



## Digger wasps (Hymenoptera: Spheciformes: Crabronidae) of Kerman province, Southeastern Iran

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**ABSTRACT.** In the present study, new data about the distribution of 27 species of digger wasps (Hymenoptera: Spheciformes: Crabronidae) collected from different regions of province (southeast Iran) are presented. The specimens were collected at 21 localities using Malaise traps during March to September 2017. The identified species belong to three subfamilies: Bembicinae (three genera, seven species), Crabroninae (seven genera, 18 species) and Philanthinae (single genus, two species). Among them, two species, *Gasterosericus moricei* E. Saunders, 1910 and *G. sabulosus* Pulawski, 1995 are newly recorded for the Iranian fauna. Photographic illustrations of morphological characteristics of the newly recorded species are presented.

**Key words:** Hymenoptera, digger wasps, Crabronidae, new record, Iran

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### Introduction

The Crabronidae commonly referred as digger wasps are a cosmopolitan family with a worldwide distribution. More than 9000 species belonging to 248 genera and eight subfamilies have been documented worldwide (Pulawski, 2020). Adult Crabronidae feed nectar and pollen from flowers. The females of digger wasps are generally effective predators of insect from different orders or spiders for larval nutrition. These wasps make their nests in the ground, wood or plant stems (Bohart & Menke, 1976).

Iranian Spheciformes have been studied by many researchers (Morice, 1921; Gussakovskij, 1933; de Beaumont, 1957, 1970; Pulawski, 1971, 1984, 1992, 2007; Dollfuss, 2006, 2008; Esmaili & Rastegar, 1974; Ebrahimi, 1993, 2000, 2005, 2008, 2014; Ghazi-Soltani et al., 2009, 2010a, 2010b, 2010c; Rezaei & Fallahzadeh, 2015; Atbaei et al., 2015; Jahantigh et al., 2017; Ghahari, 2018; Schmid-Egger, 2004, Schmid-Egger et al., 2016; Sadeghi et al., 2016, 2018a, 2018b, 2019; Fallahzadeh et al., 2006, 2009, 2018; Khosroabadi et al., 2019; Rezaei et

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al., 2020a, 2020b). The first checklist of Iranian Spheciformes was published by Jahantigh et al. (2017), who presented 404 species belonging to 71 genera from different parts of Iran. Recently, new contributions to the fauna of Iran were published (Dollfuss, 2018; Sadeghi et al., 2018a, 2018b, 2019; Fallahzadeh et al., 2018; Khosroabadi et al., 2019; Rezaei et al., 2020a, 2020b). The aim of the present paper is to study the Crabronidae fauna of southern areas in Kerman province.

### Material and methods

The specimens were collected by Malaise traps at 21 localities in the southern areas of the Kerman province from March to September 2017 (Table 1). Specimens were extracted from the traps mostly every two weeks and stored in 75% ethanol. They were studied using an Olympus SZ60 Stereomicroscope. The dried specimens were pinned and labeled. External morphology was illustrated using an Olympus™ SZCH, equipped with an Omax (18Mp) A35180U3 and Canon™ A750 digital cameras. Morphological terminology follows Bohart & Menk (1976) and other resources; Pulawski, 1995, 2006; Li et al., 2009; Schmid-Egger, 2004, 2011, 2014; Schmid-Egger et al., 2016; Schmidt & Bitsch, 2007; Nemkov, 2016). General distributional for each species were adopted from Pulawski (2020). The voucher specimens were deposited in Zoological Museum of Shahid Bahonar University of Kerman, Kerman, Iran (ZMSBUK) and Department of Plant Protection, Shahid Bahonar University of Kerman (DPPUK). All species were identified by the last author (Christian Schmid-Egger).

**Table 1.** Sampling localities in Kerman province.

No.	Locality	Coordinate	Altitude m a.s.l.	Collector
1	Jiroft County (Baqer Abad)	28°36'13.7" N, 57°49'42.0" E	652	S.M. Madjdzadeh
2	Jiroft County (Mijan-Koldan)	28°41'27.8" N, 57°55'14.8" E	1349	S.M. Madjdzadeh
3	Jiroft County (Mijan-Sar Asiab)	28°41'06.6" N, 57°55'17.7" E	1288	S.M. Madjdzadeh
4	Jiroft County (Dalfard)	29°01'31.4" N, 57°36'56.1" E	2390	S.M. Madjdzadeh
5	Jiroft County (Sardooieh-Abbas Abad)	29°13'04.0" N, 57°15'46.7" E	2921	S.M. Madjdzadeh
6	Jiroft County (Esmailieh-Bahram Abad)	28°19'00.5" N, 58°37'08.5" E	679	S.M. Madjdzadeh
7	Jiroft County (Jebal Barez)	28°54'39.5" N, 57°54'30.2" E	2145	S.M. Madjdzadeh
8	Bam County (Bam)	29°06'01.7" N, 58°19'44.0" E	1111	M. Purrezaali
9	Bam County (Dehbakri)	29°03'10.0" N, 57°54'53.2" E	2044	M. Purrezaali
10	Bam County (Dehbakri-Marghak Bidkhun)	29°07'22.6" N, 57°52'56.8" E	2220	M. Purrezaali
11	Bam County (Hemat Abad)	29°08'19.6" N, 57°58'05.1" E	1673	M. Purrezaali
12	Anbar Abad County (Bardeh)	28°28'04.1" N, 58°12'39.3" E	1510	S.M. Madjdzadeh
13	Anbar Abad County (Roodfarq)	28°29'41.0" N, 58°09'56.2" E	1429	S.M. Madjdzadeh
14	Kahnuj County (Dehkahan)	27°41'52.8" N, 57°32'10.7" E	783	M. Purrezaali
15	Kahnuj County (Qooch Abad)	28°03'39.4" N, 57°48'37.2" E	422	M. Purrezaali
16	Kahnuj County (Tomgoran)	28°01'48.2" N, 57°44'22.2" E	526	M. Changizi
17	Qaleh-Ganj County (Qaleh-Ganj)	27°29'59.1" N, 57°54'13.9" E	402	S.M. Madjdzadeh
18	Qaleh-Ganj County (Shahid Beheshti farm)	27°14'27.3" N, 58°17'58.6" E	395	S.M. Madjdzadeh
19	Qaleh-Ganj County (Keshit)	27°26'50.1" N, 57°48'13.9" E	559	S.M. Madjdzadeh
20	Manujan County (Chah Nasri)	27°31'14.6" N, 57°33'51.5" E	384	S.M. Madjdzadeh
21	Manujan County (Chermil)	27°33'13.6" N, 57°35'52.0" E	445	S.M. Madjdzadeh

## Results

In the present study totally 747 specimens of Crabronidae belonging to three subfamilies representing 27 species in nine genera were collected and identified of which two species are new records for Iranian fauna and 20 species new for Kerman province. The genera and species are listed alphabetically. Short morphological characteristics are presented for the newly recorded species.

### Family: Crabronidae Latreille, 1802

#### Genus: *Ammatomus* A. Costa, 1859

##### *Ammatomus coarctatus* (Spinola, 1808)

**Material examined:** (1♀); Iran, Kerman province: Anbar Abad (Bardeh) (loc. 12, Table 1), 05.v.2017, 1♀.

**Distribution in Iran:** Khorasan-e Razavi, Qazvin (de Beaumont, 1957); Tehran (Pulawaki, 1973); Fars (Atbaei et al., 2015; Rezaei & Fallahzadeh, 2015) and Kerman (current study) provinces .

**General distribution:** Albania, Algeria, Armenia, Bulgaria, Croatia, Cyprus, Egypt, France, Greece, Hungary, Iran, Israel, Italy, Kazakhstan, Portugal, Romania, Russia, Spain, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan, Yemen.

#### Genus *Bembecinus* A. Costa, 1859

##### *Bembecinus iranicus* Schmid-Egger, 2004

**Material examined:** (9♀♀, 2♂♂); Iran, Kerman province: Anbar Abad (Bardeh) (loc. 12, Table 1), 05–23.v.2017, 1♂; Jifott (Baqer Abad) (loc. 1, Table 1), 13–23.v.2017, 1♀, 1♂; Jiroft (Mijan-Sar Asiab) (loc. 3, Table 1), 20.iv–05.v.2017, 1♀; Kahnuj (Qooch Abad) (loc. 15, Table 1), 06–21.iv.2017, 2♀♀; same data, 21.iv–08.v.2017, 2♀♀; Kahnuj (Tomgoran) (loc. 16, Table 1), 15–28.v.2017, 1♀; Kahnuj (Dehkahan) (loc. 14, Table 1), 11–22.iv.2017, 2♀♀.

**Distribution in Iran:** Khorasan-e Razavi (Schmid-Egger, 2004, 2009; Ebrahimi, 2014); Fars (Rezaei & Fallahzadeh, 2015); and Kerman (current study) provinces.

**General distribution:** Iran, Saudi Arabia, Turkey, United Arab Emirates.

##### *Bembecinus khuzestani* Schmid-Egger, 2004

**Material examined:** (37♀♀, 4♂♂); Iran, Kerman province: Bam (Dehbakri) (loc. 9, Table 1), 17.vii–26.viii.2017, 1♂, 2♀♀; Jiroft (Baqer Abad) (loc. 1, Table 1), 04–19.vi.2017, 1♀; Kahnuj (Dehkahan) (loc. 14, Table 1), 04–23.v.2017, 3♀♀, 1♂; Kahnuj (Qooch Abad) (loc. 15, Table 1), 21.iv–08.v.2017, 2♀♀, 2♂♂; Manujan (Chah Nasri) (loc. 20, Table 1), 10.iv–05.v.2017, 26♀♀; Manujan (Chermil) (loc. 21, Table 1), 05–22.v.2017, 3♀♀.

**Distribution in Iran:** Khuzestan (Schmid-Egger, 2004); Fars (Atbaei et al., 2015); Hormozgan (Fallahzadeh et al., 2018) and Kerman (current study) provinces.

**General distribution:** Iran.

##### *Bembecinus tridens* (Fabricius, 1781)

**Material examined:** (10♀♀, 4♂♂); Iran, Kerman province: Bam (Dehbakri) (loc. 9, Table 1), 17.vii–26.viii.2017, 1♀; Jiroft (Baqer Abad) (loc. 1, Table 1), 04–19.vi.2017, 2♀♀; Jiroft (Dalfard)

(loc. 4, [Table 1](#)), 17.vii–27.viii.2017, 2♂♂; Jiroft (Mijan-Koldan) (loc. 2, [Table 1](#)), 20.vi–05.v.2017, 2♂♂; Jiroft (Jebal Barez) (loc. 7, [Table 1](#)), 06–17.vii.2017, 1♀; Kahnuj (Tomgoran) (loc. 16, [Table 1](#)), 11–21.iv.2017, 1♀; Kahnuj (Dehkahan) (loc. 14, [Table 1](#)), 11–22.iv.2017, 2♀♀; Kahnuj (Qooch Abad) (loc. 15, [Table 1](#)), 21.iv–08.v.2017, 1♀; Kahnuj (Tomgoran) (loc. 16, [Table 1](#)), 15–28.v.2017, 1♀; Qaleh-Ganj (Keshit) (loc. 19, [Table 1](#)), 07.iv–04.v.2017, 1♀.

**Distribution in Iran:** Guilan ([Morice, 1921](#)); Qazvin, Sistan-o Baluchestan ([de Beaumont, 1970](#)) Alborz, Kerman ([Schmid-Egger, 2004](#)); East Fars ([Fallahzadeh et al., 2009](#); [Rezaei & Fallahzadeh, 2015](#)) and Azerbaijan ([Ebrahimi, 2014](#)) provinces.

**General distribution:** Albania, Algeria, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bulgaria, China, Croatia, Cyprus, Czech Republic, France, Georgia, Germany, Greece, Hungary, Iran, Iraq, Israel, Italy, Japan, Jordan, Kazakhstan, Kyrgyzstan, Lebanon, Libya, Malta, Mongolia, Morocco, Oman, Pakistan, Palestine, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Switzerland, Syria, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan.

### **Genus: *Bembix* Fabricius, 1775**

#### ***Bembix bicolor* Radoszkowski, 1877**

**Material examined:** (14♀♀); Iran, Kerman province: Anbar Abad (Bardeh) (loc. 12, [Table 1](#)), 21.iv–05.v.2017, 1♀; Jiroft (Dalfard) (loc. 4, [Table 1](#)), 17.vii–27.viii.2017, 4♀♀; Jiroft (Sardooieh-Abbas Abad) (loc. 5, [Table 1](#)), 28.vii–27.viii.2017, 1♀; Kahnuj (Dehkahan) (loc. 14, [Table 1](#)), 11–22.iv.2017, 2♀♀; same data, 22.iv–04.v.2017, 2♀♀; Kahnuj (Qooch Abad) (loc. 15, [Table 1](#)), 21.iv–08.v.2017, 4♀♀.

**Distribution in Iran:** Tehran ([de Beaumont, 1957](#)); South Khorasan ([de Beaumont, 1970](#)); East Azerbaijan ([Ghazi-Soltani et al., 2010a, 2010b](#)); Lorestan, Markazi ([Ebrahimi, 2014](#)); and Kerman (current study) provinces.

**General distribution:** Afghanistan, Bulgaria, China, Cyprus, Greece, Iran, Iraq, Israel, Italy, Kazakhstan, Kyrgyzstan, Mongolia, Oman, Russia, Tajikistan, Turkey, Turkmenistan, Uzbekistan.

#### ***Bembix bidentata* Vander Linden, 1829**

**Material examined:** (55♀♀, 14♂♂); Iran, Kerman province: Anbar Abad (Roodfarq) (loc. 13, [Table 1](#)), 21.iv–05.v.2017, 1♀; same data, 05–23.v.2017, 13♀♀, 5♂♂; same data, 23.v–04.vi.2017, 6♀♀; Anbar Abad (Bardeh) (loc. 12, [Table 1](#)), 05–23.v.2017, 1♀; Bam (Dehbakri, Marghak, Bidkhun) (loc. 10, [Table 1](#)), 22.v–04.vii.2017, 7♀♀, 2♂♂; Jiroft (Mijan-Koldan) (loc. 2, [Table 1](#)), 20.iv–05.v.2017, 1♂; same data, 05–23.v.2017, 2♂♂, 9♀♀; same data, 05.vii–26.viii.2017, 6♀♀; Jiroft (Mijan-Sar Asiab) (loc. 3, [Table 1](#)), 20.iv–05.v.2017, 1♂; same data, 05–23.v.2017, 5♀♀, 3♂♂; same data, 23.v–05.vii.2017, 14♀♀; Jiroft (Dalfard) (loc. 4, [Table 1](#)), 17.vii–27.viii.2017, 1♀.

**Distribution in Iran:** Guilan ([Morice, 1921](#)); East Azerbaijan ([Ghazi-Soltani et al., 2010a](#); [Ebrahimi, 2014](#)); Alborz, Charmahal-o Bakhtiari, Golestan, Isfahan, Khorasan-e Razavi, ([Ebrahimi, 2014](#)) and Kerman (current study) provinces.

**General distribution:** Afghanistan, Albania, Austria, Azerbaijan, Bulgaria, China, Cyprus, Croatia, France, Greece, Hungary, Italy, Kazakhstan, Macedonia, Mongolia, Oman, Portugal, Romania, Russia, Slovakia, Spain, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan.



***Bembix oculata* Panzer, 1801**

**Material examined:** (38♀♀, 18♂♂); Iran, Kerman province: Anbar Abad (Roodfarq) (loc. 13, Table 1), 05–23.v.2017, 1♀; same data, 23.v–04.vi.2017, 1♀; same data, 26.viii–21.ix.2017, 2♀♀; Bam (Bam) (loc. 8, Table 1), 13–22.v.2017, 1♀; same data, 22.v–04.vii.2017, 7♀♀, 2♂♂; same data, 04.vii–26.viii.2017, 6♂♂, 6♀♀; same data, 26.viii–21.ix.2017, 1♀, 3♂♂; Bam (Hemat Abad) (loc. 11, Table 1), 13–22.v.2017, 1♀; same data, 22.v–04.vii.2017, 1♀; same data, 17.vii–26.viii.2017, 4♀♀, 2♂♂; Bam (Dehbakri) (loc. 9, Table 1), 17.vii–26.viii.2017, 1♀; Bam (Dehbakri, Marghak, Bidkhun) (loc. 10, Table 1), 22.v–04.vii.2017, 5♀♀, 1♂; Jiroft (Mijan-Koldan) (loc. 2, Table 1), 05–23.v.2017, 2♀♀; Jiroft (Mijan-Sar Asiab) (loc. 3, Table 1), 05–23.v.2017, 1♀; same data, 05.vii–26.viii.2017, 1♂; Kahnuj (Tomgoran) (loc. 16, Table 1), 15–28.v.2017, 1♀; Kahnuj (Dehkahan) (loc. 14, Table 1), 11–22.iv.2017, 2♀♀, 1♂; same data, 04–17.v.2017, 2♂♂; same data, 23.v–04.vii.2017, 1♀.

**Distribution in Iran:** Guilan (Morice, 1921); South Khorasan, Sistan-o Baluchestan (Gussakovskij, 1933); Golestan, Mazandaran, Tehran, Qazvin (de Beaumont, 1957); Fars (Fallahzadeh et al., 2009; Atbaei et al., 2015); East Azerbaijan (Ghazi-Soltani et al., 2010a); Hormozgan, Khorasan-e Razavi, Markazi (Ebrahimi, 2014); and Kerman (current study) provinces.

**General distribution:** Afghanistan, Albania, Algeria, Angola, Austria, Azerbaijan, Bulgaria, China, Croatia, Cyprus, Iran, Israel, Italy, Jordan, Kazakhstan, Kyrgyzstan, Lebanon, North Africa, Oman, Pakistan, Palestine, Saudi Arabia, Syria, Turkey, Tunisia, Ukraine. United Arab Emirates, Western Sahara.

**Genus: *Gastrosericus* Spinola, 1839*****Gastrosericus electus* Nurse, 1903**

**Material examined:** (2♀♀, 8♂♂); Iran, Kerman province: Anbar Abad (Bardeh) (loc. 12, Table 1), 21.iv–05.v.2017, 2♂♂; Bam (Dehbakri) (loc. 9, Table 1), 17–26.vii.2017, 1♀; Manujan (Chah Nasri) (loc. 20, Table 1), 10.iv–05.v.2017, 3♂♂, 1♀; Qaleh-Ganj (Qaleh-Ganj) (loc. 17, Table 1), 10.iii–10.iv.2017, 2♂♂; Qaleh-Ganj (Shahid Beheshti farm) (loc. 18, Table 1), 06.iv–04.v.2017, 1♂.

**Distribution in Iran:** Kerman (current study) province.

**Remarks:** The previous record of *Gastrosericus electus* from Iran (Samin et al., 2015) is here considered as irrelevant data that needs to be confirmed by the subsequent studies.

**General distribution:** India, Iran, Kazakhstan, Saudi Arabia, United Arab Emirates, Asia, Uzbekistan, West Africa.

***Gastrosericus funereus* Gussakovskij, 1931**

**Material examined:** (208♀♀, 34♂♂); Iran, Kerman province: Anbar Abad (Bardeh) (loc. 12, Table 1), 21.iv–05.v.2017, 9♀♀, 1♂; same data, 05.v–23.05.2017, 1♀; Anbar Abad (Roodfarq) (loc. 13, Table 1), 05–21.iv–05.v.2017, 3♀♀; same data, 05–23.v.2017, 1♀; Bam (Dehbakri) (loc. 9, Table 1), 17–vi–26.viii.2017, 11♀♀, 2♂♂; Bam (Bam) (loc. 8, Table 1), 22.v–04.vii.2017, 1♀; same data, 04.vii–26.vii.2017, 1♀; Jiroft (Baquer Abad) (loc. 1, Table 1), 09–20.vi.2017, 1♀; same data, 20.iv–13.v.2017, 8♀♀, 1♂; Same data, 13–23.v.2017, 1♀; 23.v–09.vi, 3♀♀; same data, 04–19.vi.2017, 1♀; Jiroft (Mijan-Koldan) (loc. 2, Table 1), 20.iv–05.v.2017, 1♀; same data, 05–23.v.2017, 1♀; Jiroft (Mijan-Sar Asiab) (loc. 3, Table 1), 05–23.v.2017, 3♀♀; Jiroft (Esmailieh-Bahram Abad) (loc. 6, Table 1), 09–29.iv.2017, 3♀♀; Kahnuj (Qooch Abad) (loc. 15, Table 1), 28.iii–06.iv.2017, 14♀♀, 3♂♂; same data, 06–21.iv.2017, 9♀♀, 3♂♂; same data, 21.iv–08.v.2017, 33♀♀, 3♂♂; Kahnuj (Tomgoran) (loc. 16,

**Table 1**), 11–21.iv.2017, 3♀♀; same data, 21.iv–08.v.2017, 21♀♀, 2♂♂; Kahnuj (Dehkahan) (loc. 14, **Table 1**), 11–22.iv.2017, 1♂; 04–23.v.2017, 7♀♀; same data, 22.iv–04.v.2017, 3♀♀; same data, 04–23.v.2017, 3♀♀; Manujan (chermil) (loc. 21, **Table 1**), 05–22.v.2017, 10♀♀, 4♂♂; Manujan (Chah Nasri) (loc. 20, **Table 1**), 10.iv–05.v.2017, 22♀♀, 4♂♂; same data, 05–22.v.2017, 5♀♀; same data, 22.v–08.vi.2017, 3♀♀, 5♂♂; Qaleh-Ganj (Shahid Beheshti farm) (loc. 18, **Table 1**), 07.iv–04.v.2017, 14♀♀, 5♂♂; Qaleh-Ganj (Keshit) (loc. 19, **Table 1**), 07.vi–04.v.2017, 10♀♀.

**Distribution in Iran:** Fars (Pulawski, 1995; Atbaei et al., 2015; Rezaei & Fallahzadeh, 2015; Sadeghi et al., 2018b); Hormozgan (Fallahzadeh et al., 2018) and Kerman (Pulawski, 1995) provinces.

**General distribution:** Central Asia, Egypt, India, Iran, Israel, Morocco, Oman, Tajikistan, Turkey, Turkmenistan, United Arab Emirates.

#### *Gastrosericus moricei* E. Saunders, 1910

**Material examined:** (6♀♀); Iran, Kerman province: Anbar Abad (Bardeh) (loc. 12, **Table 1**), 21.iv–05.v.2017, 1♀; Anbar Abad (Roodfarq) (loc. 13, **Table 1**), 05–23.v.2017, 1♀; Bam (Dehbakri) (loc. 9, **Table 1**), 17vii–26.viii.2017, 2♀♀; Jiroft (Baqer Abad) (loc. 1, **Table 1**), 20.iv–13.v.2017, 1♀; Qaleh-Ganj (Qaleh-Ganj) (loc. 17, **Table 1**), 04.v–02.vi.2017, 1♀.

**Distribution in Iran:** Kerman (current study), new record to the fauna of Iran.

**General distribution:** Algeria, Egypt, Kazakhstan, Libya, Oman, Saudi Arabia, Sri Lanka, Tajikistan, United Arab Emirates, Uzbekistan.

**Short description:** Female (**Fig. 1A**): Body length 6.1 mm, frons and clypeus with dense silvery pubescences; free margin of clypeus arcuate (**Fig. 1B**); venter of hindtarsomere with four basomedian spines on lateral margin (**Fig. 1C**); fore wings hyaline (**Fig. 1D**); gaster red, pygidial plate covered with densely and conspicuous pilosity (**Fig. 1E**), but pygidial plate in *G. electus* all asetose and with shiny surface (**Fig. 1F**).

#### *Gastrosericus sabulosus* Pulawski, 1995

**Material examined:** (1♀, 4♂♂); Iran, Kerman province: Kahnuj (Dehkhan) (loc. 14, **Table 1**), 11–22.iv.2017, 1♂; Manujan (Chah Nasri) (loc. 20, **Table 1**), 10.iv–05.v.2017, 1♂; Qaleh-Ganj (Shahid Beheshti farm) (loc. 18, **Table 1**), 07.iv–04.v.2017, 1♂, 1♀; Qaleh-Ganj (Qaleh-Ganj) (loc. 17, **Table 1**), 04.v–02.vi.2017, 1♂.

**Distribution in Iran:** Kerman (current study), new record to the fauna of Iran.

**General distribution:** Arabian Peninsula, Senegal, United Arab Emirates.

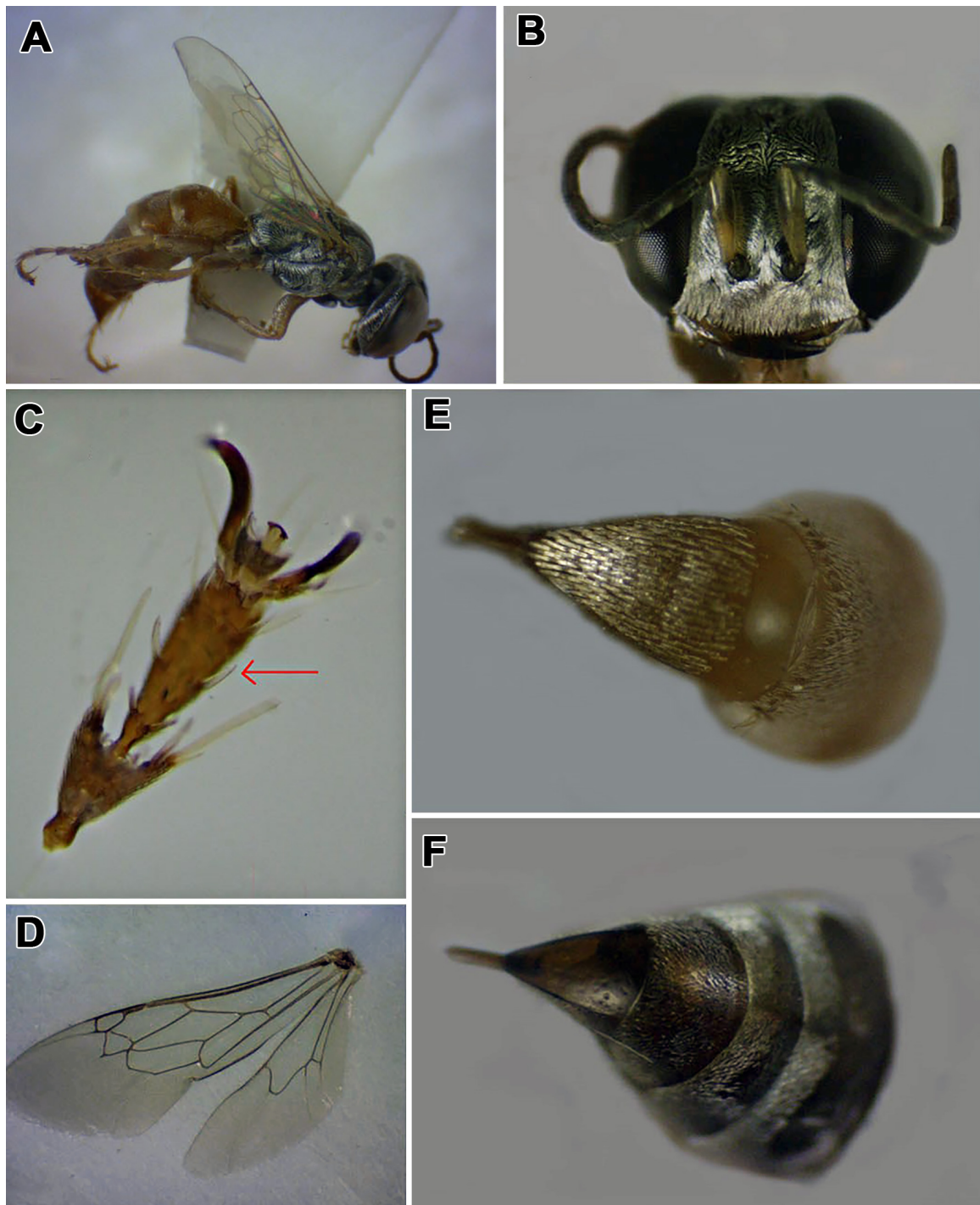
**Short description:** Male (**Figs 2A, 2B**): Body length 5.9 mm; vertex setae appressed, clypeus black and clypeal lobe pointed (**Fig. 2C**); propodeum dorsal surface with density silvery setae (**Fig. 2D**); gaster all black and pygidial plate with density punctate (**Fig. 2E**); Female (**Figs 3A, B**): Body length 8 mm; free margin of clypeus divided in to three arcuate portions, clypeus with a pair of teeth (**Fig. 3C**); gaster black and pygidial plates setose at apically (**Fig. 3D**).

#### *Gastrosericus waltlii* Spinola, 1839

**Material examined:** (9♀♀, 2♂♂); Iran, Kerman province: Bam (Bam) (loc. 8, **Table 1**), 04.vii–26.viii.2017, 1♂; same data, 26.viii–21.ix.2017, 1♀; Jiroft (Baqer Abad) (loc. 1, **Table 1**), 09–20.vi.2017, 1♀; Jiroft (Mijan-Koldan) (loc. 2, **Table 1**), 20.iv–05.v.2017, 1♀; Kahnuj (Qooch Abad) (loc. 15, **Table 1**), 06–21.iv.2017, 1♂, 1♀; Kahnuj (Dehkahan) (loc. 14, **Table 1**), 04–23.v.2017, 1♀.

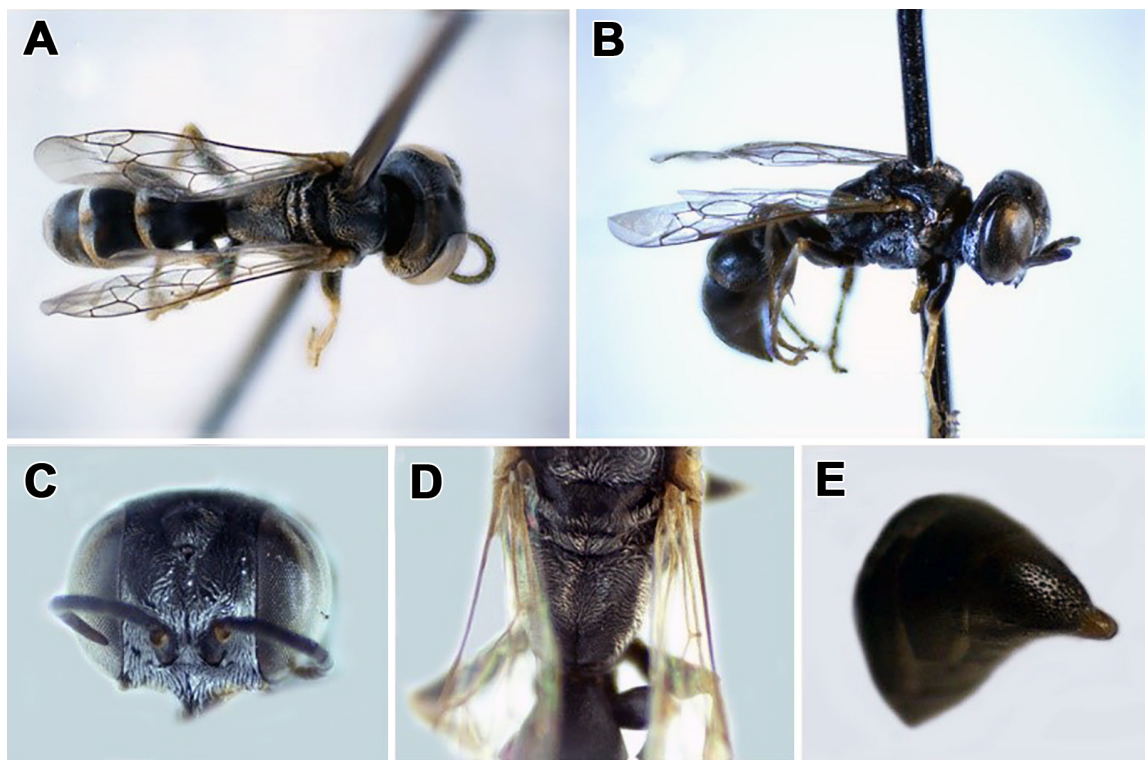
Manujan (Chah Nasri) (loc. 20, [Table 1](#)), 05-22.v.2017, 2♀♀; Qaleh-Ganj (Qaleh-Ganj) (loc. 17, [Table 1](#)), 10.iii-10.iv.2017, 1♀; Qaleh-Ganj (Keshit) (loc. 19, [Table 1](#)), 07.iv-04.v.2017, 1♀.

**Distribution in Iran:** Fars ([Pulawski, 1995](#); [Atabaei et al., 2015](#); [Sadeghi et al., 2018b](#)); Kerman ([Pulawski, 1995](#)); Hormozgan ([Fallahzadeh et al., 2018](#)) provinces.

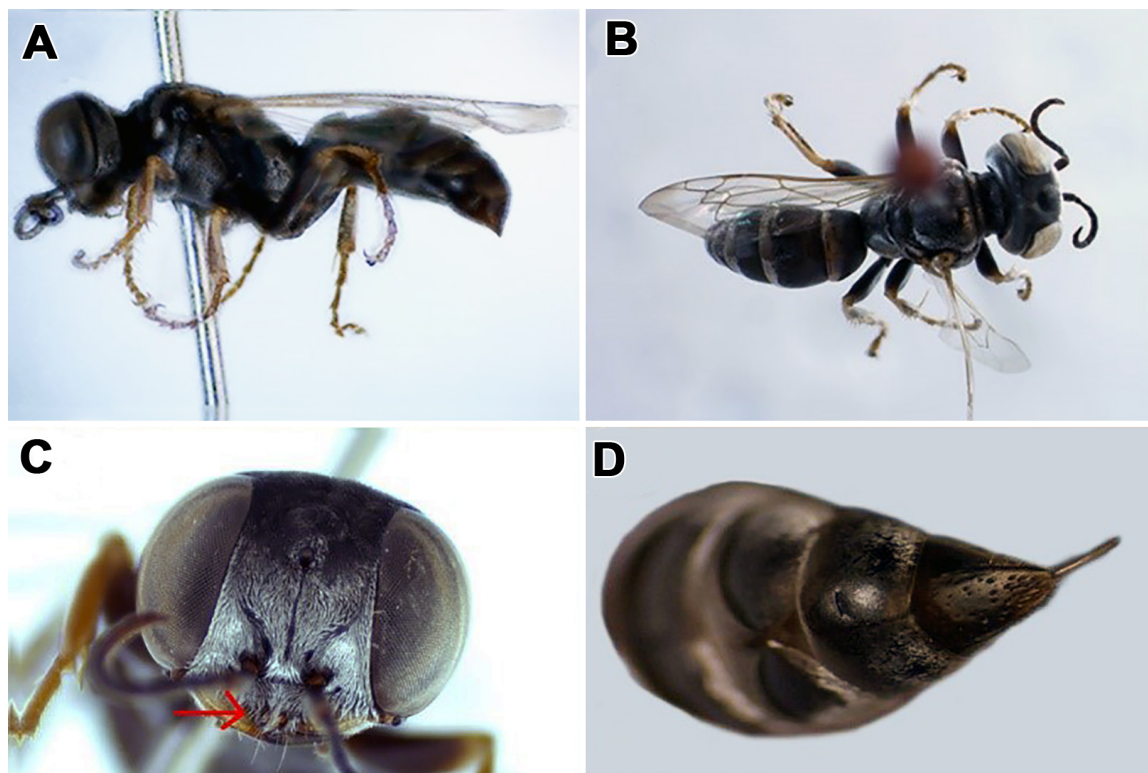


**Figure 1.** A-E, *Gastrosericus moricei*, Female; A. Adult, lateral view; B. Head; C. Tarsomere v; D. wings; E. Pygidial plate; F. Pygidial plate in *G. electus*.





**Figure 2.** *Gastrosericus sabulosus*, Male; **A, B.** Adult, dorsal and lateral view; **C.** Head; **D.** Propodal dorsal surface; **E.** Pygidial plate.



**Figure 3.** *Gastrosericus sabulosus*, Female; **A, B.** Adult, lateral and dorsal view; **C.** Head; **D.** Pygidial plate.



**General distribution:** Algeria, Egypt, China, Cyprus, India, Libya, Kazakhstan, Mongolia, Morocco, Namibia, Oman, Russia, Saudi Arabia, Sudan, Tajikistan, Turkey, Turkmenistan, United Arab Emirates, Uzbekistan.

**Genus:** *Holotachysphex* de Beaumont, 1940

*Holotachysphex iraniensis* Schmid-Egger & Fallahzadeh, 2016

**Material examined:** (10♀♀, 4♂♂); Iran, Kerman province: Anbar Abad (Roodfarq) (loc. 13, Table 1), 05–23.v.2017, 2♀♀; same data, 26.viii–21.ix.2017, 1♀; Bam (Bam) (loc. 8, Table 1), 13–22.v.2017, 1♂, 1♀; same data, 22.v–04.vii.2017, 1♀; same data, 04.vii–26.viii.2017, 2♀♀, 1♂; Bam (Hemat Abad) (loc. 11, Table 1), 22.v.2017, 1♂, 1♀; Jiroft (Mijan-Koldan) (loc. 2, Table 1), 05–23.v.2017, 1♀; Kahnuj (Qooch Abad) (loc. 15, Table 1), 21.iv–08.v.2017, 1♀; Manujan (Chah Nasri) (loc. 20, Table 1), 10.iv–05.v.2017, 1♂.

**Distribution in Iran:** Fars, Hormozgan and Kerman (Schmid-Egger et al., 2016) provinces.

**General distribution:** Iran.

**Genus:** *Larra* Fabricius, 1793

*Larra anathema* (Rossi, 1790)

**Material examined** (5♀♀, 15♂♂); Iran, Kerman province: Anbar Abad (Bardeh) (loc. 12, Table 1), 23.v–04.vi.2017, 1♀, 1♂; same data, 04.vi–05.vii.2017, 3♂♂; Anbar Abad (Roodfarq) (loc. 13, Table 1), 16.vii–26.viii.2017, 1♀; Bam (Bam) (loc. 8, Table 1), 04.vii–26.viii.2017, 2♀♀, 1♂; Bam (Dehbakri, Marghak, Bidkhun) (loc. 10, Table 1), 17.vii–26.viii.2017, 1♀; Bam (Dehbakri) (loc. 9, Table 1), 22.v–04.vii.2017, 1♂; Bam (Hemat Abad) (loc. 11, Table 1), 22.v–04.vii.2017, 6♂♂; same data, 17.vii–26.viii.2017, 1♂; Jiroft (Baquer-Abad) (loc. 1, Table 1), 20.iv–13.v.2017, 1♂; Kahnuj (Tomgoran) (loc. 16, Table 1), 11–21.iv.2017, 1♂.

**Distribution in Iran:** Alborz (Esmaili & Rastegar, 1974; Ebrahimi, 2014); Ardabil, Guilan, Khuzestan, Mazandaran, West Azerbaijan (Ebrahimi, 2005, 2014); East Azerbaijan (Ghazi-Soltani et al., 2010a, 2010b); Fars (Ebrahimi, 2014; Atbaei et al., 2015) and Kerman (current study) provinces.

**General distribution:** Algeria, Austria, Azerbaijan, Bahrain, Belarus, Bulgaria, China, Croatia, Cyprus, Czech Republic, Egypt, France, Germany, Great Britain, Greece, Hungary, Iran, Iraq, Ireland, Israel, Italy, Kazakhstan, Kyrgyzstan, Libya, Macedonia, Malta, Moldova, Morocco, Portugal, Romania, Russia, Saudi Arabia, Slovakia, Slovenia, South Africa, Spain, Switzerland, Syria, Tajikistan, Tunisia, Turkey, Turkmenistan, Ukraine, United Arab Emirates, Uzbekistan, former Yugoslavia.

*Larra arabicus* Schmid-Egger, 2014

**Material examined:** (8♀♀, 11♂♂); Iran, Kerman province: Anbar Abad (Bardeh) (loc. 12, Table 1), 04.vi–05.vii.2017, 1♂; same data, 16.vii–26.viii.2017, 2♀♀; Anbar Abad (Roodfarq) (loc. 13, Table 1), 26.viii.2017, 2♀♀; Bam (Bam) (loc. 8, Table 1), 22.v–04.vii.2017, 1♂; same data, 04.vii–26.viii.2017, 4♂♂, 1♀; Bam (Hemat Abad) (loc. 11, Table 1), 04.vii.2017, 1♂; Jiroft (Mijan-Sar Asiab) (loc. 3, Table 1), 23.v–05.vii.2017, 1♀; Jiroft (Mijan-Koldan) (loc. 2, Table 1), 23.v–05.vii.2017, 1♂; same data, 05.v–26.viii.2017, 2♀♀; Kahnuj (Qooch Abad) (loc. 15, Table 1), 21.iv–08.v.2017, 2♂♂; Qaleh-Ganj (Shahid Beheshti farm) (loc. 18, Table 1), 07.vi–04.v.2017, 1♂, 1♀.

**Distribution in Iran:** Fars (Sadeghi et al., 2016) and Kerman (current study) provinces.

**General distribution:** Iran, United Arab Emirates.

*Larra zarudniana* Gussakovskij, 1933

**Material examined:**(23♀♀, 34♂♂); Iran, Kerman province: Anbar Abad (Bardeh) (loc. 12, Table 1), 04.vi-05.vii.2017, 1♂; Jiroft (Baqer Abad) (loc. 1, Table 1), 23.v.-09.vi.2017, 1♀; Kahnuj (Qooch Abad) (loc. 15, Table 1), 06-21.iv.2017, 1♂; same data, 21.iv-08.v.2017, 3♂♂, 1♀; Kahnuj (Tomgoran) (loc. 16, Table 1), 15-28.v.2017, 2♂♂, 2♀♀; Qaleh-Ganj (Qaleh-Ganj) (loc. 17, Table 1), 10.iii-10.iv.2017, 2♂♂, 1♀; Same data, 04.v-02.vi.2017, 6♂♂; Qaleh-Ganj (Shahid Beheshti farm) (loc. 18, Table 1), 07.iv-04.v.2017, 29♂♂, 18♀♀.

**Distribution in Iran:** Sistan-o Baluchestan (Gussakovskij, 1933) and Kerman (current study) provinces.

**General distribution:** Iran.

*Genus: Liris* Fabricius, 1804

*Liris agilis* (Smith, 1856)

**Material examined:**(1♀, 5♂♂); Iran, Kerman province: Bam (Bam) (loc. 8, Table 1), 04.vii-26.viii.2017, 1♂; same data, 26.viii-21.ix.2017, 1♂; Jiroft (Mijan-Koldan) (loc. 2, Table 1), 20.iv-05.v.2017, 1♂; Jiroft (Mijan-Sar Asiab) (loc. 3, Table 1), 23.v-05.vii.2017, 1♀; Kahnuj, (Qooch Abad) (loc. 15, Table 1), 06-21.iv.2017, 1♂; Qaleh-Ganj (Qaleh-Ganj) (loc. 17, Table 1), 10.iii-10.iv.2017, 1♂.

**Distribution in Iran:** Fars (Atbaei et al., 2014) and Kerman (current study) provinces.

**General distribution:** Canary Islands, China, Egypt, Iran, Israel, Kuwait, Libya, Malta, Mauritania, Morocco, Oman, Sudan, United Arab Emirates.

*Liris festinans praetermissus* (Richards, 1928)

**Material examined:** (1♂); Iran, Kerman province; Bam (Bam) (loc. 8, Table 1), 04.vii-26.viii.2017, 1♂.

**Distribution in Iran:** no specific locality (de Beaumont et al., 1973; Schmidt & Bitsch, 2007); Fars (Atbaei et al., 2015; Sadeghi et al., 2018b); Hormozgan (Fallahzadeh et al., 2018) and Kerman (current study) provinces.

**General distribution:** Afghanistan, Algeria, Bulgaria, Egypt, France, Greece, Iran, Israel, Italy, Kazakhstan, Malta, Oman, Portugal, Russia, Saudi Arabia, Spain, Turkey, United Arab Emirates, Uzbekistan.

*Liris haemorrhoidalis* (Fabricius, 1804)

**Material examined:** (1♂, 1♀); Iran, Kerman province: Bam (Bam) (loc. 8, Table 1), 26.viii.2017, 1♂, 1♀.

**Distribution in Iran:** Sistan-o Baluchestan (de Beaumont, 1970); Bushehr, Tehran (Ebrahimi, 2005, 2014); Hormozgan (Fallahzadeh et al., 2018) and Kerman (current study) provinces.

**General distribution:** Afghanistan, Angola, Cameron, Canary Island, Egypt, Eritrea, Ethiopia, Guinea, India, Iran, Iraq, Israel, Italy, Kazakhstan, Kenya, Libya, Morocco, Mozambique, Oman,

Palestine, Qatar, Saudi Arabia, South Africa, Spain, Sudan, Somalia, Tanzania, Tunisia, United Arab Emirates, Yemen, Zaire, Zimbabwe.

***Liris nigricans* (Walker, 1871)**

**Material examined:** (2♂♂); Iran, Kerman province: Kahnuj (Qooch Abad) (loc. 15, [Table 1](#)), 06.iv-21.iv.2017, 1♂; Qaleh-Ganj (Shahid Beheshti farm) (loc. 18, [Table 1](#)), 07.iv-04.v.2017, 1♂.

**Distribution in Iran:** Guilan ([Morice, 1921](#)); Fars ([Rezaei & Fallahzadeh, 2015](#); [Sadeghi et al., 2018b](#)); and Kerman (current study) provinces.

**General distribution:** Afghanistan, Algeria, Canary Island, Chad, China, Cyprus, Egypt, Ethiopia, Greece, Iran, Iraq, Island, Israel, Kazakhstan, Libya, Madagascar, Morocco, Oman, Russia, South Africa, Spain, Sudan, Tajikistan, Tanzania, Tunisia, Turkey, Uzbekistan, United Arab Emirates, Yemen, Zaire.

***Liris subtessellatus* (F. Smith, 1856)**

**Material examined:** (1♀, 2♂♂); Iran, Kerman province: Anbar Abad (Bardeh) (loc. 12, [Table 1](#)), 23.v-04.vi.2017, 1♂; Qaleh-Ganj (Qaleh-Ganj) (loc. 17, [Table 1](#)), 10.iv-04.v.2017, 1♂; Qaleh-Ganj (Shahid Beheshti farm) (loc. 18, [Table 1](#)), 07.iv-04.v.2017, 1♀.

**Distribution in Iran:** Sistan-o Bluchestan ([Gussakovskij, 1933](#)); Kerman, Markazi, Tehran ([Ebrahimi, 2014](#)); Fars ([Atbaei et al., 2015](#)) and Hormozgan ([Fallahzadeh et al., 2018](#)) provinces.

**General distribution:** Afghanistan, Bangladesh, China, Fiji, India, Indonesia, Iran, Iraq, Japan, Kazakhstan, New Guinea, Pakistan, Philippines, Sri Lanka, Taiwan, Thailand.

**Genus: *Palarus* Latreille, 1802**

***Palarus funerarius* F. Morawitz, 1889**

**Material examined** (3♀♀, 1♂); Iran, Kerman province: Jiroft (Mijan-Koldan) (loc. 2, [Table 1](#)), 05-23.v.2017, 1♀; Kahnuj (Qooch Abad) (loc. 15, [Table 1](#)), 06.iv-21.iv.2017, 1♀; same data, 21.iv-08.v.2017, 1♂; Manujan (Chah Nasri) (loc. 20, [Table 1](#)), 22.v-08.vi.2017, 1♀.

**Distribution in Iran:** Khuzestan ([Pulawski & Prentice, 2008](#)); Fars ([Atbaei et al., 2015](#)); Hormozgan ([Fallahzadeh et al., 2018](#)) and Kerman (current study) provinces.

**General distribution:** China, Greece, India, Iran, Kazakhstan, Pakistan, Russia, Saudi Arabia, Tajikistan, Turkey, Turkmenistan, Uzbekistan.

**Genus: *Parapiagetia* Kohl, 1897**

***Parapiagetia erythropoda* (Cameron, 1889)**

**Material examined:**(15♀♀, 9♂♂); Iran, Kerman province: Jiroft (Baquer Abad) (loc. 1, [Table 1](#)), 09-20.iv 2017, 1♂; 20.iv-13.v.2017, 1♂, 1♀; 13-23.v.2017, 2♀♀; same data, 04-19.vi.2017, 1♀; Jiroft (Esmailieh-Bahram Abad) (loc. 6, [Table 1](#)), 09-29.iv.2017, 1♂, 4♀♀; Kahnuj (Qooch Abad) (loc. 15, [Table 1](#)), 23.iii-06.iv.2017, 1♂; same data, 06-21.iv.2017, 1♂; Kahnuj (Tomgoran) (loc. 16, [Table 1](#)), 15-28.v.2017, 1♀; Manujan (Chah Nasri) (loc. 20, [Table 1](#)), 10.iv-05.v.2017, 4♀♀, 1♂; same data, 05-22.v.2017, 1♂; Manujan (Chermil) (loc. 21, [Table 1](#)), 05-22.v.2017, 2♀♀; Qaleh-Ganj (Qaleh-Ganj) (loc. 17, [Table 1](#)), 04.v.-02.vi.2017, 1♂; Qaleh-Ganj (Shahid Beheshti farm) (loc. 18, [Table 1](#)), 07.iv-04.v.2017, 1♂.

**Distribution in Iran:** Hormozgan (Fallahzadeh et al., 2018) and Kerman (current study) provinces.

**General distribution:** Arabian Peninsula, Egypt, India, Libya, Sri Lanka, South Africa, United Arab Emirates, Zimbabwe.

**Genus:** *Philanthus* Fabricius, 1790

*Philanthus coarctatus* Spinola, 1839

**Material examined:**(2♀♀); Iran, Kerman province: Kahnuj (Tomgoran) (loc. 16, Table 1), 28.v.2017, 1♀; Qaleh-Ganj (Shahid Beheshti farm) (loc.18, Table 1), 04.v.2017, 1♀.

**Distribution in Iran:** Sistan-o Baluchestan (Ebrahimi, 2008, 2014) and Kerman (current study) provinces.

**General distribution:** Algeria, Chad, Egypt, Ethiopia, Iran, Iraq, Israel, Italy, Jordan, Kazakhstan, Libya, Mali, Mauritania, Morocco, Oman, Saudi Arabia, Spain, Sudan, Syria, Tunisia, Turkey, United Arab Emirates, Uzbekistan, Yemen.

*Philanthus triangulum* (Fabricius, 1775)

**Material examined:** (20♀♀, 12♂♂); Iran, Kerman province: Anbar Abad (Bardeh) (loc. 12, Table 1), 21.vi–05.vii.2017, 1♀; Anbar Abad (Roodfarq) (loc. 13, Table 1), 16.vii–26.viii.2017, 1♀; Bam (Hemat Abad) (loc.11, Table 1), 26.viii–21.ix.2017, 1♀; Bam (Bam) (loc. 8, Table 1), 13–22.v.2017, 1♀; same data, 22.v–04.vii.2017, 3♂♂, 3♀♀; same data, 04.vii–26.viii.2017, 1♂, 1♀; Jiroft (Mijan-Koldan) (loc. 2, Table 1), 05–23.v.2017, 2♂♂; Jiroft (Dalfard) (Loc. 4, Table 1), 07–17.vii.2017, 2♀♀; same data, 17.vii–27.viii.2017, 6♀♀; Jiroft (Jebal Barez) (loc.7, Table 1), 06–17.vii.2017, 1♀; same data, 17.vii–26.viii.2017, 3♂♂, 1♀; Kahnuj (Dehkahan) (loc. 14, Table 1), 11–17.iv.2017, 1♀; same data, 04–23.v.2017, 1♀; Manujan (Chah Nasri) (loc. 20, Table 1), 10 iv–05.v.2017, 3♂♂, 1♀.

**Distribution in Iran:** Guilan (Morice, 1921; Ebrahimi, 2005, 2014); South Khorasan (de Beaumont, 1970); Qazvin (de Beaumont, 1957); no specific locality (Esmaili & Rastegar, 1974); Golestan, Isfahan, Tehran, West Azerbaijan (Ebrahimi, 2005); East Azerbaijan (Ebrahimi, 2005, 2014; Ghazi-Soltani et al., 2010a, 2010b, 2010c); Alborz, Ardabil, Markazi (Ebrahimi, 2014); Fars (Ebrahimi, 2005, 2014; Fallahzadeh et al., 2009; Atbaei et al., 2015; Rezaei & Fallahzadeh, 2015); Hormozgan (Ebrahimi, 2014; Fallahzadeh et al., 2018) and kerman (current study) provinces.

**General distribution:** Albania, Algeria, Austria, Belarus, Belgium, Bulgaria, Congo, Croatia, Cyprus, Czech Republic, Denmark, Egypt, Europe, France, Finland, Germany, Greece, Great Britain, Hungary, Iran, Iraq, Italy, Kazakhstan, Madagascar, Malagasy, Malta, Morocco, Netherlands, Poland, Portugal, Romania, Russia, Slovakia, Somalia, Spain, Sweden, Switzerland, Tajikistan, Tanzania, Tunisia, Turkey, Turkmenistan, Ukraine, Uzbekistan, Yemen, Zaire.

**Genus:** *Tachytes* Panzer, 1806

*Tachytes pygmaeus* Kohl, 1888

**Material examined:**(46♀♀, 43♂♂); Iran, Kerman province: Anbar Abad (Bardeh) (loc. 12, Table 1), 04.vi–05.vii.2017, 1♂; Anbar Abad (Roodfarq) (loc. 13, Table 1), 05–23.v.2017, 1♀; Bam (Bam) (loc. 8, Table 1), 22.v–04.vii.2017, 1♀; same data, 04.vii–26.viii.2017, 1♂; Bam



(Dehbakri) (loc. 9, [Table 1](#)), 07.vii-26.viii.2017, 1♂; Jiroft (Baquer-Abad) (loc. 1, [Table 1](#)), 13-23.v.2017, 3♂♂, 5♀♀; same data, 23.v-09.vi.2017, 3♂♂, 5♀♀; same data, 04-19.vi.2017, 3♂♂; Jiroft (Mijan-Sar Asiab) (loc. 3, [Table 1](#)), 05-23.v.2017, 2♂♂, 1♀; Jiroft (Mijan-Koldan) (loc. 2, [Table 1](#)), 05-23.v.2017, 1♀; Jiroft (Esmailieh-Bahram Abad) (loc. 6, [Table 1](#)), 09-29.iv.2017, 2♂♂, 1♀; Kahnuj (Qooch Abad) (loc. 15, [Table 1](#)), 07.iv.2017, 3♀♀, 2♂♂; same data, 21.iv.2017, 1♂; 08.v.2017, 5♀♀, 4♂♂; Kahnuj (Dehkhahan) (loc. 14, [Table 1](#)), 04-23.v.2017, 2♂♂; Kahnuj (Qooch Abad) (loc. 15, [Table 1](#)), 15.iii-06.iv.2017, 3♀♀, 2♂♂; same data, 21.iv-08.v.2017, 5♀♀, 2♂♂; Kahnuj (Tomgoran) (loc. 16, [Table 1](#)), 11-21.iv.2017, 2♀♀; Manujan (Chah Nasri) (loc. 20, [Table 1](#)), 10.iv-05.v.2017, 8♂♂, 5♀♀; same data, 05-22.v.2017, 1♂, same data, 22.v-08.vi.2017, 4♀♀, 1♂; Manujan (Chermil) (loc. 21, [Table 1](#)), 05-23.v.2017, 1♂, 1♀; Qaleh-Ganj (Qaleh-Ganj) (loc. 17, [Table 1](#)), 04.v-02.vi.2017, 1♀, 1♂; Qaleh-Ganj (Shahid Beheshti farm) (loc.18, [Table 1](#)), 07.iv-04.v, 2017, 2♂♂, 1♀; Qaleh-Ganj (Keshit) (loc. 19, [Table 1](#)), 07.iv-05.v.2017, 1♀.

**Distribution in Iran:** Fars ([Atbaei et al., 2015](#)); Hormozgan ([Fallahzadeh et al., 2018](#)) and Kerman (current study) provinces.

**General distribution:** Arabian Peninsula, Egypt, India, Iran, Mali, Morocco, Namibia, Saudi Arabia, Thailand, United Arab Emirates.

#### *Tachytes xenoferus* Rohwer, 1911

**Material examined** (8♀♀, 4♂); Iran, Kerman province: Bam (Bam) (loc. 8, [Table 1](#)), 22.v-04.vii.2017, 1♀; same data, 04.vii-26.viii.2017, 1♂, 1♀, same data, 26.viii-21.ix.2017, 1♂, 2♀♀; Kahnuj (Qooch Abad) (loc.15, [Table 1](#)), 15.iii-06.iv.2017, 1♀; Manujan (Chermil) (loc. 21, [Table 1](#)), 05-22.v.2017, 1♂; Qaleh-Ganj (Qaleh-Ganj) (loc. 17, [Table 1](#)), 10.iii-10.iv.2017, 1♀, 1♂; same data, 04.v-02.vi.2017, 1♀; Qaleh-Ganj (Shahid Beheshti farm) (loc. 18, [Table 1](#)), 07.iv-04.v.2017, 1♀.

**Distribution in Iran:** Fars ([Atbaei et al., 2015](#)) and Kerman (current study) provinces.

**General distribution:** Algeria, Burkina Faso, China, Egypt, Ethiopia, Ghana, India, Iran, Israel, Mali, Niger, Oman, Pakistan, Saudi Arabia, Sri Lanka, Taiwan, Thailand, United Arab Emirates.

#### Discussion

Prior to this study, 24 species in 12 genera of Crabronidae were recorded from Kerman province (de [Beaumont, 1970](#); [Pulawski, 1971](#); [Gussakovski, 1933](#); [Ebrahimi, 2014](#)). In the present study, further 20 species are found to be new to the fauna of Kerman which increases the number of species to 44. Two of these species, *Gastrosericus moricei* and *G. sabulosus* are new to the fauna of Iran. The genus *Gastrosericus* has a worldwide distribution and includes 61 species ([Pulawski, 2020](#)). Recently [Jahantigh et al. \(2017\)](#) listed 315 species of Crabronidae from Iran of that 125 species were recorded from Fars province (south-west Iran) and 65 species from Sistan-o Baluchestan province (south-east Iran). Further studies now confirm 181 species known from Fars province ([Sadeghi et al., 2016, 2018a, 2018b, 2019](#); [Khosroabadi et al., 2019](#); [Rezaei et al., 2020a, 2020b](#)). The number of Crabronidae species from Iran increased from 364 to 366 by the findings published in the present study. Among different identified species, *Gastrosericus funereus* with 242 specimens had the highest population density while *Ammatomus coarctatus* and *Liris festinans praetermissus* with only one specimen had the lowest. Also *G. sabulosus* that has been reported for the first time from

Iran (South of Kerman, Kahnuj, Manujan and Qaleh-Ganj), already have been reported from Arabian Peninsula, Senegal and United Arab Emirates. With regard to geographical distribution of this species and the fact that this species distributed in warm climatic conditions and similar habitats, it is concluded that this species has been adapted to warm climatic conditions.

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### Conflict of Interests

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

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## زنبور های حفار (Hymenoptera: Spheciformes: Crabronidae) در استان کرمان، جنوب شرقی ایران

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**چکیده:** در مطالعه حاضر داده‌های جدیدی در مورد پراکنش ۲۷ گونه از زنبورهای حفار (Hymenoptera: Spheciformes: Crabronidae) جمع‌آوری شده از مناطق مختلف جنوب استان کرمان، جنوب شرقی ایران ارائه شد. نمونه‌ها با استفاده از تله مالیز در ۲۱ منطقه از اسفندماه ۱۳۹۵ تا شهریور ۱۳۹۶ جمع‌آوری شدند. گونه‌های شناسایی شده متعلق به سه زیرخانواده *Bembicinae* (سه جنس و هفت گونه)، *Crabroninae* (هفت جنس و ۱۸ گونه) و *Philanthinae* (یک جنس و دو گونه) می‌باشند. دو گونه *Gastrosericus moricei* E. Saunders, 1910 و *G. sabulosus* Pulawski, 1995 برای فون ایران جدید هستند. مشخصات مرفولوژیک به همراه تصاویر مربوط به دو گزارش جدید برای ایران ارائه شد.

**واژگان کلیدی:** بال غشاییان، زنبورهای حفار، Crabronidae، گزارش جدید، ایران