



Rimstone pools and cave structures formed by microbial activity on marine shorelines (Augusta microbialites)

Summary description

The community occurs along the south-west coast near Augusta and comprises microbialites, which are structures produced through the growth and metabolic activity of benthic microbial communities. The tufa that comprise the community are microbialite structures that have a less defined internal framework that are precipitated from freshwater springs and seeps, formed through the growth and metabolic activity of a diverse variety of microbial organisms, including cyanobacteria, diatoms and other algal components. They form chemical sedimentary rock composed of calcium carbonate. These tufas have many forms including drapes, curtains, small cylindrical stalactites and larger campanulate (bell-shaped) masses on the sea cliffs, as well as fans or terraces consisting of a series of rimstone pools and nodular masses in small brackish pools.



Distribution

This community is confined to the rocky shoreline and adjacent cliffs and caves within Ngari Capes Marine Park and Leeuwin-Naturaliste National Park, from Cape Naturaliste to Augusta and possibly Black Point.

Department of Biodiversity, Conservation and Attractions (DBCA) Region: South West
DBCA District: Blackwood

Local Government Authorities: City of Busselton, Shire of Augusta Margaret River


Habitat requirements

The growth of the community is dependent upon a supply of freshwater from springs and seeps.

Indigenous interests

Traditional Owner group: Wardandi Noongar

A register of Aboriginal cultural heritage sites kept by the Department of Planning, Lands and Heritage lists several sites of Aboriginal significance in the vicinity of this community's occurrences.



The area is covered by the South West Boojarah Indigenous Land Use Agreement as part of the South West Native Title Settlement, which formally recognises Noongar people as the Traditional Owners of the south-west region. The South West Boojarah region is supported by the Karri Karrak Aboriginal Corporation and umbrella group, the South West Aboriginal Land and Sea Council.

Conservation status

State: Listed as an endangered ecological community under the *Biodiversity Conservation Act 2016*. Threatened ecological communities are declared environmentally sensitive areas under the *Environmental Protection Act 1986*.

Threatening processes

Major threats to the community are declining water quality and groundwater discharge, and physical disturbances resulting in the crushing of rimstone pools and tufa formations.

Recovery plan

Development of a recovery plan is recommended for this community. High priority actions include survey and mapping of potential new occurrences and determining the growth habits and ecological water requirements for tufa. Other recommended actions include seasonal analysis of microbial samples to determine the biological composition of the various occurrences throughout the year and seeking to understand the mineral and elemental components of the tufa formations.

Key references

Forbes, M., Vogwill, R., & Onton, K. (2010). A characterization of the coastal tufa deposits of south-west Western Australia. *Sedimentary Geology*, 232, 52–65.

Moore, L.S. (1993). *The modern microbialites of Lake Clifton, south-western Australia* [Unpublished PhD thesis]. University of Western Australia.

Onton, K., Clarke, V., & Harding, C. (2009). *Monitoring Protocol: Augusta Microbial Threatened Ecological Community*. Version 1.0 (August 2009). Prepared for Significant Native Species and Ecological Communities – Resource Condition Monitoring Project, Department of Environment and Conservation.

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