Türk. entomol. derg., 2020, 44 (3): 295-304
DOI: http://dx.doi.org/10.16970/entoted.679739

ISSN 1010-6960
E-ISSN 2536-491X

Original article (Orijinal araştırma)

A new species and additional records of genus *Drusilla* Leach, 1819 (Coleoptera: Staphylinidae: Aleocharinae) from Turkey

Türkiye'den *Drusilla* Leach, 1819 (Coleoptera: Staphylinidae: Aleocharinae) cinsine bağlı yeni bir tür ve ek kayıtlar

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Abstract

A study was conducted on the fauna of the genus *Drusilla* Leach, 1819 (Coleoptera: Staphylinidae: Aleocharinae) in Anatolia. The aim of this study was to contribute to biodiversity research by describing a new species, also, to provide a better understanding of the distributions of known species. The field trips were made in different provinces of Turkey between 2010-2019. Specimens were collected by hand and pitfall traps. *Drusilla anlasi* sp. n. from East Menteşe Mountains in Muğla Province, western Anatolia, is originally described. Additional records are given for six of the nine known species from Anatolia. The distributions of the known species are discussed and distribution maps are given. The diagnostic characters of the new species and sexual characters of the *Drusilla lydica* Assing, 2007, *Drusilla recta* Assing, 2005 and *Drusilla canaliculata* (Fabricius, 1787) are illustrated. A key to the *Drusilla* species of Anatolia is presented.

Keywords: Anatolia, distribution, *Drusilla*, rove beetle, taxonomy

Öz

Anadolu'da *Drusilla* Leach,1819 (Coleoptera: Staphylinidae: Aleocharinae) cinsinin faunası üzerine bir çalışma yapılmıştır. Bu çalışmanın amacı, yeni bir tür tanımlayarak biyoçeşitlilik araştırmalarına katkıda bulunmak, ayrıca, bilinen türlerin dağılımlarının daha iyi anlaşılmasını sağlamaktır. Arazi çalışmaları 2010-2019 yılları arasında Türkiye'nin farklı illerinde yapılmıştır. Örnekler elle ve çukur tuzaklarla toplanmıştır. Batı Anadolu'nun Muğla İli'ndeki Doğu Menteşe Dağları'ndan, *Drusilla anlasi* sp. n. türünün orijinal deskripsiyonu yapılmıştır. Anadolu'dan bilinen dokuz türden altısı için ek kayıtlar verilmiştir. Bilinen türlerin dağılımı tartışılmış ve dağılım haritaları verilmiştir. Yeni türün ayırıcı karakterleri ve *Drusilla lydica* Assing, 2007, *Drusilla recta* Assing, 2005 ve *Drusilla canaliculata* (Fabricius, 1787) türlerinin eşeysel karakterleri şekillendirilmiştir. Anadolu'daki *Drusilla* türleri için bir tanı anahtarı sunulmuştur.

Anahtar sözcükler: Anadolu, yayılış, *Drusilla*, cepkenli böcekler, taksonomi

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Received (Alınış): 24.01.2020 Accepted (Kabul ediliş): 24.03.2020 Published Online (Çevrimiçi Yayın Tarihi): 12.05.2020

Introduction

Schülke & Smetana (2015) listed 58 species for the genus *Drusilla* Leach, 1819 in the Palearctic Region catalogue. After this, three new species were described (Assing, 2015, 2017). Thus, a total of 61 species are now known in the Palearctic Region. Nine of these species are distributed in Anatolia (Assing, 2005, 2007; Anlaş, 2009). Until 2005, only *Drusilla canaliculata* (Fabricius, 1787), the most widespread species in the Palearctic Region, was known from Anatolia (Coiffait, 1978). Then, Assing (2005) described five new species from Anatolia. The last described species belonging to genus *Drusilla* in Anatolia is *Drusilla lydica* Assing, 2007 (Assing, 2007). Anlaş (2009) listed the Anatolian *Drusilla* species and their distributions. Subsequent records were provided by Assing (2009, 2010, 2013, 2015). In this study, samples were collected in several regions of Turkey and this study aims to be better understanding the distributions of species. Also, the aim of this study is contributing to biodiversity research by describing new species.

In Anatolia, the vast majority of *Drusilla* species is known from the Taurus Mountains range and south of these mountains. In particular, four species from the east of the Central Taurus Mountains were described. Only one species is known from the southwest of Anatolia. However, this number has increased to two with this study. *Drusilla canaliculata* is the most common species of genus *Drusilla* in Anatolia.

In the subfamily Aleocharinae Fleming, 1821 (Coleoptera: Staphylinidae), morphology and internal structures of aedeagus, chaetotaxy of paramere and external morphology are usually taxonomic characters of high importance for the separation of the species. But these characters are highly similar and not reliable for the identification of *Drusilla* species. Assing (2005) indicated that the spermatheca is the most important and reliable character for the determination of western Palearctic *Drusilla* species.

Materials and Methods

The field trips of this study were made in different provinces of Turkey between 2010 and 2019 (Figure 1). Specimens were collected by hand and pitfall traps. Photographs of the primary and secondary characters were taken with a Zeiss Axiocam ERC5s digital camera connected to a Stemi 508 (Zeiss Germany) stereomicroscope. Helicon Focus 6.0.18 image stacking software was used to combine photographs which were taken in different focal planes. CorelDRAW Graphics Suite X7 was used to create the plates and edit photographic images. Google Earth Pro was used to create the maps.

Figure 1. Locations in Anatolia in which the material used in this study were collected.

Hanley & Ashe (2003) were followed for dissection techniques. Terminology for the body parts, aedeagus and spermatheca structures follows Assing (2005). The material is deposited in AZMM (Alaşehir Zoological Museum, Manisa, Turkey) of Manisa Celal Bayar University.

The following abbreviations are used for the measurements: AL, length of antenna; AW, maximal width of abdomen; EL, length of elytra from apex of scutellum to posterior margin at suture; EW, width of elytra; HL, head length from anterior margin of clypeus to posterior margin of head; HW, head width (including eyes); ML, length of aedeagus from apex of ventral process to base; PL, length of pronotum along median line; PW, maximal width of pronotum; TaL, length of metatarsus; TiL, length of metatibia; and TL, total length.

Results

Additional records are given for six of the nine known species from Turkey and apart from these species, *Drusilla anlasi* sp. n. is described from Muğla. Now the species number of the genus *Drusilla* has risen to 10 in Turkey.

***Drusilla anlasi* sp. n. (Figures 2a-d, 3a-h and 5)**

Type material. Holotype. TURKEY, ♂ "TR - Muğla Province, 7 km NW Özlüce, East Menteşe Mountains, 1605 m, 37°15'56" N, 28°26'37" E, 22.III.2014, leg. Anlaş & Örgel / Holotypus ♂ *Drusilla anlasi* sp. n. det. S. Örgel, 2019" (AZMM). Paratypes. TURKEY, 2♂♂, 4♀♀, same data as holotype (AZMM).

Etymology: The species is dedicated to Dr. Sinan Anlaş (Manisa, Turkey), a specialist of the family Staphylinidae, who has actualized significant entomological research in Turkey and adjacent countries and collected the type specimens with the author.

Description. Measurements (in mm) and ratios (n = 7): AL: 1.63-1.86, 1.74; HL: 0.35-0.39, 0.37; HW: 0.44-0.49, 0.47; PW: 0.48-0.54, 0.52; PL: 0.56-0.61, 0.59; EL: 0.38-0.43, 0.41; EW: 0.68-0.72, 0.70; AW: 0.81-0.87, 0.84; TiL: 0.86-1.04, 0.95; TaL: 0.73-0.85, 0.77; ML: 0.61-0.63, 0.62 (n = 3); TL: 4.07-4.97, 4.43; HL/HW: 0.79; PW/HW: 1.11; PL/PW: 1.13; EL/PL: 0.69; EW/PW: 1.35; AW/EW: 1.20; TiL/TaL: 1.23.

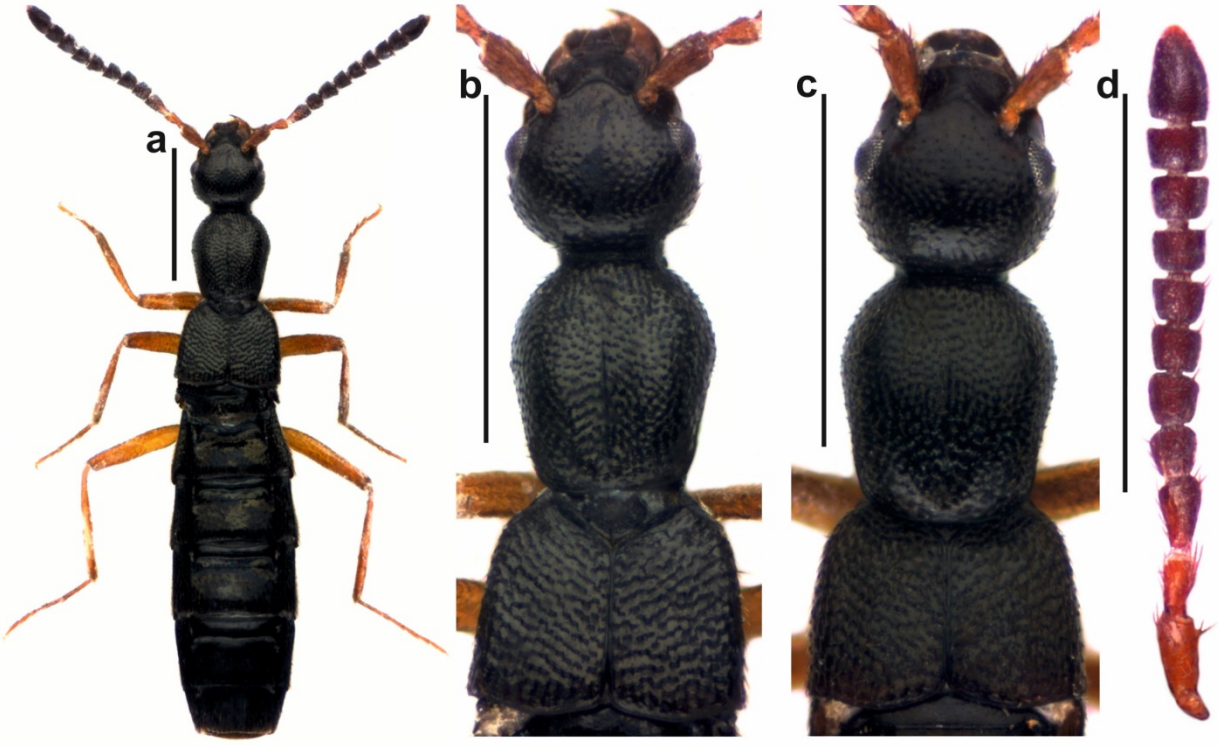

Figure 2. *Drusilla anlasi* sp. n. (from Muğla): a) ♂ habitus; b) ♂ forebody; c) ♀ forebody; d) Antenna (Scale bars: 1 mm for Figure 2a-d).

Habitus as in Figure 2a. Body uniformly blackish; legs reddish brown; antennae blackish brown with the I., II. and half of III. antennomeres distinctly paler.

Head. Slightly transverse (see ratio HL/HW and Figure 2a-c); eyes of medium size, 0.80 times as long as postocular region in lateral view, moderately convex in dorsal view; puncturation coarse and sparse; microsculpture absent; antennomere I-III distinctly and IV, V weakly oblong, III 1.83 times as long as wide, VI-X transverse, XI 1.08 times as long as the total length of IX and X.

Pronotum. Distinctly oblong and wider than head (see ratios PL/PW, PW/HW and Figure 2a-c); widest at anterior, distinctly narrowed posteriorly; puncturation similar to that of head, but much denser and distinct; microsculpture absent.

Elytra. Distinctly transverse; shorter and wider than pronotum (see ratios EL/PL, EW/PW and Figure 2a-c); lateral margins subparallel in dorsal view; punctation much denser than that of head and distinctly granulose; microsculpture absent; hind wings reduced; metatarsus shorter than metatibia (see ratio TiL/TaL); metatarsomere I as long as the total length of II and III.

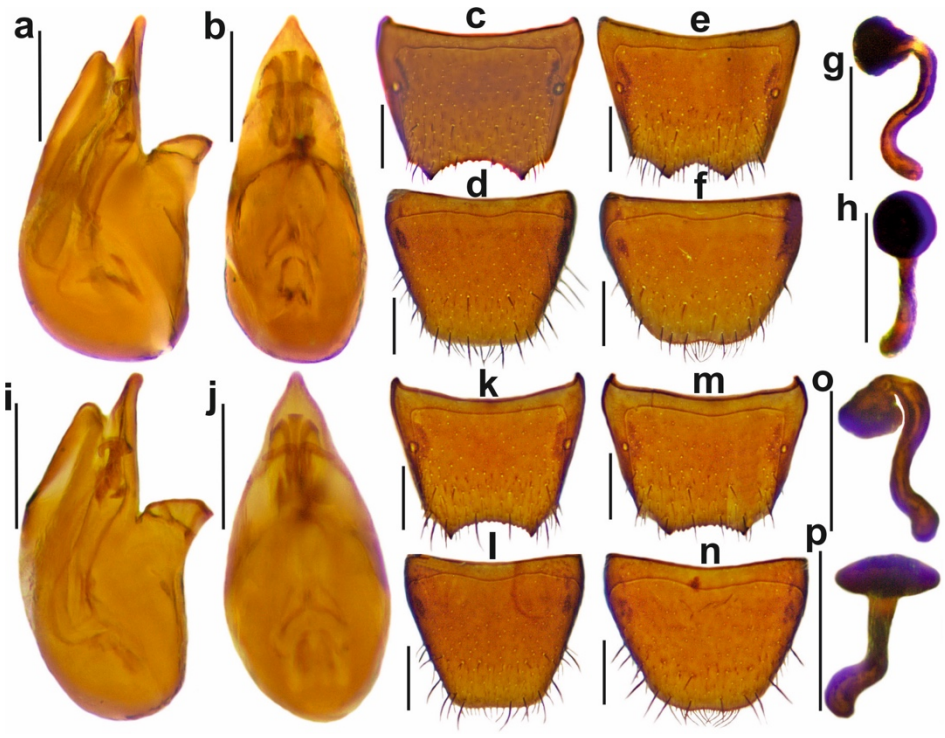

Figure 3. Sexual characters of *Drusilla anlasi* sp. n. (from Muğla) (a-h) and *D. lydica* Assing (from Aydın) (i-p): a, i) median lobe of aedeagus in lateral view; b, j) median lobe of aedeagus in ventral view; c, k) ♂ tergite VIII; d, l) ♂ sternite VIII; e, m) ♀ tergite VIII; f, n) ♀ sternite VIII; g, h, o, p) spermatheca in different aspects (Scale bars: 0.2 mm for Figure 3a-p).

Abdomen. Broadest at segment V and clearly wider than elytra (see ratio AW/EW); punctation fine and sparse, sparser posteriorly; microsculpture absent.

♂: Pronotum with narrow and deep impression along midline; posterior incision of tergite VIII wide, deep and with 8-11 serrates; sternite VIII unmodified, posterior margin truncate or weakly convex; apex of median lobe of aedeagus in lateral view straight (lateral margin on the side facing the ventral) (Figure 3a-d).

♀: Pronotum with wide and shallow impression along midline; posterior incision of tergite VIII narrower than male and with 8-11 serrates; sternite VIII modified, concave posterior margin with very short and thin setae and with longer than these setae; bulbus distalis of spermatheca in longitudinal section circular (Figure 3e-h).

Distribution and Bionomics. Specimens were collected under stones in meadows at elevations of 1605 m from Eastern Menteşe Mountains and are probably endemic to these mountains (Figure 5).

Differential diagnosis. *Drusilla anlasi* sp. n. mainly differs from all known *Drusilla* by its different shape of the median lobe of aedeagus, spermatheca and posterior margin of male and female tergite VIII. This new species is the most similar to *D. lydica* from Aydın and İzmir (Turkey) but differs in straight lateral margin on the side facing the ventral in apex of median lobe of aedeagus in lateral view (in *Drusilla lydica,* apex of median lobe of aedeagus is bent ventrally in lateral view (Figure 3i) and circular bulbus distalis of spermatheca in longitudinal section (in *D. lydica,* bulbus distalis of spermatheca is dilated transversely in longitudinal section (Figure 3p). If the distribution of these two species is examined, *D. lydica* is known from Aydın Mountains and *D. anlasi* is known from Menteşe Mountains and these two mountain ranges are separated by Büyük Menderes Plain and are isolated from each other. Besides, Menteşe Mountains are separated by valley of Dalaman Stream with Western Taurus in south. Therefore, these two species are probably endemic to the mountains in which they are located. *Drusilla anlasi* sp. n. can be separated with *Drusilla recta* Assing, 2005, which has convex lateral margin on the side facing the ventral in apex of median lobe of aedeagus in lateral view and bent ventrally (Figure 4a). Also, in *D. recta,* male and female tergite VIII are very weakly serrate or without serrate in posterior margin (Figure 4c,e) and *D. anlasi* separated by distinctly serrate in posterior margin of male and female tergite VIII. Bulbus distalis of spermatheca is also smaller than *D. anlasi* sp. n. (Figure 4g). *Drusilla canaliculata*, which is one of the most common species in the genus *Drusilla*, distinctly differs from *D. anlasi* sp. n. with thin and strongly bent ventrally in apex of median lobe of aedeagus in lateral view (Figure 4h). Duct of spermatheca is also longer than *D. anlasi* sp. n. (Figure 4n).

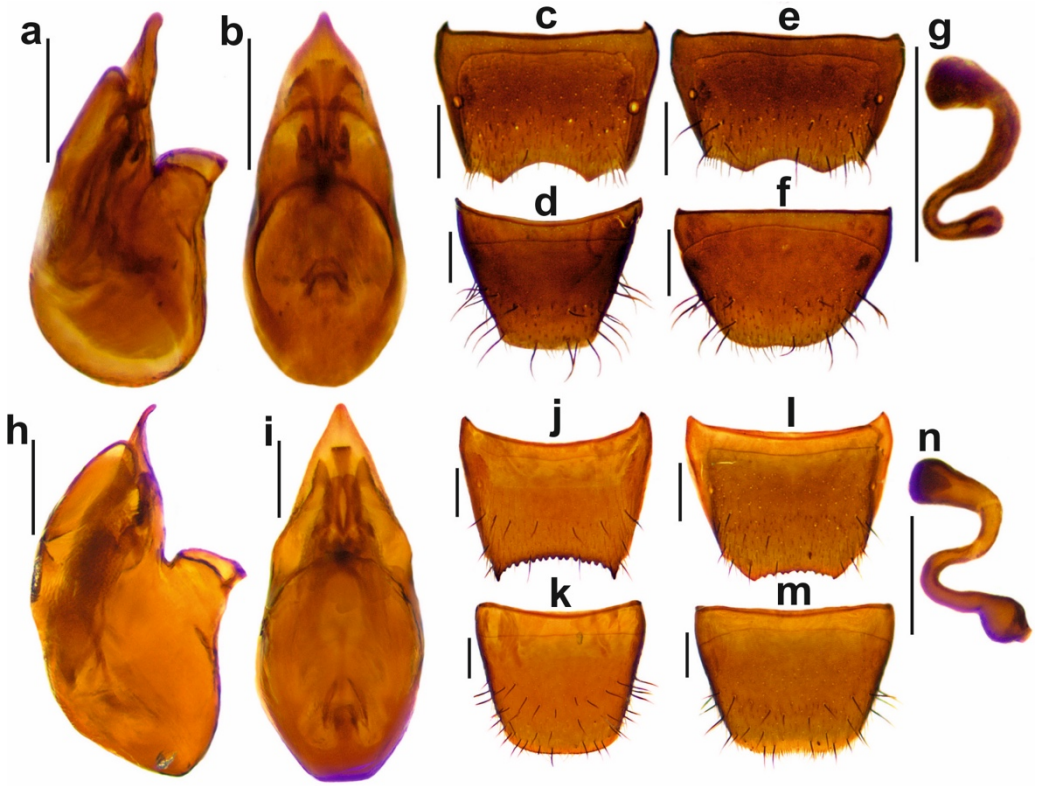

Figure 4. Sexual characters of *Drusilla recta* Assing (from Karaman) (a-g) and *D. canaliculata* (Fabricius) (from Kars) (h-n): a, h) median lobe of aedeagus in lateral view; b, i) median lobe of aedeagus in ventral view; c, j) ♂ tergite VIII; d, k) ♂ sternite VIII; e, l) ♀ tergite VIII; f, m) ♀ sternite VIII; g, n) spermatheca (Scale bars: 0.2 mm for Figure 4a-n).

Additional Records

***Drusilla anceps* Assing, 2005 (Figure 5)**

Material. Karaman: Sertavul Pass, 36°54'58" N, 33°16'08" E, 1648 m, 24.IV.2013, ♀, leg. Koç.

Distribution. This species is described from Sertavul Pass where is the border of Western and Central Taurus Mountains (Assing, 2005) and recorded for the first time since its description (Figure 5). It is most probably endemic to Sertavul Pass.

***Drusilla denigrata* Assing, 2005 (Figure 5)**

Material. Hatay: Samandağ, İkizköprü, 36°10'39" N, 35°59'28" E, 523 m, 29.VII.2010, ♂, leg. Yağmur.

Distribution. This species is known from around the southern part of the Amanos Mountains (Figure 5) and is probably endemic to this area (Assing, 2005, 2010, 2015).

***Drusilla limata* Assing, 2005 (Figure 5)**

Material. Isparta: Sütçüler, 9 km E Kesme, 37°28'24" N, 31°19'46" E, 1760 m, 14.IV.2016, 2♂♂, ♀, leg. Örgel, Sütçüler, 8 km S Aşağıkartoz, 37°28'14" N, 31°19'48" E, 1770 m, 14.IV.2016, ♂, leg. Örgel.

Distribution. It is known from the Bey Mountains in the Western Taurus, Davraz Mountain and west of the Dim Valley in Geyik Mountains (Assing, 2005, 2007, 2013). Assign (2009) also recorded from the east of the Dim Valley (Figure 5). He examined a female from Karaman Province and remarked that in this female, differences in spermatheca morphology and antennae coloration than is usually the case in *D. limata*. He also noted that “more material is needed to decide if it is indeed conspecific with *D. limata* or if it represent a different species”. Given the Dim Valley is an important barrier for many insect species, the female in Karaman is most probably a different species, as Assing (2009) is suspected.

Figure 5. Distribution of *Drusilla anlasi* sp. n. (small square □), *D. lydica* (small circles ○), *D. limata* (triangles △), *D. recta* (pentagons ⬠), *D. anceps* (stars ☆), *D. sinuosa* (inverse triangles ▽), *D. denigrata* (complex stars ✪), *D. pallidicornis* (large square □) and *D. cernens* (large circle ○) in Turkey (Records of Assing (2005, 2006, 2007, 2008, 2009, 2010, 2013, 2015) are included with present paper records).

***Drusilla lydica* Assing, 2007 (Figures 3i-p and 5)**

Material. Aydın: Central province, 4 km N Karaköy, 37°56'41" N, 27°53'46" E, 1430 m, 24.III.2014, 9♂♂, 6♀♀, leg. Anlaş & Örgel; Manisa: Alaşehir, Kestanederesi, 38°16'05" N, 28°23'06" E, 12.IV.2014, ♂, ♀, leg. Yağmur & Örgel.

Distribution. This species is described from Aydın Mountains (Assing, 2007) and has been recorded for the first time since its description. Moreover, it was recorded for the first time from the Bozdağ Mountains (Figure 5). These two mountain ranges reaching parallel to each other are separated by Küçük Menderes

Plain, but they contact each other in the eastern parts. Therefore, the isolation between the two mountains is not complete and many species can spread in these two mountains. This species is most probably endemic to these mountains.

***Drusilla recta* Assing, 2005 (Figures 3a-g and 5)**

Material. Karaman: Sarıveliler, 5 km SW Çevrekavak, 36°37'11" N, 32°35'54" E, 1702 m, 25.V.2016, 2♂♂, ♀, leg. Örgel & Yaman, same data but 15.XI.2016, ♂, 2♀♀, pitfall trap, Sarıveliler, 5 km S Civler, 36°37'16" N, 32°34'31" E, 1717 m, 25.V.2016, 2♂♂, ♀, leg. Örgel & Yaman.

Distribution. It is known from the area between the east of the Dim Valley in the Geyik Mountains and the west of the Bolkar Mountains in the Central Taurus (Figure 5) (Assing, 2005, 2006, 2008, 2009). This species is probably endemic to this area.

***Drusilla canaliculata* (Fabricius, 1787) (Figures 4h-n and 6)**

Material. Aksaray: Ekecik Mountain, radar road, 38°38'36" N, 34°01'30" E, 1704 m, 23.III.2018, ♂, leg. Örgel & Yaman, Ihlara Valley, 38°15'12" N, 34°18'06" E, 1300 m, 22.III.2018, ♂, leg. Örgel & Yaman; Ankara: Ayaş 10 km SE, Abdülselam Mountain, 39°56'40" N, 32°22'25" E, 1395 m, 11.III.2018, ♂, ♀, leg. Örgel & Yaman, Kızılcahamam, 40°43'43" N, 32°41'15" E, 1647 m, 18.V.2018, 4♀♀, leg. Örgel & Yaman, Kızılcahamam 2 km NE, Eğerlibaş, 40°35'24" N, 32°48'52" E, 1857 m, 18.V.2018, ♂, ♀, leg. Örgel & Yaman, Kızılcahamam, 5 km W Ortaköy, 40°36'15" N, 32°49'56" E, 1750 m, 18.V.2018, ♂, 4♀♀, leg. Örgel & Yaman; Antalya: Akseki 12 km S, 36°58'16" N, 31°44'45" E, 789 m, 10.VII.2011, ♂, leg. Yağmur; Ardahan: Hanak, Sulakçayır, pitfall trap, 11.VII-13.VIII.2012, 3♂♂, 6♀♀, leg. Altın, Hanak, Damal road, pitfall trap, 11.VII-03.IX.2012, 2♂♂, leg. Altın, Çıldır Lake, 41°05'09" N, 43°10'35" E, 1377 m, 13.VII.2012, ♂, leg. Anlaş; Bursa: Karacabey, Langoz Forests, 01.V.2017, 4♂♂, 3♀♀, leg. Yağmur & Kaya; Çankırı: Bayramören, 2 km N Yazıören, 40°57'36" N, 33°06'21" E, 1572 m, 19.V.2018, ♂, leg. Örgel & Yaman, Çerkeş, 7 km S Kısaç, 40°39'40" N, 32°51'18" E, 1690 m, 18.V.2018, 5♂♂, 2♀♀, leg. Örgel & Yaman, Korgun, 3 km SW Çukurören, 40°38'55" N, 33°22'05" E, 1390 m, 20.V.2018, ♀, leg. Örgel & Yaman, Ilgaz Mountains, 41°00'28" N, 33°37'00" E, 1841 m, 27.VI.2016, ♂, 2♀♀, leg. Örgel & Yaman, Ilgaz Mountains, 41°00'37" N, 33°36'14" E, 1750 m, 21.V.2018, ♂, ♀, leg. Örgel & Yaman, Ilgaz Mountains, 41°02'49" N, 33°42'46" E, 1926 m, 21.V.2018, 3♀♀, leg. Örgel & Yaman; Eskişehir: Türkmen Mountain, 39°26'22" N, 30°22'22" E, 1660 m, 27.III.2018, ♀, leg. Örgel & Yaman; Erzincan: Üzümlü, Küçüksarıkaya, 39°42'05" N, 39°50'02" E, 1713 m, 18.V.2011, ♂, 2♀♀, leg. Anlaş; Erzurum: Oltu, Kırdağ, 40°30'20" N, 42°05'09" E, 2332 m, 15.VII.2012, ♀, leg. Yağmur; Gümüşhane: Karaca Cave 2 km NE, 40°33'04" N, 39°24'40" E, 1307 m, 15.V.2011, ♂, leg. Anlaş, Kelkit, Çimenli, 39°58'06" N, 39°22'48" E, 1689 m, 16.V.2011, ♂, 3♀♀, leg. Anlaş, Cehennem Valley, Monastery road, 15.V.2011, ♂, 2♀♀, leg. Anlaş; Kars: Sarıkamış, Soğanlı Mountain, 40°17'23" N, 42°25'46" E, 2330 m, 17.VII.2012, ♀, leg. Altın, Sarıkamış, Bozat 4 km SE, 40°20'37" N, 42°44'59" E, 04.V.2017, 2♂♂, 7♀♀, leg. Altın, Sarıkamış, Soğanlı Martyrdom, 40°22'31" N, 42°29'40" E, 01.V.2017, 8♂♂, ♀, leg. Altın, Sarıkamış, 40°24'44" N, 42°28'12" E, 01.X.2014, ♂, leg. Altın, Sarıkamış, Yağbasan 2 km SW, 40°21'20" N, 42°37'40" E, 05.V.2017, 4♂♂, 2♀♀, leg. Altın; Kayseri: Pınarbaşı, Kaynar, 38°54'18" N, 36°26'44" E, 1593 m, 09.IV.2018, 4♂♂, ♀, leg. Örgel & Yaman, Tuzla Lake, 39°00'55" N, 35°47'12" E, 1168 m, 08.IV.2018, ♀, leg. Örgel & Yaman; Kastamonu: Tosya, Kilkuyu, 40°56'26" N, 34°13'53" E, 1608 m, 10.IV.2017, 4♂♂, 2♀♀, leg. Anlaş, Yağmur & Örgel; Kırıkkale: Bahşili, Sarıkayalar, 39°44'12" N, 33°17'13" E, 1307 m, 07.III.2018, 2♀♀, leg. Örgel & Yaman; Kırşehir: 1 km NW Yağmurluarmutlu, 39°14'30" N, 33°57'04" E, 1300 m, 27.III.2019, 3♂♂, leg. Örgel & Köksal; Konya: Seydişehir, 3 km E Oğlakçı, 37°34'38" N, 32°00'20" E, 1510 m, 06.IV.2019, 2♂♂, leg. Örgel & Köksal, Seydişehir, 5 km NW Dikilitaş, 37°34'40" N, 32°00'21" E, 1554 m, 20.V.2016, ♂, leg. Örgel & Yaman, Seydişehir, 6 km NE Oğlakçı, 37°35'48" N, 32°01'36" E, 1700 m, 06.IV.2019, ♂, ♀, leg. Örgel & Köksal; Nevşehir: Hacıbektaş, 38°56'22" N, 34°37'40" E, 1210 m, 26.III.2018, 2♂♂, leg. Örgel & Yaman; Niğde: Central province, 3 km S Tepeköy, 38°03'03" N, 34°37'19" E, 1798 m, 31.V.2016, ♀, leg. Örgel & Yaman;

Sinop: 41°53'45" N, 34°34'41" E, 94 m, 01.V.2014, ♀, leg. Koç; Sivas: Doğanşar, 40°08'09" N, 37°24'39" E, 1380 m, 14.IV.2019, ♀, leg. Anlaş, Örgel & Köksal, Hafik-Doğanşar road, 40°00'43" N, 37°26'34" E, 1490 m, 14.IV.2019, ♂, leg. Anlaş, Örgel & Köksal, Hafik, Toraç Mountain, 40°12'48" N, 37°18'28" E, 1996 m, 15.IV.2018, 6♂♂, ♀, leg. Anlaş, Örgel & Yaman, Koyulhisar, 3 km E Subaşı, 40°20'39" N, 37°49'37" E, 1790 m, 16.IV.2018, ♂, leg. Anlaş, Örgel & Yaman, Yıldızeli, 39°57'02" N, 36°41'43" E, 1560 m, 12.IV.2019, ♂, ♀, leg. Anlaş, Örgel & Köksal, Yıldızeli, 39°56'58" N, 36°41'29" E, 12.IV.2019, ♂, ♀, leg. Anlaş, Örgel & Köksal, Yıldız Mountain, 40°08'18" N, 36°56'18" E, 1730 m, 13.IV.2019, 5♂♂, 4♀♀, leg. Anlaş, Örgel & Köksal, Zara-Suşehri road, 14.IV.2019, ♂, leg. Anlaş, Örgel & Köksal; Yozgat: Akdağmadeni Mountains, 39°26'38" N, 35°49'53" E, 1800 m, 07.IV.2018, 3♂♂, leg. Örgel & Yaman, Çayıralan, Akdağmadeni Mountains, 39°24'54" N, 35°48'34" E, 1825 m, 07.IV.2018, 2♂♂, leg. Örgel & Yaman, Kadışehri, 40°04'58" N, 35°53'58" E, 1670 m, 11.IV.2019, ♂, ♀, leg. Yağmur, Örgel & Yaman, Kadışehri, 40°04'46" N, 35°54'25" E, 1550 m, 11.IV.2019, ♀, leg. Örgel & Yaman.

Distribution. This species is widespread in Anatolia except for the south of Taurus Mountains and southwestern Anatolia. This species has not been recorded in southwestern Anatolia and is rare in the south of the Taurus Mountains (Anlaş, 2009; Assing, 2009, 2010, 2015; Japoshvili & Anlaş, 2011; Sert et al., 2015) (Figure 6).

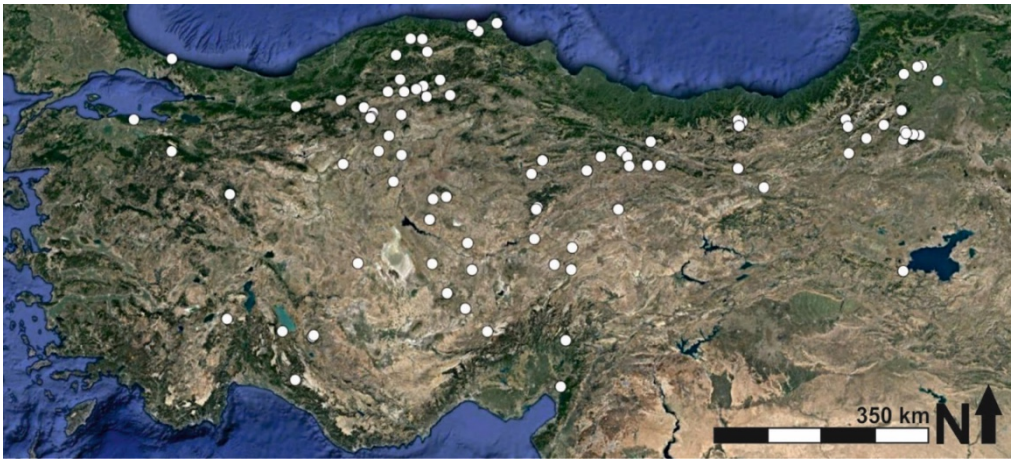

Figure 6. Distribution of *Drusilla canaliculata* in Turkey (Records of Coiffait (1978), Assing (2005, 2006, 2008, 2009, 2010, 2015), Japoshvili & Anlaş (2011) and Sert et al. (2015) are included with present paper records).

Key to the Turkish species of *Drusilla*

The key in Assing (2005, 2007) is modified as follows:

1. Pronotum, elytra and anterior of abdomen usually reddish; larger species. Widespread in Anatolia, except that south and southwestern ……..……..... *D. canaliculata* (Fabricius, 1787)

- Body distinctly darker in most species; smaller species ……..……..……..… 2.

2. Puncturation less densely and more finely in pronotum ……..…….....…….…… 3.

- Puncturation densely and granulosely in pronotum ……..……..…….....…. 9.

3. Elytral suture approximately 0.65 times as long as pronotum. East of Central Amanos Mountains (Hatay) ……..……..…….....…. *D. cernens* Assing, 2005

- Elytral suture most about 0.60 times as long as pronotum ……..…..……..……..…… 4.

4. Antennae apically darkened; elytra usually without impressions ……..……..……... 5.

- Antennae uniformly yellowish or reddish; elytra usually with impressions ……..……..…..……..… 6.

5. Femora of legs usually infuscate ……..…..…… 7.

- Legs uniformly yellowish brown; posterior margin of tergite VIII in both sexes serrate and concave; apex of median lobe of aedeagus bent ventrally in lateral view; bulbus distalis of spermatheca large, duct medium length. West of North Amanos Mountains and a locality of Southeastern Anatolia Region (Gaziantep, Kahramanmaraş, Mardin, Osmaniye) ……..…….. *D. sinuosa* Assing, 2005

6. Antennomere I not infuscate; posterior margin of ♂ tergite VIII without serrate and wide but not deep concave; posterior margin of ♀ tergite VIII with weak serrate and narrower concave than ♂; bulbus distalis of spermatheca larger than all Turkish *Drusilla* species, duct thinner than *D. sinuosa*. Amik Plain, where is east of Amanos Mountains (Hatay) ……..…….....…….…… *D. pallidicornis* Assing, 2005

- Antennomere I infuscate ……..…….…..…… 8.

7. Posterior margin of tergite VIII in both sexes shallow concave and weak serrate; lateral margin on the side facing the ventral in apex of median lobe of aedeagus straight in lateral view; bulbus distalis of spermatheca small, duct short. Sertavul Pass, where is border of Western and Central Taurus Mountains (Karaman, Mersin) ……..……...…….…..…… *D. anceps* Assing, 2005

- Posterior margin of tergite VIII in both sexes deeper concave and stronger serrate; lateral margin on the side facing the ventral in apex of median lobe of aedeagus bent ventrally in lateral view; bulbus distalis of spermatheca bigger, duct taller. Around the southern part of the Amanos Mountains (Hatay) ……..….. *D. denigrata* Assing, 2005

8. Posterior margin of tergite VIII in both sexes very shallow concave and weak serrate; lateral margin on the side facing the ventral in apex of median lobe of aedeagus straight in lateral view; bulbus distalis of spermatheca almost the same width as the duct, duct tall. Bey Mountains in the Western Taurus, Davraz Mountain and west of the Dim Valley in Geyik Mountains (Antalya, Isparta, Karaman) ……..…… *D. limata* Assing, 2005

- Posterior margin of tergite VIII in both sexes very deeper concave and weak or not serrate; lateral margin on the side facing the ventral in apex of median lobe of aedeagus convex in lateral view and bent ventrally; bulbus distalis of spermatheca almost the wider than the duct, duct shorter. East of the Dim Valley in the Geyik Mountains and the west of the Bolkar Mountains in the Central Taurus. (Antalya, Karaman, Mersin) ……..…….. *D. recta* Assing, 2005

9. Apex of median lobe of aedeagus weak bent ventrally in lateral view; bulbus distalis of spermatheca dilated transversely in longitudinal section. Aydın and Bozdağ Mountains (Aydın, İzmir, Manisa) ..…..……..…….……..……..……..……..……. *D. lydica* Assing, 2007

- Lateral margin on the side facing the ventral in apex of median lobe of aedeagus straight in lateral view; bulbus distalis of spermatheca circular in longitudinal section. East Menteşe Mountains (Muğla) ……..…..…… *D. anlasi* sp. n.

Acknowledgments

I am most grateful to Dr. Sinan Anlaş (Manisa, Turkey) for his helpful comments on the scientific content of the manuscript, also, Dr. Ersen Aydın Yağmur (Manisa, Turkey) and Dr. Halil Koç (Sinop, Turkey) for their gift to staphylinid samples collected during their field trips, in addition to, Serkan Yaman (Manisa, Turkey) and Doruk Köksal (Aydın, Turkey) for their help in my field trips.

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