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The Wasp Genus *Tachysphex* Kohl, 1883 (Hymenoptera: Apoidea: Crabronidae) in Azerbaijan, Caucasus

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Abstract: An annotated checklist containing 29 species in eight species groups of the wasp genus *Tachysphex* from the Republic of Azerbaijan is presented. As many as 12 species are recorded from Azerbaijan for the first time: *T. ctenophorus* Pulawski, 1971, *T. ferrugineus* Pulawski, 1967, *T. melas* Kohl, 1898, *T. nitidus* (Spinola, 1806), *T. pompiliformis* (Panzer,1803), *T. stachi* de Beaumont, 1936, *T. subdentatus* Morawitz, 1893, *T. tarsinus* (Lepeletier de Saint-Fargeau, 1845), *T. obscuripennis* (Schenck, 1857), *T. brullii* (F. Smith, 1856), *T. mocsaryi* Kohl, 1884 and *T. costae* (de Stefani Perez, 1882). Data on landscape and habitat distributions of each species are presented.

Key words: Crabronidae, *Tachysphex*, fauna, habitat, landscape, Azerbaijan.

Introduction

The Crabronidae is a large wasp family that presently contains 8,773 species of 242 genera; this family occurs on all continents excluding Antarctica (Aguiar et al. 2013). The family is divided into eight subfamilies. The genus *Tachysphex* Kohl, 1883 belongs to the subfamily Crabroninae and comprises 459 species described from all over the world (Pulawski 2017).

The first information concerning the presence of the genus *Tachysphex* in Azerbaijan was presented by Kohl (1892), who described a new species. Further faunistic data appeared only much later (Pulawski 1967, 1971, Krombein & Pulawski 1994, Straka 2005, Atbaei et al. 2015, Yildirim et al. 2016). However, the fauna of the genus *Tachysphex* in Azerbaijan remains poorly known.

The present paper summarises our knowledge of the genus in the country based on both new and published records.

Materials and Methods

The materials collected by the first author in 1979–2015 from various places in Azerbaijan served as the basis for the present study, coupled with the collections deposited in the Institute of Zoology, National Academy of Sciences of Azerbaijan, Baku (IZA). The material was collected from the whole territory of Azerbaijan, mostly using a Malaise trap and several entomological nets set in montane or steppe landscapes. Altogether, over 120 specimens of *Tachysphex* were captured and examined. In order to establish or verify the species identities, the materials were compared to specimens, including types, coming from various places within the Palaearctic.

The taxonomy of *Tachysphex* is presented below following Bohart & Menke (1976) and Pulawski (2017). Full information about synonymies is only given with regard to the fauna of Azerbaijan. General distributions follow Pulawski (1971), Krombein & Pulawski (1994), Kazenas

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(2002) and Nemkov (2009). The collectors' names are abbreviated as follows: HA and KhA – leg. Khalid Aliyev; MM – Mahir Maharramov.

The species newly reported from Azerbaijan are marked with an asterisk (*).

Results

Family Crabronidae Latreille, 1802
Subfamily Crabroninae Latreille, 1802
Tribe Larrini Latreille, 1810
Genus *Tachysphex* Kohl, 1883

***Tachysphex pompiliformis* Species Group**

***Tachysphex consocius* Kohl, 1892**

Tachysphex consocius Kohl, 1892: 217 (type locality: Helenendorf [=Goygol], Azerbaijan); Pulawski, 1971: 189; Atbaei et al., 2015: 25: Yildirim et al., 2016: 33.

Material examined: Sheki, 11.VII.1998, 1 ♀, 2 ♂♂ (KhA) [IZA]; Nakhchivan AR, Shakhbuz, 11.VI.2013, 1 ♀ 2 ♂♂ (MM) [IZA]; Goygol, Ashygly, 17.VIII.2014, 1 ♂ (M. Mammadov) [IZA]. General distribution: Europe (excluding northern parts), North Africa, South-West and Central Asia, Iran, Afghanistan, Mongolia, India, Sri Lanka. Remarks: This species inhabits low mountainous steppe and forested landscapes. In the mountains, it reaches up to 1400 m a.s.l.

****Tachysphex ctenophorus* Pulawski, 1971**

Tachysphex ctenophorus Pulawski, 1971: 101 (type locality: Ilektykol Lake, Kazakhstan).

Material examined: Khachmaz, Akhmedoba, 20.V.1999, 1 ♂ (KhA) [IZA]. General distribution: South of European Russia, Azerbaijan, Kazakhstan, Siberia (Transbaikalia). Remarks: This species occurs in lowland sandy habitats.

****Tachysphex ferrugineus* Pulawski, 1967**

Tachysphex ferrugineus Pulawski, 1967: 401 (type locality: Trabzon, Turkey).

Material examined: Khachmaz, 25.VI.2001, 1 ♂ (HA) [IZA]; Lerik, Gilidara, 2000 m, 20.VIII.[19]95, 1 ♂ (HA) [IZA]. General distribution: Turkey, European part of Russia (Krasnodarskiy kray), Georgia, Azerbaijan, Kazakhstan, Uzbekistan, Turkmenistan. Remarks: This species inhabits coastal zones with sand and mid-montane steppe landscapes. In the mountains, it reaches up to 2000 m a.s.l.

***Tachysphex fugax* (Radoszkowski, 1877)**

Tachytes fugax Radoszkowski, 1877: 30 (type locality: Samarkand, Uzbekistan); Pulawski, 1971: 182.

Material examined: Mingechevir, 12.VII.2013, 2 ♀♀ 1 ♂ (KhA) [IZA]. General distribution: Southern Europe, North Africa, South-West Asia, Azerbaijan, Turkmenistan, Tajikistan. Remarks: This species inhabits foothill steppe landscapes. Feeding on *Tamarix* spp.

***Tachysphex fulvitarsis* (A. Costa, 1867)**

Tachytes fulvitarsis A. Costa, 1867: 86 (type locality: Campania, Italy); Pulawski, 1971: 95.

Material examined: Nakhchivan AR, Ordubad, 11.VII.2012, 2 ♂♂ (KhA) [IZA]; Sheki, 15.V.1987, 1 ♂ (KhA) [IZA]. General distribution: Europe (excluding the northern parts), North Africa (Algeria), South-West and Central Asia, Russia (Yakutsk). Remarks: This species has been captured in low-mountainous steppe and low-montane forested landscapes.

***Tachysphex helveticus* Kohl, 1885**

Tachysphex helveticus Kohl, 1885: 374 (type locality: Switzerland); Pulawski, 1971: 176.

Material examined: Kusary, Avaran, 19.V.2005, 2 ♀♀, 1 ♂ (KhA) [IZA]. General distribution: Europe (except for the Far North), European part of Russia, Turkey, Azerbaijan, Kazakhstan, Uzbekistan, Tajikistan, Mongolia. Remarks: This species occurs in low-mountainous forested steppe landscapes.

****Tachysphex melas* Kohl, 1898**

Tachysphex melas Kohl, 1898: 100 (type locality: Irkut, Mongolia).

Material examined: Agdash, Turianchay St. Res., 5.X.[19]98, 3 ♀♀, 7 ♂♂ (Kh.A) [IZA]. General distribution: Syria, southern Russia (Sarepta), Azerbaijan, Kazakhstan, Uzbekistan, Turkmenistan, Siberia, Mongolia. Remarks: This species inhabits foothill xerophilic landscapes.

***Tachysphex nitidior* de Beaumont, 1940**

Tachysphex nitidior de Beaumont, 1940: 175 (type locality: Gibraltar); Atbaei et al., 2015: 25.

Material examined: Mingechevir, 10.V.2003, 1 ♀, 1 ♂ (KhA) [IZA]. General distribution: Central and Southern Europe, North Africa, Azerbaijan, South-West and Central Asia, Kazakhstan. Remarks: This species inhabits foothill semi-desert landscapes.

****Tachysphex nitidus* (Spinola, 1806)**

Astata nitida Spinola, 1806: 18 (type locality: Liguria, Italy).

Material examined: Nakhchivan AR, Sharur, 10.V.2003, 1 ♀, 1 ♂ (MM) [IZA]. General distribution: Europe (excluding the northern parts), North Africa, *Azerbaijan, South-West and Central Asia, Kazakhstan, Mongolia, China. Remarks: This species occurs in low-mountainous steppe landscapes.

***Tachysphex psammobius* (Kohl, 1880)**

Tachytes psammobia Kohl, 1880: 235 (type locality: Bolzano, Italy); Pulawski, 1971: 192.

Material examined: Kakhi, 17.VIII.1998, 1 ♀, 1 ♂ (KhA) [IZA]. General distribution: Europe, expect Northern, Turkey, Cyprus, Syria, Georgia, Azerbaijan, Russia (Irkutsk), Kazakhstan, Uzbekistan, Tajikistan, Turkmenistan. Remarks: This species inhabits low-mountainous forested landscapes. Feeding on *Tamarix* spp.

****Tachysphex pompiliformis* (Panzer, 1803)**

Larra pompiliformis Panzer, 1803: 13 (type locality: Germany).

Material examined: Yardymly, Avash, 16.VI.1996, 1 ♂ (HA) [IZA]; Belokany, 21.VI.2011, 1 ♀ (HA) [IZA]; Nakhchivan AR, Nakhchivan, 10.VI.2010, 1 ♀, 1 ♂ (MM) [IZA]. General distribution: Holarctic. Remarks: This species occurs in low-mountainous forested and steppe landscapes in open places. In the mountains, it reaches up to 1200 m a.s.l.

******Tachysphex stachi* **de Beaumont, 1936**

Tachysphex stachi de Beaumont, 1936: 618 (type locality: Caucasus).

Material examined: Belokany, 20.VI.2012, 2 ♂♂ (KhA) [IZA]. General distribution: Israel, Georgia, Azerbaijan, South-Eastern European part of Russia, Kazakhstan, Uzbekistan, Turkmenistan. Remarks: This species occurs in low-mountainous forested habitats.

******Tachysphex subdentatus* **F. Morawitz, 1893**

Tachysphex subdentatus Morawitz, 1893: 412 (type locality: Iskander-kul, Tajikistan).

Material examined: Lerik, Gilidara, 10.VIII.1978, 1 ♂ (KhA) [IZA]. General distribution: Greece, Turkey, Azerbaijan, Iran, Turkmenistan, Tajikistan, Kazakhstan. Remarks: This species inhabits mid-montane steppe landscapes. In the mountains, it reaches up to 1800 m a.s.l.

******Tachysphex tarsinus* **(Lepeletier de Saint-Fargeau, 1845)**

Tachytes tarsinus Lepeletier de Saint-Fargeau, 1845: 243 (type locality: Dauphinée [=Dauphine], France).

Material examined: Khachmaz, Uzunoba, 10.V.1995, 1 ♀, 1 ♂ (KhA) [IZA]. General distribution: Europe (except for the northern parts), North Africa, South-West Asia, Kazakhstan, China. Remarks: This species occurs on sand in lowland landscapes.

***Tachysphex brullii* Species Group**

******Tachysphex brullii* **(F. Smith, 1856)**

Tachytes bicolor Brullé, 1833: 373 (type locality: Koubeh Forest, Greece).

Tachytes brullii Smith, 1856: 296 (as *Brullii*, incorrect original capitalization). Substitute name for *Tachytes bicolor* Brullé, 1833.– As *Tachysphex brullii*: Bohart & Menke, 1976: 272.

Material examined: Salyan, Bendovan, 29.V.2000, 8 ♀♀, 29 ♂♂ (HA) [IZA]. General distribution: Southern and Central Europe, Turkey, Lebanon, Georgia, Azerbaijan, Turkmenistan. Remarks: This species inhabits costal zones with sand. Feeding on *Tamarix* spp.

***Tachysphex latifrons* Kohl, 1884**

Tachysphex latifrons Kohl, 1884: 373 (type locality: Brussa [=Bursa], Turkey); Pulawski, 1971: 216.

Material examined: Gandja, 20.V.1999, 1 ♀, 1 ♂ (KhA) [IZA]; Salyan, Bendovan, 29.V.2000, 1 ♀ (KhA) [IZA]. General distribution: North Africa (Libya), Greece, Turkey, Southern European part of Russia, Azerbaijan, Iran, Turkmenistan, Uzbekistan, Kazakhstan. Remarks: This species inhabits lowland semi-desert and foothill steppe landscapes. It prefers to settle in sandy habitats, visiting *Tamarix* flowers.

******Tachysphex obscuripennis* **(Schenck, 1857)**

Tachytes obscuripennis Schenck, 1857: 190, (type locality: Mombach, Germany).

Material examined: Kusar, Laza, 11.VIII.2003, 1♀, 1♂ (KhA) [IZA]. General distribution: Europe (except for the Far North), Turkey, Lebanon, Azerbaijan. Remarks: This species occurs in subalpine landscapes. In the mountains, it reaches up to 1900 m a.s.l.

***Tachysphex brevipennis* Species Group**

***Tachysphex brevipennis* Mercet, 1909**

Tachysphex brevipennis Mercet, 1909: 197 (type locality: El Escorial, Spain); Pulawski, 1971: 245 (as *Tachysphex rugosus*).

Material examined: Baku, Shuvelyan, 16.VI.2015, 1 ♂ (KhA) [IZA]. General distribution: Hungary, Bulgaria, Romania, Macedonia, Greece, Turkey, Syria, Israel, Azerbaijan, Russia (Crimea), Uzbekistan, Turkmenistan, Tajikistan. Remarks: This species occurs in sandy habitats in lowland semi-desert landscapes.

***Tachysphex plicosus* Species Group**

***Tachysphex mediterraneus* Kohl, 1883**

Tachysphex mediterraneus Kohl, 1883: 173 (type locality: Sicily, Italy); Pulawski, 1971: 258; Krombein & Pulawski, 1994: 43; Yildirim et al., 2016: 35.

Material examined: Ganja, Zazaly, 09.VI.2011, 2 ♀♀, 1 ♂ (KhA) [IZA]. General distribution: Southern Europe, North Africa, South-West and Central Asia, India, Sri Lanka. Remarks: This species inhabits foothill steppe landscapes.

***Tachysphex plicosus* A. Costa, 1867**

Tachytes plicosus A. Costa, 1867: 83 (type locality: Calabria, Italy); Pulawski, 1971: 260.

Material examined: Belokan, Katekh, 20.V.1987, 1 ♀, 1 ♂ (KhA) [IZA]; Zagatala, Perzivan, 21.V.1987, 1 ♀, 1 ♂ (KhA) [IZA]. General distribution: Southern Europe, North Africa, Cyprus, Turkey, Azerbaijan. Remarks: This species occurs in low-mountainous forested steppe landscapes.

***Tachysphex panzeri* species group**

***Tachysphex incertus* (Radoszkowski, 1877)**

Tachytes incerta Radoszkowski, 1877: 28 (type locality: Kyzil-Kum, Uzbekistan); Pulawski, 1971: 322.

Material examined: Alyat, seaside on Tamarix, 05.VI.1987, 1 ♀ (KhA) [IZA]; Lerik, Gosmolyan, 19.VIII.1995, 1 ♂ (HA) [IZA]; Lerik, Gilidara, 2000 m, 20.VIII.[19]95, 1 ♀ (HA) [IZA]; Sheki, 21.VII.1999, 1 ♀, 1 ♂ (KhA) [IZA]. General distribution: Southern Europe, Cyprus, North Africa (Morocco, Algeria), South-West and Central Asia. Remarks: This species inhabits lowland semi-desert, low-mountainous forested steppe and mid-montane steppe landscapes. Recorded from *Tamarix* spp. In the mountains, it reaches up to 2000 m a.s.l.

******Tachysphex mocsaryi* **Kohl, 1884**

Tachysphex mocsaryi Kohl, 1884: 367 (type locality: Hungary).

Material examined: Sharur, Akhura, 15.V.2012, 1 ♂ (MM) [IZA]; Shakhbuz, Kechili, 25.VI.2012, 1 ♀, 1♂ (MM) [IZA]. General distribution: Hungary, Bulgaria, Romania, Spain, Libya, *Azerbaijan, southern Russia, South-West and Central Asia. Remarks: This species occurs in mid-mountainous steppe landscapes up to 1800 m a.s.l.

***Tachysphex panzeri* (Vander Linden, 1829)**

Tachytes panzeri Vander Linden, 1829: 22 (type locality: Spain); Pulawski, 1967: 394; 1971: 270.

Material examined: Astara, Tangerud, 17.V.1985, 1

♂ (KhA) [IZA]; Lenkoran, Kergelen, 15.V.1985, 2 ♀♀, 1 ♂ (KhA) [IZA]. General distribution: Europe (except for the northern parts), North Africa, South-West Asia. Remarks: This species inhabits lowland subtropical landscapes.

***Tachysphex pulcher* Pulawski, 1967**

Tachysphex pulcher Pulawski, 1967: 394 (type locality: Akhcha-Kuyma near Nebit-Dag, Turkmenistan); Pulawski, 1971: 282.

Material examined: Baku, 11.VII.1979, 1 ♀ (KhA) [IZA]; Ordubad, Bilav, 16.V.2013, 1 ♀, 1 ♂ (MM) [IZA]. General distribution: South-West and Central Asia. Remarks: This species occurs in lowland semi-desert and mid-mountainous steppe landscapes on dry slopes. In the mountains, it reaches up to 1600 m a.s.l.

***Tachysphex julliani* Species Group**

***Tachysphex dignus* Kohl, 1889**

Tachysphex dignus Kohl in Kohl & Handlirsch, 1889: 278 (type locality: Nukhur in Kopet-Dagh, Turkmenistan); Pulawski, 1971: 360.

Material examined: Ordubad, Dasta, 02.V.2009, 1 ♂ (MM) [IZA]; Nakhchivan, Nehram, 10.V.2009, 1 ♀, 1 ♂ (MM) [IZA]. General distribution: Turkey, Cyprus, Syria, Israel, Azerbaijan, Iran, Turkmenistan, Tajikistan. Remarks: This species occurs in low mountainous semi-desert landscapes.

***Tachysphex erythropus* Species Group**

****Tachysphex costae* (de Stefani Perez, 1882)**

Tachytes costae de Stefani Perez, 1882: 42 (type locality: Sicily, Italy).

Material examined: Nakhchivan AR, Sirab, 12.V.2008, 1 ♀, 1 ♂ (MM) [IZA]. General distribution: Southern Europe, Cyprus, North Africa, Israel, Turkey, Azerbaijan, Iran, Central Asia. Remarks: This species inhabits low-mountainous semi-desert landscapes.

***Tachysphex erythropus* (Spinola, 1839)**

Lyrops erythropus Spinola, 1839: 479 (type locality: Egypt); Pulawski, 1971: 411; Krombein & Pulawski, 1994: 98.

Material examined: Shamkir, Shishtepe, 12.V.1979, 1 ♀ (KhA) [IZA]; Ganja, 11.VI.2005, 1 ♀, 1 ♂ (A. Mammadov) [IZA]. General distribution: Southern Europe, North Africa, Cyprus, South-West and Central Asia, India. Remarks: This species inhabits foothill steppe landscapes.

***Tachysphex sordidus* (Dahlbom, 1845)**

Tachytes sordida Dahlbom, 1845: 470 (type locality: Island of Rhodes, Greece); Pulawski, 1971: 419.

Material examined: Baku, Buzovny, 26.IV.1978, 1 ♂, 1 ♂ (KhA) [IZA]; Baku, Lokbatan, 16.V.2006, 1 ♂ (KhA) [IZA]. General distribution: Greek islands, Cyprus, Turkey, Israel, Azerbaijan, Iran, Central Asia. Remarks: In the Aphsheron Peninsula, this species has been recorded in lowland semi-desert landscapes.

***Tachysphex albocinctus* Species Group**

***Tachysphex laticauda* Gussakovskij, 1933**

Tachysphex laticauda Gussakovskij, 1933: 281 (type locality: Kerman, Iran); Pulawski, 1971: 434.

Material examined: Baku, Mardakan, 21.V.1998, 1 ♂ (E. Huseynov) [IZA]; Baku, Amirjan, 11.VI.2001, 1 ♂ (KhA) [IZA]. General distribution: South-West and Central Asia, Iran. Remarks: In the Aphsheron Peninsula, this species has been recorded in lowland semi-desert landscapes.

Discussion

In the present article, we summarise the entire information on the wasp genus *Tachysphex* from the territory of the Republic of Azerbaijan. Altogether, 29 species are recorded. They represent eight species groups. Data on the ecology and bionomics of 12 species recorded in Azerbaijan for the first time are also given.

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