



Assemblages of Big Springs organic mound springs

Summary description

The known occurrence of the community comprises a complex system of freshwater seepages and peaty springs with internal moats with broad tidal flats on the seaward margin and cracking clay flats on the landward margin. It occurs in the West Kimberley. A further feature is the scattered clusters of small outlying, densely vegetated mound springs. The main seepage area supports well developed rainforest vegetation dominated by forests of *Terminalia microcarpa* (damson plum). Several mistletoe species (Loranthaceae) have been recorded in the *Terminalia* canopy, which reaches 20m in places. Other trees present include *Ficus racemosa* (cluster fig), *Ficus virens* (banyan fig), *Melaleuca leucadendra* (weeping paperbark), *Pandanus* sp. (screw pines), *Sesbania formosa* (white dragon tree) and *Timonius timon*. Much less common species noted were *Antidesma ghaesembilla* (yangu), *Diospyros maritima* and *Nauclea orientalis* (Leichhardt tree). The understorey varies from central open glades with turf of Cyperaceae to pure leaf litter under the *Terminalia* canopies. Internal moats support *Acrostichum speciosum* (mangrove fern). The outer perimeter of the large seepage feature is relatively dry in most places with this ring generally dominated by dense thickets of *Melaleuca alsophila* or *Acacia ampliceps* (or both) with scattered *Lysiphyllum cunninghamii*, *Dichrostachys spicata* (Chinese lantern) and occasional *Adansonia gregorii* (boab) of small stature. Outlying mound spring islands on tidal flats vary markedly in size and in the diversity of vegetation. Some of the smallest islands consist solely of *Typha domingensis* (bulrush). Larger examples often feature *Pandanus spiralis*, *Sesbania formosa*, *Acacia neurocarpa* and occasionally *Terminalia microcarpa* and *Ficus* sp. (fig), with a range of Cyperaceae. Several islands were noted with unusual associations such as *Typha* sp. growing with the mangrove *Lumnitzera* sp. The permanent groundwater discharge from the springs provides aquatic habitats (pools and seepages, plus the saturated peat itself) that support distinct assemblages of aquatic invertebrates, often with stygal and restricted elements. The mesic environment in these springs probably also support distinct terrestrial invertebrate fauna assemblages.



Distribution

Big Springs organic mound springs are found along the eastern shore of King Sound at the mouth of the Meda River, north-east of Derby.

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

Local Government Authority: Shire of Derby/West Kimberley

Habitat requirements

The community is dependent on maintenance of hydrological processes including continuous flow of freshwater seepages to support the peaty springs.

Indigenous interests

Traditional Owner group: Warrwa

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

Threatening processes

The main threats include cattle incursion and trampling, invasion by weeds including *Passiflora foetida* (stinking passion flower), too frequent or intense fire, and hydrological change.

Recovery plan

Development of a recovery plan is recommended for this community. Priority actions include mapping and control of high priority weeds, implementing an appropriate fire regime, investigating hydrological processes that support the community, and regular monitoring. A cattle exclusion fence installed in 2016 has prevented cattle accessing the largest occurrence.

Key references

Australian Nature Conservation Agency. (1996). *A Directory of Important Wetlands in Australia* (2nd ed.).

Kenneally, K. F., Keighery, G. J., & Hyland, B. P. M. (1991). Floristics and phytogeography of Kimberley rainforests, Western Australia. In N. L. McKenzie, R. B. Johnston, & P. G. Kendrick (Eds.), *Kimberley Rainforests of Australia* (pp. 93–131). Surrey Beatty & Sons.

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