

Rapid Communication

A new record of the American blue crab, *Callinectes sapidus* Rathbun, 1896 (Decapoda: Brachyura: Portunidae), from the Mediterranean coast of the Iberian Peninsula

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Abstract

Two specimens of the invasive American blue crab *Callinectes sapidus* were captured recently in the Ebro Delta, Spain. These constitute the first documented records of the species from Mediterranean waters of the Iberian Peninsula.

Key words: *Callinectes sapidus*; American blue crab; invasive species; Ebro Delta

Introduction

The American blue crab, *Callinectes sapidus* Rathbun, 1896, is a native of the estuaries and coastal waters of the western Atlantic from Nova Scotia (Canada) to northern Argentina (Nehring 2011, 2012). In the twentieth century, the species has been reported from the eastern Atlantic (North Sea to Portugal), Baltic Sea, the Mediterranean Sea, and Japanese waters (Galil et al. 2002, 2008; Nehring 2011, 2012). The first Mediterranean report was from the north Adriatic Sea in 1949; subsequently, the species has been widely recorded in Mediterranean, especially in its eastern basin (Galil et al. 2002, 2008; Nehring 2011). Though selected as one of the 100 “worst invasive” species in the Mediterranean (Streftaris and Zenetos 2006), half a century of residence in the region does not bear out this claim (Nehring 2011). Documentation of the presence of *C. sapidus* in the Ebro Delta, Spain, is presented here.

Material and methods

A single adult female *Callinectes sapidus* was caught on 3 November 2012 in Tancada Lagoon, Ebro Delta (40.64°N, 0.74°W) (Figure 1). The specimen was photographed but not preserved (Figure 2 C, D). Some Tancada Lagoon fishermen mentioned that similar crabs have been collected previously in the lagoon. A single adult male *C. sapidus* (Figure 2 A, B) was caught on 4 January 2013 using trammel net off Eucaliptus Beach (40.63°N, 0.75°W). The carapace length (distance between the tip of the frontal teeth and the posterior margin of the carapace) was 83 mm, and carapace width (between the tips of the longest lateral carapace spines) was 200 mm. The identification of the crabs was based on carapace morphology and the coloration pattern according to Williams (1974). The specimen is deposited at the Biological Reference Collections of the Institut de Ciències del Mar (CSIC, Barcelona) under accession number ICMD 13020101.

Figure 1. Location of new records (● female; ■ male) of the exotic crab *Callinectes sapidus* in the Ebro Delta (western Mediterranean) and previous records (inset) in Iberian Peninsula: Lisbon (L), Guadalquivir Estuary (GE), Gijón (G), and Mar Menor lagoon (M).

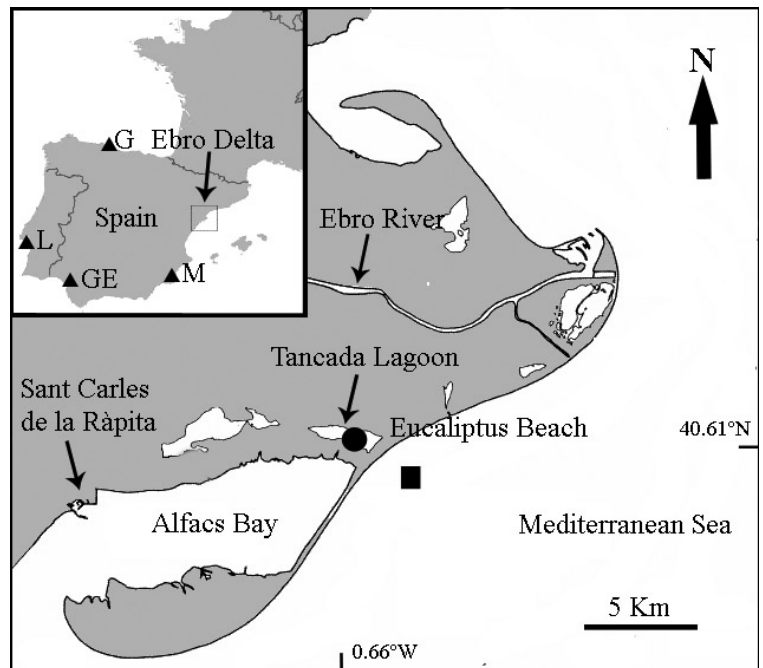
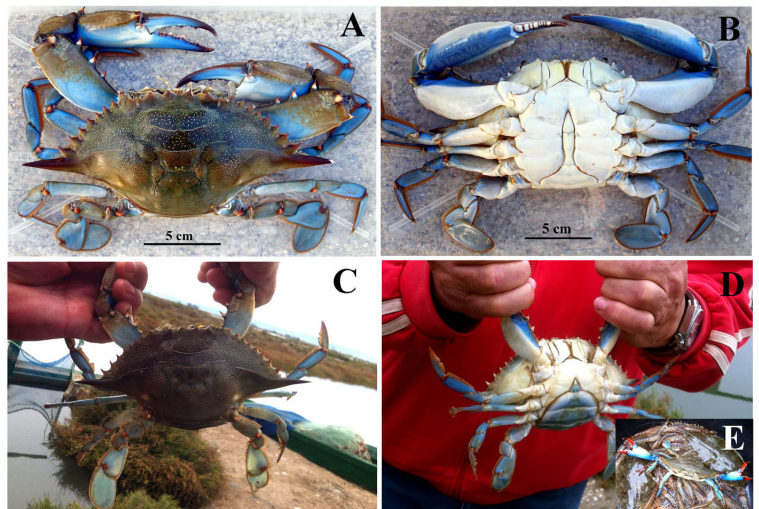


Figure 2. *Callinectes sapidus*, adult male (A, B) from an open-water site close to the Ebro Delta, and female (C, D) from the Tancada Lagoon. Photographs by G. Guerao (A, B) and the Tancada fishermen (C, D).



Results and discussion

These two specimens constitute the first actually recorded occurrence of *Callinectes sapidus* from the Mediterranean coast of Spain. Previous records of the American blue crab from the Iberian Peninsula concerned Lisbon, Portugal (Gaudencio and Guerra 1979), Guadalquivir estuary, south-western Spain (WWF/ADENA 2002) and Gijón, northern Spain (Cabal et al. 2006) (Figure 1). Abelló (2010) indicated that

some anecdotal reports of *C. sapidus* were known from the Mar Menor lagoon (Murcia).

Blue crab is the second invasive brachyuran from the Americas reported from the Ebro Delta: *Dyspanopeus sayi* (Smith, 1869) is currently a well-established in the nearby Alfacs Bay (Figure 1) (Schubart et al. 2012).

Callinectes sapidus is a euryhaline and eurythermal species that inhabits estuaries and shallow coastal lagoons (Beqiraj and Kashta 2010; Florio et al. 2008). The Ebro Delta is a

complex habitat consisting of shallow coastal waters, sandy beaches and dunes, lagoons, freshwater marshes, and freshwater pools fed by groundwater springs (Valdemoro et al. 2007). Tancada is a brackish lagoon with an area of 1.8 km² and an average depth of 37 cm. A channel connects the lagoon with Alfacs Bay. The western basin of Tancada Lagoon receives freshwater inflows from rice fields during the spring and summer (Menéndez and Comín 2000). The annual range of conductivity is 10–65 mS cm⁻¹, and water temperatures range between 10–30°C (Menéndez and Comín 1989, 2000). The muddy bottom is mostly covered by *Ruppia cirrhosa* Petagna (Grande) meadow and macroalgal beds (e.g. *Chaetomorpha linum* (O.F. Müller) Kützinger, *Gracilaria verrucosa* (Hudson) Papenfuss and *Ulva* sp.) (Menéndez and Comín 2000; Menéndez et al. 2001). The sea grass meadows and macroalgal beds are considered critical nursery habitats for *C. sapidus* (Orth and van Montfrans 1990; Epifanio et al. 2003; Hines 2007; Nehring 2012), though its habitat preferences change with age, size, and sex (Hines 2007).

The Ebro Delta may represent a suitable habitat for the establishment of *C. sapidus* but the potential effect of the establishment of this species on the existing community in the Ebro Delta is unknown.

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