

A checklist of the Pycnogonids (Arthropoda) from Turkish waters

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In this study, a checklist of Pycnogonida (Arthropoda) species reported from Turkish seas up to now presented. It has been determined that 8 species from the Turkish Mediterranean Sea, 23 species from the Aegean coasts of Turkey, 7 species from the Bosphorus, 6 species from the Sea of Marmara, and 3 species were reported from the Turkish Black Sea. Totally 27 species belonging to 7 families and 9 genera, their distribution in Turkish seas, depth range of each species and type of substrate were given. Acheliidae dominated with 10 species. Anoplodactylus is the major genus (7 species).

Key words: Check-list, Pycnogonida, Sea spiders, Turkish Seas, Distribution

INTRODUCTION

Pycnogonids, which form a small but interesting part of most bottom communities. They are a little-known group of strictly marine arthropods that occur from brackish estuaries with salinities as low as 20 ‰ to the oceans of the world, from intertidal zones to the deepest trenches (CHILD, 1992).

Although living in different habitats, pycnogonids are not studied in Turkey until beginning of 1950. The first study concerning the taxonomy of pycnogonids was performed by DEMIR (1952), who worked on the benthic invertebrates of the Bosphorus and island coasts of Sea of Marmara.

All of the early studies have been reviewed with the aim of determining the geographical and bathymetric distribution of Pycnogonid fauna and the species present on the Turkish coasts and their sub-tracts.

MATERIAL AND METHODS

This paper analyses published data from 1952 to 2014. A total of 14 papers were consulted. These papers are concerning the pycnogonids of Turkish waters: DEMIR (1952), BACESCU (1959), STOCK (1962), ARNAUD (1976), KOCAK & KATAGAN (2007a, 2007b, 2008), KRAPP *et al.*, (2008), CINAR *et al.*, (2008), OZCAN *et al.*, (2009), KOCAK *et al.*, (2010), KOCAK (2012), KOCAK & ALAN (2013) and KOCAK (2014). In these papers, sampling studies were performed at depths ranging from 0 to 250 m. Among the papers, only OZCAN *et al.* (2009) was conducted in deep water (> 200 m), while the others were performed in shallow water (0-200 m).

RESULTS

The examination of previous literature has revealed the occurrence of a total of 27 species, belonging to 7 families and 9 genera (Table 1). The family Acheliidae is dominant with 10 species, followed by Phoxichilidiidae (8 species), Callipallenidae (4 species) (Table 2). *Anoplodactylus* is the major genus (8 species), followed by *Ammothella* (5 species) (Table 1).

Superfamily: Ascorhynchoidea Pocock, 1904

Family: Acheliidae Semper, 1874

Genus : *Ammothella* Verrill, 1900

***A. appendiculata* (Dohrn, 1881)**

Synonymised taxa: *Ammothea appendiculata* Dohrn, 1881

Ammothea rugulosa Verrill, 1900

The species was reported by KRAPP *et al.* (2008) from Gencelli cove and by CINAR *et al.* (2008) from Alsancak Harbour, Pasaport Harbour and Inciraltı (Izmir Bay) in the Turkish Aegean Sea; by KOCAK & ALAN (2013) from Marina (Mersin Bay) in the Mediterranean coast of Turkey.

Worldwide Distribution: Cosmopolitan (SOLER-MEMBRIVES & MUNILLA, 2015).

***A. biunguiculata* (Dohrn, 1881)**

Synonymised taxa: *Ammothea bi-unguiculata* Dohrn, 1881

This species was recorded by KOCAK *et al.* (2010) from Ildırı Bay (Turkish Aegean Sea).

Worldwide Distribution: Cosmopolitan (SOLER-MEMBRIVES & MUNILLA, 2015).

***A. longipes* (Hodge, 1864)**

Synonymised taxa: *Achelia longipes* (Hodge, 1864)

Ammothea longipes Hodge, 1864

mmothea magnirostris Dohrn, 1881

Ammothella magnirostris (Dohrn, 1881)

Achelia hispida King, 1974

The species was reported by ARNAUD (1976) from Kalabak, Mordogan and Urla (Izmir Bay), and KRAPP *et al.* (2008) from Gencelli cove in the Aegean coast of Turkey. It was also reported by KOCAK & ALAN (2013) from Kumkuyu (Mersin Bay) in the Mediterranean coast of Turkey.

Worldwide Distribution: Atlantic-Mediterranean (eastern Atlantic Ocean, Mediterranean Sea including eastern and western basins) (SOLER-MEMBRIVES & MUNILLA, 2015).

***A. longiocolata* (Faraggiana, 1940)**

Synonymised taxa: *Ammothea (Ammothella) longiocolata* Fraggiana, 1940.

This species was reported from Gencelli cove by KRAPP *et al.* (2008) in the Turkish Aegean Sea.

Worldwide Distribution: Endemic (Mediterranea) (SOLER-MEMBRIVES & MUNILLA, 2015).

***A. uniunguiculata* (Dohrn, 1881)**

Synonymised taxa: *Ammothea uni-unguiculata* Dohrn, 1881

This species was reported by ARNAUD (1976) from Kalabak, Foça and Narlıdere (Izmir Bay), and KRAPP *et al.* (2008) from Gencelli cove (Yeni Foça), French Holiday Village (Foça) in the Turkish Aegean Sea.

Worldwide Distribution: Endemic (Mediterranea) (SOLER-MEMBRIVES & MUNILLA, 2015).

Genus: *Achelia* Hodge, 1864

***A. echinata* Hodge, 1864**

Synonymised taxa: *Ammothea brevipes* Hodge, 1864
Ammothea echinata (Hodge, 1864)
Achelia fibulifera (Dohrn, 1881)

This species was reported by ARNAUD (1976) from Kalabak in the Turkish Aegean Sea (one female specimen as *Achelia* cf. *echinata*); and by DEMIR (1952) from the islands in the Marmara Sea and the Bosphorus as *Ammothea fibulifera*.

Worldwide Distribution: Cosmopolitan (SOLER-MEMBRIVES & MUNILLA, 2015).

***A. langi* (Dohrn, 1881)**

Synonymised taxa: *Ammothea langi* Dohrn, 1881

The species was reported by KOC AK & KATAGAN (2007a) from Candarli Bay, KRAPP et al. (2008) from Gencelli cove and French Holiday Village in the Aegean coast of Turkey

Worldwide Distribution: Atlantic-Mediterranean (eastern Atlantic Ocean, Mediterranean Sea including eastern and western basins) (SOLER-MEMBRIVES & MUNILLA, 2015).

***A. vulgaris* (O.G. Costa, 1861)**

Synonymised taxa: *Alcinous vulgaris* O.G. Costa, 1861
Ammothea franciscana Dohrn, 1881.

This species was reported by KOC AK et al. (2010) from Ildırı Bay in the Turkish Aegean Sea.

Worldwide Distribution: Atlantic-Mediterranean (eastern Atlantic Ocean, Mediterranean Sea including eastern and western basins) (SOLER-MEMBRIVES & MUNILLA, 2015).

Genus: *Tanystylum* Miers, 1879

***T. conirostre* (Dohrn, 1881)**

Synonymised taxa: *Clotenia conirostris* Dohrn, 1881

The species was reported by ARNAUD (1976) from Kalabak, Narlıdere and Foça, KRAPP et al. (2008) from Gencelli cove, French Holiday Village and Torbalı (Bodrum), and CINAR et al. (2008) Alsancak Harbour, Pasaport Harbour and Inciraltı in the Turkish Aegean Sea; by DEMIR (1952) from islands in the Marmara Sea and the Bosphorus; and by KOC AK & ALAN (2013) from Mersin Bay (Ayas, Kumkuyu, Erdemli, Viranşehir, Marina) in the Mediterranean coast of Turkey.

Worldwide Distribution: Atlantic-Mediterranean (Trans-Atlantic, Mediterranean Sea including eastern and western basins) (SOLER-MEMBRIVES & MUNILLA, 2015).

***T. orbiculare* Wilson, 1878**

Synonymised taxa: *Clotenia orbiculare* (Wilson, 1878)

This species was recorded by ARNAUD (1976) from Kalabak, and KRAPP et al. (2008) from French Holiday Village in the Aegean coast of Turkey; by STOCK (1962) from Antalya Harbour, and KOC AK & ALAN (2013) from Mersin Bay (Narlıkuyu, Kız Kalesi, Ayas, Kumkuyu, Erdemli, Karatas) in the Mediterranean coast of Turkey; and by STOCK (1962) from the Bosphorus, off Besiktas.

Worldwide Distribution: Atlantic-Mediterranean (trans-Atlantic, Mediterranean Sea including eastern and western basins) (SOLER-MEMBRIVES & MUNILLA, 2015).

Family: Ascorhynchidae Hoek, 1881

Genus: *Ascorhynchus* G.O.Sars, 1877

***A. castelli* (Dohrn, 1881)**

Synonymised taxa: *Barana castelli* Dohrn, 1881

This species was reported by OZCAN et al. (2009) off Anamur in the Mediterranean coast of Turkey; and KOC AK (2012) from Mordogan (Izmir Bay) in the Turkish Aegean Sea.

Worldwide Distribution: Atlantic-Mediterranean (western Atlantic Ocean, Mediterranean Sea including eastern and western basins) (SOLER-MEMBRIVES & MUNILLA, 2015).

Superfamily: Phoxichilidoidea G.O. Sars, 1891

Family: Phoxichilidiidae G.O. Sars, 1891

Genus: *Anoplodactylus* Wilson, 1878

***A. angulatus* (Dohrn, 1881)**

Synonymised taxa: *Phoxichilidium angulatum* Dohrn, 1881

This species was reported by KRAPP *et al.* (2008) (juvenile specimen as *A. cf. angulatus*) from the Island of Cunda, and KOCAK *et al.* (2010) from Gulluk Bay in the Aegean coast of Turkey.

Worldwide Distribution: Atlantic-Mediterranean (eastern Atlantic Ocean, Mediterranean Sea including eastern and western basins) (SOLER-MEMBRIVES & MUNILLA, 2015).

***A. californicus* Hall, 1912**

Synonymised taxa: *Anoplodactylus californiensis* Hall, 1912

Anoplodactylus portus Calman, 1927

Anoplodactylus robustus Hilton, 1939

Anoplodactylus carvalhoi Marcus, 1940

Anoplodactylus projectus Hilton, 1942

The species was reported by STOCK (1962) under the name *A. portus* from Mersin Harbour in the Mediterranean coast of Turkey.

Worldwide Distribution: Tropical and temperate North Atlantic, Northeast Pacific south to Chile; Mediterranean (MULLER, 1993).

***A. digitatus* (Böhm, 1879)**

Synonymised taxa: *Phoxichilidium (Anoplodactylus) digitatum* Böhm, 1879

Anoplodactylus investigatoris Calman, 1923

Anoplodactylus saxatilis Calman, 1923

The species was reported by KOCAK (2014) from Mersin Bay (Erdemli, Ayaş, Kumkuyu) in the Mediterranean coast of Turkey.

Worldwide Distribution: This is a widely known species from the tropical Indo-Pacific, the Caribbean, and the Mediterranean Sea.

***A. nanus* Krapp, Koçak & Katağan, 2008**

This species was reported by KRAPP *et al.* (2008) from the Gencelli cove in the Aegean coast of Turkey.

Worldwide Distribution: Endemic (Mediterranea) (SOLER-MEMBRIVES & MUNILLA, 2015).

***A. petiolatus* (Kroyer, 1844)**

Synonymised taxa: *Phoxichilidium petiolatum* Kroyer, 1844

Pallene attenuata Hodge, 1863

Phoxichilidium attenuata (Hodge, 1863)

Phoxichilidium longicolle Dohrn, 1881

Phoxichilidium pygmaeum Hoek, 1881

Anoplodactylus longicollis (Dohrn, 1881)

Anoplodactylus pygmaeus (Hoek, 1881)

Anoplodactylus hedgpethi Bacescu, 1959

Anoplodactylus guyanensis Child, 1977

This species was reported by ARNAUD (1976) from Kalabak in the Turkish Aegean Sea; by DEMIR (1952) from Kinalı Island in the Marmara Sea; by STOCK (1962) from the Marmara Sea (off the entrance of the Bosphorus) and the Bosphorus, off Besiktas; and by BACESCU (1959) from the Black Sea coast of Turkey (near the entrance to the Bosphorus).

Worldwide Distribution: Atlantic-Mediterranean (trans-Atlantic, Mediterranean Sea including eastern and western basins) (SOLER-MEMBRIVES & MUNILLA, 2015).

***A. pygmaeus* (Hodge, 1864)**

Synonymised taxa: *Pallene pygmaea* Hodge, 1864
Phoxichilidium pygmaeum (Hodge, 1864)
Anoplodactylus exiguus (Dohrn, 1881)
Phoxichilidium exiguum Dohrn, 1881
Halosoma derjugini Losina-Losinsky, 1929
Anoplodactylus derjugini (Losina-Losinsky, 1929)

This species was reported by ARNAUD (1976) from Tuzla (Izmir Bay), KRAPP *et al.* (2008) from Gencelli cove and Balıklıova, and CINAR *et al.* (2008) from Alsancak Harbour, Pasaport Harbour and Inciraltı in the Aegean coast of Turkey; by DEMIR (1952) from islands in the Marmara Sea; and by STOCK (1962) from the Bosphorus, off Besiktas; by KOCAN & ALAN (2013) from Mersin Bay (Kız Kalesi, Ayas, Kumkuyu, Erdemli) in the Mediterranean coast of Turkey.

Worldwide Distribution: Atlantic-Mediterranean (trans-Atlantic, Mediterranean Sea including eastern and western basins) (SOLER-MEMBRIVES & MUNILLA, 2015).

***A. stocki* Bacescu, 1958**

The species was recorded by BACESCU (1959) from the Black Sea of Turkey (near the entrance to the Bosphorus).

Worldwide Distribution: Black Sea (BACESCU, 1959).

***A. virescens* (Hodge, 1864)**

Synonymised taxa: *Orithyia globosa* Goodsir, 1842
Phoxichilidium globosum Goodsir, 1842
Phoxichilidium virescens Hodge, 1864

This species was reported by ARNAUD (1976) from Kalabak and Foça in the Turkish Aegean Sea.

Worldwide Distribution: Disrupted distribution (St. Paul I., Amsterdam, Mediterranean Sea including eastern and western basins) (SOLER-MEMBRIVES & MUNILLA, 2015).

Family: Endeidae Norman, 1908

Genus: *Endeis* Philippi, 1843

***E. charybdae* (Dohrn, 1881)**

Synonymised taxa: *Phoxichilus charybdaeus* Dohrn, 1881
Endeis charybdaeus (Dohrn, 1881)
Chilophoxus charybdaeus (Dohrn, 1881)

The species was reported by KOCAN & KATAGAN (2008) from Ildırı Bay in the Turkish Aegean Sea.

Worldwide Distribution: Atlantic-Mediterranean (eastern Atlantic Ocean, Mediterranean Sea including eastern and western basins) (SOLER-MEMBRIVES & MUNILLA, 2015).

***E. spinosa* (Montagu, 1808)**

Synonymised taxa: *Chilophoxus spinosus* Montagu, 1808
Endeis gracilis Philippi, 1843

Endeis laevis (Grube, 1871)

Endeis vulgaris (Dohrn, 1881)

This species was reported by DEMIR (1952) from the islands in the Marmara Sea and the Bosphorus as *Chilophoxus spinosus*; by KRAPP *et al.* (2008) from French Holiday Village (one juvenile specimen as *E. cf. spinosa*) in the Turkish Aegean Sea; and by STOCK (1962) from the Bosphorus, off Ortakoy.

Worldwide Distribution: Atlantic-Mediterranean (trans-Atlantic, Mediterranean Sea including eastern and western basins) (SOLER-MEMBRIVES & MUNILLA, 2015).

Superfamily: Nymphonoidea Pocock, 1904

Family: Callipallenidae Hilton, 1942

Genus: *Callipallene* Flynn, 1929

***C. brevirostris* (Johnston, 1836)**

Synonymised taxa: *Pallene brevirostris* Johnston, 1836

Pallene empusa Wilson, 1878

Callipallene empusa (Wilson, 1880)

This species was reported by BACESCU (1959) near the entrance to the Bosphorus in the Black Sea of Turkey,

Worldwide Distribution: Atlantic-Mediterranean (trans-Atlantic, Mediterranean Sea including eastern and western basins) (SOLER-MEMBRIVES & MUNILLA, 2015).

***C. emaciata* (Dohrn, 1881)**

Synonymised taxa: *Pallene emaciata* Dohrn, 1881

Callipallene emaciata (Dohrn, 1881)

This species was reported by ARNAUD (1976) and KRAPP *et al.* (2008) from Foça in the Aegean coast of Turkey.

Worldwide Distribution: Atlantic-Mediterranean (trans-Atlantic, Mediterranean Sea including eastern and western basins) (SOLER-MEMBRIVES & MUNILLA, 2015).

***C. phantoma* (Dohrn, 1881)**

Synonymised taxa: *Pallene phantoma* Dohrn, 1881

Pallene phantopa Norman, 1908

Callipallene phantoma crinita Stock, 1952

This species was reported by DEMIR (1952) (as *Pallene phantoma*) from the islands in the Marmara Sea and the Bosphorus; by ARNAUD (1976) from Urla, and KRAPP *et al.* (2008) from Gencelli cove in the Turkish Aegean Sea.

Worldwide Distribution: Atlantic-Mediterranean (trans-Atlantic, Mediterranean Sea including eastern and western basins) (SOLER-MEMBRIVES & MUNILLA, 2015).

***C. spectrum* (Dohrn, 1881)**

Synonymised taxa: *Pallene spectrum* Dohrn, 1881

The species was reported by KRAPP *et al.* (2008) from Gencelli cove and Urla in the Turkish Aegean Sea.

Worldwide Distribution: Atlantic-Mediterranean (eastern Atlantic Ocean, western Mediterranean basin) (SOLER-MEMBRIVES & MUNILLA, 2015).

Family: Nymphonidae Wilson, 1878

Genus: *Nymphon* Fabricius, 1794

***Nymphon gracilis* Leach, 1814**

Synonymised taxa: *Nymphum gracile* Leach, 1814
Nymphum cienfuegosi Franganillo, 1918

This species was reported by ARNAUD (1976) from Izmir Harbour, and by CINAR *et al.* (2008) from Alsancak Harbour and Pasaport Harbour in the Aegean coast of Turkey.

Worldwide Distribution: Atlantic-Mediterranean (eastern Atlantic Ocean, Mediterranean Sea including eastern and western basins) (SOLER-MEMBRIVES & MUNILLA, 2015).

Superfamily: Pycnogonoidea Pocock, 1904

Family: Pycnogonidae Latreille, 1806

Genus: *Pycnogonum* Brünnich, 1764

***P. nodulosum* Dohrn, 1881**

Synonymised taxa: *Pycnogonum rhinoceros* Dohrn, 1881

The species was reported by KOCAK & KATAGAN (2007b) from Gerence Bay in the Turkish Aegean Sea.

Worldwide Distribution: Atlantic-Mediterranean (eastern Atlantic Ocean, Mediterranean Sea including eastern and western basins) (SOLER-MEMBRIVES & MUNILLA, 2015).

DISCUSSION

As a result of studies carried out in order to review the Pycnogonid fauna of the Turkish seas and the distribution of the species, it was determined that 23 species from the Aegean coasts of Turkey, 7 species from the Bosphorus, 6 species from the Sea of Marmara, 8 species from the Turkish Mediterranean Sea, and 3 species were reported from the Black Sea, indicating the presence of 27 Pycnogonid species inhabiting the Turkish seas in general. These individuals belong to 9 genera and 27 different species of pycnogonids, out of a total number of species worldwide of 1330 (MUNILLA & SOLER-MEMBRIVES, 2014). They thus represent 2.0% of the actual world species.

CHIMENZ GUSSO & LATTANZI (2003) give a more recent review of Mediterranean Pycnogonida fauna with at least 55 species known. Since then 1 more pycnogonid species have been reported from the Mediterranean Sea (*Anoplodactylus nanus* Krapp, Koçak and Katağan, 2008 (KRAPP *et al.*, 2008). The contribution raised to 56 the total number of pycnogonid species found in the Mediterranean Sea. The reported

27 species in Turkish Seas thus represent 48.2% of the actual Mediterranean Sea species. The number of pycnogonid species in Turkish seas is less than those in some countries (i.e. Iberian Peninsula 65 species, France 46 species, Italia 45 species, British Islands 37 species) (MUNILLA & SOLER-MEMBRIVES, 2014).

Ecological distributions of the species show that *A. biunguiculata*, *E. charybdaea* and *P. nodulosum* occur only in substrates with *Posidonia oceanica*; *A. longioculata* and *A. nanus* only in substrates with *Cystoseira crinita*; and *A. vulgaris* in substrates with *Caulerpa* sp. Other species have been observed in various substrates (Table 1).

Among the reported species, only *Ascorhynchus castelli* was recorded from deep-water (> 200 m), the other ones were reported in shallow water (Table 1). Consequently, it is clear that the majority of studies conducted along the Turkish coasts were based mainly on inshore samplings. Therefore, it is believed that deep-sea samplings in Turkish seas and more detailed examinations along the Turkish coasts will result in a more accurate count Pycnogonid species.

Table 1. Distribution of pycnogonids reported from Turkish Seas up to date (BS: Black Sea; Bo: Bosphorus; SM: Sea of Marmara; AS: Aegean Sea; MS: Mediterranean Sea. Substrates: P, Posidonia oceanica (L.) Delile, 1813; Cf, Cystoseira crinita DUBY, 1830, Cc, C. compressa (Esper) Gerloff & Nizamuddin, 1975, Cs, C. sp.; Pp, Padina pavonica (Linnaeus) Thivy, 1960; H, Stypocaulon scoparium (Linnaeus) Kützing, 1843; Co, Corallina officinalis Linnaeus, 1758; Ee, Ellisolandia elongata (J.Ellis & Solander) K.R.Hind & G.W.Saunders, 2013 (as Corallina elongata J.Ellis & Solander, 1786); Ul, Ulva lactuca Linnaeus, 1753, Ur, U. rigida C.Agardh, 1823; C, Caulerpa sp.; Pa, Palisada perforata (Bory de Saint-Vincent) K.W.Nam, 2007; Jr, Jania rubens (Linnaeus) J.V.Lamouroux, 1816, Jl, J. longifurca Zanardini, 1844, Js, J. squamata (Linnaeus) J.H.Kim, Guiry & H.-G.Choi, 2007; Hm, Hypnea musciformis (Wulfen) J.V.Lamouroux, 1813, Hs, H. spinella (C.Agardh) Kützing, 1847; L, Liagora viscida (Forsskål) C.Agardh, 1822; H, Hydrozoa sp.; Br, Bryozoa sp.; Ha, Halicondria sp.; Ap, Aglaophenia pluma (Linnaeus, 1758), Ag, Aglaophenia sp.; Cl, Cladocora cespitosa (Linnaeus, 1767); M, Mytilus galloprovincialis Lamarck, 1819; Sw, seaweeds; S, sand; St, Stone; Sh, Shell debris)

Genera/Species	Depth range (m)	BS	Bo	SM	AS	MS	Type of Substrate
<i>Ammothella</i> Verrill, 1900							
<i>A. appendiculata</i> (Dohrn, 1881)	0.2-1.5	-	-	-	8,9	13	Cf, M, Ur, Hm
<i>A. biunguiculata</i> (Dohrn, 1881)	20	-	-	-	11	-	P
<i>A. longipes</i> (Hodge, 1864)	0.5-1.5	-	-	-	4,8	13	Cf, Ee, Co, Pp, Pa, Jr, Cs
<i>A. longioculata</i> (Faraggiana, 1940)	0.5-1.5	-	-	-	8	-	Cf
<i>A. uniunguiculata</i> (Dohrn, 1881)	0.5-1.5	-	-	-	4,8	-	Cf, Pp, Ul, H
<i>Achelia</i> Hodge, 1864							
<i>A. echinata</i> Hodge, 1864	0.5	-	1	1	4	-	Ee, H, Br
<i>A. langi</i> (Dohrn, 1881)	0.5-14	-	-	-	5,8	-	P, Cf
<i>A. vulgaris</i> (O.G. Costa, 1861)	50				11	-	C
<i>Tanystylum</i> Miers, 1879							
<i>T. conirostre</i> (Dohrn, 1881)	0.5-1.5	-	1	1	4,8,9	13	H, Br, M, Ul, Ee, Co, Cf, Cc, Cs, Jr, Pa, Ur, Hm, Hs
<i>T. orbiculare</i> Wilson, 1878	0-1	-	3	-	4,8	3,13	Ee, Co, Cf, Cc, Cs, H, S, Sh, St, Js, Pa, L
<i>Ascorhynchus</i> G.O.Sars, 1877							
<i>A. castelli</i> (Dohrn, 1881)	10-250	-	-	-	12	10	P, H
<i>Anoplodactylus</i> Wilson, 1878							
<i>A. angulatus</i> (Dohrn, 1881)	0-1	-	-	-	8,11	-	St, Ee
<i>A. californicus</i> Hall, 1912	?	-	-	-	-	3	St, Sw
<i>A. digitatus</i> (Böhm, 1879)	0.5	-	-	-	-	14	Pa, Jr, Cs, Cc, Co
<i>A. nanus</i> Krapp, Koçak & Katagan, 2008	1.5	-	-	-	8	-	Cf
<i>A. petiolatus</i> (Kroyer, 1844)	0.5-71	2	3	1,3	4	-	Ee, Ha, Ap, S, Sh, St
<i>A. pygmaeus</i> (Hodge, 1864)	0.2-8	-	3	1	4,8,9	13	S, Sh, St, M, Cf, Pp, Ul, Co, Pa, L, Jr, Cs, Cc
<i>A. stocki</i> Bacescu, 1958	71	2	-	-	-	-	Ha, Ap
<i>A. virescens</i> (Hodge, 1864)	0.3-1	-	-	-	4	-	Ee, Pp, Cf
Table 1 (Continued)							
Genera/Species	Depth Range (m)	BS	Bo	SM	AS	MS	Type of Substrate
<i>Endeis</i> Philippi, 1843							
<i>E. charybdaea</i> (Dohrn, 1881)	20	-	-	-	7	-	P
<i>E. spinosa</i> (Montagu, 1808)	0.5	-	1,3	1	8	-	Cf, St, Sh, Sw
<i>Callipallene</i> Flynn, 1929							
<i>C. brevisrostris</i> (Johnston, 1836)	71	2	-	-	-	-	Ha, Ap
<i>C. emaciata</i> (Dohrn, 1881)	0.5	-	-	-	4,8	-	Ee, Cf
<i>C. phantoma</i> (Dohrn, 1881)	0.5-1.5	-	1	1	4,8	-	Pp, Cf
<i>C. spectrum</i> (Dohrn, 1881)	0-1.5	-	-	-	8	-	Cf, St, Cl
<i>Nymphon</i> Fabricius, 1794							
<i>N. gracilis</i> Leach, 1814	0-0,2	-	-	-	4,9	-	M
<i>Pycnogonum</i> Brännich, 1764							
<i>P. nodulosum</i> Dohrn, 1881	20	-	-	-	6	-	P

1-DEMIR (1952); 2- BACESCU (1959); 3- STOCK (1962); 4- ARNAUD (1976); 5-KOCAK & KATAGAN (2007a); 6- KOCAK & KATAGAN (2007b); 7- KOCAK & KATAGAN (2008); 8- KRAPP *et al.* (2008); 9- CINAR *et al.*, (2008); 10- OZCAN *et al.*, (2009); 11- KOCAK *et al.*, (2010); 12- KOCAK (2012); 13-KOCAK & ALAN (2013); 14-Kocak (2014).

Table 2. Taxonomic groups including species numbers and their percentages

Superfamily	Family	Genera	Species	%
Ascorhynchoidea	Ammonotheidae	3	10	37.0
	Ascorhynchidae	1	1	3.7
Phoxichilidoidea	Phoxichilidiidae	1	8	29.6
	Endeidae	1	2	7.4
Nymphonoidea	Callipallenidae	1	4	14.8
	Nymphonidae	1	1	3.7
Pycnogonoidea	Pycnogonidae	1	1	3.7

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Popis Pycnogonids (Arthropoda) u turskim vodama

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SAŽETAK

U ovom radu je prikazan popis vrsta Pycnogonida (Arthropoda) do sada ustanovljenih u turskim vodama. Utvrđeno je 8 vrsta iz turskog dijela Sredozemnog mora, 23 vrste iz Egejske obale Turske, 7 vrsta iz Bospora, 6 vrsta iz Mramornog mora, i 3 vrste iz turskog dijela Crnog mora.

Opisano je ukupno 27 vrsta koje pripadaju 7 obitelji i 9 svojti, te je prikazana njihova raspodjela u turskim vodama, raspon dubina za svaku vrstu kao i vrste podloge.

Prevladavala je obitelj Acheliidae s 10 vrsta. Anoplodactylus je bila prevladavajuća svojta (7 vrsta).

Ključne riječi: Popis, Pycnogonids, turske vode, raspodjela