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Review of Eudorylini (Diptera, Pipunculidae, Pipunculinae) from Iran with four new species records

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ABSTRACT. The Iranian fauna of Eudorylini (Diptera, Pipunculidae) is reviewed. The new material were collected in Western (Kermanshah) and Eastern (North Khorasan, Khorasan-e Razavi, South Khorasan, Sistan-o Baluchestan) provinces during 2015–2016. In total, twenty species of Eudorylini belonging to four genera known from Iran are listed. Four species, *Claraeola conjuncta* (Collin, 1949), *Clistoabdominalis nitidifrons* (Becker, 1900), *Dasydorylas discoidalis* (Becker, 1897) and *Eudorylas jenkinsoni* Coe, 1966 are newly recorded from Iran. A brief diagnosis is presented for the newly recorded species.

Key words: big-headed flies, fauna, taxonomy, distribution

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Introduction

The family Pipunculidae, known as big-headed flies, are inconspicuous insects which are characterized by their large compound eyes occupying most of the hemispherical head. Their larvae are exclusively endoparasitoids of leafhoppers and planthoppers (Hemiptera: Auchenorrhyncha), except species of the genus *Nephrocerus* Zetterstedt, 1838 which have been found to parasitize adult crane flies (Diptera: Tipulidae) (Koenig & Young, 2007; Skevington, 2005). The family comprise four subfamilies (Chalarinae, Pipunculinae, Neprocerinae and Protonephrocerinae), with more than 1,400 described species worldwide (Rafael & Skevington, 2010; Kehlmaier et al., 2014), and an estimated number of over 2,000 species (Skevington & De Meyer, 2004). The tribe Eudorylini Rafael & De Meyer, 1992 is the largest group of pipunculids and comprises about 40% of the known species (Skevington & Yeates, 2001). It has been characterized by the combination of the following characters: hind margin of eyes straight, ocellar bristles absent, propleuron bare, mesonotal pilosity reduced to two dorsocentral rows of setae, and pterostigma usually present

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(Skevington & Yeates, 2001). The systematic positions of several genera of Eudorylini were questionable and were resolved by Skevington and Yeates (2001) based on phylogenetic studies. Their analyses revealed the existence of eight genera including *Allomethus* Hardy, 1943; *Amazunculus* Rafael, 1986; *Basileunculus* Rafael, 1987; *Claraeola* Aczél, 1940; *Clistoabdominalis* Skevington, 2001; *Dasydorylas* Skevington, 2001; *Elmohardyia* Rafael, 1987 and *Eudorylas* Aczél, 1940. The Afrotropical Eudorylini were recently revised by Földvári (2013), whereas Kehlmaier (2005a, b) focused on the West Palaearctic and Oriental regions. Other revisionary studies have dealt with Australia (Skevington, 2001, 2002, 2003), Japan (Morakote et al., 1990), the Korean Peninsula (Kozánek et al., 2004) and the Neotropical region (Rafael, 1993, 1995; Rafael & Menezes, 1999).

The tribe Eudorylini has been poorly studied in Iran. Prior to this study, 16 species were recorded (Kehlmaier & Jahromi, 2015; Kazerani et al., 2017; Majnon-Jahromi et al., 2017) including newly described species (Motamedinia et al., 2017a, b). The present study compiles a taxonomic list of Eudorylini species known from Iran, as well as additional species records from the Western and Eastern provinces (North Khorasan, Khorasan-e Razavi, South Khorasan, Sistan-o Baluchestan and Kermanshah).

Material and methods

The material was collected by several Malaise traps and by sweep net at different locations in Eastern (North Khorasan, Khorasan-e Razavi, South Khorasan, Sistan-o Baluchestan) and Western (Kermanshah) provinces of Iran, during April 2015–October 2016. The Malaise traps were equipped with an upper and a lower collecting bottle (FCMT: Funnel Collecting Malaise Trap), the latter carrying a large funnel to catch insects, which try to escape after the collision with the central diaphragm by letting themselves fall to the ground (unpublished data). The collecting sites are characterized by a moderate and temperate mountain climate (North Khorasan), a cold and dry (Khorasan-e Razavi), a warm and dry (South Khorasan and Sistan-o Baluchestan) and a humid and temperate mountain climate (Kermanshah). Malaise traps were set up in various habitats including mixed orchards, field crops, rangelands and saltcedar semi-forest areas. Collecting bottles were emptied every 10–14 days. Pipunculids collected by sweep net were captured from the net using an electrical aspirator (ElePooter) (Motamedinia & Rakhshani, 2017) and conserved in 75% ethanol. Specimens were dried using the AXA-method according to van Achterberg (2009). The examined material are deposited in the Hayk Mirzayans Insect Museum, Insect Taxonomy Research Department, Iranian Research Institute of Plant Protection, Tehran, Iran (HMIM).

Illustrations were prepared using an Olympus™ AX70 microscope and a Motic™ SMZ-168 stereomicroscope equipped with a Moticam™ 480 digital imaging system. A series of 10 captured images were merged using the image-stacking software ZereneStacker 1.04. Line drawings of genitalia were traced in the software Inkscape® and Adobe Photoshop CS3®, based on the digital photographs. Distribution of each species in Iran and general bio-geographical distributions are provided based on De Meyer (1995), Skevington (2001), Kehlmaier (2005a, b) and Földvári (2013). A brief diagnosis based on the morphological characters is provided for the newly recorded species. The morphological terminology follows Skevington (2002) and Kehlmaier (2005a).

Results

In total, 310 specimens of 15 species were examined, including four newly recorded species of Eudorylini for Iran and new provincial citings for another seven species.

***Claraeola conjuncta* (Collin, 1949)**
(Figs 1A–B, 3A–B)
Examined material: Iran, Sistan-o Baluchestan, Zabol county, Nimrooz (31°55'10"N, 61°31'17"E, 485 m), 20 April 2016, swept on *Tamarix stricta*, leg. H.A. Derafshan, 1♀; South Khorasan, Birjand county, Golonabad (33°10'80"N, 59°22'17"E, 1914 m), 26 May–9 June 2015, Malaise trap, leg. B. Motamedinia, 1♀.
Diagnosis: FEMALE: Thorax and abdomen predominately covered with white pollinosity. Ovipositor elongate and weakly grey pollinose basally and laterally, otherwise shining. In dorsal view, base not bilobed, cone shaped, twice as long as wide (Figs 1B, 3A–B). In lateral view, base of ovipositor as long as wide, piercer rather high and curved towards sternites, with a small ventral tubercle at anterior margin (Fig. 3A). **MALE:** See Kehlmaier (2005b). Not recorded from Iran yet.
Distribution: New record for Iran. It is also distributed in Algeria, Egypt and Israel (Kehlmaier, 2005b).

***Claraeola khorshidae* Motamedinia & Kehlmaier, 2017**
Examined material: Iran, South Khorasan, Birjand county, Mohammadieh (32°52'40"N, 59°01'17"E, 1419 m), 14–28 July 2016, FCMT, leg. B. Motamedinia, 15♂♂, 1♀.
Diagnosis: MALE and **FEMALE**: See Motamedinia et al. (2017a).
Distribution: So far, the species has only been recorded from South Khorasan province (Iran) (Motamedinia et al., 2017a).

***Claraeola parnianae* Motamedinia & Kehlmaier, 2017**
Examined material: Iran, Sistan-o Baluchestan, Zabol county, Nimrooz (31°05'04"N, 61°26'04"E, 482 m), 08–20 May 2015, Malaise trap, leg. H.A. Derafshan, 1♂.
Diagnosis: MALE and **FEMALE**: See Motamedinia et al. (2017a).
Distribution: So far, the species has only been recorded from Sistan-o Baluchestan province (Iran) (Motamedinia et al., 2017a).

Clistoabdominalis nitidifrons (Becker, 1900)
(Figs 1C–D, 3G–J)
Examined material: Iran, Kermanshah, Sarpolezahab (34°28'10"N, 45°49'31"E, 546 m), 15–27 July 2015, Malaise trap, leg. M. Zardouei, 1♂.
Diagnosis: MALE: Eyes narrowly separated, wings brownish (Fig. 1D). Surstyli asymmetrical (Fig. 3G), phallus with long ejaculatory ducts. Ejaculatory apodeme small and funnel shape. Hypandrium long and defected by 90°, phallic guide short, broad, at the base with 4–6 lateral hairs (Fig. 3J). **FEMALE:** See Kehlmaier (2005b). Not recorded from Iran yet.
Distribution: New record for Iran. The species has an ample distribution comprising part of the Afrotropical, Palaearctic and Oriental regions (Kehlmaier, 2005b; Földvári, 2013).

***Clistoabdominalis ruralis* (Meigen, 1824)**
Examined material: Iran, Kermanshah, Sarpolezahab (34°28'10"N, 45°49'31"E, 546 m), 15–27 July 2015, Malaise trap, leg. M. Zardouei, 4♂♂, 8♀♀; Khorasan-e Razavi, Mashhad county, Sheikhha (37°14'15"N, 57°54'27"E, 1169 m), 12–26 September 2015, Malaise trap, leg. B. Motamedinia, 1♂, 1♀; North Khorasan, Bojnord county, Keshanak (37°28'34"N, 56°49'47"E, 1015 m), 01 May 2015, Swept net on Alfalfa, leg. B. Motamedinia, 1♀; Sistan-o Baluchestan, Zabol County, Nimrooz (31°55'10"N, 61°31'17"E, 485 m), 14–26 May 2015, Malaise trap, leg. H.A. Derafshan, 4♂♂; South Khorasan, Birjand county, Ark (33°01'06"N, 58°41'18"E, 1605 m), 29 May–12 June 2015, Malaise trap, leg. B. Motamedinia, 1♂.

Figure 1. *Claraeola conjuncta* female (voucher specimen BM118): **A.** in lateral view, **B.** in dorsal view; *Clistoabdominalis nitidifrons* male (voucher specimen BM120): **C.** in lateral view, **D.** in dorsal view. Scale bars: 1 mm.

Diagnosis: MALE and **FEMALE**: See Kehlmaier (2005a).

Distribution: New record for Kermanshah, Khorasan-e Razavi, North Khorasan, Sistan-o Baluchestan and South Khorasan provinces. Previously, the species has been recorded from East Azerbaijan (Kazerani et al., 2017) and Fars provinces (Majnon-Jahromi et al., 2017) in Iran. It is distributed in many other countries including Austria, Belgium, Bulgaria, Czech Republic, Egypt, France, Germany, Great Britain, Greece, Hungary, Israel, Italy, Latvia, Malta, Mongolia, Netherlands, Poland, Slovakia, Switzerland, Tunisia and Uzbekistan (Kehlmaier, 2005a).

***Clistoabdominalis sinaiensis* (De Meyer, 1995)**

Material (not examined): Majnon-Jahromi et al. (2017).

Diagnosis: MALE and **FEMALE:** See Kehlmaier (2005b).

Distribution: The species has been recorded from Fars province (Majnon-Jahromi et al., 2017) in Iran. The known distribution was limited to Israel so far (De Meyer, 1995; Kehlmaier, 2005b).

***Clistoabdominalis trochanteratus* (Becker, 1900)**

Examined material: Iran, Kermanshah, Sarpolezahab (34°28'10"N, 45°49'31"E, 546 m), 01–13 June 2015, Malaise trap, leg. M. Zardouei, 1♂, 3♀♀; Sistan-o Baluchestan province, Zabol county, Dostmohammad (31°09'57"N, 61°43'14"E, 482 m), 13–27 May 2016, Malaise trap, leg. M. Enayatnia, 1♂; South Khorasan, Birjand county, Mohammadieh (32°52'40"N, 59°01'17"E, 1419 m), 24 May 2016, swept net on

herbaceous vegetations, leg. B. Motamedinia, 1♂.

Diagnosis: MALE and **FEMALE**: See Kehlmaier (2005a).

Distribution: New record for Kermanshah, Sistan-o Baluchestan and South Khorasan provinces. Previously, the species has been recorded from Fars province (Majnon-Jahromi et al., 2017) in Iran. The species has an ample distribution comprising Australia and part of the Palaearctic and Oriental regions (Skevington, 2001; Kehlmaier, 2005a).

***Dasydorylas derafshani* Motamedinia & Kehlmaier, 2017**

Examined material: Iran, Sistan-o Baluchestan, Zabol county, Dostmohammad (31°09'57"N, 61°43'14"E, 482 m), 13–27 May 2016, Malaise trap, leg. M. Enayatnia, 1♂.

Diagnosis: MALE: See Motamedinia et al. (2017b). **FEMALE:** unknown.

Distribution So far, the species has only been recorded from Sistan-o Baluchestan province (Iran) (Motamedinia et al., 2017b).

***Dasydorylas discoidalis* (Becker, 1897)**

(Figs 2A–B, 3C–D)

Examined material: Iran, Sistan-o Baluchestan, Zabol county, Dostmohammad (31°09'57"N, 61°43'14"E, 482 m), 03–16 June 2016, Malaise trap, leg. M. Enayatnia, 2♀♀.

Diagnosis: FAMALE: Base of ovipositor not bilobed, piercer straight, tip of piercer approaching hind coxae (Figs 2A, 3C–D). Sternite 8 greatly swollen underneath the base of piercer in lateral view (Fig. 3C).

MALE: unknown.

Distribution: New record for Iran. The known distribution was limited to Russia so far (Kehlmaier, 2005a).

Figure 2. *Dasydorylas discoidalis* female (voucher specimen BM121): **A.** in lateral view, **B.** in dorsal view; *Eudorylas jenkinsoni* female (voucher specimen BM123): **C.** in lateral view, **D.** in dorsal view. Scale bars: 1 mm.

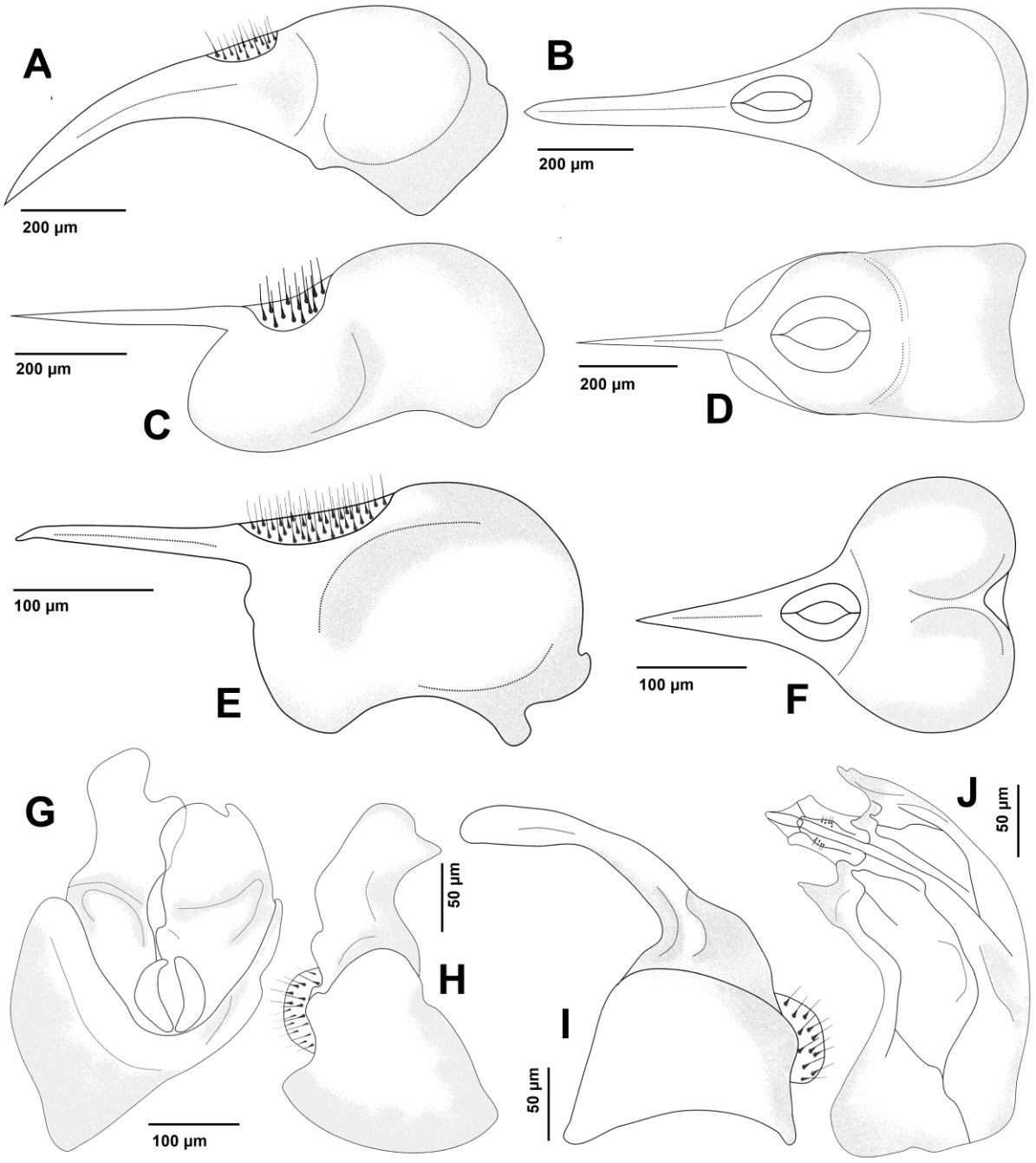

Figure 3. Terminalia of *Claraeola conjuncta* female (voucher specimen BM118): **A.** Ovipositor in lateral view, **B.** Ovipositor in dorsal view; *Dasydorylas discoidalis* female (voucher specimen BM121): **C.** Ovipositor in lateral view, **D.** Ovipositor in dorsal view; *Eudorylas jenkinsoni* female (voucher specimen BM123): **E.** Ovipositor in lateral view, **F.** Ovipositor in dorsal view; *Clistoabdominalis nitidifrons* male (voucher specimen BM120): **G.** Surstyli in dorsal view, **H.** Left surstylus in lateral view, **I.** Right surstylus in lateral view, **J.** Phallic guide, gonopods and hypandrium in ventral view.

Dasydorylas horridus **(Becker, 1897)**
Material (not examined): Kehlmaier & Majnon-Jahromi (2015).
Diagnosis: MALE and **FEMALE**: See Kehlmaier (2005a). The female is not recorded from Iran yet.
Distribution: The species has been recorded from Alborz province (Kehlmaier & Majnon-Jahromi, 2015) in Iran. It is also distributed in many other countries including Austria, Hungary, Croatia, Czech Republic, Italy, France, Slovakia, Spain and Switzerland (Kehlmaier, 2005a).

Dasydorylas zardouei **Motamedinia & Kehlmaier, 2017**
Examined material: Iran, Kermanshah, Dodan (35°00'44"N, 46°12'27"E, 954 m), 22 July–4 August 2016, FCMT, leg. M. Zardouei, 1♂.
Diagnosis: MALE and **FEMALE**: See Motamedinia et al. (2017b)**.**
Distribution: So far, the species has only been recorded from Kermanshah province (Iran) (Motamedinia et al., 2017b).

Eudorylas auctus **Kehlmaier, 2005**
Material (not examined): Kazerani et al. (2017).
Diagnosis: MALE and **FEMALE**: See Kehlmaier (2005a). The female is not recorded from Iran yet.
Distribution: The species has been recorded from Kurdestan province (Kazerani et al., 2017) in Iran. It is also distributed in Greece, Germany, Italy, Kyrgyzstan, Spain, Tajikistan, the United Kingdom and Uzbekistan (Kehlmaier, 2005a).

Eudorylas blascoi **De Meyer, 1997**
Examined material: Iran, Kermanshah, Sarpolezahab (34°28'10"N, 45°49'31"E, 546 m), 14–26 May 2015, Malaise trap, leg. M. Zardouei, 4♂♂, 1♀; Khorasan-e Razavi, Mashhad county, Torqabeh (36°35'48"N; 59°12'58"E; 1297m), 25 June–9 July 2016, FCMT, leg. B. Motamedinia, 1♀; North Khorasan: sample 1: Bojnord county, Gararje (37°33'08"N, 57°06'57"E, 1134 m), 02 August 2015, swept net on Alfalfa, leg. B. Motamedinia, 1♂; sample 2: Kohnekand (37°51'22"N; 57°31'22"E, 1200 m), 17–30 September 2016, FCMT, leg. B. Motamedinia, 1♂; South Khorasan, Birjand county, Ark (33°01'06"N, 58°41'18"E, 1605 m), 20 May–3 June 2016, Malaise trap, leg. B. Motamedinia, 1♂**.**
Diagnosis: MALE and **FEMALE**: See Kehlmaier (2005a).
Distribution: New record for Kermanshah, Khorasan-e Razavi, North Khorasan and South Khorasan provinces. Previously, the species has been recorded from Alborz (Kehlmaier & Majnon-Jahromi, 2015), East Azerbaijan (Kazerani et al., 2017) and Fars provinces (Majnon-Jahromi et al., 2017) in Iran. It is also distributed in France, Italy, Portugal, Spain and Uzbekistan (Kehlmaier, 2005a; Kehlmaier & Andrade 2016).

Eudorylas chvalai **Kozánek, 1988**
Examined material: Iran, South Khorasan, Birjand county, Mazarekahi (32°37'22"N, 59°29'01"E), 1917 m, 19 July–3 August 2016, Malaise trap, leg. B. Motamedinia, 1♂.
Diagnosis: MALE and **FEMALE**: See Kehlmaier (2005a). The female has not been recorded from Iran yet.
Distribution: New record for South Khorasan province. Previously, the species has been recorded from Fars province (Majnon-Jahromi et al., 2017) in Iran. It is also distributed in Turkmenistan and Greece (Kehlmaier, 2005a).

Eudorylas fascipes **(Zetterstedt, 1844)**
Material (not examined): Kazerani et al. (2017).
Diagnosis: MALE: See Kehlmaier (2005a) **FEMALE:** unknown.
Distribution: The species has been recorded from West Azerbaijan province (Kazerani et al., 2017) in Iran. It is also distributed in the Czech Republic, Finland, Italy, Russia and Sweden (Kehlmaier, 2005a).

Eudorylas fluviatilis **(Becker, 1900)**

Examined material: Iran, Kermanshah, Sarpolezahab (34°28'10"N, 45°49'31"E, 546 m), 15–27 July 2015, Malaise trap, leg. M. Zardouei, 3♂♂, 1♀; North Khorasan, Bojnord county, Jozak (37°25'45"N; 56°41'49"E, 1099 m), 15–29 May 2015, Malaise trap, leg. B. Motamedinia, 1♂, 3♀♀; South Khorasan, Birjand county, Ark (33°01'06"N, 58°41'18"E, 1605 m), 16–30 June 2016, Malaise trap, leg. B. Motamedinia, 1♂, 1♀.

Diagnosis: MALE and **FEMALE**: See Kehlmaier (2005a).

Distribution: New record for Kermanshah, North Khorasan and South Khorasan provinces. Previously, the species has been recorded from Fars province (Majnon-Jahromi et al., 2017) in Iran. It is also distributed in Egypt, Israel and Spain (Kehlmaier, 2005a).

Eudorylas jenkinsoni **Coe, 1966**

(Figs 2C–D, 3E–F)

Examined material: Iran, Kermanshah, Sarpolezahab (34°28'10"N, 45°49'31"E, 546 m), 14–26 May 2015, Malaise trap, leg. M. Zardouei, 1♀.

Diagnosis: FEMALE: Base of ovipositor obviously bilobed, with median longitudinal furrow broad and deep, piercer short and straight in lateral view (Figs 3E–F). **MALE:** See Kehlmaier (2005a). Not recorded from Iran yet.

Distribution: New record for Iran. It is distributed in many other countries including the United Kingdom, France, Italy, Poland, Portugal, Sweden and Switzerland (Kehlmaier, 2005a).

Eudorylas longifrons **Coe, 1966**

Examined material: Iran, North Khorasan, Bojnord county, Jozak (37°25'45"N, 56°41'49"E, 1099 m), 15–29 May 2015, Malaise trap, leg. B. Motamedinia, 1♂.

Diagnosis: MALE and **FEMALE**: See Kehlmaier (2005a).

Distribution: New record for North Khorasan province. Previously, the species has been recorded from Alborz (Kehlmaier & Majnon-Jahromi, 2015), East Azerbaijan (Kazerani et al., 2017) and Fars provinces (Majnon-Jahromi et al., 2017) in Iran. It is distributed in many other countries including Croatia, France, Germany, Israel, Italy, Macedonia, Romania, Slovakia, Switzerland and the United Kingdom (Kehlmaier, 2005a).

Eudorylas pannonicus **(Becker, 1897)**

Material (not examined): Kazerani et al. (2017).

Diagnosis: MALE and **FEMALE**: See Kehlmaier (2005a). The female is not recorded from Iran yet.

Distribution: The species has been recorded from West Azerbaijan province (Kazerani et al., 2017) in Iran. It is also distributed in Bulgaria, Croatia, France, Hungary, Italy and Romania (Kehlmaier, 2005a).

Eudorylas zermattensis **(Becker, 1897)**

Examined material: Iran, Kermanshah, Gheshlagh (34°56'31"N, 46°27'54"E, 1533 m), 01–13 June 2015, Malaise trap, leg. M. Zardouei, 2♀♀; North Khorasan, Shirvan county, Gelian (37°25'43"N; 56°41'19"E, 1283m), 16–30 June 2015, Malaise trap, leg. B. Motamedinia, 1♂; Sistan-o Baluchestan, Saravan county, Gosht (27°46'54"N, 61°57'03"E, 1449 m), 11 June 2016, Malaise trap, leg. F. Hamzavi. 1♂; South Khorasan, Birjand county, Mohammadieh (32°52'40"N, 59°01'17"E, 1419 m), 30 May 2016, swept net on herbaceous vegetations, leg. B. Motamedinia, 1♂.

Diagnosis: MALE and **FEMALE**: See Kehlmaier (2005a).

Distribution: New record for Kermanshah, North Khorasan, Sistan-o Baluchestan and South Khorasan provinces. Previously, the species has been recorded from Alborz (Kehlmaier & Majnon-Jahromi, 2015), Kurdestan (Kazerani et al., 2017), East Azerbaijan (Kazerani et al., 2017) and Fars provinces (Majnon-Jahromi et al., 2017) in Iran. It is distributed in many other

countries including Andorra, France, Germany, Italy, Romania, Slovakia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and Uzbekistan (Kehlmaier, 2005a).

Discussion

This is the first review of Eudorylini currently known from Iran. The new species records (*Claraeola conjuncta*, *Clistoabdominalis nitidifrons*, *Dasydorylas discoidalis* and *Eudorylas jenkinsoni*) raise the number of known Iranian Eudorylini to 20 species belonging to four genera. The recently described species *Claraeola khorshidae*, *Claraeola parnianae*, *Dasydorylas zardouei* and *Dasydorylas derafshani* have not yet been recorded outside Iran (Motamedinia et al., 2017a, b). With nine species, the genus *Eudorylas* Aczél (45%) comprises the highest number of Iranian species. It is known as the largest genus of Eudorylini (Rafael & Skevington 2010). *Dasydorylas discoidalis* and *Eudorylas jenkinsoni* are newly recorded from Iran and from the Middle East, respectively. The previous studies of Iranian Eudorylini cover only a small part of the country (Alborz, East Azerbaijan, West Azerbaijan, Fars, South Khorasan and Sistan-o Baluchestan) (Kehlmaier & Majnon-Jahromi, 2015; Kazerani et al., 2017; Majnon-Jahromi et al., 2017; Motamedinia et al., 2017a,b) (Table 1). Iran is a large country with a diverse range of habitats. Based on the transitional location between the Palaearctic, Oriental and Afrotropical regions and on the existence of more than 390 leafhopper species (Mozaffarian & Wilson 2016), many more species of Pipunculidae are expected to occur in Iran.

We think that the inventory studies on Iranian Pipunculidae, including the discovery of their larval hosts, is not only essential to Iranian taxonomy, but also for understanding the relationship between host and prey, and to improve the management of conservation areas in this country.

Table 1. Current number of Eudorylini species in different provinces of Iran after this study.

Provinces	**Area (km^2)***	Eudorylini genera				**Total**
		Claraeola	*Clistoabdominalis*	*Dasydorylas*	*Eudorylas*	
Alborz	5,128	-	-	1	3	4
East Azerbaijan	45,757	-	1	-	3	4
Fars	122,779	-	3	-	5	8
Kermanshah	24,867	-	3	1	4	8
Kurdestan	29,137	-	-	-	2	2
North Khorasan	28,341	-	1	-	4	5
Khorasan-e Razavi	127,223	-	1	-	1	2
Sistan-o Baluchestan	178,850	2	2	2	1	7
South Khorasan	138,845	2	2	-	4	8
West Azarbaijan	37,393	-	-	-	2	2

* data from Statistical Center of Iran (2011)

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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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مروری بر دوبالان Eudorylini (Diptera, Pipunculidae, Pipunculinae) همراه با گزارش چهار گونه جدید از ایران

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چکیده: مروری بر فون دوبالان قبیله Eudorylini (Diptera, Pipunculidae) در ایران انجام گرفت. نمونه‌های جدیدی از استان‌های غربی (کرمانشاه) و شرقی (خراسان شمالی، خراسان رضوی، خراسان جنوبی، سیستان و بلوچستان) طی سال‌های ۱۳۹۴ تا ۱۳۹۵ جمع‌آوری گردید. در مجموع بیست گونه از قبیله Eudorylini متعلق به ۴ جنس از ایران فهرست گردید. چهار گونه از این خانواده شامل *Claraeola conjuncta* (Collin, 1949)، *Clistoabdominalis nitidifrons* (Becker, 1900)، *Dasydorylas discoidalis* (Becker, 1897) و *Eudorylas jenkinsoni* Coe, 1966 برای فون ایران جدید هستند. مختصری از صفات تشخیصی برای گونه های جدید ارایه گردید.

واژگان کلیدی: دوبالان سربزرگ، فون، تاکسونومی، پراکنش.