



# Macquarie Island

Inscribed on the World Heritage List in 1997

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Macquarie Island is a sub-Antarctic island of unique natural diversity, a site of major geological significance and one of the truly remarkable places on earth.

It is the only island in the world composed entirely of oceanic crust and rocks from the earth's mantle – a unique example of active sea-floor spreading.

Macquarie Island's beauty lies in its remote and windswept landscape of steep escarpments, lakes, dramatic changes in vegetation, and the vast congregations of wildlife around its dark, dramatic shores.

The breeding population of royal penguins on Macquarie Island is estimated at over 850,000 pairs - one of the greatest concentrations of sea birds in the world.

Macquarie Island was inscribed on the World Heritage List in 1997 on the basis of its outstanding natural universal values:

- as an outstanding example representing major stages of the earth's evolutionary history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features
- containing superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance.

Macquarie Island is situated about 1,500 km south-south-east of Tasmania, half way between Tasmania and Antarctica at around 55 degrees south. The main island is approximately 34 kilometres long and 5.5 kilometres wide at its broadest point.

It provides evidence of the rock types found at great depths in the earth's crust and of plate tectonics and continental drift; the geological processes that have dominated the earth's surface for many millions of years. It is the only island in the world composed entirely of oceanic crust and rocks from the mantle, deep below the earth's surface.

Macquarie Island probably began as a spreading ridge under the sea with the formation of new oceanic crust somewhere between 11 and 30 million years ago.

At some stage the spreading halted and the crust began to compress, squeezing rocks from deep within the mantle upward like toothpaste from a tube. As the ridge grew it eventually became exposed above the ocean's surface about 600,000 years ago. Thus, rocks normally only occurring deep within the earth's mantle have become exposed on the earth's surface.

Since Macquarie Island emerged, it has mainly been carved by marine processes such as wave action, unlike other subantarctic islands, which have been shaped by glaciers.

The geodiversity of Macquarie Island provides the foundation for the landforms, soils, plants and animals occurring there. It is an island of unique natural diversity, a site of major geoconservation significance and one of the truly remarkable places on earth.

Around the shoreline there is a coastal terrace formed from a wave-cut platform now raised above sea level. Vast waterlogged areas on the coastal platform are heavily vegetated, forming a mire based on deep peat beds and known locally as "featherbed" from the sensation gained when walking over them. Old sea stacks testify to the continual uplifting of the island as they protrude through the peat beds, some of them now being several hundred metres from the existing coastline.

Behind the coastal terrace, steep escarpments rise more than 200 metres to the undulating central plateau which has three peaks over 400 metres; the highest being Mt Hamilton at 433 metres. The slopes from the plateau to the sea are most spectacular at the southern end of the island and along the west coast where the relentless pounding of the Southern Ocean has cut a myriad of rugged bays and coves, fringed with sea stacks and reefs.

The plateau surface is dotted with innumerable lakes, tarns and pools, mainly of structural origin. Fluctuations in sea level and marine erosion have cut away the original escarpments leaving some lakes perched on the edge of the plateau, while others have been partially or totally drained. The continual westerly winds, which increase in force as they



rise over the barrier of the island, and changes in the topography on the plateau, result in dramatic changes in the vegetation cover.

Among the most aesthetically appealing sights of the island are the vast congregations of wildlife, particularly penguins during breeding seasons. The breeding population of royal penguins on Macquarie Island is estimated at over 850,000 pairs – one of the greatest concentrations of sea birds in the world.

Four species of albatross nest on steep and rugged cliffs, both on the main island and on nearby Bishop and Clerk Islands. These are majestic birds, easily viewed when nesting.

Elephant seals also form impressive colonies on suitable beaches during the breeding season. These animals can grow to over 4.5 metres in length and to a weight of 3.5 tonnes. Conflicts between the larger bulls are among the more memorable sights that may be witnessed on the island.

Macquarie Island and the Bishop and Clerk Islets, about 37 kilometres to the south, and Judge and Clerk Islets about 11 kilometres to the north, form a Nature Reserve with protection extending out to three nautical miles from the coast. Some of the marine values beyond state waters are also protected by the Macquarie Island Marine Park declared by the Australian Government on 28 October 1999. The primary purpose of the marine park is to protect the conservation values of the region from human disturbance. The marine park contains one of the world's largest highly protected marine zones, covering more than 160,000 km<sup>2</sup>.

There are no permanent human inhabitants on Macquarie Island although the Australian Antarctic Division station is occupied year round. The only access to the island is by sea.

Day-to-day management of the area is the responsibility of the Tasmanian Parks and Wildlife Service (Department of Environment, Parks, Heritage and the Arts). Specialist advice is provided to the Service by Resource Management and Conservation Division (Department of Primary Industries and Water).



**title page:** View from North Head to the Southern part of Macquarie Island Mike Preece

**top strip:** Rainbow over Brothers Point Mike Preece

**top:** The breeding population of royal penguins on Macquarie Island is estimated at over 850,000 pairs - one of the greatest concentrations of sea birds in the world Noel Carmichael, Tas Parks and Wildlife Service

**above:** Although the highest parts of Macquarie Island are only just above 400m, climatic conditions in such exposed locations are so harsh that only mosses and cushion forming plants can survive Noel Carmichael, Tas Parks and Wildlife Service