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Distribution of Recent ostracods in inland waters of Sicily (Southern Italy)

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ABSTRACT

From 2003 to 2005, freshwater ostracods were sampled in 67 water bodies of mainland Sicily (Provinces of Agrigento, Caltanisetta, Catania, Enna, Palermo, Messina, Ragusa, Siracusa and Trapani) located from sea level up to 1300 m a.s.l. This survey took into account streams, springs, wells, but especially temporary and ephemeral habitats (e.g., flooded meadows, temporary ponds). The aim of this research was to give the first comprehensive picture of the regional ostracod fauna and establish relationships between the distribution of ostracod species and some habitat features. Altogether, 21 ostracod taxa belonging to five families (Candonidae, Ilyocyprididae, Cyprididae, Notodromadidae, and Limnocytheridae) were identified. A maximum of four species was found in a single sample. The most frequent species was Heterocypris incongruens*, followed by* Eucypris virens*. The following ten taxa have been found only once:* Candona lindneri*,* Ilyocypris decipiens*,* Notodromas persica*,* Trajancypris clavata*,* Herpetocypris brevicaudata*,* Heterocypris salina*,* Cypridopsis *cf.* elongata*,* Cypridopsis vidua*,* Potamocypris *cf.* villosa*, and* Limnocythere inopinata*. The faunal assemblage of Sicily is compared with the known ostracod distribution in some Mediterranean areas.*

Key words: Sicily, freshwater ostracods, taxonomy, distribution, biogeography

1. INTRODUCTION

With a surface of about 25,700 km^2, Sicily, located in the middle of the Mediterranean Sea, is the largest island of the basin (Fig. 1). Due to its geographical position, it is considered a natural transition zone for west-palaearctic freshwater taxa with different chorological gravitation (Naselli-Flores *et al*. 1998). Complex orography of Sicily accounts for the presence of different bio-climatic belts (Brullo *et al*. 1996); nevertheless, its insularity and climate, characterized by long dry summers and short rainy winters, generally imply the lack of a well-developed permanent surface hydrographic network. For this reason, ephemeral and temporary habitats are the most common and representative types of superficial waters (Marrone *et al*. 2006).

The present study forms part of a larger project aiming at assessing the diversity of the crustacean fauna of inland waters of Sicily (Marrone 2003; Marrone & Naselli-Flores 2004, 2005). The specific objectives of this research are to compare the results with previously published data, to give the first comprehensive picture of the regional ostracod fauna, and to identify possible relationships between habitat features and distribution of ostracod species. The collected data will also be used for updating the Italian ostracod checklist (Ghetti & McKenzie 1981), which is presently under complete revision (Rossetti *et al*. 2004). A preliminary comparison with other ostracod faunas within the Mediterranean basin is offered.

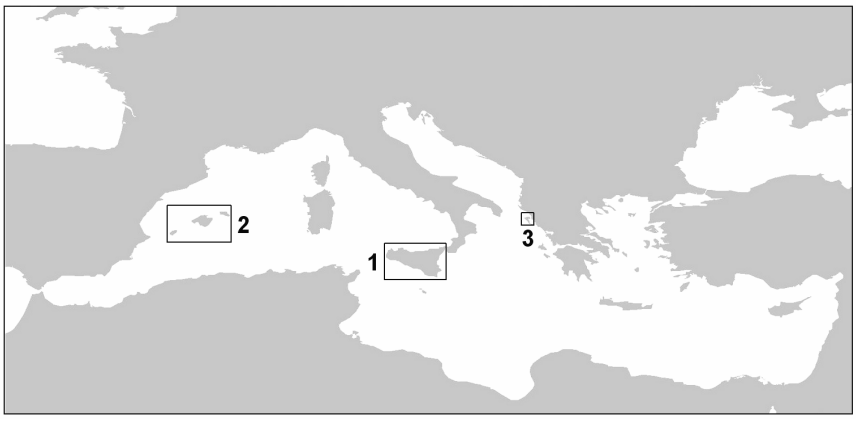

Fig. 1. Map showing the Mediterranean basin. The locations of Sicily (1), Balearic Islands (2) and Corfu (3) are indicated.

2. MATERIALS AND METHODS

The study was carried out in 67 water bodies (natural or artificial, permanent or temporary, lentic or lotic) which are representative of the diverse range of freshwater habitats of Sicily (ponds, lakes, wells, flooded meadows, streams, springs, etc.) (Tab. 1). Sampling was performed from November 2003 to May 2005, and each site was visited once. The studied water bodies were generally located in sparsely populated areas and range from 3 to 1300 m a.s.l.

For each site, geographical coordinates were obtained with a GPS receiver (Magellan 310) and habitat features (size, water depth, presence of vegetation, lithology, etc.) were recorded. In most of the sampling sites, water temperature, pH and conductivity were also measured *in situ* using a multiprobe HI 991300 or YSI 556 MPS, respectively in shallow or deep waters.

Ostracods were collected with a handnet. Living specimens were sorted in the laboratory under a binocular microscope and then fixed in 90% ethanol. Only material allowing unambiguous identification (i.e., adults and late larval stages) was taken into account, although in few cases (*Cypridopsis* cf. *elongata*, *Potamocypris* cf. *villosa*, and *Eucypris* cf. *virens*, all found in a single sample) the specific allocation remained uncertain due to either damaged or isolated specimens. Both soft parts (dissected in glycerine and stored in sealed slides) and valves (stored dry in micropal slides) were checked for taxonomic identification following Meisch (1984, 2000) and González Mozo *et al*. (1996). For problematic specimens, valves were also examined by SEM using a Philips XL-30 microscope. All the collected material is deposited in the ostracod collection of the Department of Environmental Sciences, University of Parma.

3. RESULTS

Water conductivity showed considerable variability among sites, ranging from a minimum of 50 µS cm^{-1} in ME04 to a maximun 30.5 mS cm^{-1} in CL01 (Fig. 2). Nevertheless, most of the water bodies (*ca* 77%) had values below 1000 µS cm^{-1}. Lower conductivity waters (<700 µS cm^{-1}) were mostly associated with siliceous rocks. The highest values were usually found in small ponds subjected to intense evaporation and/or affected by salt sea spray. Alkaline pHs were overwhelmingly dominant (Fig. 2), due to the prevalence of basic soils in the study area (Tab. 1) and especially to high rates of primary production in shallow waters.

In total, 21 ostracod taxa belonging to five families (Candonidae, Ilyocyprididae, Cyprididae, Notodromadidae, and Limnocytheridae) were identified (Tab. 2). The mean number of taxa per site (excluding immature specimens) was 1.31. A maximum of four species (*Eucypris virens*, *Potamocypris arcuata*, *Trajancypris clavata* and *Heterocypris incongruens*) was found in a temporary pond (TP04), the only site characterised by marl soil. Three species have been recorded in four sites (CL03, ME04, TP11, and TP10). In three samples (PA27, CL04 and SR03) only larval stages were present. The remaining 59 sites contained one or two ostracod species (Tab. 2); unidentified juveniles were found in 18 additional samples. The most frequent species, *Heterocypris incongruens* (24 records) and *Eucypris virens* (21 records), are typical of ephemeral and intermittent waters. In particular, *H. incongruens* was exclusively recorded in temporary ponds, most of which were characterized by carbonatic soils and high water conductivity; in 16 sites it was the only species found. Other species that were relatively frequent were *Cyclocypris ovum* (8 records) and *Sarscypridopsis aculeata* (6); *Potamocypris arcuata* and *Tonnacypris lutaria* were each found 4 times, and *Cypria ophthalmica* and *Ilyocypris gibba* were found 3 times.

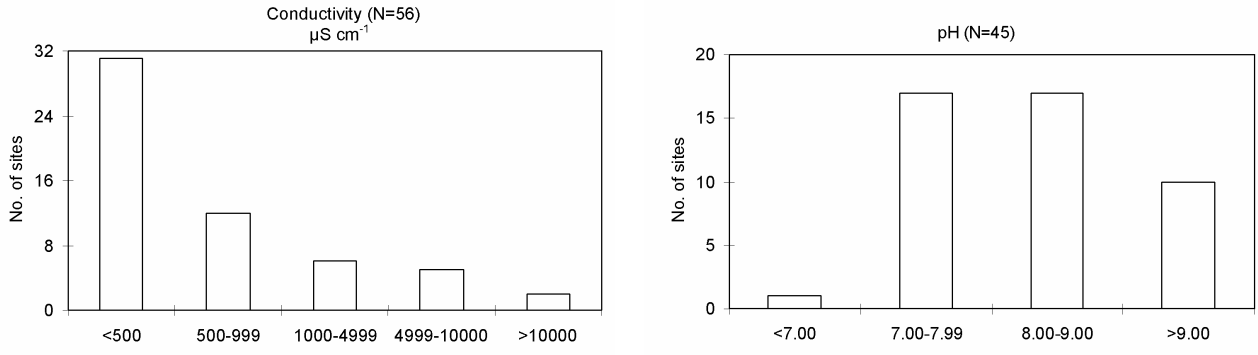

Fig. 2. Histograms showing the distribution of sampled sites by water conductivity and pH intervals.

Tab. 1. Main features of the water bodies considered in this study.

Code	Site	Province	Municipality	UTM WGS84 coordinates	Height a.s.l. (m)	Soil type	Habitat
AG01	Vasca decantazione SS 123	Agrigento	Campobello di Licata	33S E 402410 N 4117965	199	Gypseous	Settling pond
CL01	Piana del Signore	Caltanisetta	Gela	33S E 438800 N 4101380	5	Clayey	Temporary pond
CL02	Lago Sfondato	Caltanisetta	Marianopoli	33S E 407049 N 4159962	370	Gypseous	Permanent lake
CL03	Pozza Trabona	Caltanisetta	Marianopoli	33S E 410462 N 4160594	430	Gypseous – clayey	Rock pool
CL04	Stagno agricolo Trabona	Caltanisetta	Marianopoli	33S E 408972 N 4158946	400	Gypseous	Farm pond
CL05	Torrente Salito	Caltanisetta	Marianopoli	33S E 407106 N 4159905	370	Gypseous	Stream
CT01	Pozza di Lentini	Catania	Lentini	33S E 506748 N 4130691	10	Carbonatic	Flooded meadow
EN01	Lago di Pergusa	Enna	Enna	33S E 438756 N 4152257	667	Gypseous	Astatic lake
ME01	Maulazzino	Messina	Cesarò	33S E 471444 N 4199639	1300	Siliceous	Semi-permanent pond
ME02	Pantano Meli	Messina	Cesarò	33S E 476180 N 4200117	1200	Siliceous	Temporary pond
ME03	Stagno presso Portella Scafi	Messina	Cesarò	33S E 475692 N 4199965	1200	Siliceous	Temporary pond
ME04	Sollazzo Verde 1	Messina	Cesarò	33S E 472151 N 4199267	1300	Siliceous	Semi permanent pond
ME05	Pozza Semaforo Forte Spuria	Messina	Messina	33S E 554328 N 4235746	100	Carbonatic	Temporary pond
ME06	Pozza in roccia 2 Capo Milazzo	Messina	Milazzo	33S E 519876 N 4235751	20	Carbonatic	Rock pool
ME07	Sorgente Chiusa	Messina	Tortorici	33S E 485745 N 4205675	896	Siliceous	Trough
PA01	Gorgo di Pianetto	Palermo	Belmonte Mezzagno	33S E 356239 N 4209146	591	Carbonatic	Temporary pond
PA02	Pozze di Carini	Palermo	Carini	33S E 344440 N 4227105	4	Carbonatic	Temporary pond
PA03	Abbeveratoio delle api	Palermo	Castelbuono	33S E 420966 N 4202067	263	Artificial (concrete)	Trough
PA04	Serra Guarneri	Palermo	Cefalù	33S E 420140 N 4207443	334	Siliceous	Temporary pond
PA05	Abbeveratoio di Torre dell'Orsa	Palermo	Cinisi	33S E 335619 N 4228653	10	Carbonatic	Trough
PA06	Pozza 2 Monumento	Palermo	Cinisi	33S E 346062 N 4230004	5	Carbonatic	Temporary pond
PA07	Pozza 1 Contrada Castagnola	Palermo	Contessa Entellina	33S E 335667 N 4173676	784	Not determined.	Temporary pond
PA08	Stagno 2 Monte Genuardo	Palermo	Contessa Entellina	33S E 337290 N 4173615	830	Not determined.	Temporary pond
PA09	Gorgo del Palermitano	Palermo	Ficuzza	33S E 358015 N 4193197	770	Siliceous	Temporary pond
PA10	Gorgo delle Fate	Palermo	Gibilmanna	33S E 412850 N 4203368	787	Carbonatic	Temporary pond
PA11	Mulino Mazara	Palermo	Geraci Siculo	33S E 425085 N 4191338	830	Carbonatic	Stream
PA12	Valle Maria 1	Palermo	Godrano	33S E 360866 N 4194131	614	Siliceous	Temporary pond
PA13	Manco d'Ogliastro	Palermo	Gratteri	33S E 407413 N 4202615	358	Siliceous	Temporary pond
PA14	Abbeveratoio	Palermo	Marineo	33S E 359967 N 4201034	500	Artificial (concrete)	Trough
PA15	Pozza presso Bomes	Palermo	Montemaggiore Belsito	33S E 396223 N 4186900	890	Siliceous	Temporary pond
PA16	Rufts del Bomes	Palermo	Montemaggiore Belsito	33S E 394752 N 4186610	890	Siliceous	Tyre track
PA17	Stagno presso Bomes	Palermo	Montemaggiore Belsito	33S E 395194 N 4186728	800	Siliceous	Permanent pond
PA18	Coda di Volpe	Palermo	Palermo	33S E 352432 N 4230520	317	Artificial (concrete)	Settling pond
PA19	Gorgo di Santa Rosalia	Palermo	Palermo	33S E 353778 N 4230436	398	Carbonatic	Temporary pond
PA20	Gorgo Nero	Palermo	Petralia Soprana	33S E 420541 N 4188745	1167	Siliceous	Temporary pond
PA21	Pozza di Dingoli	Palermo	Piana degli Albanesi	33S E 351752 N 4207838	718	Siliceous	Puddle
PA22	Pozza Maganoce	Palermo	Piana degli Albanesi	33S E 351556 N 4202667	785	Carbonatic	Temporary pond
PA23	Serra Daino	Palermo	Pollina	33S E 423870 N 4206930	450	Siliceous	Temporary pond
PA24	Pozza del Benzinaio	Palermo	Sferracavallo	33S E 350519 N 4231228	10	Calcareous	Puddle
PA25	Pozza in roccia di Barcarello	Palermo	Sferracavallo	33S E 350334 N 4230829	25	Carbonatic	Temporary pond
PA26	Cratere dell'Occhio	Palermo	Torretta	33S E 344973 N 4217030	758	Carbonatic	Temporary pond
PA27	Sorgente dell'Occhio	Palermo	Torretta	33S E 344973 N 4217030	758	Carbonatic	Spring
RG01	Ispica 2	Ragusa	Ispica	33S E 492246 N 4071664	60	Carbonatic	Rock pool
RG02	Pozzo delle Cave d'Ispica	Ragusa	Ispica	33S E 492246 N 4071664	Not determinated	Calcareous	Well

(continued)

Tab. 1. Continuation.

Code	Site	Province	Municipality	UTM WGS84 coordinates	Height a.s.l. (m)	Soil type	Habitat
SR01	Bu-fra	Siracusa	Buccheri	33S E 492293 N 4115346	200	Calcareous	Temporary pond
SR02	Bu-fra 1	Siracusa	Buccheri	33S E 491910 N 4112676	489	Carbonatic	Rock pool
SR03	Bevaio di Vendicari	Siracusa	Noto	33S E 508341 N 4070308	20	Artificial (concrete)	Trough
SR04	Teatro greco di Siracusa	Siracusa	Siracusa	33S E 524484 N 4103384	25	Carbonatic	Rock pool
TP01	Cave di Cusa 2	Trapani	Campobello di Mazara	33S E 298622 N 4166063	67	Calcareous	Rock pool
TP02	Cave di Cusa 3	Trapani	Campobello di Mazara	33S E 298923 N 4166046	71	Calcareous	Rock pool
TP03	Pozza Colonna	Trapani	Campobello di Mazara	33S E 298764 N 4166066	60	Carbonatic	Rock pool
TP04	Gorgo Borruso	Trapani	Castellammare del Golfo	33S E 312610 N 4213083	106	Marly	Temporary pond
TP05	Pozza New York	Trapani	Castellammare del Golfo	33S E 312108 N 4212417	157	Carbonatic	Puddle
TP06	Baglio Cofano	Trapani	Custonaci	33S E 296351 N 4219806	245	Carbonatic	Temporary pond
TP07	Macarese 1	Trapani	Custonaci	33S E 294891 N 4219433	18	Carbonatic	Rock pool
TP08	Macarese 2	Trapani	Custonaci	33S E 294821 N 4219558	16	Carbonatic	Rock pool
TP09	Pozza di Sandra	Trapani	Custonaci	33S E 294656 N 4219825	5	Carbonatic	Rock pool
TP10	Pozzo 1 di Monte Cofano	Trapani	Custonaci	33S E 296351 N 4219806	250	Carbonatic	Well
TP11	Lago Preola	Trapani	Mazara del Vallo	33S E 291726 N 4166354	3	Carbonatic	Temporary pond
TP12	Pozza Passaggio a livello	Trapani	Mazara del Vallo	33S E 291299 N 4167954	15	Carbonatic	Temporary pond
TP13	Pozza Foce Belice	Trapani	Menfi	33S E 311241 N 4161877	3	Sandy	Temporary pond
TP14	Castello della Pietra 1	Trapani	Partanna	33S E 314502 N 4171342	162	Calcareous	Rock pool
TP15	Castello della Pietra 2	Trapani	Partanna	33S E 314529 N 4171476	157	Carbonatic	Temporary pond
TP16	Castello della Pietra 3	Trapani	Partanna	33S E 314570 N 4171525	163	Carbonatic	Temporary pond
TP17	Pianello 1	Trapani	Scopello	33S E 305204 N 4217514	600	Clayey	Temporary pond
TP18	Pianello 2	Trapani	Scopello	33S E 305185 N 4218748	600	Clayey	Temporary pond
TP19	ZO1	Trapani	Scopello	33S E 306479 N 4219766	30	Carbonatic	Settling pond

Tab. 2. List of identified ostracods and their occurrence in the study area (codes of sampling sites as in table 1; [(1)]*Eucypris* cf. *virens*).

Superfamily Cypridoidea s. str. Baird, 1845	
Family Candonidae Kaufmann, 1900	
Subfamily Candoninae Kaufmann, 1900	
Genus *Candona* s. str. Baird, 1845	
Candona lindneri Petkovski, 1969	PA10
Subfamily Cyclocypridinae Kaufmann, 1900	
Genus *Cypria* Zenker, 1854	
Cypria ophthalmica (Jurine, 1820)	ME04, RG02, TP10
Genus *Cyclocypris* Brady & Norman, 1889	
Cyclocypris ovum (Jurine, 1820)	ME01, ME03, ME04, PA13, PA17, PA20, PA23, PA26
Family Ilyocyprididae Kaufmann, 1900	
Subfamily Ilyocypridinae Kaufmann, 1900	
Genus *Ilyocypris* Brady & Norman, 1889	
Ilyocypris gibba (Ramdohr, 1808)	CL03, TP07, TP12
Ilyocypris decipiens Masi, 1905	CL05
Family Notodromadidae Kaufmann, 1900	
Subfamily Notodromadinae Kaufmann, 1900	
Genus *Notodromas* Lilljeborg, 1853	
Notodromas persica Gurney, 1921	TP10
Family Cyprididae Baird, 1845	
Subfamily Eucypridinae Bronshtein, 1947	
Genus *Eucypris* Vávra, 1891	
Eucypris virens (Jurine, 1820)	CT01, ME01, ME02, ME04, PA04, PA08[(1)], PA09, PA12, PA13, PA15, PA18, PA19, PA22, PA23, SR02, TP04, TP06, TP08, TP09, TP11, TP13
Genus *Tonnacypris* Diebel & Pietrzeniuk, 1975	
Tonnacypris lutaria (Koch, 1838)	PA16, PA22, TP17, TP18
Genus *Trajancypris* Martens, 1989	
Trajancypris clavata (Baird, 1838)	TP04
Subfamily Herpetocypridinae Kaufmann, 1900	
Genus *Herpetocypris* (Brady & Norman, 1889)	
Herpetocypris brevicaudata Kaufmann, 1900	ME07
Herpetocypris chevreuxi (Sars, 1896)	PA11, PA14
Subfamily Cyprinotinae Bronshtein, 1947	
Genus *Heterocypris* Claus, 1892	
Heterocypris incongruens (Ramdohr, 1808)	AG01, CL03, ME05, ME06, PA01, PA02, PA06, PA18, PA21, PA24, PA25, RG01, TP01, TP02, TP03, TP04, TP05, TP07, TP08, TP11, TP15, TP16, TP17, TP19
Heterocypris salina (Brady, 1868)	CL01
Subfamily Cypridopsinae Kaufmann, 1900	
Genus *Cypridopsis* Brady, 1867	
Cypridopsis vidua (O.F. Müller, 1776)	PA03
Cypridopsis hartwigi G.W. Müller, 1900	ME02, TP14
Cypridopsis cf. *elongata* (Kaufmann, 1900)	PA07
Genus *Plesiocypridopsis* Rome, 1965	
Plesiocypridopsis newtoni (Brady & Robertson, 1870)	SR04, TP10
Genus *Sarscypridopsis* McKenzie, 1977	
Sarscypridopsis aculeata (Costa, 1847)	CL01, CL02, CL03, PA03, PA05, TP11
Genus *Potamocypris* Brady, 1868	
Potamocypris cf. *villosa* (Jurine, 1820)	ME07
Potamocypris arcuata (Sars, 1903)	SR01, TP04, TP09, TP19
Superfamily Cytheroidea Baird, 1850	
Family Limnocytheridae Klie, 1938	
Genus *Limnocythere* s. str. Brady, 1867	
Limnocythere inopinata (Baird, 1843)	EN01

Ten taxa were recorded only in one sampling site: *Candona lindneri*, *Ilyocypris decipiens*, *Notodromas persica*, *Trajancypris clavata*, *Herpetocypris brevicaudata*, *Heterocypris salina*, *Cypridopsis* cf. *elongata*, *Cypridopsis vidua*, *Potamocypris* cf. *villosa*, and *Limnocythere inopinata* (Tab. 2). Although there were no particular patterns in the ostracod assemblages, it is interesting to see that in 4 sites (out of a total of 8 occurences) *C. ovum* occurred together with *E. virens* (Tab. 2), and that congeneric species were never found in the same sample. Among the more common species observed in the study area, only *C. ovum* showed a peculiar geographic distribution, being exclusively recorded in the north-central part of the island (provinces of Palermo and Messina) and from medium to high altitude (Tab. 2). Apart from the above mentioned distribution of *H. incongruens*, no apparent relationship between environmental variables and occurrence of ostracod species was observed. For example, *P. arcuata* was found at low altitudes (always below 200 m a.s.l.), but in waters with a wide pH range (between 6.32 and 9.95); *S. aculeata* was collected in contrasting habitat types (two temporary ponds, two troughs, a rock pool, and a permanent lake) characterized by a broad range of salinity, from relatively fresh (2 mS cm^{-1} in PA03) to truly saline (30.5 mS cm^{-1} in CL01) waters.

From a comparison with the only two extensive surveys of ostracods carried out in inland waters of mainland Sicily (Riggio 1978; Margaritora *et al*. 1982), the present study led to the recognition of 10 new taxa; the record of *C. lindneri* is also new for the Italian fauna (Ghetti & McKenzie 1981). On the other hand, two species reported in the previous investigations on Sicilian ostracods (*Cyclocypris laevis* and *Cypris bispinosa*), were not found in our samples (Tabs 2 and 3).

4. DISCUSSION AND CONCLUSIONS

In general, no clear relationship was observed between habitat features (altitude, size, water depth, hydroperiod) and the number of ostracod species. These results were somewhat expected, due to the overall prevalence of marginal, unpredictable aquatic ecosystems among the sampled sites: in fact, the wide physical and chemical fluctuations typical of these waters are likely to favour the establishment of generalist, highly tolerant species. Nevertheless, in few cases it was possible to relate the occurrence of ostracod species to a specific geographic area, habitat duration, or soil characteristics. For example, the distribution of *Cyclocypris ovum* seems to be consistent with the relatively temperate conditions of northern Sicily, while it has not been observed in the southern part of the island, which is more arid because it is directly affected by warm, dry air coming from northern Africa.

The present study significantly extends the previous data on the ostracod diversity in Sicily with the record of ten new taxa. Of interest is the occurrence of *Candona lindneri*, whose known distribution included central and eastern Europe, Slovenia, and Portugal (Meisch 2000). It has been found in a temporary pond (PA10), even though its usual habitats are waters connected to springs and the deep zone of lakes (Meisch 2000). So far, no endemic species of ostracods have been reported for Sicily, confirming a rather trivial faunal assemblage which consists of continental and circum-Mediterranean forms.

A total of *ca* 25 taxa are now known for Sicily, also including data from previous studies carried out in the mainland island (Tab. 3) or in circumsicilian islands, e.g. *Heterocypris barbara* from the Pelagian Archipelago (Bellavere *et al*. 2002). This list is certainly underestimated (e.g., the seasonality effect was not taken into account), so it is not meant to be an exact measure of the actual ostracod diversity of Sicily; regardless, the results of this study can reasonably be used to draw some preliminary conclusions.

Tab. 3. List of ostracods found in previous surveys carried out in water bodies of mainland Sicily (A: Riggio 1978; B: Margaritora *et al.* 1982). (1) also *Eucypris* spp.

	A	B
Candona sp.		X
Cyclocypris laevis (O.F. Müller 1776)	X	X
Cyclocypris ovum (Jurine 1820)		X
Ilyocypris gibba (Ramdohr 1808)	X	
Ilyocypris decipiens Masi 1905		X
Cypris bispinosa Lucas 1849		X
Eucypris virens (Jurine 1820)		X(1)
Herpetocypris chevreuxi (Sars 1896)	X	X
Heterocypris incongruens (Ramdohr1808)	X	X
Heterocypris salina (Brady 1868)	X	
Plesiocypridopsis newtoni (Brady & Robertson 1870)		X
Sarscypridopsis aculeata (Costa 1847)		X
Potamocypris villosa (Jurine 1820)		X
Limnocythere inopinata (Baird 1843)		X

If one accepts the estimate that in Italy the valid species of non-marine ostracods are roughly one hundred (see discussion in Rossetti *et al*. 2004), then Sicily accounts for at least 25% of the entire country's ostracod diversity. Figures significantly vary when the same comparison is made with other freshwater crustacean groups. For example, about 50% of the Italian cladoceran species were identified in Sicily, where endemic taxa seem to be present as well (Marrone 2003; Marrone *et al*. 2005); also calanoid copepods are numerous and are mainly represented by north-African and east-Mediterranean species (Marrone & Naselli-Flores 2004, 2005). For both groups, species distribution is strictly related to environmental conditions. Conversely, Sicilian large branchiopod fauna is not well diversified, hosting widespread taxa and lacking of endemic species (Marrone & Mura, unpublished data).

These marked differences lead to a puzzling picture when trying to interpret the distribution of the fresh-

water crustacean fauna from a biogeographical point of view. To limit this discussion to ostracods, the species found in Sicily de facto form a mixture of Palaearctic and circum-Mediterranean forms, in which a clear distributional pattern cannot be identified. Only in a few cases was it possible to evaluate the relationships with Recent faunal assemblages of other Mediterranean islands. The most complete datasets are available for Corfu (593 km^2) and the Balearic Archipelago (5040 km^2). For the Ionian island, Stephanides (1948, 1960) listed 37 species (also including 3 brackish-marine forms), among them *Physocypria kerkyrensis* (endemic to Corfu) and *Eucypris kerkyrensis* (only known for Corfu and Hungary). A recent reviewed account by Zamora *et al*. (2005) reported 45 species for the Balearic Islands, four of them mostly occurring in brackish or saline waters, while one circumtropical species (*Cypris decaryi*) is probably of African origin. In both cases, there appears to be a higher ostracod diversity than in Sicily, especially if the island surface is taken into account. The differences become less evident when diversity is compared as the number of freshwater genera. The genus *Limnocythere* is exclusively found in Sicily, while two and five genera are restricted to Corfu and Balearic Islands, respectively (Tab. 4).

Tab. 4. Comparison between the freshwater ostracod genera reported for Sicily (this study), Corfu (Stephanides 1948, 1960) and Balearic Islands (Zamora *et al*. 2005). Genera whose occurrence is restricted to one of the considered geographic areas are shown in bold.

Genus	Sicily	Corfu	Balearic Islands
Darwinula			**X**
Candona	X	X	X
Pseudocandona			**X**
Mixtacandona			**X**
Candonopsis		**X**	X
Cyclocypris	X	X	X
Cypria	X	X	X
Physocypria		X	
Ilyocypris	X	X	X
Notodromas	X	X	X
Cypris	X	X	X
Eucypris	X	X	X
Tonnacypris	X		X
Trajancypris	X		X
Bradleycypris			**X**
Herpetocypris	X	X	X
Psychodromus		**X**	
Cypridopsis	X	X	X
Potamocypris	X	X	X
Heterocypris	X	X	X
Plesiocypridopsis	X	X	X
Sarscypridopsis	X	X	X
Limnocythere	**X**		
Paralimnocythere			**X**
Total number of genera	16	16	21

Only anecdotal or doubtful data exist for other islands in the central Mediterranean, namely Malta Archipelago, Corsica and Sardinia. For example, Anichini (1968), Tagliasacchi Masala & Guareschi (1966) and Tagliasacchi Masala (1969) have described an astonishing number of new, endemic species in Sardinia and surrounding islands. Indeed, this anomaly is only apparent, since most (if not all) of those species must be synonymized with extant ones (Rossetti & Martens 1996; Rossetti *et al*. 2004).

Also the current knowledge on ostracod distribution in northern Africa, mainly based on the classical works by Gurney (1909), Gauthier (e.g., 1928), Gauthier & Brehm (1928) and more recently on a short account by Samraoui *et al.* (1998), is probably far from being exhaustive. For this reason, at this stage any further comparison would be purely speculative.

In conclusion, the role of Sicily as faunal bridge between circum-Mediterranean regions should be analysed in deeper detail in the case of freshwater ostracods. To test this hypothesis, a new, extensive sampling campaign is currently underway, which includes a larger numbers of water bodies in both mainland Sicily, its surrounding small islands, and in the Mediterranean-Saharian transition zone.

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