TASMANIAN
LAND
CONSERVANCY

Annual Report

The Big Punchbowl Reserve 2018-19

www.tasland.org.au

INTRODUCTION

The Tasmanian Land Conservancy (TLC) protects important natural areas as permanent reserves and aims to demonstrate excellence in reserve management for biodiversity conservation. The TLC has adopted an adaptive management framework – the Open Standards for the Practice of Conservation which comprises 5 key steps – planning, implementing, monitoring, reporting, review/adaptation and communication.

The Big Punchbowl Reserve was acquired by the TLC in 2015 and protects 244 hectares of ephemeral wetlands, coastal forest and saltmarsh at Freycinet Peninsula on the east coast of Tasmania. The Reserve adjoins Moulting Lagoon, which is a Ramsar listed wetland. The management of the Reserve is guided by The Big Punchbowl Reserve Management Plan. The plan is implemented by TLC staff through an Annual Work Plan and Monitoring Plan. Details of ecological monitoring methods can be found in TLC's Ecological Monitoring Procedures Manual on www.tasland.org.au.

This report describes progress made towards delivery of the management plan in 2018-19, and is divided into three sections:

1. Reserve Scorecard – a table summarising the results of management effectiveness and ecological monitoring to date;
2. Management Effectiveness Summary – providing details of the implementation of key management strategies and making recommendations for plan improvement;
3. Ecological Monitoring Summary – providing details of the status of conservation targets and trends of key ecological indicators

The recommendations made in this report are used to adapt and improve management of the Reserve, update the management plan, and revise work and monitoring plans for the coming year. Key findings of this report are communicated to TLC Board, supporters and other stakeholders.

Summary of Key Achievements 2018-19

- TLC held two successful events this year. A Discovery Day in September 2018 celebrated the Reserves protection and installed the donors sign and a Foundation Fund event featuring acoustic monitoring was held in May 2019
- 2. Sib and Keith Corbett completed a specialist survey in Dec 2018 of the new 75 ha extension to the Reserve
- Inspired by the 'Poets and Painters' event, a privately book by Sue Lovegrove and Adrienne Eberhard called 'The Sound of Water' was finalised ready for publication.
- A Tasmanian Field Naturalists field day provided a number of additional species for the Reserve
- Additional wilderness images were commissioned from Rob Blakers

Cover image: Installation of Supporters Sign September 2018. Photo: S Bryant

THE BIG PUNCHBOWL RESERVE SCORECARD 2018-19

Ecological Monitoring				
Target	***Indicator***	***Status 2014-15***	***Status 2017-18***	***Status 2018-19***
Coastal woodland	Floristic diversity	7.0 species/site	7.2 species/site	No monitoring this year
	Structural complexity	7.9 strata/site	7.7 strata/site	
	Canopy recruitment	1.2 cohorts per site	1.2 cohorts per site	
	Eagle nest productivity	No active nest	No active nest	No active nest
Moulting Lagoon Ramsar Site	Annual PWS Bird Count	See report	See report	Bird data not comparable
Wetland complex	Floristic diversity	5.6 species/site	4.3 species/site	No monitoring this year
	Structural complexity	5.1 strata/site	5.0 strata/site	
Terrestrial Mammals (all reserve)	Species richness	8 native species 4 intro species (incl. rat sp)	8 native species 3 introduced species	No monitoring this year
	Species diversity	Simpson's diversity index 0.63 Shannon-Wiener diversity index 1.16	Simpson's diversity index 0.69 Shannon-Wiener diversity index 1.08	No monitoring this year
	Proportion native species	0.67	0.73	
Management Effectiveness				
Strategy	***Indicator***	***Status 2016-17***	***Status 2017-18***	***Status 2018-19***
Weed management	Weed extent	<200m2	<200m2	<200m2
	Weed density	Sparse	Sparse	Sparse
Stock exclusion	Stock access	Yes	No	No
Feral animal control	Cat abundance	44% occupancy (observed at 4 of 9 sites) Relative activity 0.04 (10 observations from 272 trap nights)	30% occupancy (observed at 3 of 10 sites) Relative activity 0.04 (11 observations from 309 trap nights)	No monitoring this year
	Rabbit abundance	11% occupancy (1 of 9 camera sites) Relative activity 0.05 (13 observations from 272 trap nights)	20% occupancy (2 of 10 camera sites) Relative activity 0.04 (11 observations from 309 trap nights)	No monitoring this year
	Deer abundance	22% occupancy (2 of 9 camera sites). Relative activity 0.01 (3 obs from 272 trap nights)	30% occupancy (3 of 10 camera sites). Relative activity 0.01 (4 obs from 309 trap nights)	No monitoring this year
Fire management	No of unplanned fires	0 fires	0 fires	0 Fires - Flat
Visitor management	# visitors the Reserve	20 visitors	1 event / 10 visitors	4 events / 135 visitors - Increasing

ECOLOGICAL MONITORING SUMMARY

Wetlands Complex	**Status: Good**
Goal The 2014 condition of the wetlands and their threatened species are maintained or improved	**Outcome: On Track**

Description

The Big Punchbowl wetland, Barney Ward's Lagoon and several smaller wetlands on the reserve are important ecologically and form part of the more extensive Moulting Lagoon wetland complex. Many of these wetlands are ephemeral and their values can change seasonally or on a long term basis due to environmental conditions. Fauna such as Australasian bittern, green and gold bell frog and a host of waterfowl and aquatic invertebrates are known to occur there on a seasonal or intermittent basis.

Wetland complex at Barney Wards Lagoon Photo J Mulcahy

Ecological indicator	**Status 2014-15**	**Status 2017-18**	No Monitoring in 2018-19
Floristic diversity	5.6 species/site	4.3 species/site	
Structural complexity	5.1 strata/site	5.0 strata/site	

Key findings 2018-19

- Ecological monitoring was repeated 2017-18 and since then the Big Punchbowl wetland has been dry all season. No monitoring undertaken during the 2018-19 year.
- No observational changes observed to these wetland areas during the season.
- Old bird hides were removed from Barney Wards Lagoon
- Data from Song Meters deployed last year has been stored but not assessed yet.
- The northern extension to the Reserve was mapped by Keith and Sib Corbett in 2018 and a detailed report provided

Recommendations

- Continue monitoring wetland values including feral species
- Continue extension surveys for species such as Australasian bittern and New Holland Mouse

Moulting Lagoon Ramsar Site	**Status: Moulting Lagoon Bird Count**
Goal: Maintain or improve 2014 conservation values of Moulting Lagoon	**Outcome: Declining**
Target description: Moulting Lagoon Game Reserve is one of ten Ramsar sites (wetlands of international significance) listed in Tasmania, satisfying five of nine listing criteria and supporting a large number of waterbirds at key stages of their life cycles and several shorebird species listed on The Japan-Australia Migratory Bird Agreement (JAMBA) and the China-Australia Migratory Bird Agreement (CAMBA). The estuaries and coastal wetlands have long been recognised as essential nursery areas for a myriad of marine species.	 Saltmarsh on Moulting Lagoon shoreline Photo Andy Townsend

Ecological indicator	**Status: July 2014-2017**	**Trend**
Annual Moulting Lagoon Bird Count (data from PWS Freycinet)		Counts from 2014 – 2017 show species diversity and total numbers fluctuating widely

Bird Indices	**July 2014**	**July 2016**	**July 2017**
Black Swan	8162 birds	4865 birds	9032 birds
Waterfowl count	9992 birds	6332 birds	12894 birds
Waterfowl diversity	7 species	9 species	8 species
Wader count	195 birds	86 birds	601 birds
Wader diversity	6 species	2 species	7 species
Marine count	12095 birds	8211 birds	14622 birds
Marine diversity	24 species	23 species	27 species
Total Bird Count	12599 birds	9112 birds	15307 birds
Total diversity	63 species	49 species	72 species

Key findings in 2018-19

Table of incidental waterfowl data collected from https://ebird.org/australia/hotspot/L2549713

Species	**No**	**Date**	**Species**	**No**	**Date**
Black Swan	50	8 May 2019	Australian Pelican	10	15 Feb 2019
Silver Gull	1	8 May 2019	Australian Shelduck	5	7 Dec 2018
White-faced Heron	1	8 May 2019	waterfowl sp.	50	7 Dec 2018
Great Crested Tern	4	22 Apr 2019	Pied Oystercatcher	2	7 Dec 2018
Little Pied Cormorant	7	22 Apr 2019	Grey Teal	2	2 Dec 2018
Little Black Cormorant	2	22 Apr 2019	Masked Lapwing	2	2 Dec 2018
Pacific Golden-Plover	29	19 Feb 2019	Pacific Gull	1	2 Dec 2018
Chestnut Teal	40	15 Feb 2019	Caspian Tern	1	2 Dec 2018
Musk Duck	1	15 Feb 2019	Sooty Oystercatcher	X	23 Nov 2018
Black-faced Cormorant	10	15 Feb 2019	Great Egret	2	23 Nov 2018

Recommendations

- Participate in the annual bird count coordinated by PWS
- Develop additional indicators to monitor Moulting Lagoon saltmarsh condition
- Continue to reject recreational duck hunting in this area

Coastal Woodland	**Status: Fair**
Goals The condition of the woodland flora and fauna community is improved from 2014.	**Outcome: Minor issues**
Target description: The coastal woodlands of The Big Punchbowl Reserve contain threatened vegetation communities dominated by black peppermint and black sheoak, plus areas with Oyster Bay pine and grasstrees *Xanthorrhoea australis*. Threatened flora such as *Lasiopetalum micranthum and Acacia ulicifolia* are scattered throughout. *Phytophthora cinnamomi* disease is widespread in coastal forests on the Reserve and is likely to have caused local extinction of many susceptible understorey species. Two eagle nests have been recorded on the Reserve including an active nest in 2014-15.	 Coastal woodland Photo: Andy Townsend

Ecological indicator	**Status 2014-15**	**Status 2017-18**	**2018-19**
Floristic diversity (species/site)	7.0 species/site	7.2 species/site - stable	Not monitored this year
Structural complexity (strata/site)	7.9 strata/site	7.7 strata/site - stable	
Canopy recruitment (cohorts/site)	1.2 cohorts per site	1.2 cohorts per site - stable	
Terrestrial Mammals (all reserve) Species Richness Species Diversity Proportion of native species	 8 native species 4 introduced species (incl. rat sp) Simpson's diversity index 0.63 Shannon-Wiener diversity index 1.16 0.67	 8 native species 3 introduced species Simpson's diversity index 0.69 Shannon-Wiener diversity index1.08 0.73	
Eagle nest productivity	1/2 nest active in 2013-14	No nest activity in 2017-18	No activity 2018-19

Key findings 2018-19

- Monitoring indicates that woodland remains in a fair condition and recovery will be slow after disturbance. Phytophthora remains widespread but hygiene protocols are in place
- Stands of Oyster Bay pine remain intact and have not suffered fire this year.
- There remain a large number of sites with no recruitment of canopy species.
- The active northern sea-eagle nest collapsed in 2016-17. The southern eagle nest has not been active and when checked 30 Nov 2018 it appeared refurbished but had no sign of activity. Some cutting of live eucalypt trees in the immediate vicinity was reported to reserve staff. A nest check is required across the northern extension to the Reserve.
- The northern extension to the Reserve was mapped by Keith and Sib Corbett in 2018 and a detailed report provided.
- Wombat monitoring images need to be assessed for mange
- A fire management plan for the Reserve has been developed which will promote recruitment and protect sensitive species such as *Callitris rhomboidea* and *Allocasuarina littoralis.*

Recommendations

- Develop protocols to ensure phytophthora is not spread locally and to other areas off-site.
- Continue annual surveys for new eagle nest building activity and use of southern nest
- Monitoring needs to be installed across the new 75 ha portion of the Reserve

MANAGEMENT EFFECTIVENESS SUMMARY

Weed management

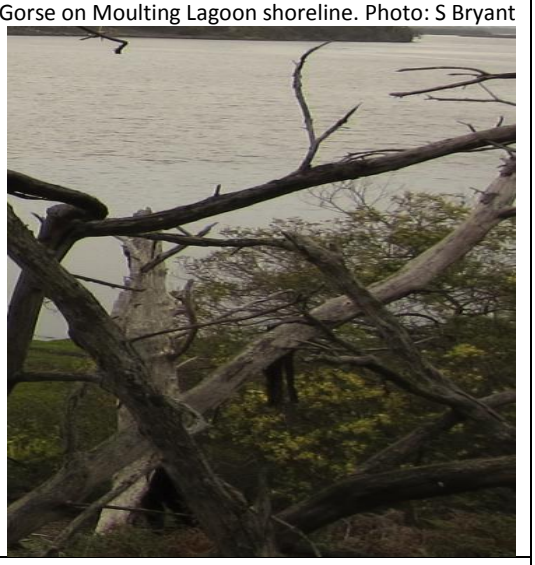
Key objective(s)

- All areas of gorse have received primary treatment by 2016
- Gorse and other weeds are functionally eradicated from the Reserve by 2020

Status 2018-19
On-track

Strategy description
Scattered infestations of gorse and thistles (several species) occur across the reserve, mostly at the edges of forest around Moulting Lagoon. Weeds have the potential to become much more widespread on the Reserve, as has happened on TLC's neighbouring reserve at Long Point. Weed control is therefore a management priority.

Gorse on Moulting Lagoon shoreline. Photo: S Bryant



Indicator	Status 2017-18	Status 2018-19 Trend
Weed extent	<200m2	< 200 m2 -Improving
Weed density	Sparse	Sparse - Improving

Progress in 2018-19

- All known areas of gorse at the Reserve received primary treatment in 2014-15 and are being routinely followed-up to ensure that any germinating seedlings do not reach maturity.
- Reserve staff undertook selected gorse treatment prior to TLCs Discovery Day in Sept 2018 and isolated outbreaks were treated
- New weed sites are reported immediately to reserve staff for treatment

Key recommendations for future management

- Continue follow-up weed control at known infestations.
- Monitor treated weed infestations for germinating seedlings.
- Record location, infestation size and treat any new weed infestations.

Stock exclusion

Key objective(s)

- Access by neighbouring stock is prevented (ongoing)

Status 2018-19
Improved

Strategy description

The property to the south of the Reserve is grazed by sheep. Sheep grazing impacts on the condition of the wetlands and coastal woodland vegetation communities. The southern boundary of TLC's land is fenced, but sheep occasionally access the Reserve along the shore of Moulting Lagoon via unfenced land managed by the Parks and Wildlife Service. The condition of these fences range from excellent to moderate. Additional fencing is required on the PWS boundary to ensure stock are excluded from The Big Punchbowl Reserve.

Fencing behind Barney Wards Lagoon. Photo: S Bryant

Indicator	Previous status	Status 2018-19
No stock access the reserve	Minor issues due to stock access along the shoreline were attended to with fencing	No stock incursion detected - Stable

Progress in 2018-19

- A fence along the southern boundary of the Reserve was installed in 2014-15. In 2016-17, this fence was checked and cleared of fallen branches; no stock had accessed the Reserve through this fence line during 2018-19.
- Sheep may still be accessing the Reserve along the shore of Moulting Lagoon, via PWS managed land but no stock were detected during routine visits or on monitoring cameras

Key recommendations for future management

- Liaise with PWS to construct a new stock proof fence along the shore of Moulting Lagoon.
- Continue to monitor fences and repair fences when necessary.

Feral animal control

Key objective(s)

- Baseline data collected and threat assessment completed by Dec 2016.

Status 2018-19
Declining

Strategy description

Three feral pests of most importance on the Reserve are cats, fallow deer and rabbits.
A feral deer strategy is being developed in collaboration with other stakeholders on the Freycinet Peninsula - Parks and Wildlife Service, Bush Heritage Australia, conservation landholders – with a view to regional eradication.
Feral cats are more difficult to deal with and presently no effective eradication are known for regions without physical barriers. This is particularly true for areas with a human population where cats are kept as pets. As such, the TLC's current strategy is to monitor cats using camera traps, and monitor control strategies and efforts from other stakeholders nationally and internationally to be in the best position to act when control techniques become more effective.

Feral cat on camera at BIPU004 in 2018. Photo: TLC.

Indicator	Status 2014-15	Status 2017-18	2018-19
Cat abundance	44% occupancy (observed 4 of 9 sites) Relative activity 0.04 (10 observations from 272 trap nights)	30% occupancy (observed 3 of 10 sites) Relative activity 0.04 (11 observations from 309 trap nights)	Not monitored this year
Rabbit abundance	11% occupancy (1 of 9 camera sites) Relative activity 0.05 (13 observations from 272 trap nights)	20% occupancy (2 of 10 camera sites). Relative activity 0.04 (11 observations from 309 trap nights)	
Deer abundance	22% occupancy (2 of 9 camera sites) Relative activity 0.01 (3 observations from 272 trap nights)	30% occupancy (3 of 10 camera sites) Relative activity 0.01 (4 observations from 309 trap nights)	

Progress in 2018-19

- No new data was collected this year but species persist on the reserve.
- Baseline data on deer, rabbit and cat abundance collected in 2014-15 shows these species remain at consistent levels on the reserve in 2018
- Feral animal control (especially deer and cats) has been identified as a high priority, and a plan needs to be developed on their control for implementation.
- TLC are participating in a fallow deer program investigating browsing damage

Key recommendations for future management

- Continue to monitor feral animal species and be involved in joint efforts for control.
- Develop a plan and investigate options for local feral animal control on the reserve.

Fire management

Key objective(s)

- No unauthorised fires occur on the reserve (ongoing).

Status 2018-19
On-track

Strategy description

An inappropriate fire regime will reduce the condition of the natural values of the Big Punchbowl Reserve. The impact of fire on local communities also needs to be considered.

The vegetation at The Big Punchbowl Reserve is an unusual mixture of fire sensitive and fire tolerant species, and fire management at the Reserve is therefore a balancing act. Species such as Oyster Bay Pine and Black Sheoak are fire sensitive. These species are found amongst pockets of coastal heath, which are well adapted to fire, with frequent burning promoting increased diversity of plant species.

A fire risk assessment has determined that the Reserve is a low risk to local communities due to the distance from nearby built assets and residences.

Autumn Orchid at The Big Punchbowl. Photo: M Taylor

Indicator	Previous status	Status 2018-19 - Trend
No. of unplanned fires	0 unplanned fires	0 unplanned fires - Stable

Progress in 2016-17

- There were no unauthorised fires on the Reserve in 2018-19
- A fuel load assessment for the reserve was undertaken and a detailed fire plan prepared by J Marsden Smedley in September 2018
- A fire risk assessment was completed for all TLC reserves and a fire management policy is being implemented.
- The Reserve is fuel stove only.
- Implementing an ecological fire management plan for the Reserve is a priority given the fuel loads

Key recommendations for future management

- Develop an ecological burn strategy to maintain the natural values of the Reserve.
- Continue to implement a fuel stove only policy for the Reserve.

Visitor management

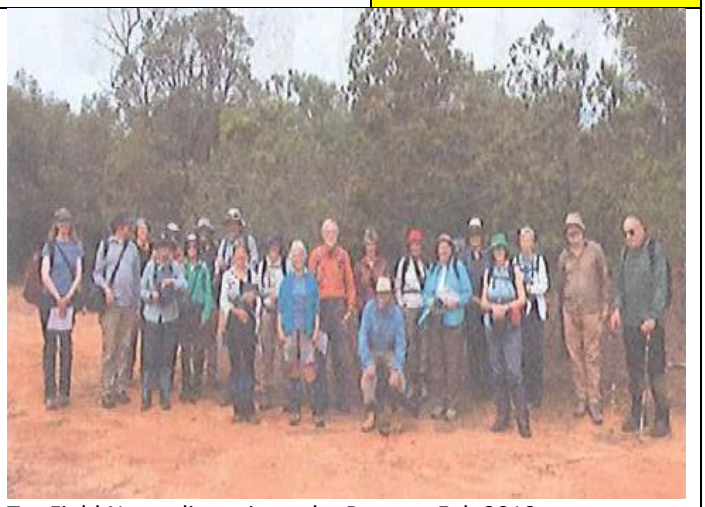
Key objective(s)

- Visitation and infrastructure is managed to protect the natural values of the Reserve (ongoing).

Status 2018-19
Declining

Strategy description

Visitation to The Big Punchbowl Reserve is important for the community to connect with the TLC's values however unmanaged visitation and visitor infrastructure can impact on the values of the Reserve. *Phytophthora cinnamomi* is already widespread across the Reserve and movement of people and vehicles can exacerbate this or transport it to areas beyond the Reserve that are currently *Phytophthora* free. Visitor infrastructure, including signs, roads, walking tracks and gates need to be maintained to support visitor management.



Tas Field Naturalists trip to the Reserve Feb 2019

Indicator	2017-18	Status 2018-19
# events and visitors at the Reserve	1 event /10 visitors	4 events / 135 visitors - Increase

Progress in 2018-19

- 4 Events occurred this year. TLC hosted a Discovery Day in Sep with ~ 80 visitors, a Foundation Event in May 2019 with 30 visitors and S&K Corbett surveyed the Reserve extension over three days. The Tas Field Naturalists organised a field trip in Feb 2019 with 23 attending
- The foot wash station needs upgrading and is incompatible with levels of visitation
- Some facilities providing shelter, freshwater and toilet are needed to support visitation
- Hygiene protocols were provided to and implemented by visitors
- Additional wildlife photography was commissioned from R Blakers
- Incomplete records are available for additional visitors

Key recommendations for future management

- Finalise visitor brochure to support self-guided visitors
- Develop and implement a system for reporting all visitors to TLC Permanent Reserves
- Plan installation of low level visitor infrastructure
- Install a permanent hygiene and boot cleaning station at the Reserve entry point.