RESTORE LAKE PEDDER

FACT SHEET

Vegetation Communities

Coordinated by
Lake Pedder Restoration Inc.
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Vegetation communities

This fact sheet provides a summary of the current state of vegetation communities that were mapped in the catchment of the Huon-Serpentine Impoundment. The information includes the threatened vegetation communities that were recorded before flooding, and the potential for natural regeneration following the restoration of Lake Pedder.

Aerial photograph interpretation undertaken by ecologists in 2001 showed the original, pre-flooding vegetation to be a mosaic ranging from wetlands, moorlands and scrub to forest vegetation. By far, the wetlands, flat-lying moorlands and tea-tree swamps were the most extensive of the vegetation types flooded in the Huon-Serpentine Impoundment because most of the forests had occurred on elevated slopes above the level of inundation.

Fourteen years of vegetation regrowth at Pokana Bay, Lake Gordon Image: David Bluhdorn

Moorlands and scrub are generally widespread, but some vegetation communities are threatened

Most of the moorland, sedgeland, scrub, forest and rainforest vegetation communities inundated under the Huon-Serpentine Impoundment are well represented and well reserved in the southwest of Tasmania and the associated conservation reserve system. However, four threatened vegetation communities are known to have been flooded: *Banksia marginata* wet scrub, alkaline pans, freshwater aquatic herbland and freshwater aquatic sedgeland and rushland. These vegetation communities are listed as threatened for their limited extent, limited reservation status and/or reductions in their extent on State legislation. All the vegetation communities recorded in the area and their associated conservation status is presented in the following table.

Vegetation community described by Balmer and Corbett (2001)	Equivalent TASVEG 4.0 vegetation communities (code)[1]	Current Status [2]
Wetlands	Freshwater aquatic herbland (AHF)	**Threatened**
Wetlands	Freshwater aquatic sedgeland and rushland (ASF)	**Threatened**
Noted, but unmapped	Alkaline pans	**Threatened**
Banksia wet scrub, usually with *Eucalyptus nitida*	*Banksia marginata* wet scrub (SBM)	**Threatened**
Beach sand	Sand, mud (OSM)	Not listed
Restio tetraphyllus swamp	Restionaceae rushland (MRR)	Not listed
Lepyrodia sedgeland	Western lowland sedgeland (MSW)	Not listed
Short buttongrass moorland	Sparse buttongrass moorland on slopes (MBR)	Not listed
Buttongrass / *Melaleuca squamea* moorland	*Melaleuca squamea* heathland (SMM) *Melaleuca squarrosa* scrub (SMR) (potential facies on flats)	Not listed
Scrubby tea-tree/buttongrass	Buttongrass moorland with emergent shrubs (MBS) Sparse buttongrass moorland on slopes (MBR) Western buttongrass moorland (MBW) Western wet scrub (SWW) Western buttongrass moorland (MBW) *Melaleuca squarrosa* scrub (SMR)	Not listed
Tea-tree swamp	*Leptospermum* with rainforest scrub (SRF) Western wet scrub (SWW) *Leptospermum lanigerum – Melaleuca squarrosa* swamp forest (NLM) *Leptospermum scoparium-Acacia mucronata* short forest (NLA)	Not listed
Eucalyptus nitida on tea-tree and/or wet forest	*Eucalyptus nitida* forest over *Leptospermum* (WNL) Nothofagus-*Leptospermum* short rainforest (RML)	Not listed
Rainforest, often with emergent *Eucalyptus nitida*	*Nothofagus-Leptospermum* short rainforest (RML) *Nothofagus-Phyllocladus aspleniifolius* short rainforest (RMS) *Nothofagus– Atherosperma* rainforest (RMT)	Not listed

[1]TASVEG 1.0 to TASVEG 4.0 following Harris and Kitchener (2005; 2013)

[2] As listed on Schedule 3A of the *Nature Conservation Act 2002*

The threatened vegetation communities

Banksia marginata wet scrub (SBM)

The *Banksia marginata* wet scrub vegetation community occurs only in western and southwest Tasmania, has a limited extent of approximately 2600 hectares state-wide. This community is dominated by *Banksia marginata*, generally with subdominant *Leptospermum* spp. and/or *Melaleuca squarrosa*. It still occurs on the steeper slopes and fringing moorland and creeks adjacent to the Huon-Serpentine Impoundment.

Banksia marginata wet scrub occupies the interface between vegetation communities that are adapted to frequent and intense fires such as buttongrass moorland and heathland and the less fire-tolerant rainforests. Therefore, increases in the frequency and intensity of fires can reduce some shrub species changing the community to a more fire-adapted state of moorland; conversely, in the absence of fire, rainforest species may replace the shrub species and the community will transition to a rainforest-dominated community.

Given the specific fire requirements for this vegetation community, the potential regeneration following restoration will depend on re-establishment of appropriate fire regimes and associated vegetation community dynamics. Seed and propagules would be available from the existing slopes adjacent to the fringe of the dewatered area and some vegetative regrowth of sedges is also likely to occur. There may be some medium-term limitations to regeneration due to lack of propagules on more isolated slopes that once were islands in the Huon-Serpentine Impoundment such as Scotts Peak.

Freshwater aquatic herbland (AHF) and Freshwater aquatic sedgeland and rushland (ASF).

The freshwater aquatic herbland includes areas of permanent to semi-permanent standing water that supports aquatic vegetation and the freshwater aquatic sedgeland is a subset of these that is dominated by sedge or rush species. Both these communities were previously encountered on the flat plains west of Lake Pedder and on the margins of smaller lakes.

These communities are likely to regenerate in some form following restoration, although they may occur in different areas and to varying extents depending on the way rivers, streams and sediments settle within the restored systems. Most of the species have seeds or propagules that are carried in water and therefore, these communities are unlikely to be limited in their recovery by seed or propagule dispersal.

Alkaline Pans (AAP)

Alkaline pans are generally small, isolated largely bare patches that form within moorland scrub mosaics in the south-west river valleys where dolomite or limestone occurs near the surface; only 500 hectares currently mapped in Tasmania. Whilst no alkaline pans were mapped from the Lake Pedder area, they occur along Scotts Peak Road and may have had some localised presence in the Lake Pedder area. Given the requirements for specific geology to support these communities, it is not known if they are likely to regenerate following restoration.

How quickly should the impoundment be de-water to reduce risks to vegetation? Does the season matter?

The optimum rate of dewatering varies greatly between the various environmental factors and what may be best for one factor, may not be the best for others. The rate could also be varied at different stages in the process to manage specific risks based on the shape and bank slopes of the impoundment.

Assuming a constant rate of dewatering, the following diagram shows the optimum rate of dewatering from the minimum practical time of 100 days to a nominal 24 months with shading to show the impact on various components. Green represents the optimal or preferred rate with the highest chance of meeting aim, orange represents sub-optimal rate with less certainty of meeting the aim and red represents the highest risk rate with the lowest likelihood of meeting the aim. More details on the specific assessments are provided in the review document.

Component	Risk mitigation aim	100 days	6 mths	12 mths	24 mths
Natural vegetation regeneration processes	Maximise natural vegetation regeneration and expansion				
Provide favourable substrate conditions	Maximise safe sites for seedling establishment				
	Minimise desiccation and subsequent oxidation of peat				

The seasonality of dewatering assessment represents the time when the maximum surface area exposed over the dewatering period and assumes that vegetation cover will establish quickly on exposed surfaces. For example, dark peat surfaces will absorb heat and dry out more quickly in summer, so it would be best to reduce the amounts of bare peat exposed in summer if possible.

Risk mitigation aim	Summer	Autumn	Winter	Spring
Maximising natural vegetation regeneration				
Maximising germination of seeds and propagules				
Minimising wind action erosion risks to shoreline				
Minimising desiccation of peat surface				
Minimising extreme peat surface temperatures				

Further Reading

Balmer, J & Corbett, E (2001) The vegetation of the Lake Pedder Area Prior to Flooding in *Lake Pedder: Values and Restoration, Occasional Paper No. 27*, Sharples, C. (ed.) Centre for Environmental Studies, University of Tasmania.

Balmer, J (1991) Buttongrass moorland vegetation. In: *Tasmanian Native Bush; A Management Handbook* (Ed. Kirkpatrick, J.B.). Tasmanian Environment Centre Inc., Hobart

Bayly, IAE, Lake, PS, Swain, R & Tyler, PA (1972) *Lake Pedder: its importance to biological science. In Pedder Papers: Anatomy of a Decision*. Australian Conservation Foundation, Victoria.

DPIPWE (2018a) Tasmanian Threatened Native Vegetation Communities Information Sheet – Version 1: *Banksia marginata* Wet Scrub) https://dpipwe.tas.gov.au/Documents/TNVC_Banksia-marg-wet-scrub_20171031.pdf

DPIPWE (2018b) Tasmanian Threatened Native Vegetation Communities Information Sheet – Version 1: *Alkaline Pans* https://dpipwe.tas.gov.au/Documents/TNVC_Alkaline-pans_20180206.pdf

DPIPWE (2018c) Tasmanian Threatened Native Vegetation Communities Information Sheet – Version 1: *Wetlands* https://dpipwe.tas.gov.au/Documents/TNVC_Wetlands_20171031.pdf

Wild AS (2020) *A review of potential responses to restoration of Lake Pedder: Vegetation and Flora*. Report commissioned by Lake Pedder Restoration Inc. Hobart, Tasmania. https://lakepedder.org/thescience

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For more information go to www.lakepedder.org.