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Contributions to the genus *Platystoma* (Diptera: Platystomatidae) fauna of Turkey with seven new records

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Abstract: This study evaluated specimens belonging to the genus *Platystoma* collected from different provinces in Turkey between 1992 and 2007 and currently deposited at the Zoology Museum of Gazi University (ZMGU); 12 species and 2 subspecies belonging to this genus were identified. The species *P. dimidiatum* (Hendel, 1913), *P. tegularium* (Loew, 1859), *P. gemmationis* (Rondani, 1869), *P. chrysotoxum* (Hendel, 1913), *P. pubescens* (Loew, 1845), *P. plantationis* (Rondani, 1869), and *P. subtile bezzii* (Hendel, 1913) have been recorded in Turkey for the first time. Wing pictures and distribution maps of the discovered species are given.

Key words: Diptera, Platystomatidae, *Platystoma*, new records, Turkey

1. Introduction

The family Platystomatidae belongs to the superfamily Tephritoidea (McAlpine and Kim, 1977; Kameneva and Korneyev, 2006). Platystomatidae adults can be found on tree trunks, flora, feces, or decomposing plants. Larvae may be found on vegetation or roots, and also on animal carrion (Hennig, 1945). Species belonging to the genus *Platystoma* have sizes ranging from small to large (3–11 mm). Their heads are brownish or black, while their foreheads are covered with a little grayish dust and short black bristles. Their thorax is shiny black, but some species are covered with grayish and yellowish dust. Their legs are totally black, although some parts may be yellowish with black bristles. Their wings are brown with a dotted pattern; however, this pattern differs from species to species (Figure 1). Their abdomens are shiny or dull black and their surface has grayish dust. This dust on the abdomen differs by species and by sex. The bristles on the abdomen are black and the lengths of abdominal segments differ according to species and sex.

Comprehensive studies about the family Platystomatidae started at the beginning of the 20th century. Hendel (1913) gave descriptions of species belonging to the genus *Platystoma* and keys for identifying them. Furthermore, Hendel (1914) worked on species of the family Platystomatidae around the world and provided information on keys to identifying this family. Hennig (1945) introduced 6 genera of the family Platystomatidae, providing descriptions of 77 species and their identification keys, pictures of their wings used in the identification of species, and their distribution in the world. Korneyev (2001) stated that 65 species belonging to 8 genera had been known in the Palearctic region until then. In Turkey, although research concerning the family Platystomatidae is limited, Soós (1984) published information on 8 species belonging to the genus *Platystoma* (*P. arcuatum* (Loew, 1868), *P. hendeli* (Lindner, 1941), *P. ilguenense* (Bischof, 1905), *P. lugubre* (Robineau-Desvoidy, 1830), *P. nitidiventre* (Hendel, 1913), *P. rufipes* (Meigen, 1826), *P. subfasciatum* (Loew, 1862), and *P. malatiense* (Hennig, 1945) and 3 subspecies (*P. insularum corticarum* (Rondani, 1869), *P. lugubre pleuronitens* (Hendel, 1913), and *P. seminationis valachiae* (Hendel, 1913) in the Palearctic Diptera catalogue of Turkey.

2. Materials and methods

As a contribution to Turkey's *Platystoma* fauna, specimens were collected from different geographical areas and habitats by the second author between 1992 and 2007 during the months of April to August. Specimens were collected in the provinces of Adana, Aksaray, Ankara, Antalya, Bolu, Gaziantep, Hatay, Isparta, Kahramanmaraş, Karaman, Kayseri, Konya, Mersin, Muğla, Nevşehir, Niğde, Sivas, and Yozgat (Figure 2). A total of 192 specimens (77 females and 115 males) were examined. All specimens are preserved at the Zoological Museum of Gazi University (ZMGU).

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The specimens were identified according to the keys and descriptions from the works by Hendel (1913, 1914) and Hennig (1945). The information on the distribution of the species was acquired from Hendel (1913), Hennig (1945), and Soós (1984). Wings of the species were placed between a cover glass and microscope slides, and the photos were taken with a digital camera using a stereomicroscope.

This study is part of a thesis by Seda Mesci, entitled "Faunistic and systematic evaluation of family Platystomatidae and Otitidae (Diptera) at the Zoological Museum of Gazi University".

3. Results

3.1. *Platystoma crysotoxum* Hendel, 1913 (Figures 1a, 2a)
Material examined: Total: 1♂, 1♀. **Konya:** 1♀, Taşkent, Beyreli village, 36°51′N, 32°21′E, 1590 m, 28.07.2001; 1♂, Beyreli village, Gevne Valley, 36°51′N, 32°21′E, 1577 m, 6.07.2006.

Distribution: Armenia, Iraq [Hendel, 1913; Hennig, 1945; Soós, 1984], Turkey.

3.2. *Platystoma dimidiatum* Hendel, 1913 (Figures 1b, 2b)
Material examined: Total: 9♂♂, 8♀♀. **Adana**: 1♂, Tufanbeyli, Avcıpınarı village, 38°5′N, 36°10′E, 1414 m, 20.07.2005; **Antalya**: 1♂, Kaş, Gömbe, Sinekçi village, Sinekçibeli, 36°27′N, 29°39′E, 1490 m, 29.06.2001; **Isparta**: 3♂♂ 1♀, Yalvaç, Bağkonak, Sultan Mountains, 38°15′N, 31°20′E, 1660 m, 28.06.2001; 1♀, Sultan Mountains, 38°13′N, 31°22′E, 1630 m, 09.08.2001; **Kayseri**: 1♂ 1♀, Yahyalı, Soğulca upland, 38°0′N, 35°24′E, 1665 m, 14.07.2002; 1♀, Sarız, Sarlak village, 38°39′N, 36°40′E, 1899 m, 16.07.2002; 1♂, Yahyalı, Yeniköy village, 38°5′N, 35°41′E, 1580 m, 13.07.2002; 1♂, Pınarbaşı, Borandere village, near Boran bridge, 38°47′N, 36°28′E, 1562 m, 16.07.2002; **Konya**: 1♂ 1♀, Taşkent, Beyreli village, Gevne Valley, 36°51′N, 32°21′E, 1570 m, 01.07.2001; **Niğde**: 1♀, Gümüşler, between Gümüşler and Özyurt, 37°59′N, 34°5′E, 1630 m, 30.06.2005; **Sivas**: 2♀♀, Gürün, Camiliyurt village, 38°39′N, 36°49′E, 1880 m, 16.07.2002.

Distribution: Greece (Crete) [Hendel, 1913; Hennig, 1945; Soós, 1984], Turkey.

3.3. *Platystoma gemmationis* (Rondani, 1869) (Figures 1c, 2c)
Material examined: Total: 1♂, 1♀. **Kayseri**: 1♂ 1♀, Sariz, Yedioluk village, Kabaktepe, 38°33′N, 36°26′E, 1800 m, 24.07.2002.

Distribution: Spain, France, Italy, Austria, Hungary, Romania, Yugoslavia (former) [Hendel, 1913; Hennig, 1945; Soós, 1984], Turkey.

3.4. *Platystoma hendeli* Lindner, 1941 (Figures 1d, 2d)
Material examined: Total: 13♂♂, 12♀♀. **Antalya**: 7♂♂ 5♀♀, Kaş, Gömbe, Sinekçibeli, Sinekçi village, 36°26′N, 29°39′E, 1500 m, 28.05.2001; 2♂♂ 3♀♀, Sinekçi village, 36°27′N, 29°39′E, 1430 m, 09.06.2001; 3♂♂ 3♀♀, Sinekçi village, 36°26′N, 29°38′E, 1200 m, 10.06.2001; **Isparta**: 1♂, Yalvaç, 38°12′N, 31°13′E, 1180 m, 24.04.2001; **Karaman**: 1♀, Ermenek, way of Gülnar, between Kesilik and Karalar village, 36°35′N, 32°55′E, 909 m, 16.05.2006.

Distribution: Greece (Crete), Turkey (Sultan Mountains) [Hendel, 1913; Hennig, 1945; Soós, 1984].

3.5. *Platystoma ilguenense* Bischof, 1905 (Figures 1e, 2e)
Material examined: Total: 1♂. **Antalya**: 1♂, Demre, Sülüklü Island, 30 m, 03.05.1992.

Distribution: Turkey (Konya) [Hendel, 1913; Hennig, 1945; Soós, 1984].

3.6. *Platystoma lugubre pleuronites* Hendel, 1913 (Figures 1f, 2f)
Material examined: Total: 2♂♂, 1♀. **Antalya**: 1♂ 1♀, Manavgat, Tilkiler village, 300 m, 24.06.1992; **Mersin**: 1♂, Çamlıyayla, Sebil, Cehennemdere, 37°7′N, 34°31′E, 656 m, 31.07.2007.

Distribution: Turkey (city information is not available) [Hendel, 1913; Hennig, 1945; Soós, 1984].

3.7. *Platystoma nitidiventre* Hendel, 1913 (Figures 1g, 2g)
Material examined: Total: 22♂♂, 11♀♀. **Adana**: 1♂, Feke, Değirmenuşağı village, 37°51′N, 36°9′E, 950 m, 19.05.2002; 2♂♂, Yardibi village, 37°51′N, 36°6′E, 740 m, 19.05.2002; **Antalya**: 3♂♂, Alanya, Çayarası, 36°40′N, 32°26′E, 1210 m, 26.05.2001; 1♂ 1♀, Kaş, Gömbe, Sinekçibeli, Sinekçi village, 36°26′N, 29°39′E, 1500 m, 28.05.2001; **Gaziantep**: 1♀, Islahiye, Kırıkçalı, 36°59′N, 36°35′E, 485 m, 09.05.2004; **Hatay**: 1♂, İskenderun, Belen, Atik upland, 36°32′N, 36°14′E, 1135 m, 08.05.2004; **Isparta**: 6♂♂ 7♀♀, Yalvaç, Sultan Mountains, 38°15′N, 31°20′E, 1660 m, 29.05.2001; 1♀, Sultan Mountains, 38°13′N, 31°18′E, 1357 m, 29.05.2001; **Kayseri**: 3♂♂, Yahyalı, Çavdaruşağı village, 37°53′N, 35°30′E, 808 m, 17.05.2002; 1♂, Değirmenocağı village, 37°51′N, 35°29′E, 795 m, 17.05.2002; 1♂, Dikmen village, bank of Zamantı River, Zamantı bridge, 38°1′N, 35°30′E, 1220 m, 17.05.2002; 1♂, Sarız, Yedioluk village, Kabaktepe, 38°33′N, 36°26′E, 1800 m, 24.06.2002; **Mersin**: 1♀, Silifke, Keslitürkmenli village, 36°32′N, 33°55′E, 959 m, 18.05.2006; **Sivas**: 2♂♂, Gürün, Kındıralık village, 38°48′N, 36°54′E, 1815 m, 25.06.2002.

Distribution: Azerbaijan, Turkey (city information is not available) [Hendel, 1913; Hennig, 1945; Soós, 1984].

3.8. *Platystoma plantationis* (Rondani, 1869) (Figures 1h, 2h)
Material examined: Total: 1♂, 3♀♀. **Antalya**: 1♂ 2♀♀, Manavgat, Tilkiler village, 300 m 24.06.1992; **Mersin**: 1♀, Mut, road between Ermenek and Mut, 36°34′N, 33°9′E, 838 m, 12.06.2007.

Distribution: France, Italy, Austria, Hungary [Hendel, 1913; Hennig, 1945; Soós, 1984], Turkey.

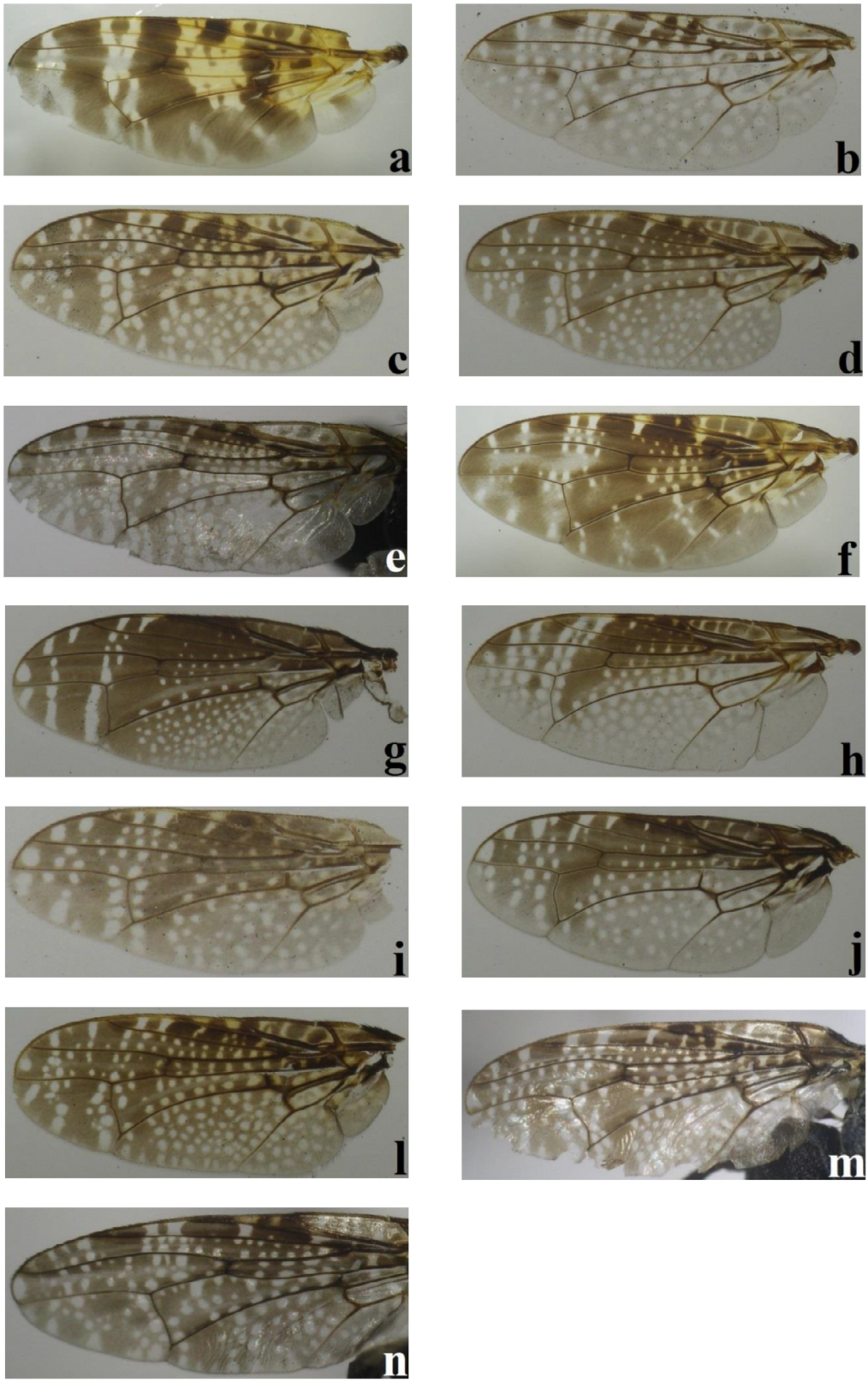


Figure 1. Wings: a) *Platystoma chrysotoxum*, b) *Platystoma dimidiatum*, c) *Platystoma gemmationis*, d) *Platystoma hendeli*, e) *Platystoma ilguenense*, f) *Platystoma lugubre pleuronites*, g) *Platystoma nitidiventre*, h) *Platystoma plantationis*, i) *Platystoma pubescens*, j) *Platystoma rufipes*, k) *Platystoma seminationis*, l) *Platystoma subfasciatum*, m) *Platystoma subtile bezzii*, n) *Platystoma tegularium*.

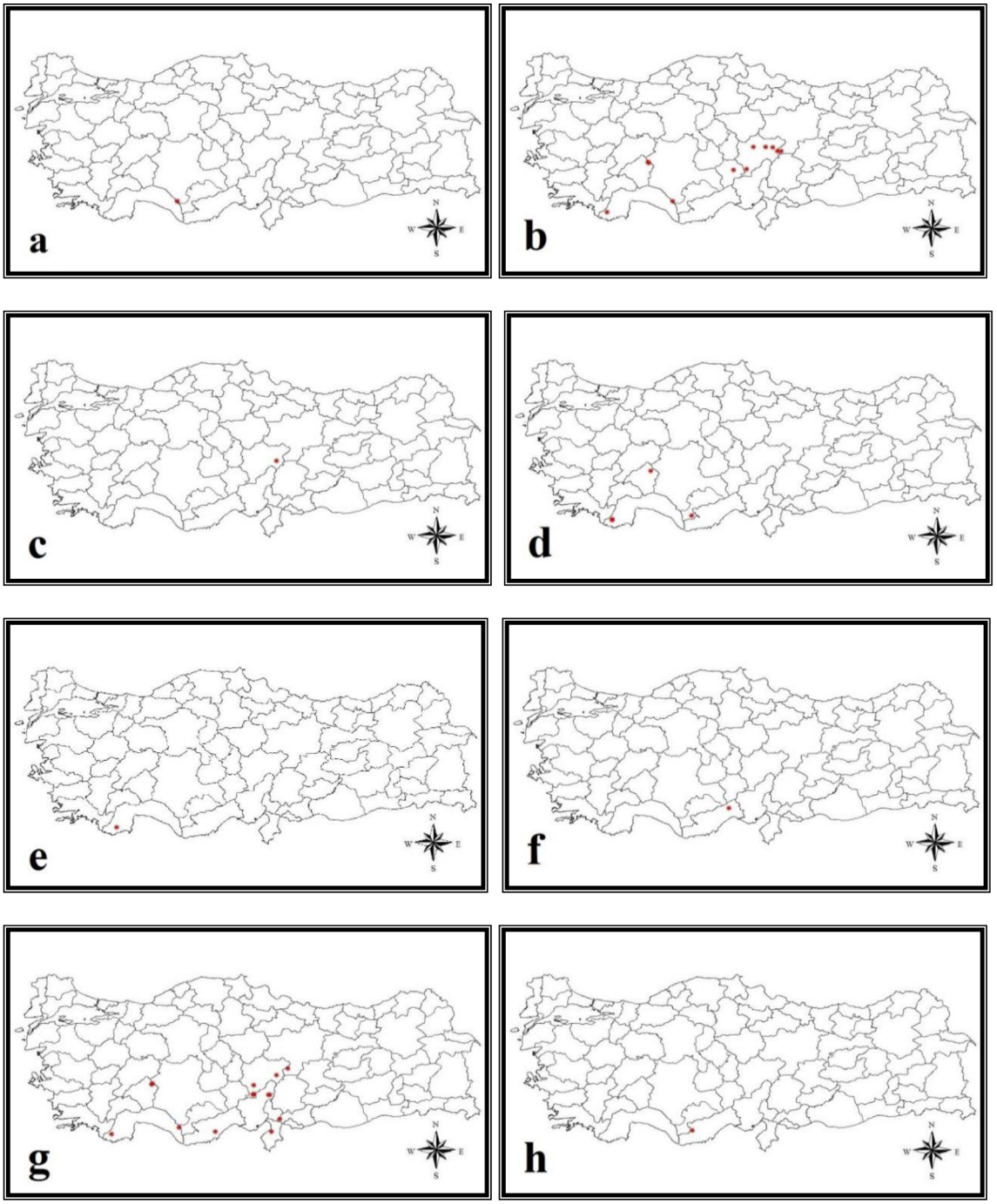


Figure 2. Distribution maps: a) *Platystoma chrysotoxum*, b) *Platystoma dimidiatum*, c) *Platystoma gemmationis*, d) *Platystoma hendeli*, e) *Platystoma ilguenense*, f) *Platystoma lugubre pleuronites*, g) *Platystoma nitidiventre*, h) *Platystoma plantationis*.

3.9. *Platystoma pubescens* Loew, 1845 (Figures 1i, 2i)

Material examined: Total: 2♂♂. **Antalya**: 1♂, Finike, Alakır Dam, 36°27′N, 30°13′E, 142 m, 27.05.2001; **Isparta**: 1♂, Yalvaç, Sultan Mountains, 38°13′N, 31°22′E, 1615 m, 29.05.2001.

Distribution: Austria, Italy, Yugoslavia (former), Czechoslovakia (former), Hungary, Romania, Greece (Crete) [Hendel, 1913; Hennig, 1945; Soós, 1984], Turkey.

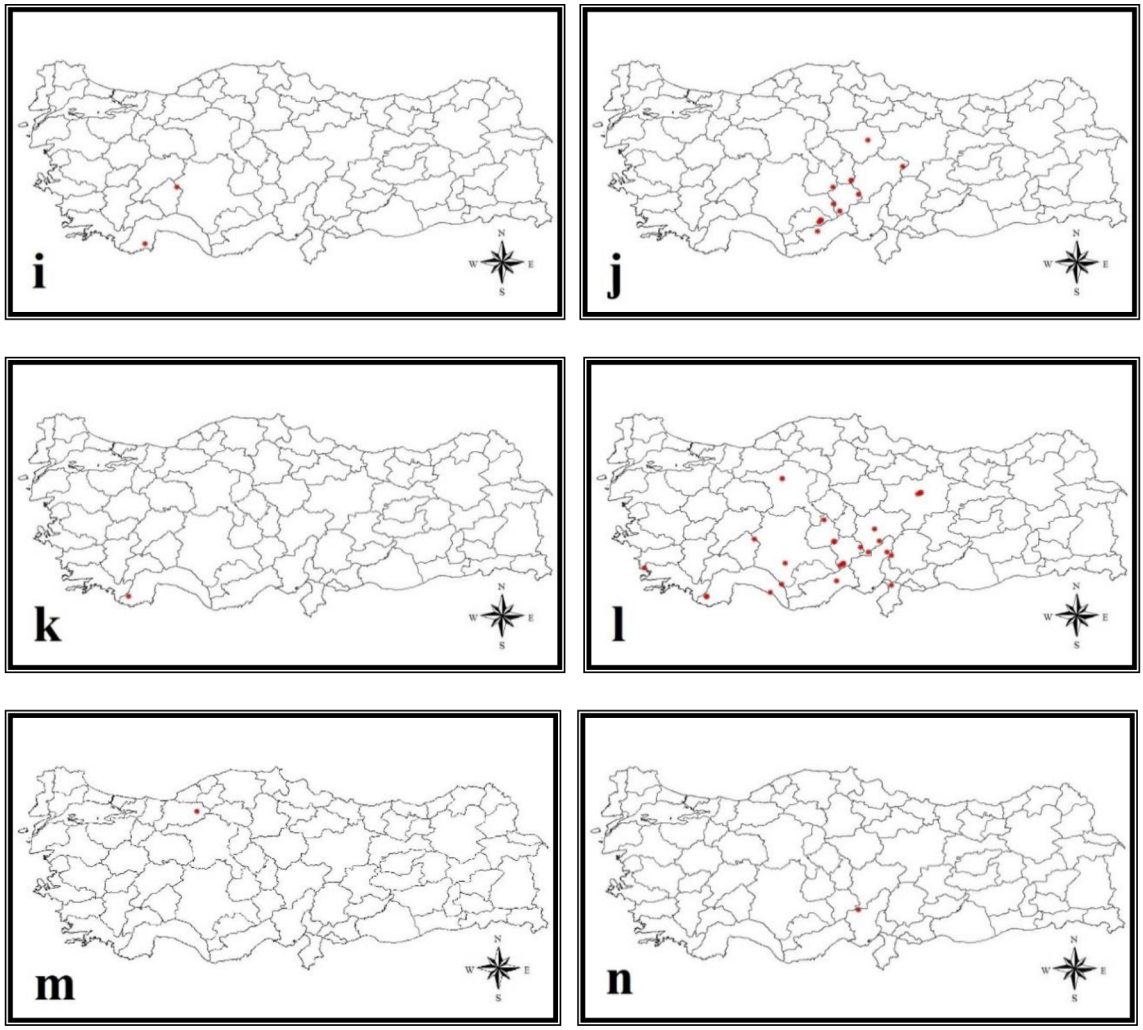


Figure 2. (Continued) i) *Platystoma pubescens*, j) *Platystoma rufipes*, k) *Platystoma seminationis*, l) *Platystoma subfasciatum*, m) *Platystoma subtile bezzii*, n) *Platystoma tegularium*.

3.10. *Platystoma rufipes* Meigen, 1826 (Figures 1j, 2j)

Material examined: Total: 30♂♂, 11♀♀. **Aksaray**: 1♀, Güzelyurt, between Ihlara and Yenipınar, 38°13′N, 34°17′E, 1364 m, 14.06.2005; **Karaman**: 1♂ 1♀, Ayrancı, between Akpınar and Kayaönü village, 37°8′N, 33°47′E, 1654 m, 15.06. 2005; 1♂ 1♀, Ayrancı, junction of Çatköy and Akpınar, 37°12′N, 33°51′E, 1486 m, 22.07. 2006; 2♂♂ 3♀♀, Çatköy, 37°10′N, 33°51′E, 1547 m, 23.07.2006; **Kayseri**: 1♂, Pınarbaşı, Karahalka village, 38°52′N, 36°47′E, 1795 m, 25.06.2002; **Konya**: 1♂, Ereğli, road between Ulukışla and Aksaray, Yukarıgöndelen village, 37°42′N, 34°18′E, 1065 m, 22.05.2005; **Mersin**: 1♂ 1♀, Silifke, Kırobası, Oğru village, 36°51′N, 33°43′E, 1785 m, 09.07.2005; **Nevşehir**: 16♂♂, Ürgüp, Şahinefendi, 38°26′N, 34°57′E, 1600 m, 25.07.2004; 1♂ 1♀, Ürgüp, between Şahinefendi and Güzelöz, 38°26′N, 34°56′E, 1602 m, 29.06.2005; **Niğde**: 2♂♂, Çamardı, Kızılören, 38°0′N, 35°1′E, 1581 m, 20.06.2002; 1♂, 1♀, Kızılören village, 38°0′N, 35°1′E, 1585 m, 11.07.2002; 3♂♂, Ulukışla, between Darboğaz and Emirler village, 37°28′N, 34°32′E, 1597 m, 15.06. 2005; 1♀, Ulukışla, Darboğazı village, 37°28′N, 34°32′E, 1541 m, 12.08.2006; **Yozgat**: 1♀, Akdağmadeni, Saraykent, 39°41′N, 35°32′E, 1210 m, 04.08.2003.

Distribution: Russia, Ukraine, Turkey (city information is not available) [Hendel, 1913; Hennig, 1945; Soós, 1984].

3.11. *Platystoma seminationis* (Fabricius, 1775) (Figures 1k, 2k)

Material examined: Total: 2♂♂. **Antalya**: 2♂♂, Kaş, Gömbe, Sütleğen, 36°28′N, 29°38′E, 1227 m, 27.05.2001.

Distribution: England, France, Belgium, Netherlands, Denmark, Finland, Germany, Poland, Austria, Spain, Italy, Hungary, Czechoslovakia (former), Yugoslavia (former),

Romania, Russia, Ukraine, Turkey (city information is not available) [Hendel, 1913; Hennig, 1945; Soós, 1984].

3.12. *Platystoma subfasciatum* Loew, 1862 (Figures 1l, 2l)
Material examined: Total: 31♂♂, 27♀♀. **Adana**: 3♂♂ 1♀, Feke, Değirmenuşağı village, 37°51′N, 36°9′E, 950 m, 19.05.2002; **Aksaray**: 1♂ 1♀, Yenipınarı, 38°11′N, 34°14′E, 1533 m, 14.06.2005; 1♀, Güzelyurt, Ihlara, Maliye forest, 38°11′N, 34°16′E, 1477 m, 14.06.2005; 1♀, Ağaçören, 38°51′N, 33°53′E, 1263 m, 28.06.2005; **Ankara**: 1♂ 5♀♀, Ayaş, Yağmurdede village, Asartepe dam, 40°8′N, 32°23′E, 934 m, 03.06.2005; 1♂, Yağmurdede village, 40°8′N, 32°22′E, 931 m, 03.06.2005; **Antalya**: 1♂, Alanya, Elikesik village, 36°35′N, 31°56′E, 260 m, 21.04.2001; 3♂♂, Kaş, Gömbe, Sütleğen, 36°28′N, 29°38′E, 1227 m, 27.05.2001; 4♂♂ 3♀♀, Sinekçi village, 36°27′N, 29°39′E, 1400 m, 09.06.2001; **Hatay**: 1♀, Dörtyol, Topaktaş, 36°49′N, 36°19′E, 1114 m, 26.06.2004; **Isparta**: 1♂ 1♀, Yalvaç, Sultan Mountains, 38°15′N, 31°22′E, 1560 m, 29.05.2001; **Kahramanmaraş**: 1♂, Andırın, Çisar village, Başıkesik village, 37°45′N, 36°19′E, 1597 m, 19.06.2005; **Kayseri**: 1♂, Yahyalı, Değirmenocağı village, 37°51′N, 35°29′E, 795 m, 17.05.2002; 3♂♂ 1♀, Deresimli village, 38°12′N, 35°53′E, 1426 m, 20.05.2002; **Konya**: 1♀, Bağbaşı, between Bağbaşı and Hadim, 37°3′N, 32°29′E, 1400 m, 20.04.2001; 1♂, Taşkent, Beyreli village, Gevne Valley, 36°51′N, 32°21′E, 1597 m, 25.05.2001; **Mersin**: 1♂, center, way to Fındıkpınarı, 36°57′N, 34°20′E, 1708 m, 20.05.2005; **Muğla**: 2♂♂ 1♀, Akbük village, 37°21′N, 27°23′E, 37 m, 16.04.2000; **Nevşehir**: 2♂♂ 1♀, Ürgüp, Başdere village, 38°34′N, 35°4′E, 1420 m, 20.05.2002; **Niğde**: 3♀♀, Ulukışla, Darboğaz village, 37°28′N, 34°34′E, 1610 m, 15.06.2005; 1♂, Aktoprak village, way between Aktoprak and Çamlıyayla, 37°26′N, 34°27′E, 1934 m, 26.07.2005; 1♀, Maden village, 37°30′N, 34°35′E, 1280 m, 09.06.2007; 1♂ 1♀, Çamardı, Kızılören, 38°0′N, 35°1′E, 1581 m, 20.06.2002; **Sivas**: 1♂ 1♀, Hafik, Karayün 3–4 km, 39°41′N, 37°21′E, 1551 m, 19.05.2003; 2♀♀, between Karayün and Celalli, 39°42′N, 37°24′E, 1500 m, 19.05.2003; 2♂♂ 1♀, Yavu, Tahtıkement, 39°39′N, 37°16′E, 1466 m, 19.05.2003.

Distribution: Bulgaria, Yugoslavia (former), Turkey (city information is not available) [Hendel, 1913; Hennig, 1945; Soós, 1984].

3.13. *Platystoma subtile bezzii* Hendel, 1913 (Figures 1m, 2m)
Material examined: Total: 1♀. **Bolu**: 1♀, Gerede, 9 km to Yeniçağ, 1100 m, 02.07.1995.

Distribution: Italy [Hendel, 1913; Hennig, 1945; Soós, 1984], Turkey.

3.14. *Platystoma tegularium* Loew, 1859 (Figures 1n, 2n)
Material examined: Total: 1♀. **Adana**: 1♀, Aladağ, Yetimli village, bank of Yaraklı stream, 37°42′N, 35°16′E, 1400 m, 22.06.2002.

Distribution: France, Italy, Austria, Hungary, Yugoslavia (former), Romania [Hendel, 1913; Hennig, 1945; Soós, 1984], Turkey.

4. Discussion and conclusions

This study includes general assessments of the species belonging to *Platystoma*, acquired from studies conducted in different regions of Turkey at different times. Twelve species and 2 subspecies belonging to *Platystoma* were discovered and examined. Two of those species, *Platystoma ilguenense* and *Platystoma lugubre pleuronites*, are endemic to Turkey. Their distribution areas have been widened based on the information collected in this study.

The *Platystoma hendeli* species had been previously known only in Sultandağı (Afyon), but following this research its known distribution has expanded to include Antalya, Isparta, and Karaman in Turkey. In addition, there are some species whose locality was known only to be "Turkey" as a whole. However, with the help of this study, the existing information is now more detailed, since *Platystoma nitidiventre* was collected from the specific provinces of Isparta, Antalya, Kayseri, Sivas, Hatay, Adana, Gaziantep, and Mersin; *Platystoma rufipes* from Niğde, Nevşehir, Karaman, Mersin, Kayseri, Aksaray, Konya, and Yozgat; *Platystoma seminationis* from Antalya; and *Platystoma subfasciatum* from Mersin, Kahramanmaraş, Niğde, Konya, Ankara, Antalya, Nevşehir, Isparta, Aksaray, Kayseri, Adana, Muğla, Sivas, and Hatay. This was the first time that these species' detailed locality information in Turkey has been provided.

Among the species that have been identified as a result of this study, *Platystoma dimidiatum* (Hendel, 1913), *Platystoma tegularium* Loew, 1859, *Platystoma gemmationis* (Rondani, 1869), *Platystoma chrysotoxum* Hendel, 1913, *Platystoma pubescens* (Loew, 1845), *Platystoma plantationis* (Rondani, 1869), and *Platystoma subtile bezzii* (Hendel, 1913) are newly recorded fauna in Turkey. Of these species, *Platystoma dimidiatum* and *Platystoma subtile bezzii* are endemic to Crete (Greece) and Italy, respectively; with this research, their known distribution has expanded to include Turkey. With this faunistic study, the number of Platystomatidae taxa in Turkey has increased to 17. Additionally, the Platystomatidae family's distribution has been widened and detailed. It is expected that studies will be conducted in these areas to further contribute to the Turkish Platystomatidae fauna.

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