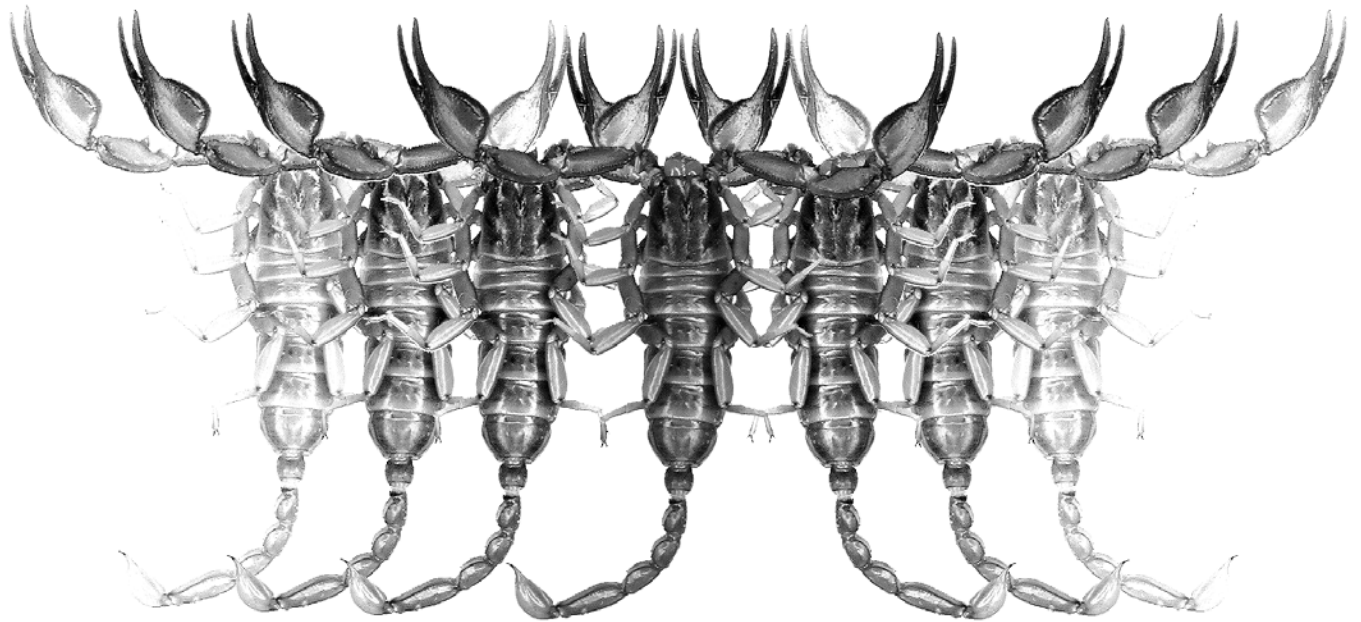


Euscorpius

Occasional Publications in Scorpiology



**Scorpions of Iran (Arachnida, Scorpiones).
Part V. Chahar Mahal & Bakhtiari Province**

**Khodadad Pirali-Kheirabadi, Shahrokh Navidpour, Victor Fet,
František Kovařík & Michael E. Söglad**

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Euscorpilus

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- **BMNH**, British Museum of Natural History, London, England, UK
- **MZUC**, Museo Zoologico “La Specola” dell’Universita de Firenze, Florence, Italy
- **ZISP**, Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia
- **WAM**, Western Australian Museum, Perth, Australia
- **NTNU**, Norwegian University of Science and Technology, Trondheim, Norway

Scorpions of Iran (Arachnida, Scorpiones). Part V. Chahar Mahal & Bakhtiyari Province

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Summary

Ten species of scorpions belonging to three families are reported from the montane Chahar Mahal & Bakhtiyari Province of Iran. Of these, only *Razianus zarudnyi* (Birula, 1903) was formerly reported for this province, while nine species are reported for the first time: *Androctonus crassicauda* (Olivier, 1807), *Compsobuthus matthiesseni* (Birula, 1905), *Hottentotta saulcyi* (Simon, 1880), *Hottentotta zagrosensis* Kovařík, 1997, *Mesobuthus eupeus phillipsii* (Pocock, 1889), *Odontobuthus doriae* (Thorell, 1876), *Orthochirus zagrosensis* Kovařík, 2004, *Hemiscorpius lepturus* Peters, 1861, and *Scorpio maurus townsendi* (Pocock, 1900). Also presented is a key to all species of scorpions found in the Chahar Mahal & Bakhtiyari Province.

Introduction

Many papers deal with the scorpions of Iran to some extent, but a comprehensive study of the scorpion fauna has been lacking. We have therefore decided to survey the scorpions of Iran thoroughly, province by province.

The Chahar Mahal & Bakhtiyari Province is the fifth region surveyed (see previous publications of our group: Navidpour et al., 2008a, 2008b, 2008c, 2008d), and this publication represents the first comprehensive treatment of its scorpions. A study made by a team under Shahrokh Navidpour (Razi Reference Laboratory of Scorpion Research, Razi Vaccine and Serum Research Institute, Ahvaz, Khoozestan, Iran) reveal ten species of three families; nine of these species are recorded from this Province for the first time. In order to study the scorpion fauna of Chahar Mahal & Bakhtiyari Province, sampling using various methods including UV lamps was carried out. The fieldwork was conducted by Khodadad Pirali.

The Chahar Mahal & Bakhtiyari Province lies in the southwestern part of Iran and is bordered by the Esfahan Province in the north and east, the Kohgiluyeh & Boyer Ahmad Province in the south, and the Khoozestan Province in the west (see Fig. 1). This province covers an area of 16,500 km². Much of the province (about 70%) is montane, with altitudes from 1100 to 4200 m a.s.l. The

humidity varies from 30.2 to 50.3%, and temperatures range up to 36°C in the summer and down to -25°C at higher altitudes in the winter. Our study showed that *Odontobuthus doriae*, *Scorpio maurus townsendi*, and *Hottentotta saulcyi* are rare, while *Hottentotta zagrosensis*, *Mesobuthus eupeus phillipsii*, and *Orthochirus zagrosensis* are abundant in Chahar Mahal & Bakhtiyari Province.

Abbreviations. The institutional abbreviations listed below and used throughout are mostly after Arnett et al. (1993).

BMNH – The Natural History Museum, London, United Kingdom;

FKCP – František Kovařík Collection, Praha, Czech Republic;

MCSN – Museo Civico de Storia Naturale “Giacomo Doria”, Genova, Italy;

MNHN – Muséum National d’Histoire Naturelle, Paris, France;

RRLS – Razi Reference Laboratory of Scorpion Research, Razi Vaccine and Serum Research Institute, Sepah St., Hejrat Sq., Ahvaz, Khoozestan, Iran;

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

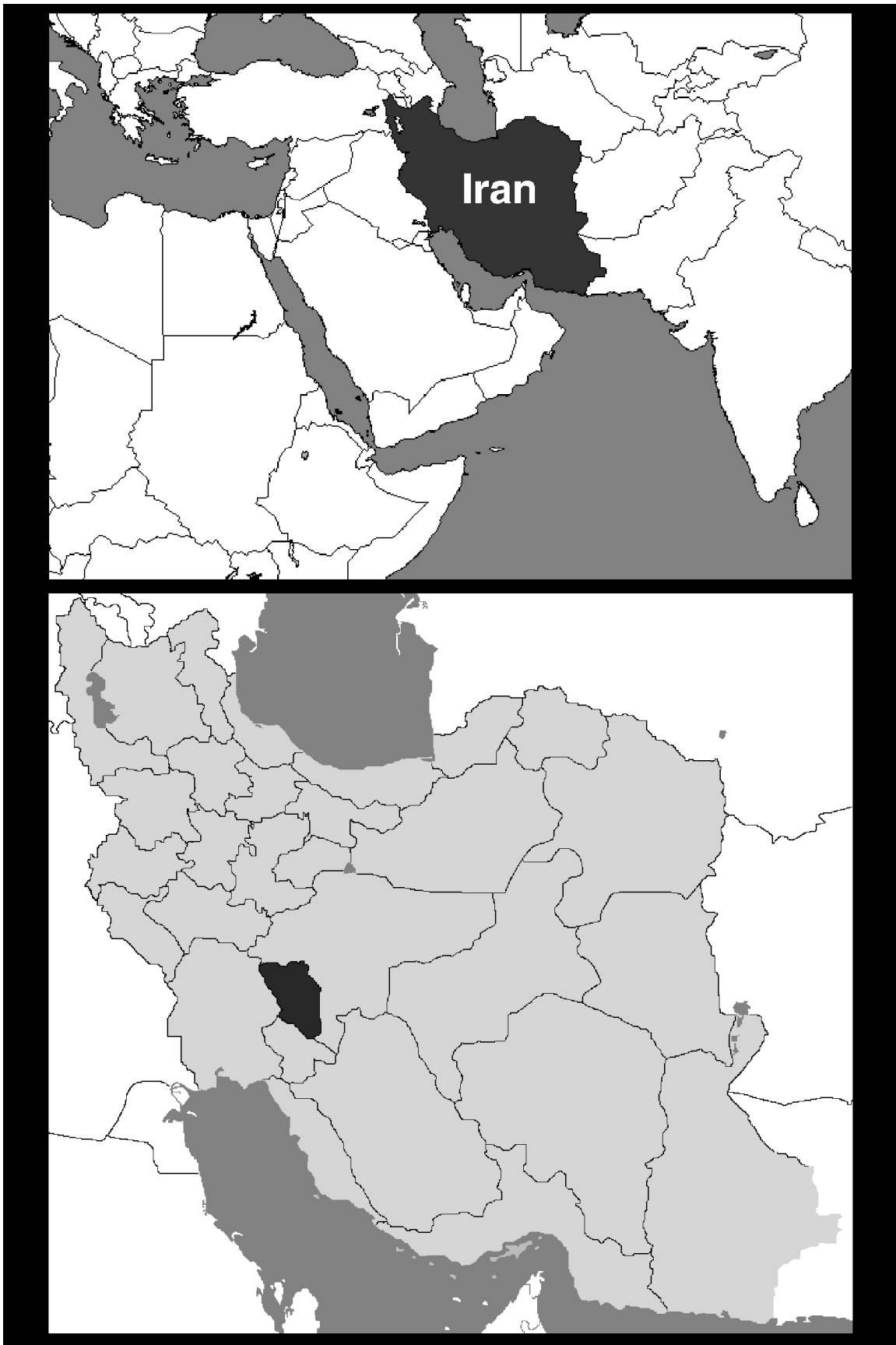


Figure 1: Map of southwestern Asia highlighting Iran (top) and closeup of Iran showing provinces, the Chahar Mahal & Bakhtiari Province depicted in black (bottom).

ZMHB – Museum für Naturkunde der Humboldt-Universität zu Berlin, Germany;

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

List of Scorpions of Chahar Mahal & Bakhtiyari Province (all species except *R. zarudnyi* are reported for the first time for this Province)

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

Androctonus crassicauda (Olivier, 1807)

Compsobuthus matthiesseni (Birula, 1905)

Hottentotta saulcyi (Simon, 1880)

Hottentotta zagrosensis Kovařík, 1997

Mesobuthus eupeus phillipsii (Pocock, 1889)

Odontobuthus doriae (Thorell, 1876)

Orthochirus zagrosensis Kovařík, 2004

Razianus zarudnyi (Birula, 1903)

Family **Scorpionidae** Latreille, 1802

Scorpio maurus townsendi (Pocock, 1900)

Family **Hemiscorpiidae** Pocock, 1893

Hemiscorpius lepturus Peters, 1861

Systematics

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

Androctonus crassicauda (Olivier, 1807)

Figures 3, 4, 12–15

Scorpio crassicauda Olivier, 1807: 97.

Buthus crassicauda: Simon, 1872: 247 (in part); Simon, 1879: 99; Simon, 1892: 83; Kraepelin, 1899: 16; Pocock, 1902: 373; Kraepelin, 1913: 124; Lampe, 1918: 190.

Androctonus crassicauda: Kraepelin, 1891: 175 (in part); Vachon, 1951: 343; Khalaf, 1962: 1; Khalaf, 1963: 60; Habibi, 1971: 42; Farzanpay & Pretzmann, 1974: 215; Pérez Minocci, 1974: 17; Vachon, 1974: 909; Vachon, 1979: 31; Farzanpay, 1987: 141; Farzanpay, 1988: 36; Fet, 1989: 78; Sissom, 1994: 36; Al-Safadi, 1992: 96; Amr & El-Oran, 1994: 187; Dupré et al., 1998: 59; Kovařík, 1998: 104; Crucitti, 1999: 83; Kabakibi et al., 1999: 80; Fet & Lowe, 2000: 72; Stathi & Mylonas, 2001: 288; Kovařík, 2002: 5; Crucitti & Vignoli, 2002: 439; Vignoli et al., 2003: 2; Fet & Kovařík, g: 180; Kovařík & Whitman, 2005: 105; Lourenco, 2005: 149; Hendrixson, 2006: 38; Akbari, 2007: 76; Navidpour et al., 2008a: 5; Navidpour et al., 2008b: 3; Navidpour et al., 2008c: 3; Navidpour et al., 2008d: 3.

Prionurus crassicauda: Pocock, 1895: 292; Tullgren, 1909: 2; Birula, 1904: 29; Birula, 1905a: 120; Masi, 1912: 91; Penther, 1912: 110.

Androctonus crassicauda crassicauda: Vachon, 1959: 124; Vachon, 1966: 210; Habibi, 1971: 42; Vachon, 1979: 34; Levy & Amitai, 1980: 24; Kovařík, 1997a: 49.

= *Prionurus crassicauda orientalis* Birula, 1900a: 355; Birula, 1903: 67 (syn. by Fet, 1989: 79)

Buthus (Prionurus) crassicauda orientalis: Birula, 1917: 93, 240.

Buthus crassicauda orientalis: Kraepelin, 1913: 124.

Androctonus crassicauda orientalis: Vachon, 1959: 124; Vachon, 1966: 210; Habibi, 1971: 42; Pérez Minocci, 1974: 18.

Androctonus amoreuxi baluchicus: Kovařík, 1997a: 39 (see Vignoli et al., 2003: 4).

TYPE LOCALITY AND TYPE REPOSITORY. Kashan, Persia, now Iran, Esfahan Province; MNHN.

CHAHAR MAHAL & BAKHTIYARI PROVINCE MATERIAL EXAMINED. **Iran**, Chahar Mahal & Bakhtiyari Province, Lordegan, Aloni Village, 31°32'18"N 51°04'03"E, 1883 m a.s.l. (Locality No. SH-3), XII.2007, 2♂1♀, RRLS, 1♀, FKCP, leg. Pirali; Lordegan, Giloreh and Sini Villages, 31°32'02"N 51°02'38"E, 1856 m a.s.l. (Locality No. SH-12-13), XII.2007, 2♀, RRLS, 1im., FKCP, leg. Pirali.

DISTRIBUTION: Widespread in Iran, found in most provinces. Recorded also from Armenia (Kraepelin, 1899: 17), Azerbaijan (Fet, 1989: 79), Bahrain (Crucitti & Vignoli, 2002: 439), Egypt (Fet & Lowe, 2000: 72), Iraq (Kennedy, 1937: 745), Israel (Simon, 1872: 247), Jordan (Amr & El-Oran, 1994: 187), Kuwait (Kettel, 1982: 6), Lebanon (El-Hennawy, 1992: 100), Oman (Birula, 1917: 229; Hendrixson, 2006: 39), Qatar (El-Hennawy, 1992: 100), Saudi Arabia (Pocock, 1895: 292; Hendrixson, 2006: 39), Syria (Birula, 1900b: 9), Tunis (Kraepelin, 1901: 266), Turkey (Pocock, 1902: 373), United Arab Emirates (Hendrixson, 2006: 40), Yemen (Birula, 1937: 101).

Compsobuthus matthiesseni (Birula, 1905)

Figures 4, 6, 28–31

Buthus acutecarinatus matthiesseni Birula, 1905a: 142; Birula, 1937: 107.

Buthus (Buthus) acutecarinatus matthiesseni: Birula, 1917: 229, 240; Birula, 1918: 25.

Buthus (Hottentotta) acutecarinatus matthiesseni: Vachon, 1940b: 173.

Compsobuthus matthiesseni: Pringle, 1960: 77; Habibi, 1971: 43; Levy et al., 1973: 114; Levy & Amitai, 1980: 60; Farzanpay, 1987: 149; Farzanpay, 1988: 37; Kovařík, 1992: 183; Kovařík, 1996: 53; Kovařík, 1997a: 40, 49; Kovařík, 1997b: 179; Kovařík, 1998: 109; Sissom & Fet, 1998: 1;



Figures 2–3: Iran, Chahar Mahal & Bakhtiyari Province. **2.** Lordegan, Shahidane Baraftab Village, 30°56'05"N 51°21'32"E (Locality No. SH-2). Recorded occurrence of *Hottentotta zagrosensis* Kovařík, 1997, *Orthochirus zagrosensis* Kovařík, 2004, and *Razianus zarudnyi* (Birula, 1903). **3.** Lordegan, Aloni Village, 31°32'18"N 51°04'03"E, 1883 m a.s.l. (Locality No. SH-3). Recorded occurrence of *Androctonus crassicauda* (Olivier, 1807), *Orthochirus zagrosensis* Kovařík, 2004, and *Hemiscorpius lepturus* Peters, 1861.

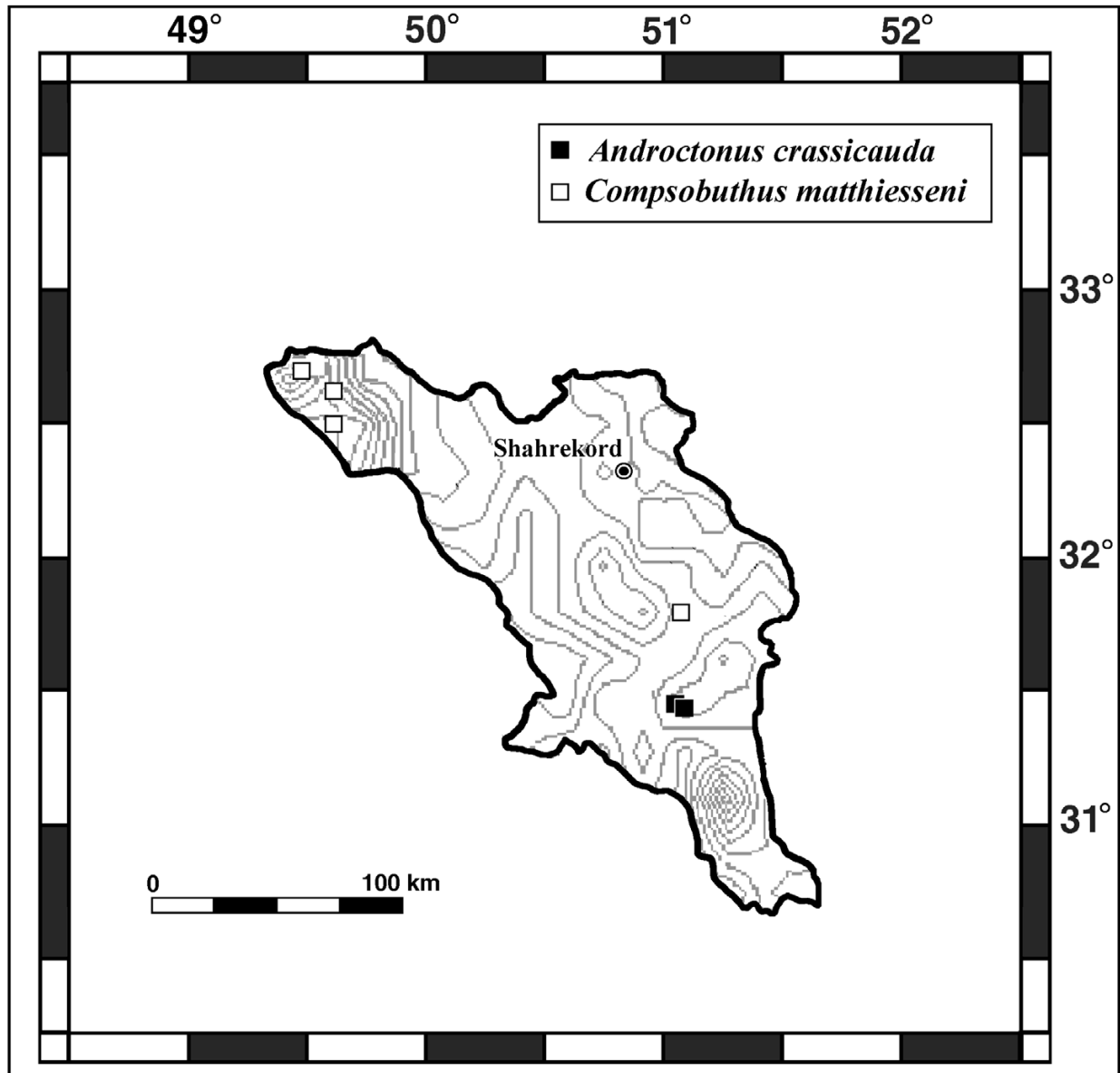


Figure 4: Map of Chahar Mahal & Bakhtiyari Province showing distribution of *Androctonus crassicauda* and *Compsobuthus matthiesseni* collected in this study.

Crucitti, 1999: 84; Fet & Lowe, 2000: 127; Lourenço & Vachon, 2001: 180; Kovařík, 2002: 7; Crucitti & Vignoli, 2002; Kovařík, 2003: 97; Vignoli et al., 2003: 2; Vignoli, 2005: 85; Akbari, 2007: 76; Kovařík & Ahmed, 2007: 6; Navidpour et al., 2008a: 9; Navidpour et al., 2008b: 9; Navidpour et al., 2008c: 8; Navidpour et al., 2008d: 3.

Compsobuthus acutecarinatus matthiesseni: Vachon & Kinzelbach, 1987: 101; El-Hennawy, 1992: 123.

TYPE LOCALITY AND TYPE REPOSITORY. Iran, "Kum, Province Irak-Adschemi" now Qum (Qom); ZISP.

CHAHAR MAHAL & BAKHTIYARI PROVINCE MATERIAL EXAMINED. Iran, Chahar Mahal & Bakhtiyari Province,

Bazoft, Abikarolya Village, 32°29'28"N 49°36'02"E (Locality No. SH-1), 2007, 1♂1♀, RRLS, leg. Pirali; Farsan, 32°35'43"N 49°39'27"E, 1981 m a.s.l. (Locality No. SH-6), V.2008, 1♀1im., RRLS, 1♀ FKCP, leg. Pirali & Khosravi; Bazoft to Kohrang road, 32°42'05"N 49°33'12"E, 1262 m a.s.l., V.2008, 1♀ RRLS, leg. Pirali & Rashidi; Lordegan, Kohiyan Village, 31°50'02"N 51°03'48"E, 1856 m a.s.l. (Locality No. SH-8), VII.2007, 1♀, FKCP.

DISTRIBUTION: Iran, known from provinces Kermanshah (formerly Bahtaran), Bushehr, Fars, Hamadan, Ilam, Khozestan, Kerman, Kordestan, Lorestan, Markazi, Qom (Sissom & Fet, 1998, Kovařík, 2003: 100, Akbari, 2007: 76), Kohgilouyeh & Boyer Ahmad (Navidpour et

al., 2008d: 3), and Chahar Machal & Bakhtiyari Province (first report); Iraq (Birula, 1917: 240; Pringle, 1960: 77), Syria (Kovařík, 2002: 7), Turkey (Kovařík, 1996: 53).

Hottentotta saulcyi (Simon, 1880)
Figures 9, 16–19

Buthus saulcyi Simon, 1880a: 378; Simon, 1880b: 29; Kraepelin, 1899: 18; Kraepelin, 1901: 267; Weidner, 1959: 99.

Buthus (Hottentotta) saulcyi: Birula, 1905a: 136; Birula, 1917: 214; Birula, 1918: 30; Vachon, 1940b: 255.

Buthotus saulcyi: Vachon, 1949: 147 (1952: 233); Vachon, 1959: 134; Pringle, 1960: 79; Khalaf, 1962: 2; Khalaf, 1963: 64; Vachon, 1966: 210; Vachon & Stockmann, 1968: 91; Habibi, 1971: 43; Pérez Minocci, 1974: 21; Farzanpay, 1987: 148; Farzanpay, 1988: 37; El-Hennawy, 1992: 118; Kovařík, 1992: 90; Kovařík, 1992: 183; Akbari, 2007: 76; Akbari et al., 1997: 112; Dupré, Lambert & Gérard, 1998: 70.

Hottentotta saulcyi: Kovařík, 1997a: 40; Crucitti & Vignoli, 2002: 446; Vignoli et al., 2003: 4; Karatas, 2003: 315; Kovařík, 2007: 61; Navidpour et al., 2008a: 10; Navidpour et al., 2008b: 13; Navidpour et al., 2008c: 8; Navidpour et al., 2008d: 5.

Hottentotta (Hottentotta) saulcyi: Kovařík, 1998: 110; Fet & Lowe, 2000: 143.

Buthus hottentotta: Kraepelin, 1891: 185 (in part).

TYPE LOCALITY AND TYPE REPOSITORY. Iraq, Mosul; MNHN, ZMUH.

CHAHAR MAHAL & BAKHTIYARI PROVINCE MATERIAL EXAMINED. **Iran**, Chahar Mahal & Bakhtiyari Province, Bazoft to Kohrang road, 32°42'05"N 49°33'12"E, 1262 m a.s.l., V.2008, 1im., RRLS, leg. Pirali.

DISTRIBUTION: Iran, known from Kermanshah (formerly Bachtaran), Fars, Hamadan, Hormozgan, Ilam, Lorestan Provinces (Kovařík, 2007: 65), Bushehr and Khoozestan Provinces (Akbari, 2007: 76, Akbari et al., 1997: 112), Kohgilouyeh & Boyer Ahmad (Navidpour et al., 2008d: 5), and Chahar Machal & Bakhtiyari Province (first report); Afghanistan (Kovařík, 1997a: 40), Iraq (Simon, 1880a: 379), Turkey (Crucitti & Vignoli, 2002: 446).

Hottentotta zagrosensis Kovařík, 1997
Figures 2, 6, 7, 9, 20–23

Hottentotta zagrosensis Kovařík, 1997a: 41; Kovařík, 1998: 111; Fet & Lowe, 2000: 144, Kovařík, 2007: 86; Navidpour et al., 2008a: 10; Navidpour et al., 2008d: 5.

TYPE LOCALITY AND TYPE REPOSITORY. Iran, Fars prov., cca 1000 m a.s.l., Zagros Mts., Abshar vill. env., 30°23'N 51°30'E; FKCP.

TYPE MATERIAL EXAMINED. **Iran**, Fars Province, cca. 1000 m a.s.l., Zagros Mts., Abshar vill. env., 2.-3.V.1996 1♂ (holotype) 1♂(im.) and its ecdysis (paratype No. 1), leg. J. Pitulová, 1♀ (allotype, Fig. 129) 2juvs. (paratypes No. 2 and No. 3), leg. V. Šejna, 1juv. (paratype No. 4), leg. D. Král, FKCP.

CHAHAR MAHAL & BAKHTIYARI PROVINCE MATERIAL EXAMINED. Bazoft, Abikarolya Village, 32°29'28"N 49°36'02"E (Locality No. SH-1), 2007, 4♂3♀2 juvs., RRLS, 1♀im., FKCP, leg. Pirali & Khosravi; Lordegan, Shahidane Baraftab Village, 30°56'05"N 51°21'32"E (Locality No. SH-2), V.2008, 3♀ RRLS 1juv. FKCP, leg. Pirali & Khosravi; Farsan, 32°35'43"N 49°39'27"E, 1981 m (Locality. No. SH-6), V.2008, 2♀1♀im., RRLS, 1juv., FKCP, leg. Pirali & Khosravi; Ardal, Dareh Bid and Dareh Yas Villages, 31°46'47"N 50°46'18"E, 1401 m a.s.l. (Locality. No. SH-11), V.2008, 2♀1♀im., RRLS, 1im., FKCP, leg. Pirali & Khosravi; Bazoft to Kohrang road, 32°42'05"N 49°33'12"E, 1262 m a.s.l., V.2008, 2♀1juv., RRLS, leg. Pirali & Rashidi; Lordegan, Marvan Village, 31°33'14"N 51°06'08"E, 1892 m a.s.l., X.2007, 4♂, RRLS, leg. Pirali & Khosravi; Ardal, Dorak Village, 31°47'30"N 50°43'47"E, 1359 m a.s.l., V.2008, 2♀, RRLS, leg. Pirali & Rezaie; Ardal, Dopolan Village, 31°53'46"N 50°37'04"E, 1652 m a.s.l., V.2008, 2♂ RRLS, leg. Pirali & Rezaie; Ardal, Madan Village, 31°55'56"N 50°48'38"E, 1398 m a.s.l., V.2008, 2♂im., RRLS, leg. Pirali & Rezaie.

DISTRIBUTION: Iran, known from provinces Fars, West Azerbaijan, Khoozestan (see Kovařík, 2007: 86), Khoozestan (Navidpour et al., 2008a: 10), Kohgilouyeh & Boyer Ahmad (Navidpour et al., 2008d: 5), and Chahar Machal & Bakhtiyari (first report).

Mesobuthus eupeus phillipsii (Pocock, 1889)
Figures 5, 10, 32–35

Buthus phillipsii Pocock, 1889: 341; Weidner, 1959: 99.

Buthus phillipsi: Kraepelin, 1899: 24; Birula, 1905a: 131; Borelli, 1915: 460; Werner, 1916: 80; Lampe, 1918: 191.

Mesobuthus phillipsi: Vachon, 1950: 153 (1952: 325); Pérez Minocci, 1974: 25.

Buthus (Buthus) eupeus phillipsi: Birula, 1917: 228.

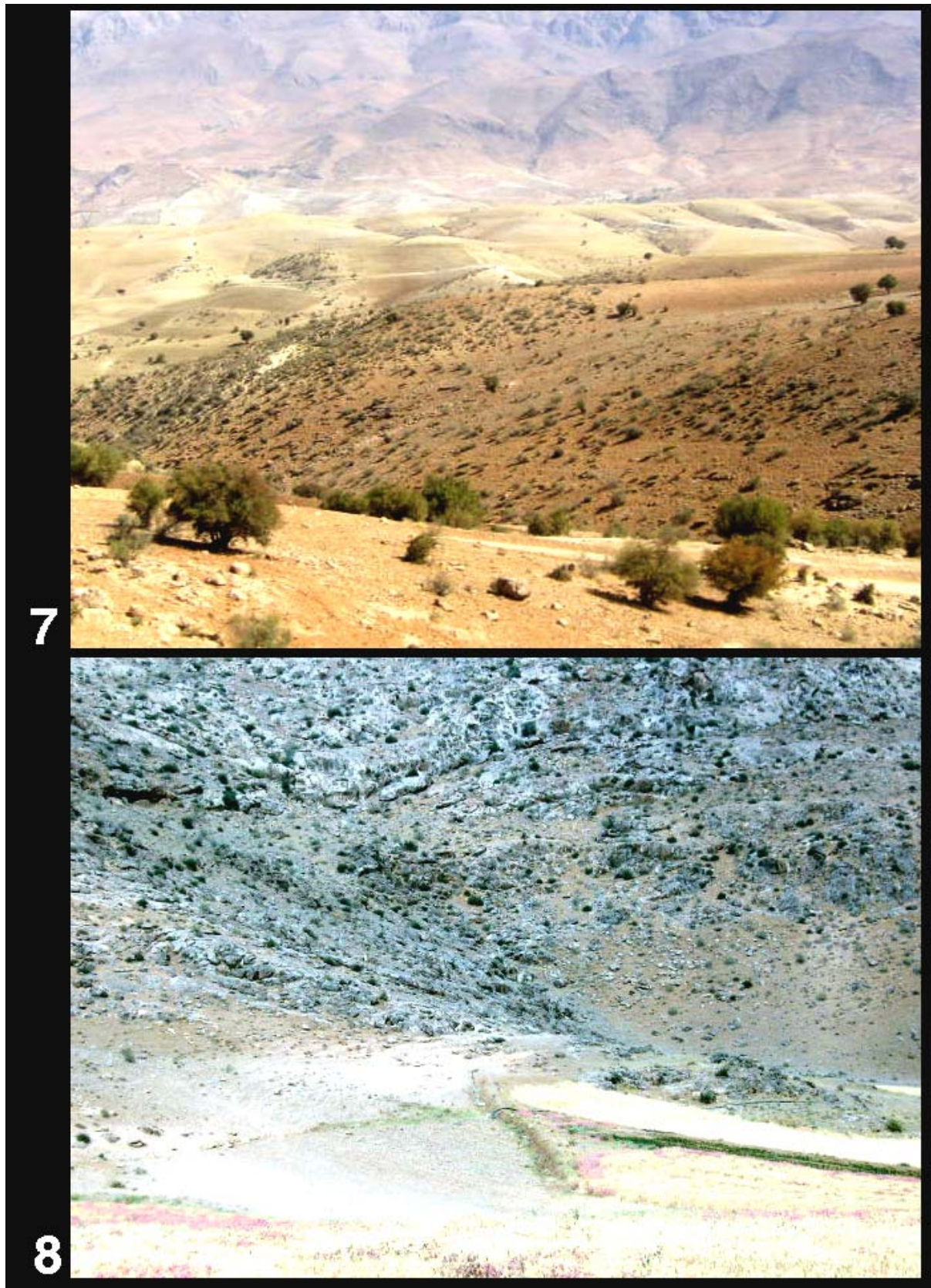
Mesobuthus eupeus phillipsi: Vachon, 1959: 148; Vachon, 1966: 213; Habibi, 1971: 44; Farzanpay, 1986: 334; Fet, 1994: 527; Kovařík, 1997a: 49; Kovařík, 1998: 114; Fet & Lowe, 2000: 175.

Mesobuthus eupeus phillipsii: Farzanpay, 1987: 150; Farzanpay, 1988: 38; Navidpour et al., 2008a: 11; Navidpour et al., 2008b: 13; Navidpour et al., 2008c: 11; Navidpour et al., 2008d: 5.

Mesobuthus eupeus: Akbari, 2007: 76.



Figures 5–6: Iran, Chahar Mahal & Bakhtiyari Province. **5.** Shahrekord (hills of Shahrekord University), 32°21'18"N 50°50'10"E, 2148 m a.s.l. (Locality No. SH-4). Recorded occurrence of *Mesobuthus eupeus phillipsii* (Pocock, 1889) and *Orthochirus zagrosensis* Kovařík, 2004. **6.** Farsan, 32°35'43"N 49°39'27"E, 1981 m a.s.l. (Locality. No. SH-6). Recorded occurrence of *Compsobuthus matthiesseni* (Birula, 1905) and *Hottentotta zagrosensis* Kovařík, 1997.



Figures 7–8: Iran, Chahar Mahal & Bakhtiyari Province. **7.** Ardal, Dareh Bid, and Dareh Yas Villages, 31°46'47"N 50°45'18"E, 1401 m a.s.l. (Locality No. SH-11). Recorded occurrence of *Hottentotta zagrosensis* Kovařík, 1997. **8.** Lordegan, Giloreh and Sini Villages, 31°32'02"N 51°02'38"E, 1856 m a.s.l. (Locality No. SH-12-13). Recorded occurrence of *Androctonus crassicauda* (Olivier, 1807), *Orthochirus zagrosensis* Kovařík, 2004, and *Razianus zarudnyi* (Birula, 1903).

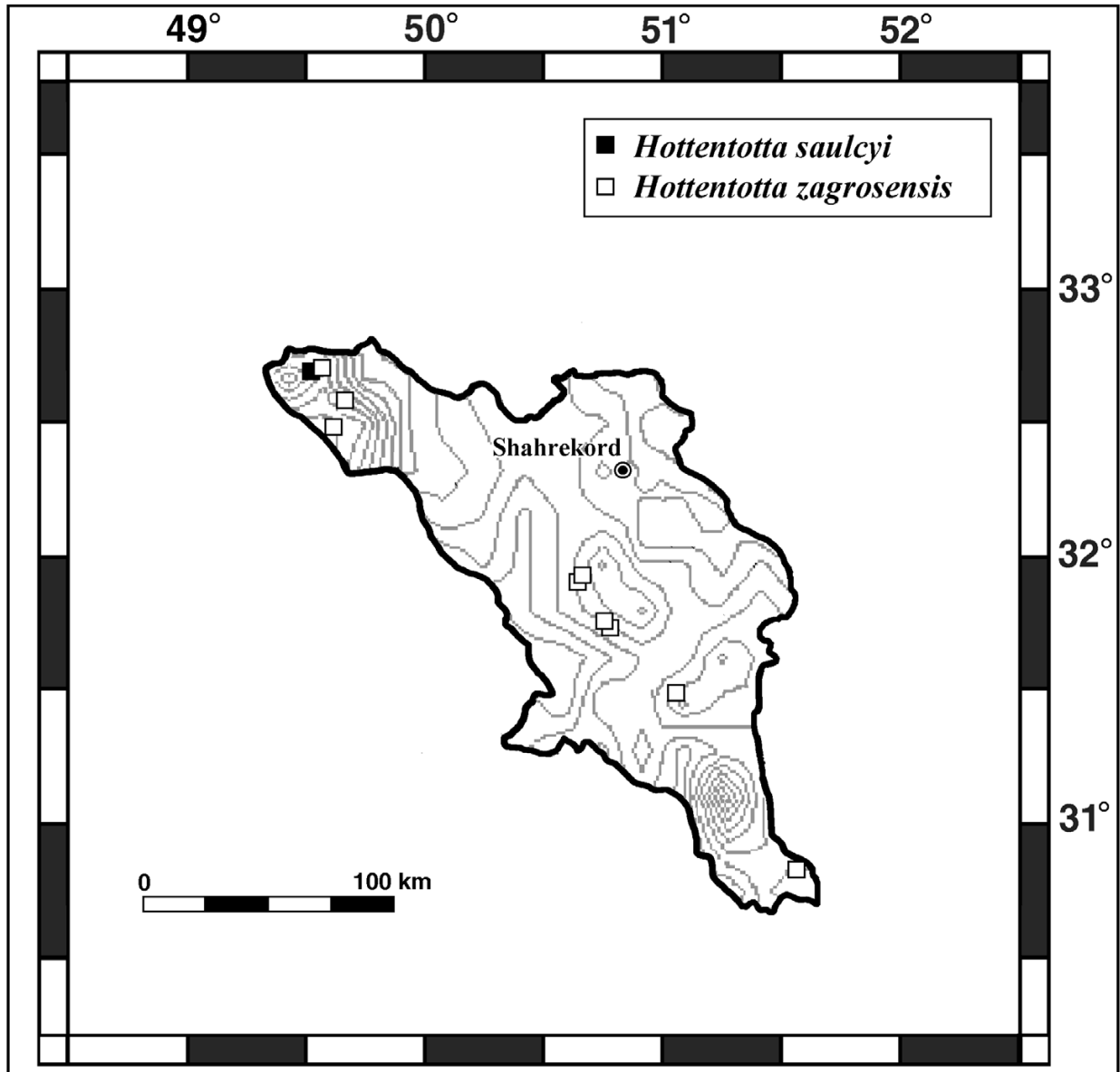


Figure 9: Map of Chahar Mahal & Bakhtiyari Province showing distribution of *Hottentotta saulcyi* and *H. zagrosensis* collected in this study.

Buthus hottentotta: Kraepelin, 1891: 185 (part?).

TYPE LOCALITY AND TYPE REPOSITORY. Iran, Bushir (now Bushehr) Province; BMNH.

CHAHAR MAHAL & BAKHTIYARI PROVINCE MATERIAL EXAMINED. Shahrekord (hills of Shahrekord University), 32°21'18"N 50°50'10"E, 2148 m a.s.l. (Locality No. SH-4), V.2007, 7♂5♀11♀im.3juvs., RRLS, 6♂1juv., FKCP, leg. Pirali & Navidpour; Shahrekord, Sarteshniz Village, 32°08'51"N 50°54'11"E, 2116 m a.s.l. (Locality No. SH-7), V.2008, 3♂2♀1♀im.5juvs., RRLS, 2♀1juv., FKCP, leg. Pirali; Saman, 32°27'17"N 50°52'36"E, 2134 m a.s.l. (Locality No. SH-9), V.2008, 2♂4♀, RRLS, leg. Pirali; Lordegan, Milas Village, 31°30'02"N 51°02'38"E, 1840

m, X.2007, 4♂2♀, RRLS, leg. Pirali; Lordegan, Marvan Village, 31°33'14"N 51°06'08"E, 1892 m a.s.l., X.2007, 4♂2♀, RRLS, leg. Pirali & Khosravi.

DISTRIBUTION: Iran, Bushehr Province (Pocock, 1889: 341), Ilam Province (Akbari, 2007: 76), Khozestan Province (Navidpour et al., 2008a: 9), Kohgilouyeh & Boyer Ahmad (Kovařík, 1997), and Chahar Machal & Bakhtiyari Province (first report); Iraq (Vachon, 1966: 213; Fet & Lowe, 2000: 175).

Odontobuthus doriae (Thorell, 1876)

Figures 10, 24–27

Buthus doriae Thorell, 1876: 107; Kraepelin, 1899: 27.

Odontobuthus doriae: Pringle, 1960: 83; Khalaf, 1963: 66; Vachon, 1966: 213; Habibi, 1971: 44; Pérez Minocci, 1974: 28; Farzanpay, 1988: 39; Kovařík, 1997: 47; Kovařík, 1998: 115; Fet & Lowe, 2000: 187; Kovařík, 2002: 9; Lourenço & Pézier, 2002: 116; Vignoli, Kovařík & Crucitti, 2003: 4.

TYPE LOCALITY AND TYPE REPOSITORY. Iran, Teheran; MCSN.

CHAHAR MAHAL & BAKHTIYARI PROVINCE MATERIAL EXAMINED. Saman, 32°27'17"N 50°52'36"E, 2134 m a.s.l. (Locality No. SH-9), V.2008, 1♀, RRLS, 1♂, FKCP, leg. Pirali.

DISTRIBUTION: Iran, Esfahan, Fars, Hamadan, Kerman, Kermanshah, Mazandaran, Markazi, Teheran, West Azarbaijan, Yazd Provinces (Kovařík, 1997: 47, Lourenço & Pézier, 2002: 116, 117, 124), Chahar Machal & Bakhtiyari Province (first report), and Sistan & Baluchistan Province (first report, see Figs. 24–25).

***Orthochirus zagrosensis* Kovařík, 2004**

Figures 2–3, 5, 8, 10, 36–39

Orthochirus sp. n.?: Kovařík, 1997: 47 (in part).

Orthochirus zagrosensis Kovařík, 2004: 22; Kovařík & Fet, 2006: 8; Navidpour et al., 2008a: 20; Navidpour et al., 2008d: 7.

TYPE MATERIAL EXAMINED. Iran, Fars Province, Dasht-e-Arzan, 21–22.IV.2000, 29°34.644'N 51°56.889'E, 2000 m a.s.l., 1♂ (holotype), FKCP, leg. J. Šobotník; Kohgiluyeh & Boyer Ahmad Province, Zagros Mts., Kuh-e-Dinar ridge, 10 km N Yasuj by road, 30°39'N, 51°36'E, 1800–2500 m a.s.l., 1–2.V.1996 (Locality No. 13 in Frynta et al., 1997: 4), 1♀ (allotype), FKCP, leg. J. Pitulová; Esfahan Province, Zagros Mts., Qamishlu, 32°02'N 51°29'E, ca. 2000–2200 m a.s.l., 27–28.IV.1996, (Locality No. 5 in Frynta et al., 1997: 4), 1♀ (paratype), FKCP, leg. M. Kaftan; Yazd Province, E of Taft, 31°44'N 54°13'E, 1542 m a.s.l., 7.IV.2004, 1im. (paratype), FKCP, leg. V. Vignoli & P. Crucitti; W of Baghdadabad, Taft, 31°35'N 54°24'E, 1502 m a.s.l., 9.IV.2004, 1♀ (paratype), FKCP, leg. V. Vignoli & P. Crucitti.

CHAHAR MAHAL & BAKHTIYARI PROVINCE MATERIAL EXAMINED. Lordegan, Shahidane Baraftab Village, 30°56'05"N 51°21'32"E (Locality No. SH-2), V.2008, 2♂3♀, RRLS, 1♀, FKCP, leg. Pirali & Khosravi; Lordegan, Aloni Village, 31°32'18"N 51°04'03"E, 1883 m a.s.l. (Locality No. SH-3), XII.2007, 2♂1♀, RRLS, 1♂, FKCP, leg. Pirali; Shahrekord (hills of Shahrekord University), 32°21'18"N 50°50'10"E, 2148 m a.s.l. (Locality No. SH-4), V.2007, 4♂7♀3♀im.2juvs., RRLS, 2♂, FKCP, leg. Pirali & Navidpour; Shahrekord-Farokh

Shahr, Yahya Abad Village, 32°15'06"N 50°59'58"E, 2178 m a.s.l. (Locality No. SH-5), V.2008, 3♀, RRLS, 1juv. FKCP, leg. Pirali; Lordegan, Kohiyan Village, 31°50'02"N 51°03'48"E, 1856 m a.s.l. (Locality No. SH-8), VII.2007, 2♂3♀1juv., RRLS, 1♂ FKCP; Lordegan, Giloreh and Sini Villages, 31°32'02"N 51°02'38"E, 1856 m a.s.l. (Locality No. SH-12-13), XII.2007, 6♀1juv., RRLS, 1♂1♀, FKCP, leg. Pirali.

DISTRIBUTION: Iran, Esfahan, Fars, Kerman, Kohgiluyeh & Boyer Ahmad, Yazd Provinces (Kovařík, 1997; Kovařík, 2004: 22), and Chahar Machal & Bakhtiyari Province (first report).

***Razianus zarudnyi* (Birula, 1903)**

Figures 2, 11, 40–43

Hemibuthus zarudnyi Birula, 1903: 75; Vachon, 1966: 211.

Razianus zarudnyi: Farzanpay, 1987: 159; Farzanpay, 1988: 41; Fet & Lowe, 2000: 216; Akbari, 2007: 76; Navidpour et al., 2008a: 20; Navidpour et al., 2008b: 17; Navidpour et al., 2008c: 14; Navidpour et al., 2008d: 11.

= *Buthus zarudnianus* Birula, 1905a: 144; Birula, 1905b: 450; Kraepelin, 1913: 127; Vachon, 1966: 211; Habibi, 1971: 43 (syn. by Fet, 1997: 66).

= *Neohemibuthus kinzelbachi* Lourenço, 1996: 94; Kovařík, 1997a: 49 (syn. by Fet, 1997: 66).

Neohemibuthus zarudnyi: Fet, 1997: 65; Kovařík, 1998: 115.

TYPE LOCALITY AND TYPE REPOSITORY. “Persia, Kalagan Prov., Beludjistan, and Geh Prov., Makran“, now Sistan & Baluchistan Prov., Iran (Fet, 1977); ZISP.

CHAHAR MAHAL & BAKHTIYARI PROVINCE MATERIAL EXAMINED. Lordegan, Shahidane Baraftab Village, 30°56'05"N 51°21'32"E (Locality No. SH-2), V.2008, 2♂, RRLS, leg. Pirali & Khosravi; Lordegan, Giloreh and Sini Villages, 31°32'02"N 51°02'38"E, 1856 m a.s.l. (Locality No. SH-12-13), XII.2007, 2♀1juv., RRLS, leg. Pirali.

DISTRIBUTION: Iran, Bushehr Province (Akbari, 2007: 76), Chahar Machal & Bakhtiyari Province (Fet, 1997: 67), Fars Province (Fet, 1997: 68), Ilam Province (Akbari, 2007: 76), Khozestan Province (Lourenço, 1996: 94; Fet, 1997: 67-68), Kohgiluyeh & Boyer Ahmad (Navidpour et al., 2008d: 11), and Sistan & Baluchistan Province (Fet, 1997: 66).

Family **Scorpionidae** Latreille, 1802

***Scorpio maurus townsendi* (Pocock, 1900)**

Figures 11, 44–48

Heterometrus townsendi Pocock, 1900: 364.

? *Scorpio townsendi*: Birula, 1905a: 147 (Birula, 1910: 184).

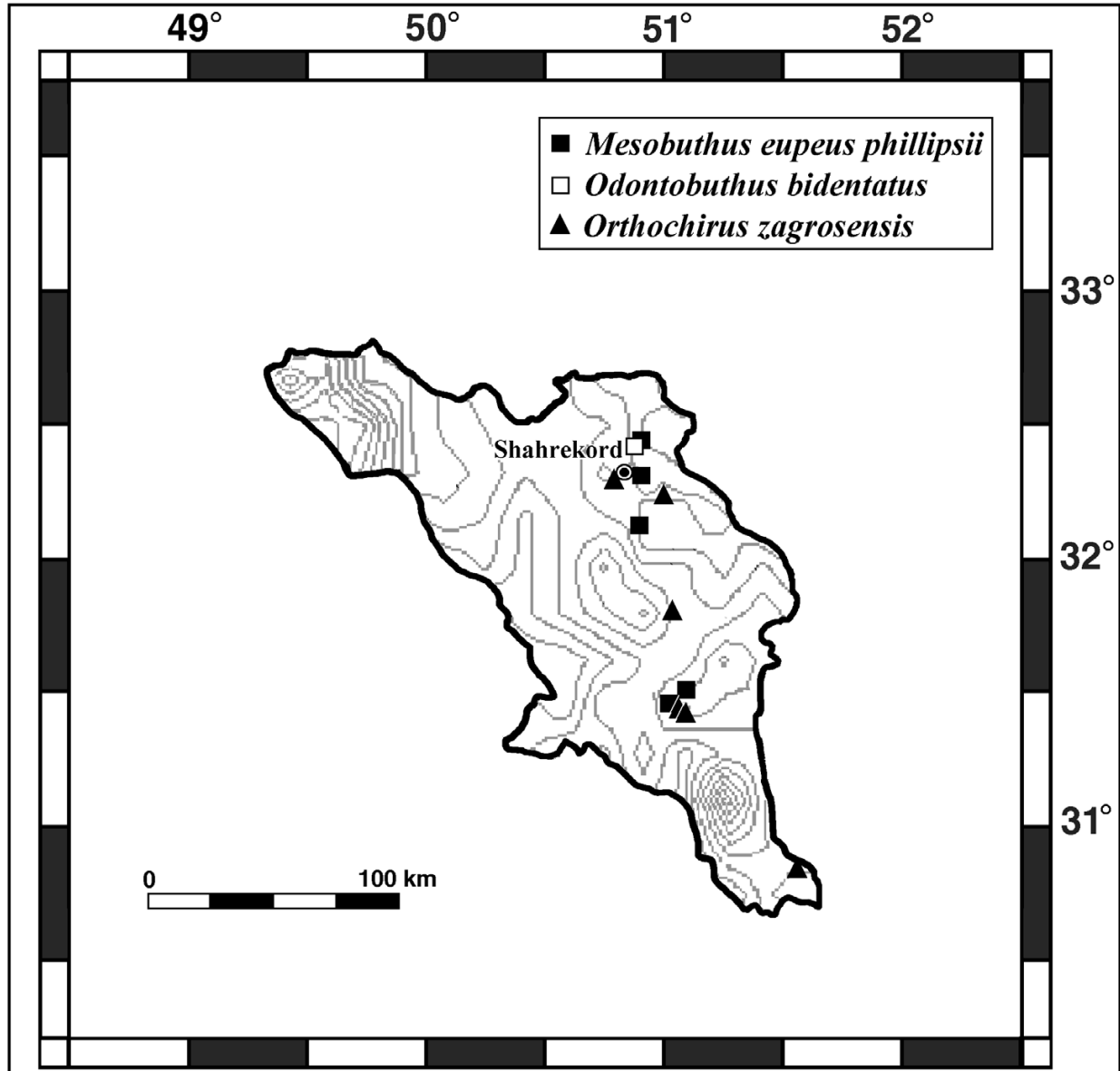


Figure 10: Map of Chahar Mahal & Bakhtiyari Province showing distribution of *Mesobuthus eupeus phillipsii*, *Odontobuthus bidentatus*, and *Orthochirus zagrosensis* collected in this study.

Scorpio maurus townsendi: Birula, 1910: 184; Birula, 1917: 231; Vachon, 1950: 164 (1952: 336); Vachon, 1966: 215; Habibi, 1971: 44; Pérez Minocci, 1974: 40; Kovařík, 1997a: 50; Kovařík, 1998: 141; Fet, 2000: 479; Navidpour et al., 2008a: 26; Navidpour et al., 2008b: 20; Navidpour et al., 2008c: 14; Navidpour et al., 2008d: 12.

Scorpio maurus: Farzanpay, 1987: 165; Farzanpay, 1988: 42; Akbari, 2007: 76.

TYPE LOCALITY AND TYPE REPOSITORY. Iran, Bushehr Province, Fort Reshire near Bushire, Persian Gulf, Iran; BMNH.

TYPE MATERIAL EXAMINED. **Iran**, Bushehr Province, Fort Reshire near Bushire, Persia, 1♀ (holotype) leg. F. W. Townsend, BMNH No. 1900.5.9.1.

CHAHAR MAHAL & BAKHTIYARI PROVINCE MATERIAL EXAMINED. Ardal, Dareh Yas Village, 31°46'47"N 50°46'18"E (Locality No. SH-10-1), V.2008, 1♂3juvs., RRLS, 1♀, FKCP, leg. Pirali.

DISTRIBUTION: Iran, Bushehr Province (Pocock, 1900: 364), Ilam Province (Akbari, 2007: 76), Khoozestan Province (Navidpour et al., 2008a: 26), Kohgilouyeh & Boyer Ahmad Province (Navidpour et al., 2008d: 12), and Chahar Machal & Bakhtiyari Province (first report).

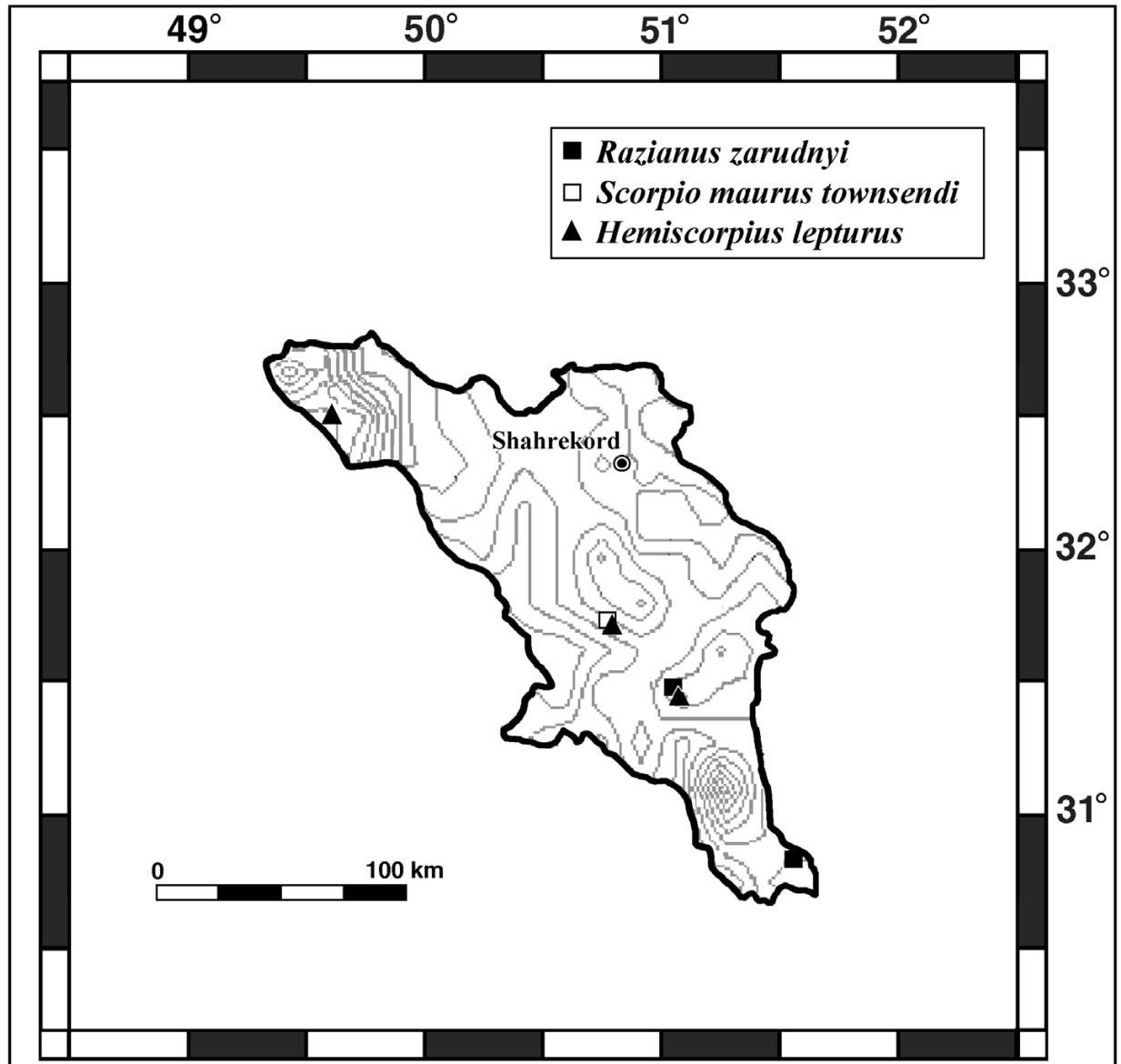


Figure 11: Map of Chahar Mahal & Bakhtiyari Province showing distribution of *Razianus zarudnyi*, *Scorpio maurus townsendi*, and *Hemiscorpius lepturus* collected in this study.

Family **Hemiscorpiidae** Pocock, 1893

Hemiscorpius lepturus Peters, 1861
Figures 3, 11, 49–52

Hemiscorpius lepturus Peters, 1861a: 426; Karsch, 1879: 15, 21; Birula, 1905a: 146; Birula, 1917: 215; Birula, 1918: 42; Weidner, 1959: 100; Pringle, 1960: 84; Khalaf, 1962: 2; Khalaf, 1963: 68; Vachon, 1966: 214; Habibi, 1971: 44; Farzanpay & Pretzmann, 1974: 217; Pérez Minocci, 1974: 36; Vachon, 1977: 213; Vachon, 1979: 59; Farzanpay, 1987: 141, 168; Farzanpay, 1988: 42; Simard &

Watt, 1990: 441; Sissom, 1990: 75; El-Hennawy, 1992: 135; Kovařík, 1997a: 48; Kovařík, 1998: 136; Fet, 2000: 429; Prendini, 2000: 44; Capes & Fet, 2001: 303; Monod & Lourenço, 2005: 902; Akbari, 2007: 76; Navidpour et al., 2008a: 26; Navidpour et al., 2008b: 20; Navidpour et al., 2008c: 15; Navidpour et al., 2008d: 14.

Hemiscorpion lepturus: Peters, 1861b: 511; Ausserer, 1880: 466; Kraepelin, 1899: 142; Werner, 1934: 276; Moritz & Fischer, 1980: 317; Kovařík, 2002: 14.

Hemiscorpius lepturus: Simon, 1880b: 29.

TYPE LOCALITY AND TYPE REPOSITORY. Iraq, “Mendeli bei Baghdad” (Mendeli near Baghdad); ZMHB.

TYPE MATERIAL EXAMINED. Iraq, Mendeli bei Baghdad, 2♂2♀ (syntypes), leg. Petermann, ZMHB 43a–d.

CHAHAR MAHAL & BAKHTIYARI PROVINCE MATERIAL EXAMINED. Bazoft, Abikarolya Village, 32°29'28"N 49°36'02"E (Locality No. SH-1), 2007, 1♂3♀1juv., RRLS, 1♀, FKCP, leg. Pirali & Khosravi; Lordegan, Aloni Village, 31°32'18"N 51°04'03"E, 1883 m a.s.l. (Locality No. SH-3), XII.2007, 1♀, RRLS, 1♂, FKCP, leg. Pirali; Ardal, Dareh Yas Village, 31°46'47"N 50°46'18"E, 1401 m a.s.l. (Locality No. SH-10-1), V.2009, 1♂2♀, RRLS, 1♂, FKCP, leg. Pirali.

DISTRIBUTION: Iran, Fars, Hormozgan, Kohgilouyeh & Boyer Ahmad, Lorestan Provinces (Kovářik, 1997a: 48), Bushehr, Ilam, Khoozestan Province (Farzanpay, 1987: 141; Monod & Lourenço, 2005: 902; Akbari, 2007: 76), and Chahar Machal & Bakhtiyari Province (first report); Iraq (Peters, 1861a: 426).

Key of scorpions of Chahar Mahal & Bakhtiyari Province

- 1. Pedipalp patella without ventral trichobothria **Buthidae** 3
- Pedipalp patella with ventral trichobothria 2
- 2. Lateroapical margins of leg tarsi shaped into rounded lobes. **Scorpio maurus townsendi** (Pocock, 1900)
- Lateroapical margins of leg tarsi straight. **Hemiscorpius lepturus** Peters, 1861
- 3. Carapace in lateral view distinctly inclined downward from median eyes to anterior margin **Orthochirus zagrosensis** Kovářik, 2004
- Carapace in lateral view with entire dorsal surface horizontal or nearly so (possibly with a slight anterior decline) 4
- 4. Cheliceral fixed finger with a single ventral denticle **Razianus zarudnyi** (Birula, 1903)
- Cheliceral fixed finger with two ventral denticles 5
- 5. Ventral carinae of second and third metasomal segments and ventral transverse carina of fourth segment armed with very strong denticles. **Odontobuthus doriae** (Thorell, 1876)
- Ventral carinae of metasomal segments without very strong denticles..... 6
- 6. Dentate margin of pedipalp chela movable finger with 4 terminal granules (3 terminal and one basal terminal). **Androctonus crassicauda** (Olivier, 1807)

- Dentate margin of pedipalp chela movable finger with 5-7 terminal granules (4-6 terminal and one basal terminal)..... 7

7. Central median and posterior median carinae of carapace joined to form a continuous linear series of granules to posterior margin **Compsobuthus matthiesseni** (Birula, 1905)

- Central median and posterior median carinae of carapace not joined to form a continuous linear series of granules to posterior margin 8

8. Trichobothrium *db* on tibia of pedipalp located usually between *est* and *dt*. Trichobothrium *db* may be on level with trichobothrium *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** 9

- Trichobothrium *db* on tibia 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 granules..... **Mesobuthus eupeus phillipsii** (Pocock, 1889)

9. Color black except reddish brown chela of pedipalp. Legs may also be reddish-brown. **Hottentotta zagrosensis** Kovářik, 1997

- Color not entirely black, usually yellowish green **Hottentotta saulcyi** (Simon, 1880)

Acknowledgments

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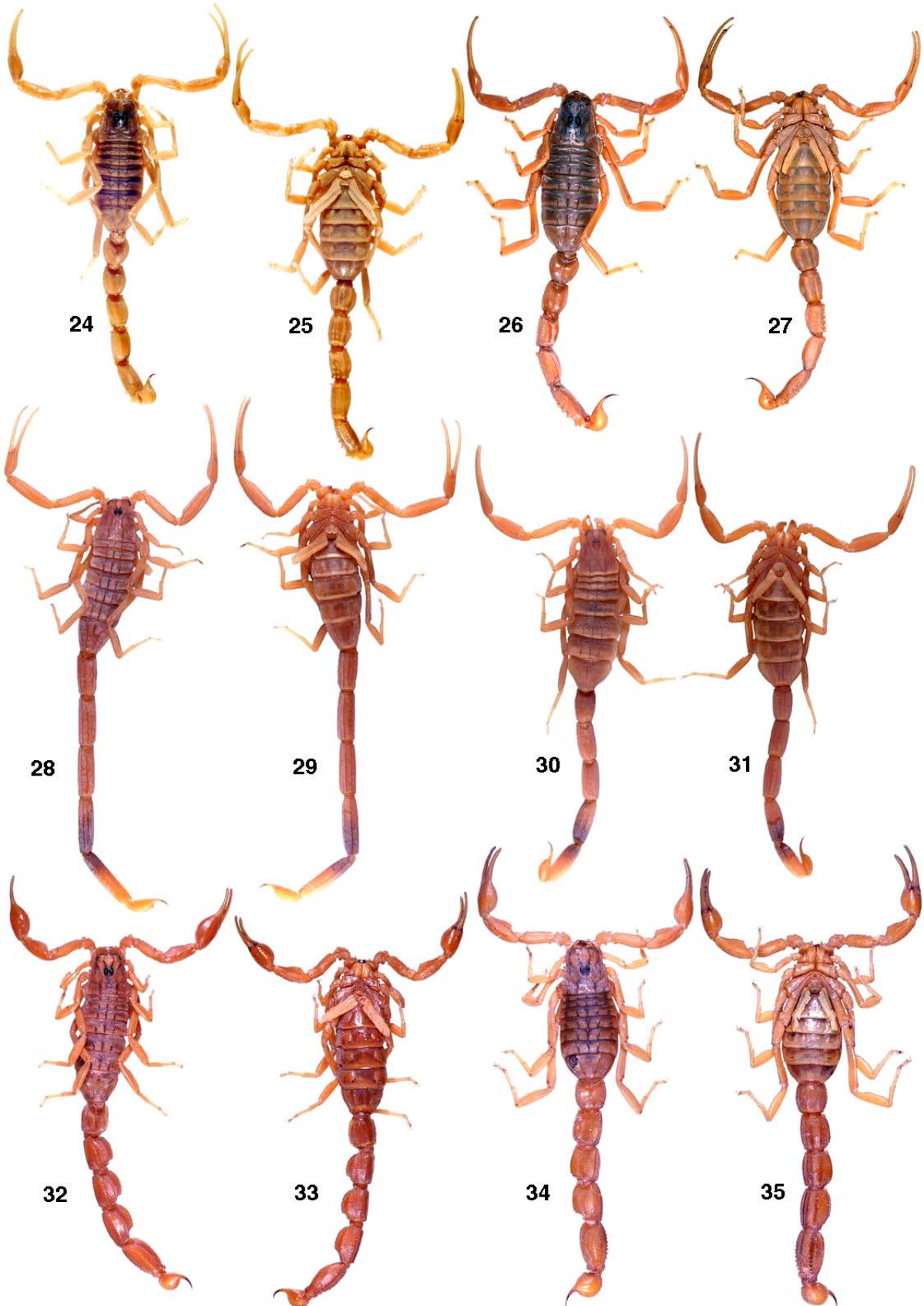
Figures 12–23 ➔: 12–13. *Androctonus crassicauda* (Olivier, 1807), dorsal and ventral views, ♂ (73 mm), Iran, Bushehr Province, Chahak District, 29°38'32"N 50°26'56"E, FKCP. **14–15.** *Androctonus crassicauda* (Olivier, 1807), dorsal and ventral views, ♀ (85 mm), Egypt, FKCP. **16–17.** *Hottentotta saulcyi* (Simon, 1880), dorsal and ventral views, ♂ (82 mm), Iran, Kermanshah Province (formerly Bachtaran), Hasrouabad, 34°10'09"N 46°21'56"E, 1300 m a.s.l., FKCP. **18–19.** *Hottentotta saulcyi* (Simon, 1880), dorsal and ventral views, ♀ (94 mm), Iran, Ilam Province, 30 km NW Ilam, 33°43'N 46°41'E, FKCP. **20–21.** *Hottentotta zagrosensis* Kovařík, 1997, dorsal and ventral views, ♂ (102 mm) holotype, Iran, Fars Province, Zagros Mts., Abshar Village, FKCP. **22–23.** *Hottentotta zagrosensis* Kovařík, 1997, dorsal and ventral views, ♀ (103 mm) allotype, Iran, Fars Province, Zagros Mts., Abshar vill. env., FKCP.

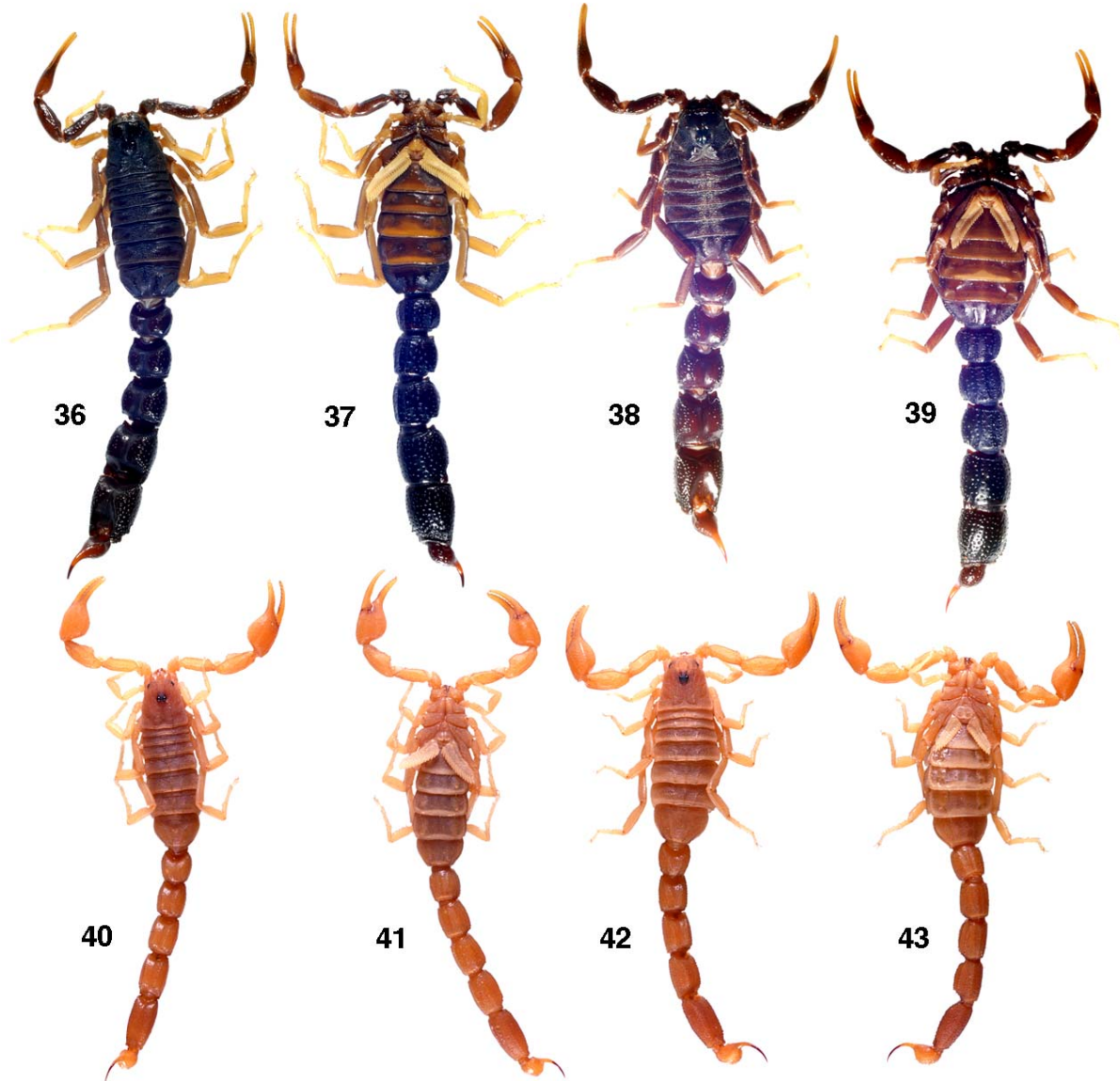
Figures 24–35 ➔: 24–25. *Odontobuthus doriae* (Thorell, 1876), dorsal and ventral views, ♂ (60 mm), Iran, Chahar Mahal & Bakhtiyari Province, Saman, 32°27'17"N 50°52'36"E, 2134 m (Locality No. SH-9), FKCP. **26–27.** *Odontobuthus doriae* (Thorell, 1876), dorsal and ventral views, ♀ (70 mm), Iran, Sistan & Baluchistan Province, 30 km N of Espake by road, 27°05'07"N 60°01'02"E, alt. 540 m, FKCP. **28–29.** *Compsobuthus matthiesseni* (Birula, 1905), dorsal and ventral views, ♂ (38 mm), Iran, Lorestan Province, 10 km SE Bavineh, 1100 m a.s.l., 33°36'08"N 47°11'59"E, FKCP. **30–31.** *Compsobuthus matthiesseni* (Birula, 1905), dorsal and ventral views, ♀ (38 mm), Iran, Lorestan Province, same locality as in Figs. 28–29, FKCP. **32–33.** *Mesobuthus eupeus phillipsii* (Pocock, 1889), dorsal and ventral views, ♂ (52 mm), Iran, Khoozestan Province, near Choga Zanbil (zikkurat) ca. 100 m a.s.l., FKCP. **34–35.** *Mesobuthus eupeus phillipsii* (Pocock, 1889), dorsal and ventral views, ♀ (53 mm), Iran, Khoozestan Province, Baghmalek District, Hore Village, 31°55'30"N 49°31'47"E, 185 m a.s.l., FKCP.

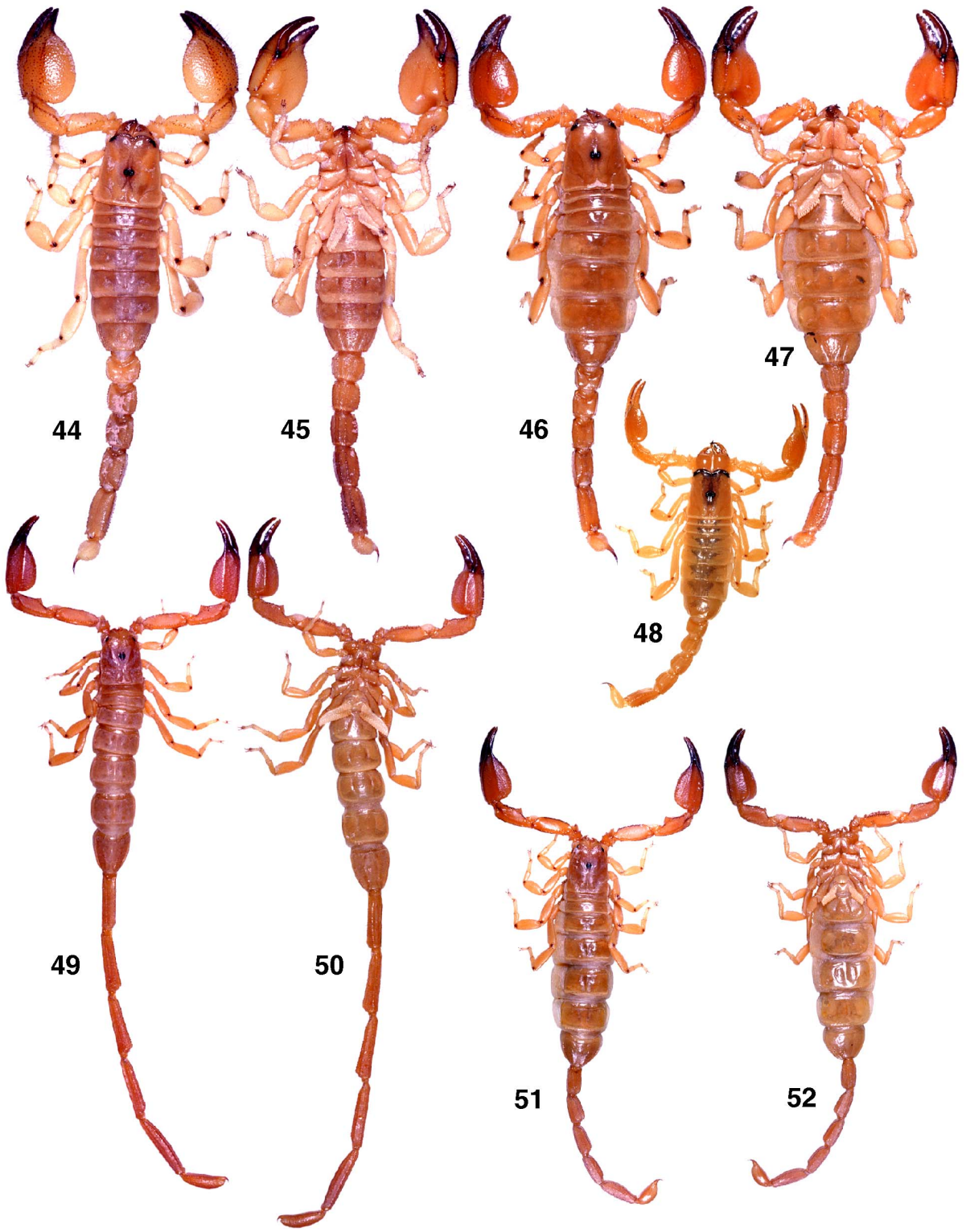
Figures 36–43 ➔: 36–37. *Orthochirus zagrosensis* Kovařík, 2004, dorsal and ventral views, ♂ (40 mm), Iran, Chahar Mahal & Bakhtiyari Province, Lordegan, Giloreh and Sini Villages, 31°32'02"N 51°02'38"E, 1856 m (Locality No. SH-12-13), FKCP. **38–39.** *Orthochirus zagrosensis* Kovařík, 2004, dorsal and ventral views, ♀ (46 mm) allotype, Kohgiluyeh & Boyer Ahmad Province, Zagros Mts., Kuh-e-Dinar ridge, 10 km N of Yasuj by road, 30°39'N, 51°36'E, 1800–2500 m a.s.l., FKCP. **40–41.** *Razianus zarudnyi* (Birula, 1903), dorsal and ventral views, ♂ (22 mm), Iran, Khoozestan Province, near Chogha Zanbil (zikkurat), 32°00'55"N 48°31'04"E, 68.5 m a.s.l. (Locality No. Ch-101), FKCP. **42–43.** *Razianus zarudnyi* (Birula, 1903), dorsal and ventral views, ♀ (24 mm), Iran, Khoozestan Province, same locality as in Figs. 40–41, FKCP.

Figures 44–52 ➔: 44–45. *Scorpio maurus townsendi* (Pocock, 1900), dorsal and ventral views, ♂ (55 mm), Iran, Khoozestan Province, Ahvaz–Omidyeh road, Chombeh Village, 31°11'54"N 49°11'41"E, 44 m a.s.l., FKCP. **46–47.** *Scorpio maurus townsendi* (Pocock, 1900), dorsal and ventral views, ♀ (54 mm), Iran, Khoozestan Province, Ramhormoz, 31°11'54"N 49°11'41"E, 44 m a.s.l. (Locality No. A-Ra 807), FKCP. **48.** *Scorpio maurus townsendi* (Pocock, 1900), dorsal view, juv. (25 mm), Iran, Bushehr Province, Tangestan, Farshanbeh, 28°52'53"N 51°18'43"E, 95 m a.s.l. (Locality No. Bu-35), FKCP. **49–50.** *Hemiscorpius lepturus* Peters, 1861, dorsal and ventral views, ♂ (72 mm), Iran, Khoozestan Province, Chogha Zanbil (zikkurat), 32°00'55"N 48°31'04"E, 68.5 m a.s.l. (Locality No. Ch-102), FKCP. **51–52.** *Hemiscorpius lepturus* Peters, 1861, dorsal and ventral views, ♀ (58 mm), Iran, Khoozestan Province, same locality as in Figs. 49–50, FKCP.









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