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A dataset of Tanaidacea from the Iberian Peninsula and surrounding areas

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SUMMARY

We describe a dataset on the crustacean Order Tanaidacea from the coasts of the Iberian Peninsula and surrounding seas, including the archipelagos of the Azores, Madeira, Savage, and the Canary Islands. The dataset gathers the records from all available sources published between 1828 to 2019, which were collected following a standardized Google Scholar search and cross checking each article's reference lists. For each record, the dataset includes taxonomic, geographical, and ecological information, as well as remarks regarding the sampling methods. The dataset was further completed with 52 additional unpublished records obtained from screening the collections of the University Complutense of Madrid gathered from 35 shallow water surveys. Furthermore, 698 records from different oceanographic deep-sea campaigns have also been included. In total, 3456 records from 186 species in 22 families have been compiled. The dataset organises the current published and unpublished knowledge on tanaidaceans in the area and, by making it open access, it will allow comparisons of the distribution of tanaidaceans in zoogeographic studies.

INTRODUCTION

Databases are efficient tools to compile useful information, and are becoming increasingly used in marine ecology (Gerovasileiou et al. 2016, Hudson et al. 2016). A rising number of open access databases has been released during the last decade, many of them focused on different animal groups, such as rotifers (Garlaschè et al. 2020), polychaete annelids (Pagliosa et al. 2014), corals (Madin et al. 2016), amphipods (Horton et al. 2013), and fishes (Froese and Pauli 2019). These databases gathered and organized valuable information on target organisms, which would be otherwise scattered in the literature, making the data readily available to address different biological and ecological questions based on spatially explicit occurrence data. Research in biogeography, conservation science, or focused on the analyses of historical trends has already largely benefited from these databases (Stein 2003).

Tanaidaceans (tanaids) represent an order of peracaridan crustaceans with around 1400 described species. This relatively low diversity, particularly when compared to the more than 6000 described species for other groups of peracaridans such as amphipods and isopods, most likely reflects the low attention that the group has received historically rather than its actual diversity (Appeltans et al. 2012, Błażewicz-Paszkowycz et al. 2012) that 22,600–56,500 species of tanaids might be waiting to be described (Appeltans et al. 2012), a hard task given the small number of zoologists currently engaged with the systematics of the group. Furthermore, tanaids are important from an ecological perspective, as they are part of the hyperbenthos, act as shallow burrowers, and play a key role in marine food webs (Mees & Jones 1997). Due to their ecological preferences, tanaids have been also used as bioindicators in several ecological studies (Vizzini et al. 2002, Ambrosio et al. 2014). Despite this importance, no worldwide tanaid databases are freely available to date. At regional level, a checklist of tanaids occurring in Greek Seas is available (Koulouri et al. 2020).

We here present the first open access database for tanaids from the Iberian Peninsula and adjacent archipelagos, including geographical and ecological data, along with remarks on different sampling methods. The database encompasses mainly marine waters of Spain and Portugal, but also part of the Moroccan and Atlantic French maritime coastal areas due to their geographic proximity to the Iberian Peninsula. We expect that this database will make future research questions targeting large-scale diversity patterns of the group more amenable, possibly helping to disentangle complex historical processes such as the colonisation of the Mediterranean after the Messinian Crisis or the drivers of shallow water endemism in the Macaronesian archipelagos.

MATERIALS AND METHODS

Geographical and ecological data

In order to allow the inclusion of all references related to the Iberian Peninsula, a bounding box of 6°E, 48°N, 34°W, 20°S was established as the geographic limit of the survey. Thereby, the Gulf of Biscay is included with the Celtic Sea as the northern limit, and the Porcupine Bight the north western one; the Balearic Sea is included as far as the Menorca Slope; the Portuguese and Spanish Atlantic archipelagos (Azores, Madeira, Savage Islands, and Canary Islands) are also included within these limits.

The geographical information was coded to allow the use of different spatial scales in diversity pattern analyses; thus, the study area was firstly subdivided in oceans, secondly in (marine) provinces, and finally in ecoregions, included as additional geographical information. This geographically nested structure is based on climatic and ecological data developed for marine ecosystems monitoring and conservation known as Marine Ecoregions of the World (MEOW), covering all coasts and shelf waters to 200 nautical miles

offshore (Spalding et al. 2007, 2012). Given the specificity of the area with the presence of different archipelagos, we further divided some of the MEOW, gaining a larger resolution for future studies related to the Iberian Peninsula, totalling ten ecoregions from the five MEOW ecoregions. The subdivision was performed using the software QGIS 3.10 (QGIS Development Team 2020) and the shape file is reported as Supplementary File 1. Nested within "Western Mediterranean", an additional ecoregion called "Balearic Islands" was used to enable studies on specific diversity from the archipelago, distinguishing it from the peninsular coast. The Macaronesian ecoregion known as "Azores Canaries Madeira" was divided in those archipelagos ("Azores", "Madeira", and "Canary and Savage Islands") following the same rationale (see Freitas et al. 2019). The ecoregion known as "South European Atlantic Shelf" was divided in "Gulf of Biscay", "Portugal", and "Gulf of Cadiz" in order to obtain a clear separation between gulfs, which are different regarding oceanographic conditions. "Alboran Sea" and "Saharan Upwelling" were not modified. After doing these additional divisions, the ecoregions of the dataset were: "Alboran Sea", "Azores", "Balearic Islands" (nested in "Western Mediterranean"), "Canary and Savage Islands", "Gulf of Biscay", "Gulf of Cadiz", "Madeira", "Portugal, "Saharan Upwelling", and "Western Mediterranean" (without the Balearic Islands) (Figure 1).

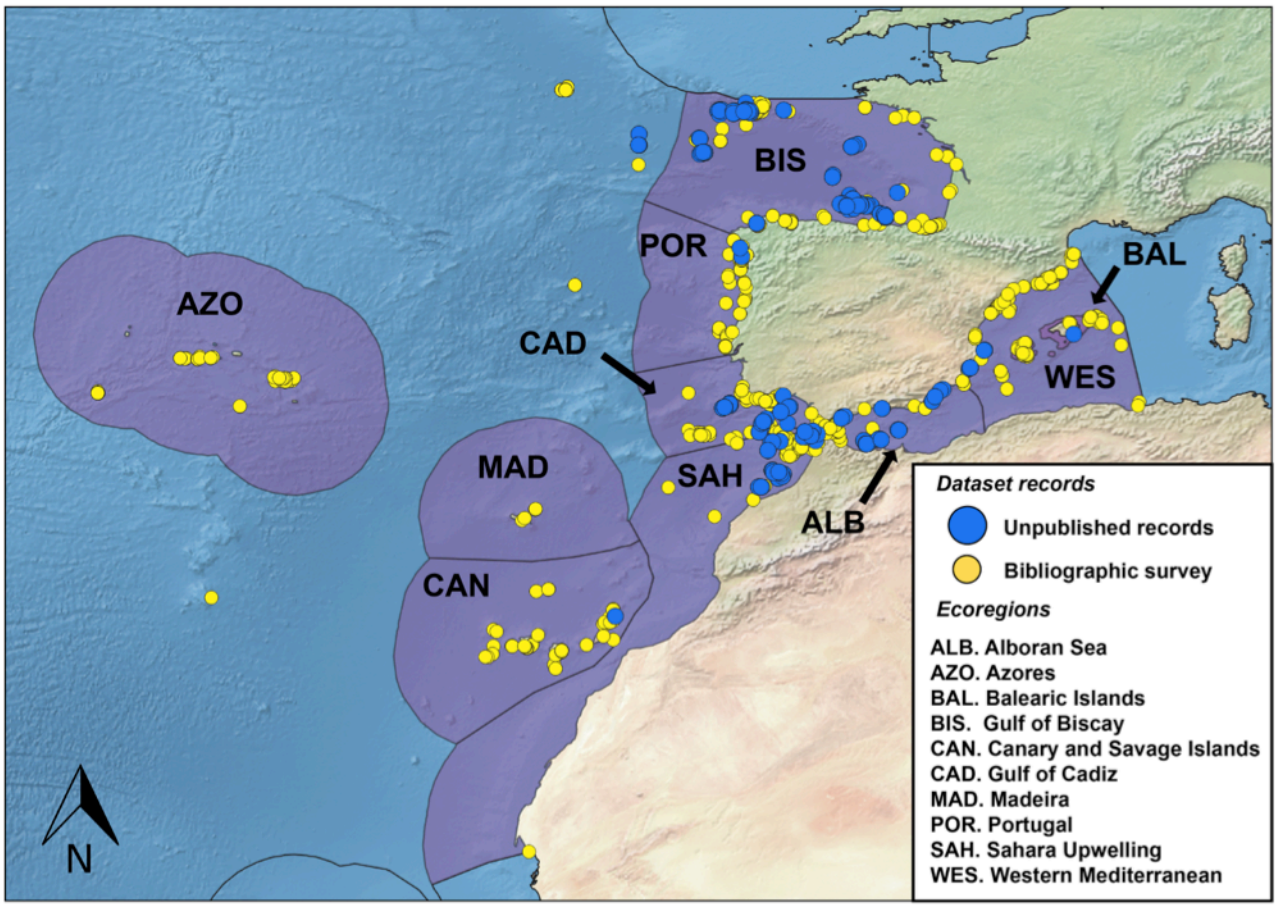

Figure 1. Ecoregion boundaries as used to cluster the records of the dataset. The map reports the ecoregions with the legend to their acronyms, together with the georeferenced localisation of the records described in this paper, differently coloured for published (Bibliographic survey) and unpublished data.

Table 1. Shallow water samples deposited at the collection of the Meiofauna Laboratory (Universidad Complutense de Madrid), with identification of the sampling point, the name of the locality, geographic coordinates as Latitude (N) and Longitude (E) in WGS84 reference system, date of sampling, sampling method, sampling area in m^2, type of habitat, associated vegetation, type of sediment, and sampling depth in m. N/A means not available.

Sampling point	Locality	Latitude (N)	Longitude (E	Date	Sampling method	Area (m2)	Habitat	Associated vegetal	Sediment	Depth (m)
15.09.14.1B	Ría de Ferrol	43.462	-8.281	14.09.2015	Higgins dredge	N/A	Soft bottom	N/A	N/A	N/A
15.09.18.1B	Ría de Ferrol	43.463	-8.276	18.09.2015	Higgins dredge	N/A	Soft bottom	N/A	Fine sand	N/A
15.09.18.2B	Ría de Ferrol	43.464	-8.281	18.09.2015	Higgins dredge	N/A	Soft bottom	N/A	Fine sand	N/A
16.03.11.1B	Ría de Vigo	42.250	-8.828	11.03.2016	Parcel	0.32	Algae	*Corallina* sp	N/A	Intertidal
16.03.11.2B	Ría de Vigo	42.250	-8.828	11.03.2016	Parcel	0.32	Algae	*Corallina* sp	N/A	Intertidal
16.03.12.1B	Ría de Arosa	42.566	-8.890	12.03.2016	Parcel	0.32	Algae	*Corallina* sp	N/A	Intertidal
09.11.13	Cova Des Coll, Mallorca	39.430	3.265	13.11.2009	Jar	N/A	Sponges	N/A	N/A	20
08.03.22	Túnel de la Atlántida, Lanzarote	29.157	-13.430	22.03.2008	Jar	N/A	Soft bottom	N/A	Coarse sand	30-40
08.03.23	Túnel de la Atlántida, Lanzarote	29.157	-13.430	23.03.2008	Jar	N/A	Soft bottom	N/A	Coarse sand	30-40
11.04.11.1B	Isla Cristina	37.204	-7.342	11.04.2011	Higgins dredge	N/A	Soft bottom	N/A	Gravel	4
11.04.12.3B	Isla Cristina	37.143	-7.351	12.04.2011	Higgins dredge	N/A	Soft bottom	N/A	Fine sand	12
10.07.24.3B	Almuñecar	36.724	-3.708	24.07.2010	Higgins dredge	N/A	Soft bottom	N/A	Mud	20
10.07.24.4B	Almuñecar	36.724	-3.721	24.07.2010	Higgins dredge	N/A	Soft bottom	N/A	Coarse sand	18
12.05.02.1B	Málaga	36.419	-5.163	02.05.2012	Higgins dredge	N/A	Soft bottom	N/A	Sandy mud	35
12.05.02.2B	Málaga	36.436	-5.079	02.05.2012	Higgins dredge	N/A	Soft bottom	N/A	Muddy sand	20
12.05.02.3B	Málaga	36.402	-5.158	02.05.2012	Higgins dredge	N/A	Soft bottom	N/A	Sandy mud	35
12.05.02.4B	Málaga	36.368	-5.202	02.05.2012	Higgins dredge	N/A	Soft bottom	N/A	Sandy mud	36
12.05.02.5B	Málaga	36.390	-5.179	02.05.2012	Higgins dredge	N/A	Soft bottom	N/A	Mud	36
15.05.19.2B	Carboneras	36.993	-1.891	19.05.2015	Higgins dredge	N/A	Soft bottom	N/A	Sandy mud	18
15.05.19.3B	Carboneras	36.989	-1.889	19.05.2015	Higgins dredge	N/A	Soft bottom	N/A	Coarse sand	12
15.05.19.5B	Carboneras	36.992	-1.887	19.05.2015	Parcel	N/A	Soft bottom	N/A	Gravel	8
15.05.19.6B	Carboneras	36.989	-1.898	19.05.2015	Higgins dredge	N/A	Soft bottom	N/A	Mud	7
97.03.24.1B	Garrucha	37.153	-1.792	24.03.1997	Higgins dredge	N/A	Soft bottom	N/A	Coarse sand	15
10.12.07.1B	Águilas	37.370	-1.600	07.12.2010	Parcel	N/A	Soft bottom	N/A	N/A	26
10.12.07.3B	Águilas	37.419	-1.498	07.12.2010	Parcel	N/A	Soft bottom	N/A	N/A	14
15.05.21.1B	Santa Pola	38.186	-0.541	21.05.2015	Higgins dredge	N/A	Soft bottom	N/A	N/A	5
15.07.27.2B	Santa Pola	38.186	-0.541	27.07.2015	Higgins dredge	N/A	Soft bottom	N/A	N/A	5
15.07.29.2SR	Santa Pola	38.207	-0.505	29.07.2015	Parcel	0.04	Plant	*Posidonia oceanica* (Rhizome sediment)	N/A	4
15.07.30.2R	Santa Pola	38.207	-0.505	30.07.2015	Parcel	0.04	Plant	*Posidonia*	N/A	8

								oceanica (Rhizome)		
16.03.03.1SR	Santa Pola	38.207	-0.505	03.03.2016	Parcel	0.04	Plant	*Posidonia oceanica* (Rhizome sediment)	N/A	5
16.03.03.4SR	Santa Pola	38.207	-0.505	03.03.2016	Parcel	0.04	Plant	*Posidonia oceanica* (Rhizome sediment)	N/A	5
16.03.03.6SR	Santa Pola	38.207	-0.505	03.03.2016	Parcel	0.04	Plant	*Posidonia oceanica* (Rhizome sediment)	N/A	5
16.03.03.7SR	Santa Pola	38.207	-0.505	03.03.2016	Parcel	0.04	Plant	*Posidonia oceanica* (Rhizome sediment)	N/A	5
97.03.27.1B	Denia	38.850	-0.135	27.03.1997	Higgins dredge	N/A	Soft bottom	N/A	Mud	15
97.03.27.2B	Denia	38.836	-0.154	27.03.1997	Higgins dredge	N/A	Soft bottom	N/A	Fine sand	12

Depth limits were categorised following the zonation by Templado et al. (2012), developed to analyse the species assemblages of marine habitats in Spain. These groups are categorised with the discrete variable "depthZonation", including: "Mediolittoral", "Infralittoral", "Circalittoral", "Bathyal", and "Abyssal". In parallel to this detailed zonation of depth, we also used a coarser separation into "Deep" and "Shallow" water through a variable named "deepShallow", selecting the boundary of 200 m depth to discriminate between shallow and deep waters, as it is the generally regarded limit between the continental shelf and slope, and was commonly used in previous tanaid studies (Błażewicz-Paszkowycz et al. 2012).

Bibliographic survey

All published records of tanaids within the geographic limits of the study area have been gathered and analysed. For that purpose, we searched in Google Scholar for all the references published with the keywords "Tanaidacea", "Anisopoda" and "Tanaidae" since 1828 until 2019 included, retaining those reporting records for the selected area. All the available information was extracted and included in a dataset.

Unpublished records

The dataset was complemented with other records of tanaids from material collected between 1967 and 2016.

First, shallow water specimens deposited at the collection of the Meiofauna Laboratory (Universidad Complutense de Madrid) were analysed. Such samples were collected from intertidal to 40 meters depth in 35 sampling points along the Iberian Peninsula, as well as Canary and Balearic Islands (Table 1), in the following localities: Ría de Ferrol, Ría de Vigo, Ría de Arosa, and Isla Cristina (Atlantic coast), Almuñecar, Málaga, Carboneras, Garrucha, Águilas, Santa Pola, and Denia (Mediterranean coast), Cova des Coll cave (Mallorca, Balearic Islands) and Túnel de la Atlántida lava tube (Lanzarote, Canary Islands). Techniques for sampling sediments varied across environments but were consistent with the methods used in the literature of the group. Samples from caves were collected by fully trained cave divers using 1l jar (see Martínez et al. 2019, Martínez et al. 2021) whereas samples from *Posidonia oceanica* and *Corallina* sp. were collected by scuba diving using standard corers with a surface of 20x20cm. Other subtidal collections were obtained with a Higgins meiobenthic dredge operated from a small vessel. Fauna was extracted from the sediment using either the

bubble and blot or $MgCl_2$ decantation techniques (Higgins and Thiel 1988, Sørensen and Pardos, 2008). Individuals retained in a 62 μm mesh sieve were either bulk fixed in formalin and posteriorly preserved in 20% ethylene glycol or sorted alive and preserved in 100% ethanol. Tanaid specimens were mounted individually in a modified Hoyer's medium or in Fluoromount-G® and then examined with an Olympus BX51 microscope equipped with differential interference contrast (DIC) optics and an Olympus DP70 camera at the Meiofauna Laboratory (Universidad Complutense, Madrid).

Second, 698 unpublished records from different oceanographic campaigns have been included in our dataset. These records belong to BALGIM, BIOGAS I–XI, EPI-VI, INCAL, NORATLANTE CH08, POLYGAS A, SARSIA, THALASSA 71 and THALASSA 73 campaigns carried out between 1967 and 1986 by France and the United Kingdom, in order to study the deep-sea from the Gulf of Cadiz, Alboran Sea and Gulf of Biscay. Sampling and extraction techniques can be consulted in the cruise reports associated to those campaigns when available (Laubier 1969, 1972, 1973, 1974a, 1974b, 1976; Cabioch 1971, 1973; Chardy 1972, 1974; Desbruyeres 1978, 1979, 1980a, 1980b, 1981; Reyss 1973; Bouchet 1984).

RESULTS

Summary statistics

A total of 137 published sources (Table 2) was found and included in the dataset, providing 2706 records. The published sources included 122 research articles in peer-reviewed journals, 7 doctoral theses, and 9 sources of various types (e.g. environmental reports or regional inventories). In addition, the newly collected material preserved at the Meiofauna Laboratory in Universidad Complutense de Madrid added other 52 unpublished shallow water records (codified as source number 137: shallow water samples), and the deep-sea oceanographic cruises added 698 records (codified as source number 138: deep-sea cruises).

Table 2. List of bibliographic sources for each ecoregion. Acronyms are explained in Figure 1.

ID	authorAndYear	ALB	AZO	BAL	BIS	CAN	CAD	MAD	POR	SAH	WES
1	Milne Edwards, H. (1828)				X						
2	Norman, A.M. & Stebbing, T.R.R. (1886)	X			X				X		
3	Sars, G.O. (1886)							X			
4	Dolffus, A. (1897)		X								
5	Dolffus, A. (1898)	X		X	X	X					X
6	Tattersall, W.M. (1911)										X
7	Stephensen, K. (1915)								X		X
8	Monod, T.H. (1925)									X	
9	Wolff, T. (1956)		X		X						
10	Menzies, R.J. (1957)				X						
11	Lang, K. (1968)						X		X	X	
12	Anadón, R. (1975)								X		
13	Gardiner, L.F. (1975)				X						
14	MacPherson, E. (1980)										X
15	Băcescu, M. (1981)				X						
16	Băcescu, M. (1982a)				X						
17	Băcescu, M. (1982b)				X						
18	Bibiloni, M.A. (1983)										X
19	Kudinova-Pasternak, R.K. (1983)				X						
20	Băcescu , M. (1984)				X						
21	Bird, G.J. & Holdich, D.M. (1984)				X						
22	Aguirrezabalaga, F. et al. (1985)				X						
23	Băcescu, M. (1985)				X						

ID	authorAndYear	ALB	AZO	BAL	BIS	CAN	CAD	MAD	POR	SAH	WES
24	Holdich, D.M. & Bird, G.J. (1985)				X						
25	Gutu, M. (1986)				X						
26	Rodrigues, A.M. & Dauvin, J.C. (1987)				X						
27	Bird, G.J. & Holdich, D.M. (1988)				X						
28	Junoy, J. & Viéitez, J.M. (1988)				X						
29	Vicente, C.A. et al. (1988)				X						
30	Bird, G.J. & Holdich, D.M. (1989)				X						
31	Sieg, J. & Bird, G. (1989)					X	X			X	
32	Bamber, R.N. (1990)				X						
33	Pérez-Ruzafa, A. & Sanz, M.C. (1993)										X
34	San Vicente, C. & Sorbe, J.C. (1993)				X						X
35	Sanz, M.C. (1993)	X		X							X
36	da Fonseca, L.C. et al. (1995)							X			
37	Garmendia, J.M. et al. (1998)				X						
38	Sánchez-Moyano, J.E. & García-Gómez, J.C. (1998)	X									
39	Brito-Castro, M.C. (1999)					X					
40	Cunha, M.R. et al. (1999)								X		
41	Marquiegui, M.A. & Claude-Sorbe, J. (1999)				X						
42	Mucha, A.P. & Costa, M.H. (1999)								X		
43	San Vicente, C. & Sorbe, J.C. (1999)										X
44	Conradi, M. et al. (2000)	X									
45	Sanchez-Moyano, J.E. et al. (2000)	X									
46	Chicharo, L. et al. (2002)						X				
47	Gutu, M. (2002)									X	X
48	Martínez, J. et al. (2002)				X						
49	Alves, F. et al. (2003)						X				
50	Cartes, J.E. et al. (2003)										X
51	Castellanos, C. et al. (2003)				X						
52	Sanz, M.C. et al. (2003)					X					
53	Bird, G.J. (2004)				X						
54	Puente Trueba, A. et al. (2004)				X						
55	Marín-Guirao, M. et al. (2005)										X
56	Munilla, T. & San Vicente, C. (2005)										X
57	Dirección General de Aguas (2006)					X					
58	Larsen, K. et al. (2006)		X								
59	Martínez, J. & Adarraga, I. (2006)				X						
60	Patricio, J. et al. (2006)								X		
61	Pereira, S.P. et al. (2006)						X		X		
62	Sanz-Lazaro, C. & Marín, A. (2006)	X									
63	Sevilla, J.R. et al. (2006)										X
64	Viéitez, J.M. (2006)				X						
65	Błażewicz-Paskowycz, M. (2007)										
66	Echevarri, B. (2007)				X						
67	Laborda, A.J. (2007)				X						
68	Lourido, A. et al. (2008a)								X		
69	Lourido, A. et al. (2008b)								X		
70	Moreira, J. et al. (2008a)								X		
71	Moreira, J. et al. (2008b)								X		
72	Bamber, R. & Costa, A.C. (2009)		X								
73	Cacabelos, E. et al. (2009)								X		
74	Guerra-García, J.M. et al. (2009)	X			X		X		X	X	X
75	Moreira, J. et al. (2009)								X		
76	Tato, R. et al. (2009)				X				X		
77	Varela, C. et al. (2009)				X						
78	Bamber, R. (2010)								X		
79	Barroso, A.C. (2010)						X				
80	De la Ossa Carretero, J.A. et al. (2010)										X
81	El Bakali, M. et al. (2010)	X									
82	Guerra-García, J.M. et al. (2010)									X	

ID	authorAndYear	ALB	AZO	BAL	BIS	CAN	CAD	MAD	POR	SAH	WES
83	Lucena-Moya, P. et al. (2010)			X							
84	OCEANA (2010)				X						
85	Sorbe, J.C. et al. (2010)				X						
86	Błażewicz-Paszkowycz, M. et al. (2011a)				X					X	
87	Błażewicz-Paszkowycz, M. et al. (2011b)						X		X	X	
88	de Juan, S. & Cartes, J.E. (2011)										X
89	Esquete, P. et al. (2011)								X		
90	Mamouridis, V. et al. (2011)										X
91	Pacios, I. et al. (2011)	X					X				
92	Riera, R. et al. (2011)					X					
93	Sanchez-Moyano, J.E. & Garcia-Asencio, I. (2011)						X				
94	Bamber, R. (2012)		X			X		X			
95	Esquete, P. et al. (2012)								X		
96	Guerra-García, JM. et al. (2012)				X		X		X	X	
97	Larsen, K. (2012a)					X					
98	Larsen, K. (2012b)		X								
99	Larsen, K. et al. (2012)					X					
100	Riera, R. et al. (2012a)					X					
101	Riera, R. et al. (2012b)	X		X		X					X
102	Riera, R. et al. (2012c)				X	X			X		
103	Bongiorni, L. et al. (2013)		X								
104	Conde, A. et al. (2013)				X						
105	Larsen, K. & Froufe, E. (2013)					X					
106	Riera, R. et al. (2013a)					X					
107	Riera, R. et al. (2013b)					X					
108	Riera, R. et al. (2013c)					X					
109	Rueda, J. et al. (2013)										X
110	Bird, G.J. (2014)				X						
111	Cuvelier, D. et al. (2014)		X								
112	GESHA (2014)				X						
113	Larsen, K. (2014)					X			X		
114	Quispe, J.I. (2014)										X
115	Tuya, F. et al. (2014)					X					
116	Zubikarai, N. et al. (2014)				X						
117	Bird, G.J. (2015)				X						
118	Esquete, P. et al. (2015)				X				X		
119	Navarro-Barranco, C. et al. (2015)	X									
120	Terrón-Sigler, A. (2015)	X									
121	Vollette, P. & Thirion, J.M. (2015)				X						
122	Esquete, P. et al. (2016)					X					
123	Gavira-ONeill, K. et al. (2016)						X				
124	Sampaio, L. et al. (2016)								X		
125	Terron-Sigler, A. et al. (2016)	X									
126	de Almeida, P. (2017)								X		
127	Esquete, P. & Cunha, M. (2017)						X		X	X	
128	Esquete, P. & Fernandez-Gonzalez, V. (2017)	X									X
129	García-Herrero, A. et al. (2017)	X				X					
130	Esquete, P. & Cunha, M. (2018)						X				
131	Foveavu, A. et al. (2018)				X						
132	Carvalho, A.N. et al. (2019)								X		
133	Espinosa, F. et al. (2019)	X									
134	Navarro-Barranco, C. et al. (2019)										X
135	Census of Diversity of Abyssal Marine Life (CeDAMar) (2021)	X	X		X	X	X		X	X	X
136	Biodiversity Data bank of the Canary Islands (2021)					X					
137	Shallow water samples	X		X	X	X	X		X		X
138	Deep-sea cruises	X			X		X			X	

Table 3. Description of the 45 variables reported in the dataset, with information on: concordance to Darwin Core Standards (DwC), the type of variable (e.g. taxonomic, sampling-related, geographic, etc.), description, units (when meaningful, e.g. m^2, cm^3, etc.), and storage type (e.g. text, categorical, continuous, etc.).

Variables	DwC	Type	Description	Units	Storage type
catalogNumber	Yes	NA	Unique identifier for the record within the data set or collection, from 1 to 2307		Unique identifier
order	Yes	Taxonomic	Name of the order of the record		Text
suborder	No	Taxonomic	Name of the suborder of the record		Text
superfamily	No	Taxonomic	Name of the superfamily of the record		Text
family	Yes	Taxonomic	Name of the family of the record		Text
subfamily	No	Taxonomic	Name of the subfamily of the record		Text
genus	Yes	Taxonomic	Name of the genus of the record		Text
subgenus	Yes	Taxonomic	Name of the subgenus of the record		Text
scientificName	Yes	Taxonomic	Name of the species of the record, as reported in WoRMS		Text
originalNameUsage	Yes	Taxonomic	Name of the species as reported in the original publication		Text
scientificNameAuthorship	Yes	Taxonomic	Species authorship		Text
occurrenceID	Yes	Taxonomic	Aphia database species number		Unique identifier
month	Yes	Sampling-related	Month when sampled as reported in the original publication		Categorical
year	Yes	Sampling-related	Year when sampled as reported in the original publication		Categorical
fieldNumber	Yes	Sampling-related	Name of the sampling station as reported in the original publication		Text
samplingProtocol	Yes	Sampling-related	Method of sampling as reported in the original publication		Categorical
samplingDesign	No	Sampling-related	2 levels: "Quantitative", "Qualitative"		Categorical
samplingArea	No	Sampling-related	Obtained or calculated through the original publication	m2	Continuous
samplingVolume	No	Sampling-related	Obtained or calculated through the original publication	cm3	Continuous
occurrenceStatus	Yes	Sampling-related	2 levels: "Abundance" defines if the number of individuals is defined in the original publication; "Ocurrence" defines if just the presence of the species is cited.		Categorical
individualCount	Yes	Sampling-related	Number of individuals found as reported in the original publication. Only filled if variable occurrenceStatus is coded as "Abundance".		Continuous
waterBody	Yes	Geographical	2 levels: "Atlantic", "Mediterranean"		Categorical
province	No	Geographical	2 levels: "Lusitanian", Mediterranean"		Categorical
ecoregion	No	Geographical	10 levels: “Gulf of Biscay”, “Portugal”, “Gulf of Cadiz”, “Saharan Upwelling”, “Alboran Sea”, “Western Mediterranean”, “Balearic Islands” (nested in “Western Mediterranean”), “Azores”, "Madeira", “Canary and Savage Islands”.		Categorical
locality	Yes	Geographical	Locality where the species was found as reported in the original publication		Text
cavernousEnvironment	No	Geographical	2 levels: "Yes", "No"		Categorical
islandGroup	Yes	Geographical	Name of the archipelago		Text
decimalLatitude	Yes	Geographical	As reported in the original publication and converted to WGS84 reference system		Continuous
decimalLongitude	Yes	Geographical	As reported in the original publication and converted to WGS84 reference system		Continuous
minimumDepthInMeters	Yes	Geographical	Minimum depth when a range is provided	m	Continuous
maximumDepthInMeters	Yes	Geographical	Maximum depth when a range is provided	m	Continuous
depthZonation	No	Ecological	5 levels: "Mediolittoral", Infralittoral", Circalittoral", "Bathyal", "Abyssal"		Categorical
deepShallow	No	Ecological	2 levels: "Shallow", "Deep"		Categorical
substratumNature	No	Ecological	3 levels: "Inorganic", "Vegetal organic", "Animal organic"		Categorical

Variables	DwC	Type	Description	Units	Storage type
substratum	No	Ecological	If "Substratum nature" is codified as 1) "Inorganic"; 3 levels: "Hard bottom" (more than 2mm of granulometric size), "Soft bottom" (less than 2 mm of granulometric size), "Organic origin"; 2) "Vegetal organic", 2 levels: "Algae", "Plantae" 3) "Animal organic": Description of the faunal substratum as reported in the original publication.		Categorical
associatedVegetalSpecies	No	Ecological	If the record comes from or contains any vegetal species: Taxonomical level of the vegetal species as reported in the original publication		Text
sediment	No	Ecological	If "Substratum nature" is codified as "Inorganic": Description of the sediment as reported in the original publication		Text
waterTemperature	No	Ecological	As reported in the original publication	Celsius	Continuous
pH	No	Ecological	As reported in the original publication	pH scale	Continuous
organicMatter	No	Ecological	As reported in the original publication	%	Continuous
dissolvedOxygen	No	Ecological	As reported in the original publication	mg/L	Continuous
referenceID	No	Bibliographic	Reference identifcation number linked to the Dataset bibliography list (Table 2)		Unique identifier
authorAndYear	No	Bibliographic	Short reference just including authors and year of the original publication		Text
publicationYear	No	Bibliographic	Year when source was published		Text
associatedReference	Yes	Bibliographic	Full reference of the source		Text

The dataset from published and unpublished sources gathered a total of 3456 records (Supplementary File 2). The records cover all ten ecoregions and a wide bathymetry, from 0 to 5370 m in depth (Supplementary File 3).

Of the total number of records, 3001 (86.8%) are provided at species level encompassing a total of 186 species; out of the 455 remaining records, 40 correspond to individuals identified at family level, 402 correspond to individuals identified at genus level, whereas 13 potentially address 5 species that were published as doubtful (e.g. flagged as cf. in the source publication). Overall, the records correspond to 22 families, in addition to 14 species that are considered as *incertae sedis* (Supplementary File 3). Records from both extant tanaid suborders, Tanaidomorpha Sieg, 1980 and Apseudomorpha Sieg, 1980, are represented in the dataset. *Tanais dulongii* (Audouin, 1826) is the species with the highest number of records, 255 in total. Furthermore, 5 species accumulated 100 or more records: *Apseudopsis latreillii* (Milne Edwards, 1828) with 195 records, *Chondrochelia dubia* (Krøyer, 1842) with 178, *Sphyrapus malleolus* Norman & Stebbing, 1886 with 169 records, *Paranarthrura insignis* Bird & Holdich, 1989 with 109 records, and *Apseudes talpa* (Lilljeborg, 1864) with 100.

The ecoregion that accumulates the highest number of species is the Gulf of Biscay (212 species, 1749 records), followed by the Saharan Upwelling Zone (80 species, 411 records), the Gulf of Cadiz (70 species, 184 records), the Alboran Sea (38 species, 254 records), Azores (32 species, 81 records), the Western Mediterranean (25 species, 270 records), the Canary and Savage Islands (19 species, 113 records), Portugal (16 species, 226 records), the Balearic Islands (12 species, 109 records) and Madeira (5 species, 10 records). Additionally, 49 records of 24 species were within our geographical boundary but outside the ecoregions we defined (records outside ecoregions in Figure 1). *Tanais dulongii* is the only species recorded in all the ecoregions.

Ecoregions covered by each bibliographic source can be found in Table 2.

The dataset

This dataset is composed of one unique table (as a xlsx file), in which each row represents the single record of a tanaid species in one geographical point. 45 additional variables are reported for each record (Table 3). These included a unique identifier per each record, 11 variables addressing taxonomic ranks (e.g. Order, Family, etc.), 9 referring to sampling (e.g. method, area, volume, etc.), 10 representing geographic information (e.g. province, ecoregion, coordinates, etc.), 10 detailing ecological data (e.g. type of substratum, water temperature, etc.), and 4 describing exclusively bibliographic (author, year of publication, etc.) (Table 3). The dataset is available as supplementary material to this paper (Supplementary File 2).

Dataset

Dataset name: Tanaidacea from Iberian Peninsula and surrounding areas Dataset.

Format name: xlsx.

Character encoding: UTF 8.

Standards: 23 of the 45 columns in the dataset follow Dawrwin Core Standards (DwC). The others do not, since there are no available DwC correspondences.

Distribution: The dataset is included as supplementary material (Supplementary File 2) as .xlsx file, and can be accessed online at: https://escholarship.org/uc/item/49c98569#supplemental.

Date of publication: 24th July 2021.

Date of last revision: 5th May 2021.

Update policy: None.

Language: English (except for local names of some localities).

Resource citation: García-Herrero, A., Martínez, A., García-Gómez, G., Sánchez, N., Bird, G., Fontaneto, D. & Pardos, F. (2021). A dataset of Tanaidacea from the Iberian Peninsula and surrounding areas. Accessed online at: https://escholarship.org/uc/item/49c98569.

Management details

Database manager: Álvaro García Herrero.

Temporal coverage: From 1828 to 2019.

Record basis: Literature records and a collection of 50-years sampling campaigns (1967 to 2016).

Sampling methods: The dataset was created by joining records included in the available literature and the collections of the University Complutense in Madrid, plus an array of samples from different oceanographic cruises.

Funding grants: Spanish Ministry for Agriculture and Environment (Project CGL2013 42908 P), funded the Iberian Peninsula field sampling.

Geographic data

Geographic range: The dataset covers the Iberian Peninsula and Spanish and Portuguese archipelagos (Azores, Madeira, Salvage Islands, Canary Islands, and Balearic Islands), and surrounding areas. This includes Moroccan and Saharan coasts, as well as Algeria until the coastal city El Aouana. Geographical range has been built by using and modifying MEOW (Spalding et al. 2007). In the North, the Gulf of Biscay was included until the Celtic Sea northern limit, and the Porcupine northwest limits; in the East, the Balearic Sea was included until the Menorca Slope; in the South, the limit was the Western Sahara limit; in the West, the limit was the Azores Exclusive Economic Zone boundary.

Bounding box: 6°E, 48°N, 34°W, 20°S; WGS84 reference system.

Countries: Algeria, France, Morocco (including Western Sahara), Portugal, Spain, United Kingdom (Gibraltar).

Sampling design: MEOW was used to cover all the surrounding Iberian Peninsula waters. Some ecoregions were modified in order to gain a larger resolution for future studies and can be found as Supplementary File 1.

Biogeographic region: Mediterranean Sea, North-east Atlantic Ocean, and Macaronesia.

Quality control for geographic data: Quality control was performed using QGIS 3.10, by displaying coordinates within the MEOW boundaries. Anomalous records were individually analysed and amended.

Ecological data

Habitat type: Habitats were reported as they were found in the original literature. Some examples include gravel, coarse sand, mud, *Posidonia oceanica* meadows, *Zostera* spp. meadows, or algae.

Depth: Depth range varies from intertidal to 5370 meters. Depth limits were categorised following the zonation by Templado et al. (2012). The boundary limit between shallow waters and deep sea was established in 200 meters.

Quality control for ecological data: Assignation of each record to any depth category and habitat was verified with the current knowledge regarding the ecology of each species, if available.

Literature search

Literature search method: Online webtool Google Scholar was used to search all the available literature from 1849 to 2019, including the words "Tanaidacea", "Anisopoda" and "Tanaidae". From all the resulted literature, the records for the selected area were retained.

Literature list: See Table 2.

Quality control for literature data: The completeness of the literature was confirmed repeating the search twice and cross-checking with the literature lists reported in each paper.

Taxonomy

Taxonomic ranks: All extant Tanaidacea taxa were considered in this database, including the two currently accepted suborders Tanaidomorpha and Apseudomorpha.

Species names: Both current accepted name (according to WoRMS) and species name as originally reported in each source have been compiled in the dataset, in different columns.

Taxonomic methods: Field sampled tanaids were identified to the lowest possible taxonomic rank following the available literature and WoRMS resources.

Taxonomic specialist: Álvaro García Herrero and Graham Bird.

Quality control for taxonomic data: All included taxonomic ranks have been verified by using WoRMS resource.

Taxonomic and ecological remarks: Unidentified species at genus level in the literature were named in the dataset in consecutive numerical order with the aim to keep morphotypes separated. *Cryptocopoides arcticus* (Hansen, 1887) is considered a complex of cryptic species (Błażewicz-Paszkowycz, University of Lodz, personal communication). Furthermore, records for *Chondrochelia dubia* (Krøyer, 1842) could represent identification mistakes of *Chondrochelia savignyi* (Krøyer, 1842) (See Bamber 2010). Several records from the deep ocean are dubious as they belong to the predominantly shallow water family Tanaididae (Błażewicz-Paszkowycz et al. 2012). Those are: *Hexapleomera robusta* (Moore, 1894) recorded at 2440 and 2684 meters, *Tanais dulongii* (Audouin, 1826) recorded at 525 meters, and *Parasinelobus chevreuxi* (Dollfus, 1898)

recorded at 2114 and 2704 meters. Furthermore, Sampaio et al. (2016) reported the shallow apseudomorph species *Apseudopsis latreillii* (Milne Edwards, 1828) across a depth range from 37 to 140 meters, without clarifying whether the species was found across all the range or only in the upper parts of the range, which seems more likely given the other records in the area. While we compiled here the information as shown in the original literature, these remarks should be considered when these data will be used in further analyses.

AUTHOR CONTRIBUTION

AGH, GGG, NS, AM and FP planned the study and sampled the shallow water tanaids. AGH identified the shallow water tanaids and surveyed the literature and compiled the needed information for the dataset. GB sampled and identified the deep-sea cruises data. FP and DF provided facilities and support both in the laboratory and field sampling. All authors contributed to the writing to additions and comments to the text.

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SUPPLEMENTARY FILES

Supplementary File 1. Compressed archive in .rar format with shape files for the subdivision in ecoregions.

Supplementary File 2. Dataset in .xlsx format.

Supplementary File 3. Number of records for each species in each ecoregion, including depth range, when available. *: Cryptic species complex (Błażewicz-Paszkowycz, pers. comm.). **: Probable misleading identification with *C. savignyi*. NA: Depth range not available. ●: at least one record on vegetals. □: at least one record inside caves. #: deep ID may be incorrect. ^: maximum depth (140 m) comes from a reported depth range of 37-140 m.

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