TASMANIAN
LAND
CONSERVANCY

Annual Report

The Big Punchbowl Reserve 2017-18

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 2017-18, 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.

Key Achievements 2017-18

- A 75 ha extension to the Reserve was purchased with the assistance of 3 generous supporters making the Reserve a total of 320 ha in size.
- Ecological monitoring was repeated across the Reserve.
- Reserve management including gorse control, fencing and track maintenance was continued throughout the year.

Cover image: Campaign to extend the Big Punchbowl Reserve March 2018: Photo TLC

THE BIG PUNCHBOWL RESERVE SCORECARD 2017-18

	Ecological Monitoring			
Target	***Indicator***	***Status 2014-15***	***Status 2017-18***	***Trend***
Coastal woodland	Floristic diversity	7.0 species/site	7.2 species/site	Stable
	Structural complexity	7.9 strata/site	7.7 strata/site	Stable
	Canopy recruitment	1.2 cohorts per site	1.2 cohorts per site	Stable
	Eagle nest productivity	No activity in 2016-17	No activity in 2017-18	No breeding activity
Terrestrial Mammals (across the entire reserve)	Species Richness	8 native sp 4 introduced species (incl. rat sp)	8 native species 3 introduced species	Estimates stable, with minor natural fluctuation.
	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	
	Proportion of native species	0.67	0.73	
Moulting Lagoon Ramsar Site	**Annual Bird Count** Black swans Waterfowl count Waterfowl diversity Wader count Wader diversity All marine count Marine diversity Total Count Total Sp diversity	***Status July 2014***	***Status July 2017*** 9032 birds 12894 birds 8 species 601 birds 7 species 14622 birds 27 species 15307 birds 72 species	Declining
Wetland complex	Floristic diversity	5.6 species/site	4.3 species/site	Wet vs Dry Condition
	Structural complexity	5.1 strata/site	5.0 strata/site	Stable
Feral animals	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)	Stable Note: 10 rather than 22 obs in 2014 due to limiting surveys to standard survey period (max 35 days or 5 weeks)
	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)	Stable
	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)	Slight increase
	Management Effectiveness			
Strategy	***Indicator***	***Status 2016-17***	***2017-18***	***Trend***
Weed management	Weed extent	<200m2	<200m2	Improving
	Weed density	Sparse	Sparse	Improving
Stock exclusion	Stock access	Yes	No	Improving
Fire management	No of unplanned fires	0	0	Stable
Visitor management	Events / # visitors	1 event / 20 visitors	1 event / 10 visitors	Stable

Note: The community connection to landscape strategy has been removed and is now assessed across all TLC Reserves

ECOLOGICAL MONITORING SUMMARY

Wetlands Complex	**Status: Very 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.

Big Punchbowl Lagoon Photo R Blakers

Ecological indicator	**Status in 2014-15**	**Status 2017-18 Trend**
Floristic diversity	5.6 species/site	4.3 species/site – Natural variation b/w wet vs dry Condition
Structural complexity	5.1 strata/site	5.0 strata/site - Natural variation b/w wet vs dry Condition

Key findings 2017-18

- Ecological monitoring was repeated this year.
- Big Punchbowl wetland has been relatively dry all season accounting for the decrease in floristic diversity recorded during monitoring.
- No observational changes observed to these wetland areas during the season
- Song Meters were deployed during monitoring which may have detected green and gold bell frog or Aus Bittern calling but this data has not been assessed yet.

Recommendations

- Continue monitoring wetland values including using Song Meters and for feral species
- Encourage extension surveys for Australasian Bittern and New Holland Mouse

Moulting Lagoon Ramsar Site	**Status: Moulting Lagoon Ramsar Site**
Goal: Maintain or improve 2014 conservation values of Moulting Lagoon	**Outcome: Waterfowl Numbers 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.	 Carcasses on moulting Lagoon shoreline Photo R Blakers

Indicator	**Status: July 2014 - 2017**			**Trend**
Annual Moulting Lagoon Bird Count (data from PWS Freycinet)	**Bird Indices**	**July 2014**	**July 2016**	**July 2017**	Counts from 2014 – 2017 show species diversity and total numbers fluctuating widely. See Key Findings below
	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	

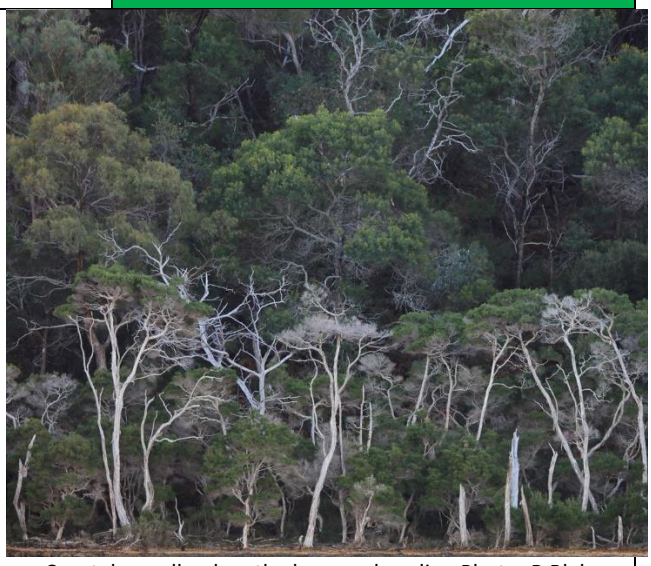
Key findings 2017-18: (extract from **''catastrophic' decreases of Tassie ducks ahead of annual shoot' published Tasmanian Times 10 March 2018)** Analyses by BirdLife Tasmania of DPIPWE waterfowl counts at Moulting Lagoon have identified 'catastrophic' decreases in four of the waterfowl species that can be shot legally in Tasmania. The four species investigated were Mountain Duck, Black Duck, and Chestnut and Grey Teals. A fifth species that can be shot in Tasmania (Wood Duck) is rarely recorded at Moulting Lagoon, and was excluded from analyses. BirdLife Tasmania examined the data for 15 years – between 2001 and 2015 inclusive, and calculated the difference between peak counts for each species and current counts. "The differences between maxima and current counts varied from decreases of 62% (Mountain Duck) to 97% (Grey Teal)" Dr Eric Woehler, BirdLife Tasmania Convenor said today. "Black Duck (-71%) and Chestnut Teal (-81%) also showed catastrophic decreases," Dr Woehler added. "The Tasmanian Government acknowledges that Tasmania acts as a refuge for mainland waterfowl, noting that waterfowl cross Bass Strait and shelter in Tasmania's wetlands until mainland conditions improve for them, yet they allow these birds to be shot," Dr Woehler noted. The 2017 take of 58,000 ducks was 27% higher than in 2016, with almost 1200 shooters reporting an average of 50 ducks each. "In light of the recent reports on duck mismanagement in Victoria, where the State Government is unable to enforce hunting restrictions, BirdLife Tasmania believes a similar situation exists in Tasmania. Almost certainly, the real take is higher than that reported to authorities" Dr Woehler said. "Following a Right to Information request from BirdLife Tasmania, the Tasmanian Government was forced to admit that only 1 prosecution and 1 infringement notice had been issued in the past 6 years, with annual numbers of shooters typically around 1000," Dr Woehler said.

Recommendations

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

Coastal Woodland	**Status: Fair**
Goals The condition of the woodland flora and fauna community is improved from 2014.	**Outcome: On Track**

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 on the lagoon shoreline Photo: R Blakers

Ecological indicator	**Status 2014-15**	**Status 2017-18 Trend**
Floristic diversity	7.0 species/site	7.2 species/site - stable
Structural complexity	7.9 strata/site	7.7 strata/site - stable
Canopy recruitment	1.2 cohorts per site	1.2 cohorts per site - stable
Terrestrial Mammals (entire reserve) Species Richness Species Diversity Proportion of native species	 8 native sp 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	No nest activity in 2016-17	No activity in 2017-18 – see notes

Key findings 2017-18

- Ecological monitoring was repeated this year
- Monitoring indicates that woodland remains in a fair condition and recovery will be slow after disturbance. Phytophthora is widespread but hygiene protocols are in place
- Stands of Oyster Bay pine remain intact and have not suffered fire this year.
- Previously there were two eagle nests on the reserve. The tree of the northern nest occupied by white-bellied sea eagles collapsed and the nest was destroyed between October 2016 and May 2017. No activity was noted in the southern nest when assessed in Nov 2017 and no new nests have been identified on the reserve.
- There remain a large number of sites with no recruitment of canopy species.

Recommendations

- Develop an ecological burn plan for the Reserve to promote recruitment and protect sensitive species such as *Callitris rhomboidea* and *Allocasuarina littoralis.*
- 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

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 2017-18
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.

Phytophthora affected area along walking tracks. Photo: TLC monitoring

Indicator	Status 2016-17	Status 2017-18 Trend
Weed extent	<200m2	<200m2 and being reduced
Weed density	Sparse	Sparse and being reduced

Progress in 2017-18

- 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.
- Any new weed sites are reported immediately to reserve staff

Key recommendations for future management

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

Stock exclusion

Key objective(s)

- Access by neighbouring stock is prevented (ongoing)

Status 2017-18
On Track

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.

Remnant fencing on the saltmarsh. Photo: S Bryant

Indicator	Previous status	Status 2017-18 Trend
No stock access the reserve	Minor issues due to stock access along the shoreline	No stock incursion detected - Improving

Progress in 2017-18

- 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.
- 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 when and where necessary.

Feral animal control

Key objective(s)

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

Status 2017-18
Control actions needed

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.

Deer prints on Barney Wards Lagoon. Photo: TLC monitoring

Indicator	Status 2014-15	Status 2017-18 Trend
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)
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 2017-18

- Baseline data on deer, rabbit and cat abundance was collected in 2014-15 and follow up data 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, however works have not been undertaken as yet.

Key recommendations for future management

- Continue to monitor feral species and be involved in joint efforts for control.
- Investigate options for local feral animal control on the reserve to initiate works.

Fire management

Key objective(s)

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

Status 2017-18
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.

Duck orchid at The Big Punchbowl Reserve. Photo: M Taylor

Indicator	Previous status	2017-18 Trend
No. of unplanned fires	0 unplanned fires	0 unplanned fires - stable

Progress in 2017-18

- There were no unauthorised fires on the Reserve in 2017-18
- A fire risk assessment was completed for all TLC reserves and a fire management policy is being implemented.
- The Reserve is fuel stove only.
- An ecological fire management plan for the Reserve is being planned and its implementation remains a priority.

Key recommendations for future management

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

Visitor management

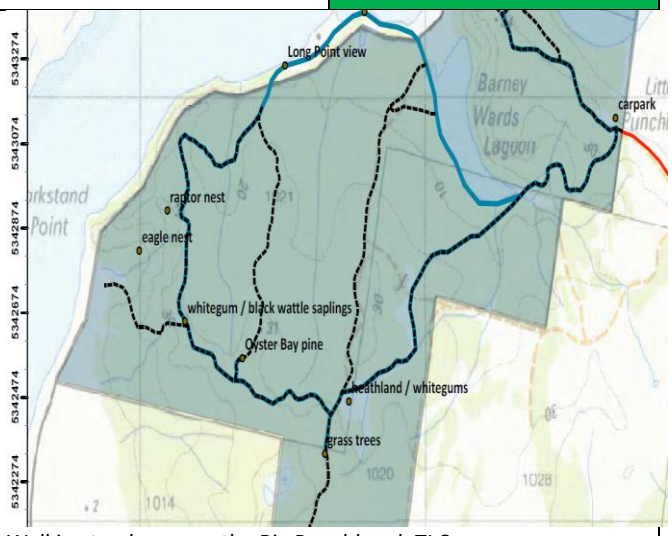
Key objective(s)

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

Status 2017-18
Low level management

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.



Walking tracks across the Big Punchbowl: TLC maps.

Indicator	Previous status	2017-18 - Trend
# events and visitors at the Reserve	1 event /20 visitors	1 event / 10 visitors - Stable

Progress in 2017-18

- Visitation to the Reserve was supported.
- A foot wash station is in place but it is flimsy and needs upgrading to cater for events and increasing visitation levels.
- Low level facilities providing shelter and freshwater need to be planned
- Hygiene protocols were provided to and implemented by visitors
- Monitoring was undertaken by TLC staff and volunteers this year (6 people), + four visitors but 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
- Investigate installation of low level visitor infrastructure for water and shelter
- Install a permanent hygiene and boot cleaning station at the Reserve entry point.