



***Pollicipes caboverdensis* sp. nov. (Crustacea: Cirripedia: Scalpelliformes), an intertidal barnacle from the Cape Verde Islands**

JOANA N. FERNANDES^{1,2,3}, TERESA CRUZ^{1,2} & ROBERT VAN SYOC⁴

¹Laboratório de Ciências do Mar, Universidade de Évora, Apartado 190, 7520-903 Sines, Portugal

²Centro de Oceanografia, Faculdade de Ciências da Universidade de Lisboa, Campo Grande, 1749-016 Lisboa, Portugal

³Section of Evolution and Ecology, University of California, Davis, CA 95616, USA ⁴Department of Invertebrate Zoology and Geology, California Academy of Sciences, 55 Music Concourse Dr, San Francisco, CA 94118-4599, USA

Abstract

Recently, genetic evidence supported the existence of a new species of the genus *Pollicipes* from the Cape Verde Islands, previously considered a population of *P. pollicipes*. However, *P. pollicipes* was not sampled at its southern limit of distribution (Dakar, Senegal), which is geographically separated from the Cape Verde Islands by about 500 km. Herein we describe *Pollicipes caboverdensis* sp. nov. from the Cape Verde Islands and compare its morphology with the other three species of *Pollicipes*: *P. pollicipes*, *P. elegans* and *P. polymerus*. *Pollicipes pollicipes* was sampled at both the middle (Portugal) and southern limit (Dakar, Senegal) of its geographical distribution. The genetic divergence among and within these two regions and Cape Verde was calculated through the analysis of partial mtDNA CO1 gene sequences. *Pollicipes caboverdensis* sp. nov. has a single whorl of capitular plates below the subrostrum, peduncular scales pointing up toward the capitulum and multi-articulate caudal appendages (all characters shared with *P. pollicipes* and *P. elegans*), reddish-orange capitular plates (large specimens), a single rostral median latus between the median latus and the rostralatus (both characters shared with *P. elegans*), and uniquely possesses peduncular scales that are approximately the same width as height. The genetic distance between the Cape Verde population and the Senegal and Portugal populations is 13–14%, whilst between Senegal and Portugal it is < 1%.

Key words: *Pollicipes*, new species, morphology, DNA sequences, Cape Verde, Dakar

Introduction

Until recently, of the six species of stalked barnacles of the genus *Pollicipes* described in detail by Darwin (1852), only three were recognized as belonging to *Pollicipes* (Foster 1979; Newman and Killingley 1985; Newman 1987): *P. pollicipes* (Gmelin, 1790), *P. elegans* Lesson, 1831 and *P. polymerus* Sowerby, 1833. The other three species have been assigned to different genera: *P. mitella* is now *Capitulum mitella* (Linnaeus, 1758), *P. spinosus* is now *Calantica spinosa* (Quoy and Gaimard, 1835), and *P. sertus* Darwin, 1852 is synonymised with *C. spinosa* (Jennings, 1915).

All *Pollicipes* species inhabit wave-exposed rocky shores and are mostly intertidal. All species can be an important economic resource, e.g. *P. polymerus* in Canada (Lessard *et al.* 2002) and *P. pollicipes* in the Iberian Peninsula (Molares and Freire 2003; Jacinto *et al.* 2010).

Pollicipes pollicipes is found in the eastern Atlantic from south-western England (Newman and Killingley 1985) through France, Spain, Portugal and West Africa to Dakar (Senegal, ≈15°N), including the Cape Verde Archipelago (≈ 15°N to ≈ 17°N) (Stubbings 1967; Barnes 1996). *Pollicipes polymerus* and *P. elegans* are found along the open coast of the eastern Pacific: *P. polymerus* ranging from southern Alaska to southern Baja California; *P. elegans* from Baja California to Peru (Newman and Killingley 1985; Barnes 1996).

Morphologically, *P. polymerus* can be distinguished from *P. pollicipes* and *P. elegans* by the existence of: more than one whorl of capitular plates below the sublatera (Darwin 1852; Van Syoc 1995); uni-articulate caudal appendages (Darwin 1852); and peduncular scales pointing outward rather than up toward the