Geotourism:

The Tourism of Geology and Landscape

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Introduction

Australia has a coastline of around 32,000 km, with varying rock types and structure, coastal types and climate. Outstanding and representative coastal sites form a significant part of the Australian inventory. Major terrains include inland deserts (for example the Simpson Desert dune field), northern tropical savannah (the Kakadu World Heritage Region), glacial and periglacial uplands in the far south (southwest Tasmania), broad inland riverine plains (Murray-Darling river system), and the young volcanic provinces of southeastern Australia and northeastern Australia. There are also many karst and cave sites (for example the Nullarbor Plain), and many palaeoweathering landforms in central Australia (for example Uluru) as well as representative stratigraphic sites, rock and mineral sites, and structural and tectonic sites. Viewpoints are also included in this list, and also sites related to the history of geology, for example Charles Darwin and the Blue Mountains near Sydney (Figure 3.1). Important fossil sites range from the Proterozoic stromatolites of the Pilbara of northwestern Australia to the World Heritage Tertiary mammal fossils of Riversleigh and Naracoorte, and the Devonian fossil fishbeds of Canowindra in New South Wales (Figure 3.2).

Australia is often referred to as 'the oldest continent'. Zircons dated between 4300 and 4200 million years have been found in the Archaean rocks of the Mt Narryer area of Western Australia, and the microfossils and stromatolites of the Pilbara, also in Western Australia, are amongst the earliest known life on earth. The old shield which forms a major part of the Australian continent is mainly a flat and low-lying plateau, tectonically quiet and with one of the lowest erosion rates known. Deep weathering profiles dating to the Mesozoic and even earlier have survived over long periods of geological time, as have relics of corresponding ancient landscapes (Joyce 1999). This contrasts with the northern hemisphere continents, where late Tertiary and Quaternary uplift and extensive glacial erosion have given very different landscapes. Only in Tasmania and the higher parts of the southeastern Australia mainland can landscapes similar to those of much of Europe be found.

The study of geological heritage in the former Gondwana continents such as Africa, South America, India and Australia may well need a different approach to that used elsewhere (Joyce 1999). Following the Permian Gondwana glaciation, the Australian

Figure 3.1: World Heritage Area of the Blue Mountains, near Sydney, New South Wales; a site of historic geological interest, visited by Charles Darwin in January 1836. On seeing the steep-sided valleys, Darwin first suggested the striking erosional landforms had been formed by the sea, but later began to argue that fluvial erosion over long periods of time could have been sufficient to produce the striking landscape, although finally and reluctantly he accepted 'the marine denudation explanation' following the ideas of his mentor Charles Lyell in the book *Principles of Geology* (Nicholas and Nicholas, 2002, pp. 36-43) Major lookouts provide viewpoints to spectacular valleys, scarps and plateaus developed in Triassic fluvial sandstone. (Photo E.B. Joyce).

Figure 3.2: Devonian fossil fish beds outside the small town of Canowindra in New South Wales, with its excellent Age of Fishes Museum (Photo E.B. Joyce).