

**CONTRIBUTION TO THE KNOWLEDGE OF THE
CRABRONIDAE (HYMENOPTERA: APOIDEA) FAUNA OF
TUNISIA. PART 1: ASTATINAE, CRABRONINAE AND
PEMPHREDONINAE**

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ABSTRACT: Based on newly collected materials from different localities in Tunisia between 2017 and 2018, a first contribution to knowledge of Tunisian Crabronidae fauna is established. As result, 1 species from 1 genus of Astatinae, 18 species from 9 genera of Crabroninae and 3 species from 2 genera of Pemphredoninae are identified. In total, 22 species belonging to 3 subfamilies and 12 genera are listed. All identified species have new provincial records. For each identified species general distribution and distributional map in Tunisia are provided.

KEY WORDS: Hymenoptera, Astatinae, Crabroninae, Pemphredoninae, New record, Distribution, Tunisia

Crabronid wasps are small to medium sized hymenopteran insects with color variation of their body from the yellow and red color to black completely. They are fossorial but they can nest in plant stems and various pre-existing cavities (Bohart & Menke, 1976). They are known as bioindicators of biodiversity thank to their predation behaviour (Vieira et al., 2011). For example, twelve orders of insects serve as prey for species belonging to Crabroninae, but Diptera predominate (Bohart & Menke, 1976). Also, Pemphredonid species predate Hemiptera and Homoptera but rarely Thysanoptera and Collembola (Bitsch et al., 2007).

According to the large synthetic work done by Pulawski (2019) on the world fauna of the Spheciforms wasps, summarizing the results up to date, the family Crabronidae includes 9005 species divided into 8 subfamilies and 243 genera. Among them, Crabroninae is the most diversified subfamily with 4838 species (Pulawski, 2019). In Tunisia, which is belonging to the West Palaearctic region, faunistic and systematic studies on Crabronidae are limited and most of them are conducted by foreign researchers and included in others studies and not specified for Tunisian fauna such as Schulz (1905), Graeffe (1906), von Schulthess (1926), Guichard (1991), Dollfuss (2004, 2006, 2008), and de Beaumont (1949).

For this reason, we aim in this study to firstly contribute to the knowledge of Tunisian Crabronidae fauna.

MATERIAL AND METHODS

The material of Crabronidae were collected by the first author from different localities in Tunisia during spring and Summer of 2017 and 2018 using insect nets. They were preserved in 70 % alcohol prior to identification. Then they were pinned, mounted and labelled. For each specimen, collected place, date, altitude and name of collector were mentioned on the label.

Specimens were identified using Leica EZ4 stereomicroscope following diverse identification keys proposed in the literature and then confirmed identification by comparison with well identified species hosted in the Museum Nationale d'Histoire Naturelle (MNHN), Paris, France.

Provinces of the collected specimens are given in alphabetical order in the following list. For each identified species, records cited in the literature and general distribution are given and distributional maps in Tunisia using DIVA-GIS program are established. Systematic and nomenclature follow mainly Pulawski (2019).

Identified materials are deposited in the personal collection of BEN KHEDHER, Entomology Museum, Erzurum, Turkey (EMET) and laboratory of Entomology and Insect Ecology in Regional Research Center for Horticulture and Organic Agriculture in Chott Meriem (CRRHAB Chott Meriem-Sousse, Tunisia).

RESULTS

Family Crabronidae Latreille, 1802

Subfamily Astatinae Lepeletier de Saint Fargeau, 1845

Genus *Astata* Latreille, 1797

Astata costae A. Costa, 1867 (Fig. 2.1)

Published records: It is cited in Tunisia by Costa (1893) but without specific locality.

New records: **Kebili:** Douz, Douz center, N 33°27'19.1", E 09°01'27.3", 70 m, 19.V.2018, 1 female; **Mahdia:** Sidi Alouane, Aouled Kloula, N 35°22'09.4", E 10°51'22.6", 64 m, 30.IV.2018, 1 male, Chammar, N 35°18'34.3", E 10°53'31.6", 65 m, 05.V.2018, 2 females, South Oued Beja, N 35°18'25.6", E 10°50'09.5", 110 m, 22.III.2018, 1 male; **Monastir:** Jammel, Bir Ettaib, N 35°38'16.1", E 10°41'22.1", 36 m, 11.VII.2017, 1 female.

General distribution: Western Europe, Southern Europe, Eastern Europe, North Africa, Turkey, Iran, Turkmenistan, Tajikistan, Uzbekistan, Kazakhstan (Antropov et al., 2017).

Subfamily Crabroninae Latreille, 1802

Entomognathus Dahlbom 1844

Entomognathus euryops (Kohl, 1899) (Fig. 2.2)

Published records: Beja (Leclercq, 1996), Ben Arous (Kohl, 1915), Jendouba (Dollfuss, 2006), Tunis (Graeffe, 1906).

New records: **Mahdia:** Sidi Alouane, Aouled Kloula, N 35°22'09.4", E 10°51'22.6", 64 m, 30.IV.2018, 1 female, Chammar, N 35°18'34.3", E 10°53'31.6", 65 m, 05.V.2018, 1 female.

General distribution: Tunisia (Leclercq, 1996; Pulawski, 2019).

Genus *Crossocerus* Lepeletier de Saint Fargeau and Brullé, 1835

Crossocerus elongatulus (Vander Linden, 1829) (Fig. 2.3)

Published records: Nabeul, Siliana (Dollfuss, 2006), Sfax (Leclercq, 1993).

New records: **Mahdia:** Sidi Alouane, Oued Beja, N 35°20'01.3", E 10°53'32.6", 51 m, 30.III.2018, 19 males.

General distribution: North Africa, Russia, Western Europe, Northern Europe, Southern Europe, Eastern Europe, Azerbaijan, Turkey, Iran, Turkmenistan, Tajikistan, Kyrgyzstan, Kazakhstan, Mongolia, Japan, North America, South America (Antropov et al., 2017).

Genus *Ectemnius* Dahlbom, 1845***Ectemnius hypsae* (De Stefani Perez, 1884) (Fig. 2.4)**

Published records: Jendouba (Leclercq, 1993), Sousse, Zaghouan (Dollfuss, 2004), Tunis (Graeffe, 1906; Leclercq, 1993).

New records: Beja: Mjez Elbeb, South Mjez Elbeb, N 36°38'14.7", E 09°35'54.3", 53 m, 15.VIII.2018, 1 male, 1 female, Slouguia, N 36°35'24.6", E 09°31'08.9", 60 m, 17.VIII.2018, 2 males, 1 female, Testour, Elghanima, N 36°33'08.8", E 09°23'35.2", 84 m, 16.VIII.2018, 2 females, Oued Jidra, N 36°32'54.4", E 09°22'14.9", 100 m, 16.VIII.2018, 2 males; **Kairouan:** South Kairouan, Barouta, N 35°34'28.1", E 10°02'44.3", 95 m, 27.VIII.2018, 1 male; **Le Kef:** Le Kef West, Semmena, N 36°06'11.6", E 08°43'21.3", 555 m, 25.IV.2018, 2 females; **Mahdia:** Sidi Alouane, Aouled Kloula, N 35°22'09.4", E 10°51'22.6", 64 m, 30.IV.2018, 2 males, 06.IV.2018, 6 males, 3 females, Chammar, N 35°18'34.3", E 10°53'31.6", 65 m, 05.V.2018, 1 female, Oued Beja, N 35°20'01.3", E 10°53'32.6", 51 m, 29.IV.2018, 1 male; **Nabeul:** Korba, N 36°34'01.9", E 10°50'38.7", 12 m, 06.IX.2017, 1 male, Mida, Libna, N 36°42'27.5", E 10°55'34.3", 20 m, 05.IX.2017, 1 male, Zaouiet Jdidi, N 36°37'44.5", E 10°34'02.0", 45 m, 08.VI.2018, 1 female.

Additional records: Sousse: Bouficha, Salloum, N 36°18'12.3", E 10°28'29.1", 5 m, 14.VII.2017, 2 males, Bir Elhaj Ammar, N 36°18'34.8", E 10°25'04.4", 17 m, 28.VII.2017, 8 males, 3 females, Kalaa Kbira, Belaoum, N 35°54'14.0", E 10°23'37.5", 45 m, 29.VII.2017, 1 female, Sidi Khalifa, Bir Bou Cheikh, N 36°15'49.7", E 10°22'11.9", 94 m, 21.VII.2017, 1 male, 2 females.

General distribution: North Africa, Russia, Western Europe, Southern Europe, Eastern Europe, Turkey, Israel (Antropov et al., 2017).

Genus *Lestica* Billberg, 1820***Lestica clypeata* (Schreber, 1759) (Fig. 2.5)**

Published records: Jendouba (Gadeau de Kerveille, 1908), Tunis (Graeffe, 1906).

New records: Le Kef: Le Kef West, Semmena, N 36°06'11.6", E 08°43'21.3", 555 m, 25.IV.2018, 1 male; **Mahdia:** Sidi Alouane, Aouled Kloula, N 35°22'09.4", E 10°51'22.6", 64 m, 30.IV.2018, 1 female, Chammar, N 35°18'34.3", E 10°53'31.6", 65 m, 05.V.2018, 3 males, 2 females, Oued Beja, N 35°20'01.3", E 10°53'32.6", 51 m, 29.IV.2018, 3 males; **Nabeul:** Mida, Libna, N 36°42'27.5", E 10°55'34.3", 20 m, 05.IX.2017, 1 male, 1 female, Tekelsa, Baddar, N 36°44'49.5", E 10°36'58.1", 63 m, 08.VI.2018, 1 male; **Sousse:** Kalaa Kbira, Belaoum, N 35°54'14.0", E 10°23'37.5", 45 m, 22.VII.2017, 1 male, 29.VII.2017, 2 males, 4 females, Kalaa Sghira, Ennagr, N 35°48'55.3", E 10°31'28.6", 37 m, 30.V.2017, 1 male.

General distribution: North Africa, Russia, Western Europe, Northern Europe, Southern Europe, Eastern Europe, Georgia, Turkey, Syria, Lebanon, Israel, Iraq, Iran, Turkmenistan, Uzbekistan, Kyrgyzstan, Kazakhstan (Antropov et al., 2017).

Genus *Lindenius* Lepelletier de Saint Fargeau and Brullé, 1835***Lindenius hannibal* (Kohl, 1898) (Fig. 2.6)**

Published records: Beja (Leclercq, 1989), Gafsa (Dollfuss, 2006), Tunis (Graeffe, 1906; de Beaumont, 1956).

New records: Kairouan: Sbikha, Aouled Mbarek, N 35°57'21.9", E 10°08'18.1", 52 m, 25.V.2017, 1 female, 26.V.2017, 3 females; **Zaghouan:** Bir Halima, N 36°24'15.2", E 10°01'32.4", 173 m, 17.V.2017, 8 males, 1 female, N 36°24'05.8", E

10°01'32.4", 178 m, 17.V.2017, 1 female, N 36°23'58.4", E 10°01'25.9", 181 m, 17.V.2017, 1 female.

General distribution: North Africa, Spain (Pulawski, 2019).

Lindenius hasdrubal de Beaumont, 1956 (Fig. 2.7)

Published records: Beja (Dollfuss, 2006), Ben Arous (Leclercq, 1989).

New records: Zaghuan: Bir Halima, N 36°23'30.9", E 10°02'05.5", 190 m, 20.IV.2018, 1 female.

General distribution: Algeria, Tunisia (de Beaumont, 1956; Dollfuss, 2006).

Lindenius pygmaeus pygmaeus (Rossi, 1794) (Fig. 2.8)

Published records: Jendouba, Tozeur (Dollfuss 2006), Nabeul (Leclercq 1975).

New records: Kebili: Janouara, Rass Elain, N 33°42'02.3", E 08°59'26.4", 56 m, 16.V.2018, 1 male.

General distribution: North Africa, Russia, Western Europe, Northern Europe, Southern Europe, Eastern Europe, Turkey, Syria, Jordan, Israel, Iran, Afghanistan, Central Asia, Kazakhstan (Antropov et al., 2017).

Lindenius pygmaeus algirus (Kohl, 1892) (Fig. 2.9)

Published records: Tunis (Graeffe, 1906; Leclercq, 1989).

New records: Beja: Testour, Chambou, N 36°32'47.5", E 09°31'08.9", 81 m, 16.VIII.2018, 1 female, Mjez Elbeb, South Mjez ElBeb, N 36°38'14.7", E 09°35'54.3", 53 m, 17.VIII.2018, 3 females; **Kebili:** Janouara, Rass Elain, N 33°42'02.3", E 08°59'26.4", 56 m, 16.V.2018, 2 females, South Kebili, Errahmat, N 33°39'01.8", E 08°58'27.4", 30 m, 18.V.2018, 1 female; **Mahdia:** Sidi Alouane, Oued Beja, N 35°19'52.2", E 10°53'16.9", 54 m, 12.VI.2017, 1 female; **Sousse:** Bouficha, Salloum, N 36°18'12.3", E 10°28'29.1", 5 m, 14.VII.2017, 1 female.

General distribution: North Africa (Pulawski, 2019).

Lindenius spilstomus (Kohl, 1899) (Fig. 2.10)

Published records: Ariana (Leclercq, 1989), Gafsa, Jendouba, Kairouan, Sousse (Dollfuss, 2006), Tunis (Graeffe, 1906; de Beaumont, 1956).

New records: Le Kef: Le Kef West, Semmena, N 36°06'11.6", E 08°43'21.3", 555 m, 25.IV.2018, 1 female; **Mahdia:** Sidi Alouane, Oued Beja, 35°20'01.3", E 10°53'32.6", 51 m, 30.III.2018, 1 female; **Zaghuan:** Bir Halima, N 36°23'30.9", E 10°02'05.5", 190 m, 20.IV.2018, 1 female.

General distribution: North Africa (Pulawski, 2019).

Genus *Belomicrus* A. Costa, 1871

Belomicrus odontophorus (Kohl, 1892) (Fig. 2.11)

Published records: Jendouba (Guichard, 1991).

New records: Kasserine: Sbeitla, Athar, Route Fej Ettin, N 35°13'20.07", E 09°05'58.7", 545 m, 05.IX.2018, 5 males, 1 female, Oued Nakhil, N 35°14'41.6", E 09°05'40.5", 562 m, 04.IX.2018, 11 males, 5 females; **Kebili:** Janouara, Rass Elain, N 33°42'02.3", E 08°59'26.4", 56 m, 16.V.2018, 2 females, South Kebili, Errahmat, N 33°39'01.8", E 08°58'27.4", 30 m, 17.V.2018, 1 female; **Tataouine:** Ghomrasen, Ghordhab, N 33°05'06.4", E 10°29'46.2", 159 m, 08.V.2018, 2 males, 1 female.

General distribution: Russia, Eastern Europe, Armenia, Tunisia, Turkey, Turkmenistan, Kazakhstan, Mongolia (Antropov et al., 2017).

Genus *Belomicroides* Kohl, 1899***Belomicroides schmiedeknechti* Kohl, 1899 (Fig. 2.12)****Published records:** Tunis (Kohl, 1899).**New records: Mahdia:** Sidi Alouane, Aouled Kloula, N 35°22'09.4", E 10°51'22.6", 64 m, 30.IV.2018, 1 female.**General distribution:** Tunisia (Pulawski, 2019).**Genus *Oxybelus* Latreille, 1797*****Oxybelus quatuordecimnotatus* Jurine, 1807 (Fig. 2.13)****Published records:** Jendouba (Leclercq, 1993), Gafsa, Kasserine, Kebili, Sousse, Tozeur (Dollfuss, 2008).**New records: Beja:** Mjez Elbeb, South Mjez Elbeb, N 36°38'14.7", E 09°35'54.3", 53 m, 15.VIII.2018, 1 male, 1 female, 17.VIII.2018, 7 males; **Kairouan:** Sbikha, Aouled Mbarek, N 35°57'21.9", E 10°08'18.1", 52 m, 25.V.2017, 1 male, 1 female, Sisib, N 35°57'20.8", E 10°08'22.0", 51 m, 03.VIII.2017, 2 males, 2 females; **Le Kef:** Le Kef West, Semmena, N 36°06'11.6", E 08°43'21.3", 555 m, 25.IV.2018, 3 males; **Mahdia:** Sidi Alouane, Aouled Kloula, N 35°22'09.4", E 10°51'22.6", 64 m, 6.IV.2018, 2 males, 30.IV.2018, 2 males, Chammar, N 35°18'34.3", E 10°53'31.6", 65 m, 05.V.2018, 2 males, Lemsanaa, N 35°19'44.5", E 10°54'51.3", 41 m, 26.V.2018, 1 male, 1 female, 01.VI.2018, 2 males, 1 female, Oued Beja, N 35°20'01.3", E 10°53'32.6", 51 m, 29.IV.2018, 1 male, N 35°20'07.7", E 10°53'32.6", 55 m, 28.VIII.2017, 1 male; **Nabeul:** Zaouiet Jdidi, N 36°37'44.5", E 10°34'02.0", 45 m, 08.VI.2018, 1 female, Beni Khalled, N 35°22'37.05", E 10°56'17.94", 44 m, 08.VI.2018, 1 male; **Sidi Bouzid:** Sidi Bouzid East, Lasouda, N 35°05'27.8", E 09°33'40.1", 336 m, 26.VII.2018, 1 male, Elhachria, N 34°53'56.2", E 09°26'11.6", 326 m, 24.VII.2018, 2 males, 1 female, Rgueb, Aouled Ayouni, N 34°49'14.5", E 09°51'07.7", 142 m, 18.VIII.2017, 1 male.**Additional records: Jendouba:** Tabarka, Melloula, N 36°56'31.4", E 08°42'25.0", 120 m, 16.IV.2018, 1 male; **Kasserine:** Sbeitla, Athar, Oued Nakhil, N 35°14'41.6", E 09°05'40.5", 562 m, 04.IX.2018, 2 males, 1 female; **Kebili:** Douz, Douz center, N 33°27'19.1", E 09°01'27.3", 70 m, 19.V.2018, 1 female, Janouara, Rass Elain, N 33°42'02.3", E 08°59'26.4", 56 m, 16.V.2018, 5 males, South Kebili, Errahmat, N 33°39'01.8", E 08°58'27.4", 30 m, 17.V.2018, 1 male, 1 female; **Sousse:** Akouda, Chott Meriem, N 35°55'04.2", E 10°33'57.9", 17 m, 12.VI.2018, 1 male, Bouficha, Bir Elhaj Ammar, N 36°18'34.8", E 10°25'04.4", 17 m, 28.VII.2017, 1 male, Kalaa Kbira, Belaoum, N 35°54'14.0", E 10°23'37.5", 45 m, 22.VII.2017, 6 males, 29.VII.2017, 6 males; **Tozeur:** Dguech, Elmanechi, N 33°58'41.5", E 08°12'33.1", 63 m, 29.VI.2018, 1 male, Temeghza, Cascade 2, N 34°22'34.0", E 07°54'42.7", 247 m, 27.VI.2018, 1 male, 1 female, Tozeur center, Oasis Elberka, N 33°55'01.0", E 08°08'23.3", 45 m, 26.VI.2018, 1 male.**General distribution:** North Africa, Russia, Western Europe, Northern Europe, Southern Europe, Eastern Europe, Saudi Arabia, Oman, Yemen, Turkey, Syria, Jordan, Israel, Iran, Afghanistan, Pakistan, Central Asia, Kazakhstan, Mongolia, China (Antropov et al., 2017).***Oxybelus lamellatus andalusiaticus* Spinola, 1843 (Fig. 2.14)****Published records:** Kebili, Medenine, Sousse, Tozeur (Dollfuss, 2008), Tunis (Graeffe, 1906), Monastir (von Schulthess, 1926).**New records: Beja:** Mjez Elbeb, South Mjez Elbeb, N 36°38'14.7", E 09°35'54.3", 53 m, 15.VIII.2018, 5 males, 17.VIII.2018, 5 males, Testour, Chambou, N 36°32'47.5", E 09°31'08.9", 81 m, 16.VIII.2018, 3 males, Elghanima,

N 36°33'08.8", E 09°23'35.2", 84 m, 16.VIII.2018, 1 male; **Jendouba**: Tabarka, Haouamdja, N 36°54'36.7", E 08°47'03.8", 58 m, 18.IV.2018, 1 male, 2 females, Mejl Roubi, N 36°53'53.4", E 08°46'01.0", 84 m, 13.IV.2018, 2 males, Melloula, N 36°56'31.4", E 08°42'25.0", 120 m, 16.IV.2018, 1 male, Theatre, N 36°57'40.8", E 08°45'31.2", 4 m, 12.IV.2018, 1 male; **Kairouan**: Chbika, Aouled Zair, N 35°36'42.4", E 09°53'29.8", 136 m, 29.VIII.2018, 1 male, South Kairouan, Barouta, N 35°34'28.1", E 10°02'44.3", 95 m, 27.VIII.2018, 3 males, Ragada, N 35°34'46.2", E 10°03'06.1", 92 m, 28.VIII.2018, 2 males, Sbikha, Sisib, N 35°57'20.8", E 10°08'22.0", 51 m, 03.VIII.2017, 3 males; **Le Kef**: Le Kef West, Semmena, N 36°06'11.6", E 08°43'21.3", 555 m, 25.IV.2018, 3 females; **Mahdia**: Ksour Essef, Alya, N 35°19'26.5", E 11°02'32.6", 1 m, 3.VIII.2018, 1 male, Sidi Alouane, Aouled Kloula, N 35°22'09.4", E 10°51'22.6", 64 m, 30.IV.2018, 1 male, Chammar, N 35°18'34.3", E 10°53'31.6", 65 m, 05.V.2018, 1 female, Lemsanaa, N 35°19'44.5", E 10°54'51.3", 41 m, 26.V.2018, 2 males, Oued Beja, Aouled Bouzid, N 35°20'34.0", E 10°53'34.6", 59 m, 06.V.2017, 1 male, Saafat, N 35°20'34.4", E 10°52'54.7", 68 m, 12.VI.2017, 1 male, Zorda, N 35°20'34.0", E 10°53'19.9", 73 m, 06.VIII.2017, 1 male, N 35°19'57.5", E 10°53'39.5", 50 m, 26.VIII.2017, 3 males, N 35°20'07.7", E 10°53'32.6", 55 m, 28.VIII.2017, 9 males, N 35°19'57.4", E 10°53'51.4", 49 m, 29.VIII.2017, 5 males, 2 females, Zelba, N 35°13'48.8", E 10°51'30.1", 49 m, 11.VIII.2018, 1 male; **Nabeul**: Haouaria, Gharnem, N 37°02'16.6", E 11°00'19.7", 18 m, 14.IX.2017, 8 males, Korba, N 36°34'01.9", E 10°50'38.7", 12 m, 06.IX.2017, 3 males, Mida, Libna, N 36°42'27.5", E 10°55'34.3", 20 m, 05.IX.2017, 2 males; **Sidi Bouzid**: Rgueb, Aouled Ayouni, N 34°49'45.7", E 09°51'27.4", 141 m, 17.VIII.2017, 1 male, N 34°49'14.5", E 09°51'07.7", 142 m, 18.VIII.2017, 2 males, Sidi Bouzid West, Zaafrina, N 35°01'39.8", E 09°17'18.3", 394 m, 25.VII.2018, 1 female; **Tataouine**: Ghomrasen, Ghordhab, N 33°05'06.4", E 10°29'46.2", 159 m, 8.V.2018, 2 males, North Tataouine, Route Tataouine-Medenine km 33, N 33°04'12.2", E 10°29'06.0", 163 m, 10.V.2018, 1 male.

Additional records: **Kebili**: Douz, Douz center, N 33°27'19.1", E 09°01'27.3", 70 m, 19.V.2018, 6 males, Douz West, N 33°27'04.1", E 09°01'04.5", 63 m, 19.V.2018, 4 males, Janouara, Rass Elain, N 33°42'02.3", E 08°59'26.4", 56 m, 16.V.2018, 1 male, South Kebili, Errahmat, N 33°39'01.8", E 08°58'27.4", 30 m, 17.V.2018, 5??, 18.V.2018, 1 male; **Sousse**: Bouficha, Salloum, N 36°18'12.3", E 10°28'29.1", 5 m, 14.VII.2017, 1 male, Akouda, Chott Meriem, Tantana, N 35°55'17.7", E 10°34'07.8", 12 m, 4.VIII.2017, 1 male, Kalaa Kbira, Belaoum, N 35°54'14.0", E 10°23'37.5", 45 m, 29.VII.2017, 1 male, Sidi Khalifa, Bir Bou Cheikh, N 36°15'49.7", E 10°22'11.9", 94 m, 21.VII.2017, 1 male; **Tozeur**: Dguech, Elmanechi, N 33°58'41.5", E 08°12'33.1", 63 m, 29.VI.2018, 3 males, Nefta, Corbeille, N 33°51'00.0", E 07°51'52.4", 25 m, 28.VI.2018, 1 male, Nefta Oasis, N 33°52'39.1", E 07°52'34.9", 56 m, 28.VI.2018, 1 male, Tozeur center, Oasis Elberka, N 33°55'01.0", E 08°08'23.3", 45 m, 26.VI.2018, 1 male, 1 female.

General distribution: South West Europe, North West Africa, Bahrain (Pulawski, 2019).

***Oxybelus haemorrhoidalis* Olivier, 1812 (Fig. 2.15)**

Published records: Kairouan (von Schulthess, 1926), Gafsa, Jendouba, Kasserine, Kebili, Tataouine, (Dollfuss, 2008).

New records: **Mahdia**: Sidi Alouane, Aouled Kloula, N 35°22'09.4", E 10°51'22.6", 64 m, 06.IV.2018, 9 males, 3 females, Chammar, N 35°18'34.3", E 10°53'31.6", 65 m, 5.V.2018, 2 males, 1 female, Oued Beja, N 35°20'01.3", E 10°53'32.6", 51 m, 29.IV.2018, 2 females; **Nabeul**: Zaouiet Jdidi, N 36°37'44.5",

E 10°34'02.0", 45 m, 08.VI.2018, 1 female; **Sousse**: Kalaa Kbira, Belaoum, N 35°54'14.0", E 10°23'37.5", 45 m, 29.VII.2017, 1 female.

Additional records: Kebili: Janouara, Rass Elain, N 33°42'02.3", E 08°59'26.4", 56 m, 16.V.2018, 1 female.

General distribution: North Africa, Russia, Western Europe, Northern Europe, Southern Europe, Eastern Europe, Azerbaijan, Turkey, Syria, Israel, Iran, Afghanistan, Turkmenistan, Uzbekistan, Kyrgyzstan, Kazakhstan, Mongolia, China, Korean Peninsula, Japan (Antropov et al., 2017).

***Oxybelus mucronatus moricei* de Beaumont, 1950 (Fig. 2.16)**

Published records: Gafsa, Kebili, Sousse, Tataouine, Tozeur (Dollfuss, 2008).

New records: Jendouba: Tabarka, Melloula, N 36°56'31.4", E 08°42'25.0", 120 m, 16.IV.2018, 1 male; **Kasserine**: Sbeitla, Athar, Oued Nakhil, N 35°14'41.6", E 09°05'40.5", 562 m, 04.IX.2018, 2 males; **Mahdia**: Sidi Alouane, Aouled Kloula, N 35°22'09.4", E 10°51'22.6", 64 m, 30.IV.2018, 2 males, 06.IV.2018, 2 males, 6 females, Chammar, N 35°18'34.3", E 10°53'31.6", 65 m, 05.V.2018, 16 males, 3 females, Lemsanaa, N 35°19'44.5", E 10°54'51.3", 41 m, 01.VI.2018, 5 males, 1 female, Oued Beja, N 35°20'07.7", E 10°53'32.6", 55 m, 28.VIII.2017, 1 female, N 35°19'57.4", E 10°53'51.4", 49 m, 29.VIII.2017, 1 male, N 35°20'01.3", E 10°53'32.6", 51 m, , 30.III.2018, 29.IV.2018, 5 males, South Oued Beja, N 35°18'25.6", E 10°50'09.5", 110 m, 22.III.2018, 1 male, 1 female.

Additional records: Kebili: Douz, Douz center, N 33°27'19.1", E 09°01'27.3", 70 m, 19.V.2018, 1 female, Douz West, N 33°27'04.1", E 09°01'04.5", 63 m, 19.V.2018, 1 female; **Sousse**: Kalaa Kbira, Belaoum, N 35°54'14.0", E 10°23'37.5", 45 m, 22.VII.2017, 1 male; **Tataouine**: Ghomrasen, Ghordhab, N 33°05'06.4", E 10°29'46.2", 159 m, 08.V.2018, 4 males, 1 female.

General distribution: Algeria, Canary Islands, Libya, Morocco, Tunisia (Pulawski, 2019).

Genus *Palarus* Latreille, 1802

***Palarus bernardi* de Beaumont, 1949 (Fig. 2.17)**

Published records: Tozeur (Pulawski & Prentice, 2008).

Additional records: Tozeur: Nefta, Nefta Oasis, N 33°52'39.1", E 07°52'34.9", 56 m, 28.VI.2018, 1 male.

General distribution: North West Africa to Mauritania, Burkina Faso, Sudan (Pulawski & Prentice, 2008).

***Palarus confusus* R. Turner, 1911 (Fig. 2.18)**

Published records: Jendouba, Nabeul (Pulawski & Prentice, 2008), Tunis (de Beaumont, 1949).

New records: Mahdia: Sidi Alouane, Oued Beja, N 35°20'34.0", E 10°53'34.6", 75 m, 21.V.2017, 1 male.

General distribution: Libya to Morocco, Mauritania (Pulawski & Prentice, 2008).

***Palarus rufipes* Latreille, 1812 (Fig. 2.19)**

Published records: Gafsa, Kairouan, Medenine, Tozeur (de Beaumont, 1949); Gafsa, Tozeur (von Schulthess, 1926); Nabeul, Gabes (Pulawski & Prentice, 2008).

New records: Kebili: Douz, Douz West, N 33°27'04.1", E 09°01'04.5", 63 m, 19.V.2018, 3 females, Janouara, Rass Elain, N 33°42'02.3", E 08°59'26.4", 56 m, 16.V.2018, 1 female, South Kebili, Errahmat, N 33°39'01.8", E 08°58'27.4", 30 m,

18.V.2018, 1 female; **Mahdia**: Sidi Alouane, N 35°22'37.05", E 10°56'17.94", 60 m, 17.VII.2018, 1 female.

Additional records: **Nabeul**: Beni Khaled, N 36°36'07.0", E 10°30'17.8", 44 m, 08.VI.2018, 1 female; **Tozeur**: Nefta, Nefta Oasis, N 33°52'39.1", E 07°52'34.9", 56 m, 28.VI.2018, 1 male.

General distribution: Morocco to Tunisia (Pulawski & Prentice, 2008).

Subfamily Pemphredoninae Dahlbom, 1835

Genus *Diodontus* Curtis, 1834

Diodontus hyalipennis Kohl, 1892 (Fig. 2.20)

Published records: Kairouan (von Schulthess, 1926), Tunis (Kohl, 1901; Morice, 1911).

New records: **Kebili**: Janouara, Rass Elain, N 33°42'02.3", E 08°59'26.4", 56 m, 16.V.2018, 1 female; **Zaghouan**: Bir Halima, N 36°24'15.2", E 10°01'32.4", 173 m, 17.V.2017, 1 female.

General distribution: North Africa, Russia, Southern Europe, Eastern Europe, Azerbaijan, Iran, Kazakhstan, Mongolia (Antropov et al., 2017).

Diodontus oraniensis (Lepeletier de Saint Fargeau, 1845) (Fig. 2.21)

Published records: Tunis (Gribodo, 1894, Morice, 1911, de Beaumont, 1950).

New records: **Kebili**: Janouara, Rass Elain, N 33°42'02.3", E 08°59'26.4", 56 m, 16.V.2018, 1 female; **Mahdia**: Sidi Alouane, Aouled Kloula, N 35°22'09.4", E 10°51'22.6", 64 m, 06.IV.2018, 1 male, Chammar, N 35°18'34.3", E 10°53'31.6", 65 m, 05.V.2018, 1 female, Oued Beja, N 35°20'34.0", E 10°53'19.9", 73 m, 29.IV.2017, 2 males, N 35°20'01.3", E 10°53'32.6", 51 m, 30.III.2018, 9 males; **Nabeul**: Korba, N 36°34'01.9", E 10°50'38.7", 12 m, 06.IX.2017, 1 female.

General distribution: North Africa, Israel, Kuwait, Palestine, Canary Islands (Pulawski, 2019).

Genus *Pemphredon* (Latreille, 1796)

Pemphredon lethifer (Shuckard, 1837) (Fig. 2.22)

Published records: Sousse (Dollfuss, 2001).

New records: **Monastir**: Bakalta, Echraf, N 35°36'50.6", E 11°00'43.1", 3 m, 27.VII.2017, 1 male; **Nabeul**: Korba, N 36°34'01.9", E 10°50'38.7", 12 m, 06.IX.2017, 1 male.

General distribution: North Africa, Russia, Western Europe, Northern Europe, Southern Europe, Eastern Europe, Abkhazia, Azerbaidjan, Turkey, Israel, Iraq, Iran, Tajikistan, Uzbekistan, Kyrgyzstan, Afghanistan, Kazakhstan, Mongolia, China, Korean Peninsula, Japan, North America (Antropov et al., 2017).

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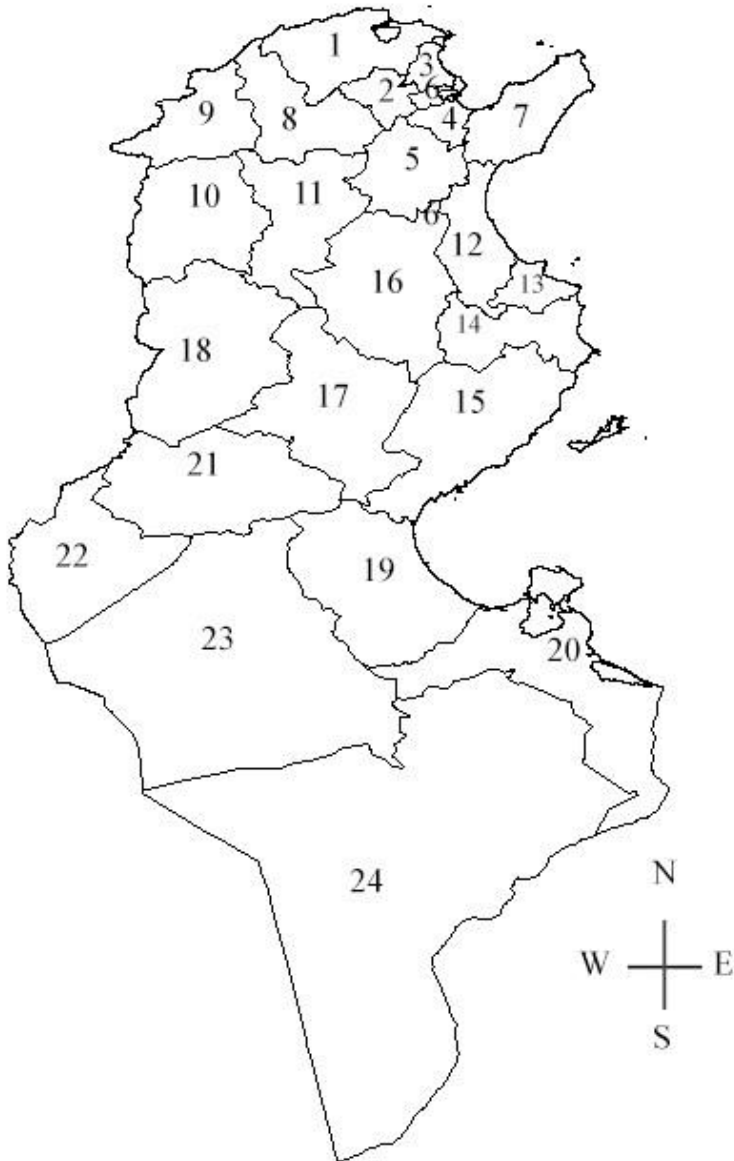


Figure 1. Provinces of Tunisia: 1. Bizerte; 2. Mannouba; 3. Ariana 4. Ben Arous; 5. Zaghouan; 6. Tunis; 7. Nabeul; 8. Beja; 9. Jendouba; 10. Le Kef; 11. Siliana; 12. Sousse; 13. Monastir; 14. Mahdia; 15. Sfax; 16. Kairouan; 17. Sidi Bouzid; 18. Kasserine; 19. Gabes; 20. Medenine; 21. Gafsa; 22. Tozeur; 23. Kebili; 24. Tataouine.

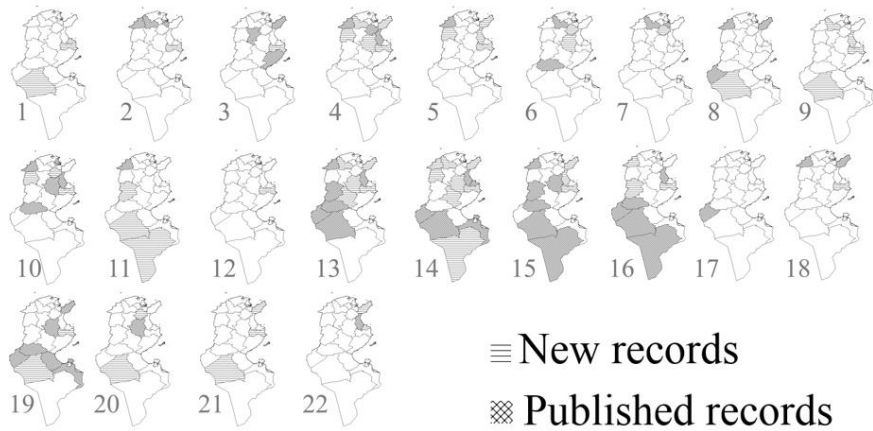


Figure 2. Distributional maps of identified species: (1) *Astata costae* A. Costa, 1867, (2) *Entomognathus euryops* (Kohl, 1899), (3) *Crossocerus elongatulus* (Vander Linden, 1829), (4) *Ectemnius hypsae* (De Stefani Perez, 1884), (5) *Lestica clypeata* (Schreber, 1759), (6) *Lindenius hannibal* (Kohl, 1898), (7) *Lindenius hasdrubal* de Beaumont, 1956, (8) *Lindenius pygmaeus pygmaeus* (Rossi, 1794), (9) *Lindenius pygmaeus algirus* (Kohl, 1892), (10) *Lindenius spilostomus* (Kohl, 1899), (11) *Belomicrus odontophorus* (Kohl, 1892), (12) *Belomicroides schmiedeknechti* Kohl, 1899, (13) *Oxybelus quatuordecimnotatus* Jurine, 1807, (14) *Oxybelus lamellatus andalusiaticus* Spinola, 1843, (15) *Oxybelus haemorrhoidalis* Olivier, 1812, (16) *Oxybelus mucronatus moricei* de Beaumont, 1950, (17) *Palarus bernardi* de Beaumont, 1949, (18) *Palarus confusus* R. Turner, 1911, (19) *Palarus rufipes* Latreille, 1812, (20) *Diodontus hyalipennis* Kohl, 1892, (21) *Diodontus oraniensis* (Lepeletier de Saint Fargeau, 1845), (22) *Pemphredon lethifer* (Shuckard, 1837).