

Polistinae (Hymenoptera: Vespidae) of Turkey*

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Summary

In this study eleven species and subspecies of *Polistes* of the subfamily Polistinae were recorded. *Polistes dominulus bucharensis* Erichson was new record for Turkish fauna.

Polistes (Leptopolistes) gallicus L. was the most abundant and widespread species and comprised 20 % of the total material. *P.* (s. str.) *nimpha* Christ was the second common and high populated species.

P. (*Sulcopolistes*) *atrimandibularis* (Zimmermann), *P.* (*S.*) *semenowi* (Morawitz) and *P.* (*S.*) *sulcifer* (Zimmermann) are socially parasitic species, the others are social wasps and have predatory habits therefore they are useful biocontrol agents against some agricultural pests.

Introduction

The subfamily Polistinae (paper wasps) is the most diverse group of social wasps, both in terms of species richness and morphological and behavioral diversity (Carpenter, 1990).

Polistinae comprised of three tribes, the Ropalidiini, Polybiini and Polistini. The first one is distributed in Africa, South-east Asia, India and Australia; the second one mostly in South and Central America, the genus *Parapolybia* and *Polybioides* representing this tribe in Africa and Southeast Asia (Spradbery, 1973). Polistini has spread throughout much of the warmer temperate regions of the world. So as compare to the other tribes, it is a large cosmopolitan group of the social wasps.

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Polistini formerly consisted of only genus *Polistes* Zimmermann (1930), later Blüthgen (1938) separated socially parasitic species from this genus and named as *Sulcopolistes*. Some specialists in Europe such as Gusenleitner (1967), Guiglia (1972) and Cetkovic (1985) followed the same taxonomic system. But recently these two genera were united again as *Polistes* (van der Vecht and Carpenter, 1990; Carpenter, 1990).

Some species of *Polistes* are nuisance for workers particularly in orchards, workshops and factories making sweetstuffs, households, and people camping or on picnics. However, in general the species of *Polistes* are considered very good predators on some agricultural and forest pests (Morimoto, 1960; Kirkton, 1970; Spradbery, 1973). Morimoto (1960) pointed out that because of the relative ease of manipulation and predatory habit of *Polistes* could be a very useful biocontrol agent against some pests.

Polistinae is represented only by *Polistes* in Turkey, except Gusenleitner (1988) recorded one female of *Parapolybia escalerae* Meade-Waldo in south east of Anatolia (Kaval, Hakkari).

Studies related to *Polistes* in Turkey is very restricted, although İyriboz (1938), Alkan (1946), Nizamlioğlu (1957), Bodenheimer (1958) and Özeren (1965) pointed the importance of *P. gallicus* (L.) as a pest on the grape berries in different parts of the country.

Tüzün and Tanyolaç (1987) indicated that in the genus of *Polistes* only *P. gallicus* (L.) was present in Turkey and it was very wide spread in western Anatolia. However Gusenleitner (1967) recorded *P. nimpha* (Christ.), *P. foederatus* (Kohl), *P. associus* (Kohl), *P. bischoffi* (Weyr.) and *P. sulcifer* Zimm. besides *P. gallicus* (L.) in various localities.

Blüthgen (1961) and Guiglia (1972) indicated presence of some species and subspecies of *Polistes* in Turkey. Those are mentioned in the text.

Most of the material in this study was collected in 1990-1992 in different parts of the country, but mostly in eastern Anatolia and Black Sea region. Some of the material has been collected by Özbek since 1966. Approximately 2000 specimens were examined and determination of the material was made by Dr. Gusenleitner.

In the preparation of the determination keys Zimmermann (1930, 1931), Schmiedeknecht (1930), Berland (1942), Blüthgen (1961), Guiglia (1972) and Cetkovic (1985) were consulted.

Results

Following is the account of the subfamily Polistinae of Vespidae so far found in Turkey.

Polistes Latreille, 1802.

Type species: *Polistes gallicus* Linnaeus, 1767 (Latreille, 1810)

**Keys to the Species of *Polistes* Latreille Present in Turkey
Females and Workers**

1. Mandibles with a longitudinal groove on the outer face (Fig., 2, 3); front margin of clypeus bent backwards, medio-apical point of clypeus never reaches beyond connecting line of vertices of lateral angles; in frontal view temples swollen and projecting beyond orbital line; occipital line is not clear (Subgenus *Sulcopolis* Blüthgen)3
 - Mandibles without longitudinal groove on the outer face; front margin of clypeus not bent backwards, medio-apical point of clypeus reaches beyond connecting line of vertices of lateral angles; in frontal view temples not swollen and not projecting beyond orbital line; occipital line is very clear 2
2. In upper view temples behind compound eyes rounded; the top of the head medially convex (Subgenus *Polistes* Latreille) 5
 - In upper view temples behind compound eyes not rounded, at first parallel sided later continues as a line; the top of the head medially smooth or very few convex (Subgenus *Leptopolistes* Blüthgen) 7
3. Head big; yellow spots on genae expanded and reaching or almost reaching spots on the temples; mandibular groove deep, flatbottomed, surrounded distinct marginal ridge, the inner face perpendicular, frontal ridge higher than posterior one and forming an acute angle (Fig., 2); clypeus seen from side sublevel and with front margin slightly curved backwards; 14-16 mm *P. sulcifer* (Zimmermann)
 - Head normal; yellow spots on genae small, widely apart from spots on the temples; mandibular groove less deep, the front ridge as high as the rear one, inner face oblique; clypeus seen from side more or less convex with front margin bent backwards almost at right angle 4
4. Clypeus yellow with a narrow central black spot or transverse band, punctuation sparse; mandibular depression shallow (Fig., 3); front half or inner margin of the orbit with a small yellow spot always well apart from yellow transversal fascia of frons; 13-15 mm *P. atrimandibularis* (Zimmermann)
 - Clypeus with a large black spot occupying the middle and anterior parts, punctuation dense; mandibular depression moderately deep; front half of inner margin of orbit with a large yellow fascia, always connected to the yellow transversal fascia of frons; 12-15 mm *P. semenowi* (Morawitz)
5. Dorsal surface of antennae black (very rarely reddish brown), ventral surface of first three antennal segments yellow; mandibles with yellow spots; genae black; propodeum entirely black, or rarely with two longitudinal narrow lines; females 13-15 mm, workers 11-14 mm *P. biglumis alpium* Blüthgen
 - Dorsal surface of the first three antennal segments entirely up to the middle of third segment black, the rest of the antennae orange yellow or rust-colored; mandibles black; genae with yellow spots; propodeum with yellow lateral faciae 6

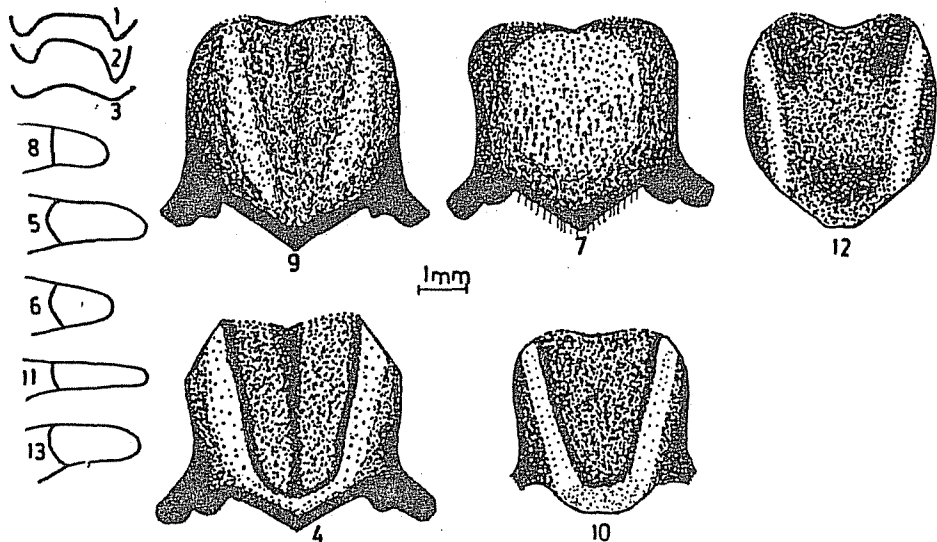
6. Sixth sternit entirely black or rarely with a small clear spot at apex; yellow spots of genae and temples small, not connected; clypeus longer than width, with a black transverse band; mandibles completely black; dorsal surface of flagellum redish brown; females 16-18 mm, workers 10-15 mm *P. nimpha* (Christ)
- Sixth sternit entirely yellow; yellow spots of genae and temples large, mostly connected; clypeus transverse or as long as wide, completely yellow or medially black spot on transverse band; mandibles black or with yellow spots (mostly in the specimens of hot region); dorsal surface of flagellum orange yellow; females 16-18 mm, workers 12-15 mm a, b, c
- a- Body color mostly orange yellow; yellow spots on genae and temples always connected; clypeus entirely yellow or with a small spot; antennae mostly orange yellow; yellow band on pronotal collar large *P. dominulus dominulus* Christ
- b- Body color mostly black, the rest of it ivory; yellow spots on genae and temples never connected; clypeus medially with a black transverse band; the first three antennal segments black, the rest of them redish brown; yellow band on pronotal collar large *P. dominulus muchei* Gusenleitner
- c- Dorsal part of pronotum nearly complete yellow (only a small black stripe); tergites and sternites extensive yellow; yellow band on distal end of tergite second fused with basal yellow spots *P. dominulus bucharensis* Erichson
7. Mandibles completely black; genae yellow, in most cases connected to yellow spots an temples; dorsal surface of antennae dark; sixth sternit black or with an apical redish spot reaching part of lateral margins; females 15-16 mm, workers 11-14 mm *P. associus* Kohl
- Mandibles with yellow spots; genae black, in most cases with yellow spot never connected to yellow spots on temples; sixth sternit yellow, in some cases yellow and black, no redish spot 8
8. Thorax with an epicnemial suture; clypeus yellow, rarely with a black spot; sixth sternit yellow, in some cases basally black; dorsal surface of flagellum more or less darkened, ventral yellow up to the half of the third segment; females 13-14 mm, workers 11-12 mm *P. gallicus* (L.)
- Thorax without an epicnemial suture; clypeus with a broad transverse band (like *P. biglumis*); last two sternites always black; dorsal surface of flagellum at most brown; females 13-14 mm, workers 10-12 mm *P. bischoffi* Weyr.

Males

1. Mandibles with a longitudinal groove on the outer face (Fig., 1, 3); front margin of clypeus bent backwards, medio-apical point of clypeus never reaches beyond connecting line of vertices of lateral angles; in frontal view temples swollen and projecting beyond orbital line; occipital line is not clear (Subgenus *Sulcopolistes* Blüthgen)3

- Mandibles without longitudinal groove on the outer surface; front margin of clypeus not bent backwards, medio-apical point of clypeus reaches beyond connecting line of vertices of lateral angles; in frontal view temples not swollen and projecting beyond orbital line; occipital line is very clear 2
- 2. Clypeus pointed apicomediaally, anterior margin brown-black-rimmed; in upper view temples behind compound eyes rounded; the top of the head medially convex; larger size (Subgenus *Polistes* Latreille) 5
- Clypeus rounded apicomediaally, no brown-black rim; in upper view temples behind compound eyes not rounded, at first parallel sided later continues as a line; the top of the head medially smooth or few slightly convex; smaller size (Subgenus *Leptopolistes* Blüthgen) 7
- 3. Front margine of clypeus slightly bent backwards; mandibles always yellow; mandibular groove large and flat-bottomed, marginal ridges evenly developed, the inner face subperpendicular (Fig., 1); 14-16 mm *P. sulcifer* (Zimmermann)
- Front margine of clypeus conspicuously bent backwards; mandibles yellow or black; mandibular groove narrow and not flat-bottomed, marginal ridges unevenly developed, the front ridge less clearly marked, inner face oblique 4
- 4. Mandibles black, rarely with yellow-spotted, mandibular groove very shallow, front ridge undistinct, posterior ridge a little better marked, inner face oblique (Fig., 3); clypeus yellow but mostly transverse or longitudinal spotted; abdomen dark, yellow fasciae of tergites narrow; 13-15 mm *P. atrimandibularis* (Zimmermann)
- Mandibles yellow, at most with an indistinct black stripe along the posterior edge, mandibular groove deep, front ridge conspicuous, posterior ridge with subperpendicular inner face; clypeus entirely yellow; abdomen light, yellow fasciae at the posterior margin of tergites remarkably broader; 12-14 mm *P. semenowi* (Morawitz)
- 5. Lateral margins of clypeus conspicuously raised in a marginal ridge (Fig., 4); interantennal ridge with a deep longitudinal groove; last antennal segment two and a half times longer than broad, apex obliquely truncated (seen from dorsal) (Fig., 5); 12-16 mm *P. nimpha* Christ
- Lateral margins of clypeus smooth or only slightly raised at base; interantennal ridge not grooved or only slightly grooved; last antennal segment one time and a half to two times longer than broad, conical or subconical (seen from dorsal) 6
- 6. Dorsal face of antennae black only up to middle of the third segment, last segment one time and a half longer than broad (Fig., 6); clypeus with coarse punctures and semi-erected hairs (Fig., 7); 14-18 mm a, b, c
- a- Pronotum yellow; body mostly orange-yellow *P. dominulus dominulus* Christ
- b- Pronotum with narrow collar; body mostly black, the rest of it ivory *P. dominulus muchei* Gusenleitner
- c- Dorsal part of pronotum nearly complete yellow (only a black stripe); tergites and sternites extensive yellow; yellow bant on distal end of second tergite is fused with basal yellow spots *P. dominulus bucharensis* Erichson

- Dorsal face of antennae black up to apex, ventral face yellow, last segment about two times longer than broad (Fig., 8); clypeus with fine punctures and no erected hairs (Fig., 9); 12-14 mm *P. biglumis alpium* Blüthgen
- 7. Clypeus with marginal ridges clearly marked and raised to front margin (Fig., 10); interantennal ridge deeply grooved; dorsal face of flagellum intensively darkened, last segment about three times longer than broad (Fig., 11) *P. associus* Kohl
- Marginal ridges of clypes moderately raised on dorsal half, gradually obliterated on ventral half, front margin subtruncated (Fig., 12); interantennal ridge slightly grooved; dorsal face of flagellum not darkened, last segment one time and a half longer than broad (Fig., 13) 8
- 8. Pilosity on mesonotum shorter than diameter of ocellus; flagellum not blackened above along their entire length; 10-15 mm *P. gallicus* (L.)
- Pilosity on mesonotum longer than diameter of ocellus; dorsal surface of flagellum brown, often dark brown; 9-13 mm *P. bischoffi* Weyr.



Explanation of figures:

1. *Polistes sulcifer* (Zimm.). Longitudinal groove of mandible in male; 2. *P. sulcifer* (Zimm.) Longitudinal groove of mandible in female; 3. *P. atrimandibularis* (Zimm.) Longitudinal groove of mandible in both male and female; 4. *P. nimpha* Christ. Clypeus in male; 5. *P. nimpha* Christ. Last antennal segment of male; 6. *P. dominulus* Christ. Last antennal segment of male; 7. *P. dominulus* Christ. Clypeus in male; 8. *P. biglumis* (L.) Last antennal segment of male; 9. *P. biglumis* (L.) Clypeus in male; 10. *P. associus* Kohl. Clypeus in male; 11. *P. associus* Kohl. Last antennal segment of male; 12. *P. gallicus* (L.) Clypeus in male; 13. *P. gallicus* (L.) Last antennal segment of male.

Subgenus: *Leptopolistes* Blüthgen, 1943

Type species: *Polistes associus* Kohl, 1898

Polistes (Leptopolistes) associus Kohl, 1898

World distribution: Italy (Zimmermann, 1930); France (Berland, 1942); Italy, France, the Balkan Peninsula, Greece and Israel (Guiglia, 1972); Yugoslavia and Azerbaijan (Cetkovic, 1985).

Distribution in Turkey: Amasya (Gusenleitner, 1967).

Material examined: Females : 2, Millipark, Davutlar (Aydın), 30.VI.1992; 1, Dalaman (Muğla), 2.VIII.1990; 1, Çamdüzü (Antalya), 2. VIII.1992; 1, Termessos (Antalya), 4.VIII.1992; 2, Gümtüşhane, 12.IX.1992.

Workers: 8, Fatsa (Ordu), 10.VI.1991; 1, Kemaliye (Erzincan), 13.VI.1991; 3, Amasya, 25.V.1990; 2, Alpagut, Mihalgazi (Eskişehir), 27.VI.1992; 1, Kaledibi, Tortum (Erzurum), 5. VII.1992; 3, Yusufeli (Artvin), 7.VII.1992; 1, Demirkent, Yusufeli (Artvin), 14.VII.1991; 1, İskenderun (Hatay), 20.VII.1990; 1, Yaraşı Köyü (Ordu), 20.VII.1991; 1, Erzincan, 30.VII.1991; 2, Üzümlü (Erzincan), 21.VII.1991; 11, Bayırbağ, Üzümlü (Erzincan), 31.VII.1991; 12, Cevizli (Erzincan), 1.VIII.1990; 3, Çamdüzü (Antalya), 2.VIII.1992; 2, Akseki (Antalya), 3.VIII.1992; 1, Termessos (Antalya), 4.VIII.1992; 1, Erzurum, 4.VIII.1975; 1, Aydın, 4.VIII.1990; 2, Cevizli (Erzincan), 8.VIII.1990; 16, Çağlayan (Erzincan), 8.VIII.1990; 2, Çatalarmut (Erzincan), 9.VIII.1990; 3, İkizdere (Rize), 9.VIII.1990; 5, Manisa, 12.VIII.1985; 1, Pehlivanlı, Tortum (Erzurum), 13.VIII.1991; 4, Aydın, 14.VIII.1991; 10, Afşin (Kahramanmaraş), 19.VIII.1991; 1, Ağıl, Eğridir (Isparta), 19.VIII.1991; 5, Tokat, 19.VIII.1992; 1, Ordu, 20.VIII.1991; 1, Erdemli (İçel), 20.VIII.1983; 7, Tokat, 20.VIII.1992; 1, Erzurum, 22.VIII.1966; 3, Tar.Araş.Enst. (Samsun), 21.VIII.1992; 1, Erzurum, 22.VIII.1966; 8, Çarşamba (Samsun), 22.VIII.1992; 4, Karaköy, Tigem (Samsun), 22.VIII.1992; 1, Ayvalı, Oltu (Erzurum), 27.VIII.1990; 5, Dalaman (Muğla), 28.VIII.1991; 1, Anamur (İçel), 1.IX.1990.

Males: 2, Erzincan, 30.VII.1991; 1, Bayırbağ, Üzümlü (Erzincan), 31.VII.1991; 5, Oltu (Erzurum), 4.VIII.1990; 2, İşhan, Yusufeli (Artvin), 15.VIII.1991; 1, Çumra (Konya), 19.VIII.1985; 5, Tar.Araş.Enst. (Samsun), 22.VIII.1992.

Polistes (Leptopolistes) bischoffi (Weyrauch, 1937)

World distribution: France, Italy and Malta (Berland, 1942); Bulgaria and Malta (Blüthgen, 1961); France and Greece (Guiglia, 1972); Germany (Schmid-Egger and Treiber, 1989).

Distribution in Turkey: Ankara (Blüthgen, 1961; Guiglia, 1972); Amasya (Gusenleitner, 1967).

Polistes (Leptopolistes) gallicus Linnaeus, 1767

Synonymy: *P. foedratus* Kohl, 1898; *P. omissus* Weyrauch, 1939

World distribution: Europe, North Africa, Spain, Italy and Balkan Peninsula (Zimmermann, 1930; Berland, 1942); France, Italy, Greece, Albania, Israel, North Africa Afghanistan, Western part of Asia, Caucasus, and Balkan Peninsula (Guiglia, 1972); Yugoslavia (Cetkovic, 1985).

Distribution in Turkey: Ankara (Özeren, 1965); Kızılcahamam (Ankara) (Gusenleitner, 1967); Western Anatolia (Tüzün and Tanyolaç, 1987).

Material examined: Females: 1, Horasan (Erzurum), 11.V.1973; 1, Başaklı, Oltu (Erzurum), 22.V.1977; 2, Silifke (İçel), 28.V.1992; 1, Bitlis, 27.V.1989; 2, Alpagut, Mihalgazi (Eskişehir), 27.VII.1992; 1, Turnalı, Şenkaya (Erzurum), 1.VII.1990; 1, Çamdüzü (Antalya), 2.VII.1992; 1, Denizciler, İskenderun (Hatay), 6.VII.1990; 1, Alp, Kemah (Erzincan), 15.VII.1982; 1, İspir (Erzurum), 17.VII.1992; 1, Millipark, Davutlar (Aydın), 30.VII.1992; 1, Bayırbağ, Üzümlü (Erzincan), 31.VII.1991; 1, Termosos (Antalya), 4. VIII. 1982; 1, Cevizli (Erzincan), 8.VIII.1990; 1, Afşin (Kahramanmaraş), 19.VIII.1991; 1, Tokat, 20.VIII.1992; 1, Kağızman (Kars), 22.VIII.1990; 1, Karakurt, Sarıkamış (Kars), 26.VIII.1991; 5, Pazaryolu (Erzurum), 27.VIII.1992; 1, Malatya, 1.IX.1992.

Workers: 1, Silifke (İçel), 28.V.1992; 1, Bornova (İzmir), 21.IV.1976; 1, Bornova (İzmir), 20.IV.1990; 1, İşhan, Yusufeli (Artvin), 5.V.1978; 1, Başaklı, Oltu (Erzurum), 22.V.1977; 1, Derekapı, Tortum (Erzurum), 9.VI.1974; 2, Horasan (Erzurum), 15.VI.1973; 3, Demirkent, Yusufeli (Artvin), 15.VI.1991; 1, Yenidere (Erzurum), 18.VI.1982; 1, Iğdır (Kars), 20.VI.1981; 1, Millipark, Davutlar (Aydın); 5, Tar.Araş., Menemen (İzmir), 2.VIII.1992; 1, İsisu, Sarıkamış (Kars), 3.VII.1991; 1, Doruklu, Tortum (Erzurum), 4.VII.1991; 1, Sütçüler (Isparta), 4.VII.1990; 5, Aşağımeydanlar, Tortum (Erzurum), 4.VII.1991; 1, Horasan (Erzurum), 6.VII.1972; 2, Denizciler, İskenderun (Hatay), 6.VII.1990; 1, Yusufeli (Artvin), 7.VII.1992; 1, Süngübayır, Olur (Erzurum), 9.VII.1990; 2, Penek, Şenkaya (Erzurum), 9.VII.1992; 4, Beydağları, Alim Pınarı (Antalya), 9.VII.1991; 1, Coşkunlar, Olur (Erzurum), 12.VII.1991; 1, Ayvalı, Oltu (Erzurum), 12.VII.1991; 3, Pehlivanlı, Tortum (Erzurum), 12.VII.1992; 1, Demirkent, Yusufeli (Artvin), 14.VII.1991; 3, Dedek, Kemah (Erzincan), 15.VII.1982; 2, Alp, Kemah (Erzincan), 15.VII.1982; 1, Çeşmişgezek, 15.VII.1984; 1, Çumra (Konya), 15.VII.1989; 44, Civnar, Yusufeli (Artvin), 15.VII.1992; 1, Malatya, 17.VII.1991; 11, Iğdır (Kars), 17.VII.1991; 2, İspir (Erzurum) 17.VII.1992; 1, Kağızman (Kars), 19.VII.1991; 1, Denizciler, İskenderun (Hatay), 20.VII.1990; 1, Narman (Erzurum), 21.VII.1974; 1, Isparta, 21.VII.1991; 9, Sansaboğazı (Erzincan), 22.VII.1991; 1, Pazaryolu (Erzurum), 23.VII.1991; 1, Süngübayır, Olur (Erzurum), 23.VII.1992; 8, İspir (Erzurum), 24.VII.1991; 1, Bayırbağ, Üzümlü (Erzincan), 25.VII.1992; 10, Madenköprübaşı, İspir (Erzurum), 24.VII.1991; 3, Ayvalı, Oltu (Erzurum), 27.VII.1990; 2, Yurtbekler, Posof (Kars), 27.VII.1991; 1, Karataş (Adana), 27.VII.1984; 1, Erzincan, 30.VII.1991; 2, Bayırbağ, Üzümlü (Erzincan), 31.VII.1991; 2, İspir (Erzurum), 1.VIII.1990; 1, Çamdüzü (Antalya), 2.VIII.1992; 1, Oltu (Erzurum), 5.VIII.1988; 1,

Çağlayan (Erzincan), 8.VIII.1990; 6, Çatalarmut (Erzincan), 9.VIII.1990; 1, Çamlıyamaç, Uzundere (Erzurum), 13.VIII.1991; 1, Yusufeli (Artvin), 13.VIII.1991; 4, Pehlivanlı, Tortum (Erzurum), 13.VIII.1991; 2, Sebzeçiler, Yusufeli (Artvin), 14.VIII.1991; 1, Aydın, 14.VIII.1991; 3, Fındıklı (Rize), 14.VIII.1992; 1, Taşlıköy, Olur (Erzurum), 15.VIII.1991; 2, Ayvalı, Oltu (Erzurum), 15.VIII.1991; 7, Işhan, Yusufeli (Artvin), 15.VIII.1991; 1, Akyumak, Iğdır (Kars), 18.VIII.1991; 1, Afşin (Kahramanmaraş), 19.VIII.1991; 2, Çumra (Konya), 19.VIII.1985; 10, Tokat, 20.VIII.1992; 1, Çamlıca, 21.VIII.1974; 22, Iğdır (Kars), 21.VIII.1991; 1, Şenyurt (Erzurum), 22.VIII.1991; 1, Narman (Erzurum), 23.VIII.1979; 3, Olur (Erzurum), 24.VIII.1992; 1, Turnalı, Şenkaya (Erzurum), 25.VIII.1991; 17, Adıyaman, 25.VIII.1990; 11, Madenköprübaşı, İspir (Erzurum) 26.VIII.1990; 7, Karakurt, Sarıkamış (Kars), 26.VIII.1991; 40, Pazaryolu (Erzurum), 27.VIII.1992; 1, Kozan (Adana) 28.XII.1990; 1, Sarıdarı, Posof (Kars), 28.VIII.1991; 3, Üzümlü (Erzincan), 28.VIII. 1991; 1, Cevizli, (Erzincan), 29.VIII.1991; 6, Akşar, Şenkaya (Erzurum), 29.VIII.1991; 1, Erzurum, 29.VIII.1991; 1, Güzelyayla(Erzurum), 29.VIII.1992; 3, Oltu (Erzurum), 29.VIII.1992; 3, Çıldır (Kars), 31.VIII.1983; 7, Karakaya, Üzümlü (Erzincan), 31.VIII.1991; 1, Üzümlü (Erzincan), 31.VIII.1991; 1, Adıyaman, 1.IX.1990; 1, Manisa, 12.IX.1985; 1, Sarıbaşak, Olur (Erzurum), 20.IX.1991; 1, Tortum (Erzurum), 22.IX.1990.

Males: 3, Süngübayır, Olur (Erzurum), 9.VII.1990; 3, Üzümlü (Erzincan), 3.VII.1991; 1, Turnalı, Şenkaya (Erzurum), 6.VIII.1990, 1, Sebzeçiler, Yusufeli (Artvin), 14.VIII.1991; 1, Yusufeli (Artvin), 15.VIII.1991; 90, Işhan, Yusufeli (Artvin), 15.VIII.1991; 2, Taşlıköy, Olur (Erzurum), 15.VIII.1991; 5, Tokat, 19.VIII.1992; 12, Kağızman (Kars), 22.VIII.1990; 6, Karakurt, Sarıkamış (Kars), 26.VIII.1991; 1, Şenyurt (Erzurum), 26.VIII.1991; 2, Pazaryolu (Erzurum), 27.VIII.1992; 37, Iğdır (Kars), 28.VIII.1990; Sarıdarı, Posof (Kars), 26.VIII.1991; 2, Üzümlü (Erzincan), 28.VIII.1991; 2, Göllü, Narman (Erzurum), 29.VIII.1991; 1, Cevizli (Erzincan), 29.VIII.1991; 1, Çimenli, Narman (Erzurum), 29.VIII.1991; 2, Akşar, Şenkaya (Erzurum), 29.VIII.1991; 1, Kozan (Adana), 24.IX.1989; 1, Kırşehir, 25.IX.1992.

Subgenus: *Polistes* Latreille, 1802.

Type species: *Polistes gallicus* (Linnaeus, 1767)

Polistes (s.str.) *biglumis alpium* Blüthgen, 1970

World distribution: Persia (Guiglia, 1972).

Distribution in Turkey: Uludağ (Bursa) (Guiglia, 1972).

Material examined: Females: 3, Turnalı, Şenkaya (Erzurum), 12.VI.1972; 1, Şenkaya (Erzurum), 9.VII.1992; 4, Güzelova (Erzurum), 12.VIII.1992; 1, Tokat, 19.VIII.1992; 1, Oğuzkent, Olur (Erzurum), 19.VIII.1992; 1, Sarıbaşak, Olur (Erzurum), 6.IX.1991.

Workers: 1. Kopdağı (Bayburt), 28.IV.1990; 1, Isisu, Sarıkamış (Kars), 3.VII.1990; 4, Çakıllı, Tortum (Erzurum), 4.VII.1991; 3, Yukarımeydanlar, Tortum (Erzurum), 4.VI.1991; 2, Süngübayır, Olur (Erzurum), 8.VII.1990; 1, Beydağları, Alimpınarı (Antalya), 9.VII.1991; 1, Şenkaya (Erzurum), 9.VII.1992; 2, Pehlivanlı, Tortum (Erzurum), 12.VII.1992; 12, Şenyurt (Erzurum), 22.VII.1991; 1, Pazaryolu (Erzurum),

23.VII.1991; 2, Hanak (Kars), 27.VII.1991; 12, Güzelyayla (Erzurum), 29.VII.1992; 1, Zigana, Torul (Gümüşhane), 31.V.1990; 1, Akseki (Antalya), 3.VIII.1992; 2, Güngörmez (Erzurum), 4.VIII.1992; 4, Umudum Yaylası (Erzurum), 9.VIII.1991; 2, Kargapazarı Dağları (Erzurum), 11.VIII.1990; 1, Dumlu (Erzurum); 11.VIII.1992; 1, Çamlıyamaç, Uzundere (Erzurum), 13.VIII.1991; 7, Güzelyayla (Erzurum), 15.VIII.1992; 1, Başaklı, Oltu (Erzurum), 18.VIII.1992; 5, Tokat, 19.VIII.1992; 3, Süngübayır, Olur (Erzurum), 20.VIII.1992; 1, Göngöründü, Olur (Erzurum), 21.VIII.1992; 18, Güzelyurt (Erzurum), 29.VIII.1992; 1, Sarıbaşak, Olur (Erzurum), 6.IX.1991.

Males: 1, Posof (Kars), 27.VII.1991; 1, Kopdağı (Bayburt), 10.VIII.1991; 1, Genya Dağı (Artvin), 16.VIII.1991; 10, Şenyurt (Erzurum), 22.VIII.1991; 1, Ardahan (Kars), 29.VIII.1992; 5, Güzelyayla (Erzurum), 29.VIII.1992; 1, Çıldır (Kars), 31.VIII.1983; 2, Sarıbaşak, Olur (Erzurum), 20.IX.1991.

Polistes (s.str.) *dominulus dominulus* (Christ, 1791)

Synonymy: *P. gallicus* auct.

World distribution: Mediterranean countries, Japan, England, Ireland, Denmark and North Europe (Blüthgen, 1961); Italy, France, Belgium, Czechoslovakia, Denmark, Central Europe, Mediterranean countries, and North Africa (Guiglia, 1972); Yugoslavia (Cetkovic, 1985); Europe, North Africa, and Japan (Hensen, 1985).

Distribution in Turkey: Amasya (Gusenleitner, 1967).

Material examined: Females: 2, Şanlıurfa, 25.V.1991; 1, Alpagut, Mihalgazi (Eskişehir), 27.VI.1992; 1, Horasan (Erzurum), 15.VII.1973; 8, Iğdır (Kars), 7.VIII.1990; 1, Polatlı (Ankara), 10.VIII.1990; 6, Tokat, 20.VIII.1992; 1, Tar.Araş.Ens. (Samsun), 21.VIII.1992; 1, Çarşamba (Samsun), 22.VIII.1992; 34, Kağızman (Kars), 23.VIII.1990; 1, Üzümlü (Erzincan), 28.VIII.1991; 1, Üzümlü (Erzincan), 31.VIII.1991; 3, Yalova (İstanbul), 31.VIII.1992.

Workers: 1, Denizciler, İskenderun (Hatay), 6.VI.1990; 1, Horasan (Erzurum), 15.VI.1973; 2, Şanlıurfa, 23.VI.1991; 3, Balıklıgöl (Ağrı), 24.VI.1987; 1, Amasya, 25.VI.1990; 2, Sütçüler (Isparta), 4.VII.1990; 1, Arapgir (Malatya), 5.VI.1990; 30, Denizciler, İskenderun (Hatay), 6.VII.1990; 1, Iğdır (Kars), 7.VII.1990; 2, Beydağları, Alim Pınarı (Antalya), 9.VII.1991; 1, Ağıl, Eğridir (Isparta), 16.VII.1991; 24, Akyumak, Iğdır (Kars), 18.VII.1991; 5, Kağızman (Kars), 19.VII.1991; 4, Denizciler, İskenderun (Hatay), 20.VII.1990; 5, Soğukoluk (Hatay) 20.VII.1990; 5, Adıyaman, 25.VII.1990; 2, Iğdır (Kars), 26.VII.1991; 1, Gündül (Ankara), 26.VII.1990; 1, İstanbul, 26.VII.1984; 1, Kozan (Adana), 29.VII.1983; 1, Bayırbağ, Üzümlü (Erzincan), 31.VII.1991; 2, Çamdüzü (Antalya), 2.VIII.1992; 1, Akseki (Antalya), 3.VIII.1992; 2, Antalya, 3.VIII.1991; 1, Alata (İçel), 5.VIII.1990; 8, İkizdere (Rize), 9.VIII.1990; 4, Ilgın (Konya), 10.VIII.1990; 6, Arapgir (Malatya), 10.VIII.1990; 1, Çağlayan (Erzincan), 10.VIII.1990; 1, İzmir, 12.VIII.1984; 1, Güzelova (Erzurum), 12.VIII.1992; 1, Bodrum (Muğla), 19.VIII.1984; 5, Çumra (Konya), 19.VIII.1985; 1, Özalp (Van), 19.VIII.1991; 1, Afşin (Kahramanmaraş), 20.VIII.1991; 7, Konya, 20.VIII.1990; 10, Tokat, 20.VIII.1992; 1, Çamlıca (Ankara), 21.VIII.1990; 42, Kağızman (Kars), 21.VIII.1990; 4, Çarşamba (Samsun), 22.VIII.1992; 35 Iğdır (Kars) 23.VIII.1990; 1, Posof (Kars), 23.VIII.1991; 4, Karaköy, Tigem (Samsun), 23.VIII.1992; 22, Oltu (Erzurum), 4.IX.1990; 2, Manisa, 12.IX.1985; 1, Kozan (Adana), 28.IX.1990; 3, Yalova (İstanbul), 29.IX.1992.

Males: 1, Amasya, 25.VI.1990; 2, Süngübayır, Olur (Erzurum), 9.VII.1990; 3, Iğdır (Kars), 17.VII.1991; 1, Antalya, 3.VIII.1991; 2, Akseki (Antalya), 3.VIII.1992; 1, Termessos (Antalya), 4.VIII.1992; 1, Manisa, 9.VIII.1984; 1, Aydoğdu (Erzincan), 11.VIII.1992; 1, Sebzeçiler, Yusufeli (Artvin), 14.VIII.1991; 9, Iğdır (Kars), 18.VIII.1991; 1, Özalp (Van), 19.VIII.1991; 1, Tokat, 19.VIII.1992; 9, Çarşamba (Samsun), 22.VIII.1992; 2, Karaköy, Tigem (Samsun), 23.VIII.1992; 71, Iğdır (Kars), 23.VIII.1991; 9, Kağızman (Kars) 23.VIII.1990; 5, Karakurt, Sarıkamış (Kars), 26.VIII.1991; 1, Köprüköy (Erzurum), 26.VIII.1991; 1, Yurtbekler, Posof (Kars), 27.VIII.1991; 1, Sarıdarı, Posof (Kars), 28.VIII.1991; 1, Dereköy, Mut (İçel), 2.IX.1987; 1, Oltu (Erzurum), 4.IX.1990; 1, Fındıklı (Rize), 10.IX.1992.

Polistes (s.str.) dominulus muchei Gusenleitner, 1976

World distribution: North Caucasus (Gusenleitner, 1976)

Distribution in Turkey: Şavşat (Artvin) (Gusenleitner, 1976)

Material examined: Females: 1, Olur (Erzurum), 8.VI.1992; 2, Oltu (Erzurum), 13.VI.1992; 1, Oltu (Erzurum), 4.VII.1990; 4, Beydağları, Alim Pınarı (Antalya), 9.VII.1991; 2, Pelivanlı, Tortum (Erzurum), 12.VII.1992; 5, Olur (Erzurum), 22.VII.1992; 3, Süngübayır, Olur (Erzurum), 23.VII.1992; 2, Çamlıyamaç, Uzundere (Erzurum), 13.VIII.1991; 2, Ayvalı, Oltu (Erzurum), 13.VIII.1991; 1, Başaklı, Oltu (Erzurum), 11.VIII.1992; 1, Güzelova (Erzurum), 12.VIII.1992; 1, Pazaryolu (Erzurum), 27.VIII.1992; 2, Madenköprübaşı, İspir (Erzurum), 28.VIII.1992; 1, Penek, Şenkaya (Erzurum), 29.VIII.1991; 1, Başaklı, Oltu (Erzurum), 17.IX.1977; 1, Sarı başak, Olur (Erzurum), 20.IX.1991.

Workers: 1, Tortum (Erzurum), 25.V.1972; 1, Erzurum, 25.VI.1971; 1, Turnalı, Şenkaya (Erzurum), 25.VI.1991; 1, Oltu (Erzurum), 4.VII.1986; 1, Turnalı, Şenkaya (Erzurum), 6.VII.1990; 1, Termessos (Antalya), 9.VII.1991; 1, Oltu (Erzurum), 11.VII.1991; 1, Kargapazarı Dağları (Erzurum), 11.VII.1990; 2, Coşkunlar, Olur (Erzurum), 12.VII.1991; 5, Pehlivanlı, Tortum (Erzurum), 12.VII.1992; 1, Cıvnar, Yusufeli (Artvin), 5.VII.1992; 1, Taşlıköy, Oltu (Erzurum), 17.VII.1991; 1, İspir (Erzurum), 17.VII.1992; 2, Olur (Erzurum), 22.VII.1992; 4, Madenköprübaşı, İspir (Erzurum), 24.VII.1991; 2, Tortum (Erzurum), 26.VII.1990; 1, Aşağıkatıklı, Tortum (Erzurum), 26.VII.1990; 2, Ayvalı, Oltu (Erzurum), 27.VII.1990; 2, Coşkunlar, Olur (Erzurum), 27.VII.1990; 1, Yukarıözbağ, İspir (Erzurum), 31.VII.1990; 1, İspir (Erzurum), 1.VIII.1990; 1, Oltu (Erzurum), 4.VIII.1990; 2, Turnalı, Şenkaya (Erzurum), 6.VIII.1990; 2, Umudum Yaylası (Erzurum), 8.VIII.1991; 1, Bahçeliköy (Erzincan), 9.VIII.1990; 1, Tortum (Erzurum), 10.VIII.1988; 1, Kargapazarı Dağları (Erzurum), 11.VIII.1990; 3, Pehlivanlı, Tortum (Erzurum), 13.VIII.1991; 1, Borçka (Artvin), 14.VIII.1990; 4, Demirkent, Yusufeli (Artvin), 14.VIII.1991; 1, Ayvalı, Oltu (Erzurum), 15.VIII.1991; 2, Taşlıköy, Oltu (Erzurum), 15.VIII.1991; 3, Palandöken (Erzurum), 21.VIII.1990; 1, Olur (Erzurum), 23.VIII.1992; 1, Sarıkamış (Kars), 26.VIII.1991; 1, Erzurum, 26.VIII.1970; 15, Pazaryolu (Erzurum), 27.VIII.1992; 1, Dalaman (Muğla), 28.VIII.1991; 1, İspir (Erzurum), 28.VIII.1992; 1, Çimenli, Narman (Erzurum), 29.VIII.1991; 1, Palandöken (Erzurum), 29.VIII.1990; 2, Güzelyayla (Erzurum), 29.VIII.1992; 2, Yedigöze, İspir (Erzurum), 30.VIII.1991; 1 Manisa, 12.IX.1985.

Males: 2, İspir (Erzurum), 6.VI.1989; 3, Demirkent, Yusufeli (Artvin), 14.VI.1991; 1, Çakılı, Tortum (Erzurum), 4.VII.1991; 1, İspir (Erzurum), 17.VII.1992; 1, (Erzurum), 27.VII.1990; 1, Turnalı, Şenkaya (Erzurum), 6.VIII.1990; 1, Pehlivanlı, Tortum (Erzurum), 13.VIII.1991; 1, Ayvalı, Oltu (Erzurum), 15.VIII.1991; 1, Genyadağı (Artvin), 16.VIII.1990; 1, Güngöründü, Olur (Erzurum), 21.VIII.1992; 1, Karakoçlar, Olur (Erzurum), 22.VIII.1992; 1, Çarşamba (Samsun), 22.VIII.1992; 1, Karaköy Tigem (Samsun), 23.VIII.1992; 1, Madenköprübaşı, İspir (Erzurum) 26.VIII.1991; 1, Köprüköy (Erzurum), 26.VIII.1991; 8, Pazaryolu (Erzurum), 27.VIII.1992; 1, Sarıdarı, Posof (Kars), 28.VIII.1991; 1, Madenköprübaşı, İspir (Erzurum), 28.VIII.1992; 2, Göllü, Narman (Erzurum), 29.VIII.1991; 1, Aksar, Şenkay (Erzurum), 29.VIII.1991.

Polistes (s.str.) dominulus bucharensis Erichson, 1949

World distribution: Persia and Israel (Guiglia, 1972)

Distribution in Turkey: New record for Turkish fauna.

Material examined: Workers: 1, Posof (Kars), 23.V.1971; 1, Halefti (Şanlıurfa) 23.VI.1991; 5, Akyumak, Iğdır (Kars), 18.VII.1992; 1, Malatya, 16.VIII.1992; 1, Akşehir (Konya), 20.VIII.1990; 1, Iğdır (Kars), 23.VIII.1990.

Male: 3, Iğdır (Kars), 17.VII.1993; 3, Akyumak, Iğdır (Kars), 18.VII.1991; 1, Taşburun, Iğdır (Kars), 18.VII.1991; 1, Antalya, 3.VIII.1991; 1, Özalp (Van), 19.VIII.1991; 2, Kağızman (Kars), 22.VIII.1990; 11, Iğdır (Kars), 23.VIII.1990.

Polistes (s.str.) nimpha nimpha (Christ, 1791)

World distribution: Germany, France, Spain, Italy, Balcan Peninsula, West and North Asia (Zimmermann, 1930); Central Europe, France, North Africa and Palearctic Region of Asia (Berland, 1942); North Africa, Spain, Italy, Bulgaria, Denmark, England, Netherlands and Belgium (Blüthgen, 1961); Central Europe, France, Italy, Yugoslavia, Bulgaria, Czechoslovakia, Denmark, Belgium, Israel and Persia (Guiglia, 1972); Belgium (Leclercq et al., 1984); Yugoslavia (Cetkovic, 1985).

Distribution in Turkey: Amasya (Gusenleitner, 1967).

Material examined: Females: 2, Çakılı, Tortum (Erzurum), 4.VII.1991; 1, Doruklu, Tortum (Erzurum), 4.VII.1991; 1, Palandöken (Erzurum), 15.VII.1991; 1, Madenköprübaşı, İspir (Erzurum), 24.VII.1991; 4, Palandöken (Erzurum), 28.VII.1992; 1, Aydıntepe (Bayburt), 1.VIII.1992; 10, Güzelova (Erzurum), 12.VIII.1992; 2, Süngübayır, Olur (Erzurum), 20.VIII.1992; 2, Tokat, 20.VIII.1992; 9, Oğuzkent, Olur (Erzurum), 23.VIII.1992; 1, Oltu, (Erzurum), 4.VIII.1990; 4, Şenyurt (Erzurum), 22.VIII.1991; 1, Göllü, Narman (Erzurum), 29.VIII.1991; 10, Güzelyayla (Erzurum), 29.VIII.1992; 3, Umudum yaylası (Erzurum), 8.IX.1991; 2, Sarıbaşak, Olur (Erzurum), 20.IX.1991.

Workers: 1, Başaklı, Oltu (Erzurum), 12.VI.1978; 3, Oltu (Erzurum), 13.VI.1992; 1, Çat, (Erzurum), 22.VI.1987; 1, Yukarımeydanlar, Tortum (Erzurum), 3.VII.1991; 6, Çakılı, Tortum (Erzurum), 4.VII.1991; 1, İsisu, Sarıkamış (Kars), 7.VII.1991; 1, Yusufeli (Artvin); 7.VII.1992; 2, Beydağları, Alim Pınarı (Antalya), 9.VII.1991; 1,

Topçam (Antalya), 5.VII.1991; 22 Oltu (Erzurum), 11.VII.1991; 1, Ayvalı, Oltu (Erzurum), 12.VII.1991; 4, Pehlivanlı, Tortum (Erzurum), 12.VII.1992; 5, Palandöken (Erzurum), 15.VII.1991; 4, Demirkent, Yusufeli (Artvin), 15.VII.1991; 4, Olur (Erzurum), 22.VII.1992; 1, Aşağıkatıklı, Tortum (Erzurum), 26.VII.1990; 1, Hanak (Kars), 27.VII.1991; 4, Ayvalı, Oltu (Erzurum), 27.VII.1990; 5, Oltu (Erzurum), 28.VII.1990; 4, Palandöken (Erzurum), 28.VII.1992; 2, Penek, Şenkaya (Erzurum), 29.VII.1991; 2, Bayırbağ, Üzümlü (Erzincan), 31.VII.1991; 16, Oltu (Erzurum), 4.VIII.1990; 1, Güngörmez (Erzurum), 4.VIII.1990; 1, Şenkaya (Erzurum), 5.VIII.1988; 1, Çağlayan (Erzincan), 8.VIII.1990; 2, Cevizli (Erzincan), 8.VIII.1990; 25, Umudum Yaylası (Erzurum), 8.VIII.1991; 1, Kopdağı (Bayburt), 10.VIII.1990; 3, Dutçu (Erzurum), 11.VIII.1992; 11, Taşlıköy, Oltu (Erzurum), 12.VIII.1991; 6, Güngöründü, Olur (Erzurum), 12.VIII.1992; 12, Güzelova (Erzurum), 12.VIII.1992; 2, Pehlivanlı, Tortum (Erzurum), 13.VIII.1991; 4, Gölbaşı, Uzundere (Erzurum), 13.VIII.1991; 1, Sebzeciler, Yusufeli (Artvin), 14.VIII.1991; 3, Palandöken (Erzurum), 15.VIII.1978; 1, Ayvalı, Oltu (Erzurum), 15.VIII.1991; 1, Palandöken (Erzurum), 16.VIII.1972; 10, Madenköprübaşı İspir (Erzurum) 10.VII.1990; 7, Tokat, 19.VIII.1972; 3, Süngübayır, Olur (Erzurum), 20.VIII.1992; 1, Palandöken (Erzurum), 21.VIII.1990; 4, Tar.Araş.Enst. (Samsun), 21.VIII.1992; 22, Şenyurt (Erzurum), 22.VIII.1991; 1, Gürgendağ (Samsun), 22.VIII.1992; Çarşamba, (Samsun), 23.VIII.1992; 2, Sarıdarı, Posof (Kars), 28.VIII.1991; 2, Çimenli, Narman (Erzurum), 29.VIII.1991; 38, Güzelyayla (Erzurum), 29.VIII.1992; 2, Yedigöze, İspir (Erzurum), 30.VIII.1990; 14, Sarıbaşak, Olur (Erzurum), 20.IX.1991; 3, Tortum (Erzurum) 22.X.1990; 1, Sivas, 23.X.1992; 2, İçel, 23.X.1992.

Males: 1, Arapgir (Malatya), 5.VII.1990; 3, Bayırbağ, Üzümlü (Erzincan), 31.VII.1991; 1, Antalya, 3.VIII.1991; 3, Umudum Yaylası (Erzurum), 8.VIII.1991; 1, Malatya, 9.VIII.1984; 1, Kopdağı (Bayburt), 10.VIII.1991; 1, Yumurtalık (Adana), 17.VIII.1991; 1, Tokat, 19.VIII.1992; 4, Afşin (Kahramanmaraş), 20.VIII.1991; 1, Silifke (İçel), 20.VIII.1987; 1, Palandöken (Erzurum), 21.VIII.1990; 1, Tar.Araş.Enst. (Samsun), 21.VIII.1992; 4, Şenyurt (Erzurum), 22.VIII.1991; 2, Çarşamba (Samsun), 22.VIII.1992; 1, Palandöken (Erzurum), 23.VIII.1987; 1, Olgun, Olur (Erzurum), 24.VIII.1992; 2, Hanak (Kars), 27.VIII.1991; 1, Posof (Kars), 27.VIII.1991; 3, Sarıdarı, Posof (Kars), 28.VIII.1991; 1, Göllü, Narman (Erzurum), 29.VIII.1991; 2, Güzelyayla (Erzurum), 29.VIII.1992; 1, Denizli, 3.IX.1984; 1, Erzurum, 7.IX.1981; 2, Yakınca (Malatya), 7.IX.1991; 1, Erzincan, 20.IX.1981; 5 Sarıbaşak, Olur (Erzurum), 20.IX.1991; 1, Kozan (Adana), 24.IX.1984.

Subgenus: *Sulcopolistes* Blüthgen, 1937

Type species: *Sulcopolistes semenowi* Morawitz, 1889

Synonymy: *Polistes* (*Sulcopolistes*) *atrimandibularis* (Zimmermann, 1930)

World distribution: Germany, Spain, Greece, Italy, and Armenia (Zimmermann, 1930); France (Berland, 1942); Germany and Bulgaria (Blüthgen, 1961); Italy, France, Czechoslovakia, Greece, Morocco, Central Europe, West Asia and Egypt (Guiglia, 1972); Czechoslovakia (Cetkovic, 1985).

Distribution in Turkey: Uludağ (Bursa) (Blüthgen, 1961)

Material examined: Females: 1, Turnalı Şenkaya (Erzurum), 12.VI.1992; 4, Pehlivanlı, Tortum (Erzurum), 12.VII.1992; 1, Şenyurt (Erzurum), 22.VIII.1991; 1, Olur (Erzurum), 22.VII.1992; 1, Süngübayır, Olur (Erzurum), 23.VII.1992; 4, Sarıbaşak, Olur (Erzurum), 20.IX.1991.

Males: 1, Turnalı, Şenkaya (Erzurum), 6.VIII.1990; 1, Şenyurt (Erzurum), 22.VIII.1991; 1, Sarıdarı, Posof (Kars), 28.VIII.1991; 7, Sarıbaşak, Olur (Erzurum), 20.IX.1991.

Polistes (Sulcopolistes) semenowi (Morawitz, 1889)

World distribution: France, Italy, Algeria and Morocco (Berland, 1942); North Africa and South Europe (Blüthgen, 1961); France, Italy, Caucasus, Persia, Yugoslavia, Portugal, Algeria and Morocco (Guiglia, 1972); Yugoslavia (Cetkovic, 1985).

Distribution in Turkey: Guiglia (1972) indicated presence of this species in Turkey, but locality was not pointed out.

Material has not been found so far.

Polistes (Sulcopolistes) sulcifer (Zimmermann, 1930)

World distribution: Italy (Zimmermann, 1930); France (Berland, 1942); Bulgaria and Hungaria (Blüthgen, 1961); Italy, France, Czechoslovakia, Hungaria, Greece, Central Europe, Israel, Morocco, Persia and Egypt (Guiglia, 1972); Yugoslavia (Cetkovic, 1985).

Distribution in Turkey: Kızılcahamam (Ankara) (Gusenleitner, 1967).

Material examined: Females: 5, Turnalı, Şenkaya (Erzurum), 12.VI.1992; 1, Üniversite (Erzurum), 30.VI.1992; 1, Doruklu Tortum (Erzurum), 4.VIII.1991; 1, Kale-dibi, Tortum (Erzurum), 5.VII.1992; 4 Süngübayır, Olur (Erzurum), 10.VIII.1990; 3, Pehlivanlı, Tortum (Erzurum), 12.VII.1992; 1, Çamlıyamaç, Uzundere (Erzurum), 13.VIII.1991; 1, Isisu, Sarıkamış (Kars), 17.VIII.1991; 1, Tokat, 20.VIII.1992; 2, Madenköprübaşı, İspir (Erzurum), 26.VIII.1990; 2, Pazaryolu (Erzurum), 27.VIII.1992; İspir (Erzurum), 21.VIII.1992; 2, Çimenli, Narman (Erzurum), 29.VIII.1991; 1, Göllü, Narman (Erzurum), 29.VIII.1991; 4, Sarıbaşak, Olur (Erzurum), 20.IX.1991, 1, Palandöken (Erzurum), 20.IX.1992.

Males: 5, Turnalı, Şenkaya (Erzurum), 6.VIII.1990; 1, Kopdağı (Bayburt), 10.VIII.1991; 2, Genya dağı (Artvin), 16.VII.1990; 1, Tokat, 19.VIII.1992; 2, Süngübayır, Olur (Erzurum), 20.VIII.1992; 3, Madenköprübaşı, İspir (Erzurum), 26.VIII.1990; 5, Sarıdarı, Posof (Kars), 28.VIII.1991; 4, Madenköprübaşı, İspir (Erzurum), 28.VIII.1992; 3, Göllü, Narman (Erzurum), 29.VIII.1991; 1, Palandöken (Erzurum), 29.VIII.1990; 4, Sarıbaşak, Olur (Erzurum), 20.IX.1991.

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Özet

Türkiye'nin Polistinae (Hymenoptera: Vespidae) Türleri

1990-1992 yıllarında ülkenin değişik yörelerinden toplanan, ayrıca Özbek'in 1966'dan bu yana biriktirdiği materyal üzerinde yapılan çalışmalar sonucu Polistinae alt familyasının ülkemizde sadece *Polistes* cinsi tarafından temsil edildiği ve bu cinse bağlı 11 tür ve alttürün var olduğu ortaya konmuştur. Bunlardan *Polistes dominulus bucharensis* Erichson Türkiye faunası için yeni kayıt niteliğindedir. *Polistes*'in altcins ve türlerini ayıran teşhis anahtarları hazırlanmıştır.

P.(Leptopolistes) gallicus L. en yaygın ve yoğunluğu en yüksek olan türdür. Tüm örneklerin % 20'sini oluşturmaktadır. Bunu *P. (s.str.) nimpha* Christ izlemektedir.

P. (Sulcopolistes) atrimandibularis (Zimmermann), *P.(S.) semenowi* (Mor.) ve *P.(S.) sulcifer* (Zimmermann) sosyal parazit, diğerleri ise sosyal yaşam sürdüren vespid'lerdir. Sosyal parazit olmayan *Polistes* türleri predatör oldukları için bir çok zararlı böcek türlerini baskı altında tutmada önem taşımaktadırlar.

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