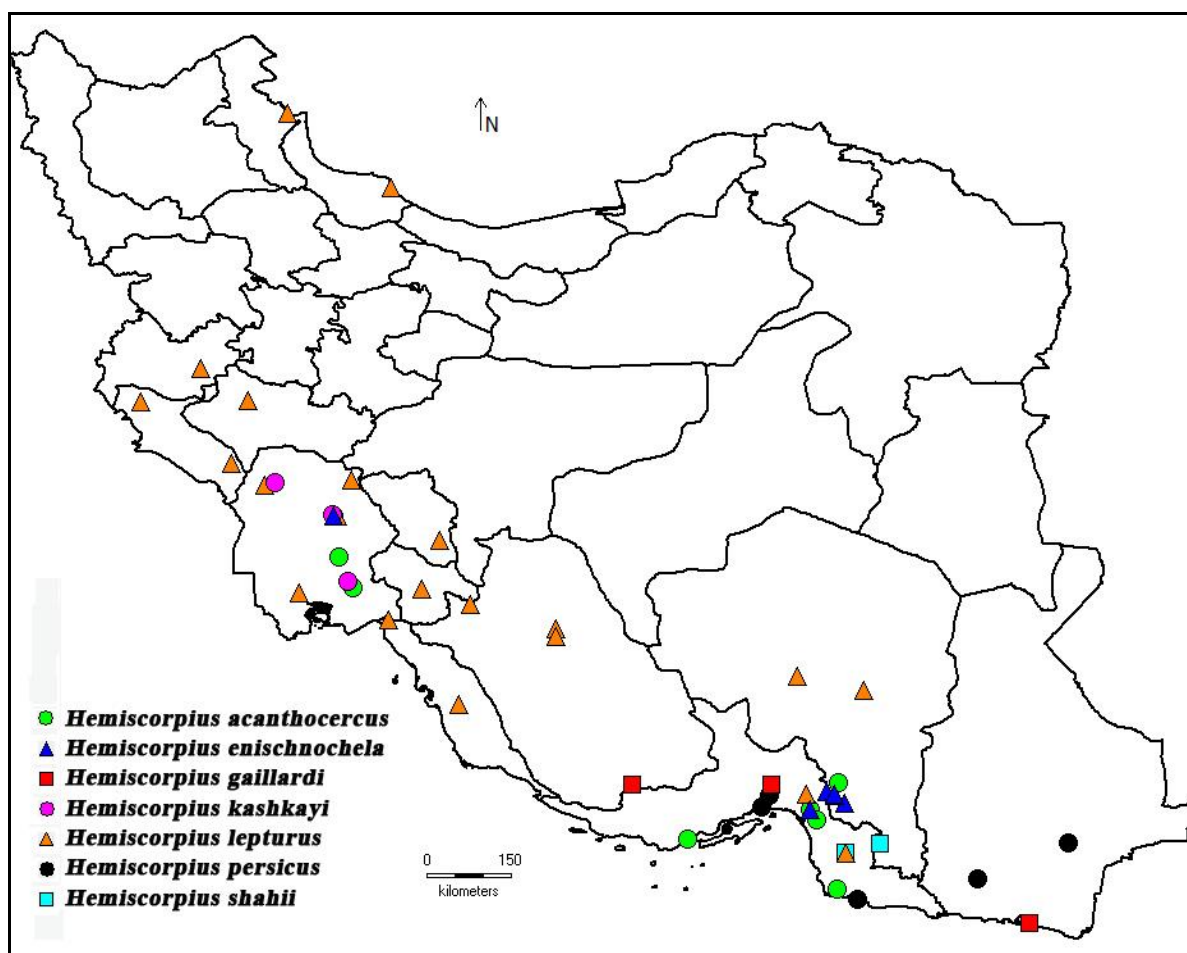


Figure 33. Distribution records of *Hemiscorpius* Peters, 1861 species in Iran.

Scorpio maurus townsendi (Pocock, 1900)*

Type locality and repository: Persia (now Iran), Bushir (now Bushehr province), Fort Reshire near Bushire, Persian Gulf; BMNH.

Material examined: **Chaharmahal and Bakhtiari** province, 1♂, 2♀♀: Gachsaran, Tileh Kouh, 30°28' N, 50°19' E, 357 m a.s.l., 25.IV.2018; 4♀♀: Kheir Abad village, 30°33' N, 50°21' E, 409 m a.s.l., 25.IV.2018; 2♂♂, 2♀♀: 30°23' N, 50°43' E, 750 m a.s.l., 25.IV.2018, H. Barahoei leg. (Fig. 34); **Fars** province, 2♂♂, 2♀♀: Mohr, 27°31' N, 52°54' E, 445 m a.s.l., 23.IV.2018; H. Barahoei leg.; **Hormozgan** province, 1♂, 3♀♀: Chahvaz, Lavar Khasht, 27°09' N, 53°26' E, 519 m a.s.l., 23.IV.2018, H. Barahoei leg.; **Khuzestan** province, 5♀♀: Sardasht, Talchegah Olya village, 30°17' N, 50°11' E, 219 m a.s.l., 25.IV.2018, H. Barahoei leg.; ZMFUM.

Distribution in Iran: Not exactly defined (Vachon, 1966:215; Farzanpay, 1990:10), **Alborz** (Farzanpay, 1987:165), **Ardabil** (Asslan faal et al., 2015:168; Mohammadi-Bavani et al., 2017:374), **Bushehr** (Farzanpay, 1987:165; Akbari et al., 1997:112; Navidpour et al., 2008b:20; Karatas et al., 2012:117), **Chaharmahal and Bakhtiari** (Pirali-Kheirabadi et al., 2009:11; Pirali-Kheirabadi et al., 2013:49), **Esfahan** (Farzanpay, 1987:165), **Fars** (Farzanpay, 1987:165; Akbari et al., 1997:112; Navidpour et al., 2012:22; Kassiri et al., 2015:100; Nazari et al., 2018:306), **Gilan** (Farzanpay, 1987:165), **Hormozgan** (Shahi et al., 2008:211), **Ilam** (Navidpour et al., 2008c:14; Gohari, 2011:66; Karatas et al., 2012:117; Mozaffari et al.,

2013:5413; Sharifinia et al., 2017:245), Kerman (Karataş et al., 2012:117), Kermanshah (Birula, 1905:147; Habibi, 1971:44), Khuzestan (Birula, 1905:147; Birula, 1910:184; Farzanpay, 1987:165; Akbari et al., 1997:112; Pooladgar, 1999:176; Kovařík, 2002:19; Navidpour et al., 2008a:26; Nejati et al., 2018:7140), Kohgiluyeh and Boyer Ahmad (Navidpour et al., 2008d:13), Kurdistan (Farzanpay, 1987:165), Lorestan (Navidpour et al., 2010:17; Nazari & Rastegar, 2016:7), Markazi (Habibi, 1971:44), Qazvin (Habibi, 1971:44; Farzanpay, 1987:165), Semnan (Farzanpay, 1987:165), Sistan and Baluchistan (Nejati et al., 2014:219), Tehran (Habibi, 1971:44), West Azerbaijan (Farzanpay, 1987:165; Mohammadi-Bavani et al., 2017:374; Moradi et al., 2018:3) and Zanzjan (Moradi et al., 2014:8; Moradi et al., 2015:13) provinces (Fig. 35).

Distribution outside Iran: Endemic to Iran.

Comments: Many subspecies of *Scorpio maurus* elevated to species level (Talat et al., 2015); too this subspecies can elevated to species level by more complementary studies. We need wide sampling and molecular studies to decide about this species.

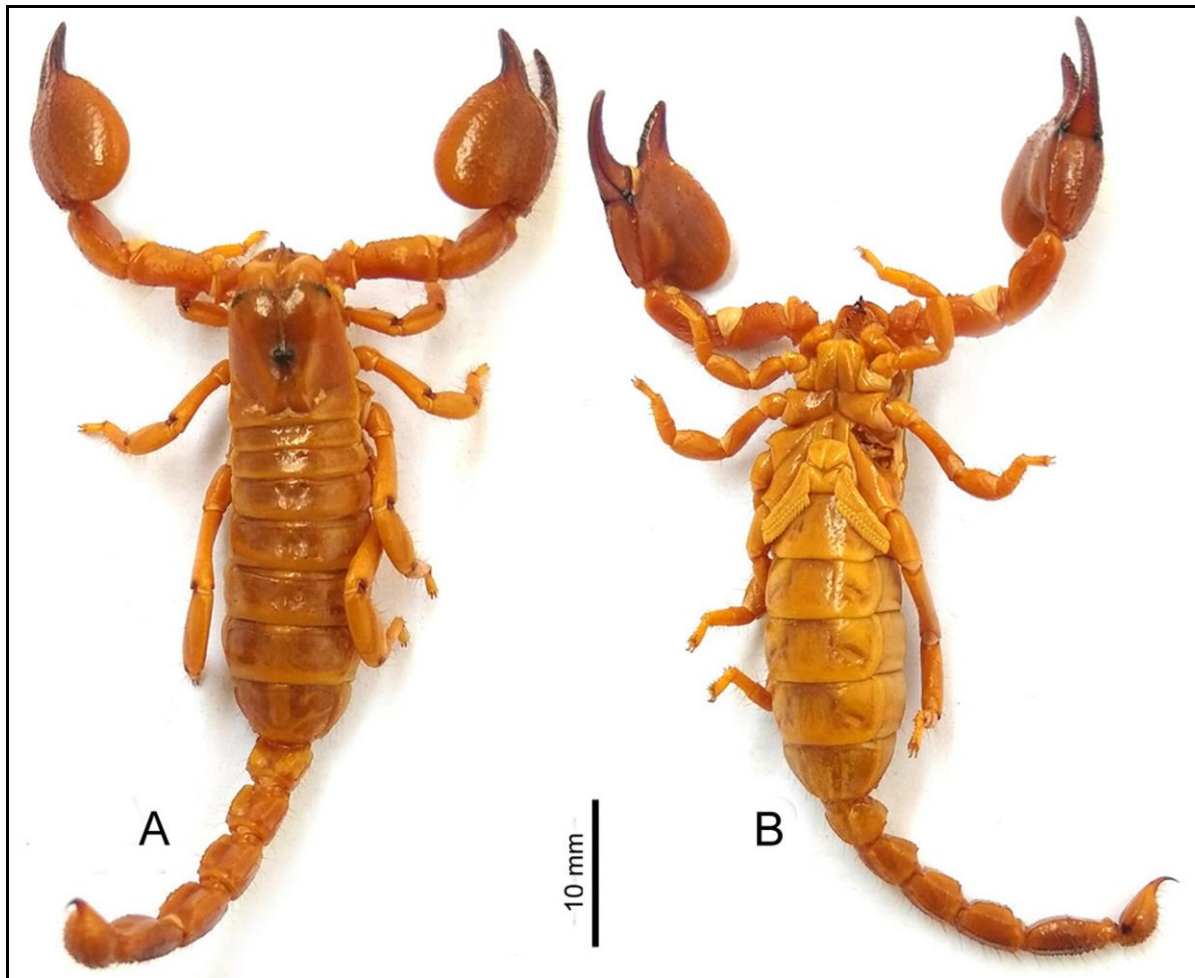


Figure 34. Habitus of female *Scorpio maurus townsendi* (Pocock, 1900): **A.** dorsal view, **B.** ventral view.

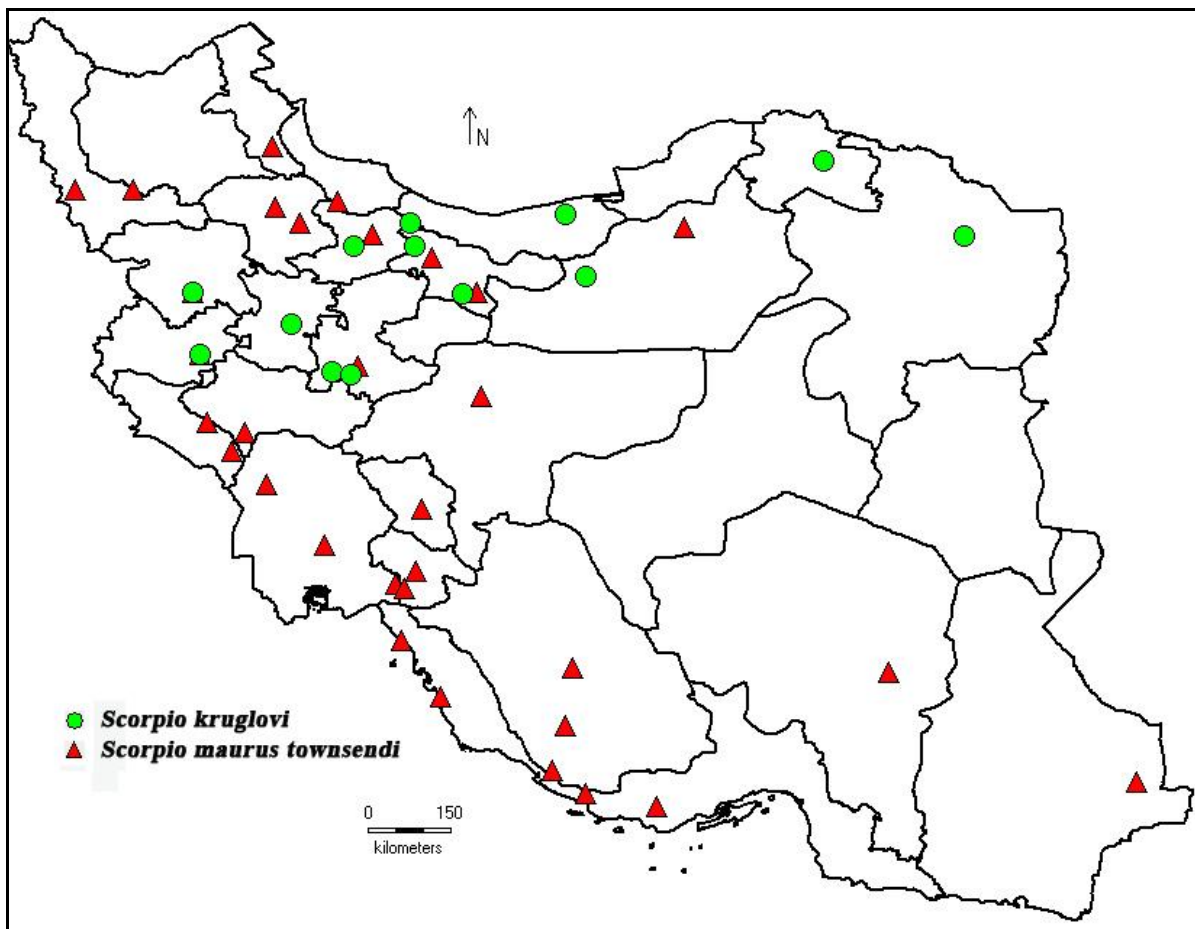


Figure 35. Distribution records of *Scorpio kruglovi* Ehrenberg, 1829 and *S. maurus townsendi* (Pocock, 1900) in Iran.

List of doubtful reports

It seems that report of six species is incorrect, including:

Androctonus robustus Kovařík & Ahmed, 2013

Type locality and repository: Pakistan, Sindh province, Jamshoro District, Tori Phatak village near Lakhra Khanot; FKCP.

Distribution in Iran: Sistan and Baluchistan province (Yağmur et al., 2016:1).

Distribution outside Iran: Pakistan (Kovařík & Ahmed, 2013:4).

Comments: This species distributed in southeast Pakistan. The sample of this species reported by Yağmur et al. (2016:1), seems to be *A. baluchicus*.

Androctonus finitimus (Pocock, 1897)

Type locality and repository: British India (now Pakistan), Sind province, Kotri; BMNH.

Distribution in Iran: Not exactly defined (Vachon, 1966:209; Habibi, 1971:25,42), Sistan and Baluchistan province (Birula, 1900:356; Mir et al., 2014:19).

Distribution outside Iran: **India** (Kraepelin, 1899:16; Tikader & Bastawade, 1983:247; Fet & Lowe, 2000:73) and **Pakistan** (Pocock, 1897:104; Pocock, 1900:16; Tikader & Bastawade, 1983:247; Fet & Lowe, 2000:73; Lourenço, 2005:151; Kovařík & Ahmed, 2013:1; Ahsan et al., 2018).

Comments: On the basis of its geographic distribution in India and southeast Pakistan, the presence of *Androctonus finitimus* in Iran is questionable. Records of this species in Iran should be considered as provisional.

Hottentotta alticola (Pocock, 1895)

Type locality and repository: Pakistan, Sarhad province, Chitrāl; BMNH.

Distribution in Iran: Not exactly defined (Farzanpay, 1987:147; Farzanpay, 1990:5), Kohgiluyeh and Boyer Ahmad (Azizi et al., 2001:8) province.

Distribution outside Iran: **Afghanistan** (Farzanpay, 1987:147; Fet, 1988:81; Kovařík, 1993:201; Kovařík, 2002:7; Fet & Lowe, 2000:135), **China** (Zhi-Yong et al., 2014:6), **India** (Farzanpay, 1987:147; Fet, 1988:81), **Pakistan** (Pocock, 1895:302; Kraepelin, 1899:21; Pocock, 1900:22; Fet, 1988:81; Fet & Lowe, 2000:135; Kovařík, 2007:10), **Tajikistan** (Fet, 1988:81) and **Uzbekistan** (Farzanpay, 1987:147).

Comment: This species distributed in adjacent countries at northeast and east of Iran, therefore report of this species from southwest of Iran (Kohgiluyeh and Boyer Ahmad province) is misidentification.

Hottentotta jayakari (Pocock, 1895)

Type locality and repository: Oman, Muscat province, Muscat; BMNH.

Distribution in Iran: Not exactly defined (Farzanpay, 1987:147; Farzanpay, 1990:5), **Fars** (Akbari et al., 1997:112), **Hormozgan** (Khaghani, 2001:113; Zargan et al., 2003:22; Khaghani et al., 2005:9; Shahi et al., 2008:211; Zarei et al., 2009:48) and **Sistan and Baluchistan** (Nejati et al., 2014:219) provinces.

Distribution outside Iran: **Oman** (Pocock, 1895:300; Kraepelin, 1899:19; El-Hennawy, 1992:101; Fet & Lowe, 2000:140; Kovařík, 2007:40), **Saudi Arabia** (Vachon, 1966:210; Farzanpay, 1987:147; El-Hennawy, 1992:101; Fet & Lowe, 2000:140; Hendrixson, 2006:79; Al-Asmari et al., 2013:5), **United Arab Emirates** (El-Hennawy, 1992:101; Fet & Lowe, 2000:140; Hendrixson, 2006:79) and **Yemen** (Al-Safadi, 1992:97; El-Hennawy, 1992:101; Fet & Lowe, 2000:140; Hendrixson, 2006:79).

Comments: This species distributed in southern Arabian countries. Report of this species from south of Iran can be misidentification. Records of this species from Iran could be considered as new species and need more investigation. It is also possible that it was transported to Iran in shipping materials traded between Iran and Oman.

Odontobuthus odonturus (Pocock, 1897)

Type locality and repository: Pakistan, Khelat Frontier, Upper Scinde.

Distribution in Iran: **Fars** (Nejati et al., 2014:219) and **Sistan and Baluchistan** (Nejati et al., 2014:219) provinces.

Distribution: **Pakistan** (Pocock, 1897:105; Fet & Lowe, 2000:188; Lourenço & Pézier, 2002:118), **India** (Fet & Lowe, 2000:188).

Comments: Recorded of *O. odonturus* by Birula (1900:357), Farzanpay (1987:156), Farzanpay (1990:7), Akbari et al. (1997:112) and Kovařík (1997a:47) are misidentification (Lourenço & Pézier, 2002:122; Navidpour et al., 2008a:13). Too, reports of Nejati et al. (2014:219) and Kassiri et al. (2015:101) are doubtful and seem be misidentification. Specimens of Sistan and Baluchistan province seem be *O. tigrari*. Samples of Fars province can be new species.

***Orthochirus glabrifrons* (Kraepelin, 1903)**

Type locality and repository: Oman, Muscat; ZMH.

Distribution in Iran: Hamadan province (Kovařík, 1997a:48).

Distribution outside Iran: Oman (El-Hennawy, 1992:129; Fet & Lowe, 2000:212).

Comment: This species described from Oman. Report of this species from center of Iran seem be doubtful and can be a new species.

Identification key for Scorpions occurring in Iran

1. Pedipalp patella with ventral trichobothria; sternum pentagonal.2
- Pedipalp patella without ventral trichobothria; sternum triangular (**Buthidae**).11
- 2(1). Femur of pedipalp with 9 trichobothria, 4 on dorsal part (**Diplocentridae**).
..... *Nebo henjamicus*
- Femur of pedipalp with 3–4 trichobothria, 1 on dorsal part.3
- 3(2). Lateroapical margins of leg tarsi straight; metasomal segments I–IV with two axial carinae in ventral part; movable finger of chelicer with one denticle (**Scorpionidae**). ...4
- Lateroapical margins of leg tarsi shaped into rounded lobes; metasomal segments I–IV with one axial carinae in ventral part; movable finger of chelicer with two denticles (**Hemiscorpiidae**).5
- 4(3). Base of pecten with denticle, mesosoma dark. *Scorpio kruglovi*
- Base of pecten without denticle, mesosoma light brown. *Scorpio maurus*
- 5(3). Pedipalp patella with 14–16 ventral trichobothria. *Hemiscorpius shahii*
- Pedipalp patella with 10–12 or 3 ventral trichobothria.6
- 6(5). Pedipalp patella with 10–12 ventral trichobothria.7
- Pedipalp patella with 3 ventral trichobothria.8
- 7(6). Pedipalp patella with 1 *est* trichobothry on the external face; patellar processes with interodorsal carinae bearing 3 strong spiniform granules. *Hemiscorpius enischnochela*
- Pedipalp patella with 2 *est* trichobothria on the external face; patellar processes with interodorsal carinae bearing 6 spiniform granules. *Hemiscorpius gaillardi*
- 8(6). Total length of adult less than 40 mm; metasoma and telson not greatly elongated; without strong sexual dimorphism.9
- Total length of adult more than 50 mm; metasoma and telson greatly elongated; with strong sexual dimorphism.10
- 9(8). Males without recess on the long pedipalp chela fingers; carapace nearly smooth with granules only below the median eyes; lateral surfaces of telson almost completely smooth with very small granules only scattered. ... *Hemiscorpius kashkayi*

- Males with recess on the long pedipalp chela fingers in males; carapace more granulose; lateral surfaces of telson more granular. *Hemiscorpius persicus*
- 10(8). Metasomal dorsal carinae with numerous strong spiniform granules; carapace lateral margins bearing small spiniform granules below the lateral eyes.
..... *Hemiscorpius acanthocercus*
- Metasomal dorsal carinae with sparse, much reduced and weaker spiniform granules, especially on the anterior segments; carapace lateral margins completely smooth..... *Hemiscorpius lepturus*
- 11(1). Movable finger of chelicer with a single ventral denticles.12
- Movable finger of chelicer with two ventral denticles.13
- 12(11). Carapace with carinae, mostly granulated; pedipalp tibia elliptical; total adult length 50 mm. *Liobuthus kessleri*
- Carapace smooth, without carinae; pedipalp tibia broad; total adult length 20–26 mm *Razianus zarudnyi*
- 13(11). Carapace in lateral view distinctly inclined downward from median eyes to anterior margin; total length less than 50 mm.14
- Carapace in lateral view with entire dorsal surface horizontal or nearly so (possibly with a slight anterior eeline); total length less or more than 50 mm.32
- 14(13). Color yellow only with metasomal segment V and telson black; metasoma with most carinae moderately developed; telson vesicle long oval and sparsely setose.
..... *Anomalobuthus talebii*
- Color usually entirely black; metasoma with pitted appearance due to small punctuations; telson reduced (*Orthochirus*).15
- 15(14). Rows of granules on movable fingers of pedipalp without external granules.
..... *Orthochirus scrobiculosus*
- Rows of granules on movable fingers of pedipalp with external granules.16
- 16(15). Metasoma V dorsal mesially densely granulated.17
- Metasoma V dorsal mesially smooth or with several fine granules only.18
- 17(16). Metasomal segments wide, ratio length/width of metasoma V is in males 1.06–1.11; ventral and lateral surfaces of metasoma IV–V are densely granulate.
..... *Orthochirus iran*
- Ratio length/width of metasoma V is in males 1.18–1.24; ventral and lateral surfaces of metasoma IV–V are sparsely granulate. *Orthochirus mesopotamicus*
- 18(16). Metasoma hirsute.19
- Entire metasoma glabrous (short, thin setae might issue from some punctae).....22
- 19(18). Metasoma densely hirsute; first parts of legs and pedipalp (manus and patella) yellow in females.20
- Metasoma sparsely hirsute; pedipalp and legs brown in females. . *Orthochirus gruberi*
- 20(19). Pedipalp patella with dorsal carinae granulated. *Orthochirus gantenbeini*
- Pedipalp patella with dorsal carinae smooth.21
- 21(20). Pedipalp femur dorsal granulated; sternite VII densely granulated.
..... *Orthochirus masihipouri*

- Pedipalp femur dorsal smooth; sternite VII rather sparsely granulated. *Orthochirus stockwelli*
- 22(18). Pedipalp movable finger dentition with 0-1 external denticles..... *Orthochirus semnanensis*
- Pedipalp movable finger dentition with 3-9 external denticles.23
- 23(22). Metasoma IV-V ventrally only shallowly punctate and in males punctation may be altogether absent.24
- Punctation on metasoma IV-V ventrally developed.25
- 24(23). Ventral carinae of metasoma I-III consist of a row of large granules. *Orthochirus varius*
- Ventral carinae of metasoma I-III consist of small granules irregularly in two or three rows. *Orthochirus hormozganensis*
- 25(24). Tergites roughly granulated in middle but laterally smooth with several small granules at least in the male. *Orthochirus kermanensis*
- Entire tergites roughly granulated at least in the male.26
- 26(25). Sternite VII densely granulated among carinae.27
- Sternite VII smooth medially with several solitary granules among carinae.29
- 27(26). Pedipalp patella with dorsal carinae smooth; anterior median part of carapace smooth, with granules medially only.....28
- Pedipalp patella with dorsal carinae granulated; anterior median part of carapace densely granulated. *Orthochirus navidpourii*
- 28(27). Tarsi of third legs with 7-10 bristles, long in both sexes. *Orthochirus carinatus*
- Tarsi of third legs with 4-6 bristles, long in female and short in male. . *Orthochirus vignolii*
- 29(26). Pedipalp femur length/ width ratio 4.1-4.3 in male, 3.3-3.5 in female. *Orthochirus kuceraei*
- Pedipalp femur length/ width ratio 2.7-3.0 in both sexes.30
- 30(29). Tarsi of leg III with long bristles, which form a reduced bristlecomb; at least femur of legs dark. Pedipalp chela dark.....31
- Tarsi of leg III with short bristles, which do not form a bristlecomb; legs usually yellow Pedipalp chela yellow. *Orthochirus farzanpayi*
- 31(30). Dorsal surface of metasomal segment V mesially densely granulated; manus and patella of pedipalp yellow, mesosoma, metasoma, and femur of pedipalp greenish gray or sometimes black. *Orthochirus fuscipes*
- Dorsal surface of metasomal segment V mesially smooth; manus of pedipalp dark brown, mesosoma, metasoma, and femur and patella of pedipalp black. *Orthochirus zagrosensis*
- 32(13). Second metasomal segment widely flattened, much wider than other metasomal segments. *Apistobuthus susanae*
- Second metasomal segment similar in width to other metasomal segments.33
- 33(32). Trichobothria *eb* located in distal part of manus of chela rather than on fixed finger.... *Kraepelinia palpator*
- Trichobothria *eb* located on fixed finger of chela.34

- 34(33). Carapace granulated but without carinae.....35
- Carapace with carinae.....37
- 35(34). External surface of pedipalp patella with 8 (rarely 7 or 9) external trichobothria; pedipalp femoral trichobothria *d5* distal to *e2*; male pedipalp chela swollen and globular. *Vachoniolus iranus*
- External surface of pedipalp patella with 7 external trichobothria; pedipalp femoral trichobothrium *d5* proximal to *e2*; male pedipalp chela of usual form (*Buthacus*). ..36
- 36(35). Metasomal segments and telson densely hirsute. *Buthacus macrocentrus*
- Metasomal segments (mainly dorsal surface) only sparsely hirsute. *Buthacus leptochelys*
- 37(34). Ventral carinae of second and third metasomal segments and ventral transverse carina of fourth segment armed with very strong denticles (*Odontobuthus*).38
- Ventral carinae of metasomal segments without very strong denticles.....41
- 38(37). Anal arch with two lateral lobes. *Odontobuthus doriae*
- Anal arch with three lateral lobes.39
- 39(38). Ventral carinae of third metasomal segment with three or more pairs of denticles.....
- *Odontobuthus tirgari*
 - Ventral carinae of third metasomal segment with two pairs of denticles.40
- 40(39). Total length of adult 60–70 mm; anal arch with three wide and rounded lateral lobes; first metasomal segment wider than long or as long as wide, at least in males.....
- *Odontobuthus bidentatus*
 - Total length of adult 50–52.5 mm; anal arch with three long and conical lateral lobes; first metasomal segment longer than wide in both sexes. *Odontobuthus tavighiae*
- 41(37). Dentate margin of pedipalp chela movable finger with 4 terminal granules (3 terminal and one basal terminal).42
- Dentate margin of pedipalp chela movable finger with 5–7 terminal granules (4–6 terminal and one basal terminal).46
- 42(41). Carinae of tergites project beyond posterior margin as distinct spiniform processes (*Sassanidothus*).43
- Carinae of tergites do not project beyond posterior margin as distinct spiniform processes. 44
- 43(42). Movable finger of pedipalp with 11 rows of granules, all without external granules; trichobothria *db* and *est* situated next to each other, approximately equidistant from *esb* and *eb*; pectinal teeth number 22 in males; total length of male 34.4 mm.
- *Sassanidothus zarudnyi*
 - Movable fingers with 11 rows of granules, of which first eight rows lack external granules and last three rows, may have external granules; trichobothria *db* situated between trichobothria *est* and *esb*; pectinal teeth number 15–17 in females and 18–19 in males; total length 32–52 mm. *Sassanidothus gracilis*
- 44(42). Total adult length less than 50 mm; Color yellow to brown. *Polisius persicus*
- Total adult length more than 50 mm; Color usually entirely black (*Androctonus*). ...45
- 45(44). Color reddish brown to black. *Androctonus crassicauda*
- Color usually yellow, pedipalps and legs always yellow..... *Androctonus baluchicus*

- 46(41). Central median and posterior median carinae of carapace joined to form a continuous linear series of granules to posterior margin.47
- Central median and posterior median carinae of carapace not joined to form a continuous linear series of granules to posterior margin.54
- 47(46). Total adult length more than 80 mm. *Iranobuthus kralli*
- Total adult length less than 55 mm (*Compsobuthus*)..... 48
- 48(47). Rows of granules on movable finger without external granules at least in first eight rows (*acuteccarinatus* group).49
- Rows of granules on movable finger with external granules, often very small granules, which are usually present at all rows (*wernerii* group).51
- 49(48). Length of metasoma in male longer than female; width of pedipalp manus the same in both sexes. *Compsobuthus matthiesseni*
- Length of metasoma the same in both sexes.50
- 50(49). Pectinal teeth number 15-19; telson bulbous; pedipalp chela in male much wider and shorter than female. *Compsobuthus jakesi*
- Pectinal teeth number 21-26; telson elongate; pedipalp chela with same width in both sexes.*Compsobuthus persicus*
- 51(48). Second segment of metasoma with 10 carinae.*Compsobuthus rugosulus*
- Second segment of metasoma with 8 carinae and sometimes with several accessory granules which do not form a complete carina.52
- 52(51). Pedipalp chela stocky, males with a recess and a lobe at base of chela fingers.....
.....*Compsobuthus kaftani*
- Pedipalp chela elongated.53
- 53(52). Movable finger of pedipalp with 13 rows of granules. *Compsobuthus petriolii*
- Movable finger of pedipalp with 10-11 rows of granules. ... *Compsobuthus plutenkoi*
- 54(46). Trichobothrium *db* on patella of pedipalp located usually between *est* and *dt*; Trichobothria *db* may be on level with trichobothria *est* or rarely between *est* and *esb*; Carinae of carapace not forming a lyre-shaped configuration; Ventrolateral carinae on the fifth metasomal segment with all granules more or less equal in size (*Hottentotta*).55
- Trichobothria *db* on patella of pedipalp always located between *est* and *esb*; Carinae of carapace forming a lyre-shaped configuration; Ventrolateral carinae on the fifth metasomal segment with irregular sized granules (*Mesobuthus*).62
- 55(54). Color entirely black.56
- Color not entirely black.57
- 56(55). Telson more densely hirsute and bulbous; Telson length/depth ratio is 2.48 in the male. *Hottentotta zagrosensis*
- Telson sparsely hirsute and elongate; Telson length/depth ratio is 3.18 in the male. ...
.....*Hottentotta schach*
- 57(56). Metasoma and mesosoma entirely blackish green. *Hottentotta lorestanus*

- Metasoma and mesosoma yellow to reddish brown.58
- 58(57). Chela of pedipalp always darker than femur of pedipalp.*Hottentotta juliae*
- Chela of pedipalp with same color as femur of pedipalp, not darker.59
- 59(57). Metasoma glabrous or only very sparsely hirsute, segment V of metasoma and telson yellow.*Hottentotta khoozestanus*
- Metasoma ventral surfaces of segments and vesicle densely hirsute, segment V of metasoma and telson black.60
- 60(59). Chela short, large samples.*Hottentotta saulcyi*
- Chela strongly elongated, medium samples.61
- 61(60). Pedipalp all segments uniformly colored, more densely hirsute, total length 92–105 mm. *Hottentotta navidpouri*
- Pedipalp chela darker than other segments, not densely hirsute, total length 75–95 mm..... *Hottentotta sistansensis*
- 62(54). Movable fingers of pedipalps with 11–12 cutting rows of denticles; total length of adult less than 60 mm.63
- Movable fingers of pedipalps with 13–14 cutting rows of denticles; total length of adult more than 60 mm.....65
- 63(62). Telson bulbous especially in female; mesosomal tergites VI and VII smooth or weakly granulated.*Mesobuthus phillipsii*
- Telson rather elongate in both sexes; mesosomal tergites VI and VII granulated, usually densely.64
- 64(63). First metasomal segment of male equidimensional or longer than wide; metasoma narrow in both sexes. *Mesobuthus macmahoni*
- First metasomal segment of male usually wider than long or as long as wide; metasoma of male usually wider than in female and usually also concave.
.....*Mesobuthus eupeus*
- 65(62). Telson wide and small.*Mesobuthus vesiculatus*
- Telson large and globular.....66
- 66(65). Pedipalp chela broad, length/width ratio 2.84–3.39 in males and 3.11–3.65 in females. *Mesobuthus brutus*
- Pedipalp chela broad, length/width ratio 3.43–4.60 in males and 3.39–4.22 in females.67
- 67(66). Color light, yellow to white; dorsal carinae on metasomal segments I–IV composed of consistent small blunt denticles. *Mesobuthus parthorum*
- Color rather darker, yellowish brown to black; dorsal carinae on metasomal segments I–IV composed of sharp denticles which markedly increase in size posteriorly..... *Mesobuthus caucasicus*

Discussion

Seventy-four species of scorpions are reported for the fauna of Iran consisting of 68 (91.9%) valid and 6 (8.1%) doubtful reports. Valid species belonging to 19 genera and four families of which, 41 species (60.3%) are endemic to Iran. Family Buthidae C. L. Koch, 1837 with 16 genera and 58 species (85.3%) is the dominant family. The genus *Orthochirus* Karsch, 1891 with 18 species (26.5%) is the most species-rich taxon (Table 1). *Mesobuthus eupeus* and *Androctonus crassicauda* are widespread species in Iran, reported from 30 and 28 provinces, respectively. These two species are distributed in 19 and 17 countries in the world, respectively. *Buthacus leptochelys* is also widespread in the world (20 countries). Nineteen species belonging to three families were reported only from one province of Iran. Although the Iranian scorpiofauna is still poorly known, based on the data presented here, hot and humid regions in the Southwest, South and East of Iran exhibit more species diversity than other regions. Among the provinces of Iran, Golestan (with one family, two genera and two species) has the least, and Khuzestan (with three families, 13 genera and 31 species) and Hormozgan (with 4 families, 13 genera and 29 species) have the most species diversity of scorpions (Appendix 1).

Material examined in this study consisted of samples from 25 scorpion species of which *Hemiscorpius gaillardi* and *Compsobuthus jakesi* are recorded for the first time from Hormozgan province, *Odontobuthus tavighiae* recorded for the first time from Fars province and *Kraepelinia palpator* and *Odontobuthus tigrari* recorded for the first time from South Khorasan province. Many scorpion species that have been described from Iran in the past two decades were defined without consideration of morphological, morphometrical variation, or molecular analyses. Therefore, an integrative approach is required for assessing the taxonomic validity of some taxa even at the genus level. Furthermore, since most of the studies on the Iranian scorpions have been performed by non-zoologist researchers, there may be many mis-identifications and erroneous records in their studies.

Recent studies showed a high degree of endemism in scorpions of Iran (Mirshamsi et al., 2010, 2013; Karataş & Moradi-Gharkheloo, 2013; Navidpour et al., 2013, 2019; Azghadi et al., 2014; Kovařík et al., 2017, 2018, 2019a, 2019b; Fet et al., 2018; Kovařík & Navidpour, 2020). However, the scorpiofauna of Iran should be considered poorly known. Even though 68 species have been recorded for Iran, but more fieldwork and integrative taxonomic approaches are necessary to complete our knowledge of the scorpions of Iran and evaluate their real true diversity.

Table 1. The list of the number of Families, genera and species of Iranian scorpions.

Number	Family	Number of Genera	Number of species	percent
1	Buthidae	16	58	85.3
2	Diplocentridae	1	1	1.4
3	Hemiscorpiidae	1	7	10.3
4	Scorpionidae	1	2	3
Total	4	19	68	100

Appendix 1: List of provinces of Iran, their scorpions species, and valid localities:

Valid Iranian localities, list of the names and georeferences (longitude, latitude), were added for each species per province, taken directly from the citations, augmented by Google Earth as required (marked by asterisk), and material examined.

Alborz (9 species)

Androctonus crassicauda (Olivier, 1807): Hive village, 36°03'34.6" N, 50°39'11.9" E; Hive village to Imamzadeh Mousa, 36°03'54.5" N, 50°39'12.5" E; Chendar, 35°57'25.7" N, 50°47'05.6" E; Ateshgah-Baraghan road, 35°55'52.9" N, 50°57'30.6" E (Navidpour et al., 2019:2).

Compsobuthus matthiesseni (Birula, 1905): Hive village, 36°03'34.6" N, 50°39'11.9" E; Hive village to Imamzadeh Mousa, 36°03'54.5" N, 50°39'12.5" E; Chendar, 35°57'25.7" N, 50°47'05.6" E; Najmabad-Eshtehard road, 35°49'01.7" N, 50°27'17.6" E; Najmabad-Zakiabad road, 35°50'18.2" N, 50°31'04.2" E (Navidpour et al., 2019:3).

Hottentotta saulcyi (Simon, 1880): Najmabad, 35°48'57.6" N, 50°35'50.1" E; Taleghan road to Samghabab village, 36°06'24.8" N, 50°34'29.9" E (Navidpour et al., 2019:3).

Iranobuthus krali Kovařík, 1997: Karaj-Baraghan road, 35°54'36.7" N, 50°58'22" E (Navidpour et al., 2019:4).

Mesobuthus eupeus (C. L. Koch, 1839): Karaj-Baraghan road, 35°54'36.7" N, 50°58'22" E; Chendar, 35°57'25.7" N, 50°47'05.6" E; Atashgah-Baraghan road, 35°56'29.1" N, 50°56'17" E; Ateshgah-Baraghan road, 35°55'52.9" N, 50°57'30.6" E; Atashgah road, 35°55'58.8" N, 51°0'29.4" E; Doran village, 35°59'03.1" N, 51°01'55.1" E; Taleghan, Gerdab-Azadbor, 36°09'16.8" N, 51°10'23.2" E; Taleghan-Ebrahim Abad, 36°07'21.8" N, 50°40'04" E; Taleghan to Shahrak, 36°09'04.1" N, 50°40'46" E; Taleghan to Prachan, 36°12'09" N, 50°53'06" E; Taleghan to Gerdab, 36°09'37.1" N, 51°08'35.7" E (Navidpour et al., 2019:4).

Odontobuthus doriae (Thorell, 1876): Karaj-Baraghan road, 35°54'36.7" N, 50°58'22" E; Chendar, 35°57'25.7" N, 50°47'05.6" E; Eshtehard-Najmabad road, 35°46'50.8" N, 50°23'42.1" E; Najmabad-Eshtehard road, 35°49'01.7" N, 50°27'17.6" E; Najmabad-Zakiabad road, 35°50'18.2" N, 50°31'04.2" E; Najmabad, 35°48'57.6" N, 50°35'50.1" E; Eshtehard-Nikoojar road, 35°41'35.5" N, 50°24'2.6" E; Eshtehard road, 35°42'47" N, 50°26'41.1" E; Mahdasht-Eshtehard road, Akhtar Abad, 35°43'36.3" N, 50°40'04" E; Taleghan-Ebrahim Abad, 36°07'21.8" N, 50°40'04" E; Taleghan to Shahrak, 36°09'04.1" N, 50°40'46" E (Navidpour et al., 2019:5).

Orthochirus carinatus Navidpour et al., 2019: Karaj-Baraghan road, 35°54'36.7" N, 50°58'22" E; Atashgah-Baraghan road, 35°56'29.1" N, 50°56'17" E; Ateshgah-Baraghan road, 35°55'52.9" N, 50°57'30.6" E; Atashgah road, 35°55'58.8" N, 51°0'29.4" E; Doran village, 35°59'03.1" N, 51°01'55.1" E (Navidpour et al., 2019:8).

Scorpio kruglovi Ehrenberg, 1829: Hive village, 36°03'34.6" N, 50°39'11.9" E; Hive village to Imamzadeh Mousa, 36°03'54.5" N, 50°39'12.5" E; Chendar, 35°57'25.7" N, 50°47'05.6" E; Eshtehard-Najmabad road, 35°46'50.8" N, 50°23'42.1" E; Najmabad, 35°48'57.6" N, 50°35'50.1" E; Mahdasht-Eshtehard road, Akhtar Abad, 35°43'36.3" N, 50°40'04" E (Navidpour et al., 2019:12).

Scorpio maurus townsendi (Pocock, 1900): Karaj, 35°52' N, 50°55' E* (Farzanpay, 1987:165).

Ardabil (6 species)

Androctonus crassicauda (Olivier, 1807): Khalkhal, 37°35' N, 48°33' E* (Habibi, 1971:31,42).

Hottentotta saulcyi (Simon, 1880): Ardabil, 38°12' N, 48°20' E* (Habibi, 1971:31,43).

Hemiscorpius lepturus Peters, 1861: Ardabil, Hayran Mts., 38°26' N, 48°33' E* (Karataş et al., 2012:118).

Mesobuthus caucasicus (Nordmann, 1840): Khalkhal, 37°35' N, 48°33' E* (Habibi, 1971:31,43).

Mesobuthus eupeus (C. L. Koch, 1839): Ardabil, Hayran Mts., 38°26' N, 48°33' E* (Karataş et al., 2012:115); Ardabil, 38°12' N, 48°20' E*; Germe, 39°00' N, 48°04' E*; Khalkhal, 37°35' N, 48°33' E*; Meshkinshahr, 38°23' N, 47°41' E*; Namin, 38°25' N, 48°28' E*; Parasad, 39°37' N, 47°54' E* (Mohammadi-Bavani et al., 2017:374).

Scorpio maurus townsendi (Pocock, 1900): Givi, 37°41' N, 48°21' E* (Mohammadi-Bavani et al., 2017:374).

Bushehr (15 species)

Androctonus crassicauda (Olivier, 1807): 17 km northwest of Bandar-e Ganaveh, 29°38'32" N, 50°26'56" E; Delvar, 28°42'59" N, 51°04'52" E; Bushehr-Dayer road, Dero Ahmad village, 27°53'47" N, 51°35'51" E (Navidpour et al., 2008b:3).

Buthacus macrocentrus (Ehrenberg, 1828): 17 km northwest of Bandar-e Ganaveh, 29°38'32" N, 50°26'56" E; Bandar-e Ganaveh; Delvar, 28°42'59" N, 51°04'52" E; Dayer, 27°49'35" N, 52°04'44" E; Bushehr-Dayer road, Dero Ahmad village, 27°53'47" N 51°35'51" E; Bushehr-Dayer road, Golestan, 29°13'46" N, 51°19'33" E; Omidiyeh-Bandar-e Ganaveh road, 30°13'42" N, 50°12'01" E; Dailam road, Khite Amareh village, 30°42'52" N, 49°44'59" E (Navidpour et al., 2008b:5).

Compsobuthus jakesi Kovařík, 2003: Bushehr-Dayer road, Dero Ahmad village, 27°53'47" N 51°35'51" E (Navidpour et al., 2008b:9).

Compsobuthus matthiesseni (Birula, 1905): Bandar-e Ganaveh, 29°13'42" N, 50°14'22" E; Omidiyeh-Bandar-e Ganaveh road, 30°13'42" N, 50°12'01" E (Navidpour, 2008a:34); Bandar-e Ganaveh, 29°48'42" N, 50°14'22" E (Navidpour et al., 2008b:9).

Compsobuthus persicus Navidpour et al., 2008: Borazjan, Dalaki, 29°23'27" N, 51°16'00" E; Borazjan, 29°16'56" N, 51°15'26" E; Dayer, 27°49'35" N, 52°04'44" E; Tangestan, Ahram, 28°51'45" N, 51°20'50" E; Tangestan to Farashband, 29°52'49" N, 51°22'31" E; Dailam road, Khite Amareh village, 30°42'52" N, 49°44'59" E (Navidpour, 2008a:32).

Hemiscorpius lepturus Peters, 1861: Dayer road, 27°59'44" N, 51°49'56" E; Tangestan, Ahram, 28°51'54" N, 51°20'50" E; Borazjan, Dalaki, 29°23'27" N, 51°16'00" E; Omidiyeh-Bandar-e Ganaveh road, 30°13'42" N, 50°12'01" E (Navidpour et al., 2008b:20).

Hottentotta saulcyi (Simon, 1880): Tangestan, Ahram, 28°51'45" N, 51°20'50" E (Navidpour et al., 2008b:13).

Mesobuthus eupeus (C. L. Koch, 1839): Bandar-e Ganaveh, Chahak village, 29°40' N, 50°25' E; Chogha Zambil, 32°00' N, 48°31' E (Kovařík, 1997a:46).

Mesobuthus phillipsii (Pocock, 1889): Dayer road, Menjoo village, 28°28'12" N, 51°07'40" E; Dayer, 27°49'35" N, 52°04'44" E; Khormuj, 28°41'46" N, 51°21'49" E; Tangestan, 28°52'53" N,

51°18'43" E; Tangestan, Ahram, 28°51'45" N, 51°20'50" E; Borazjan, Dalaki, 29°23'27" N, 51°16'00" E; Dailam road; Omidiyeh-Bandar-e Ganaveh road, 30°13'42" N 50°12'01" E; Borazjan, 29°16'56" N, 51°15'26" E; Borazjan, 29°16'56" N, 51°15'26" E; Bandar-e Ganaveh, 29°48'42" N, 50°14'22" E; Behbahan-Bandar-e Ganaveh road, 29°40.71' N, 51°24.04' E (Navidpour et al., 2008b:15); Dayer road, 26°28'12" N, 51°07'40" E; Deylam road, 30°26'31" N, 49°55'26" E; Bandar-e Ganaveh, 29°13'42" N, 50°14'22" E (Kovářík et al., 2011:5).

Odontobuthus bidentatus (Lourenço & Pézier, 2002): Bandar-e Ganaveh, Chahak village, 29°40' N, 50°25' E (Kovářík, 1997a: 47); Borazjan, 29°16' N, 51°11' E* (Lourenço & Pézier, 2002:118); Bandar-e Ganaveh, 29°38'32" N, 50°26'56" E; Bushehr-Dayer road, Jeirani village, 27°50'47" N, 51°45'33" E; Kangan, 27°42'00" N, 52°04'44" E; Bushehr-Dayer road, Dero Ahmad village, 27°53'47" N, 51°35'51" E; Ahram, Khormuj road, 28°45'43" N, 51°17'51" E; Khormuj, 28°41'46" N, 51°21'49" E; Tangestan, Farshanbeh, 28°52'53" N, 51°18'43" E; Omidiyeh-Bandar-e Ganaveh road, 30°13'42" N, 50°12'01" E; Dailam road; Bandar-e Ganaveh, 29°48'42" N, 50°14' 22" E (Navidpour et al., 2008b:15); Ahram-Khormuj road, 28°45'43" N, 51°17'51" E; Tangestan, Farshanbeh, 28°52'53" N, 51°18'43" E (Lowe, 2010:22); 20 km north of Bandar-e Deylam, 30°12' N, 50°10' E (This study).

Orthochirus farzanpayi (Vachon & Farzanpay, 1987): Borazjan, 29°16'56" N, 51°15'26" E; Borazjan, Dalaki, 29°23'27" N, 51°16'00" E; Dayer, 27°49'35" N, 52°04'44" E Habibzadeh; Dayer road, 27°55'44" N, 51°49'56" E; Tangestan, Ahram, 28°51'45" N, 51°20'50" E (Navidpour et al., 2008b:16).

Orthochirus iranensis Kovářík, 2004: Bandar-e Ganaveh, Chahak village, 29°40' N, 50°25' E (Kovářík, 1997a:47); Bandar-e Ganaveh, 29°38'32" N, 50°26'56" E; Chahak 15 km northwest of Bandar-e Ganaveh by road, 29°40' N, 50°25' E (Kovářík, 2004:13); Delvar, 28°42'59" N, 51°04'52" E; Khormuj, 28°41'46" N, 51°21'49" E; Omidiyeh-Dailam road 30°18'48" N, 50°12'01" E (Navidpour et al., 2008b:17).

Orthochirus mashipouri Kovářík & Navidpour, 2020: Dailam-Bandar-e Ganaveh road, Payshur village, 29°41'56" N, 50°26'04" E; Behbahan-Bandar-e Ganaveh road, 29°40'43" N, 50°24'24" E (Navidpour et al., 2008b:17); Behbahan-Genaveh road, 29°40.71' N, 50°24.04'04E (Kovářík & Navidpour, 2020:21).

Razianus zarudnyi (Birula, 1903): Kangan, 27°42'00" N, 52°13'44" E; Tangestan, Ahram, 28°51'45" N, 51°20'50" E; Borazjan, Dalaki, 29°23'27" N, 51°16'00" E (Navidpour et al., 2008b:18).

Scorpio maurus townsendi (Pocock, 1900): Bushehr, 28°55' N, 50°57' E* (Farzanpay, 1987:165); 17 km northwest of Bandar-e Ganaveh, 29°38'32" N, 50°26'56" E; Delvar, 28°42' 59" N, 51°04'52" E; Ahram-Khormuj road, 28°45'43" N, 51°17'51" E; Tangestan, Farshanbeh, 28°52'53" N, 51°18' 43" E (Navidpour et al., 2008b:20).

Chaharmahal and Bakhtiari (13 species)

Androctonus crassicauda (Olivier, 1807): Lordegan, Aloni village, 31°32'18" N, 51°04'03" E; Lordegan, Giloreh & Sini villages, 31°32'02" N, 51°02'38" E (Pirali-Kheirabadi et al., 2009:3); Lordegan, Alouni, 31°33'11.69" N, 51°02'41.04" E; University campus, 32°21'43.34" N, 50°49'58.04" E; Sini, 31°33'56.02" N, 51°02'33.46" E (Pirali-Kheirabadi et al., 2013:48).

Compsobuthus matthiesseni (Birula, 1905): Northeast of Dehdez, 31°43' N, 50°21' E* (Sissom & Fet, 1998:4); Bazoft, Abikarolya village, 32°29'28" N, 49°36'02" E; Farsan, 32°35'43"

N, 49°39'27" E; Bazoft-Kouhrang road, 32°42'05" N, 49°33'12" E; Lordegan, Kohiyan village, 31°50'02" N, 51°03'48" E (Pirali-Kheirabadi et al., 2009:5); Kouhrang, 32°33'38.97" N, 49°58'03.27" E; Farsan, 32°15'48.20" N, 50°34'8.23" E (Pirali-Kheirabadi et al., 2013:49).

Hemiscorpius lepturus Peters, 1861: Bazoft, Abikarolya village, 32°29'28" N, 49°36'02" E; Lordegan, Aloni village, 31°32'18" N, 51°04'03" E; Ardal, Dareh Yas village, 31°46'47" N, 50°46'18" E (Pirali-Kheirabadi et al., 2009:13); Ardal, 31°45'19.77" N, 50°49'43.76" E (Pirali-Kheirabadi et al., 2013:49).

Hottentotta saulcyi (Simon, 1880): Bazoft-Kouhrang road, 32°42'05" N, 49°33'12" E (Pirali-Kheirabadi et al., 2009:6); Kouhrang, 32°33'38.97" N, 49°58'03.27" E (Pirali-Kheirabadi et al., 2013:47).

Hottentotta schach (Birula, 1905): Borujen, 31°58' N, 51°15' E*; Lordegan, 31°29' N, 50°49' E*; Ardal, 32°00' N, 50°39' E (Akbari et al., 2001:26).

Hottentotta zagrosensis Kovařík, 1997: Bazoft, Abikarolya village, 32°29'28" N, 49°36'02" E; Lordegan, Shahidane Baraftab village, 30°56'05" N, 51°21'32" E; Farsan, 32°35'43" N, 49°39'27" E; Ardal, Dareh Bid and Dareh Yas villages, 31°46'47" N, 50°46'18" E; Bazoft-Kouhrang road, 32°42'05" N, 49°33'12" E; Lordegan, Marvan village, 31°33'14" N, 51°06'08" E; Ardal, Dorak village, 31°47'30" N, 50°43'47" E; Ardal, Dopolan village, 31°53'46" N, 50°37'04" E; Ardal, Madan village, 31°55'56" N, 50°48'38" E (Pirali-Kheirabadi et al., 2009:6); Kouhrang, 32°33'38.97" N, 49°58'03.27" E; Lordegan, 31°31'52.91" N, 50°49'13.45" E; Moradan, 31°34'13.69" N, 51°06'22.56" E (Pirali-Kheirabadi et al., 2013:48); Shalamzar, 32°03' N, 50°49' E (This study).

Mesobuthus eupeus (C. L. Koch, 1839): Shahr-e Kord, 32°21' N, 50°53' E*; Borujen, 31°58' N, 51°15' E*; Ardal, 32°00' N, 50°39' E* (Akbari et al., 2001:26).

Mesobuthus phillipsii (Pocock, 1889): Shahrekord (hills of Shahrekord University), 32°21'18" N, 50°50'10" E; Shahrekord, Sarteshniz village, 32°08'51" N, 50°54'11" E; Saman, 32°27'17" N, 50°52'36" E; Lordegan, Milas village, 31°30'02" N, 51°02'38" E; Lordegan, Marvan village, 31°33'14" N, 51°06'08" E (Pirali-Kheirabadi et al., 2009:9); Gardan-e Kholk, 32°17'50.36" N, 50°45'70.30" E; Shahr-e Kian, 32°16'56.89" N, 50°53'58.01" E; University campus, 32°21'47.77" N, 50°49'16.77" E; Police center, 32°26'11.42" N, 50°52'39.30" E; Sang shekan, Saman, 32°22'59.10" N, 50°50'31.55" E; Chaghahest, 32°11'36.20" N, 50°37'22.52" E; Tang-e Darkesh, 32°05'22.38" N, 50°39'43.12" E; Tang-e Sayyad, 32°16'58.48" N, 51°00'39.01" E; Boroujen, 31°58'44.92" N, 51°16'53.93" E; Siahshard, 31°54'35.81" N, 51°15'56.58" E; Sartishneez, 32°08'51.00" N, 50°54'11.00" E; Lordegan, Milas, 31°28'15.63" N, 50°46'42.25" E; Lordegan, Moradan, 31°34'13.69" N, 51°06'22.56" E (Pirali-Kheirabadi et al., 2013:47).

Odontobuthus doriae (Thorell, 1876): Saman, 32°27'17" N, 50°52'36" E (Pirali-Kheirabadi et al., 2009:10); Saman, 32°22'59.10" N, 50°50'31.55" E; Tang-e Sayyad, 32°16'58.48" N, 51°00'39.01" E (Pirali-Kheirabadi et al., 2013:48).

Orthochirus scrobiculosus (Grube, 1873): Shahr-e Kord, 32°21' N, 50°53' E* (Akbari et al., 2001:26).

Orthochirus zagrosensis Kovařík, 2004: Lordegan, Shahidane Baraftab village, 30°56'05" N, 51°21'32" E; Lordegan, Aloni village, 31°32'18" N, 51°04'03" E; Shahrekord (hills of Shahrekord University), 32°21'18" N, 50°50'10" E; Shahrekord-Farokh Shahr, Yahya Abad village, 32°15'06" N, 50°59'58" E; Lordegan, Kohiyan village, 31°50'02" N, 51°03'48" E; Lordegan, Giloreh and Sini villages, 31°32'02" N, 51°02'38" E (Pirali-Kheirabadi et al.,

2009:10); University, 32°21'43.34" N, 50°49'58.04" E; Lordegan, 31°31'52.91" N, 50°49'13.45" E; Lordegan, Alouni, 31°33'11.69" N, 51°02'41.04" E; Farrokhsahr, 32°15'41.82" N, 50°59'17.76" E; Lordegan, Kahyan, 31°27'16.92" N, 50°56'29.55" E; Lordegan, Sini, 31°33'56.02" N, 51°02'33.46" E (Pirali-Kheirabadi et al., 2013:47).

Razianus zarudnyi (Birula, 1903): Lordegan, Shahidane Baraftab village, 30°56'05" N, 51°21'32" E; Lordegan and Sini villages, 31°32'02" N, 51°02'38" E (Pirali-Kheirabadi et al., 2009:10); Lordegan, 31°31'52.91" N, 50°49'13.45" E; Sini, 31°33'56.02" N, 51°02'33.46" E (Pirali-Kheirabadi et al., 2013:49).

Scorpio maurus townsendi (Pocock, 1900): Ardal, Dareh Yas village, 31°46'47" N, 50°46'18" E (Pirali-Kheirabadi et al., 2009:11); Ardal, 31°45'19.77" N, 50°49'43.76" E (Pirali-Kheirabadi et al., 2013:49); Gachsaran, Tileh Kouh, 30°28' N, 50°19' E; Kheir Abad village, 30°33' N, 50°21' E; 30°23' N, 50°43' E (This study).

East Azerbaijan (7 species)

Androctonus crassicauda (Olivier, 1807): Gogan, 37°46' N, 45°55' E*; Tabriz, 38°05' N, 46°11' E*; Miyaneh, 37°27' N, 47°42' E*; Maragheh, Alavian village, 37°25' N, 46°13' E* (Karataş et al., 2012:111); Bonab, 37°20' N, 46°00' E*; Jolfa, 38°55' N, 45°36' E*; Maraghe, 37°25' N, 46°13' E* (Mohammadi-Bavani et al., 2017:374).

Compsobuthus petrioli Vignoli, 2005: Marand, 38°25' N, 45°43' E*; Gogan, 37°46' N, 45°55' E*; Tabriz, 38°05' N, 46°11' E* (Karataş et al., 2012:112).

Hottentotta saulcyi (Simon, 1880): Tabriz, 38°05'26.01" N, 46°11'36.98" E* (Habibi, 1971:31,43).

Mesobuthus caucasicus (Nordmann, 1840): Tabriz, 38°05' N, 46°11' E* (Karataş et al., 2012:114); Bonab, 37°20' N, 46°00' E*; Jolfa, 38°55' N, 45°36' E*; Marand, 38°25' N, 45°43' E*; Tabriz, 38°05' N, 46°11' E* (Mohammadi-Bavani et al., 2017:374).

Mesobuthus eupeus (C. L. Koch, 1839): Gogan, 37°46' N, 45°55' E*; Khosrowshah, 37°57' N, 46°02' E* (Karataş et al., 2012:115); Ahar, 38°29' N, 47°05' E*; Hashtrood, 37°29' N, 47°02' E*; Jolfa, 38°55' N, 45°36' E*; Marand, 38°25' N, 45°43' E*; Mianeh, 37°27' N, 47°42' E* (Mohammadi-Bavani et al., 2017:374).

Mesobuthus vesiculatus (Pocock, 1899): Bonab, 37°20' N, 46°00' E* (Karataş et al., 2012:116).

Odontobuthus doriae (Thorell, 1876): Tabiz, 38°05' N, 46°11' E* (Lowe, 2010:22).

Esfahan (17 species)

Androctonus crassicauda (Olivier, 1807): Kashan, 34°02' N, 51°26' E* (Dehghani et al., 1998:126); Kashan, 34°02' N, 51°26' E*; Aziz Abad, 32°40' N, 51°09' E* (Vignoli et al., 2003:2); Kashan, 34°02' N, 51°26' E* (Ahmadmarzale et al., 2017:339).

Compsobuthus kaftani Kovařík, 2003: Jafar Abad southeast of Kashan, 33°55' N, 51°53' E; 5 km north of Natanz, 33°32'473" N, 51°52'607" E; Esfahan, Tappe Sialk, 33°58' N, 51°24' E; Dodehak, 24.IV.2000, 34°07'090" N, 50°37'317" E (Kovařík, 2003:95); Kashan, 34°02' N, 51°26' E*; Aziz Abad, 32°40' N, 51°09' E* (Vignoli et al., 2003:2).

Compsobuthus matthiesseni (Birula, 1905): Kashan, 34°02' N, 51°26' E* (Vignoli et al., 2003:2).

- Hottentotta saulcyi* (Simon, 1880): Kashan, 34°02' N, 51°26' E* (Habibi, 1971:31,43).
- Hottentotta schach* (Birula, 1905): Kashan, 34°02' N, 51°26' E* (Habibi, 1971:31,43).
- Iranobuthus krali* Kovařík, 1997: Kashan, 34°02' N, 51°26' E* (Vignoli et al., 2003:2).
- Kraepelinia palpator* (Birula, 1903): Kashan, 34°02' N, 51°26' E* (Vignoli et al., 2003:3).
- Mesobuthus caucasicus* (Nordmann, 1840): Kashan, 34°02' N, 51°26' E* (Dehghani et al., 1998:126); Esfahan, 33°36' N, 51°43' E* (Kovařík, 2002:9).
- Mesobuthus eupeus* (C. L. Koch, 1839): Qamishlu village, 32°02' N, 51°29' E* (Kovařík, 1997a:46); Kashan, 34°02' N, 51°26' E*; Aziz Abad, 32°40' N, 51°09' E* (Vignoli et al., 2003:3); Niasar, 33°59' N, 51°10' E* (Mirshamsi et al., 2010:2855); Kashan, 34°02' N, 51°26' E* (Ahmadimarzale et al., 2017:339).
- Mesobuthus phillipsii* (Pocock, 1889): Qamishlu village, 32°02' N, 51°29' E* (Kovařík et al., 2011:6).
- Mesobuthus vesiculatus* (Pocock, 1899): Kashan, 34°02' N, 51°26' E* (Vignoli et al., 2003:3).
- Odontobuthus doriae* (Thorell, 1876): Qamishlu village, 32°02' N, 51°29' E* (Kovařík, 1997a:47); Kashan, 34°02' N, 51°26' E* (Dehghani et al., 1998:126); Kashan, 33°35.4' N, 51°21' E (Lowe, 2010:22); Ardestan, 33°22' N, 52°23' E*; Dehaghan, 31°56' N, 51°40' E*; Esfahan, 33°36' N, 51°43' E*, Flavarjan, 32°32' N, 51°30' E*; Golpayegan, 33°25' N, 50°22' E*; Kashan, 34°02' N, 51°26' E*; Mobarakeh, 32°19' N, 51°31' E*; Naeen, 32°52' N, 53°06' E*; Najafabad, 32°39' N, 51°17' E*; Natanz, 33°29' N, 51°54' E*; Shahinshahre, 32°51' N, 51°30' E*; Shahreza, 32°01' N, 51°50' E*; Tiran, 32°41' N, 51°08' E* (Dehghani & Kassiri, 2017:435).
- Orthochirus scrobiculosus* (Grube, 1873): Kashan, 34°02' N, 51°26' E* (Dehghani et al., 1998:126).
- Orthochirus zagrosensis* Kovařík, 2004: Qamishlu village, 32°02' N, 51°29' E* (Kovařík, 2004:22).
- Polisius persicus* Fet et al., 2001: Kashan, 34°02' N, 51°26' E*; Aziz Abad, 32°40' N, 51°09' E* (Vignoli et al., 2003:5).
- Sassanidothus zarudnyi* (Birula, 1900): Kashan, 34°02' N, 51°26' E* (Ahmadimarzale et al., 2017:339).
- Scorpio maurus townsendi* (Pocock, 1900): Esfahan, 33°36' N, 51°43' E* (Farzanpay, 1987:165).

Fars (24 species)

- Androctonus crassicauda* (Olivier, 1807): Shiraz, 29°37' N, 52°35' E* (Karataş et al., 2012:111); Pasargad, Saadat Shahr, 30°17'59" N, 52°10'29" E; Kazeroon, Farashband road, 29°29'10" N, 51°49'54" E; Kazeroon, Farashband, 29°25'03" N, 52°14'31" E; Ghir-Khonj, 28°14'34" N, 53°06'41" E; Juym-Lar, 28°14'45" N, 54°03'15" E; Jahrom-Lar, 27°42'30" N, 54°19'33" E (Navidpour et al., 2012:3); Kazerun District, Zarinabad, 29°39'11" N, 51°36'33" E; Burenjan, 29°35'28" N, 51°52'24" E; Buraki, 29°33'44" N, 51°20'28" E; Dadin-e Olya, 29°19'04.5" N, 51°52'06" E (Nazari et al., 2018:306).
- Compsobuthus matthiesseni* (Birula, 1905): 5 km northeast of Persepolis, 29°56' N, 52°53' E* (Farzanpay & Pretzmann, 1974:216); 10 km east of Sivand, 30°05' N, 52°55' E; Zagros Mts.,

Abshar village, 30°23' N, 51°30' E (Kovářík, 1997a:40); Kazeroon-Borazjan road, 29°33'36" N, 51°23'58" E; Firoozabad, 29°40'39" N, 52°44'34" E (Navidpour, 2008a:34); 5 km southeast of Posht Chenár, 29°12' N, 53°20' E; 2 km west of Khollar, 29°59' N, 52°12' E; 10 km south of Firuz Abad, 28°55' N, 52°31' E; Firoozabad-Ghir road, 29°40'39" N, 52°44'34" E; Kazeroon-Borazjan road, 29°33'36" N, 51°23'58" E (Navidpour et al., 2012:7); Kazerun District, Zarinabad, 29°39'11" N, 51°36'33" E; Burenjan, 29°35'28" N, 51°52'24" E; Buraki, 29°33'44" N, 51°20'28" E; Dadin-e Olya, 29°19'04.5" N, 51°52'06" E (Nazari et al., 2018:306).

Compsobuthus persicus Navidpour et al., 2008: Lar, Juim, 28°14'43" N, 54°03'15" E; Ghir-Hengam, 29°31'07" N, 52°52'02" E; Ghir-Khonj, 28°15'16" N, 53°05'04" E (Navidpour, 2008a:32); 85 km to Lar, 28°13'07" N, 54°04'25" E; Ghir-Hengam, 28°32'26" N, 52°41'25" E (Navidpour et al., 2012:6).

Compsobuthus petrioli Vignoli, 2005: Persepolis, Takht-e Gamshid, 29°54' N, 52°54' E (Vignoli, 2005: 80; Navidpour et al., 2012:7).

Compsobuthus rugosulus (Pocock, 1900): Zarrin Dasht, 28°22' N, 54°24' E* (Kassiri et al., 2015:100).

Hemiscorpius gaillardi (Vachon, 1974): Lar, 27°34' N, 54°10' E (Navidpour et al., 2012:20).

Hemiscorpius lepturus Peters, 1861: 5 km north of Persepolis, 29°56' N, 52°53' E* (Farzanpay & Pretzmann, 1974:217); Shiraz, 29°37' N, 52°35' E (Farzanpay, 1987:168); 10 km east of Sivand, 30°05' N, 52°55' E (Kovářík, 1997a:48); 5 km northeast of Persepolis, 29°56' N, 52°53' E*; 18 km southeast of Abadeh, 31°14' N, 52°41' E* (Monod & Lourenço, 2005:902); 10 km east of Sivand, 30°05' N, 52°55' E; Zagros Mts., Abshar village, 30°23' N, 51°30' E; Marvdasht, 29°58'20" N, 52°55'50" E; Marvdasht-Shiraz road, 29°57'59" N, 51°55'41" E; Lar, 27°34' N, 54°10' E (Navidpour et al., 2012:20); Zarrin Dasht, 28°22' N, 54°24' E* (Kassiri et al., 2015:100); Kazerun District, Zarinabad, 29°39'11" N, 51°36'33" E; Burenjan, 29°35'28" N, 51°52'24" E (Nazari et al., 2018:306).

Hottentotta juliae Kovářík et al., 2019: Shiraz, 29°37' N, 52°35' E* (Karataş et al., 2012:114); 10 km east of Sivand, 30°05' N, 52°55' E; Marvdasht, 29°58'20" N, 52°55'50" E; Marvdasht-Shiraz road, 29°57'59" N, 51°55'41" E (Navidpour et al., 2012:9).

Hottentotta saulcyi (Simon, 1880): Shiraz, 29°37' N, 52°35' E* (Kovářík, 2007:65); Ghir-Hengam, 28°32'26" N, 52°41'25" E (Navidpour et al., 2012:9); 80 km southeast of Darab, 28°25'23" N, 55°09'09" E (Kovářík et al., 2018:12).

Hottentotta schach (Birula, 1905): 10 km east of Sivand, 30°05' N, 52°55' E (Kovářík, 1997a:40); Shiraz, 29°37' N, 52°35' E* (Karataş et al., 2012:114).

Hottentotta zagrosensis Kovářík, 1997: Abshar village, 30°23' N, 51°30' E (Kovářík, 1997a:41); 5 km southeast of Posht Chenár, 29°12' N, 53°20' E (Navidpour et al., 2012:9); Kazerun District, Zarinabad, 29°39'11" N, 51°36'33" E; Dadin-e Olya, 29°19'04.5" N, 51°52'06" E (Nazari et al., 2018:306).

Iranobuthus krali Kovářík, 1997: 10 km east of Sivand, 30°05' N, 52°55' E (Kovářík, 1997a:44); Marvdasht, 29°57'59"N, 52°55'41"E (Navidpour & Mashipour, 2009:98); Dasht-e Arzhan, 29°34' N, 51°56' E (Navidpour et al., 2012:9);

Mesobuthus caucasicus (Nordmann, 1840): Zarrin Dasht, 28°22' N, 54°24' E* (Kassiri et al., 2015:100); Dadin-e Olya, 29°19'04.5" N, 51°52'06" E (Nazari et al., 2018:306).

Mesobuthus eupeus (C. L. Koch, 1839): 10 km east of Sivand, 30°05' N, 52°55' E (Kovářík, 1997a:46); Konartakhteh-Kazeroon road, 29°30' N, 51°24' E*; Kazeroon-Borazjan road, 29°33' N, 51°38' E*; Firouzabad, 28°46' N, 52°36' E*; Ghir-Karzin road, 28°25' N, 53°04' E* (Mirshamsi et al., 2010:2857); Kanj village, 28°10' N, 55°26' E; 10 km south of Firuz Abad, 28°55' N, 52°31' E; Kazeroon-Farashband, Safar Hussain village, 29°00'28" N, 52°22'21" E; Firoozabad-Ghir road, 29°25'49" N, 52°55'04" E; Meymand-Firoozabad road, 29°47'32" N, 52°49'41" E; Abadeh, Semirom road, 31°08'03" N, 52°19'50" E; Abadeh-Semirom road, 31°44' N, 52°12' E; Pasargad, Saadat Shahr, 30°17'59" N, 52°10'29" E; Khonj, 28°25'00" N, 53°03' 29" E; Ghir-Khonj, Seifabad village, 28°14'39" N, 53°06'28" E; Ghir-Khonj, Kahnooyeh village, 29°07'55" N, 53°08' 22" E; Ghir-Khonj, Oskooyeh village, 29°06'03" N, 53°12'39" E; Ghir-Khonj, 28°14'34" N, 53°06'41" E; Ghir, 28°15'16" N, 53°05'04" E; Ghir-Khonj, Mozafary village, 29°24'21" N, 53°03'04" E; Ghir-Hengam road, 28°30'20" N, 52°53'48" E; Ghir-Hengam road, 28°32'36" N, 52°47'54" E; Ghir-Hengam road, 28°27'28" N, 52°37'31" E; Ghir-Hengam road, 28°27'51" N, 52°40'13" E; Ghir-Hengam road, 29°31'07" N, 52°52'02" E; Juym-Lar, 28°14'45" N, 54°03'15" E; Juym-Lar, Banaruyeh, 29°05'39" N, 54°06'16" E (Navidpour et al., 2012:11); Zarrin Dasht, 28°22' N, 54°24' E* (Kassiri et al., 2015:100); Kazerun District, Zarinabad, 29°39'11" N, 51°36'33" E; Burenjan, 29°35'28" N, 51°52'24" E; Buraki, 29°33'44" N, 51°20'28" E; Dadin-e Olya, 29°19'04.5" N, 51°52'06" E (Nazari et al., 2018:306).

Mesobuthus phillipsii (Pocock, 1889): Kanj village, 28°10' N, 55°43' E; 10 km south of Firuz Abad, 28°55' N, 52°31' E (Kovářík et al., 2011:6); Zagros Mts., Abshar village, 30°23' N, 51°30' E; Kazeroon-Borazjan, Konar Takhteh, 29°31'58" N, 51°25'22" E; Kazeroon-Borazja road, 29°33'36" N, 51°23'58" E; Kazeroon-Borazjan road, 29°33'32" N, 51°30'14" E; Kazeroon, 29°42'03" N, 51°41'24" E; Kazeroon-Farshband road, 29°10'32" N, 52°00'57" E; Farashband road, 29°29'10" N, 51°49'54" E; Parishan, 29°20'10" N, 51°49'54" E; Bastak-Lar road, 27°30'40" N, 54°13'55" E; Bastak-Lar, 27°31'23" N, 54°27'10" E; Lar, 27°40'06" N, 54°19'36" E; Mehr-Galedar, Chahoo village, 27°34'27" N, 52°50'36" E; Mehr-Galedar, Fal village, 27°35'53" N, 52°42'11" E; Nurabad, Galedar-Jam, 27°42'15" N, 52°36' 29" E (Navidpour et al., 2012:12).

Odontobuthus bidentatus (Lourengo & Pézier, 2002): Kazeroon, 29°42'03" N, 51°41'24" E; Kazeroon, Farash-band, 29°25'03" N, 52°14'31" E; Kazeroon-Farshband road, 29°10'32" N, 52°00'57" E; Farashband road, 29°29'10" N, 51°49'54" E; Parishan, 29°20'10" N, 51°49'54" E; Firoozabad-Ghir road, Hasanabad, 29°41'55" N, 52°42'34" E; Firoozabad-Ghir road, 29°40'39" N, 52°44'34" E; 85 km to Lar, 28°13'07" N, 54°04'25" E; Ghir-Khonj, Seifabad village, 28°14'39" N, 53°06'28" E; Ghir-Khonj, Oskooyeh village, 29°06'03" N, 53°12'39" E; Ghir-Khonj, 28°14'34" N, 53°06'41" E; Ghir, 28°15'16" N, 53°05'04" E; Ghir-Hengam road, 28°30'20" N, 52°53'48" E; Ghir-Hengam road, 28°32'36" N, 52°47'54" E; Ghir-Hengam road, 28°27'28" N, 52°37'31" E; Juym-Lar, Dehkooyeh village, 27°54'40" N, 54°24'30" E; Juym-Lar, 28°14'45" N, 54°03'15" E; Juym-Lar, Bana-ruyeh, 29°05'39" N, 54°06'16" E; Bastak-Lar road, Ooneh village, 27°31' N, 54°13' E; Bastak-Lar road, 27°30'40" N, 54°13'55" E; Bastak-Lar, 27°31'23" N, 54°27'10" E; Mehr-Galedar, Chahoo village, 27°34'27" N, 52°50'36" E; Jahrom-Lar, 27°42'30" N, 54°19'33" E (Navidpour et al., 2012:14); Kazeroon, Borazjan road, 29°33' N, 51°38' E* (Azghadi et al., 2014:171); Zarrin Dasht, 28°22' N, 54°24' E* (Kassiri et al., 2015:100).

Odontobuthus doriae (Thorell, 1876): Neyriz, 29°10' N, 54°18' E* (Lourengo & Pézier, 2002:116); Abadeh, 31°10'53" N, 52°28'39" E; Juym-Lar, Banaruyeh, 29°05'39" N, 54°06'16" E (Navidpour et al., 2012:15).

Odontobuthus tavighiae Navidpour et al., 2013: Mohr, 27°31' N, 52°54' E (This study).

Orthochirus farzanpayi (Vachon & Farzanpay, 1987): Abshar village, 30°23' N, 51°30' E (Kovařík, 1997a:48); 5 km southeast of Posht Chenár, 29°12' N, 53°20' E (Kovařík, 2004:20); 10 km south of Firuz Abad, 28°55' N, 52°31' E; 10 km south of Firuz Abad, 28°55' N, 52°31' E; Firoozabad-Ghir road, 29°40'39" N, 52°44'34" E; Abadeh, Semirom road, 31°44' N, 52°12' E; Pasargad, Saadat Shahr, 30°17'59" N, 52°10'29" E; Ghir-Hengam, 28°32'26" N, 52°41'25" E (Navidpour et al., 2012:17).

Orthochirus scrobiculosus (Grube, 1873): 160 km north of Shiraz, 30°27' N, 52°31' E* (Farzanpay & Pretzmann, 1974:216).

Orthochirus zagrosensis Kovařík, 2004: Dasht-e Arzhan, 29°34' N, 51°56' E (Kovařík, 2004:22); 160 km north of Shiraz, 30°27' N, 52°31' E* (Kovařík & Fet, 2006a:8); Zagros Mts., Abshar village, 30°23' N, 51°30' E (Navidpour et al., 2012:17).

Razianus zarudnyi (Birula, 1903): Kazeroon-Borazjan, Konar Takhteh, 29°31'58" N, 51°25'22" E; Kazeroon-Borazjan road, 29°33'32" N, 51°30'14" E; Farashband, 29°25'03" N, 52°14'31" E; Parishan, 29°20'10" N, 51°49'54" E; Firoozabad-Ghir road, Hasanabad, 29°41'55" N, 52°42'34" E; Firoozabad-Ghir road, 29°40'39" N, 52°44'34" E; Marvdasht, 29°58'20" N, 52°55'50" E; Marvdasht-Shiraz road, 29°57'59" N, 51°55'41" E; 85 km to Lar, 28°13'07" N, 54°04'25" E; Ghir-Khonj, 28°14'34" N, 53°06'41" E; Ghir, 28°15'16" N, 53°05'04" E; Juym-Lar, Banaruyeh, 29°05'39" N, 54°06'16" E (Navidpour et al., 2012:17); Kazerun District, Zarinabad, 29°39'11" N, 51°36'33" E (Nazari et al., 2018:306).

Sassanidothus zarudnyi (Birula, 1900): Zarrin Dasht, 28°22' N, 54°24' E* (Kassiri et al., 2015:100).

Scorpio maurus townsendi (Pocock, 1900): Qasr-e Sasan, 29°11' N, 53°13' E; Kazeroon-Borazjan, Konar Takhteh, 29°31'58" N, 51°25'22" E; Kazeroon-Borazjan road, 29°33'36" N, 51°23'58" E; Kazeroon, Farashband, 29°25'03" N, 52°14'31" E; Kazeroon-Farshband road, 29°10'32" N, 52°00'57" E; Firoozabad-Ghir road, Hasanabad, 29°41'55" N, 52°42'34" E; 85 km to Lar, 28°13'07" N, 54°04'25" E; Ghir-Khonj, Oskooyeh village, 29°06'03" N, 53°12'39" E; Ghir-Khonj, 28°14'34" N, 53°06'41" E; Ghir, 28°15'16" N, 53°05'04" E; Ghir-Khonj, Mozafary village, 29°24'21" N, 53°03'04" E; Ghir-Hengam road, 28°32'36" N, 52°47'54" E; Juym-Lar, Banaruyeh, 29°05'39" N, 54°06'16" E; Mehr-Galedar, Chahoo village, 27°34'27" N, 52°50'36" E (Navidpour et al., 2012:22); Zarrin Dasht, 28°22' N, 54°24' E* (Kassiri et al., 2015:100); Burenjan, 29°35'28" N, 51°52'24" E (Nazari et al., 2018:306); Mohr, 27°31' N, 52°54' E (This study).

Golestan (2 species)

Mesobuthus eupeus (C. L. Koch, 1839): 10 km east of Teng Ráh, 37°23' N, 55°50' E, Golestan, Forest, 55 km northeast of Minudast, 37°20' N, 56°00' E (Kovařík & Fet, 2006b:2).

Orthochirus scrobiculosus (Grube, 1873): Gorgan, 36°47' N, 54°27' E (Kovařík & Fet, 2006a:8).

Gilan (4 species)

Androctonus crassicauda (Olivier, 1807): Between Rudbar and Menjil, 36°46' N, 49°23' E* (Karataş et al., 2012:111-112).

Hemiscorpius lepturus Peters, 1861: 2 km west of Cham-Khaled, 37°14.922' N, 50°15.037' E (Monod & Lourenço, 2005:902).

Mesobuthus eupeus (C. L. Koch, 1839): Rudbar, 36°47' N, 49°24' E* (Karataş et al., 2012:115).

Scorpio maurus townsendi (Pocock, 1900): Roudbar, 36°47' N, 49°24' E* (Farzanpay, 1987:165).

Hamadan (8 species)

Androctonus crassicauda (Olivier, 1807): 15 km to Hamadan, 34°47' N, 48°39' E* (Karataş et al., 2012:111); Ganjnameh, 34°45' N, 48°26' E*; Divin, 34°45' N, 48°29' E*; Abbas Abad, 34°46' N, 48°27' E* (Nazari et al., 2015:257).

Compsobuthus matthiesseni (Birula, 1905): Gonbad village, 30°40' N, 48°45' E; Alandzhe, 34°40' N, 48°45' E (Kovářík, 1997a:40).

Hemiscorpius lepturus Peters, 1861: 35 km southeast of Hamadan, Gonbad village 30°40' N, 48°45' E (Kovářík, 1997a:48).

Hottentotta saulcyi (Simon, 1880): 35 km southeast of Hamadan, Gonbad village 30°40' N, 48°45' E (Kovářík, 1997a: 40); Alandzhe, 34°44'54" N, 47°57'52" E (Kovářík, 2007:65).

Mesobuthus eupeus (C. L. Koch, 1839): 102 km north of Hamadan, 35°24' N, 48°27' E* (Farzanpay & Pretzmann, 1974: 216); 35 km southeast of Hamadan, Gonbad village 30°40' N, 48°45' E (Kovářík, 1997a:46); Hamadan, 34°47' N, 48°39' E* (Karataş et al., 2012:115); Ganjnameh, 34°45' N, 48°26' E*; Solulan, 34°49' N, 48°25' E*; Divin, 34°45' N, 48°29' E*; Abbas Abad, 34°46' N, 48°27' E* (Nazari et al., 2015:257).

Odontobuthus doriae (Thorell, 1876): Hamadan, 34°47' N, 48°39' E* (Karataş et al., 2012:116); Ganjnameh, 34°45' N, 48°26' E*; Solulan, 34°49' N, 48°25' E* (Nazari et al., 2015:257).

Razianus zarudnyi (Birula, 1903): Solulan, 34°49' N, 48°25' E* (Nazari et al., 2015:257).

Scorpio kruglovi Ehrenberg, 1829: Hamadan, 34°47' N, 48°39' E* (Karataş et al., 2012:117).

Hormozgan (29 species)

Androctonus crassicauda (Olivier, 1807): Bandar Abbas, 26°15' N, 56°15' E; Bastak, 26°56' N, 54°35' E; Haji Abad, 28°18' N, 53°01' E; Bandar-e Khamir, 26°56' N, 55°35' E; Minab, 27°08' N, 57°04' E; Parsian, 27°12' N, 54°22' E (Shahi et al., 2008:211); Qeshm Island, 26°50' N, 56°07' E (Zarei et al., 2009:48); Beshagerd Mts., Davari village, 26°27' N, 57°38' E; Minab-Jask road, 26°04'49.3" N, 57°17'57.2" E; Bandar-e Lengeh, 27°08'06" N, 55°49'17.5" E; 26°45'5" N, 54°53'46.6" E (Navidpour et al., 2013:3); Bandar Abbas, Chahchakur village, 27°16' N, 56°20' E; Sarkhoun village, 27°24' N, 56°24' E; Qeshm, Ghar-e Kharbas, 26°54' N, 56°10' E; Bandar-e Moallem; 26°40' N, 55°04' E (This study).

Buthacus leptochelys (Ehrenberg, 1829): Kish Island, 26°32' N, 53°57' E* (Farzanpay, 1987:145); Qeshm Island, 26°50' N, 56°07' E (Zarei et al., 2009:48).

Buthacus macrocentrus (Ehrenberg, 1828): Hormozgan province, 26°45'57.3" N, 54°46'31.4" E; 26°45'14.9" N, 54°31'44.3" E; 26°46'36.6" N, 55°13'59.2" E; 45 km to Bandar-e Khamir, 26°50'41.2" N, 55°22'06.9" E (Navidpour et al., 2013:6); Qeshm, Giahدران village, 25°54' N, 56°03' E; Bandar-e Khamir to Bandar-e Lengeh road, Hasham Hodou village, 26°40' N, 55°04' E (This study).

Compsobuthus jakesi Kovařík, 2003: Qeshm Island, Giahdaran village, 26°53' N, 56°02' E (This study).

Compsobuthus matthiesseni (Birula, 1905): Bandar Abbas, 26°15' N, 56°15' E; Haji Abad, 28°18' N, 53°01' E; Minab, 27°08' N, 57°04' E (Shahi et al., 2008:211).

Compsobuthus persicus Navidpour et al., 2008: Bandar Abbas-Bandar-e Lengeh, 26°40'40.2" N, 55°04'07.4" E (Navidpour et al., 2013:7); Bandar-e Moallem, 26°40' N, 55°04' E (This study).

Compsobuthus plutenkoi Kovařík, 2003: Beshagerd Mts., Davari village, 26°27' N, 57°38' E (Kovařík, 2003:100).

Hemiscorpius acanthocercus Monod & Lourenço, 2005: 50 km north of Bandar Abbas, 27°23' N, 56°23' E*; Minab, 27°09' N, 57°03' E* (Monod & Lourenço, 2005:874); Hormozgan Province, 27°34'45" N, 57°07'28.6" E; Minab-Sandrak road, 26°59'35.8" N, 57°09'46.1" E; 26°51'57.3" N, 57°19'13.8" E; Jask-Minab road, 25°52'34.9" N, 57°29'47.4" E; Bandar Abbas-Bandar-e Lengeh road, 26°40'40.2" N, 55°04'07.4" E (Navidpour et al., 2013:17).

Hemiscorpius enischnochela Monod & Lourenco, 2005: Minab, 27°09' N, 57°03' E* (Monod & Lourenço, 2005:886); Deh Barez, 27°27' N, 57°19' E (Navidpour et al., 2013:17).

Hemiscorpius gaillardi (Vachon, 1974): Bandar Abbas, Khargo village, 27°33' N, 56°26' E (This study).

Hemiscorpius lepturus Peters, 1861: Bandar Abbas, 26°15' N, 56°15' E; Bastak, 26°56' N, 54°35' E; Haji Abad, 28°18' N, 53°01' E; Bandar-e Khamir, 26°56' N, 55°35' E; Minab, 27°08' N, 57°04' E; Parsian, 27°12' N, 54°22' E (Shahi et al., 2008:211); Qeshm Island, 26°50' N, 56°07' E (Zarei et al., 2009:48); Beshagerd Mts., Davari village, 26°27' N, 57°38' E; Minab-Radan road, 27°24'08" N, 56°56'31.9" E; Minab-Jask road, 27°25'03" N, 56°59'42.3" E (Navidpour et al., 2013:18).

Hemiscorpius persicus (Birula, 1903): 41 km north of Bandar Abbas, 27°23' N, 56°23' E* (Farzanpay & Pretzmann, 1974: 217); Bandar Abbas, 27°12' N, 56°16' E* (Farzanpay, 1987:170); Jask, 25°42' N, 57°49' E* (Fekri et al., 2012:137).

Hemiscorpius shahii Kovařík et al., 2017: Beshagard, 26°36'9.88" N, 58°12'8.62" E; Beshagard Mts., Davari village, 26°27' N, 57°38' E (Kovařík et al., 2017:2).

Hottentotta navidpouri Kovarik et al., 2018: Bandar-e Lengeh, 27°08' N, 55°49' E; Bandar Abbas-Bandar-e Lengeh road, 26°40' N, 55°04' E (Kovařík et al., 2018:4); Bandar Abbas, 27°16' N, 56°20' E (This study).

Hottentotta saulcyi (Simon, 1880): Bandar Abbas, 26°15' N, 56°15' E; Bastak, 26°56' N, 54°35' E; Haji Abad, 28°18' N, 53°01' E; Bandar-e Khamir, 26°56' N, 55°35' E; Parsian, 27°12' N, 54°22' E (Shahi et al., 2008:211); Bandar Abbas-Bandar-e Lengeh road, 26°40' N, 55°04' E; Bandar-e Lengeh, 27°08' N, 55°49' E (Navidpour et al., 2013:7); 2 km east of Bandar-e Moallem, 26°40' N, 55°04' E (This study).

Iranobuthus krali Kovařík, 1997: Bandar Abbas-Bandar-e Lengeh road, 26°40' N, 55°04' E (Navidpour et al., 2013:7).

Mesobuthus eupeus (C. L. Koch, 1839): Hengam Island, 26°38' N, 55°52' E* (Zargan et al., 2003:22); Bandar Abbas, 26°15' N, 56°15' E; Bastak, 26°56' N, 54°35' E; Haji Abad, 28°18' N, 53°01' E; Bandar-e Khamir, 26°56' N, 55°35' E; Minab, 27°08' N, 57°04' E; Parsian, 27°12' N, 54°22' E (Shahi et al., 2008:211); Qeshm Island, 26°50' N, 56°07' E (Zarei et al., 2009:48);

Minab-Sandrak road, 26°59'35.8" N, 57°09'46.1" E; 26°51'02.9" N, 57°15'27" E; 26°51'57.3" N, 57°19'13.8" E; Minab-Radan road, 27°24'08" N, 56°56'31.9" E; Minab-Jask road, 27°25'03" N, 56°59'42.3" E; Minab-Jask road, 26°04'49.3" N, 57°17'57.2" E; Jask-Bashagard road, 25°50'11.4" N, 57°50'14.6" E; Jask-Bashagard road, 25°50'53.1" N, 57°50'40.7" E; Jask-Bashagard road, 25°55'18.4" N, 57°49'42.3" E; Jask-Minab road, 25°52'34.9" N, 57°29'47.4" E; Jask-Minab road, 26°37'30.7" N, 57°05'43" E; Radan-Bandar Abbas road, 27°22'50.7" N, 56°50'07.8" E; Bandar Abbas-Bastak road, 27°12'01.4" N, 55°40'04.3" E; Bandar Abbas-Bandar-e Lengeh road, 27°09'55.6" N, 56°11'08.8" E; Bandar-e Lengeh, 27°08'06" N, 55°49'17.5" E (Navidpour et al., 2013:8); Bandar Abbas, Sarkhoun village, 27°24' N, 56°24' E; Qeshm, Ghar-e Kharbas, 26°54' N, 56°10' E; Bandar-e Moallem, 26°40' N, 55°04' E (This study).

Mesobuthus phillipsii (Pocock, 1889): Bandar-e Lengeh, 26°44'46.8" N, 54°53'01.7" E; 26°45'5" N, 54°53'46.6" E; 26°45'57.3" N, 54°46'31.4" E; 26°45'14.9" N, 54°31'44.3" E; Bandar Abbas-Bandar-e Lengeh road, 26°40'40.2" N, 55°04'07.4" E; 26°46'36.6" N, 55°13'59.2" E; 27°04'41.0" N, 55°29'54.3" E; Parsian-Lamerd road, 27°05'15.7" N, 53°29'26.2" E; Parsian-Bandar-e Lengeh road, 27°05'08.2" N, 53°26'22.5" E; Parsian-Lamerd road, 27°05'52.3" N, 53°23'23.2" E (Navidpour et al., 2013:11).

Nebo henjamicus Francke, 1980: Hengam Island, 26°38' N, 55°52' E* (Francke, 1980:46).

Odontobuthus tavighiae Navidpour et al., 2013: Bandar-e Lengeh, 27°08'06" N, 55°49'17.5" E; Parsian-Bandare road, 27°04'17.3" N, 53°32'02.6" E; 27°04'41.0" N, 55°29'54.3" E; Parsian-Lamerd road, 27°05'15.7" N, 53°29'26.2" E; Parsian-Bandar Abbas road, 27°05'08.2" N, 53°26'22.5" E; Parsian-Lamerd road, 27°05'52.3" N, 53°23'23.2" E; Parsian-Kangan road, 27°19'42.4" N, 52°51'19" E; 27°19'09.3" N, 52°52'37.1" E; 27°15'11.5" N, 52°59'10.4" E (Navidpour et al., 2013:11,13); Behdeh village, 27°06' N, 53°21' E* (Azghadi et al., 2014:171); Hameyran, 27°01' N, 53°43' E (This study).

Orthochirus farzanpayi (Vachon & Farzanpay, 1987): Bandar Abbas, 27°12' N, 56°16' E* (Farzanpay, 1987:163); Bandar-e Lengeh (Lourenço & Vachon, 1995:301); Haji Abad, 28°20' N, 55°59' E* (Kovářík & Fet, 2006a:1); Jask, 25°42' N, 57°49' E* (Fekri et al., 2012:137); Hormozgan Province, 27°15'11.5" N, 52°59'10.4" E (Navidpour et al., 2013:14).

Orthochirus hormozganensis Kovářík & Navidpour, 2020: Shahre Babak, Jask-Bashagard road, 25°50'53.1" N, 57°50'40.7" E; Bandar-e Jask-Bashagard road, 25°50'11.4" N, 57°50'14.6" E; Bandar-e Jask-Bashagard road, 25°55'18.4" N, 57°49'42.3" E; Bandar-e Jask-Minab road, 25°52'34.9" N, 57°29'47.4" E (Kovářík & Navidpour, 2020:3).

Orthochirus scrobiculosus (Grube, 1873): Haji Abad, 28°18' N, 53°01' E; Bandar-e Khamir, 26°56' N, 55°35' E; Minab, 27°08' N, 57°04' E; Parsian, 27°12' N, 54°22' E (Shahi et al., 2008:211).

Orthochirus stockwelli (Lourenço & Vachon, 1995): Bandar-e Moallem-Bastak road; 26°38'34.8" N, 54°53'52.4" E; 26°45'5" N, 54°53'46.6" E; 26°45'14.9" N, 54°31'44.3" E; Bandar Abbas-Bandar-e Lengeh road, 26°40'40.2" N, 55°04'07.4" E; 26°42'36.6" N, 55°08'11" E; 45 km to Bandar-e Khamir, 26°50'41.2" N, 55°22'06.9" E (Navidpour et al., 2013:15); Bandar Abbas, Geno mountain, 27°23' N, 56°09' E; Qeshm, Dafari village, 26°55' N, 56°12' E; Bandar-e Moallem, 26°40' N, 55°04' E (This study).

Orthochirus varius Kovářík, 2004: Beshagerd Mts., Davari village, 26°27' N, 57°38' E (Kovářík, 2004:21); Jask-Bashagard road, 25°50'11.4" N, 57°50'14.6" E; Jask-Bashagard road, 25°50'53.1" N, 57°50'40.7" E; Jask-Bashagard road, 25°55'18.4" N, 57°49'42.3" E; Jask-Minab road, 25°52'34.9" N, 57°29'47.4" E (Navidpour et al., 2013:16).

***Razianus zarudnyi* (Birula, 1903):** Minab-Sandrak road, 26°59' 35.8" N, 57°09'46.1" E; 26°51'02.9" N, 57°15'27" E; 26°51'57.3" N, 57°19'13.8" E; Jask-Bashagard road, 25°50'53.1" N, 57°50'40.7" E; Jask-Bashagard road, 25°55'18.4" N, 57°49'42.3" E (Navidpour et al., 2013:16).

***Sassanidothus gracilis* (Birula, 1900):** Minab-Jask road, 26°04'49.3" N, 57°17'57.2" E; Jask-Bashagard road, 25°55'18.4" N, 57°49'42.3" E; 29°44'11.5" N, 57°47'37.4" E; Jask-Minab road, 25°52'34.9" N, 57°29'47.4" E; Jask-Minab road, 26°37'30.7" N, 57°05'43" E; Bandar-e Lengeh, 27°08'06" N, 55°49'17.5" E; 26°42' 36.6" N, 55°08'11" E; 45 km to Bandar-e Khamir, 26°50'41.2" N, 55°22'06.9" E (Navidpour et al., 2013:17).

***Sassanidothus zarudnyi* (Birula, 1900):** Bandar Abbas, 27°12'53" N, 56°16'02" E* (Akbari et al., 1997:112).

***Scorpio maurus townsendi* (Pocock, 1900):** Bastak, 26°56' N, 54°35' E; Parsian, 27°12' N, 54°22' E (Shahi et al., 2008:211); Chahvaz, Lavar Khasht, 27°09' N, 53°26' E (This study).

Ilam (18 species)

***Androctonus crassicauda* (Olivier, 1807):** Murmury, 32°46.32' N, 47°39.78' E; Ein Khosh, 32°24.76' N, 47°37.48' E; Dashte Abbas, Ein Saleh village, 32°25.24' N, 47°43.86' E; Dashte Abbas, Seyed Falhi village, 32°24.105' N, 47°36.922' E (Navidpour et al., 2008c:3); Pelkelab, 33°44' N, 46°10' E; Shahrake Shahid Rajaei, 33°45' N, 46°09' E; Ban Amrud, 33°46' N, 46°11' E; Hajbakhtiar, 33°46' N, 46°09' E; Ban Sarve, 33°48' N, 46°08' E; Parde, 33°49' N, 46°07' E (Mozaffari et al., 2013:5413); Aivan Babagir, 46°11' N, 33°56' E; Dehloran, Bishe-deraz, 47°01' N, 32°46' E; Gholandar, 46°27' N, 33°39' E; Mehran, Golan, 46°16' N, 33°25' E; Sirvan, Karezan, 33°44' N, 46°32' E (Sharifinia et al., 2017:245).

***Apistobuthus susanae* Lourenço, 1998:** Ein Khosh, 32°24.76' N, 47°37.48' E (Navidpour et al., 2008c:5).

***Buthacus macrocentrus* (Ehrenberg, 1828):** Dashte Abbas, Ein saleh village, 32°25.24' N, 47°43.86' E; Dashte Abbas, Seyed Falhi village, 32°24.105' N, 47°36.922' E (Navidpour et al., 2008c:5); Abdanan, Murmuri, 32°44' N, 47°41' E; Dehloran, Bishe-deraz, 32°46' N, 47°01' E (Sharifinia et al., 2017:245).

***Compsobuthus jakesi* Kovařík, 2003:** Ein Khosh, 32°24.76' N, 47°37.48' E; Dashte Abbas, Ein Saleh village, 32°25.24' N, 47°43.68' E; Dashte Abbas, Seyed Falhi village, 32°24.105' N, 47°36.922' E; Dehloran, 32° 36.36' N, 47°20.26' E (Navidpour et al., 2008c:8).

***Compsobuthus matthiesseni* (Birula, 1905):** Murmury, 32°46.32' N, 47°39.78' E; Ilam-Ayvan road, 33°41.95' N, 46°23.28' E; Mehran-Dehloran road, 32°55.42' N, 46°41.32' E; Ein Saleh village, 32°25.24' N, 47°43.86' E; Dashte Abbas, Seyed Falhi village, 32°24.105' N, 47°36.922' E; Andimeshk-Dashte Abbas road, 32°21.46' N, 47°57.27' E (Navidpour et al., 2008c:8); Dare-Shahr, 33°10' N, 47°21' E; Ilam, Gholandar, 33°39' N, 46°27' E; Sirvan, Karezan, 33°44' N, 46°32' E; Zarin-abad, Sayed-naseredin village, 33°10' N, 46°50' E (Sharifinia et al., 2017:245); Ban Sarve, 33°48' N, 46°08' E (Mozaffari et al., 2013:5414).

***Hemiscorpius lepturus* Peters, 1861:** Murmury, 32°46.32' N, 47°39.78' E; Abdanan-Murmury road, 32°51.82' N, 47°25.26' E; Mehran-Dehloran road, 32°55.42' N, 46°41.32' E; Andimeshk-Dashte Abbas road, 32°21.46' N, 47°57.27' E (Navidpour et al., 2008c:15); Ban Amrud, 33°46' N, 46°11' E; Ban Sarve, 33°48' N, 46°08' E (Mozaffari et al., 2013:5414); Abdanan, Murmuri, 32°44' N, 47°41' E; Badre, 47°01' N, 33°19' E; Mehran, Golan, 33°25' N, 46°16' E (Sharifinia et al., 2017:245).

Hottentotta saulcyi (Simon, 1880): 30 km northwest of Ilām, 33°43' N, 46°41' E (Kovářík, 2007:65); Murmury, 32°46.32' N, 47°39.78' E (Navidpour et al., 2008c:8); Ilām, 33°36' N, 46°24' E*; Eyvan, 33°50' N, 46°17' E* (Karataş et al., 2012:113); Pelkelab, 33°44' N, 46°10' E; Shahrake Shahid Rajaei, 33°45' N, 46°09' E; Ban Amrud, 33°46' N, 46°11' E; Hajbakhtiar, 33°46' N, 46°09' E; Ban Sarve, 33°48' N, 46°08' E; Parde, 33°49' N, 46°07' E (Mozaffari et al., 2013:5413); Abdanan, Murmuri, 32°44' N, 47°41' E; Aivan Babagir, 33°56' N, 46°11' E; Badre, 33°19' N, 47°01' E; Dare-shahr, 33°10' N, 47°21' E; Dehloran, Bishe-deraz, 32°46' N, 47°01' E; Ilām, Gholandar, 33°39' N, 46°27' E; Mehran, Golan, 33°25' N, 46°16' E; Sirvan, Karezan, 33°44' N, 46°32' E; Zarin-abad, Sayed-naseredin village, 33°10' N, 46°50' E (Sharifinia et al., 2017:245); 30 km northwest of Ilām, 33°43' N, 46°41' E (Kovářík et al., 2018:12).

Mesobuthus eupeus (C. L. Koch, 1839): Ilām, 33°36' N, 46°24' E*; Eyvan, 33°50' N, 46°17' E* (Karataş et al., 2012:115); Ban Sarve, 33°48' N, 46°08' E (Mozaffari et al., 2013:5414); Abdanan, Murmuri, 32°44' N, 47°41' E; Aivan Babagir, 33°56' N, 46°11' E; Badre, 33°19' N, 47°01' E; Dare-shahr, 33°10' N, 47°21' E; Dehloran, Bishe-deraz, 32°46' N, 47°01' E; Ilām, Gholandar, 33°39' N, 46°27' E; Mehran, Golan, 33°25' N, 46°16' E; Sirvan, Karezan, 33°44' N, 46°32' E; Zarin-abad, Sayed-naseredin village, 33°10' N, 46°50' E (Sharifinia et al., 2017:245).

Mesobuthus phillipsii (Pocock, 1889): Ilām-Mehran road, Saleh Abad village, 33°32.40' N, 46°08.74' E; Mehran-Dehloran road, 32°55.42' N, 46°41.32' E; Dehloran road, 33°02.33' N, 46°34.94' E; Dehloran, 32°36.36' N, 47°20.26' E; Murmury-Dehloran road, 32°25.72' N, 47°48.32' E; Dashte Abbas, Seyed Falhi village, 32°24.105' N, 47°36.922' E; Ein Saleh village, 32°25.24' N, 47°43.68' E (Navidpour et al., 2008c:11).

Odontobuthus bidentatus (Lourenço & Pézier, 2002): 70 km to Dehloran, 33°01.74' N, 46°35.87' E; Dashte Abbas, Ein Saleh village, 32°25.24' N, 47°43.86' E; Andimeshk-Dashte Abbas road, 32°21.46' N, 47°57.27' E (Navidpour et al., 2008c:11); Mehran, 33°04' N, 46°21' E* (Karataş et al., 2012:116); Abdanan, Murmuri, 32°44' N, 47°41' E; Dehloran, Bishe-deraz, 32°46' N, 47°01' E (Sharifinia et al., 2017:245).

Odontobuthus doriae (Thorell, 1876): Ban Sarve, 33°48' N, 46°08' E (Mozaffari et al., 2013:5414).

Orthochirus iranus Kovářík, 2004: Dashte Abbas, Ein Saleh village, 32°25.24' N, 47°43.86' E; Dashte Abbas, Seyed Falhi village, 32°24.105' N, 47°36.922' E (Navidpour et al., 2008c:11); Aivan Babagir, 33°56' N, 46°11' E; Dehloran, Bishe-deraz, 32°46' N, 47°01' E; Ilām, Gholandar, 33°39' N, 46°27' E; Mehran, Golan, 33°25' N, 46°16' E; Sirvan, Karezan, 33°44' N, 46°32' E (Sharifinia et al., 2017:245).

Orthochirus mesopotamicus Birula, 1918: Dashte Abbas, Ein Saleh village, 32°25.24' N, 47°43.86' E (Navidpour et al., 2008c:11).

Orthochirus scrobiculosus (Grube, 1873): Ilām, 33°36' N, 46°24' E* (Akbari et al., 1997:112).

Polisius persicus Fet et al., 2001: Dashte Abbas, Ein Saleh village, 32°25.24' N, 47°43.86' E (Navidpour et al., 2008c:13); Abdanan, Murmuri, 32°44' N, 47°41' E (Sharifinia et al., 2017:245).

Razianus zarudnyi (Birula, 1903): Murmury, 32°46.32' N, 47°39.78' E; 32°55.42' N, 46°41.32' E; Dashte Abbas, Ein Saleh village, 32°25.24' N, 47°43.86' E; Andimeshk-Dashte Abbas road, 32°21.46' N, 47°57.27' E (Navidpour et al., 2008c:14); 32°55'42"N, 46°41'32"E (Tahir et al., 2014:19); Badre, 33°19' N, 47°01' E; Mehran, Golan, 33°25' N, 46°16' E; Zarin-abad, Sayed Naseredin village, 33°10' N, 46°50' E (Sharifinia et al., 2017:245).

Scorpio maurus townsendi (Pocock, 1900): Abadanan road, Fazl Abad village, 33°12.56' N, 47°17.57' E; 70 km to Dehloran, 33°01.74' N, 46°35.87' E; Ein Khosh, 32°24.76' N, 47°37.48' E (Navidpour et al., 2008c:14); Pelkelab, 33°44' N, 46°10' E; Shahrake Shahid Rajaei, 33°45' N, 46°09' E; Ban Amrud, 33°46' N, 46°11' E; Hajbakhtiar, 33°46' N, 46°09' E; Ban Sarve, 33°48' N, 46°08' E; Parde, 33°49' N, 46°07' E (Mozaffari et al., 2013:5413); Abdanan, Murmuri, 32°44' EN; 47°41' E, Dehloran, Bishe-deraz, 32°46' N, 47°01' E (Sharifinia et al., 2017:245).

Vachoniolus iranensis Navidpour et al., 2008: Ein Khosh, 32°24' N, 47°37' E (Navidpour, 2008b:2); Ein Khosh, 32°24.76' N, 47°37.48' E (Navidpour et al., 2008c:14).

Kerman (19 species)

Androctonus crassicauda (Olivier, 1807): 5 km northwest of Fahrej, 28°59' N, 58°50' E; Ghaleh Ganj, Tarik Mah village, 27°38'14" N, 57°56'12" E; Kerman, Jupar road, 30°07'25" N, 57°11'26" E; Zarand, 30°47'42" N, 56°35'19" E; Rafsanjan road, Sarcheshmeh (Gode Ahmar), 30°02'53" N, 55°53'54" E; Rafsanjan road, Zarand, 30°32'22" N, 56°04'42" E; Shahr-e Babak, Marza, 30°01'43" N, 55°05'41" E; Sirjan-Kerman road, 29°30'41" N, 55°43'20" E; Jupar-Mahan road, Esmaeel Abad village, 30°04'48" N, 56°05'58" E; Mahan, Shahzadeh garden, 30°01'32" N, 57°16'07" E; Mahan-Kerman road, 30°09'21" N, 57°09'58" E; Kerman-Bagheyn road, 30°14'04" N, 56°55'18" E (Navidpour et al., 2011:3); Bam, 29°07' N, 58°20' E* (Nazari & Hajizadeh, 2017:179).

Compsobuthus kaftani Kovařík, 2003: Bam, Fahraj, 28°56'45" N, 58°53'55" E; Bam-Fahraj road, 28°56'05" N, 58°52'48" E; Bam, Sar Telo, Khajeh Askar village, 29°10'01" N, 58°16'27" E; Kerman, Jupar road, 30°07'25" N, 57°11'26" E; Zarand, 30°47'42" N, 56°35'19" E; Zarand-Kerman road, 30°48'38" N, 56°55'30" E; Rafsanjan road, Zarand, 30°32'22" N, 56°04'42" E; Shahr-e Babak, Marza, 30°01'43" N, 55°05'41" E; Shahr-e Babak, Estabragh, 30°28'12" N, 55°05'36" E; Shahr-e Babak-Herat road, 30°05'50" N, 54°51'30" E; Jupar-Mahan road, Esmaeel Abad village, 30°04'48" N, 56°05'58" E; Jupar-Kerman road, 30°11'56" N, 57°03'18" E; Jupar-Kerman road, 30°10'48" N, 57°03'02" E (Navidpour et al., 2011:6); Bam, 29°07' N, 58°20' E* (Nazari & Hajizadeh, 2017:179).

Compsobuthus matthiesseni (Birula, 1905): Deh Bakri, 29°05' N, 57°55' E; Rabar, Eshgh Abad village, 29°21'04" N, 56°49'05" E (Navidpour et al., 2011:9); Bam, 29°07' N, 58°20' E* (Karatas et al., 2012:112).

Hemiscorpius acanthocercus Monod & Lourenço, 2005: Manoojan city, Patak village, 27°36'12" N, 57°30'37" E (Salari & Sampour, 2017:104).

Hemiscorpius enischmochela Monod & Lourenço, 2005: Manoojan city, Bonak village, daysour, 27°15'40" N, 57°36'54" E; Bonak village, Kolohtak, 27°15'39" N, 57°37'16" E; Maadan mountains Dastkerdpagodar mountain, 27°23'42" N, 57°26'56" E; Maadan mountains, Bekhar mountain, 27°24'14" N, 57°27'25" E; Maadan mountains, Ovdelaazangi mountain, 27°23'55" N, 57°27'37" E (Salari & Sampour, 2017:103).

Hemiscorpius lepturus Peters, 1861: Jiroft, 28°40' N, 57°20' E*; Kahnouj, 27°57' N, 57°42' E; Manoojan, 27°27' N, 57°29' E* (Dehghani et al., 2008:176); Deh Bakri, 29°05.370' N, 57°55.539' E; Baft, Rabar, Nanuk village, 29°19'51" N, 56°50'21" E (Navidpour et al., 2011:21); Manoojan city, Chahak Mountain, 27°28'18" N, 57°28'59" E; Ziarat Abolfazl Mountains 27°51'31" N, 57°41'15" E; Saras village, 27°29'28" N, 57°30'38" E; Bajgan village, 27°38'48" N, 57°26'29" E; Khosroabad village, 27°20'26" N, 57°29'53" E; Bonak village, 27°16'08" N, 57°37'18" E; Bonak

village, banmola Mountains, 27°15'59" N, 57°37'29" E; Bonak, Sarbon village, 27°15'38" N, 57°36'57" E; Kandertol valley, 27°22'44" N, 57°28'39" E; Kalaton village, chahgoarashk, 27°19'56" N, 57°38'56" E; Keshit village, 27°25'41" N, 57°48'12" E (Salari & Sampour, 2017:103).

Hottentotta saulcyi (Simon, 1880): Jiroft, 28°40' N, 57°20' E* (Dehghani et al., 2008:176).

Kraepelinia palpator (Birula, 1903): Jupar road, 30°07'25" N, 57°11'26" E; Shahdad, Dehghan Abad village, 30°27'20" N, 57°49'01" E; Ravar-Mashhad road, 31°21'44" N, 56°50'08" E; Ravar-Mashhad road, Yusef Abad village, 31°20'51" N, 56°48'21" E; Jupar-Kerman road, 30°11'56" N, 57°03'18" E; Jupar-Kerman road, 30°10'48" N, 57°03'02" E; Jupar-Kerman road, 30°07'25" N, 57°11'26" E (Navidpour et al., 2011:9).

Mesobuthus eupeus (C. L. Koch, 1839): Jiroft-Khatoon Abad village, 28°36'23" N, 57°43'04.5" E (Mirshamsi et al., 2010:2856); Deh Bakri, 29°05.370' N, 57°55.539' E; 45 km northeast of Jiroft, 28°58' N, 57°54' E; Jiroft, Tavakol Abad village, 28°26'25" N, 56°49'37" E; Jiroft, Rumrez village, 28°30'03" N, 57°47'01" E; Jiroft, Khadang village, 28°31'01" N, 57°47'49" E; Jiroft, Poshteloor village, 28°36'41" N, 57°45'40" E; Ghaleh ganj, Bolbol Abad village, 27°38'38" N, 57°56'22" E; Rafsanjan road, Sarcheshmeh (Gode Ahmar), 30°02'53" N, 55°53'54" E; Shahr-e Babak, Marza, 30°01'43" N, 55°05'41" E; Sirjan-Baft road, 29°24'01" N, 55°58'42" E; Baft-Kerman road, 29°14'31" N, 56°40'50" E; Baft, Nanook village, 29°20'28" N, 56°50'20" E; Baft, Nanook village, Rabar, 29°20'45" N, 56°50'19" E; Baft-Orzouyeh road, 29°06'56" N, 56°36'52" E; Baft-Orzouyeh road, 29°08'19" N, 56°36'55" E; Baft-Orzouyeh road, 29°09'21" N, 56°37'14" E; Baft-Sirjan road, 29°15'23" N, 56°29'12" E; Ravar-Mashhad road, 31°21'44" N, 56°50'08" E; 8 km north of Bardsir, 29.95° N, 56.58° E (Navidpour et al., 2011:11); Bam, 29°07' N, 58°20' E* (Karataş et al., 2012:115).

Mesobuthus macmahoni (Pocock, 1900): Bam, Badr Abad, Abuzari village, 28°54'05" N, 58°41'05" E; Badr Abad, Narmashir, 28°54'36" N, 58°42'14" E; Bam, Sar Telo, Khajeh Askar village, 29°10'01" N, 58°16'27" E; Zarand, 30°49'59" N, 56°37'31" E; Zarand, 30°50'18" N, 56°36'53" E; Dehdasht, Pabdana, 30°57'24" N, 56°32'23" E; Zarand-Kerman road, 30°48'38" N, 56°55'30" E; Rafsanjan road, Zarand, 30°32'22" N, 56°04'42" E; Baft-Sirjan road, 29°15'23" N, 56°29'12" E; Ravar-Mashhad road, 31°21'44" N, 56°50'08" E; Ravar-Mashhad road, 31°23'31" N, 56°50'50" E; Ravar-Mashhad road, Yusef Abad village, 31°20'51" N, 56°48'21" E; Shahdad, 30°29'06" N, 57°48'28" E; Shahdad, 30°27'54" N, 57°48'47" E (Navidpour et al., 2011:13).

Orthochirus farzanpayi (Vachon & Farzanpay, 1987): Deh Bakri, 29°05.370' N, 57°55.539' E; Bam, Sar Telo, Khajeh Askar village, 29°10'01" N, 58°16'27" E; Chat Rood-Kerman road, 30°25'09" N, 57°01'15" E; Shahdad, 30°29'06" N, 57°48'28" E; Deh Bakri, Gebal Barez Mts, 29.08°N, 57.91°E (Navidpour et al., 2011:15).

Orthochirus gruberi Kovařík & Fet, 2006: near Ğoupār, 30°08' N, 57°09' E (Kovařík & Fet, 2006a: 4); Mahan-Kerman road, 30°07'19" N, 57°03'54" E; Jupar-Kerman road, 30°07'25" N, 57°11'26" E; Jupar-Mahan road, 30°04'06" N, 57°08'35" E (Navidpour et al., 2011:15).

Orthochirus kermanensis Kovařík & Navidpour, 2020: Shahr-e Babak-Anar road, 30°10'53" N, 55°04'56" E; Dehdasht, Pabdana, 30°57'24" N, 56°32'23" E; Zarand, 30°47'42" N, 56°35'19" E; Bardsir-Sirjan road, 29°56'59" N, 56°38'17" E (Kovařík & Navidpour, 2020:8).

Orthochirus kucerae Kovařík & Navidpour, 2020: Bam, Sar Telo, Khajeh Askar village, 29°10'01" N, 58°16'27" E; Deh Bakri, 29°05'37" N, 57°55'53" E; Shahdad, 30°29'06" N, 57°48'28" E; Deh Bakri, Gebal Barez Mts, 29°08' N, 57°91' E; Jabel Barez Mt., Mijan, 25 km east of Jiroft, 28°42'27" N, 57°57'33" E (Kovařík & Navidpour, 2020:15).

Orthochirus scrobiculosus (Grube, 1873): Baft, 29°14' N, 56°37' E*; Jiroft, 28°40' N, 57°20' E*; Rafsanjan, 30°27' N, 55°59' E*; Zarand, 30°50' N, 56°33' E*; Shahr-e Babak, 30°05' N, 55°04' E*; Kerman, 30°18' N, 57°07' E* (Dehghani et al., 2008:176).

Orthochirus zagrosensis Kovařík, 2004: Dehdasht, Pabdana, 30°57'24" N, 56°32'23" E; Zarand, 30°47'42" N, 56°35'19" E; Shahr-e Babak-Anar road, 30°10'53" N, 55°04'56" E; Shahr-e Babak-Anar road, 30°12'15" N, 55°04'25" E; Sirjan-Bandar Abbas road, 29°16'56" N, 55°42'22" E; Baft-Kerman road, 29°13'58" N, 56°40'02" E; Bardsir-Sirjan road, 29°56'59" N, 56°38'17" E; Bardsir-Sirjan road, 29°56'48" N, 56°33'10" E (Navidpour et al., 2011:17); Bam, 29°07' N, 58°20' E* (Nazari & Hajizadeh, 2017:179).

Polisius persicus Fet et al., 2001: Zehkaloote-Jazmuriyan, 27°47'18" N, 58°35'07" E; Zarand, 30°47'42" N, 56°35'19" E; Rafsanjan road, Zarand, 30°32'22" N, 56°04'42" E; Shahr-e Babak, Marza, 30°01'43" N, 55°05'41" E (Navidpour et al., 2011:17).

Sassanidothus gracilis (Birula, 1900): Ghaleh ganj, Tarik mah village, 27°37'40" N, 57°56'26" E; Ghaleh Ganj, Bolbol Abad village, 27°38'38" N, 57°56'22" E; Zehkaloote-Jazmuriyan, 27°47'18" N, 58°35'07" E; Bam-Fahraj road, 28°56'05" N, 58°52'48" E; Bam-Fahraj road, Mozi Abad village, 28°57'02" N, 58°52'01" E; Jupar-Mahan road, 30°04'04" N, 57°12'28" E (Navidpour et al., 2011:19).

Scorpio maurus townsendi (Pocock, 1900): Bam, 29°07' N, 58°20' E* (Karataş et al., 2012:117).

Kermanshah (9 species)

Androctonus crassicauda (Olivier, 1807): Bisotun, 34°23' N, 47°26' E*; Paveh, 35°02' N, 46°20' E* (Karataş et al., 2012:112).

Compsobuthus matthiesseni (Birula, 1905): Qasr-e Shirin, 34°30' N, 45°33' E* (Sissom & Fet, 1998:4); Hasrouabad, 34°10'09" N, 46°21'56" E; 5 km southeast of Posht Chenár, 29°12'41" N, 53°20'14" E; Deh Bahri, 29°05'37" N, 57°55'53" E; 2 km west of Khollar, 29°59'37" N, 52°12'09" E; 10 km south of Firuz Abad, 28°55'89" N, 52°31'37" E (Kovařík, 2003:100).

Hemiscorpius lepturus Peters, 1861: Kermanshah, 34°18' N, 47°09' E* (Akbari et al., 1997:112).

Hottentotta saulcyi (Simon, 1880): Bisotun, 34°23'31" N, 47°26'05" E; Hasrouabad, 34°10'09" N, 46°21'56" E (Kovařík, 2007:65).

Mesobuthus caucasicus (Nordmann, 1840): Kermanshah, 34°18' N, 47°09' E* (Habibi, 1971:31,43).

Mesobuthus eupeus (C. L. Koch, 1839): Kerend, 34°16' N, 46°14' E* (Habibi, 1971:31).

Odontobuthus doriae (Thorell, 1876): Kermanshah, 34°18' N, 47°09' E* (Habibi, 1971:31,44).

Scorpio kruglovi Ehrenberg, 1829: Kermanshah, 34°18' N, 47°09' E* (Karataş et al., 2012:117).

Scorpio maurus townsendi (Pocock, 1900): Kermanshah, 34°18' N, 47°09' E* (Habibi, 1971:44).

Khuzestan (31 species)

Androctonus crassicauda (Olivier, 1807): Ahvaz, 31°14' N, 48°53' E* (Kovářík, 2002:5); Baghmalek, 31°55'17" N, 49°22'15" E; Andimeshk district, Bidrooyeh, Jahangiri village, 32°46'15" N, 48°15'26" E; Ramhormoz road (20 km to Ramhormoz), 31°13'55" N, 49°14'26" E; Dagh Mishan-Abdelkhan road, Razihassan village, 31°51'16" N, 48°19'07" E (Navidpour et al., 2008a:5); Ahvaz, Ommolgharib village, 31°30' N, 48°58' E; Ramhormoz, Environmental Station, 31°15' N, 49°22' E; Shush, Environmental Station; 32°04' N, 48°14' E (This study).

Apistobuthus susanae Lourenço, 1998: Ahvaz, 31°14' N, 48°53' E* (Farzanpay, 1987:143; Lourenço, 1998:242); Hamidiyeh, 31°27'57" N, 48°29'18" E; Ahvaz-Masjed Soleyman road, 31°35'44" N, 48°57'19" E; Ramhormoz road (20 km to Ramhormoz), 31°13'55" N, 49°14'26" E; Dagh Mishan-Abdelkhan road, Razihassan village, 31°51'16" N, 48°19'07" E; Albaji, Ahvaz-Andimeshk road, 20 km to Ahvaz, 31°20'44" N, 48°38'36" E; Ahvaz-Haftgel road (40 km to Haftgel), 31°16'17" N, 49°14'07" E; Ahvaz-Masjed Soleyman road Zoveyer village, 31°35'20" N, 48°57'01" E (Navidpour et al., 2008a:7); Bostan, 31°44'41" N, 47°56'24" E; Omidiyeh, 30°57'49" N, 49°31'47" E (Navidpour & Lowe, 2009:49).

Buthacus leptochelys (Ehrenberg, 1829): Ahvaz, 31°14' N, 48°53' E*; Ramhormoz, 31°15' N, 49°24' E* (Farzanpay, 1987:145).

Buthacus macrocentrus (Ehrenberg, 1828): Ahvaz-Omidiyeh road (40 km to Omidiyeh), 30°37'49" N, 49°31'47" E; Hamidiyeh, 31°27'57" N, 48°29'18" E; Ahvaz-Masjed Soleyman road, 31°49'34" N, 49°05'00" E; Ahvaz-Omidiyeh road (20 km to Omidiyeh), 30°56'12" N, 49°34'00" E; Chogha Zanbil, 32°00'55" N, 48°31'04" E; Ahvaz-Haftgel road (40 km to Haftgel), 31°16'17" N, 49°14'07" E; Ahvaz-Omidiyeh road, Chombeh village, 31°11'54" N, 49°11'41" E; Shush (Apadana Palace), 32°10'55" N, 48°15'39" E (Navidpour et al., 2008a:7); Ahvaz, Ommolghorayb village, 31°30' N, 48°58' E (This study).

Compsobuthus jakesi Kovářík, 2003: Baghmalek, 31°55'28" N, 49°22'25" E; Ahvaz-Omidiyeh road (40 km to Omidiyeh), 30°37'41" N, 49°31'59" E; near Masjed Soleyman, 31°38'31" N, 48°56'34" E; 45 km northwest of Masjed Soleyman, Lali, 32°18'56" N, 49°03'32" E; Shush (Apadana place), 32°10'45" N, 48°15'32" E; Ahvaz-Naft sefid road, 31°44'46" N, 49°11'31" E (Navidpour et al., 2008a:9).

Compsobuthus matthiesseni (Birula, 1905): Dezful, 32°19' N, 48°33' E* (Sissom & Fet, 1998:4); Baghmalek, karbali Ghasem village, 31°27'41" N, 49°57'62" E; Andimeshk, Bidroobeh, Jahangiri village, 32°46'25" N, 48°15'44" E; 45 km northwest of Masjed Soleyman, Lali, 32°18'56" N, 49°03'64" E (Navidpour, 2008a:34); Behbahan-Bibihkimeh road, 30°13'48" N, 50°12'16" E (Navidpour et al., 2008a:9).

Compsobuthus rugosulus (Pocock, 1900): Ahvaz, 31°14' N, 48°53' E* (Birula, 1905:141).

Hemiscorpius acanthocercus Monod & Lourenço, 2005: Omidiyeh, 30°45' N, 49°37' E*; Ramhormoz, 31°15' N, 49°24' E*; Masched-Soleyman, 31°54' N, 49°19' E* (Karataş et al., 2012:118).

Hemiscorpius enischnochela Monod & Lourenco, 2005: Masjed Soleyman, 31°54' N, 49°19' E* (Monod & Lourenço, 2005:886).

Hemiscorpius kashkayi Karataş & Moradi-Gharkheloo, 2013: Andimeshk, Garm village, 32°27' N, 48°21' E; Ahwaz, Omidiyeh, 30°52' N, 49°32' E; Masjed Soliman, 31°56' N, 49°18' E (Karataş & Moradi-Gharkheloo, 2013:16).

Hemiscorpius lepturus Peters, 1861: Ahvaz, 31°14' N, 48°53' E* (Kovařík, 2002:14); Baghmalek, 31°55'17" N, 49°22'15" E; Chogha Zanbil, 32°00'55" N, 48°31'04" E; Behbahan-Bibihkimeh road, 30°13'48" N, 50°12'16" E; 45 km northwest of Masjed- soleyman, Lali, 31°18'33" N, 49°03'39" E; Ahvaz-Masjed Soleyman road, Hadam village; Ahvaz-Masjed Soleyman road, Mayah village, 31°46'31" N, 49°00'36" E (Navidpour et al., 2008a:26); Ramhormoz, 31°15' N, 49°24' E* (Karataş et al., 2012:118).

Hottentotta juliae Kovařík et al., 2019: Andimeshk district, Bidrooyeh, Jahangiri village, 32°46'15" N, 48°15'26" E; Dezful district, Shahyoon village, 32°36'41" N, 48°33'36" E; Ahvaz-Naft Sefid road, 31°44'28" N, 49°11'37" E (Navidpour et al., 2008a:10).

Hottentotta khoozestanus Navidpour et al., 2008: Behbahan-Dailam road, 31°55' N, 49°44' E (Navidpour et al., 2008a:11).

Hottentotta saulcyi (Simon, 1880): Andimeshk district, Bidrooyeh, Jahangiri village, 32°46'15" N, 48°15'26" E; Dezful district, Shahyoon village, 32°36'41" N, 48°33'36" E; Ahvaz-Naft Sefid road, 31°44'28" N, 49°11'37" E (Navidpour et al., 2008a:10).

Hottentotta schach (Birula, 1905): Dehdez, 31°42' N, 50°18' E* (Kovařík et al., 2019b:14).

Hottentotta zagrosensis Kovařík, 1997: 10 km west of Izeh, 31°45'19" N, 49°48'18" E; 5 km southeast of Posht Chenár, 29°12'941" N, 53°20'014" E (Kovařík, 2007:86); Baghmalek district, Karbalai Ghasem village, 31°27'24" N, 49°57'37" E (Navidpour et al., 2008a:10).

Mesobuthus caucasicus (Nordmann, 1840): Behbahan, 30°35' N, 50°11' E* (Habibi, 1971:31,43).

Mesobuthus eupeus (C. L. Koch, 1839): Chogha Zanbil, 32°00' N, 48°31' E (Kovařík, 1997a:46); Ahvaz, 31°14' N, 48°53' E* (Kovařík, 2002:9); Omidiyeh, 30°45' N, 49°37' E* (Karataş et al., 2012:115); Andimeshk, 32°28' N, 48°19' E*; Chamgolak, 32°26' N, 48°26' E*; Mazou, 32°47' N, 48°30' E*; Sorkhakan, 32°46' N, 48°19' E* (Nejati et al., 2018:7140).

Mesobuthus phillipsii (Pocock, 1889): Baghmalek district, Hore village, 31°55'30" N, 49°31'47" E; Shush (Apadana Palace), 32°10'55" N, 48°15'39" E; Ahvaz-Masjed Soleyman road, 31°48'08" N, 48°58'07" E; Chogha Zanbil, 32°00'55" N, 48°31'04" E; Ahvaz-Masjed Soleyman road, 31°46'31" N, 49°06'01" E; Ahvaz-Masjed Soleyman road, 31°49'34" N, 49°05'00" E; 45 km northwest of Masjed Soleyman, Lali, 31°18'33" N, 49°03'39" E (Navidpour et al., 2008a:12; Shahyoon (Dezful), 32°10'92" N, 48°15'64" E; Ahvaz-Masjed Soleyman road, 31°48'13" N, 48°58'11" E; Chogha Zanbil, 32°00'92" N, 48°31'10" E (Kovařík et al., 2011:6).

Odontobuthus bidentatus (Lourenço & Pézier, 2002): Omidiyeh, 30°57'49" N, 49°31'47" E; Dezful district, Shahyoon village, 32°36'41" N, 48°33'36" E; 45 km northwest of Masjed Soleyman, Lali, 31°18'33" N, 49°03'39" E; Andimeshk district, Bidrooyeh, Jahangiri village, 32°46'15" N, 48°15'26" E; Ahvaz-Omidiyeh road, Chombeh village, 31°11'54" N, 49°11'41" E; Ahvaz-Omidiyeh road (20 km to Omidiyeh), 30°56'12" N, 49°34'00" E (Navidpour et al., 2008a:13); Omidiyeh, 30°57'49" N, 49°31'47" E (Lowe, 2010:22); Ramhormoz, 31°15' N, 49°24' E* (Azghadi et al., 2014:171).

Orthochirus farzanpayi (Vachon & Farzanpay, 1987): 5 km southeast of Posht Chenar, 29°12' N, 53°20' E (Navidpour et al., 2008a:15).

Orthochirus gantenbeini Kovarik et al., 2019: Dezful District, Shahyoon village, 32°36'41" N, 48°33'36" E (Navidpour et al., 2008a:20).

Orthochirus iranus Kovařík, 2004: Chogha Zanbil, 32°00' N, 48°31' E (Kovařík, 1997a:47; Kovařík, 2004:13); Baghmalek district, Karbalai Ghasem village, 31°27'24" N, 49°57'37" E; Ahvaz-Omidieh road (40 km to Omidieh), 30°37'49" N, 49°31'47" E; Baghmalek district, Karbalai Ghasem village, 31°27'24" N, 49°57'37" E; Ahvaz-Masjed Soleyman road, 31°49'34" N, 49°05'00" E (Navidpour et al., 2008a:17).

Orthochirus mesopotamicus Birula, 1918: Shadegan District, Toopjeh village, 30°39'33" N, 48°36'44" E; Omidieh, 30°57'49" N, 49°31'47" E; near Masjed Soleyman, 31°38'40" N, 48°56'41" E; Shushtar, 31°27'57" N, 48°29'18" E (Navidpour et al., 2008a:17; Kovařík et al., 2019a:16).

Orthochirus navidpouri Kovarik et al., 2019: Jeiugir, 32°19'37" N, 48°30'40" E (Kovařík et al., 2019a:22).

Orthochirus scrobiculosus (Grube, 1873): Shadegan, 30°39' N, 48°44' E*; Omidieh, 30°45' N, 49°37' E*; Sousangerd, 31°34' N, 48°09' E*; Ahvaz, 31°14' N, 48°53' E*; Abadan, 30°21' N, 48°20' E*; Khorram Shahr, 30°27' N, 48°11' E*; Ramshir, 30°53' N, 49°23' E* (Pooladgar, 1999:176).

Orthochirus zagrosensis Kovařík, 2004: Shushtar District, Arab Hasan village, 31°49' N, 48°53' E* (Kovařík et al., 2019a:26).

Razianus zarudnyi (Birula, 1903): Baghmalek, 31°55'17" N, 49°22'15" E; Chogha Zanbil, 32°00'55" N, 48°31'04" E; Andimeshk district, Bidrooyeh, Jahangiri village, 32°46'15" N, 48°15'26" E; 45 km northwest of Masjed Soleyman, Lali, 31°18'33" N, 49°03'39" E; Shushtar; Gotvand-Shushtar road; Behbahan-Bibihakimeh road, 30°13'48" N, 50°12'16" E; Ahvaz-Masjed Soleyman road, Zoveyer village, 31°35'20" N, 48°57'01" E; Ahvaz-Masjed Soleyman road, Mayah village, 31°46'31" N, 49°06'01" E; Fakeh, 32°19'33" N, 49°07'52"E (Navidpour et al., 2008a:21); Ahvaz-Masjed Soleyman road, Mayah village, 31°46'31"N, 49°06'01"E (Tahir et al., 2014:19).

Sassanidothus zarudnyi (Birula, 1900): Omidieh, 30°45' N, 49°37' E*; Sousangerd, 31°34' N, 48°09' E*; Ahvaz, 31°14' N*, 48°53' E; Ramshir, 30°53' N, 49°23' E* (Pooladgar, 1999:176).

Scorpio maurus townsendi (Pocock, 1900): Ahvaz, 31°14' N, 48°53' E* (Kovařík, 2002:19); Ahvaz-Ramhormoz road, 31°11'54" N, 49°11'41" E; Shushtar-Gotvand road; Dezful district, Shahyoon village, 32°36'41" N, 48°33'36" E; 45 km northwest of Masjed Soleyman, Lali, 31°18'33" N, 49°03'39" E; Shush (Apadana Palace), 32°10'55" N, 48°15'39" E (Navidpour et al., 2008a:26).

Vachoniolus iranus Navidpour et al., 2008: Masjed Soleyman, 31°38'40" N, 48°56'41" E; Ahvaz-Masjed Soleyman road, 31°35'44" N, 48°57'19" E (Navidpour, 2008b:2; Navidpour et al., 2008a:22).

Kohgilouyeh and Boyer Ahmad (17 species)

Androctonus crassicauda (Olivier, 1807): Cheram, 30°44'23" N, 50°44'35" E; Dehdasht-Behbahan road, Filegah village, 30°31'21" N, 50°24'51" E (Navidpour et al., 2008d:3).

Compsobuthus matthiesseni (Birula, 1905): Yasuj, Deelaroo village, 30°33'44" N, 50°44'44" E; Yasuj-Mourgah road, Jahanno village, 30°29'20" N, 51°31'38" E; Yasuj-Basht road, Deh Bozorg village, 30°19'16" N, 51°13'30" E; Basht-Dehdasht road, Shah Baharan village, 30°36'51" N, 50°50'46" E; Cheram, 30°44'23" N, 50°44'35" E (Navidpour et al., 2008d:5).

Hemiscorpius lepturus Peters, 1861: Zagros Mts., Kuh-e Dinar ridge, 10 km northeast of Yasuj, by road, 30°39' N, 51°36' E (Kovařík, 1997a:48); Yasuj, Deelaroo village, 30°33'44" N, 50°44'44" E; Yasuj-Sisakht road, Dena, 30°48'15" N, 51°28'54" E; Yasuj-Mourgah road, Jahanno village, 30°29'20" N, 51°31'38" E; Basht-Dehdasht road, Shah Baharan village, 30°36'51" N, 50°50'46" E; Cheram, 30°44'23" N, 50°44'35" E; Dehdasht-Behbahan road, Filegah village, 30°31'21" N, 50°24'51" E (Navidpour et al., 2008d:14).

Hottentotta saulcyi (Simon, 1880): Yasuj-Mourgah road, Jahanno village, 30°29'20" N, 51°31'38" E (Navidpour et al., 2008d:5; Kovařík et al., 2018:12).

Hottentotta schach (Birula, 1905): Yasuj, 30°40' N, 51°32' E*; Sisakht, 30°51' N, 51°28' E*; Gachsaran, 30°20' N, 50°47' E*; Dehdasht, 30°49' N, 50°34' E* (Akbari et al., 2001:26).

Hottentotta zagrosensis Kovařík, 1997: Yasuj, Deelaroo village, 30°33'44" N, 50°44'44" E (Navidpour et al., 2008d:5); Yasuj, Loodab, 30°56' N, 50°54' E (This study).

Mesobuthus caucasicus (Nordmann, 1840): Gachsaran, 30°20' N, 50°47' E* (Azizi et al., 2001:8).

Mesobuthus eupeus (C. L. Koch, 1839): Zagros Mts., Kuh-e Dinar ridge, 10 km northeast of Yasuj, by road, 30°39' N, 51°36' E (Kovařík, 1997a:46); Yasuj, Loodab, 30°56' N, 50°54' E (This study).

Mesobuthus phillipsii (Pocock, 1889): Behbahan-Gachsaran (Dogonbadan) road, 30°28'36" N, 50°30'05" E; Yasuj, Deelaroo village, 30°33'44" N, 50°44'44" E; Dena, Yasuj-Sisakht road, 30°48'15" N, 51°28'54" E; Yasuj-Mourgah road, Jahanno village, 30°29'20" N, 51°31'38" E; Basht road, Dehno village, 30°17'41" N, 51°25'08" E; Basht-Dehdasht road, Shah Baharan village, 30°36'51" N, 50°50'46" E; Cheram, 30°44'23" N, 50°44'35" E; Dehdasht-Behbahan road, Filegah village, 30°31'21" N, 50°24'51" E; Dehdasht, Safiri village, 30°46'37" N, 50°41'18" E (Navidpour et al., 2008d:7; Kovařík et al., 2011:6).

Odontobuthus bidentatus (Lourenço & Pézier, 2002): Behbahan-Gachsaran road, Dogonbadan, 30°28'36" N, 50°30'05" E; Dehdasht-Behbahan road, Filegah village, 30°31'21" N, 50°24'51" E (Navidpour et al., 2008d:7).

Orthochirus farzanpayi (Vachon & Farzanpay, 1987): 5km southeast of Posht Chenár, 29°12'94" N, 53°20'01" E (Kovařík & Fet, 2006a:3)

Orthochirus iranensis Kovařík, 2004: Yasuj, Deelaroo village, 30°33'44" N, 50°44'44" E (Navidpour et al., 2008d:7).

Orthochirus scrobiculosus (Grube, 1873): Yasuj, 30°40' N, 51°32' E*; Sisakht, 30°51' N, 51°28' E*; Gachsaran, 30°20' N, 50°47' E* (Akbari et al., 2001:26).

Orthochirus semnanensis Kovařík & Navidpour, 2020: Garmsar, Ghasre-Bahram, 36°22' N, 54°23' E (Kovařík & Navidpour, 2020:23).

Orthochirus zagrosensis Kovařík, 2004: Zagros Mts., Kuh-e Dinar ridge, 10 km northeast of Yasuj, by road, 30°39' N, 51°36' E (Kovařík, 1997a:47).

Razianus zarudnyi (Birula, 1903): Yasuj, Deelaroo village, 30°33'44" N, 50°44'44" E; Cheram, 30°44'23" N, 50°44'35" E (Navidpour et al., 2008d:11).

Scorpio maurus townsendi (Pocock, 1900): Behbahan-Gachsaran road, Dogonbadan, 30°28'36" N, 50°30'05" E; Dehdasht-Behbahan road, Filegah village, 30°31'21" N, 50°24'51" E; Dehdasht, Safiri village, 30°46'37" N, 50°41'18" E (Navidpour et al., 2008d:13).

Kurdistan (5 species)

Androctonus crassicauda (Olivier, 1807): Sanandaj, 35°19' N, 47°02' E* (Habibi, 1971:31,42).

Hottentotta saulcyi (Simon, 1880): Baneh, 36°00' N, 45°54' E* (Habibi, 1971:31,43); Sanandaj, 35°19' N, 47°02' E* (Karatas & Moradi-Gharkheloo, 2006:86).

Mesobuthus eupeus (C. L. Koch, 1839): Sanandaj, 35°19' N, 47°02' E* (Habibi, 1971:31,43).

Scorpio kruglovi Ehrenberg, 1829: Sanandaj, 35°19' N, 47°02' E* (Habibi, 1971:44).

Scorpio maurus townsendi (Pocock, 1900): Sanandaj, 35°19' N, 47°02' E* (Farzanpay, 1987:165).

Lorestan (17 species)

Androctonus crassicauda (Olivier, 1807): Kuhdasht, Darb-e Gonbad village, 33°41'45" N, 47°09'11" E; Dorud, Daryab village, 33°32'51" N, 48°59'27" E (Navidpour et al., 2010:3); Aligudarz, 33°23' N, 49°43' E*; Sepiddasht, 33°12' N, 48°52' E* (Taherian et al., 2014:48); Poldokhtar, 33°08' N, 47°43' E* (Nazari & Rastegar, 2016:7).

Apistobuthus susanae Lourenço, 1998: Aligudarz, 33°23' N, 49°43' E*; Poldokhtar, 33°08' N, 47°43' E* (Farzanpay, 1987:143).

Buthacus macrocentrus (Ehrenberg, 1828): Aligudarz, 33°23' N, 49°43' E* (Taherian et al., 2014:48).

Compsobuthus matthiesseni (Birula, 1905): 30 km west of Khorramabad, Gholaman village, 32°25' N, 48°12' E (Kovařík, 1997a:40); Jeiugir, 32°19'37" N, 48°30'40" E; 10 km southeast of Bavineh, 33°36'08" N, 47°11'59" E (Kovařík, 2003:100); 10 km southeast of Bavineh, 33°36'08" N, 47°11'59" E; Dorud, Gahar, 33°19'16" N, 49°17'17" E; Khorramabad, Roodkhoshke village, 33°43'50" N, 48°29'53" E; Khorramabad, Nojhiyan, 33°16'14" N, 48°31'38" E; Khorramabad, 33°29'36" N, 48°20'45" E; Kuhdasht, Darbe Gonbad village, 33°41'45" N, 47°09'11" E; Kuhdasht, Nal Eshgeneh village, 33°30'45" N, 47°31'40" E; Aleshtar, Shineh village, 33°47'37" N, 47°55'47" E; Azna, Charkheshan village, 33°40'21" N, 48°23'30" E; Azna, 33°29'13" N, 49°28'10" E; Poldokhtar, Maemulan, 33°23'50" N, 48°58'17" E; Khorramabad, Sarabe Doreh, 33°34'17" N, 48°01'00" E; Khorramabad, Papi khaldare sofia village, 33°32'24" N, 48°19'11" E; Khorramabad, Kamalvand village, 33°29'13" N, 48°25'22" E (Navidpour et al., 2010:5); Poldokhtar, 33°08' N, 47°43' E* (Nazari & Rastegar, 2016:7).

Compsobuthus rugosulus (Pocock, 1900): Poldokhtar, 33°08' N, 47°43' E* (Nazari & Rastegar, 2016:7).

Hemiscorpius lepturus Peters, 1861: Aligudarz, 33°23' N, 49°43' E*; Poldokhtar, 33°08' N, 47°43' E* (Farzanpay, 1987:168); 30 km west of Khorramabad, Gholaman village, 32°25' N, 48°12' E (Kovařík, 1997a:48); Poldokhtar, Valiyeasr village, 33°05'22" N, 47°42'39" E; Kuhdasht, Darbe Gonbad village, 33°41'45" N, 47°09'11" E; Khorramabad, Haftcheshmeh village, 33°48'39" N, 47°46'03" E; Sepiddasht, Dareashkaft village, 33°13'46" N, 48°49'18" E; Aleshtar, Shineh village, 33°47'37" N, 47°55'47" E; Khorramabad, Sarabe Doreh, 33°34'17" N, 48°01'00" E; Leshtar, Dareh Kakareza village, 33°43'41" N, 48°15'33" E; Khorramabad, Papi Khaldare Sofla village, 33°32'24" N, 48°19'11" E (Navidpour et al., 2010:17); Aligudarz, 33°23' N, 49°43' E*; Sepiddasht, 33°12' N, 48°52'50.25" E* (Taherian et al., 2014:48); Poldokhtar, 33°08' N, 47°43' E* (Nazari & Rastegar, 2016:7).

Hottentotta lorestanus Navidpour et al., 2010: Borujerd, Wenoiei village, 33°54'21" N, 48°35'32" E (Navidpour et al., 2010:7).

Hottentotta saulcyi (Simon, 1880): 30 km west of Khorramabad, Gholaman village, 32°25' N, 48°12' E (Kovařík, 1997a:40); Dorud, 80 km east of Khorramabad, 33°27' N, 49°01' E (Kovařík, 2007:65); Khorramabad, Roodkhoshke village, 33°43'50" N, 48°29' 53" E; Aleshtar, Parmake Olya village, 33°49'10"N, 48°22'52"E; Azna, Ghale Rostam village, 33°24'54" N, 49°15'46" E; Khorramabad, Nojhiyan, 33°16'14" N, 48°31'38" E; Poldokhtar, Valiyeasr village, 33°05'22" N, 47°42'39" E; Poldokhtar, Zirtang village, 33°14'12" N, 48°12'33" E; Khorramabad, Shahshah village, 33°24'39" N, 48°18'16" E; Nurabad, Zaliabad village, 34°00'35" N, 48°01'39" E; Khorramabad, Haftcheshmeh village, 33°48'39" N, 47°46'03" E; Aligudarz, Shoolabad village, 33°11'44" N, 49°11'31" E; Sepiddasht, Dareashkaft village, 33°13'46" N, 48°49' 18" E; Aligudarz, Gandomineh village, 33°17'05" N, 49°54'33" E; Borujerd, Wenoiei village, 33°54'21" N, 48°35'32" E; Aleshtar, Shineh village, 33°47'37" N, 47°55'47" E; Dorud, Papiun village, 33°43'15" N, 49°10'21" E; Dorud, Daryab village, 33°32'51" N, 48°59'27" E; Kohdasht, Namjoo Olad village, 33°44'22" N, 47°28'28" E; Kohdasht, Shoorabeh Sofla village, 33°23'25" N, 47°23'40" E; Kohdasht, Damavand Sofla village, 33°15' 33" N, 47°15'46" E; Kohdasht, Naveh Basat village, 33°31'22" N, 47°27'06" E; Khorramabad, Razan, 33°33'07" N, 48°50'19" E; Borujerd, Dareh Chapi village, 33°47'44" N, 48°44'11" E; Khorramabad, Hossein Abad village, 33°27'35" N, 48°21'30" E; Kohdasht, Chahpit village, 33°30'18" N, 47°05'30" E; Borujerd, Cheshmeh Sardeh village, 33°00'24" N, 48°31'54" E; Poldokhtar, Absard village, 33°09'39" N, 48°05'52" E; Khorramabad, Cheshmeh zamzam village, 33°30'52" N, 48°51'44" E; Azna, 33°29'13" N, 49°28'10" E; Poldokhtar, Maemulan, 33°23'50" N, 48°58'17" E; Aligudarz, Khyemeh Sofla village, 33°29'44" N, 49°43'33" E; Poldokhtar, Asar road, 33°01'22" N, 47°54'15" E; Dorud, Tanur Dareh village, 33°34'39" N, 48°03'51" E; Aleshtar, Dareh tang village, 33°56'33" N, 49°18'59" E; Leshtar, Dareh Kakareza village, 33°43'41" N, 48°15'33" E; Khorramabad, Papi khaldare Sofla village, 33°32'24" N, 48°19'11" E (Navidpour et al., 2010:10); Aligudarz, 33°23' N, 49°43' E*; Sepiddasht, 33°12' N, 48°52' E* (Taherian et al., 2014:48); Poldokhtar, 33°08' N, 47°43' E* (Nazari & Rastegar, 2016:7).

Hottentotta zagrosensis Kovařík, 1997: Dorud, Papiun village, 33°43'15" N, 49°10'21" E (Navidpour et al., 2010:13).

Mesobuthus eupeus (C. L. Koch, 1839): Aligudarz, 33°23' N, 49°43' E*; Sepiddasht, 33°12' N, 48°52' E* (Taherian et al., 2014:48).

Mesobuthus phillipsii (Pocock, 1889): Nurabad, Nosratabad village, 34°12'13" N, 47°45'30" E; Nurabad, Zaliabad village, 34°00'35" N, 48°01'39" E; Borujerd, Wenoiei village, 33°54'21" N, 48°35'32" E; Aleshtar, Shineh village, 33°47'37" N, 47°55'47" E; Borujerd, Ghalaeh Kamurkhan village, 33°53'34" N, 48°59'35" E; Azna, Charkheshan village, 33°40'21" N, 48°23'30" E; Dorud, Papiun village, 33°43'15" N, 49°10'21" E; Khorramabad, Razan, 33°33'07" N, 48°50'19" E; Borujerd, Cheshmeh sardeh village, 33°00'24" N, 48°31'54" E; Azna, 33°29'13" N, 49°28'10" E; Aligudarz, Khyemeh Sofla village, 33°29'44" N, 49°43'33" E; Poldokhtar-Asar road, 33°01'22" N, 47°54'15" E; Doreh, 33°34'17" N, 48°01'00" E; Aleshtar, Darehtang village, 33°56'33" N, 49°18'59" E; Khorramabad, Kamalvand village, 33°29'13" N, 48°25'22" E (Navidpour et al., 2010:13).

Odontobuthus doriae (Thorell, 1876): Borujerd, 33°54' N, 48°47' E* (Lourenço & Pézier, 2002:116).

Orthochirus iranus Kovařík, 2004: Poldokhtar, Valiyeasr village, 33°05'22" N, 47°42'39" E; Kohdasht, Chahpit village, 33°30'18" N, 47°05'30" E (Navidpour et al., 2010:15); Aligudarz, 33°23' N, 49°43' E* (Taherian et al., 2014:48).

Orthochirus navidpouri Kovarik et al., 2019: Dorud, 33°26'57" N, 49°01'14" E; Khorramabad, Haftcheshmeh village, 33°48'39" N, 47°46'03" E; Sepiddasht, Dareashkaft village, 33°13'46" N, 48°49'18" E; Poldokhtar, Maemulan, 33°23'50" N, 48°58'17" E (Navidpour et al., 2010:15; Kovařík et al., 2019a:22).

Orthochirus scrobiculosus (Grube, 1873): Poldokhtar, 33°08' N, 47°43' E* (Nazari & Rastegar, 2016:7).

Razianus zarudnyi (Birula, 1903): Dorud, Gahar, 33°19'16" N, 49°17' 17" E; Khorramabad, Sarabe Doreh, 33°34'17" N, 48°01'00" E (Navidpour et al., 2010:16).

Scorpio maurus townsendi (Pocock, 1900): Poldokhtar-Asar road, 33°01'22" N, 47°54'15" E (Navidpour et al., 2010:17); Poldokhtar, 33°08' N, 47°43' E* (Nazari & Rastegar, 2016:7).

Markazi (8 species)

Androctonus crassicauda (Olivier, 1807): Lajrood village, 34°01'19.2" N, 49°18'24.6" E; Delijan-Mahalat, 33°52'08.6" N, 50°28' 04.3" E (Navidpour et al., 2019:2).

Hottentotta saulcyi (Simon, 1880): Lajrood village, 34°01'19.2" N, 49°18'24.6" E (Navidpour et al., 2019:3).

Iranobuthus krali Kovařík, 1997: Delijan-Mahalat, 33°52'08.6" N, 50°28'04.3" E (Navidpour et al., 2019:4).

Mesobuthus caucasicus (Nordmann, 1840): Arak, 34°07' N, 49°43' E* (Farzanpay, 1987:157).

Mesobuthus eupeus (C. L. Koch, 1839): Tooreh, 34°02'14.3" N, 49°18'01.2" E; Lajrood village, 34°01'19.2" N, 49°18'24.6" E; Divar Kharabeh, 33°48'32.2" N, 50°19'48.3" E; Khomayn, 33°44'05.9" N, 50°14'25.8" E; Khomayn-Arak road, 33°58'47.8" N, 49°52'05.3" E; Khomayn, 33°50'13.1" N, 49°59'30.4" E; Khoogan village, 33°47'00.4" N, 50°09'43.6" E; Khoogan to Khomayn, 33°48'57.2" N, 50°03'42.7" E; Komayjan to Khomayn, 34°43'28" N, 49°31'16" E; Farahan-Arak, 34°25'59" N, 49°40'03" E; Salafcehgan-Arak, 34°17'04" N, 50°11'28" E; Salafcehgan, 34°15'14" N, 50°08'46" E; Shahsavaran, 34°12'14" N, 50°03'39" E; Gooshe Sinjan village, 33°56'59" N, 49°37'08" E; Cheshmeh Abad village, 33°58'58" N, 49°36'57" E (Navidpour et al., 2019:4).

Odontobuthus doriae (Thorell, 1876): Delijan-Mahalat, 33°52'08.6" N, 50°28'04.3" E; Mahalat, 33°50'27.6" N, 50°22'03.4" E; Khomayn, 33°44'05.9" N, 50°14'25.8" E; Khomayn-Arak road, 33°58'47.8" N, 49°52'05.3" E; Khomayn, 33°50'13.1" N, 49°59'30.4" E; Khoogan village, 33°47'00.4" N, 50°09'43.6" E; Farahan-Arak, 34°25'59" N, 49°40'03" E; Salafcehgan-Arak, 34°17'04" N, 50°11'28" E; Salafcehgan, 34°15'14" N, 50°08'46" E; Shahsavaran, 34°12'14" N, 50°03'39" E; Cheshmeh Abad village, 33°58'58" N, 49°36'57" E (Navidpour et al., 2019:6).

Scorpio kruglovi Ehrenberg, 1829: Lajrood village, 34°01'19.2" N, 49° 18'24.6" E; Khoogan village, 33°47'00.4" N, 50°09'43.6" E; Farahan-Arak, 34°25'59" N, 49°40'03" E; Gooshe Sinjan village, 33°56'59" N, 49°37'08" E; Cheshmeh Abad village, 33°58'58" N, 49°36'57" E (Navidpour et al., 2019:13).

Scorpio maurus townsendi (Pocock, 1900): Arak, 34°07' N, 49°43' E* (Habibi, 1971:44).

Mazandaran (3 species)

Hottentotta saulcyi (Simon, 1880): Sari, 36°34' N, 53°06' E* (Karataş & Moradi-Gharkheloo, 2006:86).

Mesobuthus eupeus (C. L. Koch, 1839): 35 km south of Chalus, 36°37' N, 51°24' E* (Farzanpay & Pretzmann, 1974:216); Vali Abad village, 36°14' N, 51°18' E (Kovářik, 1997a:46); Sari, 36°34' N, 53°06' E* (Motevalli Haghi et al., 2004:93); Chalus-Kordichal, 36.5166°N, 51.2166°E; Kiasar Kiasar, Savasareh village, 36.23°N, 53.54°E (Mirshamsi et al., 2010:2855); Marzan Abad, 36°26' N, 51°17' E*; Vali Abad village, 36°14' N, 51°18' E (Kovářik et al., 2011:3).

Scorpio kruglovi Ehrenberg, 1829: Sari, 36°34' N, 53°06' E* (Karataş et al., 2012:117).

North Khorasan (4 species)

Hottentotta saulcyi (Simon, 1880): Bojnourd, 37°26' N, 57°18' E* (Karataş & Moradi-Gharkheloo, 2006:86).

Mesobuthus eupeus (C. L. Koch, 1839): Bojnourd, 37°26' N, 57°18' E* (Habibi, 1971:31,43).

Odontobuthus tigrari Mirshamsi et al., 2013: Bojnourd, 37°26' N, 57°18' E* (Karataş et al., 2012:116).

Scorpio kruglovi Ehrenberg, 1829: Bojnourd, 37°26' N, 57°18' E* (Karataş et al., 2012:117).

Qazvin (8 species)

Androctonus crassicauda (Olivier, 1807): Qazvin, 36°15' N, 49°57' E* (Farzanpay & Pretzmann, 1974:215; Takestan, 36°03' N, 49°39' E*; Qazvin, 36°15' N, 49°57' E* (Karataş et al., 2012:112).

Hottentotta saulcyi (Simon, 1880): Gazor Khan, 36°26' N, 50°34' E* (Karataş et al., 2012:114).

Hottentotta zagrosensis Kovářik, 1997: Gazor Khan, 36°26' N, 50°34' E* (Karataş et al., 2012:114);

Mesobuthus brutus Fet et al., 2018: Alamut, 36.44°N, 50.59°E (Fet et al., 2018:7).

Mesobuthus eupeus (C. L. Koch, 1839): Qazvin, 36°15' N, 49°57' E*; Gazor Khan, 36°26' N, 50°34' E* (Karataş et al., 2012:115).

Odontobuthus doriae (Thorell, 1876): Qazvin, 36°15' N, 49°57' E* (Lourenço & Pézier, 2002:116).

Scorpio kruglovi Ehrenberg, 1829: Takestan, 36°03' N, 49°39' E*; Gazor Khan, 36°26' N, 50°34' E* (Karataş et al., 2012:117).

Scorpio maurus townsendi (Pocock, 1900): Qazvin, 36°15' N, 49°57' E* (Farzanpay, 1987:165).

Qom (7 species)

Androctonus crassicauda (Olivier, 1807): Qom, 34°38' N, 50°57' E* (Karataş et al., 2012:111-112).

Compsobuthus matthiesseni (Birula, 1905): Qom, 34°38' N, 50°57' E* (Sissom & Fet, 1998:4).

Compsobuthus petriolii Vignoli, 2005: Qom, 34°38' N, 50°57' E* (Karataş et al., 2012:112).

Iranobuthus krali Kovařík, 1997: Qom, 34°38' N, 50°57' E* (Karataş et al., 2012:114).

Mesobuthus caucasicus (Nordmann, 1840): Qom, 34°38' N, 50°57' E* (Habibi, 1971:31,43).

Mesobuthus eupeus (C. L. Koch, 1839): Kahak, 34°23' N, 50°52' E* (Karataş et al., 2012:115).

Odontobuthus doriae (Thorell, 1876): Qom, 34°38' N, 50°57' E* (Habibi, 1971:31,44).

Razavi Khorasan (7 species)

Androctonus crassicauda (Olivier, 1807): Zirkouh, 33°34' N, 60°00' E* (Birula, 1900:355); Gonabad, 34°22' N, 58°39' E* (Ramezani et al., 2010:57); Khaf, 34°32' N, 60°09' E (This study).

Liobuthus kessleri Birula, 1898: Sarakhs, 36°32' N, 61°00' E* (Vachon, 1958a:422; Farzanpay, 1987:151).

Mesobuthus eupeus (C. L. Koch, 1839): Taibad, Haji Abad, 34°41' N, 60°51' E*; Kariz, 34°48' N, 60°48' E* (Vatani & Khoobdel, 2009:9); Neishabour-Pivezhan, 36.033°N, 59.33°E; Mashhad, Moghan village, 36.116°N, 59.37°E; 10 km south of Mashhad, 34.185°N, 58.754°E; Sarakhs road-Robate-Sharaf 36.316° N, 60.583°; Gonabad, 10 km northeast Kakhk, 34.185°N, 58.754°E (Mirshamsi et al., 2010:2855); Khaf, Ebrahimi village, 34°35' N, 60°02' E; Torbat Heidariyeh, Malekabad village, 35°17' N, 59°22' E; Torbat Jaam, Bezd village, 35°11' N, 60°24' E; Gonabad, Ghosd Jungle, 34°25' N, 58°44' E (This study).

Mesobuthus parthorum (Pocock, 1889): Mashhad, 36°13' N, 59°35' E* (Kovařík, 2002:9); Taibad, Haji Abad, 34°41' N, 60°51' E* (Vatani & Khoobdel, 2009:9); Between Harirud Valley and Mashhad, 36.00°N, 60.25°E (Fet et al., 2018:48); Torbat Heidariyeh, 35°20' N, 59°12' E (This study).

Odontobuthus tirgari Mirshamsi et al., 2013: Gonabad, 3 km northeast of Kakhk, Marghesh village, 34.146°N, 58.644°E; Ostad road, 34.125°N, 58.775°E (Mirshamsi et al., 2013:158); Gonabad, northeast of Kakhk, 34.185°N, 58.754°E (Azghadi et al., 2014:171); Gonabad, Kakhk-Ostad road, 34°07' N, 58°46' E (This study).

Orthochirus scrobiculosus (Grube, 1873): Shurak Maleki, 36°05' N, 60°25' E (Kovařík, 2004:20); Taibad, Haji Abad, 34°41' N, 60°51' E* (Vatani & Khoobdel, 2009:9); Torbat Heidariyeh, Malekabad village, 35°17' N, 59°22' E; Gonabad, Ghosd Jungle, 34°25' N, 58°44' E (This study).

Scorpio kruglovi Ehrenberg, 1829: Mashhad, 36°13' N, 59°35' E* (Habibi, 1971:44).

Semnan (6 species)

Androctonus crassicauda (Olivier, 1807): Semnan, 35°34' N, 53°26' E* (Karataş et al., 2012:111-112).

Mesobuthus caucasicus (Nordmann, 1840): Semnan, 35°34' N, 53°26' E* (Karataş et al., 2012:114).

Mesobuthus eupeus (C. L. Koch, 1839): Biarjomand, 30°01'54.7" N, 50°04'57.6" E; Mohammad Abad, Kalate Hizoumi, 30°28'48.3" N, 49°04'12.5" E (Mirshamsi et al., 2010:2856); Semnan, 35°34' N, 53°26' E* (Karataş et al., 2012:115).

Odontobuthus doriae (Thorell, 1876): Garmsar, 35°12' N, 52°18' E* (Lowe, 2010:22); Semnan, 35°34' N, 53°26' E* (Azghadi et al., 2014:171); Mehdishahr, Darjazin, 35°37' N, 53°21' E (This study).

Scorpio kruglovi Ehrenberg, 1829: Semnan, 35°34' N, 53°26' E* (Karataş et al., 2012:117).

Scorpio maurus townsendi (Pocock, 1900): Shahroud, 36°23' N, 55°02' E* (Farzanpay, 1987:165).

Sistan and Baluchistan (19 species)

Androctonus baluchicus (Pocock, 1900): Zabol, 31°01' N, 61°31' E (Yağmur et al., 2016:1); Zabol, Herati village, 30°57' N, 61°29' E; Niatak Jungle, 31°07' N, 61°37' E; Zahedan, Ghargharouk village, 29°57' N, 60°53' E (This study).

Androctonus crassicauda (Olivier, 1807): Bampur, 27°11' N, 60°26' E* (Birula, 1903:67); Nosrat Abad, 29°51' N, 59°58' E* (Habibi, 1971:31,42); Zabol, Sefidabeh village, 30°58' N, 60°31' E; Zahedan, Cheshmeh Ziarat village, 29°26' N, 60°30' E; Ghale Bid village 28°36' N, 60°46' E; 30 km north of Khash, 28°22' N, 61°01' E; Iranshahr, Tomp-e Rigan, 27°15' N, 60°43' E; Daman village, 21°19' N, 60°45' E; Espakeh, 26°50' N, 60°10' E; Iranshahr-Rask road, 26°58' N, 60°53' E; Seravan, Mourti village, 26°49' N, 62°45' E; Nikshahr, Tabaktel village, 26°03' N, 59°46' E; Tabak village, 26°05' N, 60°01' E; Tablag-e Bala village, 26°03' N, 59°46' E (This study).

Compsobuthus matthiesseni (Birula, 1905): Sistan and Baluchistan, Seravan, 27°20' N, 62°23' E* (Birula, 1918: 25; Nejati et al., 2014:219).

Hemiscorpius gaillardi (Vachon, 1974): Chabahar, 25°19' N, 60°38' E* (Farzanpay, 1987:169).

Hemiscorpius persicus (Birula, 1903): Sarbaz, 26°37' N, 61°15' E* (Monod & Lourenço, 2005:913); Nikshahr, Chahan, Tabaktel village, 26°03' N, 59°46' E (This study).

Hottentotta saulcyi (Simon, 1880): Sistan and Baluchistan, Seravan, 27°20' N, 62°23' E* (Nejati et al., 2014:219).

Hottentotta sistansensis Kovarik et al., 2018: Sirkan, 26°49'47" N, 62°38'23" E; Seravan, 27°22'58" N, 62°21'22" E; Koshtegan, 26°38'46" N, 63°01'19" E (Kovářík et al., 2018:9); Mehrestan, Kalatak village, 26°52' N, 62°17' E (This study).

Kraepelinia palpator (Birula, 1903): Bazman, 27°50' N, 60°11' E* (Birula, 1903:72); Zabol, Dowlat Abad, Peer-e Sabz village, 30°51' N, 61°20' E; Loutak, Rahmat Abad village, 30°45' N, 61°21' E (This study).

Mesobuthus caucasicus (Nordmann, 1840): Zabol, 31°00' N, 61°30' E*; Khash, 28°14' N, 61°13' E* (Mir et al., 2014:19).

Mesobuthus eupeus (C. L. Koch, 1839): Bampur, Bampur River, 27.17°N, 60.46°E; Zahedan, 28.74°N, 60.77°E (Mirshamsi et al., 2010:2855); vicinity of Zabol, 31.04°N, 61.48°E; 90 km south of Zahedan, 28.74°N, 60.77°E (Mirshamsi et al., 2011a:9); Zabol, Dowlat Abad, Peer-e Sabz village, 30°51' N, 61°20' E; Loutak, Rahmat Abad village, 30°45' N, 61°21' E; Zabol, Sefidabeh village, 30°58' N, 60°31' E; Zahedan, Cheshmeh Ziarat village, 29°26' N, 60°30' E; Nikshahr, Tabaktel village, 26°03' N, 59°46' E; Mehrestan, Kalatak village, 26°52' N, 62°17' E; Chabahar, Kizhdap village, 30°51' N, 61°26' E (This study).

Mesobuthus macmahoni (Pocock, 1900): Sistan, 30°54' N, 61°15' E* (Vachon, 1958b).

Odontobuthus tigrari Mirshamsi et al., 2013: Bazman, 27°50' N, 60°11' E* (Birula, 1900:357); Zabol, 31°00' N, 61°30' E*; Khash, 28°14' N, 61°13' E* (Mir et al., 2014:19); Zahedan, Manzel Aab village, 29°18' N, 60°47' E; Iranshahr, Zimdan village, 26°49' N, 60°58' E (This study).

Orthochirus fuscipes (Pocock, 1900): Kuh-e Bazman, about 40 km north of Bazman by road, 28°12'60" N, 60°07'16" E; Espake, 26°48'46" N, 60°10'20" E (Kovařík, 2004:11); Zabol, Dowlat Abad, Peer-e Sabz village, 30°51' N, 61°20' E; Loutak, Rahmat Abad village, 30°45' N, 61°21' E; Koush-e Sofla village, 30°51' N, 61°26' E; Iranshahr, Chanf, Goank village, 26°38' N, 60°27' E; Chabahar, Kizhdap village, 30°51' N, 61°26' E (This study).

Orthochirus scrobiculosus (Grube, 1873): Zabol, 31°00' N, 61°30' E* (Birula, 1900: 374-375; Habibi, 1971:44); Sarbaz, 26°37' N, 61°15' E* (Birula, 1903:75).

Polisius persicus Fet et al., 2001: 50 km north of Zahedan, 30°03' N, 60°50' E* (Fet et al., 2001:187).

Razianus zarudnyi (Birula, 1903): Iranshahr, 27°16' N, 60°42' E* (Fet, 1997:67).

Sassanidothus gracilis (Birula, 1900): Kargushki, 26°04.353' N, 57°18.293' E (Kovařík, 2003:94,103); Sistan, 30°54' N, 61°15' E* (Kovařík & Fet, 2006b:6); Zabol, Dowlat Abad, Peer-e Sabz village, 30°51' N, 61°20' E; Loutak, Rahmat Abad village, 30°45' N, 61°21' E; Iranshahr, Chahshour village, 27°09' N, 60°10' E; Ahmad Abad village, 27°09' N, 60°10' E (This study).

Sassanidothus zarudnyi (Birula, 1900): Zabol, 31°00' N, 61°30' E* (Farzanpay, 1987:162); Sistan, Neizar, 30°54' N, 61°15' E* (Kovařík & Fet, 2006b:4); Zabol, Dowlat Abad, Peer-e Sabz village, 30°51' N, 61°20' E; Loutak, Rahmat Abad village, 30°45' N, 61°21' E; Ramshar, 30°45' N, 61°21' E (This study).

Scorpio maurus townsendi (Pocock, 1900): Sistan and Baluchistan, Seravan, 27°20' N, 62°23' E* (Nejati et al., 2014:219).

South Khorasan (9 species)

Androctonus crassicauda (Olivier, 1807): Darmian County, 33°02' N, 60°06' E* (Moghaddam et al., 2016:112).

Anomalobuthus talebii Teruel et al., 2014: Hemmatabad Desert, 33°20'49.45" N, 60°25'56.86" E (Teruel et al., 2014:2).

Compsobuthus matthiesseni (Birula, 1905): Darmian County, 33°02' N, 60°06' E* (Moghaddam et al., 2016:112).

Kraepelinia palpator (Birula, 1903): 20 km east of Khezri, 34°01' N, 59°02' E (This study).

Mesobuthus caucasicus (Nordmann, 1840): Darmian County, 33°02' N, 60°06' E* (Moghaddam et al., 2016:112).

Mesobuthus eupeus (C. L. Koch, 1839): Nehbandan, Mighan village, 31.821°N, 59.5044°E (Mirshamsi et al., 2010:2856); Darmian County, 33°02' N, 60°06' E* (Moghaddam et al., 2016:112); 20 km east of Khezri, 34°01' N, 59°02' E (This study).

Mesobuthus parthorum (Pocock, 1889): Darmian County, 33°02' N, 60°06' E* (Moghaddam et al., 2016:112).

Odontobuthus tigrari Mirshamsi et al., 2013: Shosf, 31°45' N, 60°04' E (This study).

Orthochirus scrobiculosus (Grube, 1873): Darmian County, 33°02' N, 60°06' E* (Moghaddam et al., 2016:112); 20 km east of Khezri, 34°01' N, 59°02' E (This study).

Tehran (10 species)

Androctonus crassicauda (Olivier, 1807): Firuzkuh-Semnan road, Pirdeh, 35°42'43" N, 52°49'19" E (Navidpour et al., 2019:2).

Compsobuthus kaftani Kovařík, 2003: Mahdasht, Asad Abad Booghin village, 35°35'02" N, 50°37'54" E (Navidpour et al., 2019:3).

Hottentotta saulcyi (Simon, 1880): Tehran, 35°34' N, 51°33' E* (Habibi, 1971:31,43).

Iranobuthus krali Kovařík, 1997: Pakdasht, 35°35'07" N, 51°41'20" E (Navidpour et al., 2019:4).

Mesobuthus caucasicus (Nordmann, 1840): Tehran, 35°34' N, 51°33' E* (Habibi, 1971:31,43).

Mesobuthus eupeus (C. L. Koch, 1839): Tehran, 35°34' N, 51°33' E* (Kovařík, 2002:9); Firuzkuh-Semnan road, 35°41'19" N, 52°49'07" E; Firuzkuh-Zarindasht road, 35°40'03" N, 52°34'41" E; Firuzkuh-Semnan road, Pirdeh, 35°42'43" N, 52°49'19" E; Firuzkuh-Semnan road, Sarafraz, 35°44'25" N, 52°51'55" E; Firuzkuh-Gadook road, 35°47'04" N, 52°50'46" E; Firuzkuh-Gadook road, 35°49'31" N, 52°55'21" E; Firuzkuh-Arjand road, 35°45'07" N, 52°39'21" E; Firuzkuh-Tange Rashi road, 35°46'32" N, 52°44'05" E; Firuzkuh-Sharabad road, 35°47'42" N, 52°43'19" E; Roodehen-Damavand road, 35°43'03" N, 52°01'13" E; Parand city, 35°29'10" N, 50°58'05" E; Varamin-Pakdasht, Tochal village, 35°33'55" N, 51°42'44" E; Varamin-Hassan Abad road, 35°17'17" N, 51°25'18" E; Fasham, 35°59'34" N, 51°40'27" E; Pakdasht, 35°35'07" N, 51°41'20" E; Pakdasht, Khatoon Abad village, 35°33'55" N, 51°42'44" E; Ploor, 35°51'27" N, 52°02'51" E; Varamin, Charm Shahr, 35°17'17" N, 51°25'18" E; Tehran-Jajrood road, 35°43'55" N, 51°41'17" E; Jaloos-Dizin road, 35°03'28" N, 51°23'30" E (Navidpour et al., 2019:4).

Odontobuthus doriae (Thorell, 1876): Tehran, 35°34' N, 51°33' E* (Pocock, 1900:16; Farzanpay, 1987:155; Lourenço & Pézier, 2002:116; Azghadi et al., 2014:171); Varamin, 35°18' N, 51°40' E* (Lowe, 2010:22; Karataş et al., 2012:116); Mahdasht, Asad Abad Booghin village, 35°35'02" N, 50°37'54" E; Mahdasht, Akhtar Abad village, 35°37'52" N, 50°39'15" E; Mahdasht, Akhtar Abad road, 35°38'34" N, 50°43'07" E; Parand city, 35°29'10" N, 50°58'05" E; Immam Khomayni Airport, 35°25'25" N, 51°04'46" E; Pakdasht, 35°35'07" N, 51°41'20" E; Pakdasht, Khatoon Abad village, 35°33'55" N, 51°42'44" E; Varamin, Charm Shahr, 35°17'17" N, 51°25'18" E (Navidpour et al., 2019:8).

Orthochirus carinatus Navidpour et al., 2019: Tehran to Firuzkuh, Absard-Keylan, 35°31'33" N, 52°10'42" E (Navidpour et al., 2019:8).

Scorpio kruglovi Ehrenberg, 1829: Varamin, Charm Shahr, 35°17'17" N, 51°25'18" E (Navidpour et al., 2019:18).

Scorpio maurus townsendi (Pocock, 1900): Varamin, 35°18' N, 51°40' E* (Habibi, 1971:44).

West Azerbaijan (8 species)

Androctonus crassicauda (Olivier, 1807): Urumiyeh, 37°31' N, 45°07' E*; Naqadeh, 36°56' N, 45°23' E*; Bokaan, 36°30' N, 46°11' E* (Karataş et al., 2012:112); Khoy, 38°34' N, 44°59' E*;

Mako, 3°17' N, 44°30' E* (Mohammadi-Bavani et al., 2017:374); Poldasht county, Qarqluq village, 39°18'28" N, 45°06'33" E; Qlysh Lanmysh village, 39°19'35" N, 45°00'49" E (Moradi et al., 2018:1).

Compsobuthus petrioli Vignoli, 2005: Urumiyeh, 37°31' N, 45°07' E*; Takab, 36°23' N, 47°06' E* (Karataş et al., 2012:112).

Hottentotta saulcyi (Simon, 1880): Sardasht, 36°09' N, 45°29' E* (Mohammadi-Bavani et al., 2017:374); Piranshahr county, Jaldian village, 36°52'40" N, 45°10'05" E (Moradi et al., 2018:2).

Hottentotta zagrosensis Kovařík, 1997: Bastan, 38°54'40" N, 44°59'39" E (Kovařík, 2007:86).

Mesobuthus caucasicus (Nordmann, 1840): Urumiyeh, 37°31' N, 45°07' E*; Takab, 36°23' N, 47°06' E* (Karataş et al., 2012:114); Miandoab, 36°58' N, 46°05' E*; Salmas, 38°12' N, 44°45' E* (Mohammadi-Bavani et al., 2017:374); Poldasht county, 39°19'40" N, 45°04'36" E; Jamal Kandi village, 39°17'44" N, 45°02'54" E; Sanam Bolagi village, 39°22'26" N, 45°02'30" E; Qarqluq village, 39°18'28" N, 45°06'03" E (Moradi et al., 2018:3); Bastam, 38.91°N, 44.99°E; 5 km east of Maku, 39.28°N, 44.6167°E (Fet et al., 2018:9).

Mesobuthus eupeus (C. L. Koch, 1839): Bazargan, 39°23' N, 44°24' E*; Poldasht, 39°20' N, 45°02' E* (Mirshamsi et al., 2010:2856; Mirshamsi et al., 2011a: 8); Urumiyeh, 37°31' N, 45°07' E*; Takab, 36°23' N, 47° E* (Karataş et al., 2012:115); Khoy, 38°34' N, 44°59' E*; Mako, 3°17' N, 44°30' E*; Mahabad, 36°47' N, 46°42' E*; Salmas, 38°12' N, 44°45' E* (Mohammadi-Bavani et al., 2017:374); Urmia county, Silvaneh district, 37°27'44" N, 44°55'48" E; Serow district, 37°42'49" N, 44°55'5" E; Salmas county, Mafi village, 38°19'20" N, 44°55'40" E; Salmas county, 38°12'02" N, 44°47'45" E; Chichak village, 38°15'20" N, 44°47'19" E; Piranshahr county, Tamarchin village, 36°41'40"N, 44°07'18" E; Pasveh village, 36°46'56" N, 45°21'56" E; Kanimola village, 36°46'12" N, 45°23'50" E; Piranshahr county, 36°42'57" N, 45°08'50" E; Oshnavieh county, Galatian village, 36°58'47" N, 45°07'52" E; Nalus village, 36°59'08" N, 45°08'21" E; Oshnavieh county, 37°03'17" N, 45°06'59" E; Khoy county, Qatur district, 38°28'45" N, 44°24'27" E; Khoy county, 38°30'16" N, 44°57'10" E; Sardasht county, Barica village, 36°11'20" N, 45°39'03" E; Alvatan village, 36°24'00" N, 45°20'00" E; Divalan village, 36°15'57" N, 45°25'03" E; Chaldoran county, Shahgalan village, 39°07'24" N, 44°22'45" E; Qadocandi village, 39°03'11" N, 44°28'03" E; Dardarasi village, 38°59'51" N, 44°24'08" E; Chaldoran county, 39°02'14" N, 44°23'02" E (Moradi et al., 2018:2).

Mesobuthus vesiculatus (Pocock, 1899): Bikan, 36°30' N, 46°11' E* (Karataş et al., 2012:116).

Scorpio maurus townsendi (Pocock, 1900): Mahabad; Miandoab, 36°58' N, 46°05' E* (Mohammadi-Bavani et al., 2017:374); Oshnavieh county, Qalatyan village, 36°58'47" N, 45°07'52" E (Moradi et al., 2018:3).

Yazd (7 species)

Androctonus crassicauda (Olivier, 1807): Abarkouh, 31°07' N, 53°14' E*; Bafgh, 31°35' N, 55°25' E*; Bahabad, 31°52' N, 56°01' E*; Herat, 30°03' N, 54°23' E*; Mehriz, 31°33' N, 54°25' E; Meybod, 32°14' N, 53°58' E*; Taft, 31°44' N, 54°13' E*; Yazd, 31°52' N, 54°25' E* (Karimi et al., 2001:115); Bafgh, 31°41' N, 55°32' E; Baghdad Abad, 31°35' N, 54°24' E (Vignoli & Crucitti, 2005:3); Yazd, 31°52' N, 54°25' E* (Karataş et al., 2012:112).

Compsobuthus kaftani Kovařík, 2003: Ardakan, 32°09' N, 53°49' E; Taft, 31°44' N, 54°13' E; Yazd, 31°48' N, 54°30' E; Baghdad Abad, 31°35' N, 54°24' E; Taft, 31°44' N, 54°15' E; Bafgh, 31°41' N, 55°32' E (Vignoli & Crucitti, 2005:5).

Mesobuthus caucasicus (Nordmann, 1840): Yezd, 31°52' N, 54°25' E* (Habibi, 1971:31,43).

Mesobuthus eupeus (C. L. Koch, 1839): Abarkouh, 31°07' N, 53°14' E*; Bafgh, 31°35' N, 55°25' E*; Herat, 30°03' N, 54°23' E*; Mehriz, 31°33' N, 54°25' E*; Meybod, 32°14' N, 53°58' E*; Taft, 31°44' N, 54°13' E*; Yezd, 31°52' N, 54°25' E* (Karimi et al., 2001:115); Bafgh, 31°42' N, 55°30' E; Bafgh, 31°41' N, 55°32' E; Taft, 31°44' N, 54°13' E (Mirshamsi et al., 2010:2856); Mehriz, Posht-e Kouh village, 31°31' N, 54°24' E (This study)..

Mesobuthus vesiculatus (Pocock, 1899): Ardakan, 32°09' N, 53°49' E; Baghdad Abad, 31°35' N, 54°24' E; Taft, 31°44' N, 54°13' E; Yazd, 31°48' N, 54°30' E; Taft, 31°44' N, 54°15' E (Vignoli & Crucitti, 2005:6).

Orthochirus vignolii Kovařík & Navidpour, 2020: Baghdad Abad, 31°35' N, 54°24' E; Taft, 31°44' N, 54°13' E; Ardakan, 32°18' N, 54°15' E; Ardakan, 32°09' N, 53°49' E (Vignoli & Crucitti, 2005:4; Kovařík, 2004:22); Kosk Abad village, 31°43'52" N, 53°17'12" E; Bafgh-Tehran road, 31°36'26" N, 54°14'22" E; Chenar-Mehriz road, 31°34'26" N, 54°28'30.9" E; Kord Abad village, 31°44'27" N, 53°55'47" E (Kovařík & Navidpour, 2020:27); Mehriz, Posht-e Kouh village, 31°31' N, 54°24' E (This study).

Odontobuthus doriae (Thorell, 1876): Bafgh, 31°42' N, 55°30' E; Ardakan, 32°18' N, 54°15' E (Vignoli & Crucitti, 2005:6).

Zanjan (7 species)

Androctonus crassicauda (Olivier, 1807): Zenjan University Campus, 36°40' N, 48°23' E* (Karataş et al., 2012:112); Campus of Zenjan University, 36°41'38" N, 48°23'02" E; 1 km west of Katala Khor Cave, 36°50'06" N, 48°09'45" E; Soltanieh, 36°27'26" N, 48°47'46" E (Moradi et al., 2015:12).

Hottentotta saulcyi (Simon, 1880): (Moradi et al., 2014:8); Hirabad village, 35°52'50"N, 48°40'24"E; Dolatabad village, 35°58'36"N, 49°07'49"E; Abbar Town, 36°56'21" N, 48°55'51" E (Moradi et al., 2015:12).

Hottentotta zagrosensis Kovařík, 1997: Dashbloagh village, 35°41'01" N, 48°29'14" E; Qavaq Sofla village, 36°26'28" N, 47°36'01" E (Moradi et al., 2015:12).

Mesobuthus brutus Fet et al., 2018: Tarom, 36.95°N, 48.9°E (Fet et al., 2018:7).

Mesobuthus eupeus (C. L. Koch, 1839): 3 km east of Sorkhedizaj, 38°49' N, 48°58' E (Kovařík et al., 2011:2); Zenjan, 36°41' N, 48°29' E*; Mahneshan, 36°44' N, 47°40' E*; Yamchreh, 36°46' N, 48°12' E* (Karataş et al., 2012:115); Qavazang Mountains, 36°43'43" N, 48°32'39" E; Saidkandi village, 36°36'39" N, 48°12'16" E; Papai village, 36°33'59" N, 48°21'53" E; Taham Dam area, 36°46'40" N, 48°30'06" E; Bagdakendi village, 36°37'01" N, 48°16'22" E; Soltanieh, 36°27'26" N, 48°47'46" E; Campus of Zenjan University, 36°41'38" N, 48°23'02" E; Nimavar town, 36°33'16.28" N, 48°40'15.02" E; Yamch village, 36°46'34" N, 48°12'28" E; Anguran town, 36°35'03" N, 47°38'30" E (Moradi et al., 2015:12).

Odontobuthus doriae (Thorell, 1876): Abhar Town, 36°08'22" N, 49°10'01" E; Soltanieh, 36°27'26" N, 48°47'46" E; Campus of Zenjan University, 36°41'38" N, 48°23'02" E (Moradi et al., 2015:13).

Scorpio maurus townsendi (Pocock, 1900): Campus of Zenjan University, 36°41'38" N, 48°23'02" E; 1 km west of Katale Khor Cave, 36°50'06" N, 48°09'45" E; Soltanieh, 36°27'26" N, 48°47'46" E; Nimavar town, 36°33'16" N, 48°40'15" E (Moradi et al., 2015:13).

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Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

ORCID

Hossein Barahoei: <https://orcid.org/0000-0001-5195-7679>

Shahrokh Navidpour: <https://orcid.org/0000-0002-6509-3397>

Mansour Aliabadian: <https://orcid.org/0000-0002-3200-4853>

Roohollah Siahsharvi: <https://orcid.org/0000-0002-9207-7763>

Omid Mirshamsi: <https://orcid.org/0000-0003-1237-0634>

References

- Ahmadi, K., Vazirianzadeh, B., Jalali, A., Heidari, A. & Joola, P. (2016) A morphometric study of *Odontobuthus bidentatus* (Scorpionida: Buthidae) and its dimorphism in Khuzestan a SW province, Iran. *Journal of Experimental Zoology, India*, 19 (1), 1567–1570.
- Ahmadimarzale, M., Sabuhi, H., Bidgoli, M.S., Dehghani, R., Hoseindoost, G. & Mesgari, L. (2017) Study of scorpion species abundance in cities Aran and Bidgol and Kashan, Isfahan, Iran. *Journal of Entomological Research*, 41 (3), 337–342.
<https://doi.org/10.5958/0974-4576.2017.00054.8>
- Ahsan, M.M., Tahir, H.M. & Samiullah, S. (2018) First record of *Androctonus finitimus* (Pocock, 1897) from Punjab, Pakistan. *Punjab University Journal of Zoology*, 33 (1), 86–90.
<https://doi.org/10.17582/pujz/2018.33.1.86.90>
- Akbari, A., Tabatabai, M., Hedayat, A., Modiroosta, H., Alizadeh, M. & Zare, M.K. (1997) Study of the geographical distribution of scorpions in the south of Iran. *Pajouhesh and Sazandegi*, 34, 112–115 (in Persian).
- Akbari, A., Tabatabai, S.M., Malekkhah, A. & Zamani, G.A. (2001) A study of fauna of scorpions in Kohkiluyeh and BoirAhmad and ChaharMahal-E-Bakhtiari provinces. *Pajouhesh and Sazandegi*, 52, 24–27 (in Persian).
- Al-Asmari, A.K., Al-Saif, A.A., Abdo, N.M., Al-Moutaery, K.R. & Al-Harbi, N.O. (2013) A review of the scorpion fauna of Saudi Arabia. *Egyptian Journal of Natural History*, 6 (1), 1–21.
<https://doi.org/10.4314/ejnh.v6i1.1>
- Al-Azawi, Z.N.N. (2016) List of Scorpions recorded for the first time in Iraq. *Ibn AL-Haitham Journal for Pure and Applied Science*, 29 (1), 49–57.
- Al-Safadi, M.M. (1992) Additions to the scorpion fauna of Yemen. *Zoology in the Middle East*, 6, 95–99.
<https://doi.org/10.1080/09397140.1992.10637617>
- Amr, Z.S. & El-Oran, R. (1994) Systematics and distribution of scorpions (Arachnida, Scorpionida) in Jordan. *Bolletino di Zoologia*, 6 (2), 185–190.
<https://doi.org/10.1080/11250009409355881>

- Amr, Z.S. & Baker, M.A. (2004) The scorpions of Jordan. *Denisia* 14, *Zugleich Kataloge der OÖ. Landesmuseen Neue*, 2, 237–244.
- Amr, Z.S., Abed, O.A., Al Share, T., Hamidan, N. & Prendini, L., (2016) New records of Jordanian scorpions. *Jordan Journal of Natural History*, 2, 30–38.
- Asslan faal, S., Shayestehfar, A., Latifi, A. & Ghassemi Khademi, T. (2015) Morphological parameters of scorpions inhabiting Ardabil province in the northwest of Iran. *International Journal of Current Research and Academic Review*, 3 (2), 167–172.
- Azghadi, S., Mirshamsi, O., Navidpour, Sh. & Aliabadian, M. (2014) Scorpions of the genus *Odontobuthus* Vachon, 1950 (Scorpiones: Buthidae) from Iran: Phylogenetic relationships inferred from mitochondrial DNA sequence data. *Zoology in the Middle East*, 60 (2), 169–179. <https://doi.org/10.1080/09397140.2014.914747>
- Azizi, K., Shahraki, G.H. & Omrani, M., (2001) Determination of the fauna and sex ratio of scorpions from villages and suburbs of kohgilouieh and boirahmad province in 1379. *Medical Sciences of Yasuj University*, 21/22, 6–13 (in Persian).
- Badry, A., Younes, M., Sarhan, M.M. & Saleh, M. (2017) On the scorpion fauna of Egypt, with an identification key (Arachnida: Scorpiones). *Zoology in the Middle East*, 1–13. <https://doi.org/10.1080/09397140.2017.1414976>
- Barahoei, H., Navidpour, Sh., Aliabadian, M., Siah sarvie, R. & Mirshamsi, O. (2020) Sexual dimorphism in the scorpions of the genus *Odontobuthus* Vachon, 1950 (Scorpiones: Buthidae). *Iranian Journal of Animal Biosystematics*, 16 (1), 1–15. <https://doi.org/10.22067/ijab.v16i1.85063>
- Berberian, M. & King, G.C.P. (1981) Towards a paleogeography and tectonic evolution of Iran. *Canadian journal of earth sciences*, 18 (2), 210–265. <https://doi.org/10.1139/e81-019>
- Birula, A.A. (1900) Beiträge zur Kenntniss der Skorpionenfauna Ost-Persiens (1. Beitrag). *Bulletin de l'Académie impériale des sciences de Saint Pétersbourg série 5*, 12 (4), 355–375 (in French).
- Birula, A.A. (1903) Beitrage zur Kenntniss der Skorpionenfauna Ost-Persiens (2. Beitrag). *Bulletin de l'Académie impériale des sciences de Saint Pétersbourg série 5*, 19 (2), 67–80.
- Birula, A.A. (1905) Beiträge zur Kenntniss der Skorpionenfauna Persien (3. Beiträge). *Bulletin de l'Académie impériale des sciences de Saint Pétersbourg série 5*, 23 (1-2), 119–148.
- Birula, A.A. (1910) Ueber *Scorpio maurus* Linné und seine Unterarten. *Horae Societatis Entomologicae Rossicae*, 35, 115–196.
- Birula, A.A. (1918) Miscellanea scorpologica. XI. Materialy k skorpiofaune nizhnei Mesopotamii, Kurdistana i Severnoi Persii (Matériaux pour 4 ailla á la skorpiofaune de 6a Mésopotamie inférieure, du Kurdistan et de la Perse septentrionale). *Annuaire du Musée Zoologique de l'Académie Impériale des Sciences de St.Pétersbourg*, 22 (1917), 1–44 (in Russian).
- Birula, A.A. (1937) Zametki o kollektzii skorpionov iz Yemena (Yu. V. Arabia). (Notes sur les collections des scorpions recueillis dans le Jémen (Arabie S. E.)). *Archives du Musée Zoologique de l'Université de Moscou*, 4, 101–110 (in Russian).
- Cokendolpher, J., Zamani, A. & Snegovaya, N.Y. (2019) Overview of Arachnids and Arachnology in Iran. *Journal of Insect Biodiversity and Systematics*, 5 (4), 301–367.
- Crucitti, P. & Vignoli, V. (2002) Gli scorpioni (Scorpiones) dell'Anatolia sud-orientale (Turchia). *Musei Regionale di Scienze Naturali, Torino*, 19 (2), 433–480.
- Dehghani, R. & Kassiri, H. (2017) Geographical Distribution of Scorpion *Odontobuthus doriae* in Esfahan province, Central Iran. *Journal of Arthropod-Borne Diseases*, 11 (3), 433–440.
- Dehghani, R., Tirgari, S., Doroudgar, A. & Sayyah, M. (1998) A survey on scorpion fauna in Kashan. *Pajouhesh and Sazandegi*, 38, 126–127 (in Persian).

- Dehghani, R., Moabed, Sh., Kamyabi, F., Haghdoost, A.A., Mashayekhi, M. & Soltani, H. (2008) Scorpions Fauna of Kerman province-IRAN. *Journal of Medical Sciences University of Kerman*, 15 (2), 172–181 (in Persian).
- Dehghani, R., Djadid, N.D., Shahbazzadeh, D. & Bigdelli, S. (2009) Introducing *Compsobuthus matthiesseni* (Birula, 1905) scorpion as one of the major stinging scorpions in Khuzestan, Iran. *Toxicon*, 54 (3), 272–275. <https://doi.org/10.1016/j.toxicon.2009.04.011>
- Dehghani, R., Kamiabi, F. & Mohammadzadeh, N. (2017) Burrowing habits of two Arthropods; *Odentobutus doriae* and *Hemilepistus schirasi* in desert of Isfahan, Iran. *Journal of Entomological Research*, 41 (2), 113–118. <https://doi.org/10.5958/0974-4576.2017.00018.4>
- Dunlop, J.A. (2010) Geological history and phylogeny of Chelicerata. *Arthropod Structure and Development*, 39, 124–142. <https://doi.org/10.1016/j.asd.2010.01.003>
- Ebrahimi, M., Azizi, K., Moemenbellah-Fard, M.D., Fakoorziba, M.R. & Soltani, A., (2015) Morphometry Indices of the Black Fat-tailed Scorpion *Androctonus crassicauda* (Scorpiones Buthidae), from Fars province, Southern Iran. *Journal of Entomology*, 12 (1), 39–47. <https://doi.org/10.3923/je.2015.39.47>
- El-Hennawy, H.K. (1992) A catalogue of the scorpions described from the Arab countries (1758-1990) (Arachnida: Scorpionida). *Serket*, 2 (4), 95–153.
- Farzanpay, R. (1987) *Knowing scorpions*. Central University Publications: Tehran, No. 312, Biology 4, 231 pp. (in Persian)
- Farzanpay, R. (1988) *Mesobuthus eupeus*, an indigenous scorpion from Iran, origin and geographical distribution. *Archives of Razi Institute*, 38/39, 43–46.
- Farzanpay, R. (1990) A catalogue of the Scorpions occurring in Iran up to January 1986. *Archives of Razi Institute*, 41, 1–12.
- Farzanpay, R. & Pretzmann, G. (1974) Ergebnisse einiger Sammelreisen nach Vorderasien. 4. Teil: Skorpione aus Iran. *Annalen des Naturhistorischen Museums in Wien*, 78, 215–217.
- Fekri, S., Badzohre, A., Safari, R. & Azizi, K. (2012) Species identification and geographic distribution of scorpions in Jask town county, Hormozgan province. *Bimonthly Journal of Hormozgan University of Medical Sciences*, 16 (2), 135–142.
- Fet, V. (1984) New for the USSR genus and species of scorpions from Badkhyz, *Kraepelinia palpator* (Birula, 1903) (Scorpiones, Buthidea). *Academy of Sciences of Turkmenistan*, 4, 37–43 (in Russian).
- Fet, V. (1988) A catalogue of scorpions (Chelicerata: Scorpiones) of the USSR. *Acta Musei Moraviae Scientiae Naturales*, 13, 73–171.
- Fet, V. (1994) Fauna and zoogeography of scorpions (Arachnida: Scorpiones) in Turkmenistan. In: Atamuradov, K. I., & Fet, V. (eds.) *Biogeography and Ecology of Turkmenistan*. Kluwer Academic Publisher, Dordrecht, pp. 525–534. https://doi.org/10.1007/978-94-011-1116-4_31
- Fet, V. (1997) *Neohemibuthus zarudnyi* (Birula, 1903) from Iran, a senior synonym of *N. kinzelbachi* Lourenço, 1996 (Scorpiones, Buthidae). *Revue Archeologique*, 12 (6), 65–68.
- Fet, V. & Lowe, G. (2000) Family Buthidae C.L. Koch, 1837. In: Fet, V., Sissom, W.D., Lowe, G., & Braunwalder, M. E. (eds.) *Catalog of the Scorpions of the World (1758-1998)*. New York Entomological Society, New York, pp. 54–286.
- Fet, V., Capes, E.M. & Sissom, W.D. (2001) A new genus and species of psammophilic scorpion from eastern Iran (Scorpiones: Buthidae). In: Fet, V. & Selden, P.A. (eds.) *Scorpions 2001. In Memoriam Gary A. Polis*. British Arachnological Society, Burnham Beeches, Bucks, U.K. pp. 183–189.
- Fet, V., Kovarik, F., Gantenbein, B., Kaiser, R.C., Stewart, A.K. & Graham, M.R. (2018) Revision of the *Mesobuthus caucasicus* complex from central Asia, with descriptions of six new species (Scorpiones: Buthidae). *Euscorpius*, 255, 1–77. <https://doi.org/10.18590/euscorpius.2018.vol2018.iss255.1>

- Francke, O.F. (1980) Revision of the genus *Nebo* Simon (Scorpiones; Diplocentridae). *Journal of Arachnology*, 8 (1), 35–52.
- Gantenbein, B., Fet, V. & Gromov, A.V. (2003) The first DNA phylogeny of four species of *Mesobuthus* Vachon, 1950 (Scorpiones: Buthidae) from Eurasia. *Journal of Arachnology*, 31, 413–421. <https://doi.org/10.1636/H01-23>
- Gohari, I. (2011) Investigation and Identification of Scorpion Biodiversity in Ilam province. MSc. Thesis. Payam-e-noor University of Tehran. 112 pp. (in Persian).
- Habibi, T. (1971) Liste de scorpions de l'Iran. *Bulletin of the Faculty of Science of Teheran University*, 2 (4), 24–31 (in Persian) and 42–47 (in French).
- Hendrixson, B.E. (2006) Buthid scorpions of Saudi Arabia, with notes on other families (Scorpiones: Buthidae, Liochelidae, Scorpionidae). *Fauna of Arabia*, 21, 33–120.
- Hijmans, R.J., Cruz, M. Rojas, E. & Guarino, L. 2001. *DIVA-GIS, Version 1.4. A geographic information system for the Management and analysis of genetic resources data, manual*. International Potato Center, Lima, Peru.
- Jazayeri-Jounghani, S.A. (2009) Identification of scorpions collected from different climates of Farsan, Shahr-e-Kord and Boroujen cities using night and day sampling methods. *Ph.D. Thesis. Faculty of Veterinary Medicine of Shahr-e-Kord University*. 58 pp. (in Persian).
- Kabakibi, M.M., Khalil, N. & Amr, Z. (1999) Scorpions of southern Syria. *Zoology in the Middle East*, 17 (1), 79–89. <https://doi.org/10.1080/09397140.1999.10637772>
- Kaltsas, D., Stathi, I. & Fet, V. (2008) Scorpions of the Eastern Mediterranean. *Advances in Arachnology and Developmental Biology*, 12, 209–246.
- Karataş, A. (2005) *Mesobuthus caucasicus* (Nordmann, 1840) (Scorpiones: Buthidae) in Turkey. *Euscorpius*, 25, 1–9. <https://doi.org/10.18590/euscorpius.2005.vol2005.iss25.1>
- Karataş, A. & Karataş, A. (2001) First record of *Mesobuthus eupeus* (C.L. Koch, 1839) from Central Anatolia (Scorpiones: Buthidae). In: Fet, V. & Selden, P.A. (eds.) *Scorpions 2001. In Memoriam Gary A. Polis*. British Arachnological Society, Burnham Beeches, Bucks, U.K., pp. 297–299.
- Karataş, A. & Karataş, A. (2003) *Mesobuthus eupeus* (C.L. Koch, 1839) (Scorpiones: Buthidae) in Turkey. *Euscorpius*, 7, 1–6. <https://doi.org/10.18590/euscorpius.2003.vol2003.iss7.1>
- Karataş, A. & Moradi-Gharkheloo, M. (2006) A contribution to the knowledge of *Hottentotta saulcyi* (Simon, 1880) (Scorpiones: Buthidae). *Zoology in the Middle East*, 38 (1), 85–92. <https://doi.org/10.1080/09397140.2006.10638169>
- Karataş, A. & Moradi-Gharkheloo, M. (2012) Redescription of *Mesobuthus vesiculatus* (Pocock, 1899) (Scorpiones: Buthidae) based on specimens from Iran. *Turkish Journal of Zoology*, 36 (5), 576–584. <https://doi.org/10.18590/euscorpius.2012.vol2012.iss147.1>
- Karataş, A. & Moradi-Gharkheloo, M. (2013) A new *Hemiscorpius* Peters, 1861 (Scorpiones: Hemiscorpiidae) from southwestern Iran. *Turkish Journal of Zoology*, 37, 15–23.
- Karataş, A., Moradi-Gharkheloo, M. & Ucak, M. (2012) Contribution to the distribution of the scorpions of Iran. *Zoology in the Middle East*, 55, 111–120. <https://doi.org/10.1080/09397140.2012.10648925>
- Karimi, O., Tabatabaei, S.M. & Akbari, A. (2001) A survey on snakes and scorpions fauna in Yazd province. *Pajouhesh and Sazandegi*, 49, 113–115 (in Persian).
- Kassiri, H., Kasiri, N. & Dianat, A. (2015) Species composition, sex ratio, geographical distribution, seasonal and monthly activity of scorpions and epidemiological features of scorpionism in Zarrin-dasht County, Fars province, Southern Iran. *Asian Pacific Journal of Tropical Disease*, 5, p. S99–S103. [https://doi.org/10.1016/S2222-1808\(15\)60867-2](https://doi.org/10.1016/S2222-1808(15)60867-2)

- Khaghani, R. (2001) Faunistic Study and Biodiversity of Scorpions in Kish Island and study of epidemiology of Scorpionism. MSc. Thesis. Faculty of Medical Sciences of Tarbiat Modares University. 220 pp. (in Persian).
- Khaghani, R., Tirgari, S., Emrani, Gh., Rafinejad, J. & Mousavi-Ivanaki, E. (2005) Faunistic study and variety of scorpion in Kish island. *Modares Medical Science Journal*, 8 (1), 7–11 (in Persian).
- Khalaf, L. (1962) A small collection of scorpions from Iraq. *Bulletin of the Iraq Natural History Institute*, 2 (4), 1–3.
- Khalaf, K.T. (1963) Scorpions reported from Iraq. *Bulletin of Endemic Diseases* (Baghdad), 5, 59–70.
- Kovařík, F. (1993) The fauna of Afghanistan IV: Scorpionida I. *Acta Musei Moraviae Scientiae Naturales*, 78, 201, 204.
- Kovařík, F. (1996) First report of *Compsobuthus matthiesseni* (Scorpiones: Buthidae) from Turkey. *Klapalekiana*, 32, 53–55.
- Kovařík, F. (1997a) Results of the Czech Biological Expedition to Iran. Part 2. Arachnida: Scorpiones, with descriptions of *Iranobuthus krali* gen. n. et sp. n. and *Hottentotta zagrosensis* sp. n. (Buthidae). *Acta Societatis Zoologicae Bohemicae*, 61, 39–52.
- Kovařík, F. (1997b) A checklist of scorpions (Arachnida) in the collections of the Hungarian Natural History Museum, Budapest. *Annales Historico-Naturales Musei Nationalis Hungarici*, 89, 177–185.
- Kovařík, F. (2002) A checklist of scorpions (Arachnida) in the collection of the Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt am Main, Germany. *Serket*, 8, 1–23.
- Kovařík, F. (2003) Eight new species of *Compsobuthus* Vachon, 1949 from Africa and Asia (Scorpiones: Buthidae). *Serket*, 8 (3), 87–112.
- Kovařík, F. (2004) Revision and taxonomic position of genera *Afghanorthochirus* Lourenço & Vachon, *Baloorthochirus* Kovařík, *Butheolus* Simon, *Nanobuthus* Pocock, *Orthochiroides* Kovařík, *Pakistanorthochirus* Lourenço, and Asian *Orthochirus* Karsch, with descriptions of twelve new species (Scorpiones, Buthidae). *Euscorpius*, 16, 1–33.
<https://doi.org/10.18590/euscorpius.2004.vol2004.iss16.1>
- Kovařík, F. (2005) Taxonomic position of species of the genus *Buthacus* Birula, 1908 described by Ehrenberg & Lourenço, and description of a new species (Scorpiones: Buthidae). *Euscorpius*, 28, 1–13. <https://doi.org/10.18590/euscorpius.2005.vol2005.iss28.1>
- Kovařík, F. (2007) A revision of the genus *Hottentotta* Birula, 1908, with descriptions of four new species (Scorpiones, Buthidae). *Euscorpius*, 58, 1–107.
<https://doi.org/10.18590/euscorpius.2007.vol2007.iss58.1>
- Kovařík, F. & Ahmed, Z. (2013) A review of *Androctonus finitimus* (Pocock, 1897), with description of two new species from Pakistan and India (Scorpiones, Buthidae). *Euscorpius*, 168, 1–10.
<https://doi.org/10.18590/euscorpius.2013.vol2013.iss168.1>
- Kovařík, F. & Fet, V. (2006a) Taxonomic position of the genus *Simonoides* Vachon et Farzanpay, 1987, and description of a new species of *Orthochirus* Karsch from Iran (Scorpiones: Buthidae). *Euscorpius*, 38, 1–10. <https://doi.org/10.18590/euscorpius.2006.vol2006.iss38.1>
- Kovařík, F. & Fet, V. (2006b) Taxonomic position of the genus *Sassanidotus* Farzanpay, 1987 (Scorpiones: Buthidae). *Euscorpius*, 39, 1–9.
<https://doi.org/10.18590/euscorpius.2006.vol2006.iss39.1>
- Kovařík, F. & Navidpour, Sh. (2020) Six new species of *Orthochirus* Karsch, 1892 from Iran (Scorpiones: Buthidae) *Euscorpius*, 132, 1–41.
- Kovařík, F., Yağmur, E. A., Fet, V. & Navidpour, S. (2011) On two subspecies of *Mesobuthus eupeus* (C. L. Koch, 1839) in Turkey (Scorpiones: Buthidae). *Euscorpius*, 109, 1–17.
<https://doi.org/10.18590/euscorpius.2011.vol2011.iss109.1>

- Kovařík, F., Navidpour, Sh. & Söleglad, M.E. (2017) *Hemiscorpius shahii* sp. n. from Iran (Scorpiones: Hemiscorpiidae). *Euscorpius*, 249, 1–9.
<https://doi.org/10.18590/euscorpius.2017.vol2017.iss249.1>
- Kovařík, F., Yağmur, E.A. & Moradi, M. (2018) Two new *Hottentotta* species from Iran, with a review of *Hottentotta saulcyi* (Scorpiones: Buthidae). *Euscorpius*, 265, 1–14.
<https://doi.org/10.18590/euscorpius.2018.vol2018.iss265.1>
- Kovařík, F., Yağmur, E.A., Fet, V. & Hussien, F.Sh. (2019a) A review of *Orthochirus* from Turkey, Iraq, and Iran (Khoozestan, Ilam, and Lorestan provinces), with descriptions of three new species (Scorpiones: Buthidae). *Euscorpius*, 278, 1–31.
<https://doi.org/10.18590/euscorpius.2019.vol2019.iss278.1>
- Kovařík, F., Yağmur, E.A. & Fet, V. (2019b) Review of *Hottentotta* described by A.A. Birula, with descriptions of two new species and comments on Birula's collection (Scorpiones: Buthidae). *Euscorpius*, 282, 1–30. <https://doi.org/10.18590/euscorpius.2019.vol2019.iss282.1>
- Kraepelin, K. (1899) Scorpiones und Pedipalpi. In: Dahl, F. (ed.), *Das Tierreich. Herausgegeben von der Deutschen Zoologischen Gesellschaft*. Berlin: R. Friedländer und Sohn Verlag, 8. Lieferung. 1–200 pp.
- Levy, G. & Amitai, P. (1980) *Fauna Palaestina. Arachnida I: Scorpiones*. The Israel Academy of Sciences and Humanities, Jerusalem, Israel, 132 pp.
- Levy, G., Amitai, P. & Shulov, A. (1973) New scorpions from Israel, Jordan and Arabia. *Zoological Journal of the Linnean Society*, 52 (2), 113–140.
<https://doi.org/10.1111/j.1096-3642.1973.tb00782.x>
- Lourenço, W.R. (1996) A new genus and a new species of scorpion (Buthidae) from Iran. *Zoology in the Middle East*, 12, 93–98. <https://doi.org/10.1080/09397140.1996.10637694>
- Lourenço, W.R. (1998) A new species of *Apistobuthus* Finnegan, 1932 (Chelicerata, Scorpiones, Buthidae) from Iran. *Entomologische Mitteilungen aus dem Zoologischen Museum Hamburg*, 12 (157), 237–244.
- Lourenço, W.R. (2005) Nouvelles considerations taxonomiques sur les especes du genre *Androctonus* Ehrenberg, 1828 et description de deux nouvelles especes (Scorpione, Buthidae). *Revue suisse de zoologie*, 112 (1), 145–171 (in French). <https://doi.org/10.5962/bhl.part.80291>
- Lourenço, W.R. & Monod, L. (1998) Redescription of *Compsobuthus rugosulus* (Pocock, 1900). *Revue suisse de Zoologie*, 105 (4), 789–796. <https://doi.org/10.5962/bhl.part.80057>
- Lourenço, W.R. & Pézier, A. (2002) Taxonomic consideration of the genus *Odontobuthus* Vachon (Scorpiones, Buthidae), with description of a new species. *Revue Suisse de Zoologie*, 109 (1), 115–125. <https://doi.org/10.5962/bhl.part.79581>
- Lourenço, W.R. & Vachon, M. (1995) Un nouveau genre et deux nouvelles espèces de scorpions Buthidae d'Iran. *Bulletin du Muséum National d'histoire Naturelle*, 17 (3–4), 297–305.
- Lourenço, W.R. & Vachon, M. (2001) A new species of *Compsobuthus* Vachon, 1949 from Iran (Scorpiones: Buthidae). In: Fet, V. & Selden, P.A. (eds.) *Scorpions 2001. In Memoriam Gary A. Polis*. British Arachnological Society, Burnham Beeches, Bucks, U.K., pp. 179–182.
- Lourenço, W.R. & Leguin, E.A. (2015) A new species of *Compsobuthus* Vachon, 1949 (Scorpiones: Buthidae) from Armenia. *Zoology in the Middle East*, 61 (3), 273–277.
<https://doi.org/10.1080/09397140.2015.1069242>
- Lowe, G. (2010) A new species of *Odontobuthus* (Scorpiones: Buthidae) from northern Oman. *Euscorpius*, 96, 1–22. <https://doi.org/10.18590/euscorpius.2010.vol2010.iss96.1>
- Mir, Z., Mirshamsi, O. & Ghasemzadeh, F. (2014) Scorpionfauna study of the north of Sistan and Baluchistan province. *18th National and 6th International Congress of Biology in Iran*, 26–29 August 2014. Kharazmi University. p. 19.

- Mirshamsi, O., Sari, A., Elahi, E. & Hosseini, S. (2010) Phylogenetic relationships of *Mesobuthus eupeus* (C.L. Koch, 1839) inferred from COI sequences (Scorpiones: Buthidae). *Journal of Natural History*, 44 (47), 2851–2872. <https://doi.org/10.1080/00222933.2010.512400>
- Mirshamsi, O., Sari, A., Elahi, E. & Hosseini, S. (2011a) *Mesobuthus eupeus* (Scorpiones: Buthidae) from Iran: A polytypic species complex. *Zootaxa*, 2929, 1–21. <https://doi.org/10.11646/zootaxa.2929.1.1>
- Mirshamsi, O., Sari, A. & Hosseini, Sh. (2011b) History of study and checklist of the scorpion fauna (Arachnida: Scorpiones) of Iran. *Progress in Biological Sciences*, 1 (2), 16–28. <https://doi.org/10.22059/pbs.2011.24286>
- Mirshamsi, O., Azghadi, S., Navidpour, Sh., Aliabadian, M. & Kovařík, F. (2013) *Odontobuthus tigrari* sp. nov. (Scorpiones, Buthidae) from the eastern region of the Iranian Plateau. *Zootaxa*, 3731 (1), 153–170. <https://doi.org/10.11646/zootaxa.3731.1.7>
- Moghaddam, M.Y., Dehghani, R., Enayati, A.A., Fazeli-Dinan, M., Vazirianzadeh, B., Yazdani-Cherati, J. & Motevalli Haghi, F. (2016) Scorpion Fauna (Arachnida: Scorpiones) in Darmian County, Iran (2015–2016). *Journal of Mazandaran University of Medical Sciences*, 26 (144), 108–118 (in Persian).
- Mohammad, M.K., Afrasiab, S.R. & Al-Zubaidi, A.A. (2017) Survey for cave animals of Iraqi Kurdistan. *Journal of Biodiversity and Environmental Sciences*, 10 (5), 217–232.
- Mohammadi-Bavani, M., Rafinejad, J., Hanafi-Bojd, A.A., Oshaghi, M.A., Navidpour, S., Dabiri, F., Badakhshan, M., Ghorbani, E. & Bagheri, M. (2017) Spatial Distribution of Medically Important Scorpions in North West of Iran. *Journal of Arthropod-Borne Diseases*, 11 (3), 371–382.
- Monod, L. & Lourenço, W.R. (2005) Hemiscorpiidae (Scorpiones) from Iran, with descriptions of two new species and notes on biogeography and phylogenetic relationships. *Revue suisse de zoologie*, 112 (4), 869–941. <https://doi.org/10.5962/bhl.part.80331>
- Moradi, M., Yağmur, E.A. & Moradi-Gharkheloo, P. (2014) Study of scorpion fauna (Arachnida: scorpions) on Zanjan province. *18th National and 6th International Congress of Biology in Iran*, 26–29 August 2014. Kharazmi University. p. 8.
- Moradi, M., Yağmur, E.A., Pooyan-Moradi, G. & Ahmadi, F. (2015) Scorpion Fauna of Zanjan province, Iran (Arachnida: Scorpiones). *Journal of Applied Biological Sciences*, 9 (1), 11–14.
- Moradi, M., Asadvand, S. & Yağmur, A. (2018) The scorpion fauna of West Azerbaijan province in Iran (Arachnida: Scorpiones). *Biharean Biologist*, 12 (2), 1–4.
- Motevalli Haghi, F., Tigrari, S., Changani, F. & Alimohammad pour, R. (2004) Study on scorpion species in some mountainous regions of Sari county. *Scientific Journal of Medical Science of Mazandaran*, 14 (43), 92–95.
- Mozaffari, E., Sedaghat, M.M., Dehkordi, A.S. & Akbarzadeh, K., (2013) Biodiversity and species composition of scorpions (Arachnida, Scorpiones) in Ilam County, Iran. *Journal of Applied Sciences Research*, 9 (9), 5412–5418.
- Navidpour, Sh. (2008a) Description study of *Compsobuthus* (Vachon, 1949) species in south and southwestern Iran (Scorpiones: Buthidae). *Archives of Razi Institute*, 63 (1), 29–37. <https://doi.org/10.22092/ari.2008.103749>
- Navidpour, Sh. (2008b) A new species of psammophilic scorpion from Iran (Scorpiones: Buthidae). *Journal of Biological Sciences*, 8 (8), 1328–1332. <https://doi.org/10.3923/jbs.2008.1328.1332>
- Navidpour, S. & Lowe, G. (2009) Revised diagnosis and redescription of *Apistobuthus susanae* (Scorpiones, Buthidae). *Journal of Arachnology*, 37 (1), 45–59. <https://doi.org/10.1636/H08-44.1>
- Navidpour, S. & Mashipour, B. (2009) Study of morphometrical values of *Iranobuthus kralli* (Scorpiones: Buthidae) from Fars province, southern Iran. *Archives of Razi Institute*, 64 (2), 97–100. <https://doi.org/10.22092/ari.2009.103839>

- Navidpour, S. & Mirshamsi, O. (2014) Two new species of the genus *Odontobuthus* (Scorpiones, Buthidae) from southern and eastern Iran. *28th European Congress of Arachnology*, p. 112.
- Navidpour, S., Kovařík, F., Soleglad, M.E. & Fet, V. (2008a) Scorpions of Iran (Arachnida, Scorpiones). Part I. Khuzestan province. *Euscorpius*, 65, 1–41.
<https://doi.org/10.18590/euscorpius.2008.vol2008.iss65.1>
- Navidpour, S., Soleglad, M.E., Fet, V. & Kovařík, F. (2008b) Scorpions of Iran (Arachnida, Scorpiones). Part II. Bushehr province. *Euscorpius*, 67, 1–33.
<https://doi.org/10.18590/euscorpius.2008.vol2008.iss67.1>
- Navidpour, S., Fet, V., Kovařík, F. & Soleglad, M.E. (2008c) Scorpions of Iran (Arachnida, Scorpiones). Part III. Ilam province. *Euscorpius*, 69, 1–29.
<https://doi.org/10.18590/euscorpius.2008.vol2008.iss69.1>
- Navidpour, S., Kovařík, F., Soleglad, M.E. & Fet, V. (2008d) Scorpions of Iran (Arachnida, Scorpiones). Part IV. Kohgiluyeh and Boyer Ahmad province. *Euscorpius*, 74, 1–24.
<https://doi.org/10.18590/euscorpius.2008.vol2008.iss74.1>
- Navidpour, S., Nayebzadeh, H.H., Soleglad, M.E., Fet, V., Kovařík, F. & Kayedi, M.H. (2010) Scorpions of Iran (Arachnida, Scorpiones). Part VI. Lorestan province. *Euscorpius*, 99, 1–23.
<https://doi.org/10.18590/euscorpius.2010.vol2010.iss99.1>
- Navidpour, S., Ezatkhah, M., Kovařík, F., Soleglad, M.E. & Fet, V. (2011) Scorpions of Iran (Arachnida: Scorpiones). Part VII. Kerman province. *Euscorpius*, 131, 1–32.
<https://doi.org/10.18590/10.18590/issn.1536-9307/2011v.2011.issue131.1>
- Navidpour, Sh., Fet, V., Kovařík, F. & Soleglad, M.E. (2012) Scorpions of Iran (Arachnida, Scorpiones). Part VIII. Fars province. *Euscorpius*, 139, 1–29.
<https://doi.org/10.18590/euscorpius.2012.vol2012.iss139.1>
- Navidpour, Sh., Soleglad, M.E., Fet, V. & Kovařík, F. (2013) Scorpions of Iran (Arachnida, Scorpiones). Part IX. Hormozgan province, with a description of *Odontobuthus tavighiae* sp. n. (Buthidae). *Euscorpius*, 170, 1–29.
<https://doi.org/10.18590/euscorpius.2013.vol2013.iss170.1>
- Navidpour, Sh., Kovařík, F., Soleglad, M.E. & Fet, V. (2019) Scorpions of Iran (Arachnida, Scorpiones). Part X. Alborz, Markazi and Tehran provinces with a description of *Orthochirus carinatus* sp. n. (Buthidae). *Euscorpius*, 276, 1–20.
<https://doi.org/10.18590/euscorpius.2019.vol2019.iss276.1>
- Nazari, M. & Hajizadeh, M. (2017) A faunistic study on scorpions and the epidemiology of scorpionism in Bam, Southeast of Iran. *Global Journal of Health Science*, 9 (2), 177–183.
<https://doi.org/10.5539/gjhs.v9n2p177>
- Nazari, M. & Rastegar, H. (2016) Study on distribution of scorpions to provide prevention and interventions in combating scorpionism in Poldokhtar county, Lorestan province, Iran. *Journal of Clinical and Diagnostic Research*, 10 (12), 05–09.
<https://doi.org/10.7860/JCDR/2016/22759.8960>
- Nazari, M., Bahrami, D., Davari, B. & Salehzadeh, A. (2015) Epidemiological survey of scorpion sting cases and identification of scorpion fauna in Hamadan city, Iran (2013). *Scientific Journal of Hamadan University of Medical Sciences*, 22 (3), 255–262.
- Nazari, M., Najafi, A. & Abai, M.R. (2018) Species composition and some biological features of scorpions in Kazerun district, southern Iran. *Journal of Arthropod-borne Diseases*, 12 (3), 296–309.
<https://doi.org/10.18502/jad.v12i3.81>
- Nejati, J., Mozafari, E., Saghaipour, A. & Kiyani, M., (2014) Scorpion fauna and epidemiological aspects of scorpionism in southeastern Iran. *Asian Pacific Journal of Tropical Biomedicine*, 4 (1), S217–S221. <https://doi.org/10.12980/APJTB.4.2014C1323>

- Nejati, J., Saghaipour, A., Rafinejad, J., Mozaffari, E., Keyhani, A., Abolhasani, A. & Kareshk, A.T., (2018) Scorpion composition and scorpionism in a high-risk area, the southwest of Iran. *Electronic Physician*, 10 (7), 7138–7145. <https://doi.org/10.19082/7138>
- Penther, A. (1912) Wissenschaftliche Ergebnisse der Expedition nach Mesopotamien, 1910. Scorpiones. *Annalen des Kaiserlich-Königlichen Naturhistorischen Hofmuseums in Wien*, 26 (1-2), 109–115.
- Peters, W. (1861) Eine neue Untergattung von Skorpionen. *Monatsberichte der Königlichen Preussischen Akademie der Wissenschaften zu Berlin*, 1861, 426–427.
- Pirali-Kheirabadi, K., Navidpour, S., Fet, V., Kovařík, F. & Söleglad, M.E. (2009) Scorpions of Iran (Arachnida, Scorpiones). Part V. Chahar Mahal and Bakhtiari province. *Euscorpius*, 78, 1–23. <https://doi.org/10.18590/euscorpius.2009.vol2009.iss78.1>
- Pirali-Kheirabadi, Kh., Khalaji-Pirbalouty, V. & Jazayeri, A. (2013) Geographical distribution of scorpions in Chaharmahal va Bakhteyari province. *Pajouhesh and Sazandegi*, 103, 44–51.
- Pocock, R.I. (1889a) Notes on some Buthidae, new and old. *Annals and Magazine of Natural History*, 6 (3), 334–351. <https://doi.org/10.1080/00222938909460342>
- Pocock, R.I. (1889b) Arachnida, Chilopoda and Crustacea. In: Aitchison, J.E.T. (ed.) The Zoology of the Afghan Delimitation Commission. *Transactions of the Linnean Society of London*. 2d Series. Zoology, 5 (3), 110–122. <https://doi.org/10.1111/j.1096-3642.1889.tb00164.x>
- Pocock, R.I. (1895) On the Arachnida and Myriopoda obtained by Dr. Anderson's collector during Mr T. Brent's expedition to the Hadramaut, South Arabia, with a supplement upon the scorpions obtained by Dr. Anderson in Egypt and the Eastern Soudan. *Zoological Journal of the Linnean Society*, 25, 292–316.
- Pocock, R.I. (1897). Descriptions of some new species of scorpions from India. *Journal of the Bombay Natural History Society*, 11, 102–117.
- Pocock, R.I. (1899) Chilopoda and Arachnida. In: Günther, R.T. (ed.) Contribution to the natural history of Lake Urmi, N. W. Persia, and its neighborhood. *Journal of the Linnean Society of London, Zoology*, 27, 399–406.
- Pocock, R.I. (1900) Arachnida. In: Blanford, W.T. (ed.) *Fauna of British India including Ceylon and Burma*. Taylor and Francis, London. xii +279 pp.
- Pocock, R.I. (1902) A contribution to the systematics of scorpions. *Annals and Magazine of Natural History*, 7 (10), 364–380. <https://doi.org/10.1080/00222930208678688>
- Pooladgar, A.R. (1999) Study on species frequency in Khuzestan province. *Pajouhesh and Sazandegi*, 40, 175–177.
- Pooladgar, A.R. & Hakim, A. (1998) Report on the first case of the *Sassanidotus* scorpion in Khuzestan province. *Pajouhesh and Sazandegi*, 39, 132–134.
- Qumsiyeh, M.B., Salman, I.N., Salsaa', M. & Amr, Z.S. (2013) Records of scorpions from the Palestinian Territories, with the first chromosomal data (Arachnida: Scorpiones). *Zoology in the Middle East*, 59 (1), 70–76. <https://doi.org/10.1080/09397140.2013.795070>
- Ramezani, H., Matlabi, M., Rafinejad, J. & Amiri, M. (2010) The ecofaunistics of scorpions in Gonabad. *Ofoh-e-Danesh. GMUHS Journal*, 16 (1), 54–62.
- Salari, M. & Sampour, M. (2017) First two records of *Hemiscorpius* species (Scorpiones: Hemiscorpiidae) from Kerman province, southeast of Iran. *Asian Journal of Applied Sciences*, 5 (1), 101–108.
- Sanaei-Zadeh, H., Marashi, S.M. & Dehghani, R. (2017) Epidemiological and clinical characteristics of scorpionism in Shiraz (2012–2016); development of a clinical severity grading for Iranian scorpion envenomation. *Medical journal of the Islamic Republic of Iran*, 31 (27), 1–9. <https://doi.org/10.18869/mjiri.31.27>

- Shahi, M., Azizi, A. & Ansarian, N. (2008) Scorpion fauna in areas with high Scorpionism in Hormozgan province 2006-2007. *Medical Journal of Hormozgan University*, 12 (4), 207-214.
- Sharifinia, N., Gowhari, I., Hoseiny-Rad, M. Aivazi A.A. (2017) Fauna and geographical distribution of scorpions in Ilam province, South Western Iran. *Journal of Arthropod-Borne Diseases*, 11 (2), 242-248.
- Simon, E. (1880) Études Arachnologiques 12e Mémoire. Part XVIII. Descriptions de genres et espèces de l'ordre des Scorpiones. *Annales de la Société Entomologique de France*, 5 (10), 377-398.
- Simon, E. (1889) Arachnidae transcaspicae ab ill. Dr. G. Radde, dr. A. Walter et A. Conchin inventae (annis 1886-1887). *Verhandlungen der Kaiserlich-Königlichen Zoologisch-Botanischen Gesellschaft in Wien*, 39, 373-386.
- Simon, E. (1892) Liste des Arachnides recueillis en Syrie par M. le Dr Barrois. *Revue Biologique du Nord de la France*, 5, 80-84.
- Simon, E. (1902) Arachnides recueillis au cours de la Mission de MM. J. Bonnier et Ch. Perez au Golfe Persique (Mars-Avril 1901). *Bulletin du Museum National d'Histoire Naturelle, Paris*, 8 (4), 252-254.
- Sissom, W.D. & Fet, V. (1998) Redescription of *Compsobuthus matthiesseni* (Birula, 1905) (Scorpiones, Buthidae) from Southwestern Asia. *Journal of Arachnology*, 26 (1), 1-8.
- Taherian, S.M.R., Kayedi, M.H., Navidpour, Sh., Chegeni-Sharafi, A., Mokhayeri, H. & Saki, M. (2014) Scorpion species in trackless areas of Aligudarz and Sepiddasht Counties in Luristan province in 2013. *Journal of Preventive Medicine*, 1 (1), 46-50.
- Tahir, H.M., Navidpour, S. & Prendini, L. (2014) First reports of *Razianus* (Scorpiones: Buthidae) from Iraq and Pakistan, descriptions of two new species, and redescription of *Razianus zarudnyi*. *American Museum Novitates*, 3806, 1-26. <https://doi.org/10.1016/j.ympev.2015.04.028>
- Talal, S., Tesler, I., Sivan, J., Ben-Shlomo, R., Tahir, H.M., Prendini, L., Snir, S. & Gefen, E. (2015) Scorpion speciation in the Holy Land: multilocus phylogeography corroborates diagnostic differences in morphology and burrowing behavior among *Scorpio* subspecies and justifies recognition as phylogenetic, ecological and biological species. *Molecular Phylogenetics and Evolution*, 91, 226-237. <https://doi.org/10.1016/j.ympev.2015.04.028>
- Teruel, R., Kovařík, F., Navidpour, S. & Fet, V. (2014) The first record of the genus *Anomalobuthus* Kraepelin, 1900 from Iran, with description of a new species (Scorpiones: Buthidae). *Euscorpius*, 192, 1-12. <https://doi.org/10.18590/euscorpius.2014.vol2014.iss192.1>
- Tikader, B.T. & Bastawade, D.B. (1983) *The Fauna of India Scorpions, Scorpionida: Arachnida*, Vol. III. Government of India, 671 pp.
- Vachon, M. (1958a) A propos de *Liobuthus kessleri* Birula, Scorpion psammophile nouveau pour la faune Iranienne. *Bulletin du Muséum National d'Histoire Naturelle, Paris*, 30 (5), 422-426.
- Vachon, M. (1958b) Scorpionidea (Chelicerata) de l'Afghanistan. *The 3rd Danish Expedition to Central Asia (Zoological Results 23) Videnskabelige meddelelser fra Dansk naturhistorisk forening i København*, 120, 121-187.
- Vachon, M. (1966) Liste des scorpions connus en Egypte, Arabie, Israël, Liban, Syrie, Jordanie, Turquie, Irak, Iran. *Toxicon*, 4, 209-218. [https://doi.org/10.1016/0041-0101\(66\)90052-3](https://doi.org/10.1016/0041-0101(66)90052-3)
- Vatani, H. & Khoobdel, M. (2009) The Scorpions of the Taibad region and the Scorpionism situation in military environments. *Military Medicine*, 11 (1), 7-11.
- Vignoli, V. (2005) Description of a new species of *Compsobuthus* Vachon, 1949 (Scorpiones: Buthidae) from southern Iran. *Zoology in the Middle East*, 34, 79-86. <https://doi.org/10.1080/09397140.2005.10638086>
- Vignoli, V. & Crucitti, P. (2005) Notes on the scorpion diversity (Arachnida, Scorpiones) of the Yazd province, central Iran. *Acta Musei Moraviae Scientiae Biologicae (Brno)*, 90, 1-11.

- Vignoli, V., Kovařík, F. & Crucitti, P. (2003) Scorpiofauna of Kashan (Esfahan province, Iran) (Arachnida: Scorpiones). *Euscorpius*, 9, 1-7.
<https://doi.org/10.18590/euscorpius.2003.vol2003.iss9.1>
- Yağmur, E.A., Koç, H., Kesmezoğlu, S. & Yalçın, M. (2007) Scorpions of Kilis province, Turkey (Arachnida: Scorpiones). *Serket*, 10 (3), 91-105.
- Yağmur, E.A., Yalçın, M. & Çalışır, G. (2008a) Distribution of *Androctonus crassicauda* (Olivier 1807) and *Buthacus macrocentrus* (Ehrenberg 1828) (Scorpiones: Buthidae) in Turkey. *Serket*, 11 (1), 13-18.
- Yağmur, E.A., Koç, H. & Yalçın, M. (2008b) Distribution of *Hottentotta saulcyi* (Simon, 1880) (Scorpiones: Buthidae) in Turkey. *Euscorpius*, 76, 1-6.
<https://doi.org/10.18590/euscorpius.2008.vol2008.iss76.1>
- Yağmur, E.A., Moradi, M., Larti M. & Lashkari, S. (2016) First record of *Androctonus robustus* Kovařík and Ahmed, 2013 (Scorpiones: Buthidae) for Iran. *Zoology in the Middle East*, 6 (4), 1-3.
<https://doi.org/10.1080/09397140.2016.1250861>
- Zarei, A., Rafinejad, J., Shemshad, K. & Khaghani, R. (2009) Faunistic study and biodiversity of scorpions in Qeshm island (Persian Gulf). *Journal of Arthropod-Borne Diseases*, 3 (1), 46-52.
- Zargan, J., Tirkari, S., Tahernajad, K., Lotfi, H. & Farahmandzad, A.R. (2003) Identification of scorpions of Persian Gulf Islands (Abou mousa, Tonbe Bozorg, Tonbe Koucheh and Hengam). *Iranian South Medical Journal*, 6 (1), 20-24 (in Persian).
- Zehzad, B., Kiabi, B.H. & Madjnoonian, H. (2002) The natural areas and landscape of Iran: an overview. *Zoology in the Middle East*, 26 (1), 7-10.
<https://doi.org/10.1080/09397140.2002.10637915>
- Zhi-Yong, D.I., Zi-Zhong, Y., Shi-Jin, Y., Zhi-Jian, C. & Wen-Xin, L.I. (2014) History of study, updated checklist, distribution and key of scorpions (Arachnida: Scorpiones) from China. *Zoological Research*, 35 (1), 3-19. <https://doi.org/10.11813/j.issn.0254-5853.2014.1.003>

عقرب‌های ایران (Arachnida: Scorpiones): فهرست مشروح، پایگاه اطلاعاتی DELTA و کلید شناسایی

حسین براهویی^۱، شاهرخ نویدپور^۲، منصور علی‌آبادیان^۳، روح‌اله سیاه‌سروی^۴ و امید میرشمسی^{۵*}

- ۱ گروه زیست‌شناسی، دانشکده علوم، دانشگاه فردوسی مشهد، مشهد، ایران.
 - ۲ آزمایشگاه رفرنس تحقیقات عقرب رازی، موسسه تحقیقاتی سروم و واکسن رازی، سازمان تحقیقات، آموزش و ترویج کشاورزی، کرج، ایران.
 - ۳ گروه پژوهشی نوآوری‌های جانورشناختی، موسسه جانورشناسی کاربردی، دانشکده علوم، دانشگاه فردوسی مشهد، مشهد، ایران.
 - ۴ گروه پژوهشی جوندہ‌شناسی، موسسه جانورشناسی کاربردی، دانشکده علوم، دانشگاه فردوسی مشهد، مشهد، ایران.
- * پست الکترونیکی نویسنده مسئول مکاتبه: mirshams@um.ac.ir

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چکیده: فهرست به‌روز شده‌ای از عقرب‌های ایران ارائه شده است. این فهرست براساس گزارش گونه‌های عقرب است که از طریق سفرهای میدانی، بررسی مجموعه‌های نگهداری عقرب، بررسی منابع و ارتباط شخصی با محققان، حضورشان در ایران تأیید شده است. براساس این فهرست تعداد گونه‌های عقرب در ایران شامل ۶۸ گونه معتبر (۴۱ گونه بومی) متعلق به ۱۹ جنس و چهار خانواده و شش گزارش مشکوک (از خانواده Buthidae) می‌باشد. دو گونه *Hemiscorpius gaillardi* (Vachon, 1974) و *Compsobuthus jakesi* Kovařík, 2003 برای نخستین بار از استان هرمزگان گزارش شدند. گونه *Odontobuthus tavighiae* Navidpour et al., 2013 برای اولین بار از استان فارس جمع‌آوری شد. دو گونه *Kraepelinia palpator* (Birula, 1903) و *O. tirgari* Mirshamsi et al., 2013 هم برای فون استان خراسان جنوبی جدید بودند. بخش غالب این لیست شامل اعضای خانواده Buthidae (۵۸ گونه) است که ۸۵/۳ درصد گونه‌ها را شامل می‌شود. سطح بومی‌گرایی منطقه‌ای بیش از ۶۰/۳ درصد است. کلید شناسایی دوتایی برای گونه‌های ایرانی براساس پایگاه اطلاعاتی DELTA تهیه شده است.

واژگان کلیدی: عقرب‌ها، کلید شناسایی، گونه‌های معتبر، گزارش مشکوک، زیای جانوری، آرایه‌شناسی، ایران

Authors' Brief Biographical Notes

-
- Hossein Barahoei (Ph.D.)**  Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran
E-mail: barahoei2015@mail.um.ac.ir
He studied on Aphidiinae and Ichneumonidae wasps and published many papers. For his Ph.D. thesis, he worked on taxonomic review of burrowing scorpions of the family Buthidae in Iran. He is an academic member in the University of Zabol in Southeast Iran.
https://www.researchgate.net/profile/hossein_barahoei
<http://uoz.ac.ir/en-us/uoz/5333/page/Academic-staff>
-
- Shahrokh Navidpour (Ph.D.)**  Razi Reference Laboratory of Scorpion Research, Razi Vaccine and Serum Research Institute, Agricultural Research Education and Extension Organization, Karaj, Iran
E-mail: navid1038@hotmail.com
He is Associate Professor of the Razi Vaccine and Serum Research Institute of Karaj, Iran. He is the author and co-author of more than 60 journal papers. His research interest is Venomous Animals and scorpions.
<https://scholar.google.com/citations?user=mN3kja4AAAAJ&hl=en>
-
- Mansour Aliabadian (Ph.D.)**  Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran
E-mail: aliabadi@um.ac.ir
He is an ornithologist at Ferdowsi University of Mashhad in Iran. His research focuses on systematics and biogeography of vertebrates, especially the evolution of Birds. He is also interested in phylogeny, phylogeography, and population genetics of animals. He is currently a Professor at the department of Biology, Ferdowsi university of Mashhad.
https://www.researchgate.net/profile/Mansour_Aliabadian
<http://aliabadi.profcms.um.ac.ir/>
-
- Roohollah Siah sarvie (Ph.D.)**  Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran
E-mail: siah sarvie@um.ac.ir
Assistant Professor of the Biology Department and the director of the Rodentology Research Group at the Ferdowsi University of Mashhad. His research interest is biosystematics and the evolution of small mammals and the study of genetic, developmental and ecological factors influencing the morphological evolution of animals.
https://www.researchgate.net/profile/Roohollah_Siah sarvie
<http://siah sarvie.profcms.um.ac.ir/>
-
- Omid Mirshamsi (Ph.D.)**  Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran
E-mail: mirshams@um.ac.ir
He is an Iranian arachnologist who received his PhD from University of Tehran, with a main interest toward the systematics and distribution of the scorpion family Buthidae in Iran. He is also interested in the distribution and taxonomy of spiders of Iran. Currently, he is an Associate Professor at the Ferdowsi University of Mashhad.
https://www.researchgate.net/profile/Omid_Mirshamsi
<http://mirshams.profcms.um.ac.ir/>
-