

Racing across the Mediterranean—first record of *Percnon gibbesi* (Crustacea: Decapoda: Grapsidae) in Greece

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A grapsid crab, *Percnon gibbesi*, is the most invasive decapod species to enter the Mediterranean. The vessel-transported crab spread within a few years from the Balearic Islands to the Tyrrhenian and Ionian coasts of Italy. In the summer of 2005 it was recorded for the first time from Greece. Its presence in the little frequented island of Antikythira possibly points to the role of recreational vessels as vectors of marine alien species.

The Mediterranean Sea, a hub of commercial shipping lines and encircled by major ports and numerous marinas, is susceptible to ship-borne aliens. The transport, on the hulls of ships, of fouling, crevicolous or adherent species is the most ancient vector of aquatic species introduction. Fouling generally concerns small-sized sedentary, burrow-dwelling or clinging species, though large species whose life history includes an appropriate life stage may be disseminated as well (Zibrowius, 1979). Commercial and non commercial vessels are both important vectors for secondary introduction—the dispersal of an alien beyond its primary location of introduction. Slower-moving and frequently moored vessels, such as recreational vessels or drilling platforms employed in offshore exploration of oil and gas, serve as large artificial reefs and therefore pose a high risk of alien species transmission (Relini Orsi & Mori, 1979; Occhipinti-Ambrogi, 2002; Mienis, 2004). The widely invasive algae *Sargassum muticum* (Yendo) Fensholt, *Caulerpa taxifolia* (Vahl) C. Agardh, and *Caulerpa cylindracea* Sonder, spread across the Mediterranean by ships, fishing boats and recreational craft (Knoepffler-Péguy et al., 1985; Meinesz, 1992; Verlaque et al., 2003).

Thirteen of the alien decapod crustaceans species recorded in the Mediterranean are considered vessel-transported (Galil, in press). The list is doubtless an underestimate due to lack of concerted efforts to survey port environments for alien biota.

Specimens of *Percnon gibbesi* (H. Milne Edwards, 1853) were collected from a population observed in Xerocampos, Lasithi province, Crete (35°04.60'N 25°01.60'E) in August, 2005, at depths between 0.5 and 2 m. The male and female specimens, with carapace length of 2.7 and 3.4 cm respectively, agree well with the detailed description of the species (Rathbun, 1918). The specimens were deposited in the Museo di Storia Naturale, Sezione Zoologica “La Specola”, Università degli Studi di Firenze (MZUF 2742). A single dead specimen was photographed on Kamarella beach, Antikythira (35°86.95' N 23°28.58' E) on 20 September 2005.

Percnon gibbesi, is one of the most widely distributed grapsids, its range extending from California to Chile, Florida to Brazil, and Madeira to the Gulf of Guinea (Manning & Holthuis, 1981). The crab was first collected in the Mediterranean in the summer of 1999 from Linosa Island and the Balearic Islands (Relini et al., 2000; Garcia & Reviriego, 2000; Mueller, 2001). Later records attest its spread in the Sicilian Channel, on the Catalan coast and northwards along the Tyrrhenian coast of Italy to Giglio Island and along the Ionian coast of Calabria (Pipitone et al., 2001; Mori & Vacchi, 2002; Abelló et al., 2003; Russo & Villani, 2005; www.ciesm.org/atlas/). Everywhere it formed thriving populations in an amazingly short space of time (Cannicci et al., 2004; Deudero et al., 2005). Abelló et al. (2003) suggest *Percnon* larvae entered the Mediterranean with the Atlantic currents, and that later records are attributable to natural dispersal. Though lacking unequivocal evidence that the crab is shipping-transported, its subtidal habitat and crevicolous habits, its recent records in or near ports and marinas, and its rapid dispersal—within six years—across the Mediterranean Sea, quite possibly allow it to spread by recreational and fishing vessels.

The global maritime trade connections of Mediterranean ports sustain a large-scale dispersal process of outbound biota: the Indo-West Pacific portunid crab *Charybdis hellerii* (A. Milne Edwards, 1867), present in the eastern Mediterranean since the 1920s, was transported by shipping to the Atlantic coast of the Americas, and subsequently spread from Florida to Brazil (Mantelatto & Dias, 1999). There is no doubt that *P. gibbesi* is the most invasive decapod species to enter the Mediterranean. Its rapid expansion across the sea, its ability to establish large populations in anthropogenically impacted areas such as ports, as well as in natural habitats, indicate it will probably spread further. Therefore we suggest *P. gibbesi* should be inserted into a shipping-transported invasive species ‘Blacklist’.

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