# Article

# Towards an Australian Bioregionalisation Atlas: A provisional area taxonomy of Australia's biogeographical regions

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## Abstract

The large number, definition, varied application and validity of named Australian biogeographical regions reflect their *ad hoc* development via disparate methods or case study idiosyncracies. They do not represent a coherent system. In order to resolve these uncertainties an *Australian Bioregionalisation Atlas* is proposed as a provisional hierarchical classification, accounting for all known named areas. This provisional area taxonomy includes a diagnosis, description, type locality and map for each named area within the Australian continent, as well as a first-ever area synonymy. Akin to biological classifications, this Atlas seeks to provision universality, objectivity and stability, such that biogeographers, macroecologists and geographers, can test existing areas as well as proposing novel areas. With such a formalised and comparative system in place, practitioners can analyse the definition and relationships of biotic areas, and putatively minimise *ad hoc* explanations.

**Key words:** area taxonomy, Australia, biogeography, bioregionalisation, regionalisation, regions

## Introduction

Australian biogeographical regionalisation, or bioregionalisation, has a long and rich history spanning over 150 years (Ebach 2012). In that time, many phyto-, zoogeographical, freshwater and marine regions have been proposed for the Australian continent. Many of these regional names have fallen into disuse or have been absorbed into newer classifications. This has resulted in multiple bioregionalisations, and as a result is fragmentary and comprises considerable area synonymy. Our aim in this work is to rationalise these areas and propose a provisional area classification, which we name the *Australian Bioregionalisation Atlas*. The Atlas diagnoses, describes and accurately maps all known named areas based on an area naming system: the *International Code of Area Nomenclature* (ICAN, Ebach *et al.* 2008). With incorporation of ICAN criteria, the Atlas proposed in this work provides a classificatory framework for accommodating existing and newly named areas. This approach is akin to that of biological taxonomy, inclusive of the principles of priority and synonymy (e.g., see Parenti & Ebach 2010, López *et al.* 2008). Our provisional classification provides explicit area definitions and standardised nomenclature, so that users can avoid using different area definitions for the same name or the same areas with different names. It is envisaged that the Atlas will not only allow biogeographers to adopt a unified area classification but also to match hypotheses of area relationships, and existing definitions of regional and sub-regional biogeographic units.

The Atlas is restricted to biotic areas and is inclusive of previously defined areas and their names (e.g., Bassian, Eremaean etc.), which are based on taxic distributions rather than geo-political boundaries, grids, geographical features such as 'deserts' or other biotic classifications such as vegetation types (e.g., 'savannah', 'tropical rainforest'). Moreover abiotic distributions may not necessarily overlap with biotic distributions. This novel classification is explicitly distinct from other classifications that are based on abiotic and vegetative factors