

## CYNIPIDAE (INSECTA: HYMENOPTERA) FAUNA OF İSTANBUL

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[Azmaz, M. & Katılmış, Y. 2017. Cynipidae (Insecta: Hymenoptera) fauna of İstanbul. *Munis Entomology & Zoology*, 12 (1): 151-167]

**ABSTRACT:** In order to contribute to the cynipid fauna (Hymenoptera: Cynipidae) of Turkey, this study was carried out in Istanbul. Gall specimens were collected between 2012 and 2013 from different habitats of Istanbul. In result of the study, 75 species which are 2 species belonging to 1 genus (Ceroptresini), 54 species belonging to 12 genera (Cynipini), 4 species belonging to 1 genus (Diplolepidini), 1 species belonging to 1 genus (Phanacidini) and 14 species belonging to 2 genera (Synergini), were totally recorded from Istanbul. Five of these species were recorded the first time from Turkey; *Phanacis hypochoeridis* (Kieffer, 1887) (also as a new genus record), *Synergus dacianus* Kierych, 1985, *S. diaphanus* Houard, 1911, *S. physocerus* Hartig, 1843 and *S. radiatus* Mayr, 1872 (Hymenoptera: Cynipidae). First locality record of *Diplolepis nervosa* (Curtis, 1838) was also provided for Turkey. Data about host plants and/or host galls, localities and Turkey distributions are given.

**KEY WORDS:** Cynipidae, Istanbul, new record, fauna, Turkey

Cynipidae belonging to Cynipoidea is the largest family with roughly 1400 described species (Ronquist, 1999; Ronquist et al., 2015). Approximately 300 of these species are known from Western Palearctic (Dalla-Torre & Kieffer, 1910; Nieves-Aldrey, 2001; Stone et al., 2001; Melika, 2006). Located in between Europe and Asia (western Palearctic) Turkey has special significance due to its contained three phytogeographic regions (Euro-Siberian, Irano-Turanian and Mediterranean) with over 12000 plant taxa (Avci, 2005).

There are local faunistic studies about Cynipidae and new records were contributed to Turkey fauna (Güçlü et al., 2008; Katılmış & Azmaz, 2015; Katılmış & Kiyak, 2009a, 2009b, 2010, 2011a, 2011b, 2011c, 2011d, 2011e, 2012; Kiyak et al., 2008; Kiyak & Katılmış, 2010; Kemal & Koçak, 2010; Koçak & Kemal, 2012; Mete & Demirsoy, 2012; Mutun & Dinç, 2011, 2015). Katılmış & Kiyak (2008) listed 81 gall wasps (Cynipidae). Furthermore, seven new oak gallwasp species were described from Turkey (Melika & Stone, 2001; Melika et al., 2004; Dinç et al., 2014; Mutun et al., 2014). *Andricus megatruncicolus* Melika was described from Iran and its Turkey distribution was also mentioned (Tavakoli et al., 2008).

Although Istanbul has been metropol during centuries owing to its ancient history and socio-economic importance, 45% of Istanbul is still forestland. Moreover, there are moist forests (beech, hornbeam, chestnut, etc.) in the northern part of Istanbul and dry forests (oaks, chestnut, etc.) in mid and southern parts of Istanbul (Gürel & Gündüz, 2011). However, nearly forestland in all southern part of Istanbul unfortunately disappeared, the rest of forestland alarmed for its future due to rapid industrialization and urbanization. Initially some studies were carried out about gall wasps, as forest pests of Istanbul. In a result of these studies, 40 species were determined in forests of Istanbul (Acatay, 1943; Alkan, 1952; Baş, 1973; Fahringer, 1922; Schimitschek, 1953). In addition, four oak gall wasps were recorded from Istanbul as new to Turkey (Azmaz &

Katılmış, 2015). Gall wasp species diversity in Istanbul might be higher than current known number. However, no regular faunistic study has been unfortunately performed in Istanbul.

## MATERIALS AND METHODS

All gall specimens on host plants were collected from different localities in Istanbul between 2012 and 2013 (Fig. 1). After collection, all gall specimens were taken photos. Galls were kept in laboratory conditions and checked weekly for emerged wasps. Adult gall wasps and inquiline were subsequently fixed in ethanol. The adults were then air-dried, fixed on cards (5x10 mm), and pinned.

All gall specimens and the adults were deposited in the Pamukkale University, Faculty of Arts & Sciences, Department of Biology, Zoology Laboratory, Denizli, Turkey. Data about host plants and/or host galls, localities (in appendix) and Turkey distributions are given. New records are denoted by an asterisk (\*).

## RESULTS

**1. Tribe: Ceroptresini** Nieves-Aldrey, Nylander & Ronquist, 2015

**1.1. Genus: *Ceroptres*** Hartig, 1840

**1.1.1. *Ceroptres cerri*** Mayr, 1872

**Material examined:** ISTANBUL, siv-V, 1♀. **Host gall:** *Aphelonyx cerricola*. **Turkey distribution:** Afyon, Denizli, Kütahya, Uşak (Katılmış & Kıyak, 2011d).

**1.1.2. *Ceroptres clavicornis*** Hartig, 1840

**Material examined:** ISTANBUL, bey-XII, 1♂, 2♀♀; cat-XIII, 2♀♀; sar-VIII, 1♀; sil-IV, 2♀♀; sil-V, 1♀; sil-XVII, 1♀; sil-XIX, 3♀♀. **Host gall:** *Andricus conglomeratus*, *A. curvator*, *A. glutinosus*. **Turkey distribution:** Afyon, Kütahya (Katılmış & Kıyak, 2011d).

**2. Tribe: Cynipini** Latreille, 1802

**2.1. Genus: *Andricus*** Hartig, 1840

**2.1.1. *Andricus amblycerus*** (Giraud, 1859)

**Material examined:** ISTANBUL, bey-XIII; cat-VIII; cat-XXI; cat-XXIII; cek-III; ey-III; sar-XII, 3♀♀; sil-X; sil-XII; sil-XVIII; sil-XXII; sil-XXX; sil-XXXIV. **Host oak:** *Q. cerris*, *Q. petraea*, *Q. pubescens*, *Q. robur*. **Turkey distribution:** İstanbul, Kırklareli, Van (Baş, 1973; Kemal & Koçak, 2010).

**2.1.2. *Andricus amenti*** Giraud, 1859

**Material examined:** ISTANBUL, cat-II; cat-XIII; pen-VI; sil-XVII; sil-XX. **Host oak:** *Q. petraea*, *Q. robur*. **Turkey distribution:** Artvin, İstanbul, Van (Acatay, 1943; Baş, 1973; Kemal & Koçak, 2010).

**2.1.3. *Andricus bulgaricus*** Vassileva-Samnalieva, 1977

**Material examined:** ISTANBUL, cat-XVI; cat-XX. **Host oak:** *Q. pubescens*. **Turkey distribution:** Kütahya, Van (Katılmış & Kıyak, 2011a; Kemal & Koçak, 2010).

**2.1.4. *Andricus caliciformis*** (Giraud, 1859)

**Material examined:** ISTANBUL, arn-I; arn-V; bey-II; bey-VII; bey-XII; bey-XVI; cat-VII; cat-VIII; cat-IX; cat-XXIII; cat-XXIV; ey-III; ey-V; pen-III; sar-IV; sar-VII; sar-XII; sar-XVI; sil-II; sil-III; sil-VII; sil-VIII; sil-X; sil-XI; sil-XII; sil-XIII; sil-XIV; sil-XVI; sil-XVII; sil-XVIII; sil-XXII; sil-XXIII; sil-XXXI; sil-XXXII; sil-XXXIII; sil-XXXIV; sil-XXXV; sil-XXXVI; sis-I; siv-IV; siv-VII; tuz-I. **Host oak:** *Q. frainetto*, *Q. hartwissiana*, *Q. infectoria*, *Q. petraea*, *Q. pubescens*, *Q. robur*. **Turkey distribution:** Balıkesir, İstanbul, Kütahya, Manisa, Van (Baş, 1973; Kemal & Koçak, 2010).

**2.1.5. *Andricus callidoma* (Hartig, 1881)**

**Material examined:** ISTANBUL, arn-II; arn-III; bey-II; bey-III; cat-I; cat-II; cat-XXVI; cek-II; ey-I; sar-I; sar-III; sil-V; sil-VI; sil-VII; sil-IX; sil-XVII; sil-XX; sil-XXVIII. **Host oak:** *Q. petraea*, *Q. pubescens*, *Q. robur*. **Turkey distribution:** Burdur, Isparta, İstanbul, Kırklareli, Van (Acatay, 1943; Baş, 1973; Kemal & Koçak, 2010; Kiyak et al., 2008).

**2.1.6. *Andricus caputmedusae* (Hartig, 1843)**

**Material examined:** ISTANBUL, arn-V; arn-VIII; bey-II; bey-VII; bey-VIII; bey-XII; bey-XIII; bey-XVI; cat-XXIII; ey-III; ey-IV; kar-I; sar-IV; sar-VI; sar-VII; sar-XII; sar-XIII; sar-XIV; sar-XV; sar-XVI; sar-XVII; sil-I; sil-II; sil-III; sil-IX; sil-X; sil-XII; sil-XVI, 3♀; sil-XVII; sil-XVIII; sil-XXII; sil-XXIII; sil-XXXI; sil-XXXII; siv-II; siv-IV; tuz-I. **Host oak:** *Q. cerris*, *Q. frainetto*, *Q. hartwissiana*, *Q. infectoria*, *Q. petraea*, *Q. pubescens*, *Q. robur*. **Turkey distribution:** Afyon, Ankara, Antalya, Balıkesir, Bolu, Burdur, Bursa, Denizli, Düzce, Erzincan, Gümüşhane, Isparta, İstanbul, İzmir, Kırklareli, Kütahya, Kocaeli, Konya, Muğla, Sakarya, Sinop, Tokat, Uşak, Van (Acatay, 1943; Alkan, 1952; Baş, 1973; Çanakçıoğlu, 1956; Karaca, 1956; Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010; Kiyak et al., 2008; Mete & Demirsoy, 2012; Mutun & Dinç, 2011; Rokas et al., 2002; Schimitschek, 1938, 1944).

**2.1.7. *Andricus cecconii* Kieffer, 1901**

**Material examined:** ISTANBUL, ey-III. **Host oak:** *Q. cerris*. **Turkey distribution:** Afyon, Antalya, Burdur, Denizli, Isparta, Kütahya, Uşak, Van (Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010; Kiyak et al., 2008).

**2.1.8. *Andricus conglomeratus* (Giraud, 1859)**

**Material examined:** ISTANBUL, arn-IV; arn-V; bey-I; bey-III; bey-IV, 1♀; bey-VI; bey-XII; bey-XIV; bey-XIX; bey-XX; cat-II; cat-III; cat-IV; cat-V; cat-VI, 4♀; cat-IX; cat-X; cat-XI; cat-XIII; cat-XIV; cat-XV; cat-XVII; cat-XVIII; cat-XIX; cat-XXIII; cat-XXVI; cat-XXVIII; cat-XXIX; cek-III; cek-V; ey-I; ey-II; ey-III; ey-IV; ey-VI; ey-VII; kar-I; pen-V; pen-VI; sar-I, 1♀; sil-IV, 1♀; sil-V; sil-VI; sil-IX, 2♀; sil-X; sil-XIII, 1♀; sil-XIV; sil-XV; sil-XVII, 3♀; sil-XIX, 2♀; sil-XX, 2♀; sil-XXV, 1♀; sil-XXVII; sil-XXVIII; sil-XXX; sil-XXXVII; sil-XXXIV; sil-XXXVIII; siv-III; tuz-I. **Host oak:** *Q. frainetto*, *Q. infectoria*, *Q. petraea*, *Q. pubescens*, *Q. robur*. **Turkey distribution:** Ankara, Bolu, Burdur, Denizli, Isparta, İstanbul, Kırklareli, Kütahya, Sakarya, Samsun, Van (Acatay, 1943; Alkan, 1952; Baş, 1973; Karaca, 1956; Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010; Kiyak et al., 2008; Schimitschek, 1944).

**2.1.9. *Andricus conifcus* (Hartig, 1843)**

**Material examined:** ISTANBUL, arn-IV; cat-IX; cat-X; cat-XI; ey-III; ey-IV; sil-V; sil-XXXIV; siv-III. **Host oak:** *Q. frainetto*, *Q. petraea*, *Q. pubescens*. **Turkey distribution:** Bolu, Van, Zonguldak (Baş, 1973; Kemal & Koçak, 2010).

**2.1.10. *Andricus coriarius* (Hartig, 1843)**

**Material examined:** ISTANBUL, arn-VIII; bey-VII; cat-VI; cat-VIII; cat-XXIII; cat-XXV; cek-II; ey-III; ey-VI; sar-V; sar-VII; sil-III; sil-VI; sil-VII; sil-XIV; sil-XVI; sil-XX; sil-XXI; sil-XXV; sil-XXXI; siv-I; siv-II; siv-III; siv-IV; siv-VI; siv-VII. **Host oak:** *Q. frainetto*, *Q. hartwissiana*, *Q. infectoria*, *Q. petraea*, *Q. pubescens*, *Q. robur*. **Turkey distribution:** Afyon, Ankara, Antalya, Balıkesir, Burdur, Bursa, Denizli, Erzincan, Gümüşhane, Isparta, İstanbul, Kırklareli, Kütahya, Tokat, Uşak, Van (Acatay, 1943; Baş, 1973; Fahringer, 1922; Karaca, 1956; Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010; Kiyak et al., 2008; Mete & Demirsoy, 2012; Mutun & Dinç, 2011; Rokas et al., 2002; Schimitschek, 1937).

**2.1.11. *Andricus coronatus* (Giraud, 1859)**

**Material examined:** ISTANBUL, cat-I; cat-XIII; cat-XVIII; cat-XXII; cat-XXIII; cat-XXIV; cat-XXV; sil-III; sil-VIII; sil-XII; sil-XVI; sil-XXXV; siv-I; siv-II; siv-IV; siv-V; siv-VII. **Host oak:** *Q. cerris*, *Q. frainetto*, *Q. pubescens*. **Turkey distribution:** Afyon, Antalya, Denizli, Isparta, İstanbul, Kütahya, Muğla, Uşak, Van (Baş, 1973; Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010; Kiyak et al., 2008).

**2.1.12. *Andricus corruptrix* (Schlechtendal, 1870)**

**Material examined:** ISTANBUL, arn-VI; bey-XII; bey-XVIII; bey-XX; cat-II; ey-III; sar-IX; sil-V; sil-XII; sil-XVII; sil-XXV; sil-XXXVIII; sil-XL. **Host oak:** *Q. pubescens*, *Q. robur*. **Turkey distribution:** Afyon, Kütahya, Van (Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010).

**2.1.13. *Andricus crispator* Tschek, 1871**

**Material examined:** ISTANBUL, bey-X; sil-VIII; sil-XXIII. **Host oak:** *Q. cerris*. **Turkey distribution:** Kütahya (Katılmış & Kiyak, 2009a).

**2.1.14. *Andricus curvator* Hartig, 1840**

**Material examined:** ISTANBUL, arn-I; arn-IV; arn-VI; bey-I; bey-III; bey-XII; bey-XVI; bey-XVII; bey-XVIII; cat-II; cat-VIII; cat-IX; cat-X; cat-XIII; cat-XVI, 1♀; cat-XXXVI; cek-V; cek-IV; ey-VI; ey-VII; kar-I; pen-I; pen-IV; pen-VI; sar-XVI; sil-IV; sil-VII; sil-XXXVII; sil-XXXVIII; siv-VI; siv-II. **Host oak:** *Q. cerris*, *Q. frainetto*, *Q. hartwissiana*, *Q. petraea*, *Q. pubescens*. **Turkey distribution:** Afyon, Ankara, Aydın, Bolu, Burdur, Bursa, Denizli, İstanbul, Kırklareli, Kütahya, Uşak, Van (Acatay, 1943; Baş, 1973; Karaca, 1956; Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010; Kiyak et al., 2008).

**2.1.15. *Andricus fecundatrix* (Hartig, 1840)**

**Material examined:** ISTANBUL, bey-III; bey-VI; ey-II; ey-III; pen-I; pen-II; sar-I; sar-XVII; sil-II; sil-V; sil-VIII; sil-XVII; sil-XIX; sil-XXIII; sil-XXXI; sil-XXXIX; sil-XL. **Host oak:** *Q. frainetto*, *Q. infectoria*, *Q. petraea*, *Q. pubescens*. **Turkey distribution:** Afyon, Ankara, Balıkesir, Erzincan, İstanbul, Kocaeli, Kütahya, Manisa, Van (Acatay, 1943; Alkan, 1952; Baş, 1973; Karaca, 1956; Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010; Mete & Demirsoy, 2012; Schimitschek, 1938).

**2.1.16. *Andricus galeatus* (Giraud, 1859)**

**Material examined:** ISTANBUL, bey-VII; ey-III; ey-VI; sar-XII; sil-II; sil-VIII; sil-XI; sil-XII; sil-XVIII; sil-XXXII; sil-XXXIV; sil-XXXVI. **Host oak:** *Q. frainetto*, *Q. infectoria*, *Q. petraea*, *Q. pubescens*. **Turkey distribution:** İstanbul, Kırklareli, Kütahya, Van (Baş, 1973; Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010).

**2.1.17. *Andricus gallaearnaeformis* (Boyer de Fonscolombe, 1832)**

**Material examined:** ISTANBUL, pen-I; pen-II; sar-II; siv-II. **Host oak:** *Q. infectoria*. **Turkey distribution:** Afyon, Kütahya, Uşak, Van (Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010).

**2.1.18. *Andricus glutinosus* (Giraud, 1859)**

**Material examined:** ISTANBUL, arn-IV; bey-II; bey-III; bey-IV; bey-XII; bey-XIII; bey-XIV; bey-XVIII; bey-XIX; bey-XX; cat-III; cat-IV; cat-V; cat-VI; cat-VIII; cat-IX; cat-XIV; cat-XV; cat-XVI; cat-XII; cat-XVII; cat-XVIII; cat-XIX; cat-XXV; cat-XXVII; cek-I; cek-III; cek-V; ey-I; ey-IV; ey-V; ey-VII; ey-VIII; pen-VI; sar-I; sar-II; sar-VII; sar-X; sar-XI; sar-XVI; sil-IV; sil-V; sil-VII; sil-IX; sil-X; sil-XI; sil-XII; sil-XIII; sil-XIV; sil-XV; sil-XVII; sil-XVIII; sil-XXI; sil-XXIV; sil-XXV; sil-XXVII; sil-XXVIII; sil-XXX; sil-XXXIII; sil-XXXIV; sil-XXXVII; sil-XXXVIII; sil-XIX; sil-XL; siv-III; siv-IV. **Host oak:** *Q. frainetto*, *Q. hartwissiana*, *Q. petraea*, *Q. pubescens*, *Q. robur*. **Turkey distribution:** Ankara, Bolu, İstanbul, Kırklareli, Sakarya, Van (Acatay, 1943; Baş, 1973; Karaca, 1956; Kemal & Koçak, 2010; Schimitschek, 1944).

**2.1.19. *Andricus grossulariae* Giraud, 1859**

**Material examined:** ISTANBUL, bey-II; bey-VI; cat-VI; cat-VII; cat-VIII; cat-XX; cat-XXI; cat-XXII; cat-XXIII; cat-XXIV; ey-III; ey-IV; ey-V; ey-VI; pen-III; sar-IV, 5♀♀ aseksüel; sar-VII, 5♀♀ aseksüel; sil-I; sil-III; sil-VI; sil-XII; sil-XXXI; sil-XXXII; siv-I; siv-II; siv-III; siv-IV. **Host oak:** *Q. cerris*, *Q. frainetto*, *Q. infectoria*, *Q. petraea*, *Q. pubescens*, *Q. robur*. **Turkey distribution:** Afyon, Antalya, Aydın, Burdur, Denizli, Erzincan, Gümüşhane, Isparta, İstanbul, Kırklareli, Kütahya, Sinop, Uşak, Van (Acatay, 1943; Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010; Kiyak et al., 2008; Mete & Demirsoy, 2012; Mutun &

Dinç, 2011; Schimitschek, 1938, 1944).

#### 2.1.20. *Andricus infectorius* (Hartig, 1843)

**Material examined:** ISTANBUL, arn-I; arn-II; arn-IV; arn-VIII; bey-II; bey-III; bey-IV; bey-V; bey-XIX; bey-XX; cat-IV; cat-V; cat-VI; cat-XXIII; cat-XXIV; cat-XXVI; cat-XXVII; cat-XXIX; ey-III, 2♀♀; ey-IV; ey-VI; kar-III; kar-IV; pen-V; sil-IV; sil-V; sil-VI; sil-VII; sil-XII; sil-XXXIV; sil-XXXVII; sil-XXXVIII; sil-XL; siv-I; siv-II; siv-V, 1♀; siv-VI. **Host oak:** *Q. cerris*, *Q. frainetto*, *Q. hartwissiana*, *Q. infectoria*, *Q. petraea*, *Q. pubescens*, *Q. robur*. **Turkey distribution:** Afyon, Ankara, Aydın, Balıkesir, Batman, Burdur, Çanakkale, Çorum, Denizli, Diyarbakır, Gökürmak Valley (Karadeniz Region), Isparta, İstanbul, İzmir, Kütahya, Manisa, Mardin, Muğla, Niğde, Şırnak, Uşak, Van (Acatay, 1943; Alpaut, 1942; Baş, 1973; Katılmış & Kıyak, 2011a; Kemal & Koçak, 2010; Kıyak et al., 2008; Schimitschek, 1938).

#### 2.1.21. *Andricus inflator* Hartig, 1840

**Material examined:** ISTANBUL, cat-VIII; pen-I. **Host oak:** *Q. cerris*, *Q. infectoria*. **Turkey distribution:** Afyon, Denizli, Kütahya, Uşak, Van (Katılmış & Kıyak, 2011a; Kemal & Koçak, 2010).

#### 2.1.22. *Andricus kollari* (Hartig, 1843)

**Material examined:** ISTANBUL, bey-VII; cat-VI; cat-XVII; cat-XXVIII; sar-V; sar-XVIII; sil-I; sil-VII; sil-XVI; sil-XX, 1♀; sil-XXIX; sil-XXXVIII; siv-V. **Host oak:** *Q. cerris*, *Q. frainetto*, *Q. hartwissiana*, *Q. infectoria*, *Q. petraea*, *Q. pubescens*. **Turkey distribution:** Ankara, Aydın, Balıkesir, Burdur, Bursa, Denizli, Eskişehir, Gümüşhane, Isparta, İstanbul, Kütahya, Uşak, Van (Acatay, 1943; Alkan, 1952; Alpaut, 1942; Çanakçıoğlu, 1956; Fahringer, 1922; Karaca, 1956; Katılmış & Kıyak, 2011a; Kemal & Koçak, 2010; Kıyak et al., 2008; Mutun & Dinç, 2011).

#### 2.1.23. *Andricus lignicolus* (Hartig, 1840)

**Material examined:** ISTANBUL, cat-I; cat-VIII; cat-XIV; cat-XX; cek-III; ey-VI; pen-VII; sil-II; sil-VII; sil-VIII; sil-XI; sil-XII; sil-XIV; sil-XVI; sil-XVII; sil-XVIII; sil-XIX; sil-XXXVII. **Host oak:** *Q. cerris*, *Q. petraea*, *Q. robur*. **Turkey distribution:** Afyon, Burdur, Denizli, Isparta, İstanbul, Kütahya, Uşak, Van (Acatay, 1943; Alkan, 1952; Katılmış & Kıyak, 2011a; Kemal & Koçak, 2010; Kıyak et al., 2008; Schimitschek, 1938).

#### 2.1.24. *Andricus lucidus* (Hartig, 1843)

**Material examined:** ISTANBUL, sar-VII; sil-II; sil-III; sil-VIII; sil-IX; sil-XVI; sil-XVIII; sil-XXXIII; sil-XXXIV; siv-VI. **Host oak:** *Q. cerris*, *Q. infectoria*, *Q. pubescens*. **Turkey distribution:** Afyon, Burdur, Denizli, Erzincan, Gümüşhane, Isparta, İstanbul, Kütahya, Uşak, Van (Acatay, 1943; Alkan, 1952; Katılmış & Kıyak, 2011a; Kemal & Koçak, 2010; Kıyak et al., 2008; Mete & Demirsoy, 2012; Mutun & Dinç, 2011; Schimitschek, 1938).

#### 2.1.25. *Andricus megalucidus* Melika, Stone, Sadeghi & Pujade-Villar, 2004

**Material examined:** ISTANBUL, siv-I, 1♀; siv-VI. **Host oak:** *Q. infectoria*. **Turkey distribution:** Afyon, Burdur, Denizli, Erzincan, Isparta, Kütahya, Uşak, Van (Katılmış & Kıyak, 2011a; Kemal & Koçak, 2010; Melika et al., 2004; Mete & Demirsoy, 2012).

#### 2.1.26. *Andricus mitratus* (Mayr, 1870)

**Material examined:** ISTANBUL, bey-I; bey-II; bey-IV; bey-XII; bey-XIII; bey-XIV; bey-XVIII; bey-XIX; bey-XX; cat-I; cat-II; cat-V; cat-XIII; cat-XVII; cat-XXV; cek-I; cek-II; cek-V; ey-VI; ey-VII; pen-V; pen-VI; sil-V; sil-VII; sil-IX; sil-X; sil-XIV; sil-XV; sil-XVII; sil-XVIII; sil-XIX; sil-XX; sil-XXV; sil-XXVII; sil-XXVIII; sil-XXX; sil-XXXIII; sil-XXXIV; sil-XXXIX; sil-XL. **Host oak:** *Q. frainetto*, *Q. petraea*, *Q. pubescens*, *Q. robur*. **Turkey distribution:** Bolu, İstanbul, Kütahya, Samsun, Van, Zonguldak (Acatay, 1943; Baş, 1973; Katılmış & Kıyak, 2011a; Kemal & Koçak, 2010; Rokas et al., 2002; Schimitschek, 1944).

#### 2.1.27. *Andricus moreae* (Graeffe, 1905)

**Material examined:** ISTANBUL, cat-XXIV. **Host oak:** *Q. infectoria*. **Turkey**

**distribution:** Erzincan, Van (Kemal & Koçak, 2010; Mete & Demirsoy, 2012).

**2.1.28. *Andricus multiplicatus* Giraud, 1859**

**Material examined:** ISTANBUL, sil-VIII. **Host oak:** *Q. cerris*. **Turkey distribution:** Afyon, Denizli, Kütahya, Van (Katılmış & Kıyak, 2011a; Kemal & Koçak, 2010).

**2.1.29. *Andricus quercustozae* (Bosc, 1792)**

**Material examined:** ISTANBUL, arn-I; arn-V; bey-XIII; cat-I; cat-V; cat-VII; cat-VIII; cat-XVIII; cat-XXI; cat-XXII; cat-XXIII; cat-XXIV; cat-XXV; cek-III; sil-II; sil-III; sil-V; sil-VI; sil-VII, 1♀; sil-VIII; sil-X; sil-XI; sil-XII; sil-XIII; sil-XIV; sil-XVI; sil-XVII; sil-XVIII; sil-XIX; sil-XXII; sil-XXIII; sil-XXIV; sil-XXVIII; sil-XXXI; sil-XXXIII; sil-XXXIV; sil-XXXV; sil-XXXVI; sil-XL; siv-II; siv-IV; siv-V, 1♀; siv-VII; tuz-I. **Host oak:** *Q. frainetto*, *Q. infectoria*, *Q. petraea*, *Q. pubescens*, *Q. robur*. **Turkey distribution:** Afyon, Ankara, Antalya, Aydın, Balıkesir, Burdur, Bursa, Denizli, Erzincan, Gümüşhane, Isparta, İstanbul, Kütahya, Mersin, Muğla, Sakarya, Uşak, Van (Acatay, 1943; Alkan, 1952; Baş, 1973; Çanakçıoğlu, 1956; Katılmış & Kıyak, 2011a; Kemal & Koçak, 2010; Kıyak et al., 2008; Mete & Demirsoy, 2012; Mutun & Dinç, 2011; Rokas et al., 2002; Schimitschek, 1938).

**2.1.30. *Andricus solitarius* (Boyer de Fonscolombe, 1832)**

**Material examined:** ISTANBUL, arn-IV; arn-V; arn-VI; bey-III; bey-IV; bey-XII; bey-XIII; bey-XX; cat-II; cat-IV; cat-V; cat-VI; cat-IX; cat-X; cat-XIII; cat-XV; cat-XVII; cat-XVIII; cat-XIX; cat-XXXVI; cek-I; ey-III; ey-VI; pen-V; sar-XVI; sil-IV; sil-V; sil-VI; sil-XIII; sil-XV; sil-XVII; sil-XIX; sil-XX; sil-XXV; sil-XXVII; sil-XXVIII; sil-XXIX; sil-XXXVII; sil-XXXVIII; sil-XXXIX; siv-III. **Host oak:** *Q. cerris*, *Q. frainetto*, *Q. petraea*, *Q. robur*. **Turkey distribution:** Aydın, Burdur, İstanbul, Kütahya, Van (Baş, 1973; Katılmış & Kıyak, 2011a; Kemal & Koçak, 2010; Kıyak et al., 2008).

**2.1.31. *Andricus stefanii* (Kieffer, 1897)**

**Material examined:** ISTANBUL, bey-VII; ey-IV; sil-XX. **Host oak:** *Q. frainetto*, *Q. infectoria*, *Q. petraea*. **Turkey distribution:** Afyon, Antalya, Balıkesir, Denizli, Erzincan, Isparta, İstanbul, Kırklareli, Kütahya, Van (Acatay, 1943; Baş, 1973; Katılmış & Kıyak, 2011a; Kemal & Koçak, 2010; Kıyak et al., 2008; Mete & Demirsoy, 2012; Schimitschek, 1937).

**2.1.32. *Andricus sternlichti* Bellido, Pujade-Villar & Melika, 2003**

**Material examined:** ISTANBUL, siv-I; siv-VI. **Host oak:** *Q. infectoria*. **Turkey distribution:** Afyon, Denizli, Erzincan, Kütahya, Uşak, Van (Katılmış & Kıyak, 2011a; Kemal & Koçak, 2010; Mete & Demirsoy, 2012).

**2.1.33. *Andricus tomentosus* (Trotter, 1901)**

**Material examined:** ISTANBUL, sil-XVIII; siv-I; siv-II. **Host oak:** *Q. infectoria*. **Turkey distribution:** Afyon, Ankara, Antalya, Balıkesir, Bursa, Denizli, Erzincan, Isparta, İstanbul, Kütahya, Manisa, Muğla, Samsun, Uşak, Van (Acatay, 1943; Alkan, 1952; Alpaut, 1942; Baş, 1973; Karaca, 1956; Katılmış & Kıyak, 2011a; Kemal & Koçak, 2010; Kıyak et al., 2008; Mete & Demirsoy, 2012; Schimitschek, 1938).

**2.2. Genus: *Aphelonyx* Mayr, 1881**

**2.2.1. *Aphelonyx cerricola* (Giraud, 1859)**

**Material examined:** ISTANBUL, cat-VI; cat-XX; cat-XXIV; cek-III; sil-VII; sil-VIII; sil-XI; sil-XII; sil-XIV; sil-XVI; sil-XVIII; sil-XXII; sil-XXXIV; siv-V; siv-VII. **Host oak:** *Q. cerris*. **Turkey distribution:** Afyon, Aydın, Burdur, Denizli, Isparta, Konya, Kütahya, Uşak, Van (Katılmış & Kıyak, 2011a; Kemal & Koçak, 2010; Kıyak et al., 2008; Rokas et al., 2002).

**2.2.2. *Aphelonyx persica* Melika, Stone, Sadeghi & Pujade-Villar, 2004**

**Material examined:** ISTANBUL, cat-VII; cat-VIII; cat-XX; cat-XXIV; cat-XXV; cek-III; ey-IV; ey-V; ey-VI; sil-II; sil-VI; sil-VII; sil-VIII; sil-XI; sil-XII; sil-XIII; sil-XIV; sil-XVIII; sil-XIX; sil-XXII; sil-XXXV; sil-XXXVI; sil-XL; siv-IV; siv-VII; siv-V. **Host oak:** *Q. cerris*.

**Turkey distribution:** Afyon, Denizli, Uşak, Van (Katılmış & Kiyak, 2009b; Kemal & Koçak, 2010).

**2.3. Genus: *Biorhiza* Westwood, 1840**

**2.3.1. *Biorhiza pallida* (Olivier, 1791)**

**Material examined:** ISTANBUL, arn-I; arn-II; arn-VII; bey-XII, 1♂; bey-XX; cat-IV; cat-VIII, 4♀♀; cek-I, 7♀♀, 6♂♂; cek-V; ey-VII; pen-IV; sil-VI; siv-II; siv-VI. **Host oak:** *Q. infectoria*, *Q. petraea*, *Q. pubescens*. **Turkey distribution:** Afyon, Ankara, Burdur, Denizli, Gümüşhane, Isparta, İstanbul, Kütahya, Trabzon, Uşak, Van (Acatay, 1943; Baş, 1973; Karaca, 1956; Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010; Kiyak et al., 2008; Mutun & Dinç, 2011; Schimitschek, 1938, 1944).

**2.4. Genus: *Callirhytis* Förster, 1869**

**2.4.1. *Callirhytis rufescens* (Mayr, 1882)**

**Material examined:** ISTANBUL, arn-V; bey-XVII; cat-XVII; sil-XXII. **Host oak:** *Q. frainetto*. **Turkey distribution:** Kütahya, Van (Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010).

**2.5. Genus: *Cerroneuroterus* Melika & Pujade-Villar, 2010**

**2.5.1. *Cerroneuroterus lanuginosus* (Giraud, 1859)**

**Material examined:** ISTANBUL, arn-III; bey-II; ey-III; sil-XI; sil-XII. **Host oak:** *Q. cerris*, *Q. robur*. **Turkey distribution:** Afyon, Aydın, Burdur, Denizli, Erzincan, Isparta, Kütahya, Uşak, Van (Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010; Kiyak et al., 2008; Mete & Demirsoy, 2012).

**2.5.2. *Cerroneuroterus obtectus* (Wachtl, 1880)**

**Material examined:** ISTANBUL, bey-XI; bey-XII; cat-XII; cek-II; kar-IV; siv-I. **Host oak:** *Q. cerris*. **Turkey distribution:** Afyon, Denizli, Kütahya (Katılmış & Kiyak, 2011a).

**2.6. Genus: *Chilaspis* Mayr, 1881**

**2.6.1. *Chilaspis nitida* (Giraud, 1859)**

**Material examined:** ISTANBUL, cat-I. **Host oak:** *Q. cerris*. **Turkey distribution:** Afyon, Denizli, Kütahya, Uşak, Van (Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010).

**2.7. Genus: *Cynips* Linnaeus, 1758**

**2.7.1. *Cynips agama* Hartig, 1840**

**Material examined:** ISTANBUL, bey-II; bey-VII; cat-I; cat-VI; cat-XIX; cat-XXIV; ey-I; ey-II; sil-I; sil-II; sil-III; sil-VII; sil-IX; sil-XII; sil-XVIII; sil-XXIX; sil-XXXVII; siv-IV; siv-VI. **Host oak:** *Q. frainetto*, *Q. petraea*. **Turkey distribution:** Afyon, Burdur, Denizli, İstanbul, Kütahya, Van (Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010; Kiyak et al., 2008; Schimitschek, 1938).

**2.7.2. *Cynips cornifex* Hartig, 1843**

**Material examined:** ISTANBUL, siv-I; siv-IV. **Host oak:** *Q. infectoria*. **Turkey distribution:** Afyon, Antalya, Denizli, Erzincan, İstanbul, Kütahya, Sinop, Van (Baş, 1973; Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010; Mete & Demirsoy, 2012).

**2.7.3. *Cynips disticha* Hartig, 1840**

**Material examined:** ISTANBUL, cat-XXIV; cat-XXV. **Host oak:** *Q. robur*. **Turkey distribution:** Afyon (Katılmış & Kiyak, 2011a).

**2.7.4. *Cynips divisa* Hartig, 1840**

**Material examined:** ISTANBUL, bey-II; bey-III; bey-XII; bey-XIX; cat-I; cat-IV; cat-XXXIII; cat-XXV; sar-VI; sar-IX; sil-II; sil-V; sil-VII; sil-VIII; sil-IX; sil-XVII; sil-XXXII; sil-XXXV; sis-IV; siv-IV; siv-VII. **Host oak:** *Q. frainetto*, *Q. petraea*, *Q. pubescens*, *Q. robur*. **Turkey distribution:** Afyon, Ankara, Artvin, Bolu, Denizli, İstanbul, Kütahya, Niğde, Sakarya, Uşak, Van (Acatay, 1943; Baş, 1973; Karaca, 1956; Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010).

**2.7.5. *Cynips quercus* (Fourcroy, 1785)**

**Material examined:** ISTANBUL, bey-XIX; cat-I; cat-XXIV; cat-XXVI; ey-I; sil-VIII; sil-XI; sil-XII; sil-XIV; sil-XVI; sil-XVIII. **Host oak:** *Q. pubescens*. **Turkey distribution:** Afyon, Amasya, Antalya, Aydın, Burdur, Denizli, Erzincan, Gümüşhane, Hatay, Isparta, Kütahya, Mersin, Uşak, Van (Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010; Kiyak et al., 2008; Mutun & Dinç, 2011; Rokas et al., 2002).

**2.7.6. *Cynips quercusfolii* (Linnaeus, 1758)**

**Material examined:** ISTANBUL, bey-I; bey-II; bey-III; bey-VI; bey-VII; bey-XX; cat-I; cat-II; cat-IV; cat-V; cat-VI; cat-XXV; cat-XXVI; cat-XXVII; cat-XXIX; ey-I, 1♀; ey-II; ey-III, 1♀; ey-IV; ey-VI; pen-II; pen-V; pen-VI; sar-II; sar-IV; sar-VI; sar-IX; sar-X; sar-XV; sar-XVI; sil-I; sil-II; sil-III; sil-V; sil-VI; sil-VII; sil-VIII; sil-IX; sil-XI; sil-XII; sil-XIII; sil-XIV; sil-XVI; sil-XVII; sil-XVIII; sil-XIX; sil-XXII; sil-XXIII; sil-XXVI; sil-XXXVII; sil-XXXVIII; sil-XXXV; sil-XXXIX; siv-IV; siv-VII. **Host oak:** *Q. cerris*, *Q. frainetto*, *Q. petraea*, *Q. pubescens*, *Q. robur*. **Turkey distribution:** Afyon, Ankara, Antalya, Artvin, Aydın, Balıkesir, Bolu, Burdur, Denizli, Erzincan, Gümüşhane, Isparta, İstanbul, Kırklareli, Kütahya, Muğla, Tunceli, Uşak, Van (Acatay, 1943; Alkan, 1952; Alpaut, 1942; Baş, 1973; Katılmış & Kiyak, 2011a; Karaca, 1956; Kemal & Koçak, 2010; Kiyak et al., 2008; Mete & Demirsoy, 2012; Mutun & Dinç, 2011; Schimitschek, 1938).

**2.8. Genus: *Dryocosmus* Giraud, 1859****2.8.1. *Dryocosmus cerriphilus* Giraud, 1859**

**Material examined:** ISTANBUL, cat-XXIV; cat-XXV. **Host oak:** *Q. cerris*. **Turkey distribution:** Afyon, Erzincan, Kütahya, Van (Katılmış & Kiyak, 2008, 2011a; Kemal & Koçak, 2010).

**2.9. Genus: *Neuroterus* Hartig, 1840****2.9.1. *Neuroterus albipes* (Schenck, 1863)**

**Material examined:** ISTANBUL, arn-II; bey-XIX; bey-XX; ey-I; sil-XXXIX. **Host oak:** *Q. frainetto*, *Q. pubescens*. **Turkey distribution:** Afyon, Denizli, İstanbul, Kütahya, Uşak, Van (Baş, 1973; Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010).

**2.9.2. *Neuroterus anthracinus* (Curtis, 1838)**

**Material examined:** ISTANBUL, bey-I; bey-II; bey-III; bey-VIII; bey-IX; bey-X; bey-XX; cat-I; cat-XXII; cat-XXIII; cat-XXVI; cat-XXVII; cat-XXIX; ey-I, 1♀; ey-IV; pen-II; sar-I; sar-VI; sar-IX; sar-XIII; sar-XIV; sar-XV; sar-XVI; sar-XIX; sil-II; sil-VIII; sil-IX; sil-XI; sil-XIII; sil-XIV; sil-XVII; sil-XXII; sil-XXIX; sil-XXXI; sil-XXXIII; sil-XXXVII; sil-XXXIX. **Host oak:** *Q. frainetto*, *Q. hartwissiana*, *Q. pubescens*, *Q. robur*. **Turkey distribution:** İstanbul, Kütahya, Van (Acatay, 1943; Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010).

**2.9.3. *Neuroterus numismalis* (Geoffroy in Fourcroy, 1785)**

**Material examined:** ISTANBUL, arn-III; arn-IV; bey-I; bey-II; bey-III; bey-XIX; cat-I; cat-XXII; ey-I; ey-II; ey-III; ey-IV; pen-II; sar-I; sar-II; sar-VI; sil-III; sil-V; sil-XXXI; sil-XXXII; sil-XL; siv-V. **Host oak:** *Q. cerris*, *Q. frainetto*, *Q. petraea*. **Turkey distribution:** Afyon, Ankara, Antalya, Aydın, Burdur, Denizli, Erzincan, Isparta, İstanbul, Kütahya, Sakarya, Samsun, Uşak, Van (Acatay, 1943; Alkan, 1952; Baş, 1973; Karaca, 1956; Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010; Kiyak et al., 2008; Mete & Demirsoy, 2012).

**2.9.4. *Neuroterus quercusbaccarum* (Linnaeus, 1758)**

**Material examined:** ISTANBUL, arn-I; arn-II; arn-III; arn-IV; arn-V; arn-VI; arn-VII; bey-I; bey-II; bey-III; bey-VI; bey-VII; bey-XI; bey-XVII; bey-XVIII; bey-XIX; cat-I; cat-II; cat-V; cat-VI; cat-VII; cat-XX; cat-XXIII; cat-XXIV; cat-XXV; cat-XXVI; cat-XXVII; cat-XXVIII; cat-XXIX; ey-I; ey-II; ey-III; ey-IV; ey-VII; kar-I; kar-II; kar-III; pen-II; pen-III; pen-IV; pen-VII; sar-I; sar-II; sar-IV; sar-V; sar-VI; sar-VIII; sar-IX; sar-XIV; sar-XV; sar-XVI; sar-XIX; sil-I; sil-III; sil-V; sil-VII; sil-VIII; sil-XII; sil-XIII; sil-XIV; sil-XVII; sil-XXXIV; sil-XXXV; sil-XXXVIII; sil-XXXIX; sil-XL; sis-I; sis-II; sis-IV; siv-I; siv-II; siv-IV; siv-V; siv-VI; siv-VII; tuz-I. **Host oak:** *Q. frainetto*, *Q. petraea*, *Q. pubescens*, *Q. robur*. **Turkey distribution:** Afyon, Aydın, Burdur, Denizli, Erzincan, Gümüşhane, Isparta,



İstanbul, Kırklareli, Kütahya, Sakarya, Van (Acatay, 1943; Alkan, 1952; Baş, 1973; Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010; Kiyak et al., 2008; Mete & Demirsoy, 2012; Mutun & Dinç, 2011; Schimitschek, 1938).

**2.10.** Genus: *Plagiotrochus* Mayr, 1881

**2.10.1. *Plagiotrochus quercusilicis* (Fabricius, 1798)**

**Material examined:** ISTANBUL, arn-VI; sis-II. **Host oak:** *Q. coccifera*. **Turkey distribution:** Afyon, Denizli, Uşak, Van (Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010; Kiyak et al., 2008).

**2.11.** Genus: *Pseudoneuroterus* Kinsey, 1923

**2.11.1. *Pseudoneuroterus macropterus* (Hartig, 1843)**

**Material examined:** ISTANBUL, cat-I; sil-III; sil-XIII; sil-XVI; siv-IV. **Host oak:** *Q. cerris*. **Turkey distribution:** Afyon, Aydın, Bahkesir, Bolu, Denizli, İstanbul, Kırklareli, Kütahya, Uşak, Van (Acatay, 1943; Baş, 1973; Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010; Kiyak et al., 2008).

**2.12.** Genus: *Trigonaspis* Hartig, 1840

**2.12.1. *Trigonaspis synaspis* (Hartig, 1841)**

**Material examined:** ISTANBUL, ey-III; pen-I; pen-II. **Host oak:** *Q. infectoria*. **Turkey distribution:** Afyon, Amasya, Denizli, Erzincan, Konya, Kütahya, Van (Katılmış & Kiyak, 2011a; Kemal & Koçak, 2010; Mete & Demirsoy, 2012; Rokas et al., 2002).

**3.** Tribe: *Diplolepidini* Latreille, 1802

**3.1.** Genus: *Diplolepis* Geoffroy, 1762

**3.1.1. *Diplolepis eglanteriae* (Hartig, 1840)**

**Material examined:** ISTANBUL, pen-I; sis-I; sis-IV. **Host plant:** *Rosa canina*. **Turkey distribution:** Afyon, Ankara, Erzincan, Eskişehir, Kütahya, Uşak, Van (Bayram et al., 1998; Güçlü et al., 2008; Karaca, 1956; Katılmış & Kiyak, 2010; Kemal & Koçak, 2010; Mete & Demirsoy, 2012).

**3.1.2. *Diplolepis nervosa* (Curtis, 1838)**

**Material examined:** ISTANBUL, arn-V; bey-XVI; ey-I; pen-I; sil-X; sis-III. **Host plant:** *R. canina*. **Turkey distribution:** First locality record of this species was given for Cynipidae Fauna of Turkey.

**3.1.3. *Diplolepis rosae* (Linnaeus, 1758)**

**Material examined:** ISTANBUL, arn-II; arn-V; cat-XXV; sar-VIII, 1♀; sar-XVII; sil-I; sil-VII; sil-XVIII; sil-XXI, 1♀; sil-XXII, 4♀♀; sil-XXXV; sis-III; siv-I; siv-II; siv-VI. **Host plant:** *R. canina*. **Turkey distribution:** Afyon, Ankara, Artvin, Bayburt, Denizli, Erzincan, Erzurum, Eskişehir, Kırşehir, Konya, Kütahya, Niğde, Tokat, Uşak, Van (Alkan, 1952; Bayram et al., 1998; Doğanlar, 1984, 1990; Doğanlar & Çam, 1991; Karaca, 1956; Katılmış & Kiyak, 2010; Kemal & Koçak, 2010; Kılınçer, 1983; Mete & Demirsoy, 2012; Özbek et al., 1996, 1998).

**3.1.4. *Diplolepis spinosissimae* (Giraud, 1859)**

**Material examined:** ISTANBUL, bey-XV; bey-XVI; sil-XII. **Host plant:** *R. canina*. **Turkey distribution:** Afyon, Ankara, Denizli, Erzincan, Eskişehir, Kütahya, Uşak, Van (Karaca, 1956; Katılmış & Kiyak, 2010; Kemal & Koçak, 2010; Mete & Demirsoy, 2012).

**4.** Tribe: *Phanacidini* Nieves-Aldrey, Nylander & Ronquist, 2015

**4.1.** Genus: *Phanacis* Förster, 1860

**4.1.1. *Phanacis hypochoeridis*\* (Kieffer, 1887)**

**Material examined:** ISTANBUL, sis-I. **Host plant:** *Hypochaeris radicata*. **Turkey distribution:** This species is both a new genus and species record for Cynipidae Fauna of Turkey.

**5.** Tribe: *Synergini* Ashmead, 1896

**5.1. Genus: *Synergus* Hartig, 1840**

**5.1.1. *Synergus dacianus*\* Kierych, 1985**

**Material examined:** ISTANBUL, pen-II, 1♀. **Host gall:** *Andricus gallaeurnaeformis*.

**Turkey distribution:** This species is a new record for Cynipidae Fauna of Turkey.

**5.1.2. *Synergus diaphanus*\* Houard, 1911**

**Material examined:** ISTANBUL, bey-III, 4♀♀; sil-VIII, 1♂; siv-V, 2♀♀. **Host gall:** *Andricus caliciformis*, *A. infectorius*. **Turkey distribution:** This species is a new record for Cynipidae Fauna of Turkey.

**5.1.3. *Synergus facialis* Hartig, 1840**

**Material examined:** ISTANBUL, bey-II, 1♂, 1♀; bey-III, 8♂♂, 5♀♀; bey-XII, 1♂, 8♀♀; cat-II, 2♂♂, 4♀♀; cat-V, 5♀♀; cat-XIII, 2♀♀; ey-I, 3♀♀; pen-I, 1♂, 2♀♀; pen-II, 3♂♂, 3♀♀; sil-IV, 2♂♂; sil-V, 8♂♂, 20♀♀; sil-VII, 5♀♀; sil-IX, 15♂♂, 5♀♀; sil-XXIX, 1♂, 1♀. **Host gall:** *Andricus callidoma*, *A. conglomeratus*, *A. curvator*, *A. gallaeurnaeformis*, *A. glandulae*, *A. glutinosus*, *A. infectorius*, *Biorhiza pallida*, *Cynips agama*, *Trigonaspis synaspis*. **Turkey distribution:** Afyon, Denizli (Katılmış & Azmaz, 2015).

**5.1.4. *Synergus hayneanus* (Ratzeburg, 1833)**

**Material examined:** ISTANBUL, sil-III, 1♂; sil-VIII, 2♂♂. **Host gall:** *Andricus caliciformis*, *A. coronatus*, *A. galeatus*. **Turkey distribution:** Afyon, Denizli, Kütahya (Katılmış & Azmaz, 2015).

**5.1.5. *Synergus incrassatus* Hartig, 1840**

**Material examined:** ISTANBUL, bey-XII, 1♀; sil-XVIII, 1♀; sil-XX, 1♂, 1♀. **Host gall:** *Andricus callidoma*, *A. glutinosus*, *Neuroterus quercusbaccarum*. **Turkey distribution:** Afyon, Denizli, Kütahya (Katılmış & Azmaz, 2015).

**5.1.6. *Synergus pallicornis* Hartig, 1841**

**Material examined:** ISTANBUL, bey-XI, 1♀; pen-II, 1♀; sar-XV, 1♀. **Host gall:** *Andricus anthracinus*, *A. gallaeurnaeformis*, *Neuroterus quercusbaccarum*. **Turkey distribution:** Afyon, Denizli, Kütahya, Van (Katılmış & Azmaz, 2015; Katılmış & Kiyak, 2008; Kemal & Koçak, 2010).

**5.1.7. *Synergus pallidipennis* Mayr, 1872**

**Material examined:** ISTANBUL, arn-IV, 1♂; ey-III, 4♀♀; sil-XVII, 1♀. **Host gall:** *Andricus conglomeratus*, *A. conificus*, *A. infectorius*. **Turkey distribution:** Afyon, Kütahya (Katılmış & Azmaz, 2015).

**5.1.8. *Synergus pallipes* Hartig, 1840**

**Material examined:** ISTANBUL, bey-XI, 2♀♀; ey-I, 1♂, 1♀; pen-I, 1♀; pen-II, 1♂; sar-II, 1♀; sar-XIII, 3♂♂, 4♀♀; sar-XIV, 1♀; sil-IV, 1♂; sil-V, 1♂; sil-VII, 1♂; sil-VIII, 1♀; sil-XIX, 1♀; sil-XXIX, 1♂. **Host gall:** *Andricus conglomeratus*, *A. glutinosus*, *Cynips agama*, *C. quercusfolii*, *Neuroterus anthracinus*, *N. quercusbaccarum*, *Trigonaspis synaspis*. **Turkey distribution:** Afyon, Kütahya (Katılmış & Azmaz, 2015).

**5.1.9. *Synergus physocerus*\* Hartig, 1843**

**Material examined:** ISTANBUL, pen-I, 3♂♂; 7♀♀. **Host gall:** *Trigonaspis synaspis*. **Turkey distribution:** This species is a new record for Cynipidae Fauna of Turkey.

**5.1.10. *Synergus radiatus*\* Mayr, 1872**

**Material examined:** ISTANBUL, bey-III, 1♀; pen-I, 1♂; sar-II, 2♀♀; sar-IX, 1♀; sil-IV, 1♀; sil-XIII, 1♀; sil-XX, 2♀♀. **Host gall:** *Andricus callidoma*, *A. conglomeratus*, *A. glutinosus*, *Cynips quercusfolii*, *Neuroterus anthracinus*. **Turkey distribution:** This species is a new record for Cynipidae Fauna of Turkey.

**5.1.11. *Synergus tibialis* Hartig, 1840**

**Material examined:** ISTANBUL, kar-I, 1♀. **Host gall:** *Neuroterus quercusbaccarum*. **Turkey distribution:** Afyon, Denizli, Kütahya (Katılmış & Azmaz, 2015).

**5.1.12. *Synergus umbraculus* (Olivier, 1791)**

**Material examined:** ISTANBUL, sil-IV, 1♀; sil-XXIII, 1♀. **Host gall:** *Andricus conglomeratus*, *A. quercustozae*. **Turkey distribution:** Afyon, Denizli, Kütahya, Uşak (Katılmış & Azmaz, 2015).

**5.1.13. *Synergus variabilis* Mayr, 1872**

**Material examined:** ISTANBUL, bey-XI, 1♂, 1♀; sar-II, 1♂, 1♀; sar-VII, 1♀; sil-II, 1♂; sil-XVIII, 1♀. **Host gall:** *Andricus anthracinus*, *A. glutinosus*, *A. grossulariae*, *A. tomentosus*, *N. quercusbaccarum*. **Turkey distribution:** Afyon, Kütahya (Katılmış & Azmaz, 2015).

**5.2. Genus: *Synophrus* Hartig, 1843****5.2.1. *Synophrus politus* Hartig, 1843**

**Material examined:** ISTANBUL, bey-II; bey-X, 1♀; bey-XIX; cat-I; cat-VII; cat-XXIII; cat-XXIV; cat-XXV; cat-XXVII; ey-VI; pen-V; sil-II; sil-VII; sil-XI; sil-XII; sil-XX; sil-XXIII, 1♀; sil-XXXI; sil-XXXIV; sil-XXXVI; sil-XL; sil-XLI; siv-V; siv-VII. **Host oak:** *Q. cerris*, *Q. frainetto*, *Q. pubescens*. **Turkey distribution:** Afyon, Denizli, Bursa, İstanbul, Kütahya, Samsun, Uşak, Van (Acatay, 1943; Baş, 1973; Katılmış & Kıyak, 2011a; Kemal & Koçak, 2010; Schimitschek, 1938, 1944).

**DISCUSSION**

The study area contains two different phytogeographic regions (Euro-Siberian and Mediterranean) owing to climate differences, and it is also located between Europe and Asia. Moreover, Istanbul has special significance about species diversity of European and Asian due to Istanbul is an entry gate to Anatolia for originated European species in glacial and interglacial period (Demirsoy, 2008). So far, 138 species of Cynipidae are known from Turkey, of which 44 species are currently known from Istanbul (Acatay, 1943; Alkan, 1952; Azmaz & Katılmış, 2015; Baş, 1973; Fahringer, 1922; Schimitschek, 1953).

In result of the study, 75 species were totally recorded for Istanbul fauna. Five of these species were recorded the first time from Turkey; *Phanacis hypochoeridis* (Kieffer) (also as a new genus record), *Synergus dacianus* Kierych, *S. diaphanus* Houard, *S. physocerus* Hartig and *S. radiatus* Mayr. First locality record of *Diplolepis nervosa* was also provided for Turkey. The five of the prior known 44 species for Istanbul fauna (*Andricus dentimitratus*, *A. hungaricus*, *A. quercuscalicis*, *A. quercusradicis*, *A. seckendorffi*) were not determined in study area as habitats of these species might be damaged by urbanization.

According to Istanbul distribution of determined species, many of species were observed both sides (Asia and Europe) as Istanbul is an entry gate to Anatolia for originated European species (Demirsoy, 2008). Due to Istanbul bosphorus which its form is based on recent history, has not occurred an effective insulation (Demirsoy, 2008), cynipid gall wasps which originated in the Western Palaearctic Region except Pediaspidini (Ronquist & Liljebblad, 2001), might probably spread to Anatolia. Thus, there is no surprising difference between Cynipidae fauna of European and Asian side.

This study was carried out in Istanbul contributed both local fauna and Turkish fauna. 40 of listed species are recorded first time for cynipid fauna of Istanbul, of which 5 species are also new records for cynipid fauna of Turkey. Cynipidae Fauna of Istanbul have got 84 species at the present time (Table 1). We hope that number of cynipid species will go on to increase by local faunistic studies in the future.

## ACKNOWLEDGEMENTS

Thanks also to Dr. Mehmet ÇİÇEK for helping with the identification of the plant species. We also thank Dr George Melika, Dr Juli Pujade-Villar, and Dr Graham Stone for helping to support the literature. This study was supported by the Pamukkale University Scientific Research Project Unit (Project No: 2012FBEO45).

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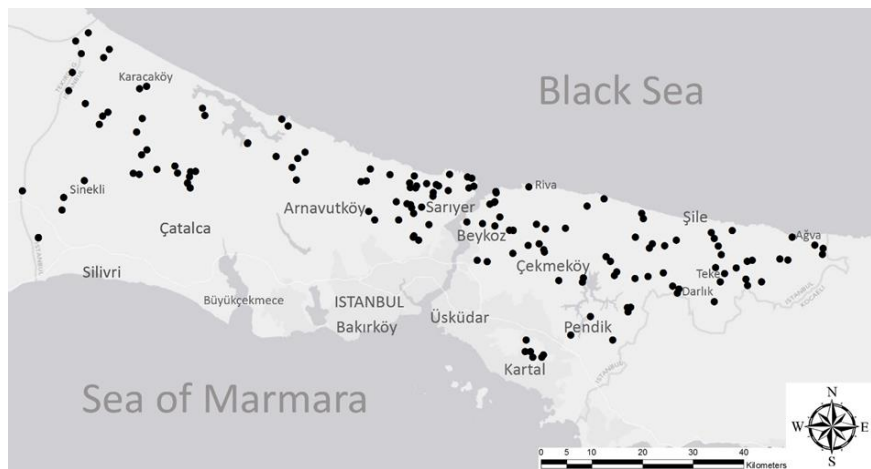


Figure 1. Map of Istanbul, showing localities.

Table 1. The species richness of Cynipidae in Istanbul and Turkey (\* New record).

Tribus	Genera	Istanbul	Turkey
<b>Aulacideini</b>	<i>Aulacidea</i>	-	2
	<i>Liposthenes</i>	-	1
	<i>Neaylax</i>	-	1
	<i>Rhodus</i>	-	1
<b>Aylacini</b>	<i>Aylax</i>	-	2
<b>Ceroptresini</b>	<i>Ceroptres</i>	2	2
<b>Cynipini</b>	<i>Andricus</i>	40	75
	<i>Aphelonyx</i>	2	3
	<i>Biorhiza</i>	1	1
	<i>Callirhytis</i>	1	2
	<i>Cerroneuroterus</i>	2	3
	<i>Chilaspis</i>	1	1
	<i>Cynips</i>	7	8
	<i>Dryocosmus</i>	1	2
	<i>Neuroterus</i>	4	6
	<i>Plagiotrochus</i>	1	1
	<i>Pseudoneuroterus</i>	1	2
	<i>Trigonaspis</i>	2	2
<b>Diastrophini</b>	<i>Periclistus</i>	-	1
<b>Diplolepidini</b>	<i>Diplolepis</i>	4	6
<b>Phanacidini</b>	<i>Phanacis</i>	1*	1*
<b>Synergini</b>	<i>Saphonecрус</i>	-	2
	<i>Synergus</i>	13 (4*)	17 (4*)
	<i>Synophrus</i>	1	1
<b>Total</b>	<b>24</b>	<b>84</b>	<b>143</b>

**Appendix:** Codes and Localities of Study Areas in Istanbul.

CODES	LOCALITIES
arn-I	Arnavutköy, Durusu Park, 41°17'N, 28°35'E, 58 m, 21.X.2012
arn-II	Arnavutköy, Durusu Park, Durugöl, 41°17'N, 28°35'E, 44 m, 21.X.2012
arn-III	Arnavutköy, Tayakadın, 41°16'N, 28°42'E, 112 m, 21.X.2012
arn-IV	Arnavutköy, Yeniköy, Ökten Mining, 41°17'N, 28°43'E, 112 m, 21.X.2012
arn-V	Arnavutköy, Tayakadın, Tayakadın Promenade 2, 41°14'N, 28°41'E, 178 m, 30.V.2013
arn-VI	Arnavutköy, Tayakadın, Tayakadın Promenade 1, 41°15'N, 28°41'E, 159 m, 30.V.2013
arn-VII	Arnavutköy, Karaburun, 41°19'N, 28°40'E, 59 m, 30.V.2013
arn-VIII	Arnavutköy, Karaburun, 41°20'N, 28°39'E, 50 m, 30.V.2013
bey-I	Beykoz, Dereseki-Riva 3. km, 41°09'N, 29°09'E, 148 m, 21.X.2012
bey-II	Beykoz, Mahmutşevketpaşa, 41°08'N, 29°11'E, 66 m, 21.X.2012
bey-III	Beykoz, Mahmutşevketpaşa-Öğümce 2. km, 41°08'N, 29°11'E, 120 m, 21.X.2012
bey-IV	Beykoz, Karakiraz-Kılıçlı 5. km, 41°09'N, 29°18'E, 150 m, 03.III.2013
bey-V	Beykoz, Riva, 41°13'N, 29°13'E, 68 m, 03.III.2013
bey-VI	Beykoz, Kaynarca, 41°10'N, 29°09'E, 135 m, 03.III.2013
bey-VII	Beykoz, Anadolu Feneri, Cemetery, 41°12'N, 29°09'E, 49 m, 03.III.2013
bey-VIII	Beykoz, Anadolu Feneri-Dereseki 2. km, Dostluk Society Memorial Forest, 41°11'N, 29°09'E, 110 m, 03.III.2013
bey-IX	Beykoz, Poyrazköy, Poyrazköy Picnic Area, 41°11'N, 29°08'E, 99 m, 03.III.2013

bey-X	Beykoz, Poyrazköy-Dereseki 5. km, 41°09'N, 29°07'E, 170 m, 03.III.2013
bey-XI	Beykoz, 164. Year Police Memorial Forest, Göztepe Promenade, 41°05'N, 29°06'E, 225 m, 29.IV.2013
bey-XII	Beykoz, Polonezköy, Polonezköy Nature Park, 41°06'N, 29°11'E, 207 m, 29.IV.2013
bey-XIII	Beykoz, Polonezköy-Cumhuriyet 2. km, 41°07'N, 29°13'E, 50 m, 29.IV.2013
bey-XIV	Beykoz, Cumhuriyet, 41°07'N, 29°15'E, 27 m, 29.IV.2013
bey-XV	Beykoz, Hz. Yüşa Tomb, 41°09'N, 29°05'E, 169 m, 31.V.2013
bey-XVI	Beykoz, Anadolu Feneri-Dereseki 1. km, 41°11'N, 29°09'E, 119 m, 31.V.2013
bey-XVII	Beykoz, Anadolu Feneri, 41°12'N, 29°09'E, 68 m, 31.V.2013
bey-XVIII	Beykoz, Bozhane, Saklıdere Picnic Area, 41°09'N, 29°16'E, 30 m, 31.V.2013
bey-XIX	Beykoz, Öğümce-Mahmutşevketpaşa 1. km, 41°09'N, 29°14'E, 157 m, 21.IX.2013
bey-XX	Beykoz, Mahmutşevketpaşa-Öğümce 2. km, 41°08'N, 29°11'E, 119 m, 21.IX.2013
cat-I	Çatalca, Yaylacık-Aydınlr 1. km, 41°22'N, 28°12'E, 224 m, 25.XI.2012
cat-II	Çatalca, Binkılıç-Yalıköy 2. km, 41°25'N, 28°11'E, 235 m, 25.XI.2012
cat-III	Çatalca, Binkılıç-Yalıköy 10. km, 41°28'N, 28°12'E, 343 m, 25.XI.2012
cat-IV	Çatalca, Binkılıç-Yalıköy 12. km, 41°29'N, 28°13'E, 207 m, 25.XI.2012
cat-V	Çatalca, Yaylacık-Karamandere 8. km, 41°21'N, 28°16'E, 189 m, 25.XI.2012
cat-VI	Çatalca, Karamandere-Karacaköy 6. km, 41°23'N, 28°21'E, 39 m, 25.XI.2012
cat-VII	Çatalca, Celepköy-Örencik 2. km, 41°20'N, 28°29'E, 111 m, 25.XI.2012
cat-VIII	Çatalca, Subaşı, Subaşı Picnic Area, 41°13'N, 28°26'E, 108 m, 28.IV.2013
cat-IX	Çatalca, Subaşı, 41°13'N, 28°27'E, 157 m, 28.IV.2013
cat-X	Çatalca, Subaşı, Subaşı Picnic Area, 41°14'N, 28°27'E, 221 m, 28.IV.2013
cat-XI	Çatalca, Subaşı, Subaşı Picnic Area, 41°15'N, 28°27'E, 226 m, 28.IV.2013
cat-XII	Çatalca, Subaşı-Akalan 4. km, Akalan Bridge, 41°14'N, 28°25'E, 106 m, 28.IV.2013
cat-XIII	Çatalca, Akalan, 41°15'N, 28°25'E, 179 m, 28.IV.2013
cat-XIV	Çatalca, İhsaniye, İhsaniye Picnic Area, 41°17'N, 28°21'E, 282 m, 28.IV.2013
cat-XV	Çatalca, İhsaniye, İhsaniye Picnic Area, 41°16'N, 28°20'E, 203 m, 28.IV.2013
cat-XVI	Çatalca, Gümüşpınar-Belgrat 5. km, 41°19'N, 28°19'E, 285 m, 28.IV.2013
cat-XVII	Çatalca, Gümüşpınar-Belgrat 8. km, 41°20'N, 28°20'E, 335 m, 28.IV.2013
cat-XVIII	Çatalca, Yaylacık-Karamandere 7. km, 41°20'N, 28°15'E, 215 m, 28.IV.2013
cat-XIX	Çatalca, Karamandere-Karacaköy 5. km, 41°23'N, 28°20'E, 61 m, 28.IV.2013
cat-XX	Çatalca, Hisarbeyli-Örencik 2. km, 41°21'N, 28°28'E, 68 m, 28.IV.2013
cat-XXI	Çatalca, Subaşı, 41°15'N, 28°28'E, 135 m, 28.IV.2013
cat-XXII	Çatalca, Subaşı, Subaşı Picnic Area, 41°13'N, 28°26'E, 105 m, 22.IX.2013
cat-XXIII	Çatalca, İhsaniye, 41°15'N, 28°22'E, 145 m, 22.IX.2013
cat-XXIV	Çatalca, İhsaniye-Bekirli 2. km, 41°14'N, 28°20'E, 107 m, 22.IX.2013
cat-XXV	Çatalca, İhsaniye-Bekirli 3. km, 41°14'N, 28°19'E, 119 m, 22.IX.2013
cat-XXVI	Çatalca, İstanbul-Tekirdağ Border Line, 41°23'N, 28°06'E, 240 m, 22.IX.2013
cat-XXVII	Çatalca, İstanbul-Tekirdağ Border Line, 41°27'N, 28°06'E, 323 m, 22.IX.2013
cat-XXVIII	Çatalca, İstanbul-Tekirdağ Border Line, 41°30'N, 28°06'E, 372 m, 22.IX.2013
cat-XXIX	Çatalca, İstanbul-Tekirdağ Border Line, 41°29'N, 28°05'E, 394 m, 22.IX.2013
cek-I	Çekmeköy, İSKİ-Cumhuriyet Water Treatment Plant, 41°06'N, 29°16'E, 68 m, 29.IV.2013
cek-II	Çekmeköy, Alemdağ Forest, 41°03'N, 29°18'E, 209 m, 29.IV.2013
cek-III	Çekmeköy, Ömerli Dam, 41°03'N, 29°21'E, 24 m, 29.IV.2013
cek-IV	Çekmeköy, Ömerli Dam-Koçullu 1. km, 41°03'N, 29°21'E, 90 m, 29.IV.2013
cek-V	Çekmeköy, İSKİ-Cumhuriyet Water Treatment Plant, 41°06'N, 29°15'E, 44 m, 31.V.2013
ey-I	Eyüp, Belgrad Forest, Binbaşı Çeşmesi Promenade, 41°09'N, 28°55'E, 50 m, 20.X.2012
ey-II	Eyüp, Belgrad Forest, Falih Rıfkı Atay-Ayvad Bendi Promenade 4. km, 41°11'N, 28°55'E, 83 m, 20.X.2012
ey-III	Eyüp, Kemerburgaz, Çiftalan, 41°14'N, 28°54'E, 108 m, 20.X.2012
ey-IV	Eyüp, Kemerburgaz, Ağaçlı, 41°15'N, 28°52'E, 29 m, 20.X.2012
ey-V	Eyüp, Kemerburgaz, Odayeri-Ağaçlı, 41°13'N, 28°50'E, 83 m, 20.X.2012
ey-VI	Eyüp, Kemerburgaz, Odayeri, 41°14'N, 28°51'E, 120 m, 20.X.2012
ey-VII	Eyüp, Sevgililer Forest, 41°09'N, 28°52'E, 77 m, 30.V.2013
ey-VIII	Eyüp, Göktürk-Pirinççi 2. km, 41°10'N, 28°51'E, 134 m, 30.V.2013
kar-I	Kartal, Aydos Forest, No. 6 Gate, 40°57'N, 29°13'E, 202 m, 27.IV.2013

kar-II	Kartal, Aydos Forest, 40°56'N, 29°13'E, 261 m, 27.IV.2013
kar-III	Kartal, Aydos Forest, 40°56'N, 29°14'E, 197 m, 27.IV.2013
kar-IV	Kartal, Aydos Forest, Yeşil Vadi Picnic Area, 40°55'N, 29°14'E, 269 m, 27.IV.2013
pen-I	Pendik, Aydos Forest, 40°55'N, 29°15'E, 313 m, 19.X.2012
pen-II	Pendik, Aydos Forest, 40°55'N, 29°15'E, 360 m, 19.X.2012
pen-III	Pendik, Göçbeyli-Ballica 3. km, 41°00'N, 29°27'E, 175 m, 29.V.2013
pen-IV	Pendik, Göçbeyli-Ballica 4. km, 41°00'N, 29°27'E, 166 m, 29.V.2013
pen-V	Pendik, Göçbeyli-Ballica 5. km, 41°00'N, 29°27'E, 152 m, 29.V.2013
pen-VI	Pendik, Kurtdoğan, 40°59'N, 29°22'E, 103 m, 29.V.2013
pen-VII	Pendik, Kurna, 50. Yıl Forest, 40°57'N, 29°19'E, 86 m, 31.V.2013
sar-I	Sarıyer, Bahçeköy, Belgrad Forest, Neşetsuyu Promenade, 41°11'N, 28°57'E, 69 m, 20.X.2012
sar-II	Sarıyer, Bahçeköy, Belgrad Forest, Falih Rıfkı Atay, 41°11'N, 28°57'E, 115 m, 20.X.2012
sar-III	Sarıyer, Bahçeköy, Belgrad Forest, Falih Rıfkı Atay, 41°11'N, 28°57'E, 106 m, 20.X.2012
sar-IV	Sarıyer, Bahçeköy, Fatih Forest Promenade-Bahçeköy 2. km, 41°09'N, 29°00'E, 150 m, 04.III.2013
sar-V	Sarıyer, Zekeriyaköy, Okan Villas, 41°12'N, 29°00'E, 130 m, 04.III.2013
sar-VI	Sarıyer, Uskumruköy, 41°12'N, 29°00'E, 80 m, 04.III.2013
sar-VII	Sarıyer, Uskumruköy-Gümüşdere 2. km, Uskumru Arköy Villas, 41°13'N, 28°59'E, 62 m, 04.III.2013
sar-VIII	Sarıyer, Gümüşdere-Bahçeköy 2. km, 41°13'N, 28°58'E, 90 m, 04.III.2013
sar-IX	Sarıyer, Gümüşdere-Bahçeköy 3. km, 41°13'N, 28°58'E, 140 m, 04.III.2013
sar-X	Sarıyer, Gümüşdere, 41°13'N, 28°57'E, 160 m, 04.III.2013
sar-XI	Sarıyer, Gümüşdere, 41°13'N, 28°57'E, 146 m, 04.III.2013
sar-XII	Sarıyer, Kısırkaya, 41°14'N, 28°58'E, 90 m, 04.III.2013
sar-XIII	Sarıyer, Uskumruköy, 41°13'N, 29°01'E, 70 m, 04.III.2013
sar-XIV	Sarıyer, Uskumruköy-Kumköy 1. km, 41°13'N, 29°01'E, 60 m, 04.III.2013
sar-XV	Sarıyer, Kumköy-Demirci 1. km, 41°14'N, 29°03'E, 72 m, 04.III.2013
sar-XVI	Sarıyer, Demirci-Zekeriyaköy 2. km, 41°13'N, 29°02'E, 136 m, 04.III.2013
sar-XVII	Sarıyer, Rumelifeneri, İstanbul Villas, 41°14'N, 29°06'E, 40 m, 04.III.2013
sar-XVIII	Sarıyer, Rumelifeneri, Marmaracık Bay, Golden Beach Club, 41°14'N, 29°05'E, 10 m, 04.III.2013
sar-XIX	Sarıyer, Rumelifeneri-Sarıyer 2. km, 41°13'N, 29°06'E, 71 m, 04.III.2013
sil-I	Şile, Bucaklı, 41°07'N, 29°53'E, 140 m, 23.XI.2012
sil-II	Şile, Ağva-Kurfalı 2. km, 41°08'N, 29°50'E, 4 m, 23.XI.2012
sil-III	Şile, Çayırbaşı, Sakhkent Homes, 41°08'N, 29°39'E, 98 m, 24.XI.2012
sil-IV	Şile, Çayırbaşı-Yeniköy 2. km, 41°08'N, 29°39'E, 150 m, 24.XI.2012
sil-V	Şile, Yeniköy-Yaylalı 2. km, Yeniköy Stream, 41°07'N, 29°40'E, 61 m, 24.XI.2012
sil-VI	Şile, Yeniköy-Yaylalı 5. km, 41°06'N, 29°40'E, 150 m, 24.XI.2012
sil-VII	Şile, Yaylalı-Teke 2. km, 41°04'N, 29°39'E, 163 m, 24.XI.2012
sil-VIII	Şile, Teke-Yazmanayır 2. km, Teke Stream, 41°04'N, 29°40'E, 108 m, 24.XI.2012
sil-IX	Şile, Sortullu-Hacılı 1. km, Doğan Yuvası Fire Watch-Tower, 41°03'N, 29°43'E, 308 m, 24.XI.2012
sil-X	Şile, Sortullu-Hacılı 4. km, 41°03'N, 29°44'E, 210 m, 24.XI.2012
sil-XI	Şile, Hacılı-Göksu 2. km, 41°03'N, 29°45'E, 100 m, 24.XI.2012
sil-XII	Şile, Soğullu, 41°05'N, 29°49'E, 73 m, 24.XI.2012
sil-XIII	Şile, Übeyli-Osmanköy 4. km, 41°05'N, 29°44'E, 138 m, 24.XI.2012
sil-XIV	Şile, Hasanlı-Sarıkavak 1. km, 41°01'N, 29°39'E, 189 m, 24.XI.2012
sil-XV	Şile, Darlık, Cemetery, 41°02'N, 29°34'E, 263 m, 24.XI.2012
sil-XVI	Şile, Akçakese-Kabakoz 2. km, 41°08'N, 29°41'E, 14 m, 02.III.2013
sil-XVII	Şile, Ahmetli-Korucu 2. km, 41°07'N, 29°34'E, 21 m, 03.III.2013
sil-XVIII	Şile, Korucu-Kalealtı 3. km, 41°07'N, 29°32'E, 30 m, 03.III.2013
sil-XIX	Şile, Korucu-Kalealtı 7. km, 41°07'N, 29°30'E, 40 m, 03.III.2013
sil-XX	Şile, Kalealtı, 41°07'N, 29°30'E, 115 m, 03.III.2013
sil-XXI	Şile, Yeşilvadi-Sofular 2. km, 41°08'N, 29°28'E, 140 m, 03.III.2013
sil-XXII	Şile, Sofular, 41°10'N, 29°29'E, 37 m, 03.III.2013
sil-XXIII	Şile, Sofular-Doğancah 1. km, 41°10'N, 29°29'E, 21 m, 03.III.2013



sil-XXIV	Şile, Sahilköy, Sahilköy Picnic Area, 41°12'N, 29°24'E, 45 m, 03.III.2013
sil-XXV	Şile, Kurna-Karakiraz 1. km, 41°11'N, 29°21'E, 88 m, 03.III.2013
sil-XXXVI	Şile, Ömerli-Yeşilvadi 7. km, 41°06'N, 29°24'E, 195 m, 29.IV.2013
sil-XXVII	Şile, Ömerli-Kervansaray 8. km, 41°05'N, 29°25'E, 161 m, 29.IV.2013
sil-XXVIII	Şile, Bıçkıdere-Oruçoğlu 1. km, 41°03'N, 29°28'E, 121 m, 29.IV.2013
sil-XXIX	Şile, Oruçoğlu-Ulupelit 2. km, 41°04'N, 29°30'E, 210 m, 29.IV.2013
sil-XXX	Şile, Darlık, 41°02'N, 29°34'E, 254 m, 29.IV.2013
sil-XXXI	Şile, Çelebi-Kadıköy 1. km, 41°06'N, 29°54'E, 156 m, 21.IX.2013
sil-XXXII	Şile, Kadıköy, 41°06'N, 29°54'E, 164 m, 21.IX.2013
sil-XXXIII	Şile, Gökmashi, 41°05'N, 29°48'E, 106 m, 21.IX.2013
sil-XXXIV	Şile, Übeyli-Osmanköy 5. km, 41°05'N, 29°43'E, 126 m, 21.IX.2013
sil-XXXV	Şile, Übeyli-Teke 8. km, 41°04'N, 29°42'E, 62 m, 21.IX.2013
sil-XXXVI	Şile, Teke-Ağaçdere 2. km, 41°03'N, 29°40'E, 130 m, 21.IX.2013
sil-XXXVII	Şile, Darlık, Cemetery, 41°02'N, 29°34'E, 260 m, 21.IX.2013
sil-XXXVIII	Şile, Darlık, 41°03'N, 29°33'E, 265 m, 21.IX.2013
sil-XXXIX	Şile, Darlık-Ulupelit 5. km, 41°04'N, 29°32'E, 252 m, 21.IX.2013
sil-XL	Şile, Kömürlük, 41°04'N, 29°26'E, 105 m, 21.IX.2013
sil-XLI	Şile, Kömürlük, 41°04'N, 29°25'E, 190 m, 21.IX.2013
sis-I	Şişli, Ayazağa, Akdağlar Mining, 41°08'N, 28°58'E, 58 m, 30.V.2013
sis-II	Şişli, Ayazağa, Akdağlar Mining, 41°08'N, 28°58'E, 105 m, 30.V.2013
sis-III	Şişli, Ayazağa, 41°07'N, 28°58'E, 128 m, 30.V.2013
sis-IV	Şişli, Ayazağa, Akdağlar Mining, 41°08'N, 28°58'E, 60 m, 21.IX.2013
siv-I	Silivri, Çeltik-Çerkezköy 3. km, 41°08'N, 28°06'E, 122 m, 25.XI.2012
siv-II	Silivri, Seymen-Sinekli 3. km, 41°11'N, 28°09'E, 165 m, 25.XI.2012
siv-III	Silivri, Seymen-Sinekli 6. km, 41°12'N, 28°09'E, 227 m, 25.XI.2012
siv-IV	Silivri, Büyüksinekli, 41°14'N, 28°12'E, 224 m, 25.XI.2012
siv-V	Silivri, Danamandıra-Yaylacık 3. km, 41°19'N, 28°14'E, 177 m, 25.XI.2012
siv-VI	Silivri, Çeltik-Çerkezköy 3. km, 41°08'N, 28°06'E, 120 m, 22.IX.2013
siv-VII	Silivri, Çeltik-Çerkezköy 12. km, 41°12'N, 28°04'E, 149 m, 22.IX.2013
tuz-I	Tuzla, İstanbul Park-Göçbeyli 2. km, 41°57'N, 29°25'E, 179 m, 29.V.2013