
Beaumaris Bay Fossil Site
Beach Road, Beaumaris,
Victoria, Australia

Register of National Estate
Registered 26 October 1999



Australian Government

Department of the Environment, Water, Heritage and the Arts

Heritage

Australian Heritage Database

Place Details

Beaumaris Bay Fossil Site, Beach Rd, Beaumaris, VIC, Australia

Photographs:



List: Register of the National Estate

Class: Natural

Legal Status: [Registered](#) (26/10/1999)

Place ID: 18053

Place File No: 2/17/047/0004

Statement of Significance:

The cliffs and underlying gravel beds of Beaumaris Bay contain one of the richest and most diverse fossil assemblages in Australia for both marine mammals and sharks. Beaumaris is the only Australian fossil record for the shark genus MEGASCYLORHINUS and has also yielded many excellent fossils including remains of the oldest known Australian albatross (DIOMEDEA THYRIDATA) as well as a variety of sharks' teeth and bones of diprotodontid

marsupials, seals, whales and penguins.

The Beaumaris Cliffs are the geological type locality for the Cheltenhamian Stage, a rock unit of the late Miocene epoch. Consequently, the cliffs are a reference site for comparison with all other Australian rock sequences of this age, and with Miocene type localities in Europe. The cliffs have also been a significant geological research site since the 1890s, with many rock and fossil collections taken from the place and scientific papers published about it.

Indigenous values of national estate significance may exist in this place. As yet, these values have not been identified, documented nor assessed.

Official Values: Not Available

Description:

The place encompasses the line of cliffs between Table Rock in the south-west and Cliff Grove in the north-east. The major rock outcrop is of the Late Miocene Black Rock Sandstone, dated at between 5 and 6 million years old according to the fossil marine invertebrate fauna. Most of the other exposures of this material occur near sea level, but in Beaumaris Bay the sandstone has been elevated and the full 15 metre sequence is visible. Common fossils in this rock layer include molluscs, brachiopods, echinoderms, corals and crustaceans.

Below the Black Rock Sandstone is a thin gravelly bed that includes nodules of phosphate and iron. The nodule bed has yielded a range of vertebrate fossils including sharks' teeth, the bones of seals and whales, the penguins *PSEUDAPTENODYTES MACRAEI* and *P. MINOR*, and the albatross *DIOMEDEA THYRIDATA*. The lower beds of the Black Rock Sandstone extend below sea level and also contain rich and diverse fossil deposits. Some of the best known fossils are the numerous and well preserved specimens of the echinoid *LOVENIA FORBESI*.

Overlying the Black Rock Sandstone is the Pliocene Red Bluff Sand consisting of non-marine clayey sands and gravels. This unit contains terrestrial marsupial fossils including jaw bones of the diprotodontid genus *KOLOPSIS* and the species *ZYGOMATURUS GILLI*. The Red Bluff Sands vary in thickness along the cliffs and are most extensive at Table Rock and near Cliff Grove.

The cliffs are aligned parallel to the axis of a major tectonic structure known as the Beaumaris Monocline which has downthrown the sedimentary strata to the south-east. The cliffs are steep to vertical and undercut in several locations, with large blocks of fallen sandstone scattered along the shore. Narrow shore platforms front the cliffs, and resistant beds of Black Rock Sandstone occur as offshore reefs running parallel with the monocline. This section of the coast provides a very clear example of a monoclinial fold.

The vegetation above the cliffs is dominated by a coastal scrub of coast tea-tree (*LEPTOSPERMUM LAEVIGATUM*), coast wattle (*ACACIA SOPHORAE*), mirror bush (*COPROSMA REPENS*), coast beard-heath (*LEUCOPOGON PARVIFLORUS*), common boobialla (*MYOPORUM INSULARE*), drooping sheoke (*ALLOCASUARINA VERTICILLATA*), black wattle (*A. MEARNsii*), and spike wattle (*A. OXYCEDRUS*). There are also limited stands of coast manna gum (*EUCALYPTUS PRYORIANA*). Understorey species that may also occur further down on the cliffs include hairy spinifex (*SPINIFEX SERICEUS*) and knobby club-sedge (*ISOLEPIS NODOSA*).

Some characteristic birds of the area are the little penguin (*EUDYPTULA MINOR*), little pied cormorant (*PHALACROCORAX MELANOLEUCOS*), great cormorant (*P. CARBO*), white-faced heron (*EGRETTA NOVAEHOLLANDIAE*), nankeen kestrel (*FALCO CENCHROIDES*), Pacific gull (*LARUS PACIFICUS*), white-browed scrubwren (*SERICORNIS FRONTALIS*), brown thornbill (*ACANTHIZA PUSILLA*), red wattlebird (*ANTHOCHAERA CARUNCULATA*), little wattlebird (*A. CHRYSOPTERA*) and silvereye (*ZOSTEROPS LATERALIS*).

History: Not Available

Condition and Integrity:

The place is generally in a good condition but some of the fossil beds have been covered by the buildings and car park of the Beaumaris Motor Yacht Squadron. The condition of the fossil beds is dependent on the rate of erosion and the amount of pedestrian traffic and fossicking that occurs. The construction of sea walls and other structures has reduced erosion and decreased the amount of fossil material washed up on the shore. Particularly unstable sections of the cliffs have been closed off to restrict public access. Parts of the coastline are only accessible by boat while others can only be reached at low tide.

March 1997

Location:

About 30ha, at Beaumaris, being an area enclosed by a line commencing at the intersection of Beach Road and Cliff Grove, then south westerly via the southern side of Beach Road to Sparks Street, then south easterly to a point offset 250 metres seawards via the alignment of Sparks Street, then north easterly to the intersection of the alignment of Cliff Grove and the LWM (approximate AMG point 28759368), then north westerly to the point of commencement. The buildings and the carpark of the Beaumaris Motor Yacht Squadron, the Keefers Boatshed buildings, The Moysey Gardens, and the carpark opposite Keys Street are excluded from the area.

Bibliography:

- Bird, E. (1990). Structure and Surface: The Geology and Geomorphology of the Sandringham District. The Sandringham Environment Series No. 8. City of Sandringham.
- Bird, E. (1991). Geology and Landforms of Beach Park - An Excursion Guide. The Sandringham Environment Series No. 2. City of Sandringham.
- Bird, E.C.F. (1993). The Coast of Victoria. The Shaping of Scenery. Melbourne University Press, Melbourne.
- Bird, E.C.F., Cullen, P.W., and Rosengren, N.J., 1973 Conservation problems at the Black Rock Point. The Victorian Naturalist 90 (9), 240-247.
- Christidis, L., and Boles, W. (1994). The Taxonomy and Species of Birds of Australia and its Territories. Royal Australasian Ornithologists Union Monograph 2. RAOU, Melbourne.
- Hall, T.S., and Pritchard, G.B. (1897). A contribution to our knowledge of the Tertiaries in the neighbourhood of Melbourne. Proceedings of the Royal Society of Victoria 9, 187-229.
- Hallet, S.G. and Walmsley, D., 1993. Sandringham Coastal Management Plan. City of Sandringham.
- Kenley, P.R., 1967. Geology of the Melbourne district - Tertiary. Bulletin of the Geological Survey of Victoria 59, 30-46.
- Irwin, R.P. (1994). A review of the geology of the Beaumaris Cliffs. Victorian Naturalist 111, 139-44.
- Kemp, N.R. (1991). Chondrichthyans in the Cretaceous and Tertiary of Australia. In Vertebrate Palaeontology of Australasia (Ed. P. Vickers-Rich, J.M. Monaghan, R.F. Baird, & T.H. Rich). pp. 497-568. Pioneer Design Studio, Melbourne.
- King, R.L. 1987. Geological features of significance and their conservation. In Geology of Victoria, Douglas, J.G. and Ferguson, J.A. (Ed) 1988. Geology and Victoria. Geological Society of Australia Melbourne, Special Publication 5, 177-124.
- LCC. (1993). Marine and Coastal Special Investigation Descriptive Report. Land Conservation Council, Melbourne.
- Norris, M. (Ed.) (1995). Local Birds of Bayside. Bayside City Council.

Pritchard, G.B. (1978). Geology of the Sandringham-Beaumaris coastline. *Victorian Naturalist* 93, 4-20.

Rich, T.H.V. (1976). Recent fossil discoveries in Victoria. *Victorian Naturalist* 93, 198-205.

Rosengren, N. (1988). Sites of Geological and Geomorphological Significance on the Coast of Port Phillip Bay Victoria. Ministry of Planning and Environment, Melbourne.

Ross, J.H. (Ed.) (1993). *A Census of the Vascular Plants of Victoria*. Fourth Edition. Royal Botanic Gardens, Melbourne.

Singleton, F.A. (1941). The Tertiary geology of Australia. *Proceedings of the Royal Society of Victoria* 53, 1-125.

Stirton, R.A., 1957. Tertiary marsupials from Victoria, Australia. *Memoirs of the National Museum of Victoria* 21, 121-134.

Stirton, R.A., Woodburne, M.O., and Plane, M.D., 1967. A phylogeny of the Tertiary Diprotodontidae and its significance in correlation. Bureau of Mineral Resources, Bulletin 85, 149-160.

Stirton, R.A., Tedford, R.H. and Woodburne, M.O., 1968. Australian Tertiary deposits containing terrestrial mammals. University of California, Publications in Geological Science 77, 1-30.

Vickers-Rich, P. (1991). The Mesozoic and Tertiary history of birds on the Australian Plate. In *Vertebrate Palaeontology of Australasia* (Ed. P. Vickers-Rich, J.M. Monaghan, R.F. Baird, & T.H. Rich) pp. 721-807. Pioneer Design Studio, Melbourne.

Vickers-Rich, P., and Rich, T.H. (1993). *Wildlife of Gondwana*. Reed, Chatswood.

Wilkinson, H.E. (1969). Description of an Upper Miocene albatross from Beaumaris, Victoria, Australia, and a review of fossil Diomedidae. *Memoirs of the National Museum of Victoria* 29, 41-51.