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## The bioregionalisation revival

MALTE C. EBACH

*School of Biological Earth and Environmental Sciences, University of New South Wales, Kensington, NSW 2052, Australia and  
Department of Palaeontology, Australian Museum, 6 College Street Sydney, NSW 2010, Australia. E-mail: mcebach@unsw.edu.au*

### Abstract

The aim of this paper is to review some of the economic drivers of large scale bioregionalisation, using examples from deep sea hydrothermal vent communities, the Antarctic and sub-Antarctic, and Australia. These economic drivers are mainly recent conservation efforts, while early 20th century bioregionalisation was driven by 19th century taxonomy and exploration to assess available biological resources for economic exploitation. Modern regionalisation, particularly of the Antarctic and deep sea hydrothermal vent communities, are driven by conservation studies to protect areas from economic exploitation, rather than biogeographical questions concerning endemism and natural classification.

**Key words:** Antarctica, Australia, bioregionalisation, conservation, deep sea biogeography, hydrothermal vent communities, resource exploitation

### Introduction

Bioregionalisation, the classification of the Earth into natural biotic units (e.g., vegetation, biotic areas, endemic areas), has been an ongoing practice that may be traced back to 18th century geography and taxonomy (Nelson 1978). As a form of area classification, bioregionalisation has become a mainstay of plant and animal geography (later called biogeography), which has flourished between intermittent periods of inactivity. Early flourishes are traditionally seen as driven by early natural resource exploration for the purpose of utilisation and exploitation. More recently, however, biological surveys are also used to assess what remains to be conserved. With another revival before us, namely the regionalisation of the sea floor, I hope to reveal what is driving bioregionalisation today, how it differs from earlier attempts and, whether these regionalisations will stand the test of time.

Speaking at the 500th meeting of the Cambridge Natural Science Club on March 12, 1894, Alfred Russel Wallace finished off his presentation on a poignant topic, reminding us that bioregionalisation is like any other classification system, a tool that serves a purpose:

“There is thus, in my opinion, no question of who is *right* and who is *wrong* in the naming and grouping of these [zoological] regions, or of determining what are the *true* primary regions. All proposed regions are, from some points of view, natural, but the whole question of their grouping and nomenclature is one of convenience and of utility in relation to the object aimed at” (Wallace 1894: 613, original emphasis).

Australian bioregionalisation is a prime example of large-scale classification occurring in the 19th century which underwent a revival in the 20th century, driven by different purposes as our conceptualisation of the use of bioregionalisation changed. The early exploration of colonial Australia, for instance, uncovered sufficient information for the British Crown to fund Baron Ferdinand von Mueller as botanist to the North Australian Exploring Expedition. Based on his and other’s observations, von Mueller presented the first classification of Australia’s natural biological regions (von Mueller 1857), a practice that marked the beginnings of Australian biogeography. Indeed, a large part of early Australian regionalisation was commissioned by the colonial government and British Crown, and were driven primarily by the need to catalogue the resources available for exploitation, for instance to “find plants that might be useful for the newly developing imperial plantation