Endemism, allopatry and passive transport: the case of two *Proserpinicaris* (Crustacea, Copepoda, Harpacticoida) from Sardinia

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*Proserpinicaris* is a genus of Parastenocarididae with wide geonemy, it includes specialized taxa living exclusively in phreatic and interstitial continental groundwater. The only species known for Italy are: *P. proserpina* (Chappuis 1938) from Southern and Central Italy, *P. amalasuntae* (Bruno and Cottarelli 1988) from Latium and Tuscany in Central Italy, *P. kalypso* (Pesce et al., 1988) from Sicily. In Sardinia, *P. admète* (Cottarelli et al., 1980) was collected from the hyporheic habitat of several streams in the island, and *P. ima* (Cottarelli 1989) from phreatic waters in the island of La Maddalena; a third species was collected in the Asinara island from the hyporheos at the estuary of the creek "BaddeLonga". This *Proserpinicaris* is new for Science and its complex of morphological characters highlight its remarkable affinity with *P. admète*. The Asinarawas the terminal portion of the Stintino Peninsula, separating from the mainland at the end of the Würm, when melting of the ice caps caused the rise of the sea level (Flandrian or Versilian transgression). These geological phenomena are recent (the transgression peak occurred about 6500 years ago), but the time span seems to have been sufficient to allow the ancestor populations to undergo allopatric speciation, resulting in the two strongly related species. Research on species of Italian Parastenocarididae at the molecular level is currently in progress and one species of *Proserpinicaris* was already sequenced and more molecular data will allow to clarify the framework outlined here. Although this speciation scenario seems very likely, other hypothesis such as passive anthropic dispersion cannot be ruled out. In fact, Parastenocarididae do not tolerate marine waters and are strongly linked to narrow environmental conditions. Laboratory experiments in progress at the University of Catania show that these harpacticoids can survive for several months, in small sealed containers with a small amount of water and without food or oxygen input. A possible transport through wet sands or containers containing water could explain the presence of a *Proserpinicaris*in Asinara, and of other Parastenocarididae in oceanic islands (Schabetsberger, 2009). Moreover, a new Parastenocarididae was collected in Sablayan, a volcanic island of the Philippines which has never been in contact with other mainland (Cottarelli, pers.com).