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A review of the genus *Tachysphex* (Hymenoptera: Apoidea) of Turkey, with description of four new species

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Abstract. Based on abundant material collected recently mostly by Czech entomologists and on previously published data, a review of the genus *Tachysphex* Kohl, 1883 in Turkey is presented. Four new species are described: *Tachysphex prismaticus* sp. nov. [*T. pompiliformis* (Panzer, 1805) complex], *T. bouceki* sp. nov. [*T. mongolicus* Kohl, 1898 complex], *T. humilis* sp. nov. and *T. karasi* sp. nov. [both *T. consocius* Kohl, 1892 complex]. Male of *T. punctipes* Pulawski, 1967 [*T. mongolicus* complex] is described for the first time. *T. grandii* de Beaumont, 1965 is recognized as a valid species. Differential diagnosis is provided for *T. punctipes*, *T. consocius and T. grandii*. Variability of *T. pompiliformis* and *T. opacus* F. Morawitz, 1893 [both *T. pompiliformis* complex] is discussed. Six other species are recorded from Turkey for the first time. Fifty-two species of *Tachysphex* Kohl, 1883 are now known to occur in Turkey.

Taxonomy, new species, description, validation, distribution, Hymenoptera, Apoidea, Spheciformes, Crabronidae, *Tachysphex*, Palearctic region

INTRODUCTION

Genus *Tachysphex* Kohl, 1883 is placed into the family Crabronidae, tribe Larrini (Menke 1997) and includes approximately four hundred species from all over the world. They can be found in almost all terrestrial habitats, but occur mainly in semiarid areas. Species of *Tachysphex* prey on insects from the orders Blattoptera, Mantodea, Ensifera and Caelifera (Krombein & Pulawski 1994).

There are two comprehensive papers dealing with the genus *Tachysphex* in Turkey. Pulawski (1967) presented the first list of species. Later Hensen & Van Ooijen (1987) added their own findings and those of some other Dutch collectors. Six new species were described in in the first one and two in the another paper. Some other information was presented by Pulawski (1971) in his revision of the West Palearctic species. Until recently, forty-one species and four subspecies of *Tachysphex* were known from Turkey.

Many specimens of Crabronidae were collected in Turkey by Czech entomologists over the last fifteen years. A study of this material revealed interesting new data on Turkish *Tachysphex*, including several species new to science. These data are presented in this paper. All the data previously published on the Turkish Tachysphex are also reviewed. Currently, fifty-two species and four subspecies of *Tachysphex* are known to occur in Turkey.

MATERIAL AND METHODS

Material from the following institutions and private collections was examined:
BMNH – British Museum, (Natural History), George Else (London, Great Britain);
JSPC – Jakub Straka (Praha, Czech Republic);
HNHM – Hungarian Natural History Museum, Lájos Zombori (Budapest, Hungary);

MRBC – Martin Říha (Brno, Czech Republic);
MSAC – Maximilian Schwarz (Ansfelden, Austria);
NHMW– Naturhistorisches Museum Wien, Stefan Schödl (Wien, Austria);
NMPC – National Museum, (Natural History), Jan Macek (Praha, Czech Republic);
OLML – Oberösterreichisches Landesmuseum, Fritz Gusenleitner (Linz, Austria);
PTLC – Pavel Tyrner (Litvínov, Czech Republic);
ZKZC – Zdeněk Karas (Zliv, Czech Republic);

Geographical names cited in small capitals in the "List of species" refer to the names of PROVINCES. All the sites are located in Turkey, unless an other country is explicitly specified. Usual abbreviations of geographical direction are used: N – North, S – South, E – East, W – West and their combinations, NE, NW, SE, SW.

Morphological terms are as used by Bohart & Menke (1976) and Krombein & Pulawski (1994). Th following abbreviations are used in the descriptions of morphometric proportions:

WML– clypeus median lobe width;
LCL – clypeus maximum length;
WCL – clypeus width;
LA3 – lengt of antennal article III, dorsally;
WA3 – width of antennal article III, apicaly, dorsally;
LA5 – lengt of antennal article V, dorsally;
WA5 – width of antennal article V, apicaly, dorsally;
WV – vertex width;
LV – vertex length;
MOD – diameter of median ocellus;
LF1 – forefemur length;
WF1 – forefemur width, laterally.

General information on Geographic distribution is compiled from Pulawski (1971) and Krombein & Pulawski (1994).

Interpretation of species groups follows Pulawski (1971) except for "Incertae sedis" and *Tachysphex schmiedeknechti* Kohl, 1883. *Tachysphex mochii* (Beaumont, 1947) cited by Pulawski (1967) from Turkey is omitted from the present list as it was transferred to a related genus *Holotachysphex* Beaumont, 1940 (Pulawski 1972).

All the newly described species were labelled as follows: "HOLOTYPUS ♂ or ♀, name of taxon sp. nov., J. Straka det. 2004" on red card; paratypes analogously on yellow card. Exact label data are cited for the holotype only. Separate lines on a label are indicated by a slash "/" and separate labels by a double slash "//".

LIST OF SPECIES

Tachysphex pompiliformis species group

***Tachysphex agnus* Pulawski, 1971**

Pulawski 1971: 152–154, figs 79–80.

PUBLISHED RECORDS. **Ankara**: above Hasanoglan, 1500 m, 29.vi.1962, 1 ♀, K. M. Guichard and D. H. Harvey leg., paratype (Pulawski 1971).

GEOGRAPHIC DISTRIBUTION. North Africa, Israel and Turkey.
COMMENTS. The holotype comes from Tunisia. Cited specimen was not found in the BMNH collection.

***Tachysphex angustatus* Pulawski, 1967**

Pulawski 1967: 405–408, figs 28–30; 1971: 170–172, figs 97–99; Hensen & Van Ooijen 1987: 12.

PUBLISHED RECORDS. **Amasya**: Amasya, 500 m, 22.-24.v.1959, 1 ♂, Amasya, 700 m, 18.vii.1959, 1 ♂, K. M. Guichard leg.; **Konya**: Konya, 15.vi.1965, 3 ♂♂, J. Gusenleitner and M. Schwarz leg. (Pulawski 1967, 1971); **Bingöl**: Genç, 1000 m, 12.viii.1985, 1 ♀, R. Hensen leg. (Hensen & Van Ooijen 1987).

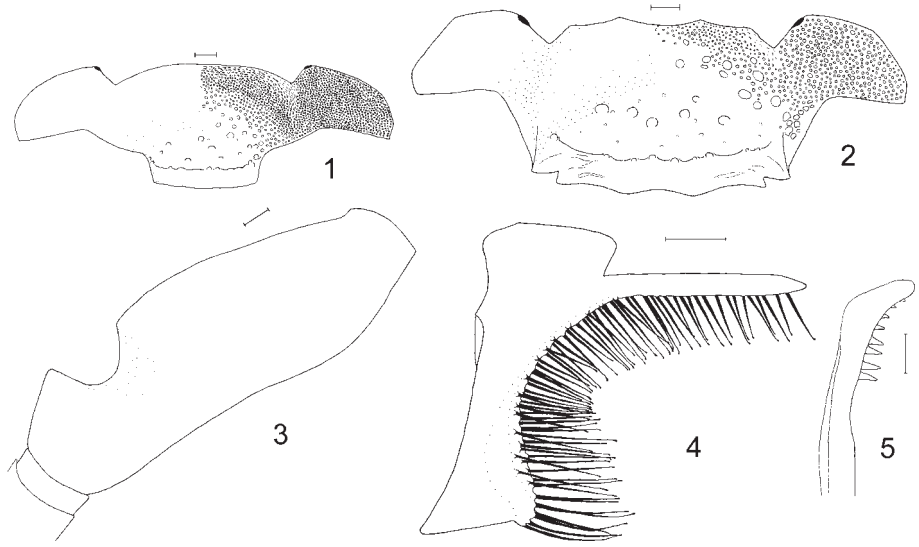
MATERIAL EXAMINED. Malatya: Kale 30 km E, 27.vi.2000, 1 ♂, M. Halada leg., OLML; **Urfa**: Halfeti env., 3.-5.v.1994, 2 ♂♂, Mi. Halada and K. Deneš sen. leg., OLML.

GEOGRAPHIC DISTRIBUTION. Greece to Mongolia.

Tachysphex bouceki sp. nov.
(Figs 1–5)

Type material. **Holotype**: Turkey, **Kayseri**, ♂, labelled: "TURKEY 24.VIII.2003 / Kayseri vill. (25 km S) / 7 km NW DEVELI // Turkey 2003 Expedition / cca 1600 m / J. Straka leg.", printed label. Holotype in OLML. **Paratypes**: Turkey: **Adiyaman**: Nemrut dag, 2000 m, 16.viii.1991, 1 ♀, M. Halada leg., OLML; **Bayburt**: Bayburt 10 km N, 1600 m, 22.viii.1991, 1 ♀, M. Halada leg., OLML; **Kayseri**: Develi 7 km NW, 1600 m, 24.vii.2003, 1 ♂, 1 ♀, J. Straka leg., JSPC.

Diagnosis. *Tachysphex bouceki* sp. nov. is a member of *T. mongolicus* Kohl, 1898 species complex. This species complex is defined in the following combination of characters. ♂, ♀: sculpture on mesopleuron dull, slightly punctate, or impunctate, or rugose; gaster without silver apical bands (except *T. punctipes* Pulawski, 1967); ♂: forebasitarsus with rake; Venter of forefemur between notch and the base sparsely punctate, interspaces unsculptured, shiny (missing in *T. mysticus* Pulawski, 1971); inner side of volsella with ledge (in a few species missing); ♀: clypeal bevel large, reaching base of clypeus in the middle; clypeal lip with lateral incisions (except *T. splendidulus* F. Morawitz, 1893) and more or less distinct median emargination (distinct in fresh specimens); fore- and midfemoral venter with distinctinct large punctures, this punctures sometimes intermixed with smaller punctures. *T. bouceki* resembles *T. nasalis* F. Morawitz, 1893 sensu Pulawski (1971), *T. morawitzi* Pulawski, 1971, *T. mongolicus*, *T. abditus* Kohl, 1898, *T. splendidulus*, *T. mysticus*, *T. excelsus* R. Turner, 1917 and *T. punctipes*. It differs from these species in the following combination of characters. ♂: mandible with two distinct inner teeth; setae on vertex about 1 x MOD long; postocellar impression deep; forefemoral notch deep, semicircular (Fig. 3); forebasitarsal rake developed; all terga and apical depressions relatively densely punctate; volsella characteristic (Fig. 4).



Figs 1–5. *Tachysphex bouceki* sp. nov.; 1 – male clypeus, 2 – female clypeus, 3 – male forefemur, lateral view, 4 – volsella, inner side view, 5 – penis valve; scale bar = 0.1 mm.

♀: clypeal basomedian area small, densely punctate, nearly as densely as the lateral section (Fig. 2); setae on vertex about 1 x MOD long; postocellar impression deep, Y-shaped; forefemur with small and large punctures, small punctures usually one to two diameters apart, interspaces unsculptured; Venter of fore- and midfemora with narrow area with large punctures and unsculptured interspaces; at least the basal half of pygidial plate with microsculptured interspaces between punctures.

DESCRIPTION OF HOLOTYPE. Male. Body length: 8.5 mm.

Head. Mandible with two distinct inner teeth. Labrum almost flat, margin rounded. Clypeus (Fig. 1) distinctly convex; basomedian area relatively large, densely punctate; bevel extremely convex to abrupt, as long as the basomedian area, shiny with several large punctures; lip arcuate. Antennae relatively short. Frons and vertex densely and uniformly punctate, punctures deep, less than one diameter apart, interspaces shiny; frontal median line distinct. Vertex setae about 1 x MOD long; postocellar impression deep and Y- shaped.

Thorax. Scutum and scutellum densely, uniformly punctate, punctures deep, less than one diameter apart, on side of scutum without interspaces, interspaces distinct at centre, shiny; setae about 1.5 x MOD long. Mesopleuron punctate, punctures evanescent in coarsely microsculptured interspaces; hypoepimeral area rugose, without distinct punctures. Mesosternal punctures about one diameter apart or less, interspaces shiny. Propodeal dorsum irregularly rugose. Propodeal side obliquely ridged, interspaces microsculptured, shiny to dull. Venter of fore- and hindtrochanters with punctures about one to two diameters apart, interspaces shiny, slightly microsculptured; Venter of midtrochanter with a few large punctures, their interspaces shiny, slightly microsculptured. Forefemur thick, punctures about one to two diameters apart, interspaces shiny; forefemoral notch large (Fig. 3), surface unsculptured. Midfemoral venter with large punctures several diameters apart, without small punctures, interspaces large, shiny, slightly microsculptured. Hindfemur densely punctate, punctures small. Forebasitarsal rake developed, with three long spines (their apex broken off); tarsomeres II and III each with apical spine almost as long as the following tarsomere. Wings slightly infumate; veins brown.

Gaster. Terga I-IV with indistinct amber apical bands. Terga densely micropunctate including apical depressions, interspaces shiny, microsculptured; sculpture on tergum VII coarser. Sterna uniformly micropunctate nearly like terga. Sternum VIII with small obtuse tooth between two apicolateral teeth. Gonostyle with more than 20 setae on the three quarters of their length; setae slightly continuously shortening towards the apex. Volsella light brown, characteristic (cf. Fig. 4), base of ventral setae extremely wide. Penis valve cf. Fig. 5.

Coloration. Mandible apicaly, tarsi (except basitarsus proximaly) and gastral segments I-III red. Apical parts of terga I-III distinctly translucent. Tegula reddish translucent. Apical parts of terga I-III distinctly translucent. Other body parts all black.

VARIABILITY OF MALES. Body length: 8.5-10.0 mm.

Head: WML:LCL = 0.9, 1.2, WCL:WML = 3.5, 3.8. LA3:WA3 = 1.7, 1.8, LA5:WA5 = 2.1, 2.2. WV:LV = 1.4.

Thorax. Forebasitarsal rake with three long spines, apical spine probably about three quarters of length of tarsomere II (apex of spines broken in both specimens).

GENERAL DESCRIPTION OF FEMALE. Body length: 9.5-12.0 mm.

Head. Labrum almost flat, margin rounded. Clypeus distinctly convex (Fig. 2), top between the middle and the first quarter of clypeus; basomedian area small, densely punctate, nearly as densely as lateral section; bevel large, convex with several large punctures, shiny; lip sinuate with lateral incisions and shallow median emargination in fresh specimens, separated from bevel by deep, punctate groove; WML:LCL = 1.5, WCL:WML = 2.0. Antennae relatively short, LA3:WA3 = 2.3-

2.4, LA5:WA5 = 2.7-2.9. Frons and vertex uniformly punctate, punctures deep, one diameter or less apart, interspaces shiny or dull, microsculptured; frontal median line distinct, deep. Vertex setae about 1 x MOD long; postocellar impression Y-shaped, deep; WV:LV = 1.1-1.2.

Thorax. Scutum with anterior impression; anterior part densely, uniformly punctate, punctures small, less than one diameter apart, interspaces shiny; other parts of scutum and sculellum irregularly, sparsely punctate, with small punctures intermixed with large ones, punctures one to several diameters apart, interspaces almost unsculptured; setae shorter than 1 x MOD. Mesopleuron coarsely microsculptured, dull, punctures more distinct in its lower part, interspaces slightly shiny; hypoepimeral area rugose, superficially punctate, punctures less distinct. Mesosternal punctures small, about one diameter apart or less, interspaces shiny. Propodeal dorsum finely, irregularly rugose. Propodeal side obliquely ridged, interspaces microsculptured or unsculptured, shiny to dull. Venter of all trochanters with a few large punctures, interspaces shiny, slightly microsculptured to unsculptured. Forefemur with small and large punctures, small punctures usually one to two diameters apart, interspaces unsculptured; Fore- and midfemoral venter with a narrow area with large punctures and uncsulptured interspaces; LF1:WF1 = 3.0-3.1. Forebasitarsal rake reddish, with three relatively thick apical spines and one additional preapical spine. Wings slightly infumated, veins brown.

Gaster. All terga lacking apical bands. Terga I-IV sparsely micropunctate, apical depressions with or without punctures, interspaces shiny, finely microsculptured, punctures larger and denser on tergum VI, one diameter apart, apical depression impunctate, interspaces coarsely microsculptured. Pygidial plate distinctly, irregularly punctate, at least basal half with microsculptured interspaces between punctures. Central part of sternum II with several distinct punctures, interspaces microsculptured, shiny, lateral part dull, densely micropunctate, remaining sterna with uniform sculpture similar to that on sternum II, but sculpture more or less reduced laterally.

Coloration. Central part of mandible, apical tarsal segments (individually variable), gastral segments I-II and apical half of tergum III red. Tegula brown translucent. Apical parts of terga I-II distinctly translucent. Other body parts all black.

Geographic distribution. Central and eastern Turkey.

Etymology. Named in honour of the Czech hymenopterist, Zdeněk Bouček.

Comments. The specimen listed by Pulawski (1967) as *T. mongolicus* (Turkey: Kars: Little Ararat, 3000-3600 m, 2.ix.1960, 1 ♀, K. M. Guichard and D. H. Harvey leg., BMNH) may be *T. bouceki* sp. nov.

Tachysphex consocius Kohl, 1892

Pulawski 1971: 185–189, figs 110–116.
T. cabrerai Mercet, 1909: Pulawski 1967: 408; synonymized by Pulawski (1971).

Published records. **Hatay**: Antakya, 1.-7.vi.1965, 1 ♀, 10 ♂♂, J. Gusenleitner and M. Schwarz leg.; **Içel**: Tarsus, 29.-31.v.1965, 2 ♂♂, J. Gusenleitner and M. Schwarz leg.; **Tekirdag**: 24 km from Malkara on Malkara – Inecik road, 12.viii.1962, 1 ♂, K. M. Guichard and D. H. Harvey leg. (Pulawski 1967); **Istanbul**: Istanbul, without details (Pulawski 1971).

Material examined. **Içel**: Büyükeçeli (Ovaçik) env., 70 m, 14.-18.vii.1998, 2 ♀♀, M. Říha leg., MRBC.

Geographic distribution. Portugal and Morocco to Kazakhstan and India.

Comments. *T. consocius* sensu Krombein & Pulawski (1994) is a complex of several similar species. For diagnostic characters of this species complex see diagnosis under *T. grandii*. Six species occur in the Palearctic region and about five in Sub-Saharan Africa. *T. grandii* de Beaumont, 1965, *T. humilis* sp. nov. and *T. karasi* sp. nov. belong to this species complex. Description of *T. consocius* by Pulawski (1971) is correct.

Tachysphex ferrugineus Pulawski, 1967

Pulawski 1967: 401–403, figs 22-25; 1971: 70–72.

Published records. **Trabzon** (Pulawski 1967, 1971).

Material examined. **Artvin**: Damar env., 2.vii.1997, 1 ♂, 1 ♀, P. Průdek and M. Říha leg., JSPC; **Trabzon**: Boztepe, 18.v.1962, 4 ♂♂, 1 ♀, K. M. Guichard and D. H. Harvey leg., BMNH.

Geographic distribution. Georgia, South of European Russia and Turkey.

Tachysphex fugax (Radoszkowski, 1877)

Pulawski 1971: 178–182, figs 105–106; Hensen & Van Ooijen 1987: 12.

Published records. **Bursa**: Karacabey 10 km S, 1 ♂, without other details (Pulawski 1971); **Istanbul**: Aandolukavagi, Üsküdar 25 km N, 15.vii.1985, 1 ♀, P. D. J. van Ooijen leg.; **Urfa**: Halfeti, 425 m, 7.viii.1985, 1 ♀, R. Hensen leg. (Hensen & Van Ooijen 1987).

Material examined. **Bursa**: Çagliyan env., 10.-14.vii.1997, 2 ♂♂, 1 ♀, P. Průdek and M. Říha leg., JSPC, MRBC.

Geographic distribution. Croatia to southern parts of Central Asia; recorded also from Austria (Gusenleitner 1998).

Tachysphex fulvitarsis (A. Costa, 1867)

Pulawski 1967: 405; 1971: 90–95, figs 20–25.

Published records. **Ankara, Antakya, Artvin, Içel, Istanbul, Kayseri, Konya, Sinope** (Pulawski 1967, 1971).

Material examined. **Adana**: Boztahta 1 km W, Adana 45 km N, 330 m, 24.vi.2001, 1 ♂, M. Fikáček, J. Hájek and J. Straka leg., JSPC; **Edirne**: Edirne env., 225 m, 16.vi.2001, 1 ♂, 1 ♀, M. Fikáček, J. Hájek and J. Straka leg., JSPC; **Eskişehir**: Sakariilica near Gümele, Eskişehir 30 km N, 6.-9.vii.1997, 1 ♂, P. Průdek and M. Říha leg., JSPC; **Kayseri**: Develi 7 km NW, 1600 m, 24.vii.2003, 1 ♀, J. Straka leg., JSPC; Van: Muradiye env., Van 120 km NE, 2000 m, 5.vi.2001, 1 ♂, K. Deneš sen. leg., OLML.

Geographic distribution. Widely distributed in the Palearctic region.
Comments. A common species.

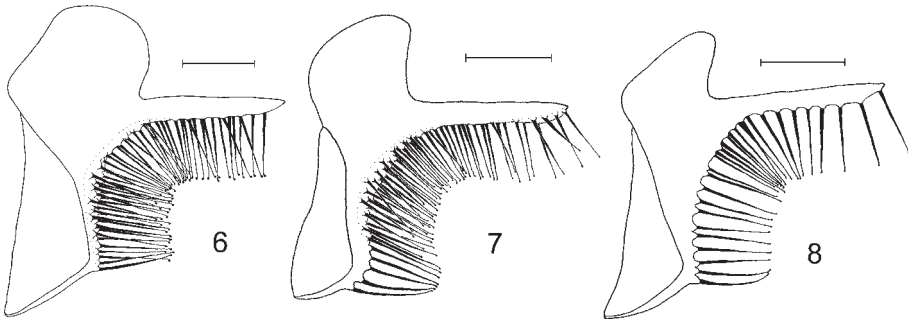
Tachysphex grandii de Beaumont, 1965, sp. revocata
(Fig. 6)

Pulawski 1967: 408; 1971: 182–185, figs 107–109.
Synonymized with *T. consocius* by Pulawski in Krombein and Pulawski (1994): 28.

Type material examined. **Paratypes**: Greece: **Peloponnesus**: Zachlorou, 30.v.1962, 1 ♂, 29.v.1964, 1 ♀, M. Schwarz leg., MSAC.
Additional material examined. Austria: **Niederösterreich**: Bernhardstal, 11.vii.1985, 1 ♂, J. Gusenleitner leg., Geinfarn, Bad Vöslau W, 290 m, 26.viii.1995, 1 ♀, J. Gusenleitner leg., **Steirmark**: Therme Loipersdorf, 12.v.1998, 6 ♂♂, 3 ♀♀, F. Gusenleitner leg., **Burgenland**: Tauka, 300 m, 18.v.2000, 1 ♀, F. Gusenleitner leg., 11. vii.2001, 1 ♀, J. Gusenleitner leg., Schützengraben, Minihof-Liebau E, 370 m, 1 ♀, J. Gusenleitner leg., OLML; and additional 1 ♂ and 6 ♀♀, NHMW, OLML; Bulgaria: **Burgas**: Burgas, 15.vii.1985, 1 ♀, red form, J. Papp leg., HNHM, Sandanski, 1.-8.vi.1967, 1 ♂, Slănčev Brjag, 2.viii.1968, 1 ♀, red form, vi.1969, 1 ♂, 10.vi.1972, 1 ♂, 1 ♀, red form, M. Kocourek leg., 18.-30.v.1989, 4 ♂♂, J. Halada leg., OLML, Ropotamo, 5.vii.1986, 1 ♀, Z. Karas leg., ZKZC; **Plovdiv**: Plovdiv, vii.1969, 1 ♀, red form, K. Deneš sen. leg., OLML; **Croatia**: Dobrogea, Istria, 28.vi.1969, 1 ♀, L. Móczár leg., HNHM; Drvenik, Makarska env., 11.-22.vi.2000, 1 ♀, M. Kafka leg., JSPC; Czech Republic: **Bohemia**: Houšťka, 27.vii.1909, 1 ♀, red form, O. Šustera leg., NHMW; Hradec Králové env., 250 m, vii.1948, 1 ♀, V. Balthasar leg., NMPC; Veselí nad Lužnicí, 410 m, 28.7.1985, 1 ♂, Z. Karas leg., ZKZC;

Cihelna v Bažantnici, Praha-Hloubětín, 260 m, 28.v.1998, 1 ♂, 22.vi.1998, 3 ♂♂, 1 ♀, Chvalský lom, Praha-Horní Počernice, 260 m, 15.vii.1999, 1 ♀, Podbabské skály, Praha-Sedlec, 250 m, 9.vi.2002, 5 ♂♂, 1 ♀, 14.vi.2002, 1 ♂, 1 ♀, 1.vii.2002, 2 ♀♀, J. Straka leg., JSPC; and additional 11 ♂♂ and 16 ♀♀, JSPC, NHMW, NMPC, OLML; **Moravia**: Mutěnice env., 200 m, viii.1941, 1 ♀, 27.vii.1949, 1 ♀, V. Balthasar leg., Kobylí env., 200 m, vi.1943, 1 ♀, J. Pospíšil leg., NMPC; Pálava Protected Landscape Area, 300 m, 16.vi.1986, 1 ♂, Z. Karas leg., ZKZC; Pánov, 200 m, 22.vi.-2.ix.2002, 1 ♀, D. Vepřek leg., JSPC; and additional 1 ♂ and 3 ♀♀, NMPC; Greece: **Attica**: Corynth 3 km W, 27.iv.1987, 1 ♂, J. Schmidt leg., OLML; **Hungary**: Ör Sz. Miklós, vii.1913, 2 ♀♀, red form, Sajó leg., Simontornya, 15.vii.1932, 1 ♀, Pilich leg., Tóközpuszta, 25.vi.1953, 1 ♀, Bajári leg., Tompa, 25.vii.1962, 1 ♀, Mihályi leg., Zamárdi, 10.-18.vii.1965, 1 ♀, red form, L. Móczár leg., Ásotthalom, 19.vii.1972, 1 ♀, red form, L. Gallé leg., Kis-Pöse, date missing, 1 ♀, Méhely leg., HNHM; Sándorfalva env., 9.viii.1999, 1 ♀, red form, Őrkeny 2 km W, 180 m, 16.viii.2000, 2 ♀♀, J. Straka leg., JSPC; Italy: **Sicilia**: Collesano env., Madonie, 300 m, 3.-5.vi.2002, 1 ♂, J. Halada leg., JSPC; **Jordan**: Wadi Ramm, 12.v.1995, 1 ♂, K. Deneš sen., OLML; **Kazakhstan**: Aksay 20 km SE, 16.-19.vi.1992, 2 ♂♂, J. Halada leg., Alma-Ata, 25.vi.1992, 1 ♀, K. Deneš sen., 1.vi.1994, 1 ♂, J. Halada leg., OLML; **Portugal**: Lisboa, 10.vi.1951, 1 ♀, N. F. de Andrade leg., NMPC; Serbia: **Vojvodina**: Susara, Deliblatska Pescara, 2.vii.1969, 1 ♂, 1 ♀, red form, H. Malicky leg., OLML; **Slovakia**: "Piesting", 17.vii.1869, 1 ♀, Kohl leg., NHMW; Vinicky, Baba, vi.1952, 1 ♀, red form, M. Kocourek leg., Chotín, 22.vii.1962, 1 ♀, Z. Pádr leg. OLML; Štúrovo (Parkan), vii.1967, 1 ♀, V. Balthasar leg., NMPC; Spain: **Andalucía**: Coín, 19.v.1985, 1 ♂, J. Schmidt, OLML; Turkey: **Ankara**: Kizilcahamam env., 9.vii.2000, 2 ♀♀, M. Halada leg., OLML; **Bitlis**: Tatvan 30 km E, 7.vii.1997, 1 ♂, M. Halada leg., OLML; **Bursa**: Çagliyan env., 20.-23.vii.1998, 1 ♀, M. Říha leg., MRBC; **Erzurum**: Erzurum E, 2000 m, 6.vii.2000, 1 ♂; M. Halada leg., OLML; **Konya**: Sille env., 7.vi.1978, 1 ♂, M. Schwarz leg., JSPC; **Nevşehir**: Ürgüp 10 km W, 15.vi.1998, 1 ♂, M. Halada leg., OLML; **Sivas**: Şerefiye area, 1500 m, 7.vii.1960, 1 ♀, K. M. Guichard and D. H. Harvey leg., BMNH; **Van**: Muradiye 10 km N, 27.vi.1997, 3 ♂♂, M. Halada leg., Van 20 km W, 5.vii.1997, 1 ♂, M. Halada leg., Muradiye, 2200 m, 5.vii.2000, 1 ♂, M. Halada leg., OLML; Ukraine: **Kherson**: Ivanovka, v.2000, 1 ♀, V. Gurko leg., OLML.

DIAGNOSIS. *T. grandii* is a member of a complex of several sibling species (see also the comment under *T. consocius*). This species complex is defined in the following combination of characters. ♂, ♀: sculpture on mesopleuron with distinct punctures, their interspaces unsculptured to slightly microsculptured, shiny to dull; ♂: antennae with two differently sculptured setose areas and more or less distinct longitudinal line between them; ♀: clypeal lip slightly pointed medially and with distinct lateral incisions. *T. grandii* resembles *T. consocius*, *T. humilis* sp. nov., *T. karasi* sp. nov. and Sub-Saharan *T. minutus* Arnold, 1923. Individual species can be recognized by a combination of several characters. A reliable determination of some extreme specimens can be difficult. *T. grandii* differs from the other related species by a characteristic sculpture of the mesopleuron



Figs 6–8. *Tachysphex grandii* de Beaumont, 1965 (6), *T. humilis* sp. nov. (7), *T. karasi* sp. nov. (8); volsella, outer side view; scale bar = 0.1 mm.

composed of small ill defined punctures (thrusted like), shallow to indistinct especially on the hypoepimeral area and becoming more distinct ventrally, with shiny interspaces; setae on the vertex and venter of midfemur are shorter than 1 x MOD; the mid- and hindtrochanters with small punctures one to two diameters apart, sometimes with a few large punctures; and especially the characteristic volsella (Fig. 6). Females of *T. grandii* occure in two colour forms, one all black, the other with gastral segments I-II red. Red form is not known in any other closely related species.

General description of male. Body length: 4.0–6.5 mm.

Head. Glossa and galea short, aproximately as long as half of scapus lenght, in all examined specimens. Mandible with one distinct inner tooth. Labrum flat, margin variable, usually rounded. Clypeus distinctly convex; basomedian area densely punctate; bevel shorter than basomedian area (usually about 1/3 of basomedian area), shiny with several large punctures and with large punctures near margin between bevel and basomedian area; lip usually slightly pointed; WML:LCL = 1.4-1.6, WCL:WML = 2.1-2.4. Antennae short; articles III-XIII with two differently sculptured setose areas; article V distinctly thicker than the article XIII; LA3:WA3 = 1.6-2.0, LA5:WA5 = 1.5-1.7. Frons very densely punctate, with linear interspaces to rugose with distinct punctures, punctures relatively variable in size, interspaces (if distinct) usually shiny; frontal median line ill defined. Vertex usually with well-developed punctures, half to two diameters apart, interspaces unsculptured, shiny; setae distinctly shorter than 1 x MOD; postocellar impression distinct, relatively shallow, in most specimens impressed as narrow obtuse V-line; WV:LV = 1.7–2.0.

Thorax. Scutum and scutellum densely punctate, punctures well defined, rarely shallow, less than one diameter apart, interspaces distinct, unsculptured. Mesopleuron with shallow to indistinct punctures on hypoepimeral area and posterior part, ventrally becoming more distinct and well defined, interspaces unsculptured, shiny, variable in size. Mesosternal punctures one to three diameters apart, interspaces unsculptured. Propodeal dorsum irregularly rugose with more or less distinct longitudinal ridges. Propodeal side obliquely ridged, interspaces shiny. Venter of all trochanters with small punctures about one diameter apart, interspaces slightly shiny. Forefemur with small ill-defined punctures several diameters apart, interspaces unsculptured; forefemoral notch medium sized, surface unsculptured. Midfemoral venter of midfemur with setae distinctly shorter than 1 x MOD. Forebasitarsal rake absent. Wings almost hyaline, slightly infumated apically; veins brown.

Gaster. Terga I-III (I-IV in some specimens) with distinct silvery apical bands. Terga and apical depressions densely micropunctate, interspaces shiny; sculpture on tergum VII coarser. Sterna uniformly micropunctate nearly like terga. Sternum VIII with more or less distinct obtuse tooth between two apicolateral teeth. Gonostyle with less than 20 setae on apical half; most setae equal in length. Volsella brown, characteristic (Fig. 6); base of ventral setae distinctly wide; setae not in one line. Penis valve variable; dentate apex slightly inflexed, relatively long, with four to ten teeth.

Coloration. Mandible apicaly and apical tarsal segments more or less red. Tegula reddish translucent. Other body parts all black.

General description of female. Body length: 5.5-7.5 mm.

Head. Glossa and galea short, aproximately as long as half of scapus length, in all examined specimens. Labrum flat, margin variable, rounded in most specimens. Clypeus distinctly convex; basomedian area small, densely punctate; bevel large, sometimes reaching base of clypeus, convex with several very large punctures, shiny; lip sinuate, with lateral incisions, separated from the bevel by large deep punctures; WML:LCL = 1.6-1.8, WCL:WML = 1.9-2.0. Antennae relatively short; LA3:WA3 = 2.5-2.7, LA5:WA5 = 2.3-2.6. Frons densely punctate, punctures variable in size, interspaces distinct, usually coarsely microsculptured, dull or slightly shiny; frontal median line distinct. Vertex with well-developed punctures, less than half to two diameters apart, interspaces

unsculptured, shiny; setae distinctly shorter than 1 x MOD; postocellar impression distinct, relatively shallow, in most specimens impressed as a narrow obtuse V-shaped line; WV:LV = 1.5-1.6.

Thorax. Scutum and scutellum densely punctate, punctures well defined, less than one to two diameters apart, interspaces distinct, unsculptured. Mesopleuron with shallow to indistinct punctures on hypoepimeral area and posterior part, ventrally becoming more distinct and well defined, interspaces usually unsculptured, shiny, variable in size. Mesosternum with ill-defined punctures one to several diameters apart, interspaces unsculptured. Propodeal dorsum irregularly rugose with more or less distinct irregular longitudinal ridges. Propodeal side obliquely ridged, interspaces unsculptured, shiny. Mid- and hindtrochanteral ventr with small punctures one to two diameters apart, in some specimens with a few large punctures. Forefemur with small, ill-defined punctures, several diameters apart, interspaces unsculptured; Venter of midfemur with setae distinctly shorter than 1 x MOD. Forebasitarsal rake amber, with three apical spines and with one preapical spine. Wings almost hyaline; veins brown.

Gaster. Terga I-IV with distinct silvery apical bands; in some specimens of red form terga I-III with distinct silvery apical bands. Terga I-III and all apical depressions distinctly micropunctate, interspaces microsculptured, shiny; terga IV-V sparsely sculptured, punctures indistinct. Pygidial plate distinctly irregularly punctate, interspaces variable, in most specimens shiny. Central part of sternum II with several distinct large punctures, interspaces microsculptured, shiny; lateral part dull to shiny, densely micropunctate; remaining sterna with uniform sculpture similar to that on sternum II, but more or less reduced laterally.

Coloration. Two colour forms; one all black; the other with gastral segments I-II red. Central part of mandible and apex of pygidial plate in both forms red. Apical tarsal segments (individually variable) brown. Tegula reddish translucent. Apical parts of terga I-II in the red form distinctly translucent. Other body parts all black. Very rarely, intermediate specimens between the red and black forms can be found, in which basal half of gastral segments I-II is red.

Geographic distribution. Portugal to Kazakhstan, so far not recorded from North Africa.

Comments. Holotype: ♂, Italy: Bologna: Gaibola, in Bologna University (Beaumont 1965). Records from 1965 to recent of *T. grandii* refer to several species in publications, therefore they cannot be used for a characteristic of the geographical distribution of this species. The holotype was not examined; however, this is the only species occurring in Italy.

Tachysphex helveticus Kohl, 1885

Pulawski 1967: 408; 1971: 172–176, figs 100–104.

Published records. **Ankara**: Ankara env., v.1925, 1 ♀, Biró leg., **Kayseri** (Pulawski 1967); **Istanbul**, without details (Pulawski 1971).

Material examined. Kayseri: Sultanhani, 1200 m, 13.vi.1962, 1 ♀, 15.vi.1962, 1 ♂, 1 ♀, K. M. Guichard and D. H. Harvey leg., BMNH.

Geographic distribution. Almost the whole Palearctic region.

Tachysphex humilis sp. nov.

(Fig. 7)

Type material. **Holotype**: **Jordan**, ♂, labelled: "JORDAN west. / 10km N of Petra / 3.V.1996/ leg.Mi.Halada ing.", printed label. Holotype in OLML. **Paratypes**: Jordan: Petra 10 km N, 3.v.1996, 3 ♂♂, M. and Mi. Halada leg., OLML, JSPC; Kazakhstan: Makbal, Dzhambul 60 km E, Kirgizskiy Mts., 4.vi.1980, 1 ♀, Z. Pádr leg., OLML; Kyrgyzstan: Taldi-Bulag, Talas 90 km E, 5.vii.1992, 1 ♂, M. Halada leg., Neldy, Talas 20 km NW, Kirgizskiy Mts., 1800 m, 11.vi.1996, 1 ♂, S. Zonstein leg., Kuzu-Tegerek, Sandelashsky Mts., vii.1998, 1 ♀, V. Gurko leg, OLML;

Dzahal-Abad province, vi.2000, 1 ♀, V. Gurko leg., JSPC; **Syria**: Bloudan, 16.v.1995, 1 ♀, K. Deneš sen. leg., Şalkhad, 6.v.1996, 2 ♀♀, M. Halada leg., Rankus, 23.v.1996, 2 ♂♂, M. Halada leg., OLML; **Uzbekistan**: Shalcan, Kughitangtau, Pashkurd 15 km SW, 1500 m, 30.v.1997, 1 ♀, S. Zonstein leg., OLML.

Additional material examined. Turkey: **Içel**: Uzuncaburç, Silifke 30 km N, 28.v.1996, 1 ♀, M. Halada leg., OLML; Sirnak: Bozkir, 26.v.1998, 1 ♂, M. Halada leg., OLML; **Gaziantep**: Gaziantep 30 km W, 30.v.1998, 1 ♀, M. Halada leg., OLML; **Mugla**: Gölbaşi 25 km E, 7.vi.1998, 1 ♀, M. Halada leg., OLML; **Nevşehir**: Ürgüp, 13.vi.1998, 4 ♂♂, 4 ♀♀, Ürgüp 10 km W, 15.vi.1998, 1 ♂, 1 ♀, M. Halada leg., OLML, JSPC; **Adana**: Tufanbeyli, 8.vi.2001, 1 ♂, M. Snížek leg., OLML; **Erzurum**: Tekederesi env., Erzurum 15 km SW, 2700 m, 3.vii.2001, 1 ♀, M. Fikáček, J. Hájek and J. Straka leg., JSPC.

Diagnosis. *T. humilis* sp. nov. is a member of a complex of several sibling species (see also the comment under *T. consocius* and diagnosis under *T. grandii*). *T. humilis* sp. nov. differs from *T. consocius*, *T. grandii*, *T. karasi* sp. nov. and *T. minutus* by a characteristic sculpture of the female mesopleuron: large punctures distinct on lower half, half to one diameter apart, punctures on the hypoepimeral area well developed, interspaces slightly shiny to dull, coarsely microsculptured, in the smallest specimens microsculpture ill defined, setae on the vertex and lower part of midfemur are shorter than 1 x MOD, mid- and hindtrochanters of female with a few large punctures only, in males with distinct dense micropunctation; and especially the characteristic volsella (Fig. 7), in some specimens somewhat resembling extremely developed volsella of *T. grandii*. *T. humilis* sp. nov. varies considerably in some characters, e.g., in the scutal punctures in the female ranging from uniformly dense, less than one diameter apart, to variably sparse, half to many diameters apart.

Description of holotype. Male. Body length: 5.0 mm.

Head. Glossa and galea short, aproximately as long as half of scapus length. Mandible with one inner tooth. Labrum flat, margin probably rounded (hardly visible). Clypeus distinctly convex; basomedian area densely punctate; bevel slightly longer than basomedian area, shiny with several small punctures; lip slightly pointed. Antennae short; articles III-XIII with two distinct differently sculptured and setose areas; article V slightly thicker than last article. Frons densely punctate with small interspaces, punctures relatively large, variable in size, interspaces slightly shiny; frontal median line ill defined, almost missing. Vertex with well-defined punctures half to several diameters apart, interspaces shiny; setae distinctly shorter than 1 x MOD; postocellar impression distinct, shallow and large.

Thorax. Scutum and scutellum with well-defined punctures one diameter or less apart, interspaces shiny. Mesopleuron with distinct punctures on hypoepimeral area, punctures one to three diameters apart, interspaces slightly microsculptured, slightly shiny; other parts on mesopleuron relatively uniformly punctate, punctures well defined, interspaces one diameter or less apart, distinctly microsculptured. Mesosternal punctures one to two diameters apart, interspaces unsculptured. Propodeal dorsum coarsely sculptured with irregularly rugose ridges, interspaces slightly shiny. Propodeal side indistinctly obliquely ridged, interspaces shiny. Venter of all trochanters with small punctures about one diameter apart, interspaces slightly shiny. Forefemur with small distinct punctures several diameters apart, interspaces unsculptured; forefemoral notch medium sized, surface unsculptured. Venter of midfemur with setae distinctly shorter than 1 x MOD. Forebasitarsal rake absent. Wings almost hyaline; veins brown.

Gaster. Terga I-III with distinct, but weakly developed silvery apical bands. Terga distinctly micropunctate, interspaces shiny, slightly microsculptured; all apical depressions sparsely micropunctate; sculpture on tergum VII coarser. All sterna densely uniformly micropunctate, interspaces slightly shiny. Sternum VIII with a less distinct, small obtuse tooth between two apicolateral teeth. Gonostyle with less than twenty setae on apical half; most setae equal in length. Volsella brown; characteristic (cf. Fig. 7); base of ventral setae distinctly wide; setae not in one line. Dentate apex of penis valve slightly inflexed; relatively long; with six teeth.

Coloration. Mandible apicaly dark red. Tegula brown translucent. Other body parts all black.

Variability of males. Body length: 4.0-5.5.

Head. Glossa and galea very variable in length, aproximately as long as half to more than scapus length. Labrum flat, margin variable, in most specimens rounded. Clypeal bevel variable, in most specimens as long as basomedian area; lip usually slightly pointed, arcuate in some specimens; WML:LCL = 1.2-1.5, WCL:WML = 2.2-2.4. Antennal articles III-XIII with two differently sculptured and setose areas, but less distinct than in other related species; LA3:WA3 = 1.4-1.5, LA5:WA5 = 1.5-1.6. Frons densely punctate, punctures relatively variable in size, interspaces shiny to slightly shiny. Postocellar impression on vertex distinct, relatively shallow, variable; WV:LV = 1.9-2.4.

Thorax. Scutum and scutellum with well-defined punctures two to less than one diameter apart, variable, interspaces shiny. Mesopleuron with distinct punctures on hypoepimeral area, punctures in most specimens one to three diameters apart, interspaces variable, in the smallest specimens almost unsculptured, shiny; in larger specimens slightly to coarsely microsculptured, slightly shiny to distinctly dull; other parts on mesopleuron relatively uniformly punctate, punctures well defined, interspaces variable, in smallest specimens shiny, in larger specimens uniformly microsculptured, dull. Forefemur with small ill-defined punctures several diameters apart, interspaces unsculptured, rarely with distinct punctures.

Gaster. Terga I-III with silvery apical bands. Gonostyle with less than twenty to twenty setae on apical half; most setae equal in length. Penis valve variable; with four to ten teeth.

General description of female. Body length: 5.5-6.5 mm.

Head. Glossa and galea very variable, aproximately as long as half to more than scapus length. Labrum flat, margin variable, rounded in most specimens. Clypeus distinctly convex; basomedian area small, densely punctate, punctures well or ill defined; bevel large, often reaching base of clypeus, convex with a few large punctures, unsculptured, shiny; lip sinuate with lateral incisions; WML:LCL = 1.7-2.0, WCL:WML = 1.9-2.0. Antennae relatively short; LA3:WA3 = 2.0-2.4, LA5:WA5 = 2.2-2.5. Frons densely punctate, punctures relatively variable in size, interspaces distinct, in many specimens coarsely microsculptured, dull, or also unsculptured, shiny; frontal median line distinct. Vertex with well-developed punctures less than half to several diameters apart, interspaces more or less microsculptured, shiny, setae distinctly shorter than 1 x MOD; postocellar impression distinct, relatively shallow; WV:LV = 1.5-1.8.

Thorax. Scutum and scutellum variably sculptured, rather sparsely and irregularly punctate, but also densely uniformly punctate, punctures well defined, less than one to many diameters apart, interspaces usually sparsely microsculptured, shiny. Mesopleuron with well-defined punctures on lower and anterior part, half to one diameter apart, interspaces more or less coarsely microsculptured, slightly shiny to dull; numerous punctures of hypoepimeral area well defined, interspaces with more or less coarse microsculpture, dull to slightly shiny. Mesosternum with ill-defined punctures one to several diameters apart, interspaces unsculptured. Propodeal dorsum coarsely sculptured with more or less distinct longitudinal ridges, interspaces slightly shiny. Propodeal side obliquely ridged, interspaces unsculptured, shiny. Venter of mid- and hindtrochanters with a few large punctures, interspaces large, microsculptured, slightly shiny. Forefemur with variable ill-defined punctures several diameters apart, interspaces unsculptured, sometimes coarsely microsculptured; Venter of midfemur with setae distinctly shorter than 1 x MOD. Forebasitarsal rake amber, with three apical spines, separated from each other. Wings almost hyaline; veins brown.

Gaster. Terga I-III with ill-defined silvery apical bands. Terga including apical depressions microsculptured, slightly shiny, micropunctation ill-defined or missing. Pygidial plate distinctly irregularly punctate, interspaces large, shiny, sparsely microsculptured. Central part of sternum II with several distinct large punctures, interspaces microsculptured, shiny; lateral part dull to shiny,

densely micropunctate, remaining sterna with uniform sculpture similar to that on sternum II, but more or less reduced laterally.

Coloration. Central part of mandible and apex of pygidial plate red. Tegula brown translucent. Other body parts all black.

GEOGRAPHIC DISTRIBUTION. Turkey and Jordan to Central Asia.

ETYMOLOGY. Name derived from the Latin "humilis": small, minute.

Tachysphex karasi sp. nov.

(Fig. 8)

TYPE MATERIAL. **Holotype**: Turkey, **Batman**, ♂, labelled: "TURKEY / Tuzlagozu, 4.6. / (Baykan) 1998 / leg.Ma.Halada", printed label. Holotype in OLML. **Paratypes**: Bulgaria: **Burgas**: Slănčev Brjag, 18.-30.v.1989, 1 ♂, J. Halada leg., OLML; **Khaskovo**: Kharmanli env., vii.1969, 1 ♀, K. Deneš sen. leg., **Sofia**: Kresna env., 22.v.1983, 1 ♀, Z. Karas leg., ZKZC; Stara Kresna, 20.vi.1987, 1 ♀, J. Halada leg., OLML; Lebnice river valley, Sandanski env., 250 m, 2.vi.1999, 1 ♂, J. Straka leg., JSPC; Turkey: **Gaziantep**: Hasanbeyli, Osmaniye 30 km E, 10.vi.1998, 1 ♂, 1 ♀, M. Halada leg., OLML.

DIAGNOSIS. *T. karasi* sp. nov. is a member of a complex of several sibling species (see also the comment under *T. consocius* and diagnosis under *T. grandii*). *T. karasi* sp. nov. differs from *T. consocius*, *T. grandii*, *T. humilis* and *T. minutus* by a characteristic sculpture of the female mesopleuron: large punctures, distinct and well defined also on hypoepimeral area; mesopleuron densely punctate throughout, punctures less than one diameter apart, interspaces slightly microsculptured to unsculptured, shiny; interspaces on hypoepimeral area usually slightly shiny; setae on vertex and venter of midfemur shorter than 1 x MOD; antennae relatively thicker than *T. grandii* and *T. humilis* sp. nov.; mid- and hindtrochanters with small punctures one to two diameters apart; micropunctation of terga more distinct and denser than in other related species; forefemoral notch with well-developed median longitudinal elevation with distinctly dull surface; median part sharply separated; and especially the characteristic volsella (Fig. 8).

DESCRIPTION OF HOLOTYPE. Male. Body length: 5.0 mm.

Head. Glossa and galea short, aproximately as long as half of scapus length. Mandible with one inner tooth. Labrum not visible. Clypeus distinctly convex; basomedian area densely punctate; bevel shorter than basomedian area, shiny with several large punctures; lip slightly pointed. Antennae short; articles III-XIII with two differently sculptured and setose areas; article V distinctly thicker than the article XIII. Frons densely punctate with small interspaces, punctures uniform, relatively large, interspaces slightly shiny; frontal median line ill defined. Vertex with well-developed punctures less than one diameter apart, interspaces shiny; setae distinctly shorter than 1 x MOD; postocellar impression distinct, relatively shallow, obtusely V-shaped.

Thorax. Scutum and scutellum with well-defined punctures, less than half a diameter apart, interspaces shiny. Mesopleuron distinctly, densely punctate; hypoepimeral area with punctures one diameter or less apart, interspaces slightly shiny; other parts on mesopleuron relatively uniformly punctate, punctures well defined, also posteriorly, interspaces small, shiny. Mesosternal punctures well defined, one diameter or less apart, interspaces shiny. Propodeal dorsum finely reticulate, with ill-defined irregular longitudinal ridges, dull. Propodeal side irregularly obliquely ridged, interspaces shiny. Venter of all trochanters with small punctures about one diameter apart, interspaces slightly dull. Forefemur with small ill-defined punctures several diameters apart, interspaces unsculptured; forefemoral notch with lateral parts unsculptured, shiny; sharply separated median part microsculptured, dull. Midfemoral venter with setae distinctly shorter than 1 x MOD. Forebasitarsal rake absent. Wings almost hyaline; veins brown.

Gaster. Terga I-III with distinct silvery apical bands. Terga distinctly and densely micropunctate, interspaces slightly shiny, slightly microsculptured; all apical depressions densely micropunctate as well; punctures on tergum VII coarser and denser. All sterna densely uniformly micropunctate, interspaces slightly shiny. Sternum VIII with indistinct obtuse tooth between two apicolateral teeth. Gonostyle with five to eight setae on apical half. Volsella brown; characteristic (cf. Fig. 8); ventral setae in one line except on wider median part. Penis valve with slightly inflexed, relatively long dentate apex; with six to seven teeth.

Coloration. Mandible apicaly red. Tegula brown translucent. Other body parts all black.

Variability of males. Body length: 5.0-6.0 mm.

Head. Glossa and galea very variable in length, aproximately as long as half to more than scapus length. Mandible with one distinct inner tooth; sometimes with one very small tooth close to bigger one. Labrum flat, margin variable, usually rounded. Clypeal bevel not always shorter than basomedian area, in some specimens also longer than basomedian area; lip in most specimens slightly pointed; WML:LCL = 1.4-1.6, WCL:WML = 2.1-2.3. LA3:WA3 = 1.4-1.6, LA5:WA5 = 1.2-1.5. Frons densely punctate, sometimes with indistinct interspaces. Vertex with well-developed punctures one diameter or less apart. Postocellar impression distinct, relatively shallow, variable; WV:LV = 1.8-2.2.

Thorax. Scutum and scutellum with well-defined punctures less than half a diameter apart, interspaces shiny. Propodeal dorsum finely reticulate, rarely with irregular longitudinal ridges. Propodeal side variably obliquely ridged.

Gaster. Sternum VIII with more or less distinct obtuse tooth between two apicolateral teeth. Gonostyle with five to eight setae on apical half. Penis valve variable; dentate apex slightly inflexed, relatively long; with five to eight teeth.

General description of female. Body length: 5.5-6.5 mm.

Head. Glossa and galea very variable in length, aproximately as long as half to more than scapus length. Labrum flat, margin variable, usually rounded. Clypeus distinctly convex; basomedian area shorter than bevel, densely punctate, punctures well defined; bevel not reaching base of clypeus, convex with a few large punctures, unsculptured, shiny; lip sinuate, with lateral incisions; WML:LCL = 1.7-1.9, WCL:WML = 1.9-2.0. Antennae relatively short; LA3:WA3 = 1.9-2.1, LA5:WA5 = 2.1-2.2. Frons densely punctate, punctures variable in size, interspaces distinct, often slightly microsculptured, shiny; frontal median line ill defined. Vertex with well-developed punctures less than half to three diameters apart, interspaces slightly microsculptured to unsculptured, shiny; setae distinctly shorter than 1 x MOD; postocellar impression distinct, wide, relatively shallow; WV:LV = 1.4-1.6.

Thorax. Scutum and scutellum variably sculptured, densely and uniformly punctate, but also sparsely and irregularly punctate, with punctures two diameters apart in central part, punctures well defined, interspaces unsculptured, shiny. Mesopleuron distinctly and densely punctate on hypoepimeral area, punctures less than one diameter apart, interspaces unsculptured to microsculptured, shiny to dull; other parts on mesopleuron almost uniformly punctate, punctures well defined, also posteriorly, interspaces unsculptured to microsculptured, shiny or slightly shiny. Mesosternum with ill-defined punctures half to two diameters apart, interspaces unsculptured. Propodeal dorsum finely reticulate, rarely with irregular longitudinal ridges, dull. Propodeal side obliquely ridged, interspaces unsculptured, shiny. Venter of mid- and hindtrochanters with small punctures one to two diameters apart, sometimes with a few large punctures, interspaces slightly shiny. Forefemur usually with small ill-defined punctures several diameters apart, interspaces unsculptured; Venter of midfemur with setae distinctly shorter than 1 x MOD. Forebasitarsal rake amber, with three apical spines and one preapical. Wings almost hyaline; veins brown.

Gaster. Terga I-III invariably with distinct silvery apical bands. Terga including apical depressions distinctly and densely micropunctate, interspaces slightly shiny to dull, microsculptured; except apical depression of tergum V. Pygidial plate distinctly irregularly punctate, large interspaces unsculptured, often microsculptured basally. Central part of sternum II with several distinct large punctures, interspaces microsculptured, shiny; laterally dull to shiny, densely micropunctate; remaining sterna with uniform sculpture, similar to that on sternum II, but more or less reduced laterally.

Coloration. Central part of mandible and apex of pygidial plate red. Tegula brown or reddish translucent. Other body parts all black.

GEOGRAPHIC DISTRIBUTION. Bulgaria and Turkey.

ETYMOLOGY. Named in honour of the collector of one of the paratype, Mr. Zdeněk Karas.

Tachysphex magnaemontis Hensen, 1987

Hensen & Van Ooijen 1987: 13–14, figs 1–3.

PUBLISHED RECORDS. **Bursa**: Bursa 30 km S, Uludag Mt., 1900 m, 26.viii.1985, 2 ♀♀, R. Hensen leg., (holotype and paratype) (Hensen & Van Ooijen 1987).

GEOGRAPHIC DISTRIBUTION. West Turkey (Hensen & Van Ooijen 1987).

Tachysphex melas Kohl, 1898

MATERIAL EXAMINED. **Adiyaman**: Karadut env., Nemrut dag, 9.vi.1998, 1 ♂, M. Halada leg., OLML.

GEOGRAPHIC DISTRIBUTION. Syria to Mongolia.

COMMENTS. New species for Turkey.

Tachysphex nitidior de Beaumont, 1940

Pulawski 1967: 405; 1971: 167–170, figs 92–96.

PUBLISHED RECORDS. **Çankiri**: Ilgaz, 900 m, 22.vii.1962, 1 ♀, K. M. Guichard and D. H. Harvey leg.; **Hatay**: above Antakya, 70-300 m, 15.vi.1960, 1 ♂, K. M. Guichard and D. H. Harvey leg., Antakya, 1.-7.vi.1965, 24 ♂♂, 1 ♀, J. Gusenleitner and M. Schwarz leg. (Pulawski 1967, 1971).

MATERIAL EXAMINED. **Bitlis**: Bitlis env., 1550 m, 8.vii.1996, 1 ♂, P. Tyrner leg., PTLC; **Gaziantep**: Gaziantep 30 km NW, 2001, 2 ♂♂, M. Snížek leg., JSPC; **Kayseri**: Develi 7 km NW, 1600 m, 24.vii.2003, 1 ♂, J. Straka leg., JSPC.

GEOGRAPHIC DISTRIBUTION. Southern Europe, North Africa, Near East and Central Asia.

Tachysphex nitidissimus de Beaumont, 1952

Pulawski 1967: 405; 1971: 154–158, figs 81–83.

PUBLISHED RECORDS. AYDIN, HATAY, IÇEL, KONYA, URFA (Pulawski 1967, 1971).

MATERIAL EXAMINED. **Adana**: way from Çingöz to Boztahta, Adana 45 km N, 400 m, 23.vi.2001, 1 ♂, 1 ♀, M. Fikáček, J. Hájek and J. Straka leg., Aladag (=Karsanti), Adana 85 km N, 1250 m, 15.vii.2003, 1 ♀, P. Jašta and J. Straka leg., JSPC; **Adiyaman**: Karadut env., Nemrut dag, 9.vi.1998, 1 ♀, M. Halada leg., OLML; **Antalya**: Beşkonak env., 300 m, 18.vi.2001, 1 ♂, 1 ♀, M. Fikáček, J. Hájek and J. Straka leg., JSPC; BITLIS: Bitlis 20 km SW, 23.vi.1997, 1 ♂, M. Halada leg., OLML; **Eskişehir**: Sakariilica naer Gümele, Eskişehir 30 km N, 6.-9.vii.1997, 1 ♀, P. Průdek and M. Říha leg., JSPC; **Hatay**: Antakya, 27.v.1996, 1 ♀, Harbiye, 17.vi.2000, 2 ♂♂, M. Halada leg., OLML; **Içel**: Ekşiler near Silifke, 27.v.1998, 1 ♀, M. Halada leg., OLML; **Kayseri**: Kapuzbaşi

env., 800 m, 16.vii.2003, 1 ♂, 2 ♀♀, Ulupinar 8 km N, Kayseri 140 km S, 1100 m, 17.vii.2003, 2 ♂♂, Hisarcik 1 km S, Kayseri 10 km S, 1660 m, 20.vii.2003, 1 ♀, P. Janšta and J. Straka leg., JSPC.

GEOGRAPHIC DISTRIBUTION. North Africa, Near East, Greece, Turkey, Iran and southern parts of Central Asia.
COMMENTS. A common species.

Tachysphex opacus F. Morawitz, 1893

PUBLISHED RECORDS. **Bitlis**: Tatvan, 1750 m, 16.viii.1985, 2 ♂♂, R. Hensen leg. (Hensen & Van Ooijen 1987).

MATERIAL EXAMINED. **Bitlis**: Ahlat env., 14.vii.1996, 1 ♂, 1 ♀, P. Tyrner and J. Voříšek leg., PTLC; **Nevşehir**: Ürgüp 10 km W, 15.vi.1998, 3 ♂♂, M. Halada leg., OLML; **Sivas**: Gürün 20 km E, 10.vii.1997, 1 ♂, M. Halada leg., OLML; **Van**: Muradiye, 2200 m, 5.vii.2000, 1 ♂, M. Halada leg., OLML.

GEOGRAPHIC DISTRIBUTION. Lebanon and Syria to Uzbekistan and China.
COMMENTS. Specimens described as dark forms of *T. pompiliformis* in Hensen & Van Ooijen (1987) most probably belong to *T. opacus*.

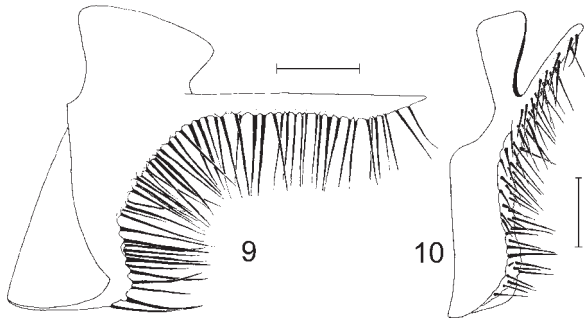
Males of *T. opacus* can be recognized by their slightly arcuate clypeal lip, lack conspicuous clypeal lobe corners and the lateral parts of tergum II densely punctate, with microsculptured and dull interspaces. Gaster is typically black or one to (rarely) three anterior terga can be dark red in both sexes. Females of the dark form of *T. pompiliformis* (= form *"nigripennis"*) are very similar to *T. opacus* and difficult to differentiate. Males of the dark form of *T. pompiliformis* are very rarely all black.

New species for Turkey.

Tachysphex pompiliformis (Panzer, 1805)
(Figs 9-10)

Pulawski 1971: 62–70, figs 4–10; Hensen & Van Ooijen 1987: 16.
T. nigripennis Spinola, 1808: Pulawski 1967: 401; synonymized by Pulawski (1971).

PUBLISHED RECORDS. **Ankara**, **Antakya**, **Bolu**, **Bursa**, **Kastamonu**, **Kayseri**, **Kirşehir**, **Konya**, **Nigde**, **Sinop**, **Trabzon** (Pulawski 1967); **Agri**, **Kars** (Hensen & Van Ooijen 1987).



Figs 9, 10. *Tachysphex pompiliformis* (Panzer); 9 – volsella, outer side view, 10 – volsella, inner oblique view. Scale bar = 0.1 mm.

Material examined. **Adiyaman**: Nemrut dag, 2500 m, 13.vii.1996, 1 ♂, P. Tyrner and J. Vořišek leg., PTLC; **Ankara**: Karagol env., Ankara 50 km N, 1200 m, 22.vi.1962, 1 ♀, Kavaklidere env., 900 m, 8.viii.1960, 1 ♂, K. M. Guichard and D. H. Harvey leg., BMNH; **Bitlis**: Ahlat env., 14.vii.1996, 2 ♂♂, P. Tyrner and J. Vořišek leg., PTLC; **Kütahya**: Simav env., 800 m, 1.viii.1962, 1 ♀, K. M. Guichard and D. H. Harvey leg., BMNH; **Erzurum**: Tekederesi env., Erzurum 15 km SW, 2300 m, 2.vii.2001, 2 ♂♂, 2 ♀♀, M. Fikáček, J. Hájek and J. Straka leg., JSPC.

Geographic distribution. Holoarctic region.

Comments. A common species. See the comment under *T. opacus* for the specimens listed in Hensen & Van Ooijen (1987) as a dark *T. pompiliformis*.

***Tachysphex prismaticus* sp. nov.**

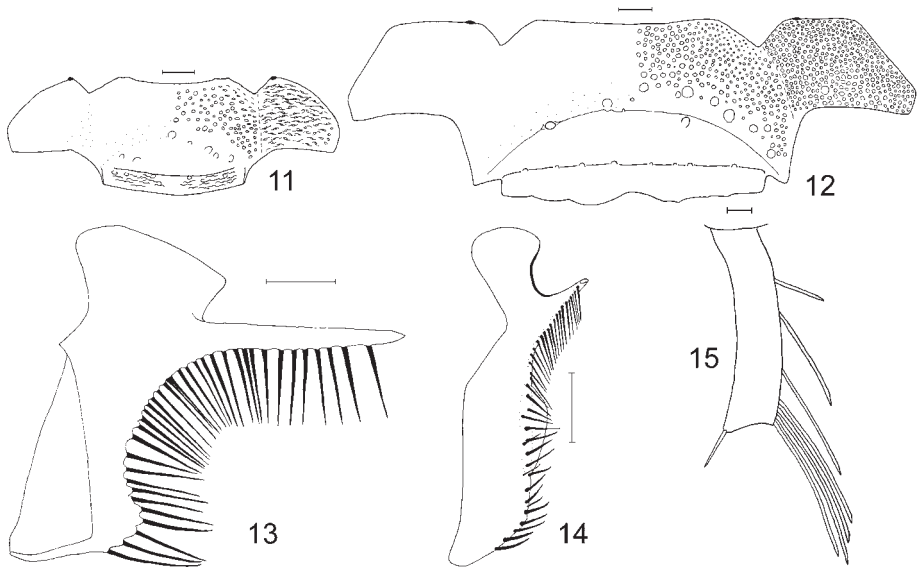
(Figs 11-15)

Type material. **Holotype**: Kazakhstan, ♂, labelled: "Kazakhstan 20km / SE Aksay env / 16. – 19. 6. 1992 / leg.K.Denes", printed label. Holotype in OLML. **Paratypes**: Kazakhstan: Aksay 20 km SE, 16.-19.vi.1992, 2 ♀♀, K. Deneš sen. leg., 7 ♂♂, J. Halada leg., OLML, JSPC; Senek 10 km E, Zhangaözen 50 km E, v.2000, 1 ♀, J. Miatleuski leg., OLML; Kyrgyzstan: Tash-Aryk 11 km E Talas, 4.vii.1992, 1 ♂, M. Halada leg, 1 ♂, Jirousek leg., OLML; Turkey: **Van**: Muradiye 40 km NE, 2200 m, 5.vii.2000, 1 ♂, M. Halada leg., OLML.
Additional material examined. Kyrgyzstan: **Dzahal-Abad**: Tschatkal-Tal NW Tschakmak-Suu, 2200 m, 8.-9.vii.1998, 1 ♂, H. and R. Rausch leg.; Dzahal-Abad, vi.2000, 1 ♂, V. Gurko leg., JSPC; Orto-Tokoy, vii.1998, 1 ♀, V. Gurko leg. OLML.

Diagnosis. *Tachysphex prismaticus* is a member of *T. pompiliformis* species complex. This species complex is defined in the following combination of characters. ♂, ♀: glossa and galea distinctly shorter than scapus; sculpture on mesopleuron dull, slightly punctate, or impunctate, or rugose; gaster with more or less distinct silver apical bands of tergum I-III (at least in some specimens of the species silver, in some specimens not silver); ♂: forebasitarsus without well-developed rake; ♀: clypeal bevel not reaching clypeal base; clypeal lip with lateral incisions and more or less distinct median emargination (distinct in fresh specimens); fore- and midfemoral venter sculptured as fine as laterally (only in some specimens with a few large, ill-defined punctures). *T. prismaticus* resembles *T. austriacus* Kohl, 1892, *T. pompiliformis*, *T. opacus*, *T. ferrugineus*, *T. kaszabi* Tsuneki, 1972 and *T. pekingensis* Tsuneki, 1971. It differs from these species in the following combination of characters: ♂, ♀: mesopleuron rugose to densely punctate; venter of all trochanters with punctures several diameters apart, their interspaces unsculptured; all femora and tibiae all black; ♂: volsella characteristic (Fig. 13); ventral volsellar setae in one line (Fig. 14), compare with volsella of *T. pompiliformis* (Figs 9 and 10); ♀: clypeal lip with distinct irregular median emargination (Fig. 12); relatively sharp and more or less angulated transition between clypeal basomedian area and bevel; forebasitarsal rake with four apical spines (Fig. 15).
Description of holotype. Male. Body length: 7.0 mm.

Head. Mandible with one distinct inner tooth. Labrum flat, emarginated to a heart-shape. Clypeus (cf. Fig. 11) slightly convex; basomedian area slightly convex, more or less densely punctate; bevel abrupt, as long as basomedian area, shiny, with a few large punctures; lip arcuate. Antennae relatively short. Frons and vertex densely, uniformly punctate, punctures usually less than one diameter apart, interspaces slightly shiny; setae shorter than MOD, erect to nearly erect.

Thorax. Scutum and scutellum densely, uniformly punctate, punctures less than one diameter apart, interspaces shiny. Mesopleuron rugose; hypoepimeral area and mesopleuron posteriorly irregularly obliquely ridged; remainder densely punctatorugose. Mesosternum densely punctate. Propodeal dorsum rugose, similar to mesopleuron. Propodeal side obliquely ridged. Venter of all trochanters with punctures several diameters apart; interspaces on foretrochanter unsculptured or slightly microsculptured. Forefemoral notch small, semicircular, but relatively deep and well defined, with shiny surface. Wings slightly yellowish; veins brown.



Figs 11–15. *Tachysphex prismaticus* sp. nov.; 11 – male clypeus, 12 – female clypeus, 13 – volsella, outer side view, 14 – volsella, inner oblique view, 15 – female forebasitarsus; scale bar = 0.1 mm.

Gaster. Terga I-III with distinct silvery apical bands; apical depressions on all terga slightly translucent, well defined especially on tergum I. Tergal punctures ill defined, evanescent in microsculpture; also apical depressions with punctures, but less distinct on terga I-II. All sterna with uniform sculpture similar to that on terga, but punctures more distinct. Gonostyle with less than 20 setae on apical half; setae not shortened continuously towards apex. Volsella characteristic (cf. Fig. 13); ventral setae on volsella in one line (cf. Fig. 14).

Coloration. Apical half of mandible and distal parts of tarsi red. Apical depression on gastral segment I and major parts of tegula reddish translucent. Other body parts all black.

VARIABILITY OF MALES. Body length: 5.5-8.0 mm.

Head. Lip arcuate or biarcuate; WML:LCL = 1.1-1.3; WCL:WML = 2.2-2.6. Antennae relatively short; LA3:WA3 = 1.7-2.0; LA5:WA5 = 2.1-2.4. Frons and vertex densely and uniformly punctate, punctures less than one diameter apart, interspaces shiny to slightly dull; WV:LV = 1.3-1.4.

Thorax. Scutum and scutellum densely, uniformly punctate, punctures less than one diameter apart, interspaces shiny or slightly shiny. Mesopleuron rugose to densely punctate; hypoepimeral area and posterior part on mesopleuron often irregularly obliquely ridged; remainder densely punctatorugose. Propodeal dorsum rugose, often with more or less irregular longitudinal ridges. Wings almost hyaline to slightly yellowish; veins brown.

Gaster. Apical depressions on all terga more or less translucent; especially tergum I in the all black form. Gonostyle with less than 20 setae on apical half; setae not shortened continuously towards apex.

Coloration. Gastral segment I sometimes with a narrow red band close to the apical depression. Gastral segments I-III and I-IV red in two specimens from Dzahal-Abad province, Kyrgyzstan.

GENERAL DESCRIPTION OF FEMALE. Body length: 7.5-8.5 mm.

Head. Labrum flat, emarginated to a heart-shape. Clypeal lip with irregular median emargination (Fig. 12); transition between clypeal basomedian area and bevel relatively sharp, angulated; basomedian area as long as bevel or shorter; bevel shiny; WML:LCL = 1.7, WCL:WML = 1.8. Antennae relatively short; LA3:WA3 = 2.6-2.8; LA5:WA5 = 3.0-3.2. Frons and vertex densely, uniformly punctate, punctures less than one diameter apart, interspaces larger on vertex along compound eyes, interspaces shiny; setae short, erect to nearly erect; postocellar impression distinct, rectangular; WV:LV = 1.1-1.3. Malar space and adjacent part of gena almost impunctate, integument bright shiny; gena densely punctate.

Thorax. Scutum and scutellum unevenly punctate, punctures in the middle half to three diameters apart (individually variable), interspaces shiny. Mesopleuron rugose to densely punctate; hypoepimeral area and mesopleuron posteriorly often irregularly obliquely ridged; remainder densely punctatorugose. Mesosternum densely punctate. Propodeal dorsum rugose, in most specimens with more or less irregular longitudinal ridges. Propodeal side obliquely ridged. Venter of all trochanters with punctures several diameters apart; interspaces on trochanter I unsculptured or slightly microsculptured. Forebasitarsal rake with four or five apical spines (Fig. 15). Wings almost hyaline to slightly yellowish; veins brown.

Gaster. Terga I-III with distinct silvery apical bands; apical part of all terga slightly translucent. Tergal punctures ill defined, evanescent in microsculpture; also apical depressions with punctures, but less distinct; terga slightly shiny to dull. Sterna finely microsculptured, slightly shiny to dull, punctures in some specimens distinct. Pygidial plate variable.

Coloration. Median part of mandible; two or three distal tarsal segments and gastral segments I-II or I-III red. Posterior half of tegula reddish translucent. Other body parts all black.

Geographic distribution. Turkey, Kyrgyzstan and Kazakhstan.

Etymology. Derived from the Latin "prisma", meaning a prism, referring to the shape of the clypeus in females.

Tachysphex psammobius (Kohl, 1880)

Pulawski 1967: 405, figs 26–27; 1971: 96–99, figs 26–28; Hensen & Van Ooijen 1987: 16.

Published records. **Amasya**, **Ankara**, **Antalya**, **Bilecik**, **Çorum**, **Hatay**, **Içel**, **Konya**, **Mugla**, **Trabzon**, **Urfa** (Pulawski 1967, 1971).

Material examined. **Antalya**: Taşkesigi, Antalya 100 km E, 1998, 1 ♂, M. Halada leg., OLML; **Erzurum**: Tekederesi env., Erzurum 15 km SW, 2300 m, 2.vii.2001, 2 ♂♂, 3 ♀♀, M. Fikáček, J. Hájek and J. Straka leg., JSPC.

Geographic distribution. Western and Northern Europe to Central Asia.

Comments. A common species.

Tachysphex punctipes Pulawski, 1967
(Figs 16-19)

Pulawski, 1967: 404.

Type material examined. **Holotype**: Turkey: **Artvin**: 20 km from Yusufeli on Yusufeli – Tortum road, 700 m, 8.vi.1962, 1 ♀, K. M. Guichard and D. H. Harvey leg., BMNH.

Additional material examined. Kazakhstan: Matay desert, 23.-25.vi.1995, 1 ♀, M. Múčka leg., OLML; Mongolia: Bayanzag, Dalanzadgad 100 km SW, Gobi desert, biotop with *Saxaulus* sp., 1.-2.vii.2003, 5 ♂♂, 1 ♀, J. Halada leg., OLML, JSPC; Turkey: **Van**: Erciş 10 km E, 25.vi.1997, 1 ♀, M. Halada leg., OLML.

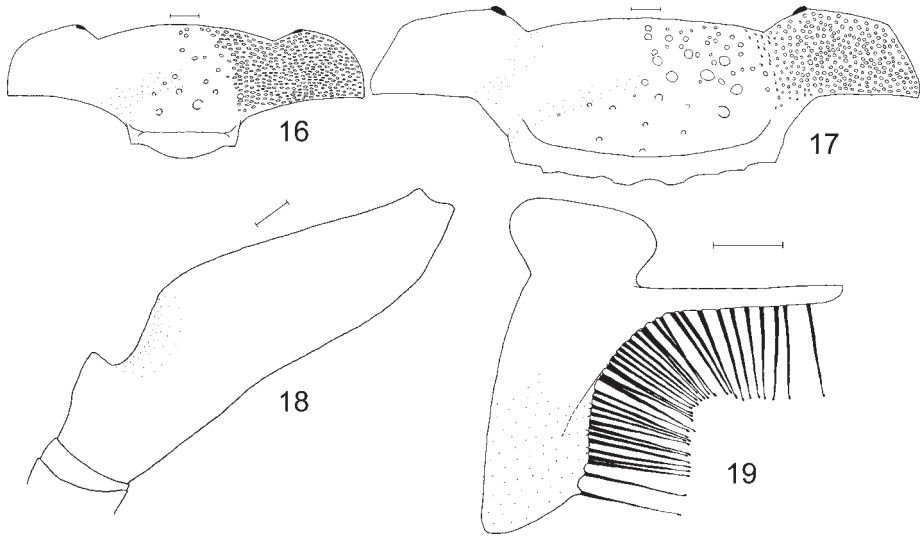
Diagnosis. *Tachysphex punctipes* is member of *T. mongolicus* species complex. For list of related species and definition of this complex see diagnosis under *T. bouceki* sp. nov. *T. punctipes* differs from related species in the following combination of characters: forefemur largely lacking punctures,

shiny, (especially in ♀); body all black; rugose to punctatorugose mesopleuron, hypoepimeral area ridged; terga I-III with distinct silvery apical bands; clypeus and central part of scutum sparsely punctate and forebasitarsal rake developed in male. For some other characters, see figs 16-19.

General description of male. Body length: 6.5-8.0 mm.

Head. Mandible with one small tooth. Labrum incurved medially; margin rounded. Clypeus (Fig. 16) convex; basomedian area developed only on side, superficially but distinctly punctate; bevel reaching base of clypeus, shiny, with a few deep, large punctures several diameters apart; lip arcuate, relatively long; setae conceal integument; WML:LCL = 0.9; WCL:WML = 3.0-3.3. Antennae relatively short; LA3:WA3 = 1.8-2.0 (-2.2); LA5:WA5 = 1.9-2.5. Frons with relatively shallow punctures less than half to one diameter apart; median line distinct, lacking punctures. Vertex uniformly punctate, punctures one to three diameters apart, smaller than on the frons, interspaces shiny to slightly dull, more or less microsculptured; setae erect, about 1 x MOD long; WV:LV = 1.3-1.5.

Thorax. Scutum sparsely punctate towards its centre, punctures there one to two diameters apart; less than one diameter apart on side, interspaces shiny with shallow microsculpture; scutal setae inclined posterad in anterior part, inclined anterad in posterior part, about 1-3 x MOD long. Scutellum regularly punctate, as on the central part of scutum. Mesopleuron rugose to shallowly punctate, punctures distinct, interspaces rugose to rugosely microsculptured, depending on body size; hypoepimeral area and posterior part on mesopleuron in large specimens linearly ridged between punctures; in small specimens with flat shiny interspaces. Mesosternal punctures variable, about one diameter apart in small specimens to less than half a diameter apart in large specimens, interspaces shiny to dull. Propodeal dorsum rugose, in most specimens with more or less irregular longitudinal ridges; setae inclined anterad, about 1.5 x MOD long. Propodeal side obliquely ridged, interspaces shiny, without microsculpture. Venter of all trochanters with a few



Figs 16–19. *Tachysphex punctipes* Pulawski; 16 – male clypeus, 17 – female clypeus, 18 – male forefemur, lateral view, 19 – volsella, inner side view; scale bar = 0.1 mm.

punctures, their interspaces unsculptured. Forefemur thin; punctures small, several diameters apart, interspaces unsculptured; forefemoral notch large (Fig.18), surface dull, with microscopical pubescence. Other femora more densely sculptured, more or less dull; Venter unsculptured. Forebasitarsal rake developed, with three to five long spines; apical spine as long as the following tarsomere; tarsomeres II and III with apical spine as long as or longer than the following tarsomere. Wings almost hyaline; veins brown.

Gaster. Terga I-III with well-developed silvery apical bands. Tergal punctures evanescent in dense microsculpture; apical depressions with punctures, punctation relatively dense, interspaces dull; sculpture on tergum VII sparser, interspaces shiny. Central part of sternum II with small punctures intermixed with large one, interspaces shiny, but gradually becaming dull laterally and basally; remaining sterna with uniform sculpture similar to that on sternum II. Sternum VIII with small obtuse tooth between two apicolateral teeth. Gonostyle with fewer than 25 setae equal in length on apical half. Volsella dark brown; characteristic (Fig. 19); base of ventral setae narrow, parallel; setae almost in one line. Penis valve with five distinct teeth, sometimes with one additional indistinct apical tooth.

Coloration. Central part of mandible, several apical tarsomeres and tegula more or less reddish. Other body parts all black.

General description of female. Body length: 8.5-9.5 mm.

Head. Labrum incurved medially; margin rounded. Clypeus (Fig. 17) distinctly convex; basomedian area hardly recognizable, developed only on side, superficially punctate; bevel reaching base of clypeus, shiny, with a few deep very large punctures, several diameters apart; lip with lateral incisions and a median emargination; WML:LCL = 1.5-1.7; WCL:WML = 2.0-2.1. Antennae relatively short; LA3:WA3 = 2.7-2.8; LA5:WA5 = 2.6-2.9. Frons with distinct punctures about one diameter apart, interspaces slightly dull; median line deep, impunctate. Vertex slightly impressed, uniformly punctate, punctures half to one diameter apart, interspaces shiny or slightly dull; setae erect, about 1 x MOD long; WV:LV = 1.2-1.4.

Thorax. Scutum sparsely punctate towards centre, punctures there several diameters apart; less than one diameter apart laterally, interspaces shiny with or without shallow microsculpture; scutal setae inclined posterad in anterior part, inclined anterad in posterior part, about 1,5-3 x MOD long. Scutellum punctate, as on the central part of scutum. Mesopleuron rugose to distinctly punctate, punctures distinct on lower part, interspaces rugose, linear to rugosely microsculptured; hypoepimeral area and posterior part on mesopleuron with linear interspaces. Mesosternal punctures one to two diameters apart, interspaces shiny, unsculptured. Propodeal dorsum irregularly rugose or with more or less irregular longitudinal ridges; setae inclined anterad, about 2 x MOD long. Propodeal side obliquely ridged, interspaces shiny, without distinct microsculpture. Venter of all trochanters with a few punctures, their interspaces unsculptured. Forefemur thin, shiny, small punctures (if developed) several diameters apart, interspaces unsculptured; Venter with several large punctures, interspaces unsculptured; LF1:WF1 = 3.2-3.6. Other femora more densely sculptured, more or less dull; venter almost unsculptured, with several large punctures only. Forebasitarsal rake light brown, with three or four long apical spines and in most specimens with one preapical spine close to the other apical spines. Wings almost hyaline; veins brown.

Gaster. Terga I-III with well-developed silvery apical bands. Tergal punctures evanescent in dense microsculpture; also apical depressions with punctures, punctation relatively dense, interspaces dull; sculpture on tergum V with sparser punctures; apical depression impunctate, interspaces slightly shiny. Pygidial plate variable, punctures several diameters apart, interspaces microsculptured or unsculptured. Central part of sternum II with several distinct punctures,

interspaces microsculptured, shiny; lateral part dull, densely micropunctate; remaining sterna with uniform sculpture similar to that on sternum II, but more or less reduced laterally.

Coloration. Central part of mandible, last two tarsomeres, posterior half of tegula, apex of tergum and sternum VI more or less reddish. Other body parts all black.

Geographic distribution. Turkey, Kazakhstan, Mongolia.

Comments. Previously known only from the holotype. This is the first description of the male and an improved description of the female based on additional specimens.

Tachysphex stachi de Beaumont, 1936

Material examined. **Adiyaman**: Karadut env., Nemrut dag, 9.vi.1998, 1 ♂, M. Halada leg., OLML; **Van**: Muradiye env., Van 120 km NE, 2000 m, 5.vi.2001, 1 ♂, K. Deneš sen. leg., OLML.

Geographic distribution. Israel and southern Russia (European part) to Central Asia.

Comments. New species for Turkey.

Tachysphex subdentatus F. Morawitz, 1893

Pulawski 1967: 405, figs 26–27; 1971: 96–99, figs 26–28; Hensen & Van Ooijen 1987: 16.

Published records. **Konya**: Konya env., 25.-27.v. and 15.vi.1965, 4 ♂♂, J. Gusenleitner and M. Schwarz leg.; Nigde: Çiftehan env., 1000 m, 23.vi.1962, 1 ♂, K. M. Guichard and D. H. Harvey (Pulawski 1967); Afyon, without details (Pulawski 1971); **Antalya**: Demirtaş, 100 m, 29.vii.1985, 1 ♂, R. Hensen leg.; **Bingöl**: Genç 15 km S, 1400 m, 13.viii.1985, 1 ♀, R. Hensen leg. (Hensen & Van Ooijen 1987).

Material examined. **Agri**: Agri 20 km S, 1600 m, 17.viii.1991, 1 ♀, M. Halada leg., OLML.

Geographic distribution. Greece to Central Asia.

Tachysphex tarsinus Lepeletier, 1845

Pulawski 1967: 405; 1971: 158–161, figs 84–88.

Published records. Samsun: Samsun env., 0-30 m, 2.viii.1959, 1 ♀, K. M. Guichard and D. H. Harvey leg. (Pulawski 1967, 1971).

Material examined. **Adana**: Karaömerli env., Seyhan Baraji, 80 m, 21.vi.2001, 1 ♂, way from Çingöz to Boztahta, Adana 45 km N, 400 m, 23.vi.2001, 1 ♀, M. Fikáček, J. Hájek and J. Straka leg., JSPC; **Kayseri**: Kapuzbaşi env., 800 m, 16.vii.2003, 1 ♀, Ulupinar 12 km N, Kayseri 140 km S, 1300 m, 17.vii.2003, 1 ♀, P. Janšta and J. Straka leg., JSPC.

Geographic distribution. Europe, North Africa, Turkey, Kazakhstan and China.

Tachysphex unicolor Panzer, 1809

as *T. nitidus* Spinola, 1805. Pulawski 1967: 405; 1971: 139–146, figs 75–78.

Published records. **Ankara**: above Hasanoglan, 1500 m, 29.vi.1962, 1 ♀, K. M. Guichard and D. H. Harvey leg.; **Istanbul**: Şile, 16.ix.1911, 1 ♀, Náday leg.; **Kayseri**: Erciyes dagi, 1800 m, 14.vi.1962, 1 ♀, K. M. Guichard and D. H. Harvey leg.; **Kütahya**: Gediz env., 824 m, 29.vii.1962, 1 ♀, K. M. Guichard and D. H. Harvey leg. (Pulawski 1967); **Hatay**, **Içel**, **Konya**, **Urfa**, without details (Pulawski 1971).

Material examined. **Adiyaman**: Karadut env., Nemrut dag, 9.vi.1998, 1 ♂, M. Halada leg., OLML; **Antalya**: Akseki env., 19.vi.1998, 2 ♂♂, 1 ♀, M. Halada, OLML; **Gaziantep**: Gaziantep 30 km W, 30.v.1998, 1 ♀, M. Halada leg., OLML; **Içel**: Uzuncaburç, Silifke 30 km N, 28.v.1996, 1 ♀, Kirobasi, Mut 40 km E, Çörnelek, 29.v.1996, 1 ♂, Mut 60 km E, 19.vi.1997, 2 ♂♂, Erdemli 30 km N, 17.vi.1998, 2 ♂♂, M. Halada leg., OLML; **Kahraman Mara**s: Kahramamaraş 40 km SE, 10.vi.1998, 2 ♂♂, M. Halada leg., OLML; **Kayseri**: Çamlica 5 km SW, Kayseri 120 km

S, 1700 m, 18.vii.2003, 3 ♂♂, P. Janšta and J. Straka leg., Develi 7 km NW, 1600 m, 24.vii.2003, 2 ♂♂, J. Straka leg., JSPC; **Konya**: Seydişehir, 1800 m, 4.viii.1991, 1 ♀, M. Halada leg., OLML; **Urfa**: Halfeti env., 3.-5.v.1994, 2 ♂♂, Mi. Halada leg., OLML.

GEOGRAPHIC DISTRIBUTION. Palearctic region.
COMMENTS. This very variable species may be a complex of several sibling taxa. There are two main morphotypes in Europe, one in Central Europe and highland regions of southern Europe, the other in the lowlands of southern Europe. Some other morphotypes occur in North Africa and Near East.

Tachysphex euxinus species group

Tachysphex euxinus Pulawski, 1958

Pulawski 1967: 401; 1971: 199–202, figs 128–132.

PUBLISHED RECORDS. **Istanbul**: Beykoz, 1 ♀, E. Horvath leg., **Bursa**, **Kütahya** (Pulawski 1967, 1971).

MATERIAL EXAMINED. **Bursa**: Çagliyan env., 10.-14.vii.1997, 1 ♂, P. Průdek and M. Říha leg., JSPC; Karacabey 10 km S, 10 m, 3.viii.1962, 1 ♂, K. M. Guichard and D. H. Harvey leg., BMNH; **Kütahya**: Simav, 800 m, 1.viii.1926, 1 ♀, K. M. Guichard and D. H. Harvey leg., BMNH.

GEOGRAPHIC DISTRIBUTION. Bulgaria, Turkey, Syria and Lebanon.

Incertae sedis (intermediate between *T. brullii* and *T. pompiliformis* species groups)

Tachysphex pusulosus de Beaumont, 1955

Pulawski 1971: 136–138, figs 70–74.

PUBLISHED RECORDS. **Urfa**: Birecik, without details (Pulawski 1971).

GEOGRAPHIC DISTRIBUTION. North Africa and Near East.
COMMENTS. The form of the male volsella and female forebasitarsal rake indicate a close relationship to the *Tachysphex brullii* species group.

Tachysphex brullii species group

Tachysphex brullii brullii (F. Smith, 1856)

as *T. bicolor bicolor* Brullé, 1833. Pulawski 1967: 400; 1971: 203–209, figs 133–143.

PUBLISHED RECORDS. **Amasya**, **Ankara**, **Çorum**, **Erzurum**, **Konya**, **Mugla**, **Nigde**, **Sivas** (Pulawski 1967).

MATERIAL EXAMINED. **Erzurum**: Tekederesi env., Erzurum 15 km SW, 2300 m, 2.vii.2001, 1 ♂, 1 ♀, M. Fikáček, J. Hájek and J. Straka leg., JSPC; "Tayallar" (not located), 9.v.1984, 1 ♂, I. Rozner leg., HNHM.

GEOGRAPHIC DISTRIBUTION. South and Central Europe, Turkey and Central Asia.
COMMENTS. A common species. Some of them could however belong to ssp. *galileus* (Pulawski 1967). The occurrence in Central Asia (Pulawski 1971) needs confirmation.

Tachysphex brullii galileus de Beaumont, 1947

as *T. bicolor galileus* de Beaumont, 1947. Pulawski 1967: 401; 1971: 209–210.

PUBLISHED RECORDS. **Erzurum**: Ispir, 1299 m, 31.v.1962, 1 ♀, K. M. Guichard and D. H. Harvey leg.; **Hatay**: Antakya, 1.-7.vi.1965, 1 ♂, 2 ♀♀, J. Gusenleitner and M. Schwarz leg.; **Içel**: Tarsus, 29.-31.v.1965, 1 ♀, J.

Gusenleitner and M. Schwarz leg.; **Konya**: Beyşehir, 4.-6.vi.1964, 2 ♂♂, 1 ♀, J. Gusenleitner and M. Schwarz leg. (Pulawski 1967, 1971).

Material examined. **Kütahya**: Kütahya 30 km N, 13.vi.2000, 1 ♀, M. Halada leg., OLML.

Geographic distribution. Turkey, Israel and Jordan.
Comments. The status of *T. brullii galileus* needs re-evaluation based on abundant material.

Tachysphex coriaceus (A. Costa, 1867)

Material examined. **Bursa**: Çagliyan env., 10.-14.vii.1997, 1 ♂, P. Průdek and M. Říha leg., 20.-23.vii.1998, 1 ♀, M. Říha leg., JSPC.

Geographic distribution. Bosnia-Herzegovina, Italy, Slovakia; recorded also from Spain (Bitsch et al. 2001).
Comments. The female examined has a black gaster. New species for Turkey.

Tachysphex graecus Kohl, 1883

Pulawski 1967: 401; 1971: 216–219, figs 153–160.

Published records. **Kirikkale**: Kirikkale 13 km W, 900 m, 30.vi.1960, 11 ♂♂, 3 ♀♀, K. M. Guichard and D. H. Harvey leg. (Pulawski 1967); **Denizli**, **Istanbul**, without details (Pulawski 1971).

Material examined. **Antalya**: Göynük env., Antalya 25 km SW, 18.-20.vii.2002, 1 ♀, P. Tyrner leg., PTLC; **Eskişehir**: Sakariilica naer Gümele, Eskişehir 30 km N, 6.-9.vii.1997, 16 ♂♂, 4 ♀♀, P. Průdek and M. Říha leg., JSPC, MRBC, PTLC; **Içel**: Büyükeçeli (Ovaçik) env., 14.-18.vii.1998, 1 ♀, J. Bezděk, MRBC.

Geographic distribution. Macedonia and Bulgaria to Lebanon and Israel.

Tachysphex latifrons Kohl, 1884

Pulawski 1967: 400; 1971: 203–209, figs 133–143.

Published records. **Ankara**: Elma Dagi, 1800 m, 21.v.1960, 2 ♂♂, K. M. Guichard and D. H. Harvey leg.; **Çorum**: Iskilip, 700 m, 9.v.1962, 1 ♀, K. M. Guichard and D. H. Harvey leg.; **Erzurum**: 14-20 km from Ispir on Ispir – Ikizdere road, 2.vi.1962, 3 ♀♀, K. M. Guichard and D. H. Harvey leg.; **Eskişehir**: Sivrihisar, 28.v.1964, 2 ♀♀, J. Gusenleitner and M. Schwarz leg., **Giresun**: Balaban Daglari, 1600 m, 9.vii.1960, 1 ♀, K. M. Guichard and D. H. Harvey leg.; **Hatay**: 2 ♂♂, 2 ♀♀, K. M. Guichard and D. H. Harvey leg., details not indicated, mistake in reference, **Samsun**: Havsa, 500 m, 19.v.1959, 1 ♂, K. M. Guichard and D. H. Harvey leg. (Pulawski 1967, 1971); **Antalya**: between Finike and Kaş, without details (Pulawski 1971).

Material examined. **Adiyaman**: Karadut env., Nemrut dag, 9.vi.1998, 1 ♀, M. Halada leg., OLML; **Antalya**: Akseki 10 km N, 24.v.1998, 1 ♂, M. Halada, OLML; **Bursa**: "Brussa", 1884, 1 ♀ (holotype), NHMW.

Geographic distribution. Greece and Libya to Central Asia.

Tachysphex obscuripennis (Schenck, 1857)

Pulawski 1971: 223–228, figs 165–172.

Published records. **Ankara**, without details (Pulawski 1971).

Material examined. **Erzincan**: Refahiye 15 km W, 1600 m, 7.vii.2000, 1 ♂, M. Halada leg., OLML; **Sivas**: Gürün 20 km E, 10.vii.1997, 1 ♂, M. Halada leg., OLML.

Geographic distribution. Whole of Europe, Turkey and Lebanon.

Tachysphex picnic Van Oojen, 1987

Hensen & Van Ooijen 1987: 15–16, figs 4–6.

Published records. **Bursa**: Bursa, Uludag, 5.ix.1983, 1 ♀, P. v. Ooijen leg. (holotype), Bursa 30 km S, Uludag Mt., 1900 m, 26.viii.1985, 1 ♀, R. Hensen leg. (paratype) (Hensen & Van Ooijen 1987).

Geographic distribution. West Turkey (Hensen & Van Ooijen 1987).

Tachysphex brevipennis species group

Tachysphex minutus Nurse, 1909 sensu Krombein & Pulawski 1994

as *T. rhodius* de Beaumont, 1960. Pulawski 1967: 408.
as *T.* sp. aff. *rhodius* de Beaumont, 1960. Pulawski 1967: 408.
T. rugosus Gussakovskij, 1952. Pulawski 1971: 243–245, figs 190–191, synonymized by Pulawski in Krombein & Pulawski (1994).

Published records. **Hatay**: Antakya, 1-7.vi.1965, 2 ♂♂, 2 ♀♀, J. Gusenleitner and M. Schwarz leg.; **Içel**: Mut, 9.-13.vi.1965, 2 ♀♀, Tarsus, 29.-31.v.1965, 1 ♂, ♀, J. Gusenleitner and M. Schwarz leg. (Pulawski 1967, 1971); **Istanbul**, **Konya**, without details (Pulawski 1971).

Material examined. **Hatay**: Antakya, 27.v.1996, 1 ♀, M. Halada leg., OLML.

Geographic distribution. Southeastern Europe, Sicily, whole of Africa, Near East, Central Asia and India.
Comments. *T. minutus* is an heterogeneous species, probably a conglomerate of many closely related taxa. The specimen examined had two red anterior gastral segments and mainly reddish legs.

Tachysphex plicosus species group

Tachysphex mediterraneus Kohl, 1883

Pulawski 1967: 401; 1971: 255–258, figs 199–204.

Published records. **Adana**: Çalidagi, 100 m, 27.v.1960, 1 ♂, K. M. Guichard and D. H. Harvey leg.; **Içel**: Mut, 9.-13.vi.1965, 1 ♀, J. Gusenleitner and M. Schwarz leg.; **Istanbul**: Şile, 11.vii.1962, 1 ♂, K. M. Guichard and D. H. Harvey leg. (Pulawski 1967, 1971); **Denizli**: Çamlik, without details (Pulawski 1971);

Material examined. **Adana**: way from Çingöz to Boztahta, Adana 45 km N, 400 m, 23.vi.2001, 1 ♀, 1 ♂, M. Fikáček, J. Hájek and J. Straka leg., Karataş 5-8 km W, Adana 48 km S, 30 m, 16.vii.2003, 3 ♂♂, P. Janšta and J. Straka leg., JSPC; **Bursa**: Kurşunlu env., 15.-17.vii.1997, 1 ♂, P. Průdek and M. Říha leg. MRBC; **Kayseri**: Develi 7 km NW, 1600 m, 24.vii.2003, 1 ♂, J. Straka leg., JSPC.

Geographic distribution. Southern Europe, Africa south to Zaire and Zambia, Near East, Central Asia, India and Sri Lanka.

Tachysphex plicosus (A. Costa, 1867)

Pulawski 1971: 258–260, figs 205–210; Hensen & Van Ooijen 1987: 16.

Published records. **Urfa**: Urfa, without details (Pulawski 1971); **Antalya**: Demirtaş, 100 m, 29.vii.1985, 1 ♂, 1 ♀, R. Hensen leg. (Hensen & Van Ooijen 1987).

Geographic distribution. Europe north to southern France and Romania, Africa south to Cape Province, Turkey, India, Sri Lanka and Thailand; recorded also from Hungary (Zsolt 2002).

Tachysphex panzeri species group

Tachysphex incertus (Radoszkowski, 1877)

Pulawski 1967: 397; 1971: 318–322, figs 273–278.

Published records. **Amasya**, **Hatay**, **Içel**, **Istanbul**, **Kahraman Maras**, **Konya**, **Urfa** (Pulawski 1967, 1971).

Material examined. **Adana**: Çiçekli, Adana 25 km N, 3.-5.vii.1998, 1 ♂, M. Říha leg., JSPC, Karaömerli env., Seyhan Baraji, 80 m, 22.vi.2001, 1 ♂, way from Çingöz to Boztahta, Adana 45 km N, 400 m, 23.vi.2001, 1 ♂, Boztahta 10 km W, Adana 45 km NNE, 300 m, 26.vi.2001, 1 ♂, M. Fikáček, J. Hájek and J. Straka leg., JSPC; **Antalya**: Gebiz env., 8.vii.2000, 2 ♂♂, J. Straka leg., JSPC, Side env., Antalya 70 km E, 29.vii.-7.viii.2001, 2 ♂♂, P. Tyrner leg., PTLC; **Bitlis**: Ahlat env., 14.vii.1996, 1 ♂, 2 ♀♀, P. Tyrner and J. Voříšek leg., PTLC; **Bursa**: Çagliyan env., 10.-14.vii.1997, 2 ♀♀, Kurşunlu env., 15.-17.vii.1997, 1 ♀, P. Průdek and M. Říha leg., MRBC; **Erzurum**: Ilica 1 km S, Erzurum 15 km NWW, 1950 m, 30.vi.2001, 1 ♂, Tekederesi env., Erzurum 15 km SW, 2300 m, 2.vii.2001, 3 ♂♂, M. Fikáček, J. Hájek and J. Straka leg., JSPC; **Eskişehir**: Sakariilica naer Gümele, Eskişehir 30 km N, 6.-9.vii.1997, 2 ♂♂, P. Průdek and M. Říha leg., MRBC; **Gaziantep**: Hasanbeyli, Nur Daglari, 1150 m, 16.vii.1996, 1 ♂, P. Tyrner and J. Voříšek leg., PTLC; Içel: Aslanli env., Göktepe Dagi, 10.-12.vii.1998, 1 ♀, Büyükeçeli (Ovaçik) env., 70 m, 14.-18.vii.1998, 4 ♂♂, 2 ♀♀, M. Říha leg., MRBC; **Kayseri**: Kapuzbaşi env., 800 m, 16.vii.2003, 1 ♂, Çamlica 5 km SW, Kayseri 120 km S, 1700 m, 18.vii.2003, 1 ♀, Hisarcik 1 km S, Kayseri 10 km S, 1660 m, 19.-20.vii.2003, 4 ♂♂, 1 ♀, P. Janšta and J. Straka leg., Develi 7 km NW, 1600 m, 23-24.vii.2003, 5 ♂♂, J. Straka leg., JSPC; **Kütahya**: Kütahya 30 km N, 13.vi.2000, 1 ♂, M. Halada leg., OLML.

Geographic distribution. South and Southeastern Europe north to Slovakia, North Africa; Turkey and Jordan to Central Asia and Afghanistan.
Comments. A common species.

Tachysphex liriformis Pulawski, 1967

Pulawski 1967: 395–396, fig. 18; 1971: 309–310, fig. 267; Hensen & Van Ooijen 1987: 12–13.

Published records. **Içel**: Mut, 9.-13.vi.1965, 7 ♂♂, 15 ♀♀, J. Gusenleitner and M. Schwarz leg. (Pulawski 1967, 1971); **Urfa**: Urfa, without details (Pulawski 1971); **Bitlis**: Van, 13.-14.1977, 1 ♀, J. Timmer leg., as *Tachysphex* cf. *liriformis* (Hensen & Van Ooijen 1987).

Material examined. **Eskişehir**: Sakariilica naer Gümele, Eskişehir 30 km N, 6.-9.vii.1997, 1 ♂, P. Průdek and M. Říha leg., JSPC; **Kayseri**: Ulupinar 12 km N, Kayseri 140 km S, 1300 m, 17.vii.2003, 4 ♂♂, P. Janšta and J. Straka leg., JSPC.

Geographic distribution. Turkey to Israel, Turkmenistan and Tajikistan.

Tachysphex mocsaryi Kohl, 1884

Pulawski 1967: 394; 1971: 312–315, fig. 269.

Published records. **Kayseri**: Sultanhani, 1200 m, 13.vi.1962, 3 ♂♂, K. M. Guichard and D. H. Harvey leg. (Pulawski 1967, 1971).

Material examined. **Adiyaman**: Nemrut dag, 13.vii.1996, 3 ♂♂, P. Tyrner and J. Voříšek leg., PTLC.

Geographic distribution. Spain, Southeast Europe north to Slovakia, Near East to Central Asia and Afghanistan.

Tachysphex panzeri (vander Linden, 1829)

Pulawski 1967: 393; 1971: 262–270, figs 211–221.

Published records. **Amasya**, **Ankara**, **Antalya**, **Hatay**, **Içel**, **Konya**, **Tokat**, **Tekirdag** (Pulawski 1967, 1971).

Material examined. **Adiyaman**: Nemrut dag, 13.vii.1996, 1 ♀, P. Tyrner and J. Voříšek leg., PTLC; **Antalya**: Gebiz env., 8.vii.2000, 1 ♂, J. Straka leg., JSPC, Side env., Antalya 70 km E, 29.vii.-7.viii.2001, 1 ♂, P. Tyrner leg., PTLC; **Bitlis**: Ahlat env., 14.vii.1996, 1 ♂, P. Tyrner and J. Voříšek leg., PTLC; **Bursa**: Çagliyan env., 20.-23.vii.1998, 1 ♂, M. Říha leg., MRBC; **Nevşehir**: Ürgüp, 4.vii.1997, 1 ♂, M. Halada leg., OLML; **Nigde**: Çamardi, 13.vii.1997, 1 ♂, M. Halada leg., OLML.

Geographic distribution. Europe except the North and British Isles, North Africa and Canary Islands, Asia east to Kazakhstan and Sri Lanka, also Thailand.
Comments. A common species. This very variable species may consist of several sibling species. Only the typical and dark forms occur in Turkey.

Tachysphex persa persa Gussakovskij, 1933

as *T.* aff. *catharinae* Pulawski, 1964. Pulawski 1967: 397.
as *T. persa* Gussakovskij, 1933. Pulawski 1971: 328–331; Hensen & Van Ooijen 1987: 14.

Published records. **Ankara**: Tuz Gölü lake, E side, Ankara 70 km S, 900 m, 1.ix.1959, 1 ♀, K. M. Guichard and D. H. Harvey leg.; Erzurum: Kandilli, 1900 m, 11.vi.1962, 1 ♂, K. M. Guichard and D. H. Harvey leg.; **Kayseri**: Sultanhani, 1200 m, 13.vi.1962, 3 ♀♀, K. M. Guichard and D. H. Harvey leg. (Pulawski 1967, 1971); **Içel**: Mut, **Urfa**: Urfa, Birecik, without details (Pulawski 1971); Burdur: Çeltikçi, 2.ix.1983, 1 ♀, P. D. J. Van Ooijen leg. (Hensen & Van Ooijen 1987).

Geographic distribution. Turkey, Syria, Lebanon, Israel, Egypt, Armenia and Iran.

Tachysphex persa nigripes Pulawski, 1967

Pulawski 1971: 332–333, fig. 282.
as *T. nigripes* Pulawski 1967. Pulawski 1967: 397, fig. 19.

Published records. **Içel**: Mut, 9.vi.1965, 1 ♀, M. Schwarz leg., Tarsus, 29.-31.v.1965, 3 ♂♂, 3 ♀♀, J. Gusenleitner and M. Schwarz leg. (Pulawski 1967, 1971); **Konya**: Sille, without details (Pulawski 1971);

Material examined. **Kayseri**: Çamlica 5 km SW, Kayseri 120 km S, 1700 m, 18.vii.2003, 5 ♂♂, P. Janšta and J. Straka leg., JSPC; **Kütahya**: Kütahya 30 km N, 13.vi.2000, 1 ♂, M. Hlada leg., OLML.

Geographic distribution. Bulgaria and Greece to Central Asia.

Tachysphex pulcher Pulawski, 1967

Pulawski 1967: 394–395; 1971: 280–282; Hensen & Van Ooijen 1987: 16.

Published records. **Ankara**: Tuz Gölü lake, 900 m, 1.ix.1959, 1 ♀, K. M. Guichard leg. (Pulawski 1967, 1971); **Konya**: Konya, without details (Pulawski 1971); Agri: Dogubayazit, 20.viii.1983, 1 ♂, 1 ♀, P. D. J. Van Ooijen leg.; **Bingöl**: Genç 15 km S, 1400 m, 13.viii.1985, R. Hensen leg., sex and number of specimens missing (Hensen & Van Ooijen 1987).

Material examined. **Adiyaman**: Nemrut dag, 2000 m, 16.viii.1991, 1 ♂, M. Halada leg., OLML; Van: Erciş 10 km E, 25.vi.1997, 1 ♀, Muradiye 10 km N, 27.vi.1997, 1 ♂, M. Halada leg., OLML; "Tshajan" (not located), 26.vii.1906, 1 ♂, Lendl leg., HNHM.

Geographic distribution. Turkey and Israel to Central Asia.

Tachysphex tessellatus (Dahlbom, 1845)

Pulawski 1967: 393; 1971: 276–278, fig. 222.

Published records. **Adana**: Karataş, 8.vi.1960, 1 ♂, K. M. Guichard and D. H. Harvey leg.; **Hatay**: Antakya, 1.-7.vi.1965, 1 ♂, J. Gusenleitner and M. Schwarz leg.; Içel: Alata, 30.v.1960, 1 ♀, K. M. Guichard and D. H. Harvey

leg.; **Samsun**: Samsun, 0-30 m, 2.viii.1959, 1 ♀, K. M. Guichard and D. H. Harvey leg.; **Igdir**: Ararat Mt., below Serdarbulak, 1700 m, 4.ix.1960, 2 ♂♂, K. M. Guichard and D. H. Harvey leg. (Pulawski 1967, 1971).
Material examined. **Siirt**: Siirt 15 km S, 500 m, 13.viii.1991, 1 ♂, M. Halada leg., OLML.

Geographic distribution. Greece and Turkey.

Tachysphex julliani species group

Tachysphex argentatus Gussakovskij, 1952

Pulawski 1967: 398; 1971: 369–372, figs 325–327.

Published records. **Ankara**: Kalecik, banks of the river Kizilirmak, 900 m, 7.viii.1960, 5 ♀♀ (Pulawski 1967, 1971); **Içel**: Mut, without details (Pulawski 1971).

Material examined. **Batman**: Kozluk, 3.vi.1998, 1 ♂, M. Halada leg., OLML.

Geographic distribution. Turkey and Egypt to Central Asia.

Tachysphex dignus Kohl, 1889

Pulawski 1967: 398–400, figs 20–21; 1971: 357–360, figs 309–314.

Published records. **Ankara**: Beynam, 1000 m, 26.vi.1962, 1 ♂, Kirikkale 16 km W, 29.vi.1960, 1 ♀, K. M. Guichard and D. H. Harvey leg.; **Erzincan**: Rafahiye – Erzincan road, 1000 m, 10.vii.1960, 3 ♂♂, K. M. Guichard and D. H. Harvey leg.; **Kirikkale**: Kirikkale 13 km W, 900 m, 30.vi.1960, 2 ♀♀, K. M. Guichard and D. H. Harvey leg.; **Kirşehir**: Kaman env., 1000 m, 17.vi.1962, 5 ♂♂, K. M. Guichard and D. H. Harvey leg.; **Içel**: Mut, 9.-13.vi.1965, 2 ♀♀, J. Gusenleitner and M. Schwarz leg. (Pulawski 1967); **Içel**: Tarsus, **Konya**: Sille, without details (Pulawski 1971).

Material examined. **Adana**: Boztahta 1 km W, Adana 45 km N, 330 m, 24.vi.2001, 3 ♂♂, M. Fikáček, J. Hájek and J. Straka leg., JSPC; **Adiyaman**: Nemrut dag, 2500 m, 13.vii.1996, 5 ♂♂, 2 ♀♀, P. Tyrner and J. Voříšek leg., PTLC; **Eskişehir**: Sakariilica naer Gümele, Eskişehir 30 km N, 6.-9.vii.1997, 1 ♂, P. Průdek and M. Říha leg., MRBC.

Geographic distribution. Cyprus; Israel and Turkey to southern parts of Central Asia.

Tachysphex julliani Kohl, 1883

Pulawski 1967: 398; 1971: 360–365, figs 315–320.

Published records. **Ankara**: Kalecik env., 900 m, 7.viii.1960, 2 ♀♀, K. M. Guichard and D. H. Harvey leg.; **Hatay**: Antakya, 1.-7.vi.1965, 4 ♂♂, J. Gusenleitner and M. Schwarz leg.; **Içel**: Mut, 9.-13.vi.1965, 1 ♂, Tarsus, 29.-31.v.1965, 14 ♂♂, 1 ♀, J. Gusenleitner and M. Schwarz leg. (Pulawski 1967, 1971).

Material examined. **Antalya**: Beşkonak env., 300 m, 18.vi.2001, 1 ♂, M. Fikáček, J. Hájek and J. Straka leg., JSPC; **Kayseri**: Ulupinar 8 km N, Kayseri 140 km S, 1100 m, 17.vii.2003, 4 ♂♂, Develi 7 km NW, 1600 m, 24.vii.2003, 2 ♂♂, J. Straka leg., JSPC; **Nevşehir**: Ürgüp, 4.vii.1997, 1 ♀, M. Halada leg., OLML; **Nigde**: Çamardi, 13.vii.1997, 1 ♀, M. Halada leg., OLML.

Geographic distribution. North Africa (ssp. *africanus* Pulawski, 1971), Southern Europe and Near East to southern parts of Central Asia.

Tachysphex schmiedeknechti Kohl, 1883

Pulawski 1967: 398; 1971: 389–393, figs 358–366.

Published records. **Içel**: Alata, 1960 m, 29.v.1960, 4 ♂♂, 30.v.1960, 1 ♂, K. M. Guichard and D. H. Harvey leg. (Pulawski 1967, 1971).

Material examined. **Antalya**: Beşkonak env., 300 m, 18.vi.2001, 1 ♀, M. Fikáček, J. Hájek and J. Straka leg., JSPC.

Geographic distribution. North Africa south to Ghana and Togo, Spain, Greece, Cyprus, Turkey, Syria, Iran, Yemen, Central Asia and Northwest India.
Comments. The form of the male volsella indicates a close relationship to the *Tachysphex julliani* species group.

Tachysphex vulneratus R. Turner, 1917

Material examined. **Içel**: Büyükeçeli (Ovaçik) env., 70 m, 14.-18.vii.1998, 1 ♂, M. Říha leg., JSPC.

Geographic distribution. Sub-Saharan Africa, Northeastern Chad, Algeria, India and Thailand.
Comments. From North Africa only one male is known – the holotype of *T. foucauldi* de Beaumont, 1952 from Algeria (Krombein & Pulawski 1994). New species for Turkey.

Tachysphex erythropus species group

Tachysphex costae (De Stefani, 1882)

Pulawski 1967: 397; 1971: 400–406, figs 371–380.

Published records. **Ankara**: Ankara 70 km S, Şereflikoçhisar 20 km N, 900 m, 24.vi.1962, 3 ♂♂, K. M. Guichard and D. H. Harvey leg. (Pulawski 1967, 1971); **Içel**: Mut, **Izmir**: Ephesus, **Tekirdag**: Tekirdag, without details (Pulawski 1971).

Material examined. **Kayseri**: Hisarcik 1 km S, Kayseri 10 km S, 1660 m, 20.vii.2003, 1 ♂, P. Janšta and J. Straka leg., JSPC.

Geographic distribution. Southern Europe, North Africa; Israel and Turkey to Central Asia.

Tachysphex erythropus (Spinola, 1838)

Pulawski 1967: 397; 1971: 408–411, figs 381–383.

Published records. **Içel**: Mut, 9.-13.vi.1965, 3 ♂♂, 1 ♀, J. Gusenleitner and M. Schwarz leg. (Pulawski 1967, 1971); **Aydin**: Kuşadasi, Ortaklar, without details (Pulawski 1971).

Material examined. **Adana**: Karataş 5-8 km W, Adana 48 km S, 10 m, 14.vii.2003, 2 ♂♂, 1 ♀, P. Janšta and J. Straka leg., JSPC; **Bursa**: Çagliyan env., 20.-23.vii.1998, 1 ♂, M. Říha leg., JSPC.

Geographic distribution. North Africa to Sudan, Ethiopia and Kenya, Iberian Peninsula, south-eastern Europe, Turkey, Israel, Arabian Peninsula, Azerbaijan, Central Asia, Iran and Gujarat in India.

Tachysphex selectus Nurse, 1909

T. actaeon de Beaumont, 1960. Pulawski 1967: 398; 1971: 412–414, figs 384–385, synonymized by Pulawski in Krombein & Pulawski (1994).

Published records. **Kahraman Maras**: Kahramamaraş – Gaziantep road, 100 m, 18.vi.1960, 1 ♂, K. M. Guichard and D. H. Harvey leg. (Pulawski 1967, 1971); **Urfa**, without details (Pulawski 1971).

Material examined. **Antalya**: Kemer env., Antalya 35 km SW, 16.-18.vii.2002, 1 ♂, Göynük env., Antalya 25 km SW, 18.-20.vii.2002, 4 ♂♂, P. Tyrner leg., PTLC; **Balikesir**: Arkent, Ayvalik env., 28.vi.-10.vii.1993, 5 ♂♂, P. Tyrner leg., PTLC, JSPC.

Geographic distribution. Turkey, Cyprus, Israel, Lebanon, Pakistan, India and Sri Lanka.

Tachysphex sordidus (Dahlbom, 1845)

Pulawski 1971: 417–420, figs 387–391.

Published records. **Içel**: Mut, without details (Pulawski 1971).

Material examined. **Antalya**: Göynük env., Antalya 25 km SW, 18.-20.vii.2002, 3 ♂♂, 1 ♀, P. Tyrner leg., PTLC, JSPC; **Nevşehir**: Ürgüp, 1100 m, 24.viii.1991, 1 ♀, M. Halada leg., OLML.

Geographic distribution. Rhodos, Cyprus and Turkey to Central Asia.

Tachysphex albocinctus species group

Tachysphex albocinctus (Lucas, 1848)

Material examined. **Adana**: Çiçekli, Adana 25 km N, 3.-5.vii.1998, 3 ♂♂, 2 ♀♀, M. Říha leg., JSPC, MRBC, Karataş 5-8 km W, Adana 48 km S, 10 m, 14.vii.2003, 1 ♂, 3 ♀♀, P. Janšta and J. Straka leg., JSPC; **Antalya**: Göynük env., Antalya 25 km SW, 18.-20.vii.2002, 1 ♂, P. Tyrner leg., PTLC.

Geographic distribution. Africa, southern Iberian Peninsula, Crete and Near East to southern parts of Central Asia.
Comments. New species for Turkey.

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