

Interstitial and Phytal Harpacticoida (Crustacea: Copepoda) inhabiting the Mediolittoral Zone of the Datça-Bozburun Peninsulas (Muğla, Turkey)

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Abstract: Harpacticoid copepods inhabiting interstitial and phytal habitats in the mediolittoral zone of sandy beaches of the Datça–Bozburun Specially Protected Area were investigated. Examination of the samples revealed 49 species belonging to 41 genera in 17 families. All taxa identified were recorded for the first time from the study area. Comparison with published marine harpacticoid records from Turkey also revealed that 4 families, 15 genera and 34 species had not previously been reported from Turkish waters. In terms of species richness, the family Miraciiidae ranked first with 9 species, followed by Laophontidae with 7 species, Ectinosomatidae with 5 species, Ameiridae, Thalestridae and Tisbidae with 4 species, Paramesochridae with 3 species, Arenopontiidae, Canthocamptidae and Harpacticidae with 2 species, Cletotidae, Idyanthidae, Latiremidae, Leptastacidae, Louriniidae, Tegastidae and Parastenheliidae with 1 species.

Key words: Taxonomy, Fauna, new record.

Datça-Bozburun Yarımadaalarının (Muğla, Türkiye) Mediolittoral Bölgesinde Kumiçi ve Fital Yaşayan Harpacticoida (Crustacea: Copepoda) Türleri

Özet: Datça–Bozburun Özel Çevre Koruma bölgesi sahillerinde (mediolittoral bölgede) kumiçi ve fital yaşayan harpaktikoid kopepodları araştırıldı. Toplanan örneklerin incelenmesi sonucunda 17 familyaya ait 41 cins içerisinde 49 tür belirlenmiştir. Teşhis edilen tüm taksonlar çalışma alanından ilk defa kayıt edilmektedir. Türkiye’den bildirilmiş denizel harpaktikoid kopepod kayıtları incelendiğinde 4 familya, 15 cins ve 34 türün daha önce Türkiye denizlerinden kayıt edilmediği belirlendi. Tür sayısı bakımından Miraciiidae familyası (9 tür) ilk sırada yer alırken bu familyayı 7 tür ile Laophontidae, 5 tür ile Ectinosomatidae, 4 tür ile Ameiridae, Thalestridae ve Tisbidae, 3 tür ile Paramesochridae, 2 tür ile Arenopontiidae ve Canthocamptidae, Harpacticidae, 1 tür ile Cletotidae, Idyanthidae, Latiremidae, Leptastacidae, Louriniidae, Parastenheliidae ve Tegastidae familyaları takip etmiştir.

Anahtar kelimeler: Taksonomi, Fauna, yeni kayıt.

1. Introduction

The order Harpacticoida contains over 4,300 species belonging to 589 genera and 56 families [1]. They inhabit almost all aquatic environments from the hadal zone [2] to intertidal rock pools above the level of mean high tide [3] in the seas, and from continental groundwater [4] to water bodies in the Himalayan Mountains [5] in freshwater environments. They are the second most abundant group after nematodes in benthic meiofaunal communities [6]. The marine harpacticoid fauna of the Turkey is poorly known despite the fact that the country has a vast coastline of about 8,300 kilometres. Noodt [7] was the first to contribute to the marine Turkish harpacticoid

fauna by reporting 52 species and subspecies from the Sea of Marmara. Later records added to the Turkish fauna between 1955-2006 were summarized by Karaytuğ and Sak [8]. Recently *Psammoleptastacus barani* Sak, Huys & Karaytuğ, 2008 from the Turkish Black Sea coast [9] and *Ciplakastacus mersinensis* Sak, Karaytuğ & Huys, 2008 from the Turkish Mediterranean Coast [10] were described as new to science. Finally Sak et al. [11] reported and redescribed *Pseudoleptomesochrella halophila* based on the material collected from the sandy beaches of Kurucaşile (Bartın) and Doğanyurt (Kastamonu). However, harpacticoids of the majority of the Turkish coastline are still not known. Here we contribute to the knowledge of the copepod biodiversity in Turkey by reporting the first data on the interstitial and phytal Harpacticoida of Datça and Bozburun peninsulas.

2. Material and Method

The Datça-Bozburun Peninsulas is one of the most important specially protected areas in Turkey. The size of the area is 1,474 km², encompassing two peninsulas (Figure 1). Samples were collected from 22 stations (Table 1) between April 2007 and February 2008. Interstitial samples were taken according to the Karaman-Chauffuis method [12]. Stations 1-16 were located at Datça Peninsula, 17-22 were located at Bozburun Peninsula (Figure 1, Table 1). Phytal samples were taken from the supralittoral rocky shores by hand. All samples were immediately preserved with 4% formalin solution. Copepods were extracted from detritus under an OLYMPUS SZX-12 stereomicroscope and stored in 70% ethanol. Selected specimens were dissected in lactic acid and the parts mounted on slides in lactophenol mounting medium. Glass fibres were added to prevent the animal and appendages from being compressed by the coverslip and to facilitate rotation and manipulation, allowing observation from all angles. Preparations were subsequently sealed with Entellan. Identifications were made under an OLYMPUS BX 50 microscope equipped with differential interference contrast (DIC). Specimens were identified according to Wells [1], Huys et al. [13] and relevant other literature.

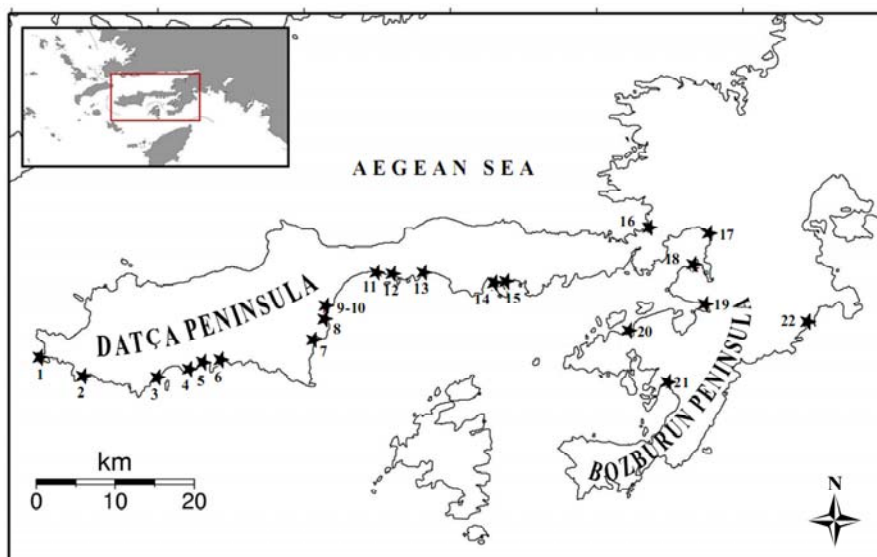


Figure 1. Map of the study area and the sampling stations

Table 1. Localities and coordinates of the sampling stations

Station	Locality	Coordinate
1	Knidos	36°41.131' N, 27°22.429' E.
2	Knidos-Bağlarözü cove	36°40.234' N, 27°25.318' E.
3	Palamutbükü	36°40.427' N, 27°30.486' E.
4	Palamutbükü (Kurubük cove)	36°40.693' N, 27°31.304' E.
5	Palamutbükü (Ovabükü cove)	36°40.872' N, 27°33.469' E.
6	Hayıtbükü	36°41.045' N, 27°34.338' E.
7	Kargı (Mendelle beach)	36°43.917' N, 27°40.620' E.
8	Datça (Taşlık beach)	36°43.255' N, 27°41.223' E.
9	Datça (Kumluk beach)	36°43.431' N, 27°41.225' E.
10	Datça (Hastanealtı beach)	36°43.597' N, 27°41.285' E.
11	Datça (Gebekum)	36°45.839' N, 27°44.700' E.
12	Billurkent (holiday camp beach)	36°45.740' N, 27°45.524' E.
13	Karaincir (holiday camp beach)	36°45.628' N, 27°47.486' E.
14	Aktur (holiday camp beach)	36°45.472' N, 27°53.101' E.
15	Aktur (Kurucabük holiday camp beach)	36°45.357' N, 27°54.512' E.
16	Bördübet (Amazon holiday camp)	36°48.055' N, 28°03.602' E.
17	Hisarönü	36°47.840' N, 28°07.748' E.
18	Bozburun (Turgut village)	36°45.795' N, 28°06.696' E.
19	Bozburun (Turgut village)	36°43.592' N, 28°07.810' E.
20	Bozburun (Marina)	36°41.560' N, 28°02.415' E.
21	Bozburun (Söğüt village beach)	36°38.603' N, 28°05.731' E.
22	Bozburun (Çiftlik village beach)	36°42.998' N, 28°14.251' E.

3. Results

Examination of the specimens revealed 49 species belonging to 17 families. In terms of species richness, the family Miraciidae ranked first with 9 species, Laophontidae with 7 species, Ectinosomatidae with 5 species, Ameiridae, Thalestridae and Tisbidae with 4 species, Paramesochridae with 3 species, Arenopontiidae, Canthocamptidae and Harpacticidae with 2 species, Cletodidae, Idyanthidae, Latiremidae, Leptastacidae, Louriniidae, Tegastidae and Parastenheliidae with 1 species. The species identified are as follows:

Order: HARPACTICOIDA Sars, 1903
 Suborder: OLIGOARTHRA Lang, 1944
 Family: MIRACIIDAE Dana, 1846

Amphiascus minutus (Claus, 1863)

Material examined: St.7 (5♀♀, 3♂♂), St.19 (3♀♀, 3♂♂), 16.04.2007; St.2 (3♀♀, 1♂), 21.08.2007; St.7 (6♀♀, 3♂♂), 20.08.2007; St.2 (4♀♀, 1♂), 04.12.2007; St.2 (2♀♀, 4♂♂), 25.02.2008; St.7 (2♀♀), 26.02.2008; St.19 (3♀♀, 2♂♂), 23.02.2008. In

washings of the macroalgae *Cystoseira* sp., *Corallina* sp., *Halopteris* sp., *Bangia* sp., *Polysiphonia* sp. and *Padina pavonica* (Linnaeus, 1758).

Distribution in Turkey: Sea of Marmara [7, 8].

Amonardia perturbata Lang, 1965

Material examined: St.19 (6♀♀), 16.04.2007. In washings of the macroalgae *Cystoseira* sp. and *Corallina* sp.

Distribution in Turkey: Sea of Marmara [8].

Paramphiascella mediterranea Lang, 1948

Material examined: St.19 (1♀), 23.02.2008. In washings of the macroalgae *Cystoseira* sp. and *Padina pavonica*.

Distribution in Turkey: new record.

Amphiascopsis cinctus (Claus, 1866)

Material examined: St.1 (3♀♀, 2♂♂), St.2 (9♀♀, 4♂♂), 15.04.2007; St.7 (4♀♀, 1♂), St.15 (5♀♀), 16.04.2007; St.1 (4♀♀), St. 2 (7♀♀, 2♂♂), 21.08.2007; St.1 (4♀♀, 3♂♂), St.2 (5♀♀, 1♂), 04.12.2007; St.1 (1♀, 1♂), St.2 (5♀♀, 2♂♂), 25.02.2008. In washings of the macroalgae *Cystoseira* sp., *Corallina* sp., *Halopteris* sp., and *Padina pavonica*.

Distribution in Turkey: Sea of Marmara [8].

Delavalia oblonga (Lang, 1965)

Material examined: St.7 (1♀), 16.04. 2007. In washings of the macroalgae *Cystoseira* sp., *Corallina* sp., *Halopteris* sp.

Distribution in Turkey: new record.

Schizopera brusinae Petkovski, 1954

Material examined: St.7 (2♀♀, 1♂), 16.04.2007. In washings of the macroalgae *Corallina* sp., *Cystoseira* sp., *Halopteris* sp.

Distribution in Turkey: Sea of Marmara [8].

Pseudamphiascopsis attenuatus (Sars, 1906)

Material examined: St.2 (1♀), 25.02.2008. In washings of the macroalgae *Corallina* sp. and *Cystoseira* sp.

Distribution in Turkey: Sea of Marmara [7].

Macrosetella gracilis (Dana, 1847)

Material examined: St.11 (2♀♀, 1♂), St.19 (1♀), 16.04.2007. Found in intersitial sample.

Distribution in Turkey: new record.

Family: LAOPHONTIDAE T. Scott, 1905

Klieonychocamptus kliei adriaticus (Petkovski, 1954)

Material examined: St.1 (6♀♀, 1♂), St.2 (6♀♀, 2♂♂), St.4 (4♀♀, 1♂), 15.04.2007; St.7 (2♀♀, 1♂), 16.04.2007; St.1 (4♀♀, 2♂♂), St.2 (7♀♀, 3♂♂), St.4 (4♀♀, 3♂♂), 21.08.2007; St.7 (3♀♀, 4♂♂), 20.08.2007; St.1 (2♀♀, 1♂), St.2 (3♀♀), St.4 (2♀♀,

2♂♂), 04.12.2007; St.1 (5♀♀, 2♂♂), St.2 (5♀♀, 2♂♂), St.4 (5♀♀, 5♂♂), 25.02.2008; St.7 (1♀), 26.02.2008; St.15 (4♀♀), 25.02.2008; St.19 (2♀♀), St.20 (4♀♀, 1♂),

23.02.2008. In washings of the macroalgae *Padina pavonica*, *Corallina* sp., *Cystoseira* sp., *Gelidium* sp., *Halopteris* sp., *Laurencia* sp. and *Sphacelaria* sp.

Distribution in Turkey: new record.

Paralaophonte brevirostris (Claus, 1863)

Material examined: St.7 (1♀), 16.04.2007; St.7 (2♀♀, 1♀), 20.08.2007; St.5 (1♀), 25.02.2008; St.7 (1♀), 26.02.2008. In washings of the macroalgae *Cystoseira* sp., *Corallina* sp., *Halopteris* sp., *Bangia* sp. and *Polysiphonia* sp.

Distribution in Turkey: Sea of Marmara [8].

Paralaophonte quaterspinata (Brian, 1917)

Material examined: St.2 (5♀♀), 21.08.2007; St.2 (2♀♀, 1♂), 04.12.2007; St.2 (2♀♀, 1♂), 25.02.2008. In washings of the macroalgae *Cystoseira* sp. and *Corallina* sp.

Distribution in Turkey: new record

Afrolophonte pori Masry, 1970

Material examined: St.6 (3♀♀, 3♂♂), 15.04.2007; St.7 (3♀♀, 3♂♂), St.15 (5♀♀, 2♂♂), 16.04.2007; St.6 (1♀, 1♂), 21.08.2007; St.7 (2♀♀, 2♂♂), 20.08.2007; St.15 (4♀♀, 1♂), 21.08.2007; St.8 (5♀♀, 6♂♂), St.15 (4♀♀, 1♂), 04.12.2007; St.7 (4♀♀), St.8 (10♀♀, 5♂♂), 26.02.2008; St.15 (2♂♂), 25.02.2008. In washings of the macroalgae *Cystoseira* sp., *Corallina* sp., *Enteromorpha* sp., *Halopteris* sp., *Bangia* sp. and *Polysiphonia* sp.

Distribution in Turkey: new record.

Heterolaophonte stroemii (Baird, 1837)

Material examined: St.6 (3♀♀, 1♂), 15.04.2007; St.11 (3♀♀, 3♂♂), St.12 (3♀♀, 1♂), 16.04.2007; St.6 (4♀♀, 1♂), St.11 (6♀♀, 4♂♂), 21.08.2007; St.6 (3♀♀, 1♂), St.11 (3♀♀, 4♂♂), 04.12.2007; St.6 (2♀♀, 2♂♂), 25.02.2008; St.11 (7♀♀, 1♂), 23.02.2008. In washings of the macroalgae *Cystoseira* sp., *Corallina* sp., *Halopteris* sp., *Laurencia* sp. and *Enteromorpha* sp.

Distribution in Turkey: Sea of Marmara [8].

Heterolaophonte uncinata (Czerniavski, 1868)

Material examined: St.8 (1♀), St.10 (3♀♀, 1♂), 16.04.2007; St. 5 (3♀♀, 1♂), 21.08.2007; St.8 (4♀♀, 1♂), St.10 (4♀♀), 20.08.2007; St.8 (3♀♀, 3♂♂), St.10 (2♀♀), 04.12.2007; St. 5 (2♀♀, 1♂), 25.02.2008; St.10 (6♀♀, 1♂), 26.02.2008. In washings of the macroalgae *Cystoseira* sp., *Corallina* sp., *Halopteris* sp., *Enteromorpha* sp., *Dictyopteris* sp., *Laurencia* sp., *Gelidium* sp., *Sphacelaria* sp. and *Padina pavonica*.

Distribution in Turkey: new record.

Loureiophonte cesareae (Por, 1964)

Material examined: St.14 (1♂), 25.02.2008. Found in interstitial sample.

Distribution in Turkey: new record.

Family: ECTINOSOMATIDAE Sars, 1903

Ectinosoma soyeri Apostolov, 1975

Material examined: St.2 (8♀♀, 3♂♂), St.4 (4♀♀, 2♂♂), St.5 (3♀♀, 2♂♂), 15.04.2007; St.12 (5♀♀, 2♂♂), 16.04.2007; St.2 (4♀♀, 1♂), St.4 (2♀♀, 2♂♂), St.5 (3♀♀, 1♂), St.6 (2♀♀, 1♂), St.12 (4♀♀, 3♂♂), St.13 (3♀♀, 2♂♂), St.14 (2♀♀, 2♂♂), 21.08.2007; St.22 (5♀♀, 1♂), 23.08.2007; St.2 (6♀♀, 2♂♂), St.4 (3♀♀, 1♂), St.5 (4♀♀, 1♂), St.6 (8♀♀, 3♂), St.12 (6♀♀, 1♂), St.13 (5♀♀, 1♂), St.14 (4♀♀, 1♂), 04.12.2007; St.22 (6♀♀), 03.12.2007; St.4 (5♀♀), St.5 (5♀♀, 2♂♂), St.6 (1♀, 1♂), St.12 (4♀♀, 4♂♂), St.13 (2♀♀, 2♂♂), St.14 (8♀♀), 25.02.2008; St.22 (3♀♀), 23.02.2008. Found in interstitial sample.

Distribution in Turkey: new record.

Microsetella norvegica (Boeck, 1865)

Material examined: St.5 (2♀♀), 15.04.2007; St.12 (1♀), 16.04.2007; St.3 (2♀♀, 1♂), 04.12.2007; St.3 (4♀♀), St.5 (6♀♀), St.6 (4♀♀, 1♂), 25.02.2008; St.7 (2♀♀, 2♂♂), St.9 (1♀, 1♂), St.10 (2♀♀), 26.02.2008; St.11 (2♀♀), 23.02.2008; St.12 (3♀♀), St.15 (3♀♀, 1♂), 25.02.2008; St.19 (3♀♀), 23.02.2008. Found in interstitial sample.

Distribution in Turkey: new record.

Arenosetella tenuissima (Klie, 1929)

Material examined: St.10 (2♀♀, 1♂), St.12 (3♀♀), St.14 (2♀♀), 16.04.2007; St.10 (3♀♀, 3♂♂); 20.08.2007; St.12 (3♀♀, 2♂♂), 21.08.2007; St.10 (2♀♀, 1♂), St.12 (2♀♀, 1♂), 04.12.2007; St.12 (4♀♀, 1♂), 25.02.2008. Found in interstitial sample.

Distribution in Turkey: new record.

Arenosetella germanica Kunz, 1937

Material examined: St.12 (4♀♀, 1♂), 21.08.2007; St.5 (2♀♀, 1♂), St.13 (2♀♀), 04.12.2007; St.5 (5♀♀), St.13 (2♀♀, 1♂), 25.02.2008. Found in interstitial sample.

Distribution in Turkey: Sea of Marmara [8].

Hastigerella bodini Apostolov, 1974

Material examined: St.22 (1♀), 23.02.2008. Found in interstitial sample.

Distribution in Turkey: new record.

Family: THALESTRIDAE Sars, 1905

Eudactylopus spectabilis (Brian, 1923)

Material examined: St.7 (1♀), 16.04.2007. In washings of the macroalgae *Cystoseira* sp., *Corallina* sp. and *Halopteris* sp.

Distribution in Turkey: new record.

Family: DACTYLOPUSIIDAE Lang, 1936

Dactylopusia tisboides (Claus, 1863)

Material examined: St.7 (2♀♀), St.19 (2♀♀), 16.04.2007; St.7 (2♀♀, 1♂), 20.08.2007; St.19 (3♀♀, 1♂), 23.02.2008. In washings of the macroalgae *Cystoseira* sp., *Corallina* sp., *Halopteris* sp. and *Padina pavonica*.

Distribution in Turkey: new record.

Diarthrodes brevipes Wells and Rao, 1987

Material examined: St.7 (1♀), St.11 (2♀♀), 16.04.2007; St.7 (2♀♀), 20.08.2007; St.11 (1♀), 21.08.2007; St.11 (3♀♀), 04.12.2007; St.11 (1♀), 23.02.2008. In washings of the macroalgae *Cystoseira* sp, *Corallina* sp., *Halopteris* sp. and *Laurencia* sp.
Distribution in Turkey: new record.

Diarthrodes ponticus (Kričagin, 1873)

Material examined: St.7 (2♀♀), 16.04.2007. In washings of the macroalgae *Cystoseira* sp., *Corallina* sp. and *Halopteris* sp.
Distribution in Turkey: new record.

Family: TISBIDAE Stebbing, 1910

Tisbe angusta (Sars, 1905)

Material examined: St.7 (4♀♀), St.15 (2♀♀), 16.04.2007; St.7 (3♀♀), 20.08.2007; St.7 (3♀♀), 26.02.2008. In washings of the macroalgae *Cystoseira* sp., *Corallina* sp., *Halopteris* sp., *Bangia* sp. and *Polysiphonia* sp.
Distribution in Turkey: new record.

Tisbe perplexa Volkmann, 1979

Material examined: St.19 (4♀♀, 2♂♂), 16.04.2007; St.19 (2♀♀, 2♂♂), 23.02.2008. In washings of the macroalgae *Cystoseira* sp. and *Padina pavonica*.
Distribution in Turkey: new record.

Paraidya occulta Humes and Ho, 1969

Material examined: St.2 (1♀), 15.04.2007. In washings of the macroalgae *Cystoseira* sp. and *Corallina* sp.
Distribution in Turkey: new record.

Scutellidium longicauda (Philippi, 1840)

Material examined: St.3 (2♀♀), St.4 (3♀♀, 1♂), 15.04.2007; St.7 (1♀), St.11 (3♀♀, 1♂), St.19 (2♀♀, 1♂), 16.04.2007; St.3 (3♀♀, 1♂), St.4 (2♀♀, 2♂♂), 21.08.2007; St.7 (1♀), 20.08.2007; St.11 (3♀♀, 2♂♂), 21.08.2007; St.3 (2♀♀, 2♂♂), St.4 (4♀♀, 1♂), St.11 (3♀♀, 1♂), 04.12.2007; St.3 (1♀, 1♂), St.4 (13♀♀, 1♂), 25.02.2008; St.11 (8♀♀, 2♂♂), St.19 (1♀), 23.02.2008. In washings of the macroalgae *Cystoseira* sp., *Corallina* sp., *Halopteris* sp., *Laurencia* sp. and *Padina pavonica*.
Distribution in Turkey: new record.

Family: AMEIRIDAE Boeck, 1865

Nitocra affinis Gurney, 1927

Material examined: St.12 (4♀♀, 1♂), 16.04.2007; St.12 (4♀♀, 2♂♂), 21.08.2007; St.12 (5♀♀, 2♂♂), 04.12.2007; St.12 (2♀♀, 2♂♂), 25.02.2008. Found in interstitial sample.

Distribution in Turkey: new record.

Ameira parvula (Claus, 1866)

Material examined: St.2 (4♀♀, 1♂), 15.04.2007; St.7 (3♀♀, 1♂), St.19 (4♀♀, 2♂♂), 16.04.2007; St.7 (4♀♀, 1♂), 20.08.2007; St.19 (3♀♀, 3♂♂), 23.08.2007; St.2 (2♀♀), St.7 (3♀♀, 3♂♂), 04.12.2007; St.19 (2♀♀, 1♂), St.21 (4♀♀, 2♂♂), 03.12.2007. In washings of the macroalgae *Cystoseira* sp., *Corallina* sp., *Halopteris* sp. and *Padina pavonica*.

Distribution in Turkey: new record.

Ameira atlantica Noodt, 1958

Material examined: St.3 (6♀♀, 2♂♂), St.4 (4♀♀, 3♂♂), St.5 (3♀♀, 1♂♂), 15.04.2007; St.8 (2♀♀, 1♂), St.10 (4♀♀), St.12 (3♀♀, 2♂♂), St.15 (4♀♀, 2♂♂), 16.04.2007; St.3 (5♀♀, 1♂), St.4 (6♀♀, 3♂♂), St.5 (5♀♀, 2♂♂), 21.08.2007; St.8 (4♀♀, 1♂), 20.08.2007; St.12 (4♀♀, 4♂♂), St.15 (4♀♀, 4♂♂), 21.08.2007; St. 3 (9♀♀), St. 4 (2♀♀, 1♂), St.5 (2♀♀), St.8 (1♀, 1♂), St.9 (2♀♀), St.10 (1♀), St.12 (3♀♀, 5♂♂), St.15 (5♀♀, 1♂); 04.12.2007; St.3 (3♀♀, 2♂♂), St.4 (6♀♀, 2♂♂); St.5 (4♀♀), 25.02.2008; St.8 (3♀♀, 1♂), St.9 (1♀), St.10 (1♀), 26.02.2008; St.12 (1♀, 1♂), St.15 (1♀, 1♂), 25.02.2008. In washings of the macroalgae *Cystoseira* sp., *Corallina* sp., *Enteromorpha* sp., *Laurencia* sp. and *Dictyopteris* sp.

Distribution in Turkey: new record.

Ameiropsis reducta Apostolov, 1973

Material examined: St.6 (2♀♀), 15.04.2007. Found in intersitial sample.

Distribution in Turkey: new record.

Parevansula elegans (Marinov, 1974)

Material examined: St.4 (2♀♀, 1♂), 16.04.2007; St.4 (4♀♀), 21.08.2007. In washings of the macroalgae *Cystoseira* sp. and *Laurencia* sp.

Distribution in Turkey: new record.

Family: PARAMESOCHRIDAE Lang, 1944

Leptopsyllus punctatus Mielke, 1984

Material examined: St.4 (6♀♀), 15.04.2007. Found in interstitial sample.

Distribution in Turkey: new record.

Kliopsyllus constrictus (Nicholls, 1935)

Material examined: St.5 (3♀♀, 1♂), 15.04.2007; St.8 (4♀♀, 1♂), St.10 (3♀♀, 1♂), St.12 (5♀♀, 3♂♂), St.14 (3♀♀, 1♂), 16.04.2007; St.3 (4♀♀), St.5 (2♀♀, 2♂♂), 21.08.2007; St.8 (3♀♀, 2♂♂), 20.08.2007; St.12 (3♀♀, 2♂♂), St.13 (5♀♀, 1♂), St.14 (4♀♀, 1♂), 21.08.2007; St.3 (3♀♀, 1♂), St.5 (1♀, 1♂), St.12 (3♀♀, 3♂♂), St.13 (6♀♀, 2♂♂), St.14 (5♀♀, 3♂♂), 04.12.2007; St.3 (2♀♀), St.5 (2♀♀, 1♂), St.12 (1♀, 1♂), St.13 (2♀♀, 2♂♂), St.14 (2♀♀, 1♂), 25.02.2008. Found in interstitial sample.

Distribution in Turkey: Sea of Marmara [8].

Scottopsyllus robertsoni (Scott and Scott, 1895)

Material examined: St. 22 (1♀), 23.02.2008. Found in interstitial sample.

Distribution in Turkey: Sea of Marmara [8].

Family: HARPACTICIDAE Dana, 1846

Harpacticus compsonyx Monard, 1926

Material examined: St.1 (8♀♀, 3♂♂), 15.04.2007; St.11 (7♀♀, 4♂♂), St.19 (5♀♀, 4♂♂), 16.04.2007; St.1 (4♀♀, 2♂♂), St.2 (2♀♀, 1♂), St.11 (5♀♀, 4♂♂), 21.08.2007; St.1 (2♀♀, 2♂♂), St.2 (4♀♀, 2♂♂), St.11 (7♀♀, 6♂♂), 04.12.2007; St.1 (5♀♀, 2♂♂), St.2 (2♀♀), 25.02.2008; St.11 (3♀♀, 6♂♂), St. 18 (2♀♀), St. 19 (4♀♀, 2♂♂), 23.02.2008. In washings of the macroalgae *Cystoseira* sp., *Corallina* sp., *Halopteris* sp., *Laurencia* sp. and *Padina pavonica*.

Distribution in Turkey: new record.

Harpacticus littoralis Sars, 1910

Material examined: St.4 (5♀♀, 1♂), 15.04.2007; St.11 (3♀♀, 1♂), 16.04.2007; St.4 (7♀♀, 1♂), St.11 (4♀♀), 21.08.2007; St.4 (5♀♀, 4♂♂), St.11 (1♀); 04.12.2007; St.4 (4♀♀), 25.02.2008; St.11 (1♀), 23.02.2008. In washings of the macroalgae *Cystoseira* sp., *Corallina* sp., *Halopteris* sp. and *Laurencia* sp.

Distribution in Turkey: Sea of Marmara [8].

Family: ARENOPONTIIDAE Martínez Arbizu and Moura, 1994

Arenopontia subterranea Kunz, 1937

Material examined: St.7 (5♀♀, 1♂), St.13 (5♀♀, 1♂), St.14 (5♀♀), St.17 (4♀♀, 4♂♂), 16.04.2007; St.14 (3♀♀, 1♂), St.17 (6♀♀, 3♂♂), 21.08.2007; St.7 (2♀♀, 1♂), St.14 (7♀♀), 04.12.2007; St.17 (7♀♀, 2♂♂), 03.12.2007; St.17 (6♀♀, 4♂♂), 23.02.2008. Found in interstitial sample.

Distribution in Turkey: Sea of Marmara [8].

Neoleptastacus acanthus (Chappuis, 1954)

Material examined: St.3 (8♀♀, 2♂♂), 15.04.2007; St.10 (5♀♀, 5♂♂), 16.04.2007; St.3 (3♀♀, 1♂), 21.08.2007; St.10 (4♀♀, 3♂♂), 20.08.2007; St.3 (4♀♀, 2♂♂), St.10 (5♀♀, 3♂♂), 04.12.2007; St.3 (6♀♀, 5♂♂), 25.02.2008; St.10 (3♀♀, 1♂), 26.02.2008. Found in interstitial sample.

Distribution in Turkey: new record.

Family: CANTHOCAMPTIDAE Brady, 1880

Nannomesochra sp.

Material examined: St.11 (2♀♀, 1♂), 16.04.2007; St.11 (3♀♀, 1♂), 23.02.2008. *Cystoseira* sp., *Corallina* sp., *Halopteris* sp. and *Laurencia* sp. **Note:** The taxonomy of the genus *Nannomesochra* is rather problematic. This new species was first reported under the *nomen nudum* “*N. gebekumensis*” [14]; it will be published in a forthcoming revision of the genus *Nannomesochra*.

Nannomesochra arupinensis (Brian, 1925)

Material examined: St.11 (2♀♀), 16.04.2007; St.11 (7♀♀), 23.02.2008. In washings of the macroalgae *Cystoseira* sp., *Corallina* sp., *Halopteris* sp. and *Laurencia* sp.

Distribution in Turkey: Sea of Marmara [7].

Family: IDYANTHIDAE Lang, 1944

Idyella tenuis (Brady, 1910)

Material examined: St.3 (2 ♀♀), 15.04.2007; St.3 (1♀), 21.08.2007; St.3 (1♀), 04.12.2007. Found in interstitial sample.

Distribution in Turkey: new record.

Family: LATIREMIDAE Bözić 1969

Delamarella obscura Huys, Karaytuğ and Cottarelli, 2005

Material examined: St.7 (1♀), St.12 (2♀♀, 1♂), St.15 (2♀♀) 16.04.2007; St.7 (1♀), 20.08.2007. Found in interstitial sample.

Distribution in Turkey: Black Sea [15].

Family: TEGASTIDAE Sars, 1904

Tegastes satyrus (Claus, 1860)

Material examined: St.3 (1♀), 15.04.2007. Found in intersitital sample.

Distribution in Turkey: new record.

Family: PARASTENHELIIDAE Lang, 1936

Parastenhelia spinosa (Fischer, 1860)

Material examined: St.5 (2♀♀, 1♂), 15.04.2007; St.19 (1♀), 16.04.2007. In washings of the macroalgae *Cystoseira* sp. and *Padina pavonica*.

Distribution in Turkey: new record.

Family: LOURINIIDAE Monard, 1927

Lourinia armata (Claus, 1866)

Material examined: St.7 (1♀), 16.04.2007. Found in interstitial sample.

Distribution in Turkey: new record.

Family: CLETODIDAE T. Scott, 1905

Cletodes spinulipes Por, 1967

Material examined: St.5 (1♀), 25.02.2008. Found in intersitital sample.

Distribution in Turkey: new record.

Family: LEPTASTACIDAE Lang, 1948

Paraleptastacus kliei (Gagern, 1923)

Material examined: St.22 (5♀♀, 2♂♂), 16.04.2007; St.22 (4♀♀, 2♂♂), 23.08.2007; St.22 (6♀♀, 1♂), 03.12.2007; St.22 (5♀♀, 1♂), 23.02.2008. Found in interstitial sample.

Distribution in Turkey: Sea of Marmara [8].

4. Discussion

Effective conservation and management of biodiversity largely depends on the taxonomic determination of species composition. The biodiversity of most ecosystems are adversely affected by natural or anthropogenic disturbances such as habitat destruction, pollution and global warming. Unfortunately, inadequate taxonomic information hinders our ability to make informed decisions about conservation and sustainable management of ecosystems. Turkey has numerous sandy beaches distributed along its very long coastline, but the marine harpacticoid fauna has been poorly studied. High energy sandy beaches are the most dynamic of soft bottom habitats and are very rich in species. The sandy beaches are also being changed mostly because of anthropogenic disturbances such as rapidly increasing coastal populations and subsequent shoreline development [16]. Harpacticoid copepods are an important part of the meiofauna (multicellular animals with a size between 0.04-1 mm), being the second most abundant group after the nematodes [13, 17]. Studies on marine harpacticoid fauna of Turkey is in its infancy compared with those conducted on inland freshwater and terrestrial fauna. Based on published records, only 86 species have been reported from the Turkish waters so far [8, 9-11]. Identification of the specimens collected from the Datça-Bozburun peninsulas revealed 49 species belonging to 41 genera in 17 families which are all recorded for the first time from the study area. On the other hand 4 families (Miraciidae, Louriniidae, Tegastidae, Idyanthidae), 15 genera (*Klieonychocamptus*, *Afroloaophonte*, *Scutellidium*, *Neoleptastacus*, *Paraidya*, *Lourinia*, *Leptosyllus*, *Tegastes*, *Loureirophonte*, *Cletodes*, *Macrosetella*, *Idyella*, *Ameiropsis*, *Microsetella*, *Paraidya*) and 34 species (see text for species names) identified in our samples have not previously been reported from Turkish waters and therefore are new records for the Turkish fauna. As a result of this study the number of harpacticoid species reported from the Turkish coastal waters is now 118.

Marine harpacticoids (with few exceptions) have no pelagic stages and both juveniles and the adults of almost all species are not active swimmers, therefore their dispersal capability is somewhat hampered [18]. Confirmed disjunct distribution of both intersittial and phytal harpacticoid species recorded from widely separated parts of the earth is an interesting case. In this study, three phytal (*Amonardia perturbata*, *Diarthrodes brevipes*, *Paraidya occulta*) and an intersittial species (*Leptosyllus punctatus*) showing highly disjunct distribution were determined. Despite the fact that cosmopolitanism has been observed in many harpacticoid taxa [19], it is possible that each population of the above mentioned species may represent a complex of closely related species. For example, detailed studies on some harpacticoid species reported to be widespread in distribution have revealed that they are either complex of closely related morphological species [9] or different populations that are genetically isolated sibling species [20]. It has also been demonstrated that harpacticoids can be transported from one place to another by anthropogenic introductions such as ship's ballast water [19] or transported by water currents [6]. But the above mentioned mechanisms which may be responsible for wide range of dispersal are not confirmed in *A. perturbata*, *D. brevipes*, *P. occulta* and *L. punctatus*. Therefore their highly disjunct distribution can only be speculative until the sufficient information is become available.

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