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Contributions to Earthworm (Clitellata; Annelida) Fauna of Turkish Thrace

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ABSTRACT

In this study, earthworm specimens gathered from 2 different localities which are located in Kırklareli-Babaeski were identified. At the end of the study, 3 species belonging to 2 genus were found: *Aporrectodea rosea* (Savigny, 1826), *Aporrectodea trapezoides* (Dugès, 1828), *Eisenia fetida* (Savigny, 1826). It is the first record of *Aporrectodea rosea* in Turkish Thrace.

Keywords: Earthworms, Lumbricidae, Thrace, Babaeski, Fauna of Turkey.

Türkiye'nin Trakya Bölgesinin Topraksolucanı (Clitellata; Annelida) Faunasına Katkılar

ÖZ

Bu çalışmada, Kırklareli-Babaeski'de yer alan 2 ayrı lokaliteden toplanan topraksolucanı örnekleri teşhis edilmiştir. Çalışma sonunda *Aporrectodea rosea* (Savigny, 1826), *Aporrectodea trapezoides* (Dugès, 1828) ve *Eisenia fetida* (Savigny, 1826) olmak üzere 2 cinse ait 3 tür bulunmuştur. *Aporrectodea rosea* Türkiye'nin Trakya bölgesinden ilk kez kaydedilmiştir.

Anahtar Kelimeler: Lumbricidae, Topraksolucanları, Trakya, Babaeski, Türkiye Faunası.

1. INTRODUCTION

Studies on earthworm fauna of Turkey started up to one hundred years ago by Rosa in 1893. Then, more comprehensive studies have been carried out by Rosa, 1905; Omodeo, 1952, 1955; Zicsi, 1973; 1981; Omodeo and Rota, 1989, 1991, which have increased in the number of species known to live in country.

An annotated checklist of Turkish earthworms was published by Csuzdi et al. (2006), critically reviewing the previously published data and documenting the presence of altogether 66 lumbricid taxa. After this, new species and new records for the country were added to list by Mısırlıoğlu (2007), Csuzdi et al. (2007), and Szederjesi et al. (2014a, 2014b). Now 80 species are living in Turkey [1, 2, 3].

So, Turkey is a rich country in terms of earthworm biodiversity. But there are still large unsampled areas in the country. Thrace part is one of them. In addition to this, our knowledge is still limited about the diversity of some species [4, 5].

It is thought that, all faunistic records can be helpful to increase our knowledge on the biodiversity in all Turkey. For this reason, it is aimed to present some faunistic results from previously unsampled areas of the Turkish Thrace.

2. MATERIAL AND METHODS

The samples were collected by digging and hand-sorting. Earthworms were killed and preserved in 90% ethanol.

3. RESULTS AND DISCUSSION

Collecting sites and finding species:

1. Kırklareli-Babaeski, Sofuhalil village, sunflower field, 30 °C, 16.07.2016.

<i>Aporrectodea rosea</i> (Savigny, 1826)	1 adult + 3 juv.
<i>Aporrectodea trapezoides</i> (DUGÈS, 1828)	4 adult
<i>Eisenia fetida</i> (SAVIGNY, 1826)	4 adult

2. Kırklareli-Babaeski, Osmaniye village, Sunflower field, 30 °C, 16.07.2016.

<i>Aporrectodea rosea</i> (Savigny, 1826)	1 adult+2 juv.
<i>Aporrectodea trapezoides</i> (DUGÈS, 1828)	3 adult
<i>Eisenia fetida</i> (SAVIGNY, 1826)	3 adult

Aporrectodea rosea (Savigny, 1826)

Enterion roseum Savigny, 1826: 182.

Eisenia rosea f. *acystis*: Omodeo 1952: 9.

Allolobophora rosea f. *balcanica*: Omodeo 1955: 2.

Allolobophora rosea: Zicsi 1973: 229; Omodeo & Rota 1991:177.

Allolobophora rosea complex: Omodeo & Rota 1989: 183.

Aporrectodea rosea: Mısırlıoğlu 2002: 18; Csuzdi et al. 2007: 349; Mısırlıoğlu 2007: 354 ; Mısırlıoğlu 2008b: 469; Pavlíček et al. 2009: 119; Szederjesi et al. 2014: 557; Mısırlıoğlu & Szederjesi 2015: 100.

Distribution in Turkey: Ostseite des Erdschias (Tekir), Nord slope of Erdschias [6]; Ankara [7]; Talas (Cesarea) [8]; 15 km. from Finike near Burdur, Ceyhan 50 km from Mardin [9]; Gaziantep, Grotta di Gözö [10]; Işık Dağı, Antalya Manavgat, Aydın Kuşadası, Uludağ bei Bursa, Zigana Dağı near of Trabzon, Abant Mountain near of Bolu, Kızılcahamam Ankara, Van Gölü, Kahramanmaraş [11]; Bursa Uludağ, Eskişehir Sivrihisar, Ankara Elmadağ, Çankırı pass between Ilgaz and Çankırı, Çorum İskilip, Ordu Aybastı, Ordu River Bolaman, Giresun Görele, Gümüşhane Zigana Geçidi, Gümüşhane Güvercinlik, Gümüşhane Bayburt, Erzurum River Aras, Kars River Aras, Kars, Kars Susuz, Artvin Şavşat, Amasya, Çorum, Afyon Maltepe, Balıkesir İvrindi [12]; Konya Beyşehir Gölü, island of Hacı Akif, Konya Seydişehir, Konya Çamlık Dalayman, Balıkesir Burhaniye, Muğla Yatağan, Antalya Sütleğen, Burdur between Bucak and Burdur, Afyon 50 km. after Burdur to Afyon, Kütahya, Bursa Uludağ, Bolu between Bolu and Mudurnu, Afyon Keçiborlu, Adana Pozanti, Adana Kandil Sirti, Bursa Ayva İni Cave [13]; Eskişehir Muttalip Village, Eskişehir Uluçayır Village, Eskişehir Çifteler, Eskişehir Alpu, Eskişehir Seyitgazi, Eskişehir Alpagut Village [14]; Kocaeli-Yenikent [15]; Hatay Province, mountain valley near Akbez, Hatay Province, mountains above Belen, Hatay Province, near the road between Reyhanlı to Kırıkhan, near Karahöyük (6 km N from Reyhanlı) [16]; Uşak-Karakıran [17]; Diyarbakır- Oak forest 5 km west of Kulp, Diyarbakır-Karacadağ , Tokaçlı village, Diyarbakır-Yeni köprü civarı [18] Hatay, near of the road between Reyhanlı to Kırıkhan, near Karahöyük, Diyarbakır, 5 km W of Kulp, Diyarbakır, Merkez, Karacadağ, Tokaçlı village, Diyarbakır, Merkez, Silvan köprüsü altı, Diyarbakır, Çermik, Sinek Çayı, Diyarbakır, Merkez, Yeni Köprü Civarı, Diyarbakır, Dicle University Campus, Diyarbakır, 10 km SW of Eğil, valley, Diyarbakır, bank of Dicle [19]; Konya-Ereğli, Edirne-Havsa, Sakarya-Pamukova, Adana-Ceyhan, Eskişehir-Sümer Quarter [3];

Zoogeographical distribution type: A common peregrine species, native to the Palearctic [20].

Aporrectodea trapezoides (Dugès, 1828)

Lumbricus trapezoides Dugès, 1828: 289.

Allolobophora caliginosa subsp. *trapezoides*: Omodeo 1952: 9.

Allolobophora caliginosa f. *trapezoides*: Omodeo 1955: 2.

Allolobophora caliginosa: Zicsi 1973: 229.

Nicodrilus caliginosus trapezoides: Omodeo & Rota 1989: 181.

Nicodrilus caliginosus complex: Omodeo & Rota 1991: 176.

Aporrectodea trapezoides: Mısırlıoğlu 2002: 18. Mısırlıoğlu 2004: 2; Mısırlıoğlu 2007: 353.

Aporrectodea caliginosa trapezoides: Mısırlıoğlu 2008a: 474; Mısırlıoğlu 2008b: 470.

Aporrectodea caliginosa trapezoides: Mısırlıoğlu 2008b: 470; Mısırlıoğlu & Szederjesi 2015: 101.

Distribution in Turkey: Dodurga Acıpayam, Gökpınar Denizli, Ankara, Maden Havuzlu Bahçe, Tatvan, Ahlat, Antakya Narlica cave [8]; Qalieh Maghara near of Antakya [10]; Namrun, Abant Mountains near of Bolu, Bursa Uludağ, Van Lake, Ercis [11]; Çankırı pass between Ilgaz and Çankırı, Çorum İskilip, Samsun Kavak, Ordu Aybastı, Ordu River Bolaman, Giresun Görele, Gümüşhane Kale, Kars River Aras, Kars Sarıkamış, Kars Susuz, Kars Göle, Artvin Cankurtaran, Ordu Caca Gölü, Samsun River Terme, Tekirdağ River Serefli, Bolu, Afyon Maltepe, Balıkesir İvrindi [12]; Samsun, İzmir between Kozak and Bergama, Muğla N. of Yatağan, Antalya Sütleğen, Antalya Gömbe, Burdur between Bucak and Burdur, Kütahya, Bursa N. face of Uludağ, Bilecik E. of İznik, Bolu between Bolu and Mudurnu [13]; Eskişehir Muttalip Village, Eskişehir Çifteler, Eskişehir Mahmudiye, Eskişehir Çifteler, Eskişehir Alpu, Eskişehir Seyitgazi, Eskişehir Sarıcakaya, Eskişehir Beylikova, Eskişehir Sultandere Village, Eskişehir Kırka, Eskişehir Karagözler Village, Eskişehir Alpagut Village, Eskişehir Çukurhisar [14]; Kütahya Çerte, Hatay Samandağı, Kütahya Oysu, Eskişehir Alpagut [22]; Iskenderun-Sakarya quarter, Iskenderun-Karaağaç, Hatay Province, mountain valley near Akbez, Hatay Province, near the road between Reyhanlı to Kırıkhan, near Karahöyük (6 km N from Reyhanlı), Hatay Province, near the road from Akbez to Islahiye [16]; Kocaeli-Şirintepe, Kocaeli-Çınarlı [15]; İzmir-Seferihisar, İzmir-Urla, İzmir-Çeşme, İzmir-Çeşme-Alaçatı [21]; Kahramanmaraş-Göksun, Diyarbakır, Ergani-Maden arası Soğuksu, Diyarbakır, Merkez, Karacadağ, Tokaçlı village, Diyarbakır, Merkez, Silvan köprüsü altı, Diyarbakır, Kulp, Özbek village, Diyarbakır, Çermik, Sinek Çayı, Diyarbakır, Ergani, Boncuklu village, Diyarbakır, Merkez, Çarıklı village, Diyarbakır, Merkez, Dicle University Campus, Diyarbakır, Merkez, Yeni Köprü Civarı, Diyarbakır, Kulp, Yıldız village, Sarım Çayı, Diyarbakır, Dicle River, Pirhatap, 40 km N of Mardin, Diyarbakır, Karacadağ, Yiğityolu Village, Diyarbakır, Dicle University Campus, Diyarbakır, bank of Dicle [19]; Antalya-Alanya, Hatay-Altınözü, Osmaniye-Cevdetiye [17]; Diyarbakır-Betw. Ergani and Maden, Soğuksu, cultivated slope with a spring 5 km south of Maden, Diyarbakır, Merkez, Karacadağ, Tokaçlı Village, Diyarbakır, Çermik, Sinek river, Diyarbakır, bank of Tigris river near Silvan Bridge, Diyarbakır-Kulp, Özbek village, Diyarbakır-Ergani, bank of a stream nr. Boncuklu village, Diyarbakır-Çarıklı village, Diyarbakır, Dicle University Campus, Yeni köprü civarı, Diyarbakır-Kulp, Yıldız village [18]; Konya-Ereğli, İstanbul-Yakacık, Edirne-Havsa, Eskişehir-Bozdağ, Aydın-Didim, Kastamonu-Şenpazar, Sakarya-Pamukova, İstanbul-Kâğıthane, Eskişehir-Sümer Quarter, Eskişehir-Sivrihisar [3].

Zoogeographical distribution type: One of the most widely distributed peregrine earthworms [20].

Eisenia fetida (Savigny 1826)

Eisenia foetida: Omodeo 1956: 329.

Eisenia foetida: Omodeo & Rota 1989: 180.

Eisenia foetida: Mısırlıoğlu 2002: 18; 2004: 3; 2008b: 470.

Eisenia fetida: Pavliček et al. 2009: 119-120.

Eisenia fetida: Szederjesi et al. 2014: 565.

Eisenia fetida: Mısırlıoğlu & Szederjesi 2015: 101.

Distribution in Turkey: İstanbul Şile [10]; Bolu-Boludağı Geçidi, İstanbul Belgrad Ormanı [12]; Eskişehir Mihalicık, Eskişehir Karagözler Village [14]; Eskişehir Osmangazi Üniversitesi Meşelik Kampüsü [22]; Antalya-Manavgat, Antalya-Meltem District [17]; Diyarbakır-Betw. Ergani and Maden, Soğuksu, cultivated slope with a spring 5 km south of Maden [18]; Istranca Mts., Alabalık stream and its gallery along the Pınarhisar-Demirköy road, Diyarbakır, Ergani Maden arası Soğuksu, 5 km S of Maden [19]; Aydın-Didim [3].

Zoogeographical type: A common peregrine species introduced by man all over the world. However, according to Perel (1997) its probably original area was in the Caucasus region in Russia [23, 24, 20].

In this study, three peregrine species were recorded. *Aporrectodea rosea* is a cosmopolitan species widely distributed in the Europe and Anatolia. But it has not been recorded from Turkish part of Thrace until now. It is the first finding of the species in Turkish Thrace. Other than, *Aporrectodea trapezoides* and *Eisenia fetida* are common peregrine species [5, 12, 13].

Our knowledge is still insufficient about the diversity of earthworms because of the unsampled areas in the country [3]. Therefore, all faunistic results can be helpful to understand earthworm fauna of all Turkey even if they contain species already known for the country. So, we hope that these results will give some help to understand Turkish diversity of three recorded species.

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