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On a New Occurrence of the Invasive Grapsid Crab, *Percnon gibbesi* (H. Milne Edwards, 1853) (Crustacea: Decapoda: Percnidae) in Oran Bay (Northwestern Algeria)

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Short Article

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Abstract

Percnon gibbesi is an invasive crab reported for the first time from Linosa Island and the Balearic Islands. This grapsid crab is the most invasive decapod species to enter the Mediterranean Sea. It was first recorded in 1999 and has since spread from Spain to Turkey. In this paper, we report the first record in Oran coasts, where it probably established in « la Madrague beach » in winter of 2017 after its establishment in eastern and central Algerian waters since 2008.

Keywords: Occurrence, *Percnon gibbesi*, alien spices, Oran Bay, Algeria

İstilacı Grapsid Yengeci *Percnon gibbesi* (H. Milne Edwards, 1853) (Crustacea: Decapoda: Percnida)'nin Oran Körfezi'ndeki (Kuzeybatı Cezayir) ilk gözlem kaydı

Özet

Percnon gibbesi, ilk kez Linoz Adası ve Balear Adaları'nda görülmüş olan istilacı bir yengeçtir. Bu grapsid yengeç, Akdeniz'de yayılım gösteren en istilacı Decaphoda türüdür. İlk kez 1999 yılında kaydı verilen bu tür o zamandan günümüze kadar İspanya'dan Türkiye'ye kadar yayılış göstermiştir. 2008 yılında Doğu ve Orta Cezayir sularında (muhtemelen 2017 kışında) görülen bu türün, Oran « la Madrague Beach » kıyılarındaki ilk kaydı bu makalede rapor edilmiştir.

Anahtar kelimeler: İlk kayıt, *Percnon gibbesi*, istilacı tür, Oran Körfezi, Cezayir

INTRODUCTION

Percnon gibbesi is native to the Pacific (California to Chile) and Atlantic (Florida to Brazil) coasts of the Americas, and the Atlantic coast of Africa (Madeira, the Azores, the Cape Verde Islands and the coast of Africa from Morocco to Ghana and offshore islands in the Gulf of Guinea) (Manning & Holthuis, 1981). Reconstituting *P. gibbesi* invasion Katsanevakis et al., 2011 stated that it was first recorded in the Mediterranean Sea in 1999 in Linosa Island (Sicily Strait), southeastern Sicily, and the Balearic Islands (Relini et al., 2000; Garcia and Reviriego, 2000; Müller, 2001; Mori and Vacchi, 2002). Since then, its population in the Mediterranean Sea has expanded rapidly.

In Algeria, it was first reported in Collo (Skikda district) in 2010 (Katsanevakis et al., 2011) also in Algiers, in the localities of Rais Hamidou and Sidi Fredj by Lamouti (2010) in central Algerian waters and then in Eastern Algerian waters Bada and Derbal (2018), Menail et al. (2019) add to this our first record for northwestern Algerian waters.

The first sighting of *P. gibbesi* in Algerian shallow waters dates back to 2008 in the region of Jijel (Noël and Prouzet, 2017). This crab frequented the Oranian coasts probably the winter of 2017. Herbivorous more or less strict, this stealth crab is active during the day. It frequents rocky shores, ports, and marinas where it hides in cracks or under stones up to -30 m deep. Generally, its shell is slightly longer than wide, and the maximum length observed in la Madrague was a specimen of 16 cm.

As stated by Deudero et al. 2005, Azzurro et al. 2011, Katsanevakis et al. 2011 *P. gibbesi* population invaded the coasts in a short time, and specimens were found everywhere. The high dispersal capacity of *P. gibbesi* suggests that this species could be a potential competitor for the native marbled crab *Pachygrapsus marmoratus*. Nevertheless, Sciberras and Schembri, 2008 observed that in the shallow rocky intertidal zone, *P. gibbesi* overlap with the native grapsid, *Pachygrapsus marmoratus* where they have been considered potential competitors for space and to a lesser degree with the native xanthid, *Eriphia verrucose*. Müller (2001) found that the two species compete also for food since they have been observed to occur in close proximity.

MATERIALS and METHODS

Our extensive knowledge and monitoring of invasive species in Oran shoreline past years allowed us to easily notice the new presence of this species in July 2017. The method used for the reporting of non-native species consisted of visual patrols, carried out by snorkeling with waterproof camera in the rocky areas and bottom of Oran shoreline (Mazzoldi and De Girolamo, 1998). Visual surveys were realized in free diving between 0 and 3 m and ecological parameters studied were: abundance, habitat (herbarium, sand, rocks, and crevasses), behavior (Indifferent, slow leakage, fast leakage).

RESULTS and DISCUSSION

During our investigation of benthic species richness of Oran coast, we met by chance one specimen of nimble spray crab *P. gibbesi* for the first time in July 2017, at la Madrague beach 35°46'02.2"N 0°49'06.6"W (Sugar Loaf) (Figure 1). Since then, the species has been observed in 2018 and 2019 (Figure 2), in the same place between 1 and 3m of isobaths.

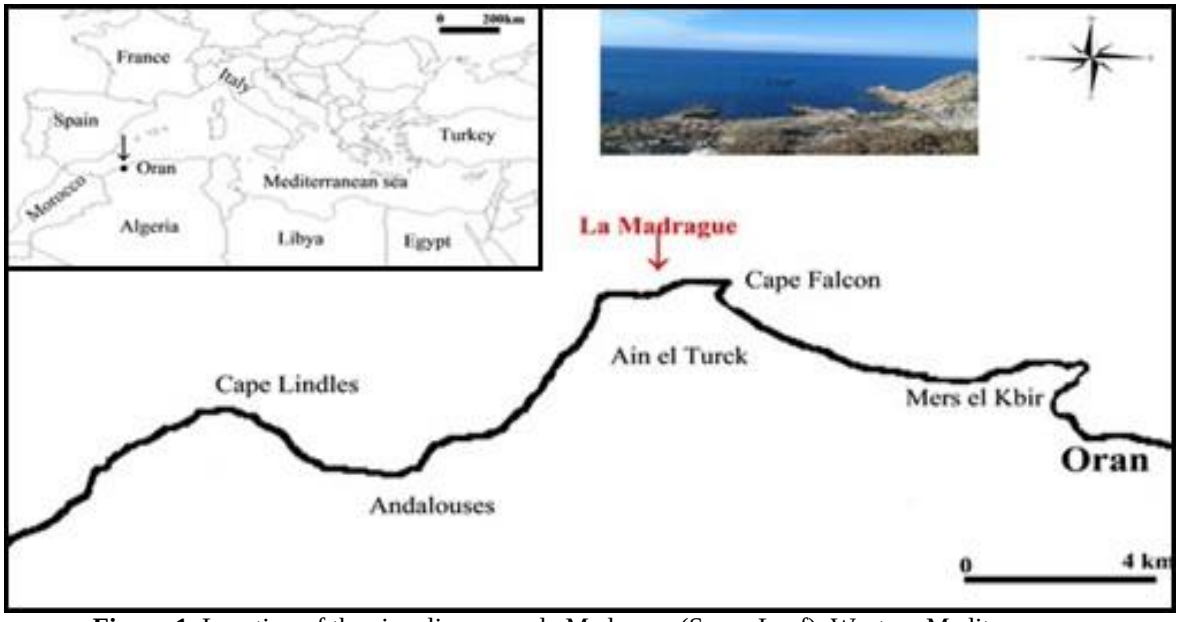

Figure 1. Location of the signaling zone, la Madrague (Sugar Loaf), Western Mediterranean.

P. gibbesi is a very flat crab. Its shell is slightly longer than wide, and its length measures up to 39 mm in males, 34 mm in females, and between 26 and 30 mm in ovigerous females. It has three front teeth and four-pointed anterolateral teeth. Each ambulatory leg is provided of a row of strong thorns on the anterior margin of the merus. Male pliers are uneven and stronger than those of females or juveniles. The general color is brownish-reddish (Williams, 1965; Noël, 2015).

The species is difficult to photograph in scuba diving because it is very fearful and takes refuge very quickly under stones and in crevices (Noël 2015). It hides with agility in cracks or various cavities. It particularly appreciates the rocks lined with calcareous red algae in a beaten environment. It occurs mainly in the intertidal zone and the first three or four meters deep. Large individuals are met more deeply than young ones (Deudero et al., 2005). It has been reported down to -30 m (Verrill, 1908; Fransen, 1991; Galil, 2006; Otero et al., 2013).

The zone is characterized by rocks, resulting from local development works (aquaculture farm) which offer an ideal habitat for the installation of *P. gibbesi*. As stated previously specimen of this grapsid crab moves very fast and made the task difficult for us to determine the sexes of individuals and population was estimated by the visual census (Mazzoldi and De Girolamo, 1998). For 150 m shorelines we counted 10 individuals in 2017, 30 individuals in 2018, the last estimation was performed in 2019 as a mean of 8 individuals per 10 m so 120 individuals to date. It is to highlight that nimble spray crab is difficult to photograph under scuba diving because it is a very fearful crab and takes refuge very quickly under the cracks and crevices. It was photographed after several attempts in 2019 (Figure 2).

Figure 2. *Percnon gibbesi* photographed in 28th, September 2019 in la Madrague, Oran.
Photograph by Dr. Lotfi Bensahla-Talet

Grapsid crab is considered as Herculean species (reached the Mediterranean by the Strait of Gibraltar). It can be consumed by several fish: common dentex, bar, sea bream, porgies; to this list of predators we can add cephalopods such as octopus and large crustaceans. Perhaps the Percnon resist the waves better than the *Pachygrapsus*, being stronger to hold on a rocky substrate (flatter, taller, longer legs). Vegetarian, the species does not seem to have a significant effect on the coastal ecosystems it frequents and to date has no known ecological or economic negative impact.

CONCLUSION

The location of the *P. gibbesi* is very limited in Oran coast, so we can conclude that its distribution is currently discontinuous and localized. More in-depth and methodical studies will give us a broader view of population dynamics and a meaningful response to all relationships with other native species or any changes that this recently introduced alien species could bring to the marine ecosystem.

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