

First Checklist of *Tachysphex* Kohl, 1883 (Hymenoptera: Crabronidae) of Tunisia with New Distributional Data

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ABSTRACT

This study is based on the material of the genus *Tachysphex* Kohl, 1883 (Crabronidae: Hymenoptera) collected from different localities of Tunisia between 2017 and 2019. In this study, a total of 38 species and subspecies are recorded. Among them, *Tachysphex mauretanus* Puławski, 1971 and *T. sericans gracilis* Puławski, 1971 are new records for Tunisian fauna. New provincial records are cited for the majority of newly collected species. Digital photographs for general view of newly collected species are provided. Distribution in Tunisia and in the world of identified taxa is given.

Keys words: Hymenoptera, Crabronidae, *Tachysphex*, checklist, new records, Tunisia.

INTRODUCTION

The genus *Tachysphex* Kohl, 1883 belongs to the family Crabronidae and to the tribe Larrini Latreille, 1810. The world fauna of this genus is presented by 453 species; thus, presenting approximately 34% and 9.36% of species of the tribe Larrini and of the subfamily Crabroninae respectively (Puławski, 2020). *Tachysphex* species are found all over the world. They are terricolous, digging their nests in the ground and the female supply its nests generally by prey of orthopteroids species (Bohart & Menke, 1976). Prey of Palearctic *Tachysphex* are members of the families Acrididae, Tettigoniidae and Mantidae and genera of *Oecanthus* Audinet-Serville, 1831 and *Ectobius* Stephens, 1835 (Puławski, 1971).

Systematic studies of the genus started with Kohl (1885) who studied Palearctic fauna by describing 23 species. Additional studies over the genus appeared later in time, especially that of de Beaumont (1936) who revised this genus in France by dividing it into groups of species to facilitate its study. The same author (1940, 1947a) studied in details the Egyptian fauna and his studies are considered as the first and the only one treating properly the fauna of a single Northern African country. However, Puławski in his review of the genus in Eastern and Western Palearctic region (1971) and in Africa and Arabia (2007) described new species from North Africa and cited several new records from North African countries. In this sense and with the exception of some records included in older labours such as these of Graeffe (1906) and of von Schulthess (1926) and in the recent studies Puławski (1971, 2007), the Tunisian fauna of *Tachysphex* looks like to be still poorly investigated and a focused over this area study lacks at present. This paper aims to establish a complete list of *Tachysphex* species in Tunisia as well as to contribute to the knowledge of this fauna in the country with original data.

MATERIAL AND METHODS

The checklist is established on records mentioned in different sources of literature and on materials newly collected using entomological nets in Tunisia during spring and summer between 2017 and 2019. Collecting localities with their geographical coordinates are presented in Table 1. For each taxon, current name species, distribution in Tunisia and in the world is presented. Species and subspecies valid names are followed by a reference to the original description, including the name under which it was originally described and the year and page of description. 'Tunisia (no specific locality)' is cited if the province is not mentioned.

Newly collected specimens were identified firstly by the first author using keys proposed in the literature mainly Puławski (1971, 2007) and then confirmed or re-identified by Dr. Jakub Straka (Charles University, Faculty of Science, Department of Zoology, Czech Republic) and Dr. Toshko Ljubomirov (Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences Bulgaria). Identified materials are deposited a part in the Collection Ben Khedher at the Laboratory of Entomology and Insect Ecology in Regional Research Centre for Horticulture and

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Organic Agriculture (CRRHAB) in Chott Meriem, Sousse, Tunisia and a part in Atatürk University Biodiversity Science Museum (ABBM), Erzurum, Turkey.

Table 1. Collection localities for Tachysphex Kohl, 1883 wasps in Tunisia during 2017-2019 years, with geographical coordinates.

Province	Locality	Latitude	Longitude	Climate
North east region				
Nabeul	Mida, Libna	36°42'27.5"N	10°55'34.3"E	Sub Humid-Semi Arid
North west region				
Beja	South Mjez Elbeeb	36°38'14.7"N	9°35'54.3"E	Semi Arid
	Slouguia	36°35'24.6"N	9°31'8.9"E	
	Testour, Chambou	36°32'47.5"N	9°24'26.0"E	
	Testour, Elghanima	36°33'08.8"N	9°23'35.2"E	
Le Kef	Western Le Kef, Semmena	36°6'11.6"N	8°43'21.3"E	Semi Arid
Siliana	Kisra	35°47'46.9"N	9°21'10.0"E	Semi Arid
East center region				
Sousse	Bouficha, Salloum	36°18'12.3"N	10°28'29.1"E	Semi Arid- Arid
	Kalaa Kbirra, Belaoum	35°54'14.0"N	10°23'37.5"E	
Mahdia	Ksour Essef, Alya	35°19'26.5"N	11°02'32.6"E	Semi Arid- Arid
	Ksour Essef, Salakta	35°22'11.4"N	11°01'53.1"E	
	Ksour Essef, Route Ksour Essef-Sidi Alouane	35°23'54.9"N	10°58'23.5"E	
	Sidi Alouane, Ghlalba	35°22'49.6"N	10°49'50.6"E	
	Sidi Alouane, Rmadhnia	35°21'23.9"N	10°51'16.3"E	
	Sidi Alouane, West Oued Beja, Ecole primaire Amel	35°20'39.8"N	10°50'25.6"E	
	Sidi Alouane, Saada	35°22' 0.2"N	10°49'52.1"E	
	Sidi Alouane, Saguiet Khadem	35°22'36.2"N	10°52'30.9"E	
	Sidi Alouane, Aouled Kloula	35°22'9.4"N	10°51'22.6"E	
	Sidi Alouane, Sidi Alouane 2	35°22'04.4"N	10°55'16.3"E	
	Sidi Alouane, Lemsanaa	35°19'44.5"N	10°54'51.3"E	
	Sidi Alouane, Oued Beja	35°20'34.0"N	10°53'19.9"E	
	Zelba	35°13'48.8"N	10°51'30.1"E	
	Rejich	35°26'35.8"N	11°00'51.4"E	
	Eljem, Achaba	35°18'53.3"N	10°47'31.1"E	
	Eljem, Aouled Lahmar	35°19'59.0"N	10°47'18.9"E	
	Elejem, Tielsa	35°20'44.2"N	10°47'20.6"E	
Eljem, Touahria	35°20'04.4"N	10°47'43.9"E		
Eljem, Zghabna	35°20'57.6"N	10°49'09.0"E		
Eljem, Ababsa	35°22'20.4"N	10°47'16.7"E		
Eljem, Athamnia	35°20'20.5"N	10°46'54.3"E		
Eljem, Zouazi	35°20'11.1"N	10°49'00.0"E		

Table 1. Continued.

Province	Locality	Latitude	Longitude	Climate
West center region				
Kairouan	Chbika, Aouled Zair	35°36'42.4"N	9°53'29.8"E	Semi Arid- Arid
	South Kairouan, Ragada	35°34'46.2"N	10°3'06.1"E	
	South Kairouan, Barouta	35°34'28.1"N	10°2'44.3"E	
Sidi Bouzid	East Sidi Bouzid, Elhachria	34°53'56.2"N	9°26'11.6"E	Arid
	West Sidi Bouzid, Zaafrja	35°01'39.8"N	9°17'18.3"E	
	Rgueb, Aouled Ayouni	34°49'14.5"N	9°51'7.7"E	
	Aouled Hafouz center	35°5'07.4"N	9°53'55.2"E	
Kasserine	Sbeitla, Athar, CFPA	35°13'18.7"N	9°05'26.8"E	Semi Arid- Arid
	Sbeitla, Athar, Oued Nakhil	35°14'41.6"N	9°05'40.5"E	
	Sbeitla, Athar, Route Fej Ettin	35°13'20.07"N	9°05'58.7"E	
South region				
Tozeur	Hamma Ejrid	33°59'52.9"N	8°9'57.9"E	Dry
	Temghza, Cascade 2	34°22'34.0"N	7°54'42.7"E	
	Dguech, Elmanachi	33°58'41.5"N	8°12'33.1"E	
	Nefta, Nefta oasis	33°52'39.1"N	7°52'34.9"E	
	Tozeurcenter, Tibebsa oasis	33°55'27.3"N	8°8'44.5"E	
Kebili	Janouara, RassElain	33°42'02.3"N	8°59'26.4"E	Dry
	South Kebili, Errahmat	33°39'01.8"N	8°58'27.4"E	
Tataouine	North Tataouine, Oued Tlelet	33°2'41.8"N	10°28'24.0"E	Dry

RESULTS

Family Crabronidae Latreille, 1802

Subfamily Crabroninae Latreille, 1802

Tribe Larrini Latreille, 1810

Genus *Tachysphex* Kohl, 1883

Tachysphex adjunctus Kohl, 1885

Tachysphex adjunctus Kohl, 1885: Verhandlungen der kaiserlich-königlichen Zoologisch-Botanischen Gesellschaft in Wien, 34: 362.

Distribution in Tunisia: Nabeul (Puławski, 1971).

General distribution: Algeria, France, Morocco, Portugal, Spain, Tunisia (Puławski, 2020).

Tachysphex agnus Puławski, 1971

Tachysphex agnus Puławski, 1971. Państwowe Wydawnictwo Naukowe. Wrocław: 152.

Distribution in Tunisia: Medenine (Puławski, 1971); Gabes, Gafsa, Jendouba, Kairouan, Kasserine, Medenine, Tataouine, Tozeur (Puławski, 2007).

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General distribution: Algeria, Egypt, Israel, Morocco, Saudi Arabia, Tunisia, Turkey, Yemen (Gadallah, 2020).

***Tachysphex albocinctus* (Lucas, 1849) (Fig. 1A)**

Tachytes albocincta Lucas, 1849. Exploration scientifique de l'Algérie pendant les années 1840, 1841 et 1842 publiée par ordre du gouvernement et avec le concours d'une commission académique, Sciences physiques, Zoologie, 3. Histoire naturelle des animaux articulés, 3. Insectes: 250.

Material examined. Kairouan: South Kairouan, Barouta, 95 m, 27.8.2018, 1 ♀; Mahdia: Eljem, Athamnia, 70 m, 22.7.2019, 1 ♀, Tlelsa, 70 m, 13.8.2019, 2 ♂♂, Ksour Essef, Alya, 1 m, 03.8.2018, 2 ♂♂, Salakta, 1 m, 03.8.2018, 1 ♂, Sidi Alouane, Saada, 74 m, 18.6.2019, 1 ♂, 1 ♀, Zelba, 49 m, 17.6.2019, 2 ♂♂; Tataouine: North Tataouine, Oued Tlelet, 170 m, 12.5.2018, 2 ♀♀.

Distribution in Tunisia: Gabes, Jendouba, Kebili, Tozeur (Puławski, 2007).

General distribution: Africa to Southwestern Europe, western and central Asia to India, United Arab Emirates, Yemen (Gadallah 2020).

***Tachysphex atlanteus* de Beaumont, 1955**

Tachysphex atlanteus de Beaumont, 1955: Bulletin de la Société des Sciences Naturelles et Physiques du Maroc, 34: 177.

Distribution in Tunisia: Kasserine (Puławski, 2007).

General distribution: Morocco, Tunisia (Puławski, 2007).

***Tachysphex brevipecten* de Beaumont, 1955 (Fig. 1B)**

Tachysphex brevipecten de Beaumont, 1955. Bulletin de la Société des Sciences Naturelles et Physiques du Maroc, 34: 179.

Material examined. Kasserine: Sbeitla, Athar, Route Fej Ettin, 545 m, 05.9.2018, 1 ♂; Tozeur: Nefta, Nefta oasis, 56 m, 28.6.2018, 1 ♂.

Distribution in Tunisia: Tozeur (Puławski, 1971); Sfax, Tozeur (Puławski, 2007).

General distribution: North Africa to Jordan, United Arab Emirates (Gadallah, 2020).

***Tachysphex brevipennis* Mercet, 1909 (Fig. 1C)**

Tachysphex brevipennis Mercet, 1909: Boletín de la Real Sociedad Española de Historia Natural, 9: 197.

Material examined. Mahdia: Ksour Essef, Route Ksour Essef - Sidi Alouane, 33 m, 01.7.2019, 1 ♀, Sidi Alouane, Ghlalba, 09.9.2019, 1 ♀; Tozeur: Tozeur center, Tibebsa oasis, 35 m, 27.6.2018, 1 ♀.

Distribution in Tunisia: Sfax (de Beaumont, 1947a); Gabes, Gafsa, Kasserine, Kebili, Medenine, Tozeur (Puławski, 2007).

General distribution: Africa, Arabian Peninsula, Iberian Peninsula, Southwestern Europe north to Hungary and Romania, Azerbaijan and Turkey to Israel, Transcaspia, Pakistan and India (Gadallah, 2020).

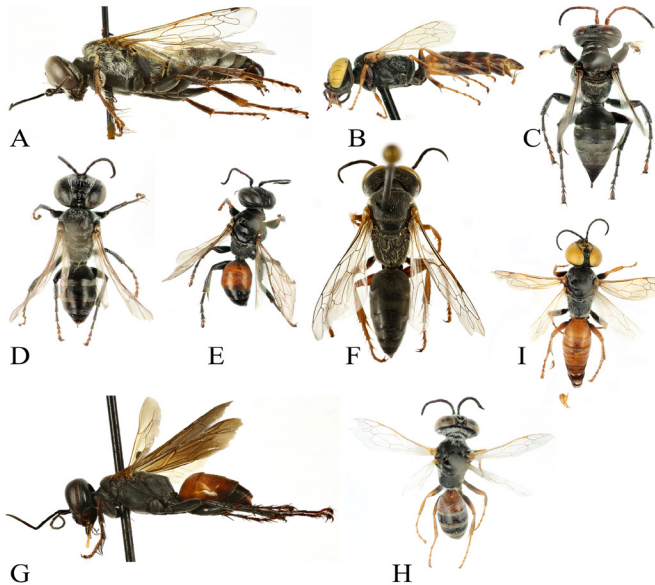


Fig. 1. General view of: A- *Tachysphex albocinctus* (♀); B- *Tachysphex brevipecten* (♂); C- *Tachysphex brevipennis* (♀); D- *Tachysphex consocius* (♀); E- *Tachysphex denisi* (♀); F- *Tachysphex erythropus* (♀); G- *Tachysphex gracilicornis* (♀); H- *Tachysphex gujaraticus* (♂); I- *Tachysphex incertus* (♂).

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

Tachytes Brullii F. Smith, 1856. Catalogue of hymenopterous insects in the collection of the British Museum. Part IV. Sphegidae, Larridae, and Crabronidae: 296.

Distribution in Tunisia: Kairouan (von Schulthess, 1926).

General distribution: Albania, Austria, Azerbaijan, Bulgaria, Croatia, France, Greece, Hungary, Iran, Italy, Portugal, Romania, Spain, Russia, Switzerland, Tunisia, Turkey, Ukraine, Yugoslavia (Puławski, 2020).

Remark: This species was identified from Tunisia by von Schulthess (1926) as the synonym *Tachysphex rufipes* (von Aichinger, 1870).

***Tachysphex consocius* Kohl, 1892 (Fig. 1D)**

Tachysphex consocius Kohl, 1892: Annalen des kaiserlich-königlichen naturhistorischen Hofmuseums. Wien, 7: 217.

Material examined. Le Kef: Western Le Kef, Semmena, 555 m, 25.4.2018, 1 ♂; Kebili: South Kebili, Errahmat, 30 m, 17.5.2018, 1 ♀, 18.5.2018, 1 ♂.

Distribution in Tunisia: Tozeur (Puławski, 1971, 2007).

General distribution: Africa, Arabian Peninsula (Oman, Saudi Arabia, United Arab Emirates), Southern Europe to Central Asia, India, Sri Lanka (Gadallah, 2020).

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

Tachytes costae De Stefani Perez, 1882: Il Naturalista Siciliano, 1: 42.

Distribution in Tunisia: Nabeul (Puławski, 2007).

General distribution: Mediterranean basin, north to southern France, Romania and Hungary, East to Kazakhstan, Transcaspian region, Western Pakistan, China, South to South Africa, Arabian Peninsula (Oman, United Arab Emirates, Yemen) (Gadallah, 2020).

***Tachysphex denisi* de Beaumont, 1936 (Fig. 1E)**

Tachysphex denisi de Beaumont, 1936: Annales de la Société Entomologique de France, 105: 197.

Material examined. Siliana: Kisra, 809 m, 27.4.2018, 2 ♀♀.

Distribution in Tunisia: Nabeul (Puławski, 1971).

General distribution: Algeria, Canary Islands, Egypt, France, Libya, Morocco, Portugal, Spain (Puławski, 2020).

***Tachysphex detritus* Arnold, 1924**

Tachysphex schönlandi var. *detritus* Arnold, 1924: Annals of the Transvaal Museum, 11: 69.

Distribution in Tunisia: Medenine (Puławski, 1971, 2007).

General distribution: Arabian Peninsula (Bahrain, United Arab Emirates), South Africa to North Africa, Israel, Tajikistan, Turkmenistan (Gadallah, 2020).

Remark: This species was identified by Puławski (1971) from Tunisia as the synonym *Tachysphex maidli* de Beaumont, 1940.

***Tachysphex erythropus* (Spinola, 1839) (Fig. 1F)**

Lyrops erythropus Spinola, 1839. Annales de la Société Entomologique de France, 7: 479.

Material examined. Kasserine: Sbeitla, Athar, CFPA, 560 m, 03.9.2018, 1 ♂; Kebili: Janouara, Rass Elain, 56 m, 16.5.2018, 1 ♀; Mahdia: Eljem, Athamnia, 70 m, 22.7.2019, 1 ♂, Ksour Essef, Alya, 1 m, 03.8.2018, 3 ♂♂, Salakta, 1 m, 03.8.2018, 1 ♂, Rejich, 3 m, 18.9.2018, 1 ♂, Sidi Alouane, Lemsanaa, 41 m, 01.6.2018, 1 ♂, Saada, 74 m, 18.6.2019, 2 ♂♂; Nabeul: Mida, Libna, 20 m, 05.9.2017, 1 ♂; Sidi Bouzid: Rgueb, Aouled Ayouni, 142 m, 18.7.2017, 1 ♂, West Sidi Bouzid, Zaaflia, 394 m, 25.7.2018, 3 ♂♂.

Distribution in Tunisia: Kairouan (von Schulthess, 1926); Jendouba, Kebili (Puławski, 2007).

General distribution: Africa, Arabian Peninsula (Oman, Saudi Arabia, United Arab Emirates), Southern Europe to Central Asia, India, China (Gadallah, 2020).

Remark: This species was identified by von Schulthess (1926) from Tunisia as the synonym *Tachysphex heliopolites* Morice, 1897.

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

Tachytes fugax Radoszkowski, 1877. Izvestiya Imperatorskobo Obshestva Lyubiteley Estestvoznaniya, Antropologii i Étnografii pri Imperatorskom Moskovskom Universitete, 26: 30.

Distribution in Tunisia: Bizerte, Kasserine, Kebili, Sfax, Tozeur (Puławski, 2007).

General distribution: Africa, Southern Europe, Middle East and southern Caucasus, Kazakhstan, Tajikistan, Turkmenistan, Uzbekistan (Puławski, 2007).

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

Tachytes fulvitaris A. Costa, 1867. Annuario del Museo Zoologico della R. Università di Napoli, 4: 86.

Distribution in Tunisia: Jendouba (Puławski, 2007).

General distribution: Africa, Azerbaijan, Europe, Kazakhstan, Middle East, Pakistan, Russia, Transcaspiya (Puławski, 2020).

***Tachysphex gracilicornis* Mercet, 1909 (Fig. 1G)**

Tachysphex gracilicornis Mercet, 1909. Boletín de la Real Sociedad Española de Historia Natural, 9: 194.

Material examined. Beja: Slouguia, 60 m, 17.8.2018, 1 ♀; Kairouan: Chbika, Aouled Zair, 136 m, 29.8.2018, 2 ♀♀, South Kairouan, Ragada, 92 m, 28.8.2018, 1 ♂; Kasserine: Sbeitla, Athar, Oued Nakhil, 562 m, 04.9.2018, 1 ♂, 1 ♀, Route Fej Ettin, 545 m, 05.9.2018, 1 ♀; Mahdia: Eljem, Tlelsa, 70 m, 13.8.2019, 1 ♂, 1 ♀, Ksour Essef, Alya, 1 m, 03.8.2018, 2 ♀♀, Sidi Alouane, Sidi Alouane 2, 69 m, 09.8.2018, 1 ♂, 2 ♀♀, Zelba, 49 m, 11.8.2018, 1 ♂; Sidi Bouzid: East Sidi Bouzid, Elhachria, 326 m, 24.7.2018, 3 ♀♀; Tozeur: Hamma Ejrid, 52 m, 27.6.2018, 1 ♀.

Distribution in Tunisia: Gafsa (von Schulthess, 1926); Kairouan (Puławski, 1971); Bizerte, Gabes, Jendouba, Kairouan, Medenine, Tataouine, Tozeur, Zaghuan (Puławski, 2007).

General distribution: Morocco to Mediterranean coast of Egypt and Sinai, south to Mauritania (Puławski, 2007).

Remark: This species was identified by von Schulthess (1926) from Tunisia as the synonym *Tachysphex eduardi* Morice in E. Saunders, 1910.

***Tachysphex gracilitarsis* Morice, 1910**

Tachysphex gracilitarsis Morice in E. Saunders, 1910. The Transactions of the Entomological Society of London, 1910: 527.

Distribution in Tunisia: Kairouan, Sfax (von Schulthess, 1926).

General distribution: Algeria, Libya, Morocco, Spain, Tunisia (Puławski, 2020).

***Tachysphex graecus* Kohl, 1883**

Tachysphex graeca Kohl, 1883. Deutsche Entomologische Zeitschrift, 27: 174.

Distribution in Tunisia: Kairouan (von Schulthess, 1926).

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General distribution: Azerbaijan, Bulgaria, Greece, Iraq, Israel, Lebanon, Tunisia, Turkey, Yugoslavia (Puławski, 2020).

***Tachysphex grandissimus* Gussakovskij, 1933**

Tachysphex grandissimus Gussakovskij, 1933. Travaux de l'Institut Zoologique de l'Académie des Sciences de l'URSS, 1: 382.

Distribution in Tunisia: Kebili, Tozeur (Puławski, 2007).

General distribution: Arabian Peninsula (Kuwait, Saudi Arabia, United Arab Emirates), Sahara from Morocco to Egypt in the North, and from Mali to Chad in the south, India, Iran, Israel, Pakistan, Tajikistan, Turkmenistan (Gadallah, 2020).

***Tachysphex gujaraticus* Nurse, 1909 (Fig. 1H)**

Tachysphex gujaraticus Nurse, 1909. The Journal of the Bombay Natural History Society, 19: 516.

Material examined. Tozeur: Nefta, Nefta oasis, 56 m, 28.6.2018, 1 ♂.

Distribution in Tunisia: Kebili (Puławski, 2007).

General distribution: Arabian Peninsula (Oman, Saudi Arabia, United Arab Emirates, Yemen), North Africa south to Mali, Nigeria and Sudan, India, Israel, Sri Lanka, Tajikistan, Turkmenistan (Gadallah, 2020), Iran (Fallahzadeh et al, 2018).

***Tachysphex horus* de Beaumont, 1940**

Tachysphex horus de Beaumont, 1940. Bulletin de la Société Fouad I^{er} d'Entomologie, 24: 168.

Distribution in Tunisia: Tataouine (Puławski, 2007).

General distribution: Arabian Peninsula (Oman, Yemen, Saudi Arabia), Burkina Faso, Egypt, Israel, Tunisia (Gadallah, 2020).

***Tachysphex incertus* (Radoszkowski, 1877) (Fig. 1I)**

Tachytes incerta Radoszkowski, 1877. Izvestiya Imperatorskobo Obshchestva Lyubiteley Estestvoznaniya, Antropologii i Étnografii pri Imperatorskom Moskovskom Universitete, 26: 28.

Material examined. Beja: Mjez Elbeb, South Mjez Elbeb, 53 m, 17.8.2018, 1 ♂, Testour, Chambou, 81 m, 16.8.2018, 1 ♂.

Distribution in Tunisia: Sfax, Tozeur (von Schulthess, 1926); Ben Arous (de Beaumont, 1947b); Jendouba, Tozeur (Puławski, 2007).

General distribution: Arabian Peninsula (Oman, United Arab Emirates, Saudi Arabia), Europe north to southern France, northern Italy, Hungary, Slovakia, Ukraine, Russia, Africa south to southern Egypt to Mali, Asia north to Turkey, Kazakhstan, east to Pakistan (Gadallah, 2020).

Remark: This species was identified by von Schulthess (1926) and de Beaumont (1947b) from Tunisia as the synonym *Tachysphex pygidialis* Kohl, 1883.

***Tachysphex julliani* Kohl, 1883 (Fig. 2A)**

Tachysphex julliani Kohl, 1883. Deutsche Entomologische Zeitschrift, 27: 177.

Material examined. Tozeur: Temeghza, Cascade 2, 247 m, 27.6.2018, 1 ♂.

Distribution in Tunisia: Jendouba, Monastir, Sfax, Tozeur (Puławski, 2007).

General distribution: Algeria, Arabian Peninsula (Oman, Saudi Arabia, United Arab Emirates, Yemen), Bulgaria, Cyprus, Egypt, France, Greece, Iran, Israel, Italy, Kazakhstan, Lebanon, Libya, Morocco, Pakistan, Portugal, Spain, Tajikistan, Tunisia, Turkey, Turkmenistan, Ukraine, Uzbekistan (Gadallah, 2020).

***Tachysphex mauretanus* Puławski, 1971 (Fig. 2B)**

Tachysphex mauretanus Puławski, 1971. Państwowe Wydawnictwo Naukowe, Wrocław: 366.

Material examined. Mahdia: Sidi Alouane, Lemsanaa, 41 m, 26.5.2018, 1 ♀.

General distribution: Algeria, Morocco (Puławski, 2007).

Remark: This species is new for Tunisian fauna.

***Tachysphex mediterraneus* Kohl, 1883**

Tachysphex mediterranea Kohl, 1883. Deutsche Entomologische Zeitschrift, 27: 173.

Distribution in Tunisia: Jendouba (Puławski, 2007).

General distribution: Europe north to southern France, Hungary and Rostov area in Russia, Africa south to northern South Africa, Israel, Turkey, India, Iran, Azerbaijan, Kazakhstan, Sri Lanka, Tajikistan, Turkmenistan, Uzbekistan (Puławski, 2007).

***Tachysphex mocsaryi* Kohl, 1884**

Tachysphex mocsaryi Kohl, 1884. Verhandlungen der kaiserlich-königlichen zoologisch-botanischen Gesellschaft in Wien, 33: 367.

Distribution in Tunisia: Tunisia (no specific locality) (de Beaumont, 1947b).

General distribution: West Africa, Mediterranean area to southern Central Asia (Gadallah, 2020).

Remark: This species was cited by de Beaumont (1947b) from Tunisia as the synonym *Tachysphex mocsaryi maroccanus* de Beaumont, 1947.

***Tachysphex mycerinus* de Beaumont, 1940 (Figs. 2C-D)**

Tachysphex mycerinus de Beaumont, 1940. Bulletin de la Société Fouad I^{er} d'Entomologie, 24: 166.

Material examined. Kairouan: Chbika, Aouled Zair, 136 m, 29.8.2018, 1 ♀, South Kairouan, Ragada, 92 m, 28.8.2018, 1 ♂.

Distribution in Tunisia: Tozeur (de Beaumont, 1947a); Tataouine (Puławski, 2007).

General distribution: Morocco, to Egypt, south to Mali and Niger, Israel, Jordan (Puławski, 2007), Arabian Peninsula (Saudi Arabia, United Arab Emirates) (Gadallah, 2020)

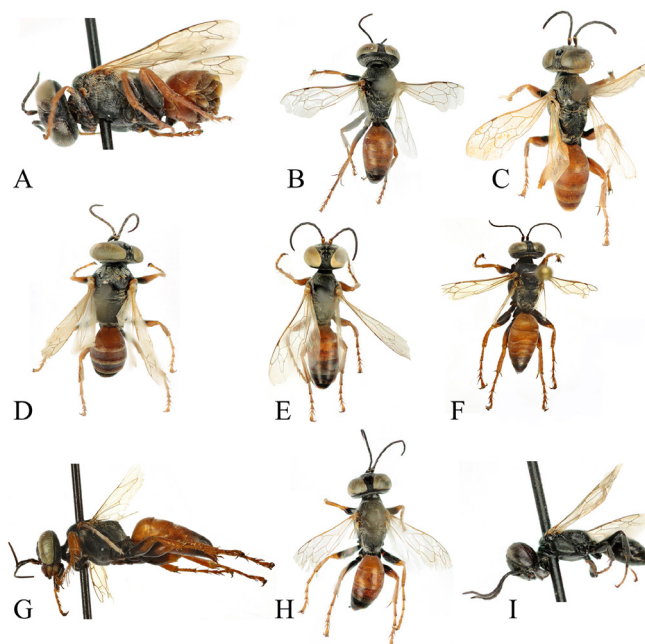


Fig. 2. General view of: A- *Tachysphex julliani* (♂); B- *Tachysphex mauretanus* (♀); C- *Tachysphex mycerinus* (♀); D- *Tachysphex mycerinus* (♂); E- *Tachysphex palopterus* (♀); F,G- *Tachysphex panzeri* (♀); H- *Tachysphex sericans gracilis* (♀); I- *Tachysphex unicolor* (♂).

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

Tachysphex nitidior de Beaumont, 1940. Bulletin de la Société Fouad 1^{er} d'Entomologie, 24: 175.

Distribution in Tunisia: Bizerte, Gabes, Jendouba (Puławski, 2007).

General distribution: Mediterranean area to Central Asia and Mongolia, India, Korea, Senegal, United Arab Emirates (Gadallah, 2020).

***Tachysphex nitidus* (Spinola, 1805)**

Astata nitida Spinola, 1805. Faunnae [sic] Ligusticae fragmenta. Decas prima. Genuae, Typis Petri Cajetani Api: 17.

Distribution in Tunisia: Gafsa, Kairouan, Kasserine, Sfax, Tunis (von Schulthess, 1926); Nabeul, Tunis (Puławski, 1971); Gabes, Medenine, Tataouine, Tozeur (Puławski, 2007).

General distribution: Arabian Peninsula (Kuwait, Oman, United Arab Emirates, Saudi Arabia), Canary Islands, Europe, Israel, Kazakhstan, North Africa, Syria, Turkmenistan, Uzbekistan (Gadallah, 2020).

***Tachysphex notogoniaeformis* Nadig, 1933**

Tachysphex notogoniaeformis Nadig, 1933. Jahresbericht der Naturforschenden Gesellschaft Graubündens, 71: 80.

Distribution in Tunisia: Gafsa (de Beaumont, 1947b)

General distribution: Morocco to Libya (Puławski, 2007).

***Tachysphex palopterus* (Dahlbom, 1845)** (Fig. 2E)

Tachytes palopterus Dahlbom, 1845. Hymenoptera Europaea praecipue borealia; formis typicis nonnullis Specierum Generumve Exoticorum aut Extraneorum propter nexum systematicus associatis; per Familias, Genera, Species et Varietates disposita atque descripta. Tomus: Sphecx in sensu Linneano. Fascicle 3: 470.

Material examined. Kasserine: Sbeitla, Athar, CFP, 560 m, 03.9.2018, 1 ♀; Kebili: South Kebili, Errahmat, 30 m, 17.5.2018, 1 ♀; Mahdia: Rejich, 3 m, 18.9.2018, 1 ♀; Sidi Bouzid: Aouled Hafouz center, 207 m, 26.7.2018, 1 ♀; Tozeur: Hamma Ejrid, 52 m, 27.6.2018, 3 ♂♂.

Distribution in Tunisia: Tunisia (no specific locality) (de Beaumont, 1940, 1947a).

General distribution: Arabian Peninsula (Oman, Saudi Arabia, United Arab Emirates, Yemen), North Africa, to Gambia, Israel, Niger, Sudan (Gadallah, 2020).

***Tachysphex panzeri* (Vander Linden, 1829)** (Figs 2F-G)

Tachytes panzeri Vander Linden, 1829. Nouvelles Mémoires de l'Académie Royale des Sciences et Belles Lettres de Bruxelles, 5: 22.

Material examined. Beja: Mjez Elbeb, South Mjez Elbeb, 53 m, 17.8.2018, 3 ♂♂, Slouguia, 60 m, 17.8.2018, 2 ♂♂, Testour, Chambou, 81 m, 16.8.2018, 2 ♂♂, 3 ♀♀, Elghanima, 84 m, 16.8.2018, 1 ♂; Kairouan: Chbika, Aouled Zair, 136 m, 29.8.2018, 1 ♂, 3 ♀♀; South Kairouan, Barouta, 95 m, 27.8.2018, 1 ♀, Ragada, 92 m, 28.8.2018, 1 ♂, 3 ♀♀; Kasserine: Sbeitla, Athar, CFP, 560 m, 03.9.2018, 2 ♂♂, 1 ♀, Route Fej Ettin, 545 m, 05.9.2018, 4 ♂♂, 5 ♀♀, Oued Nakhil, 562 m, 04.9.2018, 1 ♀; Kebili: South Kebili, Errahmat, 30 m, 17.5.2018, 1 ♀, 18.5.2018, 1 ♂; Mahdia: Eljem, Ababsa, 70 m, 14.8.2019, 4 ♂♂, 2 ♀♀, Achaba, 101 m, 02.7.2019, 4 ♂♂, Aouled Lahmar, 99 m, 18.6.2019, 1 ♂, 27.8.2019, 5 ♂♂, 2 ♀♀, Athamnia, 70 m, 22.7.2019, 5 ♀♀, 28.8.2019, 5 ♂♂, 2 ♀♀, Tlelsa, 70 m, 13.8.2019, 4 ♂♂, 6 ♀♀, Touahria, 74 m, 22.7.2019, 3 ♂♂, 4 ♀♀, 26.8.2019, 11 ♂♂, 1 ♀, Zghabna, 74 m, 12.8.2019, 5 ♂♂, 5 ♀♀, Zouazi, 74 m, 16.6.2019, 5 ♂♂, 5 ♀♀, Ksour Essef, Alya, 1 m, 03.8.2018, 1 ♂, Route Ksour Essef - Sidi Alouane, 33 m, 01.7.2019, 4 ♂♂, 3 ♀♀, Rejich, 3 m, 18.9.2018, 10 ♂♂, 7 ♀♀, Sidi Alouane, Ghlalba, 48 m, 19.6.2019, 2 ♂♂, 2 ♀♀, 09.9.2019, 2 ♂♂, Rmadhnia, 74 m, 03.9.2019, 4 ♂♂, 2 ♀♀, West Oued Beja, Ecole primaire Amel, 74 m, 22.6.2019, 6 ♂♂, 5 ♀♀, 10.9.2019, 3 ♂♂, 1 ♀, Saada, 74 m, 18.6.2019, 7 ♂♂, 3 ♀♀, 04.9.2019, 2 ♂♂, Saguiet Khadem, 53 m, 29.6.2019, 4 ♂♂, 2 ♀♀, 24.7.2019, 7 ♂♂, 1 ♀, 02.9.2019, 1 ♂, 1 ♀, Sidi Alouane 2, 69 m, 09.8.2018, 2 ♂♂, Oued Beja, 75 m, 21.5.2017, 1 ♂, 1 ♀, Zelba, 49 m, 11.8.2018, 1 ♂, 17.6.2019, 8 ♂♂, 4 ♀♀, 03.7.2019, 5 ♂♂, 2 ♀♀, 23.7.2019, 11 ♂♂, 4 ♀♀; Sidi Bouzid: West Sidi Bouzid, Zaafrina, 394 m, 25.7.2018, 1 ♂, East Sidi Bouzid, Elhachria, 326 m, 24.7.2018, 1 ♀; Siliana: Kusra, 809 m, 27.4.2018, 2 ♀♀; Sousse: Bouficha, Salloum, 5 m, 11.9.2017, 1 ♀, Kalaa Kbira, Belaoum, 45 m, 29.7.2017, 1 ♂, 1 ♀; Tataouine: North Tataouine, Oued Tlelet, 170 m, 12.5.2018, 1 ♀; Tozeur: Dguech, Elmanachi, 63 m, 29.6.2018, 2 ♂♂, Hamma Ejrid, 52 m, 27.6.2018, 3 ♀♀, Nefta, Nefta oasis, 56 m, 28.6.2018, 1 ♀, Temeghza, Cascade 2, 247 m, 27.6.2018, 2 ♀♀.

Distribution in Tunisia: Tunis (Graeffe, 1906); Kairouan, Monastir, Tozeur, Tunis (von Schulthess, 1926); Tozeur (Puławski, 1971); Gabes, Gafsa, Jendouba, Kasserine, Kebili, Medenine, Monastir, Nabeul, Sfax, Sousse, Tozeur (Puławski, 2007).

General distribution: Albania, Algeria, Armenia, Austria, Belgium, Botswana, Bulgaria, Burkina Faso, Canary Island, Chad, China, Croatia, Cyprus, Czech Republic, Egypt, Ethiopia, France, Gambia, Germany, Greece, Hungary, India, Iran,

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Israel, Italy, Kazakhstan, Latvia, Libya, Lithuania, Mali, Malta, Mauritania, Mongolia, Morocco, Netherlands, Niger, Pakistan, Poland, Portugal, Romania, Russia, Senegal, Slovakia, Spain, Sri Lanka, Sudan, Tajikistan, Tunisia, Turkey, Turkmenistan, Ukraine, Uzbekistan, former Yugoslavia, Arabian Peninsula (Bahrain, Oman, Qatar, Saudi Arabia, United Arab Emirates, Yemen) (Gadallah, 2020).

Remark: This species was identified by von Schulthess (1926) and Puławski (1971) from Tunisia as the synonym *Tachysphex panzeri oraniensis* (Lepelletier de Saint-Fargeau, 1845).

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

Tachytes psammobius Kohl, 1880. Zeitschrift des Ferdinandeums für Tirol und Vorarlberg, 3: 235.

Distribution in Tunisia: Tunis (von Schulthess, 1926).

General distribution: Azerbaijan, Canada, Europe, Iran, Kazakhstan, Russia, Syria, Tajikistan, Turkey, Turkmenistan, Uzbekistan (Puławski, 2020).

***Tachysphex pseudofasciatus* Puławski, 2007**

Tachysphex pseudofasciatus Puławski, 2007. Proceedings of the California Academy of Sciences (Fourth Series) 58, Supplement 1: 506.

Distribution in Tunisia: Tozeur (Puławski, 2007).

General distribution: Algeria, Egypt, Israel, Tunisia (Puławski, 2007).

***Tachysphex schmiedeknechti* Kohl, 1883**

Tachysphex schmiedeknechti Kohl, 1883. Deutsche Entomologische Zeitschrift, 27: 170.

Distribution in Tunisia: Kebili, Tozeur (Puławski, 2007).

General distribution: Arabian Peninsula (Oman, Saudi Arabia, United Arab Emirates, Yemen), Africa south to Ghana and Kenya, Cyprus, Greece, Iran to Central Asia, southern Spain, Syria, Turkey, India (Gadallah, 2020).

***Tachysphex sericans gracilis* Puławski, 1971 (Fig. 2H)**

Tachysphex sericans gracilis Puławski, 1971. Państwowe Wydawnictwo Naukowe, Wrocław: 326.

Material examined. Kebili: South Kebili, Errahmat, 30 m, 17.5.2018, 2 ♂♂, 1 ♀.

Remark: This subspecies is new for Tunisian fauna.

General distribution: Algeria, Egypt (Puławski, 2020).

***Tachysphex speciosissimus* Morice, 1897**

Tachysphex speciosissimus Morice, 1897. The Transactions of the Entomological Society of London, 1897: 309.

Distribution in Tunisia: Gabes (Puławski, 2007).

General distribution: North Africa, Israel, Syria, Iran, Pakistan (Puławski, 2007).

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

Tachytes tarsinus Lepeletier de Saint-Fargeau, 1845. Histoire naturelle des Insectes. Hyménoptères. Tome Troisième: 243.

Distribution in Tunisia: Tozeur (Puławski, 2007).

General distribution: Algeria, Austria, Belarus, Bulgaria, China, Croatia, Czech Republic, Egypt, France, Germany, Greece, Hungary, Iran, Israel, Italy, Kazakhstan, Lebanon, Libya, Mauritania, Morocco, Poland, Portugal, Russia, Slovakia, Slovenia, Spain, Switzerland, Tajikistan, Tunisia, Turkey, Ukraine, Arabian Peninsula (Oman, Saudi Arabia, United Arab Emirates) (Gadallah, 2020).

***Tachysphex unicolor* (Panzer, 1809) (Fig. 2I)**

LARRA unicolor Panzer, 1809. Faunae Insectorum Germanicae initia oder Deutschlands Insecten. Hundert und sechsten Hefts: 16.

Material examined. Mahdia: Sidi Alouane, Aouled Kloula, 64 m, 06.4.2018, 1 ♂.

General distribution: Afghanistan, China, Europe, Kazakhstan, North Africa, Lebanon, Mongolia, Palestine, Russia, Turkey, Turkmenistan (Puławski, 2020).

DISCUSSION

In this checklist 38 species and subspecies of the genus *Tachysphex* are presented in Tunisia. Because of its complexity and the problematic that it poses in systematical studies and to facilitate its study, the genus *Tachysphex* is divided into species groups (de Beaumont, 1936; Puławski, 1971, 2007). According to Puławski (2007), there are 18 *Tachysphex* species groups. Taxa present in this study belong to 11 species groups (Table 2). *T. panzeri* and *T. pompiliformis* species groups are the most diversified with 11 and 12 taxa respectively.

T. mauretanus Puławski, 1971 and *T. sericans gracilis* Puławski, 1971 are newly recorded from Tunisia. Geographically, these two taxa are distributed in Algeria and Morocco for the first species and in Algeria and Egypt for the second (Puławski, 2020). Therefore, Tunisia is added as a third distribution area for these two taxa.

According to de Beaumont (1940, 1947a) *T. palopterus* (Dahlbom, 1845) was recorded in Tunisia but without specific locality. With this study, the presence of this species is confirmed with six new provincial records (Kasserine, Kebili, Mahdia, Sidi Bouzid and Tozeur provinces). While, *T. mocsaryi* Kohl, 1884 was cited in Tunisia by de Beaumont (1947b) under the synonym *T. mocsaryi maroccanus* but without a specific locality; further study is so needed to confirm its presence in Tunisian territory.

The fauna of Tozeur province located in southern Tunisia is the most diversified with 17 records followed by Kebili with 11, Kairouan and Jendouba with 10 records (Fig.3). In other provinces, records vary between one and nine records with three provinces (Mannouba, Ariana, Ben Arous) are without records.

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Number of species and subspecies presented in this checklist estimated by 38 species can be considered relatively low compared with that of other countries in North Africa such as the Egyptian fauna of *Tachysphex* estimated by 56 species (Roche, 2007). In addition to that, the absence or the reduced number of records in provinces suggests to conduct other entomological surveys to contribute better to the knowledge and evaluate this fauna in Tunisia. Discover of new country and provincial records and new species for the science is highly possible.

Table 2. Distribution of species and subspecies in species groups.

Species group	Species and subspecies
<i>Tachysphex albocinctus</i> group	<i>T. albocinctus</i>
<i>Tachysphex bicolor</i> group	<i>T. adjunctus</i> , <i>T. denisi</i> , <i>T. graecus</i>
<i>Tachysphex brevipennis</i> group	<i>T. brevipennis</i>
<i>Tachysphex brullii</i> group	<i>T. brullii</i>
<i>Tachysphex erythropus</i> group	<i>T. costae</i> , <i>T. detritus</i> , <i>T. erythropus</i> , <i>T. grandissimus</i>
<i>Tachysphex geniculatus</i> group	<i>T. horus</i>
<i>Tachysphex julliani</i> group	<i>T. julliani</i> , <i>T. mauretanus</i>
<i>Tachysphex panzeri</i> group	<i>T. atlanteus</i> , <i>T. brevipecten</i> , <i>T. gracilicornis</i> , <i>T. gracilitarsis</i> , <i>T. incertus</i> , <i>T. mocsaryi</i> , <i>T. mycerinus</i> , <i>T. notogoniaeformis</i> , <i>T. palopterus</i> , <i>T. panzeri</i> , <i>T. sericans gracilis</i>
<i>Tachysphex plicosus</i> group	<i>T. mediterraneus</i>
<i>Tachysphex pompiliformis</i> group	<i>T. agnus</i> , <i>T. consocius</i> , <i>T. fugax</i> , <i>T. fulvitaris</i> , <i>T. gujaraticus</i> , <i>T. nitidus</i> , <i>T. nitidior</i> , <i>T. psammobius</i> , <i>T. pseudofasciatus</i> , <i>T. speciosissimus</i> , <i>T. tarsinus</i> , <i>T. unicolor</i>
<i>Tachysphex schmiedeknechti</i> group	<i>T. schmiedeknechti</i>
Total	11 species groups 38 species and subspecies

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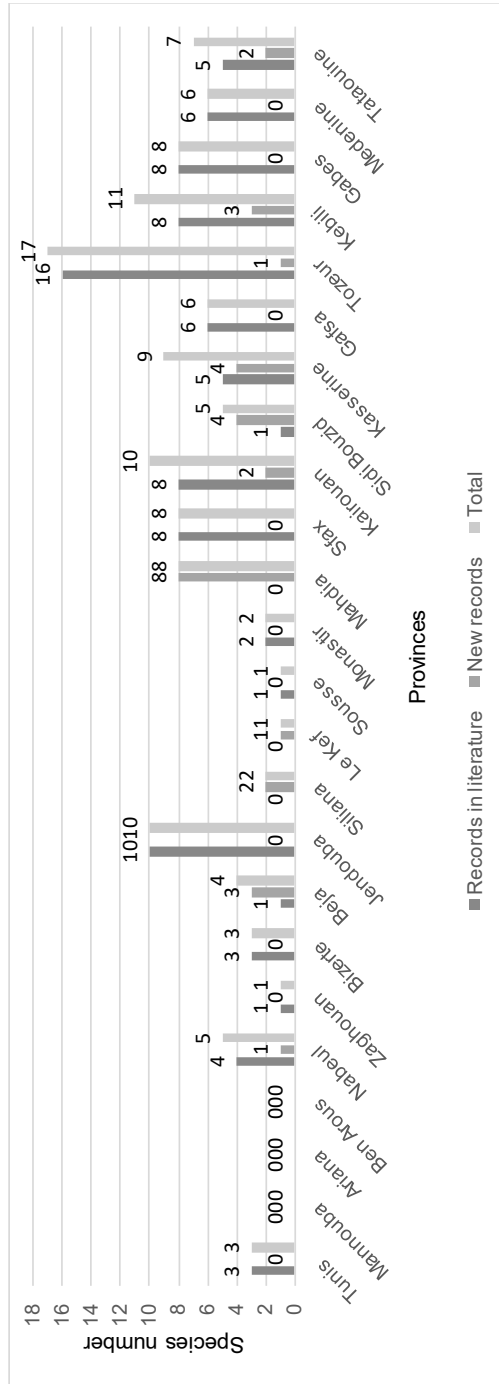


Fig. 3. Records in literature and new records number per province

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