Distribution of the pill clam *Pisidium langleyanum* Melvill & Ponsonby, 1891 (Bivalvia: Sphaeriidae) in South Africa

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Abstract

This article focuses on the geographical distribution and habitats of the pill clam, *Pisidium langleyanum* as reflected by 632 samples on record in the database of the National Freshwater Snail Collection (NFSC). The 177 different loci ($^{1}/_{16}$-degree squares) from which these samples were collected display a relatively continuous distribution in southern Gauteng, north-eastern Free State, the central area of Mpumulanga and the western part of Lesotho. However, it is discontinuously spread through KwaZulu-Natal and the Eastern Cape, poorly represented in North West, nearly absent in the Northern and Western Cape and completely absent from Limpopo. Details of each habitat as described by collectors during surveys were statistically analysed, as well as altitude and mean annual air temperatures and rainfall for each locality. This species was reported from 10 of the 14 water-body types represented in the database, but the largest number of samples was recovered from rivers, swamps and streams. Chi-square and effect-size values were calculated and an integrated decision tree constructed from the data which indicated that temperature, altitude, types of water-body and substrata were the important factors that significantly influenced the distribution of *P. langleyanum* in South Africa. In view of the many agents reported for this genus elsewhere in the world that could facilitate its passive dispersal and the fact that this species was already recorded in 1891 from South Africa, it is suggested that its absence in large areas of this country could most probably be attributed to unsuitable environmental conditions. The possible effect of climatic changes on the geographical distribution of *P. langleyanum* and the conservation status of *Pisidium* species in South Africa is briefly discussed. The feasibility to exploit this species for monitoring heavy metal pollution in freshwater biotopes and its ability to act as intermediate host for economically important trematode parasites should be investigated.

Keywords: *Pisidium langleyanum*, pill clam, freshwater Bivalvia, geographical distribution, habitat analysis, South Africa