



## ***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 relic 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

Department of Biodiversity, Conservation and Attractions. (2020). Recovery plans and interim recovery plans <https://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/wa-s-threatened-ecological-communities>

## Key References

English, V. Blyth, J., Goodale, A, Goodale, B., Moore, L., Mitchell, D., Loughton, B., Tucker, J., Halse, S and King, S. (2003). Interim Recovery plan number 122 for the Thrombolite Community of Coastal Freshwater Lakes (Lake Richmond) 2003-2008. Department of Conservation and Land Management, Wanneroo.

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