

PERCNON GIBBESI (H. MILNE EDWARDS, 1853) IN LINOSA ISLAND TEN YEARS AFTER ITS FIRST RECORD

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Abstract

An extensive survey conducted by visual census in summer 2009 by snorkelling and scuba diving reports a complete acclimation of the alien invasive grapsid crab *Percnon gibbesi* in Linosa Island (MPA Isole Pelagie, Sicily). The crab is distributed from 0-11 m depth along the whole littoral with the exception of one locality. Population density values ranges from a minimum of 1 to a maximum of 51 ind. per 10m² of seabottom.

Keywords: Decapoda, Islands, Sicilian Channel, Monitoring

Introduction

The alien crab *Percnon gibbesi* was firstly recorded in the Mediterranean in Linosa island in summer 1999 [1]. Since then it has been fastly spreading in several localities of the W and E Mediterranean [2] both by natural range expansion (water currents) and by anthropogenic vectors of introduction (ship ballast waters, fishing and recreational vessels). This algivorous species has been claimed to interact negatively with the native crabs community in the mediolittoral and upper infralittoral fringes, in particular with *Pachygrapsus marmoratus*, partially occupying its ecological niche [3,4]. The present poster reports results of a survey on *P. gibbesi* distribution and abundance in Linosa Island (MPA Isole Pelagie, Sicily) ten years after its first record.

Material and Methods

From 10/08-4/09/2009 the whole perimeter of Linosa island (about 11 km coastline) was surveyed by visual census (scuba diving and snorkelling) at a depth from 0-4 m. Presence/absence of *P. gibbesi* was reported in relation to habitat type (e.g. depth, sea bottom geomorphology, algal cover). Moreover, an estimate of population density was performed in 7 localities of the island (Fig. 1). Densities were estimated by counting numbers of crabs present on a 2 x 5 m (10 m²) surface area of the seabottom (5 minutes search per 8 replicates). The non-parametric Kruskal Wallis test was used to compare median density values among sites [5].

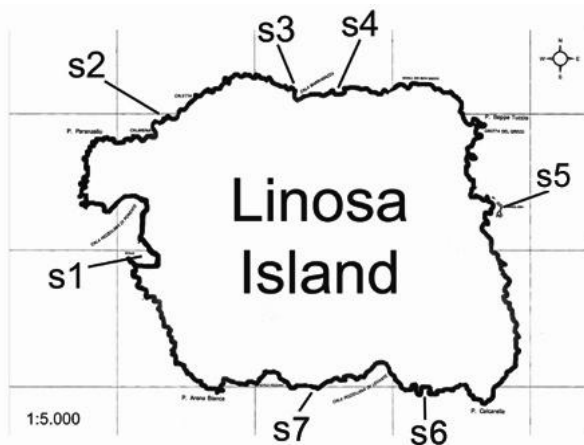


Fig. 1. Geographical location of the sites surveied for *P. gibbesi* population density

Results and discussion

P. gibbesi was recorded along all the island littoral from 0-4 m depth except into one locality (Grotta dell'Amore; DDD= 35.871890N;12.853768E). Population density values were significantly (KS test: H = 40.9; Df = 6; p < 0.001) higher in S6 (Fili - DDD= 35.855214N;12.876449E; av density= 30 ± 22 ind. 10m⁻²) and S7 (Casotto - DDD= 35.855440N;12.866664E; av density= 51 ± 28 ind. 10m⁻²) (Fig. 2). The grapsid crab clusters in typical habitats constituted by large boulders encrusted with coralline algae (e.g. *Mesophyllum* sp; *Amphiroa* sp).

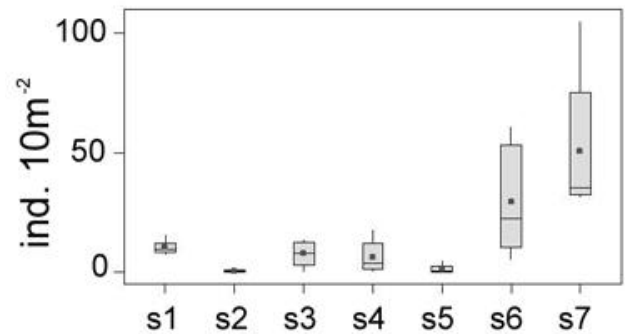


Fig. 2. Box plots of *P. gibbesi* population density values. The black points show mean density value per site. Boxes represent the 50% range of values. Whiskers represent the lower and the highest values and the lines inside the boxes represents the median value

It showed a continuous feeding activity near refugees constituted by holes and crevices in rocks. In various occasions it was found scavenging on *Pelagia noctiluca* and *Pachygrapsus marmoratus* carrions, as reported in other Mediterranean islands [6]. In conclusion, the survey identified a well acclimated population of *P. gibbesi* in Linosa island, that in ten years has been able to colonize the whole superior infralittoral fringe, reaching higher densities (30-50 ind. 10m⁻²) in localities characterised by a microhabitat of large boulders covered by coralline algae. Notwithstanding the species is mainly found in a depth range of 0-4 m, in agreement with the existing literature [4,6,7] we report also a population of the invasive crab at higher depth (10.7m), in a famous scuba diving site of the island (Manarazza - DDD = 35.874516N; 12.865639E). Future studies will consider interaction of *P. gibbesi* with native fauna (e.g. competition for space and food with *P. marmoratus*, *Eriphia verrucosa*, *Arbacia lixula*, *Thalassoma pavo*, *Coris julis*) and flora (e.g. herbivory rates on coralline algae), in order to estimate the environmental impact of this species.

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