



Assemblages of Bunda Bunda organic mound springs

Summary description

The community comprises a complex system of organic mound springs on tidal mudflats in Carnot Bay on the Dampier Peninsula north of Broome. Peaty mounds rise 2–3m above the surrounding tidal flats and are composed of accumulated leaf litter and living vegetation, supporting a dense closed rainforest and tall shrubland, with mangroves forming a concentric form on the surrounding mudflats. The smaller mound is dry in the centre but encircled by a moat, fed by permanent freshwater seepage. The larger mound is wet and incompletely enclosed by a very fine scale channel or moat of variable depth, which



broadens to a microscale saline lake on the north side. The moats and pools are saline and occasionally inundated during large tides. The western end of the large mound is covered by a very dense closed forest dominated by evergreen *Carallia brachiata* trees and a bracken-like layer of the fern *Cyclosorus interruptus* (swamp shield-fern). *Timonius timon* and *Sesbania formosa* (white dragon tree) also occur. The eastern portion of the mound is covered by tall closed forest of *Melaleuca cajuputi*, *Timonius timon*, *Sesbania formosa* with fewer *Carallia brachiata* with an understorey of *Cyclosorus interruptus*. Climbers including *Cassytha filiformis* (love vine) and *Secamone elliptica* drape from trees with ferns *Lygodium microphyllum* (climbing maidenhair) forming a curtain. A moat-like channel surrounding the large mound contains mangroves, predominantly *Rhizophora stylosa* (spotted-leaved red mangrove) and *Avicennia marina* (white mangrove) with *Acrostichum speciosum* (mangrove fern).

Distribution

The community occurs over a 1.2km range on tidal mudflats in Carnot Bay on the Dampier Peninsula, north of Broome.

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

Local Government Authority: Shire of Broome

Habitat requirements

The mound springs lie on a shallow aquifer of surficial sediments, over a major unconfined freshwater aquifer in the Broome Sandstone which meets a saltwater wedge along the coast. The community is dependent on maintenance of hydrological processes including continuous flow of freshwater seepages to support the peaty springs.

Indigenous interests

Traditional Owner groups: Jabirr Jabirr/Ngumbarl, Nyul Nyul, Nimanburr

The land is subject to the Bindunbur native title determination held by the Gogolanyngor Aboriginal Corporation, Nyul Nyul Aboriginal Corporation and Nimanburr Aboriginal Corporation for the Jabirr Jabirr/Ngumbarl, Nyul Nyul, and Nimanburr people. The Kimberley Land Council represents the Traditional Owners and is the native title representative body for the Kimberley region.

Conservation status

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

National: Part of the community occurs within the West Kimberley National Heritage listed place, protected under the *Environment Protection and Biodiversity Conservation Act 1999*.

Threatening processes

The major threats to the community are hydrogeological change, destruction by cattle including trampling of vegetation and damage to soil structure, too frequent or intense fire, and weed invasion particularly by *Passiflora foetida* (passion vine) and fruit trees.

Recovery plan

Development of a recovery plan is recommended for this community. Priority actions include mapping and control of high priority weeds, fencing to restrict cattle access, designing and implementing a project to determine the hydrological drivers of the mound spring ecosystem, and regular monitoring.

Key references

Department of Water and Environmental Regulation. (2017). *Groundwater-dependent ecosystems of the Dampier Peninsula: Royalties for Regions groundwater investigation*. Environmental Water Report series, Report No. 29.

Shanahan, A. & Coote, M. (2008). *A report on the application of draft criteria for identification of High Conservation Value Aquatic Ecosystem (HCVAE) on mound springs in Western Australia*. Produced for the Aquatic Ecosystem Task Group, Department of Environment, Water, Heritage and the Arts. Department of Environment and Conservation.

Environment Australia. (2001). *A Directory of Important Wetlands in Australia* (3rd ed.).

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