Stromatolite like freshwater microbialite community of coastal brackish lakes (Lake Clifton)

TEC Description

The community occurs on a relict foredune plain on Holocene sands at Lake Clifton. 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

The thrombolites extend along the eastern side of Lake Clifton, forming a reef approximately 10km long, in Yalgorup National Park, south of Mandurah.

Department of Biodiversity, Conservation and Attractions (DBCA) Region: Swan
DBCA District: Swan Coastal
Local Government Authorities: City of Mandurah, Shire of Waroona

Habitat Requirements

The thrombolite community depends on a continuous discharge of groundwater, rich in calcium, bicarbonate and carbonate, low in salinity and nutrients, and high in alkalinity.

Indigenous Interests

An Aboriginal Sites Register is kept by the Department of Indigenous Affairs. The South West Aboriginal Land and Sea Council (SWALSC), an umbrella group, covers the areas of which the community occurs. Traditional owner group: Pindjarup.

Conservation Status

Listed as critically endangered under WA Minister Environmentally Sensitive Areas list in policy and is listed as critically endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999.*

Threatening Processes

The major threats include declining water levels and elevated salinity due to increased groundwater extraction and altered groundwater flows, increasing nutrient levels and other pollutants derived from adjacent agricultural and rural-residential properties, physical crushing, alteration to the vegetation buffer, and introduced fauna.

Recovery Plan

An interim recovery plan has been produced for the TEC. It outlines the recovery actions required to reduce threats and to maintain or improve the overall condition of the community. Priority recovery actions include managing access to the thrombolites, provide advice to land holders / managers on ways to avoid land use activities that are likely to be detrimental to the thrombolites, monitoring of water level and quality, hydrological studies, and biological studies of the microbial community. Other recovery actions include maintaining the vegetation buffer surrounding the lake including weed control and maintaining firebreaks.

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

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