

J. TEMPESTI, C. ROSSANO, S. GAMBINERI, W. PLAITI*, F. SCAPINI

Dipartimento di Biologia, Università di Firenze, Via Romana, 17 - 50125 Firenze, Italia.
tempesti.jonathan@gmail.com

*Hellenic Centre for Marine Research, Crete, Greece.

NEW RECORDS IN THE MEDITERRANEAN
FOR THE NON-INDIGENOUS SPECIES *PARANTHURA JAPONICA*
RICHARDSON, 1909 (ANTHURIDEA, ISOPODA)

*NUOVE SEGNALAZIONI NEL MEDITERRANEO
PER LA SPECIE ALLOCTONA PARANTHURA JAPONICA
RICHARDSON, 1909 (ANTHURIDEA, ISOPODA)*

Abstract - *Paranthura japonica* Richardson, 1909 was recently observed in Europe along the French coasts (Archachon Bay, Bay of Biscay) and thereafter few records were obtained in the Mediterranean Sea. This work reports the first finding of this species in two harbours of the Mediterranean Sea: Heraklion (Crete, Greece) and El Kantaoui (Tunisia).

Key-words: *Paranthura japonica*, introduced species, benthos, harbours, Mediterranean Sea.

Introduction - *Paranthura japonica*, firstly described from Hokkaido Island (Japan) by Richardson (1909), was recently discovered in the southern Bay of Biscay (Arcachon Bay, France) (Frutos *et al.*, 2011) and was identified as NIS (non-indigenous species). The main hypothesis for the arrival and spread of *P. japonica* was oysters and mussels trade and farming and the wrong attribution of the species as a local one could have been the cause of its late identification (Lavesque *et al.*, 2013; Marchini *et al.*, 2014). Likely the process of colonisation started from France and after the Lagoon of Venice reached La Spezia and Olbia harbours in Italy (Marchini *et al.*, 2014). The last findings were in La Grande Motte marina (Camargue, France) linked to bryozoans (Marchini *et al.*, 2015) and in Mar Piccolo lagoon (Taranto, Italy) (Lorenti *et al.*, 2016); seafood trading and processing was again supposed to be the main cause of unintentional introduction. The present work documents the presence of the species *P. japonica* in two more Mediterranean harbours, where it was found during systematic benthos samplings within the framework of the MaPMed European project (ENPI-CBCMED).

Materials and methods - Sediment samples were collected within three Mediterranean touristic harbours: Cagliari (Sardinia, Italy), Heraklion (Crete, Greece) and El Kantaoui (Tunisia). Samplings were made in February, May and September 2012 in a total of 12 stations according to harbour dimensions and activities. A total of 180 samples was collected through a box corer and sieved (0.5 mm mesh size), stored in a solution at 10% formaldehyde buffered with sea water for transport to the laboratory (University of Florence, Italy), for subsequent sorting of benthic macrofauna. *P. japonica* specimens were carefully examined under a stereomicroscope and under a microscope when it was necessary.

Results - The observed specimens fit into the descriptions of *P. japonica* provided by Richardson (1909) and Nunomura (1977) with the following main characteristics: pleonites 1-5 fused medially but not laterally, uropod exopods with distal concavity on mesial margin, pleotelson not reaching beyond tip of uropod endopods. The allochthonous isopod *P. japonica* was found in the February samples, in Heraklion and El Kantaoui harbours, but not in Cagliari. A total of four individuals was

found on the mud as epibenthic macrofauna in the inner stations of the ports, three individuals from El Kantaoui and one from Heraklion. It is interesting to note that *P. japonica* was found in the most protected area of the harbours along the docks in winter only and after storming weather conditions.

Conclusions - Like many peracarid crustaceans, anthuridean isopods have limited dispersion capability and are unable to extend their range over a global scale by natural means (Lorenti *et al.*, 2009). This new record documents the easternmost point where the species was found in Mediterranean Sea, represented by Heraklion harbour (Crete, Greece). The present work, along with others already reported in the literature or from personal observations, can help to understand the dynamics of temporal and spatial distribution of the species (Katsanevakis *et al.*, 2011), which may anticipate its invasion into the Mediterranean, facilitated by port activities and trades.

References

- FRUTOS I., SORBE J.C., JUNOY J. (2011) - The first blind *Paranthur* species (Crustacea, Isopoda, Paranthuridae) from the 'El Cachucho' Marine Protected Area (Le Danois Bank, southern Bay of Biscay). *Zootaxa*, **2971**: 17-32.
- KATSANEVAKIS S., ZENETOS A., MAČIĆ V., BEQIRAJ S., POURSANIDIS D., KASHTA L. (2011) - Invading the Adriatic: spatial patterns of marine alien species across the Ionian-Adriatic boundary. *Aquat. Biol.*, **13**: 107-118.
- LAVESQUE N., SORBE J.C., BACHELET G., GOUILLIEUX B., DE MONTAUDOUIN X., BONIFACIO P., BLANCHET H., DUBOIS S. (2013) - Recent discovery of *Paranthur japonica* Richardson, 1909 (Crustacea: Isopoda: Paranthuridae) in European marine waters (Arcachon Bay, Bay of Biscay). *BioInvasion Records*, **2** (3): 215-219.
- LORENTI M., DAPPIANO M., GAMBI M.C. (2009) - Occurrence and ecology of *Mesanthura* (Crustacea: Isopoda: Anthuridea) in two Italian harbours. *Mar. Biodiv. Records*, **2**, doi: 10.1017/S1755267209000153.
- LORENTI M., KEPPEL E., PETROCELLI A., SIGOVINI M., TAGLIAPIETRA D. (2016) - The non-indigenous *Paranthur japonica* Richardson, 1909 (Isopoda: Anthuroidea: Paranthuridae) from the Mar Piccolo lagoon, Taranto (Italy, Mediterranean Sea). *Environ. Sci. Pollut. Res.*, **23** (13): 12791-12796.
- MARCHINI A., FERRARIO J., MINCHIN D. (2015) - Marinas may act as hubs for the spread of the pseudo-indigenous bryozoan *Amathia verticillata* (Delle Chiaje, 1822) and its associates. *Sci. Mar.*, **79** (3) 355-365.
- MARCHINI A., SORBE J.C., TORELLI F., LODOLA A., OCCHIPINTI AMBROGI A. (2014) - The non-indigenous *Paranthur japonica* Richardson, 1909 in the Mediterranean Sea: travelling with shellfish? *Mediterr. Mar. Sci.*, **15** (3): 545-553.
- NUNOMURA N. (1977) - Marine Isopoda from Amakusa, Kyushu (1). *Publications from the Amakusa Marine Biological Laboratory*, **4** (2): 71-90.
- RICHARDSON H. (1909) - Isopods collected in the northwest Pacific by the U.S. Bureau of Fisheries steamer "Albatross" in 1906. *Proceedings of the United States National Museum*, **37**: 75-129.

The project "MANagement of Port areas in the MEDiterranean Sea Basin (MAPMED)" has been funded by ENPI CBC MED Cross-Border Cooperation. This publication has been produced with the financial assistance of the European Union under the ENPI CBC Mediterranean Sea Basin Programme. The contents of this document are the sole responsibility of UNIFI and can under no circumstances be regarded as reflecting the position of the European Union or of the Programme's management structures.