



# Annual Report

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## Lutregala Marsh Reserve 2017-18



[www.tasland.org.au](http://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.

Lutregala Marsh Reserve was acquired by the TLC in 2005 and protects 41.9 hectares of saltmarsh and coastal forest on Bruny Island in southeast Tasmania. The Reserve adjoins the Neck Game Reserve and forms part of a large block of native vegetation that straddles the Bruny Island Isthmus. The management of the Reserve is guided by the Lutregala Marsh 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](http://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.


Cover image: Feral cat on TLC's monitoring camera at Lutregala Marsh Reserve Dec 2017: Photo TLC


## LUTREGALA MARSH RESERVE SCORECARD 2017-18

Monitoring				
Target	Indicator	Status 2016-17	Status 2017-2018	Trend
Saltmarsh	Floristic diversity Structural complexity	6.5 species / site 4 strata / site	Data not assessed	Baseline data collected 2016  Vegetation resurveyed in Dec 2017
Coastal forest	Floristic diversity Structural complexity Canopy recruitment	9.7 species / site 5.3 strata / site 1 cohorts / site	Data not assessed	
Terrestrial mammals (whole reserve)	Species richness	6 native species 3 introduced species	6 native species 2 introduced species	Mammals monitored annually
	Proportion native species	0.67	0.75	
	Native species diversity indices	Simpsons 0.68 Shannon-Wiener 1.30	Simpsons 0.70 Shannon-Wiener 1.34	
Management Effectiveness				
Strategy	Indicator	Status 2016-17	2017-2018	Trend
Weed management	Weed extent	<1 ha	No data	Improving
	Treatment extent (hectares)	90%	No data	Improving
	Weed density	Sparse	No data	Improving
Stock exclusion	Instances of stock access	0	0	Stable
Feral animal management	Cat activity	0.03 (7 detections from 210 trap nights)	0.17 (35 detections from 210 trap nights)	Increasing activity following decline in cats 2015-2017
	Cat occupancy	0.5 (detected at 4 of 8 sites)	0.7 (detected at 4 of 6 sites)	
		Fallow deer activity	0.11 (23 detections from 210 trap nights)	0.06 (13 detections from 210 trap nights)
	Fallow deer occupancy	0.63 (detected at 5 of 8 sites)	0.67 (detected at 4 of 6 sites)	
Woodland restoration / Regenerating cleared land	% native tree cover	<5%	No data	Unknown
	Floristic diversity Structural complexity Canopy recruitment	10 species/ site 4 strata/site 0 cohorts/site	Data not assessed	Unknown
Fire management	No of unplanned fires	0 – no fires	0 – no fires	Stable


Note: community engagement has been removed as a strategy and now assessed across all TLC reserves

## MONITORING SUMMARY


<b>Saltmarsh</b>		<b>Status: Very Good</b>
<b>Goal</b> The condition of saltmarsh is maintained		<b>Outcome: On Track</b>
<b>Description</b> Saltmarsh vegetation occupies the low marsh land around the estuary of Lutregala Creek. Saltmarsh is a vegetation type of national conservation significance and is threatened by sea-level rise. The saltmarsh at Lutregala forms a complex mosaic dominated alternately by sedges shrubs or succulent herbs depending on the frequency of inundation by salt water.		Saltmarsh monitoring site. Photo: TLC 2017 
<b>Ecological indicator</b>	<b>Status 2016-17</b>	<b>Status 2017-18</b>
Floristic diversity	6.5 species / site	Data not assessed yet
Structural complexity	4 strata / site	Data not assessed yet
<b>Key findings 2017-18</b> <ul style="list-style-type: none"> <li>Fallow deer grazing during 2017-18 may have impacted saltmarsh health and condition</li> <li>Saltmarsh vegetation was reassessed in December 2017 with the data not assessed as yet</li> <li>Photospheres were collected at each monitoring site during December 2017</li> </ul>		
<b>Recommendations</b> <ul style="list-style-type: none"> <li>Monitor saltmarsh vegetation more regularly due to potential deer impacts. Assess dominant species at each site, where a change may indicate that browsing or inundation is becoming more frequent.</li> <li>Increase efforts to remove fallow deer from Bruny Island as a matter of environmental concern</li> <li>Investigate the potential of conserving more land at higher elevations to the south of the Reserve to enable dispersion of saltmarsh species in anticipation of sea level rise.</li> </ul>		

<b>Coastal woodland</b>		<b>Status: Very Good</b>
<b>Goal</b> The condition of coastal woodland is maintained		<b>Outcome: On track</b>
<b>Description</b> Coastal Forest occupies a relict dune system where a ridge of sandy soil has provided sufficient drainage for trees to establish. Forest dominated by black peppermint occupies the eastern side of the Reserve. The vegetation in this area is floristically diverse and in good condition. Forest dominated by black gum occupies the western side of the Reserve. This area has been partially cleared for agriculture and is in poor condition, with a modified understorey, a high proportion of exotic species and significant infestations of blackberries. The diversity of vertebrate fauna on the Reserve is high, despite a high density of feral cats.		 <p>Coastal forest monitoring site. Credit: TLC</p>
<b>Ecological indicator</b>	<b>Status 2016-17</b>	<b>Status 2017-18 trend</b>
Floristic diversity	9.7 species / site	Data not assessed yet
Structural complexity	5.3 strata / site	Data not assessed yet
Canopy recruitment	1 cohort / site	Data not assessed yet
<b>Terrestrial Mammals (whole reserve)</b>		
Species richness	6 native species 3 introduced species	6 native species 2 introduced species
Proportion native species	0.67	0.75
Native species diversity indices	Simpsons 0.68 Shannon-Wiener 1.30	Simpsons 0.70 Shannon-Wiener 1.34
<b>Key findings 2017-18</b> <ul style="list-style-type: none"> <li>Fallow deer grazing during 2017-18 could potentially be impacting woodland health and condition</li> <li>The floristic diversity of coastal forests at Lutregala Marsh is relatively high, despite some sites having been partially cleared for agriculture in the past.</li> <li>Weeds such as blackberry, scotch thistle and pasture grasses are being treated at disturbed sites and are reducing in area and density</li> </ul>		
<b>Recommendations</b> <ul style="list-style-type: none"> <li>Develop an ecological burn plan and continue to control weeds in disturbed areas</li> <li>Continue support for the Bruny Island Cat Management Plan, and partnerships with UTAS and other stakeholders into cat removal</li> <li>Increase efforts to remove fallow deer from Bruny Island as a matter of environmental concern</li> </ul>		

## MANAGEMENT EFFECTIVENESS SUMMARY

<b>Weed management</b>		
<b>Key objective(s)</b> <ul style="list-style-type: none"> <li>All areas of weeds have been treated by 2017</li> <li>Weeds are eradicated by 2020</li> </ul>		<b>Status 2017-18</b> <b>On track but needs assessment</b>
<b>Strategy description</b> Blackberry ( <i>Rubus fruticosus</i> ) occurs in areas of regenerating cleared land on the western boundary of the property, along with several other weed species. Control of this infestation of weeds is a management priority, as directed by the Lutregala Marsh Weed Strategy. The TLC has been undertaking annual weed control since 2012. Follow-up weed control will occur for five years following initial treatment. The annual reserve assessment will include weed monitoring to ensure that any new infestations of blackberry or other weeds are identified and controlled.		Volunteers Viv Muller slashing blackberries. Photo: Arwen Dyer 
<b>Indicator</b>	<b>Status 2016-17</b>	<b>Status 2017-18 Trend</b>
Weed extent	<1 ha	No data – but observed as declining
Treatment extent	90%	No data - but observed as declining
Weed density	Sparse	No data - but observed as declining
<b>Progress in 2017-18</b> <ul style="list-style-type: none"> <li>No specific weed work was undertaken on the Reserve during 2017-18, however, it is unlikely that the status of weeds has changed substantially and observations show a decline in density and area.</li> </ul>		
<b>Key recommendations for future management</b> <ul style="list-style-type: none"> <li>Ensure weeds are reviewed in 2018-19 and control program is maintained where needed</li> <li>Complete follow up mapping</li> <li>Increase efforts to remove fallow deer from Bruny Island as a matter of environmental concern</li> </ul>		



<b>Stock exclusion</b>		
<b>Key objective(s)</b> <ul style="list-style-type: none"> <li>Access by neighbouring stock is prevented (ongoing)</li> </ul>		<b>Status 2017-18</b> <b>On-track</b>
<b>Strategy description</b> Livestock are grazed on neighbouring properties to the west and south of Lutregala Marsh Reserve. Livestock have the potential to reduce vegetation condition, particularly in saltmarsh areas of the reserve. Existing fences prevent stock from accessing the reserve. Fence condition will be checked during the annual reserve assessment and fences will be repaired as necessary.	 <p>ScoutGuard 11.07.2017 13:24:07</p> <p>Boundary fencing for stock exclusion. Photo: TLC cameras</p>	
<b>Indicator</b>	<b>Status 2016-17</b>	<b>Current status 2017-18 - Trend</b>
Instances of stock access	0 stock accessed the reserve	0 stock accessed the reserve - stable
<b>Progress 2017-18</b> <ul style="list-style-type: none"> <li>Boundary fences were checked and remain intact. No stock were identified as breaching the fence or entering the reserve during this year.</li> <li>Fallow deer remain at this site and have the potential to damage fences and browse the regeneration area.</li> </ul>		
<b>Key recommendations for future management</b> <ul style="list-style-type: none"> <li>Continue to monitor fences and repair fences when necessary in consultation with adjoining neighbours.</li> <li>Increase efforts to remove fallow deer from Bruny Island as a matter of environmental concern</li> </ul>		

## Feral animal control

### Key objective(s)

- Help implement the Bruny Island Cat Management Plan
- Help support the removal of fallow deer from Bruny Island

### Status 2017-18

**Pest species persisting**

### Strategy description

Feral cats pose a significant threat to wildlife on the Reserve and in particular to nesting shore birds. A feral cat management plan has been prepared by Kingborough Council and Bruny Island Environment Network. TLC will help implement the plan on our Reserve. Fallow deer have also been detected on Lutregala Marsh Reserve in 2016 and more widely across Bruny Island. Their removal is a high priority for conservation.

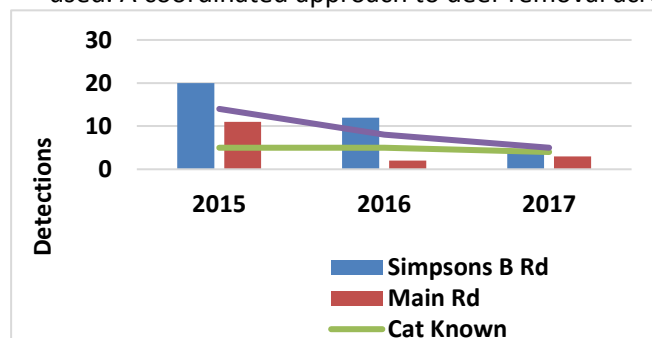
Fallow deer on Lutregala Marsh Reserve Nov 2017. Photo: TLC.



Indicator	Status 2016-17	Status 2017-18 Trend
<b>Feral Cat Detections</b> 2015-16 2016-17 <b>Activity &amp; Occupancy</b> 2016-17	31 detections / 100% occupancy 14 detections / 50% occupancy  0.03 (7 detections from 210 trap nights) 0.5 (detected at 4 of 8 sites)	7 detections / 50% occupancy Decreasing abundance maintaining site occupancy  0.17 (35 detections from 210 trap nights) 0.7 (detected at 4 of 6 sites)
<b>Fallow Deer Detection</b> 2015-16 2016-17	0 detections / 0% occupancy 19 detections / 63% occupancy	21 detections / 63 % occupancy Increasing abundance maintaining site occupancy

### Progress in 2017-18


- TLC maintaining its assistance on KCC cat management program and provided a copy of all cat and fallow deer images and a report of monitoring findings.
- Deer numbers may be influenced by two camera sites being discontinued this year
- Conrad Daniels (KCC cat officer) actively removing cats at The Neck and on Lutregala Reserve
- UTAS Hons Thesis C Geale 'Activity and abundance of feral cats at seabird colonies on Bruny Island' used Lutregala Marsh as a study site was submitted Nov 2017
- TLC obtained 5 deer cull tags for crop protection. These were passed to Conrad Daniels but not used. A coordinated approach to deer removal across the island is being planned by BIEN.




### Key recommendations for future management

- Continue to support the Bruny Island Cat Management Plan, and in partnership with UTAS and other stakeholders
- Increase efforts to remove fallow deer from Bruny Island as a matter of environmental concern



<b>Fire management</b>		
<b>Key objective(s)</b> <ul style="list-style-type: none"> <li>No unauthorised fires occur on the reserve (ongoing).</li> </ul>		<b>Status 2017-18</b> <b>On-track</b>
<b>Strategy description</b> At Lutregala Marsh Reserve fire sensitive wetlands occur alongside fire adapted coastal forest vegetation communities. Fire management will only be undertaken after an ecological burn plan has been developed.	Fire sensitive saltmarsh on Lutregala. Photo: S Bryant 	
<b>Indicator</b>	<b>Status 2016-17</b>	<b>Status 2017-18 Trend</b>
No. of unplanned fires	0 unplanned fires	0 unplanned fires - stable
<b>Progress 2017-18</b> <ul style="list-style-type: none"> <li>There were no unauthorised fires on the Reserve in 2017-18</li> <li>A fire risk assessment has been completed for all TLC reserves and a fire management policy is being implemented.</li> <li>A fuel stove only policy is in place on all reserves.</li> <li>The use of fire to manage blackberry infestations was abandoned in favour of slashing and spraying, due to continuous high fuel loads between blackberries and saline grasslands.</li> </ul>		
<b>Key recommendations for future management</b> <ul style="list-style-type: none"> <li>Continue to implement a fuel stove only policy for the Reserve.</li> <li>Continue to implement the whole-of-TLC fire management strategy.</li> </ul>		

<b>Woodland restoration</b>			
<b>Key objective(s)</b> <ul style="list-style-type: none"> <li>Native plant species will be the dominant cover class in the revegetation zone by 2020</li> </ul>		<b>Status 2017-18</b> <b>On-track</b>	
<b>Strategy description</b> An area of regenerating cleared land on the western margin of the property is scheduled for restoration to coastal Eucalypt woodland. Ongoing weed control works in this area will make more land available for restoration, and TLC intends to establish a diverse planting of local provenance species.		Area being cleared ready for revegetation Photo: D Kingdom 	
<b>Indicator</b>	<b>Status 2015-16</b>	<b>Status 2016-17</b>	<b>Status 2017-18 Trend</b>
<b>Regenerating cleared land</b> Floristic diversity Structural complexity Canopy recruitment	10 species/ site 4 strata/site 0 cohorts/site	Not measured	Data not assessed yet - unknown
<b>Progress 2017-18</b> <ul style="list-style-type: none"> <li>Visual site inspection shows regeneration in cleared areas is on-track</li> <li>In 2012 approx. 20 white gums were planted in this area. These trees are due to be re-checked and if necessary extended or replaced.</li> <li>In 2012 approx. 100 seedlings of <i>Eucalyptus globulus</i>, <i>Eucalyptus ovata</i> and <i>Acacia melanoxylon</i> were planted along the western boundary in areas previously dominated by blackberries. These areas have shown good regeneration and due to be reassessed.</li> </ul>			
<b>Key recommendations for future management</b> <ul style="list-style-type: none"> <li>Ensure annual reserve assessment monitors restoration activity</li> <li>Continue weed control.</li> <li>Include <i>E. viminalis</i> in restoration plantings</li> <li>Increase efforts to remove fallow deer from Bruny Island as a matter of environmental concern</li> </ul>			