



Heard and McDonald Islands

Inscribed on the World Heritage List in 1997

Heard and McDonald Islands



This is one of the wildest and remotest places on earth.

Heard Island is dominated by Big Ben, Australia's highest mountain and an active volcano, under a deep mantle of snow and glaciers. On the horizon, the volcanic McDonald Islands rise precipitously out of the world's stormiest waters.

The driving winds create unique weather patterns that change with unbelievable speed as they hit the enormous bulk of Big Ben, including spectacular cloud formations around its summit.

It is one of the most biologically pristine areas in the world, containing no introduced species, making it especially valuable for scientific reference.

Heard and McDonald Islands were inscribed on the World Heritage List in 1997 for their outstanding natural universal values:

- as outstanding examples representing major stages of the earth's history, including the record of life, significant ongoing geological processes in the development of landforms, or significant geomorphic or physiographic features
- as outstanding examples representing significant on-going ecological and biological processes.

The Australian Territory of Heard Island and McDonald Islands lies in a remote and stormy part of the globe, near the meeting-point of Antarctic and temperate ocean waters. The islands, which were unknown to humanity until the 19th century, are located in the Indian Ocean sector of the Southern Ocean at around 53° 05' S and 73° 30' E. They lie about 1,500 kilometres north of Antarctica and over 4,000 kilometres south-west of Australia.

The Heard Island and McDonald Islands group was formed by the plume type of volcanism, a process that is poorly understood in comparison with the earth's other two main volcanic types - subduction and seafloor spreading. This feature of the group offers an extraordinary view into the earth's deep interior and its interactions with the lithospheric plates that resulted in the formation of the ocean basins and continents. They are the only sub-Antarctic islands that are volcanically active.

The last recorded major eruption on Big Ben, which soars to an altitude of 2,745 metres, was in 1992. However, continuous activity is evident from other observations of minor steam and smoke emissions.

Permanent snow and ice cover 70 per cent of Heard Island. Its steepness, combined with significant snow fall at high altitudes, makes the glaciers fast-flowing – in the order of 250 metres a year. As a result, the ice and snow in the glaciers have a relatively short turnover period of around 100 years, and the glaciers respond quickly to changes in climate by advancing or retreating.

McDonald Island lies 43.5 kilometres due west of Heard Island, and is the major island in the McDonald Islands group. Satellite images taken in 2004 give evidence of significant volcanic activity over the last decade, which has seen the island increase in size from 1km² to 2.5 km². The previously separate Flat Island and McDonald Island are now joined by a low-lying isthmus. At its highest point, McDonald Island rises to about 230 metres.

Extraordinary landforms on the islands include the flutes of Cape Pillar on Heard Island and the lonely pinnacle of Meyer Rock; the caves and other lava formations of the northern Heard Island peninsulas; the smoking caldera of Mawson Peak above the older caldera of Big Ben; the shifting sands of the Nullarbor Plain; and the extensive, dynamically changing Elephant Spit.

The Heard Island and McDonald Islands group can be described as the wildest place on earth – a smoking volcano under a mantle of snow and glacial ice rising above the world's stormiest waters. On the horizon to the west, smaller volcanic fragments rise precipitously and defiantly out of huge Southern Ocean swells. Verdant vegetation and multi-coloured bird colonies contrast in sharp relief against the dazzling white of snow and ice and the grey-black of volcanic rock. The driving westerly winds above the Southern Ocean in these latitudes create unique weather patterns when they



come up against the enormous bulk of Big Ben, including spectacular cloud formations around the summit and unbelievably rapid changes in winds, cloud cover and precipitation.

It is the only sub-Antarctic island group believed to contain no known species directly introduced by humans. This makes it invaluable for having within one site an intact set of interrelated ecosystems – terrestrial, freshwater, coastal and marine – in which the ongoing evolution of plants and animals occurs in a natural state.

The islands host a range of seabirds, and are an excellent location for investigating the effects of geographic isolation and climate on the evolution of species. Active speciation is clearly present. The beetle populations on Heard Island and McDonald Islands group show unique evolutionary adaptations to the environment, and several other invertebrate groups provide opportunities to study evolutionary processes in undisturbed populations at the southern limits of their distribution.

The vast numbers of penguins (including the world's largest macaroni penguin colony), seals and flying birds that occupy the islands are one of the great wildlife sights of the world. When the wind has died and the skies have cleared, these congregations create an incomparable cacophony of natural sound.

The seal and penguin populations provide excellent opportunities to monitor the health and stability of the larger Southern Ocean ecosystem. The Heard Island and McDonald Island group is one of the best sites in the world to study the ecological and biological processes of recolonisation of the Antarctic fur seal and the king penguin populations. It is also one of the best land-based sites in the world to study the leopard seal and its role in the sub-Antarctic ecosystem.

The World Heritage property is contained within the 65,000 km² HIMI Marine Reserve, declared under the *Environment Protection and Biodiversity Conservation Act 1999* in 2002. The Reserve is managed by the Antarctic Division of the Australian Government Department of the Environment, Water, Heritage and the Arts.



title page: Big Ben rising to 2,745 metres at Mawson Peak is Australia's only active volcano Eric Woehler AAD

top strip: Lower slopes of Big Ben G. Budd

top: The population of king penguins on Heard Island has increased dramatically over the last 50 years AAD

above: Laurens Peninsula and the lower snow-covered slopes of Anzac Peak AAD