

## The exotic crab *Percnon gibbesi* (H. Milne Edwards, 1853) (Decapoda, Grapsidae) in the Central Mediterranean\*

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**SUMMARY:** The grapsid crab *Percnon gibbesi* (H. Milne Edwards, 1853), not previously recorded in the Mediterranean, has been found by underwater observations in several localities of Linosa, Pelagie Islands, (Italy). This presence increases the list of alien Decapods in the Mediterranean, with a form which can be considered a western migrant.

**Key words:** Decapoda, Grapsidae, *Percnon gibbesi*, Linosa, exotic species, Mediterranean.

### INTRODUCTION

Interest in biotic invasions, the entry, spread and proliferation of organisms beyond their native ranges, has grown in the past decade with an acceleration that mirrors the time course of invasions themselves (Mack and Occhipinti, 1999). Invasions introduce an “experiment” in the study of natural communities; the arrival of a new organism can bear profound consequences to community structure, species interaction, energy flow and evolution.

At present great attention is devoted to the migration of alien species also in the Mediterranean; a series of Atlas concerning the main group of organisms, from Algae to Vertebrates are in course of preparation by the International Commission for the Exploration of the Mediterranean Sea, and the list of

alien species is available on the internet world wide web ([www.ciesm.org/atlas/index.html](http://www.ciesm.org/atlas/index.html)).

While snorkelling in very shallow water at Linosa, a small volcanic island in the centre of the Sicily Straits, we repeatedly observed the presence of a crab of the genus *Percnon*, which lives in crevices at the uppermost sublittoral levels. In the laboratory it was identified as *Percnon gibbesi* (H. Milne Edwards), a species formerly unrecorded in the Mediterranean.

The crabs at present assigned to the closely related species *P. gibbesi* and *P. planissimum* are distributed world-wide in tropical-temperate waters. *P. planissimum* was described by Herbst in 1804 on a specimen from the East Indies (the type was recently figured by Sakai, 1999). *P. gibbesi* was described by Milne Edwards on Antillean material, which, in respect of Indo-Pacific specimens, presents only small differences regarding the morphology of the

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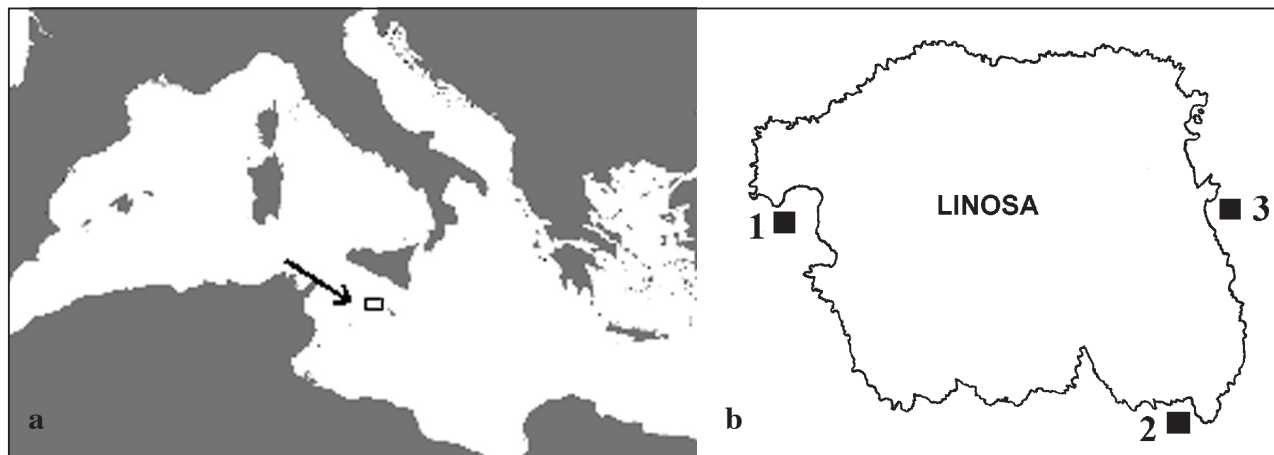


FIG. 1. – a) Linosa Island, Pelagie, Italy. b) The three sites where *Percnon gibbesi* was observed at Linosa Island: 1) Cala Pozzolana 35°51.60'N 12°51.00'E; 2) Punta Calcarella 35°50.98'N 12°52.69'E; 3) I Faraglioni 35°51.58'N 12°52.73'E.

chela. American authors (Rathbun 1918 a and b; Garth, 1965; Manning and Holthuis, 1981, Williams, 1984) maintain the distinction of the two species, while several European researchers have considered *P. gibbesi* a junior synonym of *P. planissimum* (Nobre 1931; Zariquiey Alvarez, 1968; Forest and Guinot, 1966; Saldanha, 1995). Crosnier (1965) considered *P. gibbesi* “extremement proche de *P. planissimum*”, noting that carapace, abdomen and male pleopods are identical. Given that the two forms, if not species, can be separated, their detailed morphological characteristics assume the significance of an indication of the eastern or western origin of the alien crab.

## MATERIAL AND METHODS

In September 1999 M. Relini and V. Puccio observed a total of about fifty individuals while diving in three different sites of Linosa Island (Pelagie Islands, Italy) (Fig. 1): Punta Calcarella, Cala Pozzolana, and I Faraglioni. E. Azzurro also observed several specimens while scuba diving, which could, at least in part, be the same previously mentioned, and noted that one year before he had not observed any crab of this species, in spite of frequent marine sampling at Linosa.

As Williams (1984) notes, *P. gibbesi* is very difficult to catch because of its propensity for rapid concealment under rocks. The ethology of the crab, the opportunity of non destructive sampling and the shortage of equipment, limited the present sampling to an *exuvia* which was, luckily enough, complete. It derived from an adult male, a condition

favourable for comparative observations; it is at present in the collection of Crustacea Decapoda of this Department (formerly Istituto di Zoologia), Genoa University.

## RESULTS AND DISCUSSION

### Examined material

Adult male, carapace length 25 mm, carapace width 23 mm, collected at Punta Calcarella, Linosa on 16/9/99 (Fig. 2).

Carapace disk-like, slightly oval, flattened, pubescent except several symmetrical small raised areas which are naked (this characteristic is common to both species *P. gibbesi* and *P. planissimum* and separates them from a group of Indopacific species of the same genus, *P. affine*, *P. abbreviatum* and *P. guinotae*, which, according Crosnier (1965), seem distinguished by a more extended set of morphological characteristics in respect of the first pair.

Front deeply carved by antennular furrows; the central part bears two pairs of erected spines; inner margin of orbit with 3 spines (in the present specimen the second left bears a secondary spine); outer margin of orbit with a row of minute spines. Antero-lateral border of carapace with 4 acute spines, the first the largest, the remaining approx. similar, second spine with its lateral margin shorter than the third spine (this character, according to Schmitt (1939) distinguishes *P. gibbesi* from *P. planissimum*; however “it seems to hold for many specimens, but not for all”).

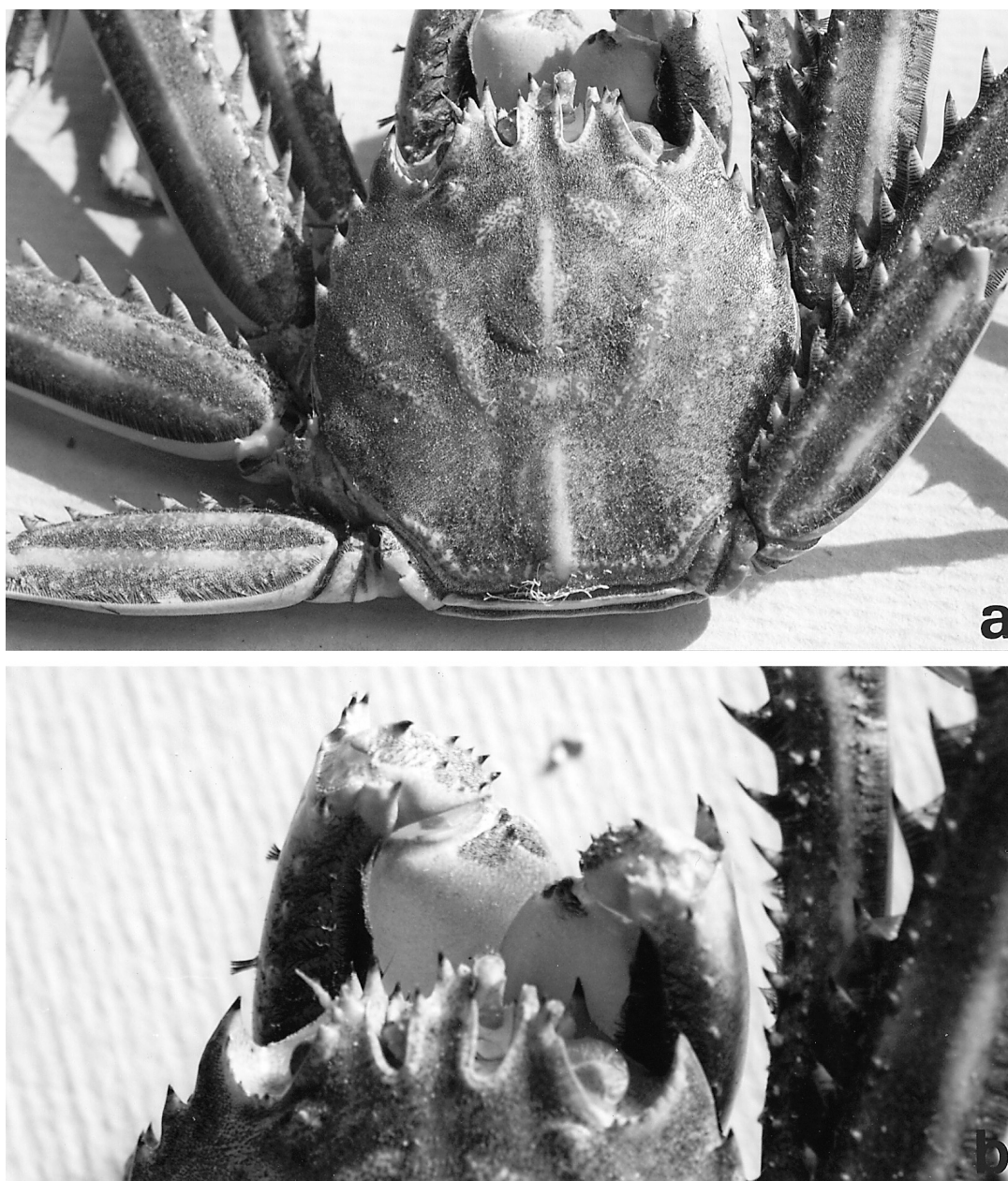


FIG. 2. – a) *Percnon gibbesi*, male, carapace length 25 mm, Linosa; b) *Percnon gibbesi*, male, carapace length 25 mm, detail of pilose areas of the larger chela.

Chelipedes unequal, the left larger especially in the palm. Both palms bear a small pilose inner zone and an adjacent short pilose groove: the latter in the larger chela is contained about 4 times in the palm length (measured on a straight line); in the smaller chela it is contained 6 times in the palm length (the groove length, from a fourth to a half the upper margin of the palm versus un conspicuous to scarcely a sixth of the length of the upper margin of the palm, is the main character to distinguish *P. gibbesi* from *P. planissimum* accord-

ing to Schmitt, 1939). A single spine rises in the middle of these adjacent pilose areas.

The distribution of *P. gibbesi* (Manning and Holthuis, 1981; Udekem d'Acoz, 1999) includes the Eastern Pacific, from California to Chile; the Western Atlantic from Florida to Brazil; the Eastern Atlantic from Madeira, the Azores, the Cape Verde Islands to the coast of Africa, from Morocco to Ghana and offshore islands of the Gulf of Guinea. Nobre (1931) indicated a rare presence in Portugal at Odemira.

## Additional remarks

At present 31 species of alien Brachyuran crabs have been listed in the Mediterranean, 22 of Indo-Pacific and 9 of Atlantic origin. Few of them have the characteristic of invaders in Italian waters such as *Portunus pelagicus* which reached the Eastern coast of Sicily, where for a brief time it sustained a local fishery (Torchio, 1968; Ariani and Serra, 1969) or *Dyspanopeus sayi*, which is in a phase of high densities in the lagoon of Venice (Froglia and Speranza, 1993; Mizzan, 1995; Froglia pers. comm. about the up to date distribution). Several species (at present 17) are known only from a single record, while some others have been found more than once and have gained the “established” category in the CIESM list on the assumption that they are probably in course of acquiring a stabilised status in the Mediterranean. In this context, *P. gibbesi*, not only can be assigned to the established species, but presents the characteristic of a true invader at Linosa, given that several individuals have been observed in different localities of this small island.

Considering the Atlantic waters entering at Gibraltar, Linosa is positioned just on the route of one branch of the incoming currents. However the fact that the crab has been so scarcely recorded on the Atlantic coasts of the Iberian Peninsula and that on the contrary it seems abundant in Linosa, suggests that specific studies should be initiated both in the field of morphology and of the distribution in the Sicily Straits.

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