Stromatolite like microbialite community of coastal freshwater lakes (Lake Richmond)

TEC Description

The community occurs on a relict foredune plain on Holocene sands at Lake Richmond, Rockingham. It is a thrombolitic community comprising a distinctive complex assemblage of photosynthetic cyanobacteria and purple sulphur bacteria, eukaryotic microalgae and “true bacteria”. The thrombolitic structures generally have an internal clotted structure and are formed through precipitation of calcium carbonate within the microenvironment of microbes as a result of photosynthetic and metabolic activity.

Distribution

Department of Biodiversity, Conservation and Attractions (DBCA) Region: Swan
DBCA District: Swan Coastal
Local Government Authority: City of Rockingham

Habitat Requirements

The growth of the community is likely dependent upon continuing supply of fresh water rich in calcium, bicarbonate and carbonate. Calcium carbonate is precipitated out by the biological activity of the microbes. The source of the calcium in the waters of Lake Richmond is probably groundwater that has passed through sand dunes that surround the lake.

The community is located upon relict foredune plain on Holocene sands. These sands are calcareous and composed of quartz sands and shell debris of aeolian origin.

Indigenous Interests

An Aboriginal Sites Register is kept by the Department of Indigenous Affairs and lists a significant site within Lake Richmond.

Conservation Status

Listed as vulnerable under WA Minister Environmentally Sensitive Areas list in policy. Also listed as endangered under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.
Threatening Processes
The major threats to the community include historical and ongoing alterations to the level of salinity and other water quality parameters and lake level, physical crushing, and disturbance of the native vegetation buffer around the lake.

Recovery Plan
An interim recovery plan has been produced for the community, and outlines the recovery actions required to reduce the level of threat to ensure the community’s long-term survival. Recommended actions include managing access to the site, protecting the microbialites from physical damage, liaising with surrounding landowners to promote sustainable management of their land, monitoring and managing water levels and quality, and rehabilitating the vegetation around the lake’s edge.

Citation

Key References

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