

Lutregala Marsh Reserve: Background Report



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Front Image: Bruny Island Environmental Network volunteers helping erect property signs © Sally Bryant

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Acronyms

BIEN	Bruny Island Environmental Network < www.bien.org.au >
DPIPWE	Tasmanian Government Department of Primary Industries, Parks, Water and Environment
EPBC Act	<i>Australian Environment Protection and Biodiversity Conservation Act 1999</i>
IUCN	International Union for Conservation of Nature
NC Act	<i>Tasmanian Nature Conservation Act 2002</i>
NVA	Natural Values Atlas database (DPIPWE)
PWS	Tasmania Parks and Wildlife Service
TASVEG	Tasmanian Vegetation Monitoring and Mapping Program (TASVEG 2.0, 19 February 2009)
TFS	Tasmania Fire Service
TLC	Tasmanian Land Conservancy
TSP Act	<i>Tasmanian Threatened Species Protection Act 1995</i>
UTAS	University of Tasmania

Acknowledgements

The Tasmanian Land Conservancy would like to acknowledge the generous support of Nathan Males [former CEO] and Karen Barry who provided the initial donation enabling TLC to purchase Lutregala Marsh from the Tasmanian Conservation Trust. We thank the Tasmanian Conservation Trust for their commitment to protect this property and previous landholders Julian Bush and his extended family on Bruny Island for their original generosity and actions in instigating the area's conservation.

Special thanks go to PWS ranger Bernard Edwards and other parks staff for providing assistance throughout the reservation process and their ongoing advice on key management issues. The TLC also acknowledges the Bruny Island Environmental Network BIEN for continuing their support and interest in the reserve and helping to promote and add value to reserve assets. In 2016 Keith Corbett completed a detailed report on the physical character, history and geomorphology of the reserve for which we are sincerely grateful.

Finally, thank you to the many TLC volunteers including members of the Tasmanian Aboriginal community and the local community, who continue to assist with interpretation and management of the reserve, especially weeding, fencing and other tasks.

BACKGROUND

The Tasmanian Land Conservancy

The Tasmanian Land Conservancy (TLC) works towards achieving sustainability and biodiversity conservation in Tasmania, in partnership with other organisations, communities, individuals and governments. The TLC is a non-profit, non-political and non-governmental organisation that began in 2001 and has grown to be a respected leader in private land conservation in Tasmania, nationally and internationally.

TLC 2050 Mission

The mission of the Tasmanian Land Conservancy (TLC) is:

In partnership with other organisations, communities, individuals and governments, the TLC will:

- 1. Take a lead role in building a landscape scale approach to conservation including a world-class system of reserves complemented by sustainable development.*
- 2. Demonstrate excellence in management for biodiversity conservation.*
- 3. Contribute to Tasmania becoming a centre for knowledge and expertise for nature conservation and planning.*
- 4. Develop and implement innovative mechanisms for achieving sustainability and biodiversity conservation.*
- 5. Provide opportunities and mechanisms for communities and individuals to achieve conservation.*
- 6. Demonstrate organisational leadership through exceptional governance, a positive working environment and financial sustainability.*

INTRODUCTION

Lutregala Marsh Reserve was purchased by the Tasmanian Land Conservancy (TLC) in 2005 specifically to ensure its ongoing protection. The reserve comprises 41.9 hectares of saltmarsh and coastal forest at the mouth of Simpsons Creek of Isthmus Bay – part of the narrow connection joining south and north Bruny Island. It is typically part of a larger low lying saline marsh system supplied by freshwater originating in the South Bruny Range as Lutregala Creek then becoming Simpsons Creek as it flows into Simpsons Bay. It adjoins the Bruny Island Neck Game Reserve in an under-reserved ecosystem in Tasmania's Southeast Bioregion, while the southern and western boundaries adjoin private property used for grazing and domestic purposes.

Lutregala Marsh Reserve was listed on the register of the National Estate in 1997 as an intermediate marsh [vegetation above and below the waterline]. From 65 saltmarsh sites investigated, it was ranked equal 3rd [with 4 other sites] containing 15 species of terrestrial amphipods, crustaceans and mollusca. This saltmarsh ecosystem plays an important role in nutrient cycling in Simpsons Bay and coastal areas as well as containing threatened sea lavender *Limonium austral* and a rich diversity of raptors, waterfowl, seabirds, resident and migratory shorebirds. The Reserve's Swamp gum *Eucalyptus ovata* forest provides important habitat for the endangered swift parrot *Lathamus discolor* and its scattered white gum *E. viminalis* provides foraging and breeding habitat for Forty-spotted pardalote *Pardalotus quadragintus*, both of which have been confirmed on the reserve.

Acquisition History

Lutregala Marsh was purchased in 1994 by the Tasmanian Conservation Trust from the local landholder Julian Bush, to help continue his efforts to ensure the land was not developed but could be permanently protected. A campaign was launched and members of the public donated towards the purchase of the reserve at that time on the understanding that the land would be retained in community ownership for the express purpose of conservation. Over the intervening years the Tasmanian Conservation Trust refocused its efforts away from land ownership and in 2005 approached the Tasmanian Land Conservancy to negotiate the sale of Lutregala Marsh and transfer of ownership. The TLC embarked on this purchase process and a very generous donation from Nathan Males and Karen Barry enabled it to be purchased in its entirety and it became the TLC's third permanent reserve.

After purchase, the TLC completed a boundary survey, prepared a covenant agreement including a Nature Conservation Plan and in 2008 a perpetual conservation covenant was adhered to the land title [Conservation Covenant C810186 registered on Certificate of Land title Volume 108041 Folio 7] under the *Nature Conservation Act 2002*.

Location

Lutregala Marsh Reserve is situated at the mouth of Simpsons Creek, Isthmus Bay on the westerly side of the narrow isthmus of The Neck that connects North and South Bruny Island. The Reserve is about 8 km northeast of Alonnah along the Bruny Island Main Road. The midpoint of the reserve lies at approximately 524890E 5205723N (GDA 94) (see Figure 1, Appendix 1). Simpsons Creek, originates in the South Bruny Range and flows northwards into Isthmus Bay through the Reserve.

Access

The reserve can be accessed at two entry points on tracks which are now suitable only for walking and closed to vehicles. The main access is via the Bruny Island Main Road at The Neck (main track). Vehicles can be left on the main road and only a short relatively easy walk is required either along the existing tracks or along the sandy coastline. The second access is off Simpsons Bay Road via a very narrow reserved road (Figure 2).

Legal Status

This area meets the objectives of the International Union for Conservation of Nature (IUCN) Category IV – Habitat/species management area whose primary objective is to maintain, conserve and restore species and habitats. Other objectives include:

- To protect vegetation patterns or other biological features through traditional management approaches;
- To protect fragments of habitats as components of landscape or seascape-scale conservation strategies;
- To develop public education and appreciation of the species and/or habitats concerned;
- To provide a means by which the urban residents may obtain regular contact with nature.

A perpetual conservation covenant is registered on the land title of Lutregala Marsh Reserve under the *Nature Conservation Act 2002*. The covenant requires the owner of the reserve to manage the land for conservation and to prevent degradation of its natural values.

The *Kingborough Interim Planning Scheme 2015* is the local government planning instrument. Any developments planned for the land may need to be approved by the local government.

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the Australian Government's key piece of legislation to protect threatened species and ecological communities. In Tasmania the *Threatened Species Protection Act 1995*, *Nature Conservation Act 2002*, and *Forest Practices Act 1985* provide protective mechanisms for threatened species and ecological communities. Several species and vegetation communities listed as threatened under the Commonwealth and State threatened legislation occur on the property. Constraints may apply to activities which could potentially affect these species and communities.



Figure 1 Location and context of Lutregala Marsh Reserve, Bruny Island



Lutregala Marsh - Management



Map produced by the Tasmanian Land Conservancy - 25/05/2012

Figure 2 Access to Lutregala Marsh Reserve via the Bruny Island Main Road or Simpsons Bay Road

NATURAL VALUES

Climate

Bruny Island has a cool temperate maritime climate with a prevailing westerly wind flow. The weather is dominated by the passage of alternate high and low pressure systems and associated cold fronts embedded in this westerly air stream. Rainfall is spread evenly across the year, with slight peaks in autumn and spring due to changeable weather patterns bringing easterly winds. At times low pressure systems in the Tasman Sea can deliver considerable precipitation over a relatively short period.

The nearest full meteorological station is at Cape Bruny lighthouse, approximately 25 km southwest of the reserve. The Bureau of Meteorology climate statistics (www.bom.gov.au/climate/averages) from Cape Bruny lighthouse for the period of 1924 to 2008 show that the temperature in February, the warmest month, ranges from a mean daily maximum of 18.5°C to a mean daily minimum of 11.7°C. In July, the coldest month, temperatures range from a mean daily maximum of 11.2°C to a minimum of 6.1°C. Cape Bruny lighthouse rainfall data from 1871 to 2008 exhibit a mean annual rainfall of 946.9 mm, with an average of 130 days per year of rain ≥ 1 mm.

Rainfall and temperature is also recorded at Bull Bay approximately an equal distance to the north. There is a strong climatic gradient between these two weather stations and the precipitation and temperature regimes experienced at Lutregala Marsh are likely to be about half way between these two locations.

Flora

Lutregala Marsh supports an extensive saltmarsh and areas of coastal forest. Saltmarsh vegetation occurs on the marshy flats of the Lutregala Creek Estuary. Saltmarsh vegetation typically occurs on low energy coasts, such as Isthmus Bay, where large volumes of sediment are able to build up over long periods of time. Saltmarsh ecosystems are highly productive and play an important role in nutrient cycling. They also provide habitat for coastal and migratory bird species, and may provide nursery habitat for a variety of fish species. Saltmarsh vegetation at Lutregala Marsh is dominated by several species, with dominance controlled by environmental conditions such as salinity and frequency of inundation. Beaded glasswort (*Sarcocornia quinqueflora*) and shrubby glasswort (*Sclerostegia arbuscula*) are dominant in areas where salinity is higher. Rush species such as *Juncus kraussii* are dominant in less saline areas that are frequently inundated.

Coastal forest occurs on a narrow dune system where there are better drained soils. Around the margins of this forest patch where the soils remain somewhat waterlogged, the forest canopy is dominated by black gum (*Eucalyptus ovata*). The understorey in these marginal areas is dominated by species such as scented paperbark (*Melaleuca squarrosa*), and prickly moses (*Acacia verticillata*). Along the crest of the dune system, where soils are better drained, the forest canopy is dominated by black peppermint (*Eucalyptus amygdalina*). The understorey vegetation in this area is more diverse and is dominated by coastal heath species such as tree broomheath (*Monotoca elliptica*) and silver banksia (*Banksia marginata*).

Fauna

The fauna of the Lutregala Marsh Reserve has yet to be surveyed systematically. The vertebrates are poorly known, however, some research has been undertaken on the invertebrate amphipod community and two collections of land snails have been made by K. Bonham. A list of species known from the reserve and those recorded on the State Government's Natural Values Atlas, DPIPWE within a 500m search zone is provided in Appendix 2.

The Reserve has sufficient white gum *Eucalyptus viminalis* within the forest to support a small population of the nationally Endangered forty-spotted pardalote *Pardalotus quadragintus* and is nearby to existing well established breeding colonies to provide foraging resources for flocks during the winter period or for dispersing juveniles. The Reserve is also used at times by the nationally Endangered swift parrot *Lathamus discolor* and several records of this species have been obtained nearby. This species forages in flowering *E. globulus* and *E. ovata* during the breeding season and large colonies are known to breed on Bruny Island dry forest and woodland on a regular basis.

The narrow width of the shingle shell coastline could potentially provide nesting habitat for the fairy tern *Sterna nereis* and other tern species which use this coastline at various for shelter and feeding. The coastal beach provides suitable roosting and breeding habitat for the Pied Oystercatcher and is known as a sheltered roost site for this species. A total of 65 birds were observed roosting near the mouth of Simpsons Creek in July 2009. One pair of Pied Oystercatcher have been observed breeding on the edge of the Reserve in the shingle and samphire flats above the high tide mark and were successful in fledging a chick. Other wading birds, ducks and black swan are known to frequently occur in the channels and mouth of Simpsons Creek on a regular basis.

The concentration of raptors around the marsh during daylight hours supports it being an important foraging and breeding habitat for a range of species especially the swamp harrier. The swamp harrier is known to breed within the saltmarsh habitat above the water line and a pair were observed breeding in October 2014. Other raptors known to use the Reserve for foraging include the brown falcon and brown goshawk. White-bellied sea eagles have been recorded on the Reserve and may use the *E. amygdalina* forest as a perch site when fishing over Simpsons Bay. The Masked Owl has also been recorded in the immediate vicinity and the *E. amygdalina* forest contains several trees with large hollows suitable for nesting.

Fauna monitoring installed in 2015 using motion sensor cameras has identified a range of species using the reserve including the nationally endangered eastern quoll *Dasyurus viverrinus* and conservation significant long-nosed potoroo *Potorous tridactylus*. A summary of species detected is shown in Table 1.

The broad-striped ghost moth *Fraus latistria* has been collected from the Reserve and at one time this species was listed as rare on Tasmania's *Threatened Species Protection Act 1995*. The species remains conservation significant; however, it was down listed in 2008 after its range was found to be more widespread and habitat requirements broader than previously thought.

Table 1: Species detected by motion sensor cameras during monitoring in 2015 (detection rates shown).

Species	LUMA1	LUMA2	LUMA3	LUMA4	LUMA5
Bennett's Wallaby	34	11	4	11	4
Brushtail Possum	36	2	18	23	4
Cat (feral)	20	2	4	1	2
Eastern Quoll	2	1	7		
Echidna	2			5	
Ringtail Possum				1	
Green Rosella	3			1	
Native Hen	4	1			
Pademelon	11	8	25	42	29
Potoroo	38	12			
Purple Swamp hen	27				
Cow		2			
Superb Fairy Wren		4	1	2	
Grey Fantail			1		
Olive Whistler				3	
Tasmanian Scrubwren			1	12	4
Bassian Thrush			6		1
European Blackbird			4	1	14
Bronzewing Pigeon			23	3	43
Painted Buttonquail			3		
House mouse			15	4	
Rat (introduced sp)			27		
Fallow deer	detected	across	the entire	reserve	

Research on supra-littoral and terrestrial amphipods found eight talitrid species from four ecological groups occurred on Lutregala Marsh Reserve (Richardson and Mulcahy 1996). This community included one palustral species, one beach flea, three coastal landhoppers and three forest landhoppers (see Appendix 2). The Lutregala saltbush marsh was found to be species rich and in a good state of preservation, including some of the hindmarsh vegetation, despite having been grazed by cattle in its upper reaches (Wong *et al.* 1993). This species assemblage has since been compared to other saltmarsh ecosystems around Tasmania to provide information on community succession (Wong *et al.* 1993, Richardson *et al.* 1998).

Seven species of land snails have been identified in the Reserve by Kevin Bonham during visits made in 1990 and 2005. In 2005 Bonham sampled relatively dry sclerophyll habitats growing on margins and sandbars within the saltmarsh and found six species of molluscs including the seldom-recorded *Pedicamista coesus* which is normally found on rocky high-energy coastlines rather than in saltmarshes (Bonham 2005).

Vegetation communities

The vegetation of Lutragala Marsh has been studied in some detail and reported in Kirkpatrick and Glasby (1981) and Mount (1994). The vegetation communities have been remapped using the TasVeg 3.0 protocols and classification system - Table 2 and Figure 3.

Table 2 Vegetation communities, extent and priority

Vegetation community	TasVeg 3.0	Area (ha)	Conservation status [#]
Saline sedgeland/rushland	ARS	24.5	V
Succulent saline herbland	ASS	9.1	V
<i>E. amygdalina</i> dry coastal forest	DAC	2.8	
<i>E. ovata</i> dry woodland and forest	DOV	4.5	e
Cleared land	FRG	0.7	

[#] listed on Tasmania's Nature Conservation Act 2002 (NCA) as e endangered or the Commonwealth Environmental Protection and Biodiversity Conservation Act (EPBCA) as V Vulnerable.

Salt marsh – ARS and ASS

Although past work on the site has identified as many as twelve different floristic communities within the salt marsh, we have used the TasVeg 3.0 classification and have remapped the property. This yields two terrestrial vegetation communities Saline sedgeland/rushland (ARS) and Succulent saline herbland (ASS). Both of these communities are listed as Subtropical and Temperate Coastal Saltmarsh under the EPBCA as Vulnerable.

The majority of the area is a mosaic of saline grassland (ARS) assemblages dominated variously by coast spear grass *Stipa stipoides*, sea rush *Juncus kraussii*, chaffy saw sedge *Gahnia filum* and Australian salt grass *Distichlis distichophylla*. The balance of the salt marsh area, which occurs predominantly around the mouth of Simpsons Creek, is succulent saline herbland (ASS) dominated by samphire *Sarcocornia quinqueflora*. Towards the seaward margins the saltmarsh is dominated by established clumps of shrubby glasswort *Tecticornia arbuscula*, coastal saltbush *Rhagodia candolleana* and emergent slender honey-myrtle *Melaleuca gibbosa*.

Black peppermint (*E. amygdalina*) dry coastal forest (DAC)

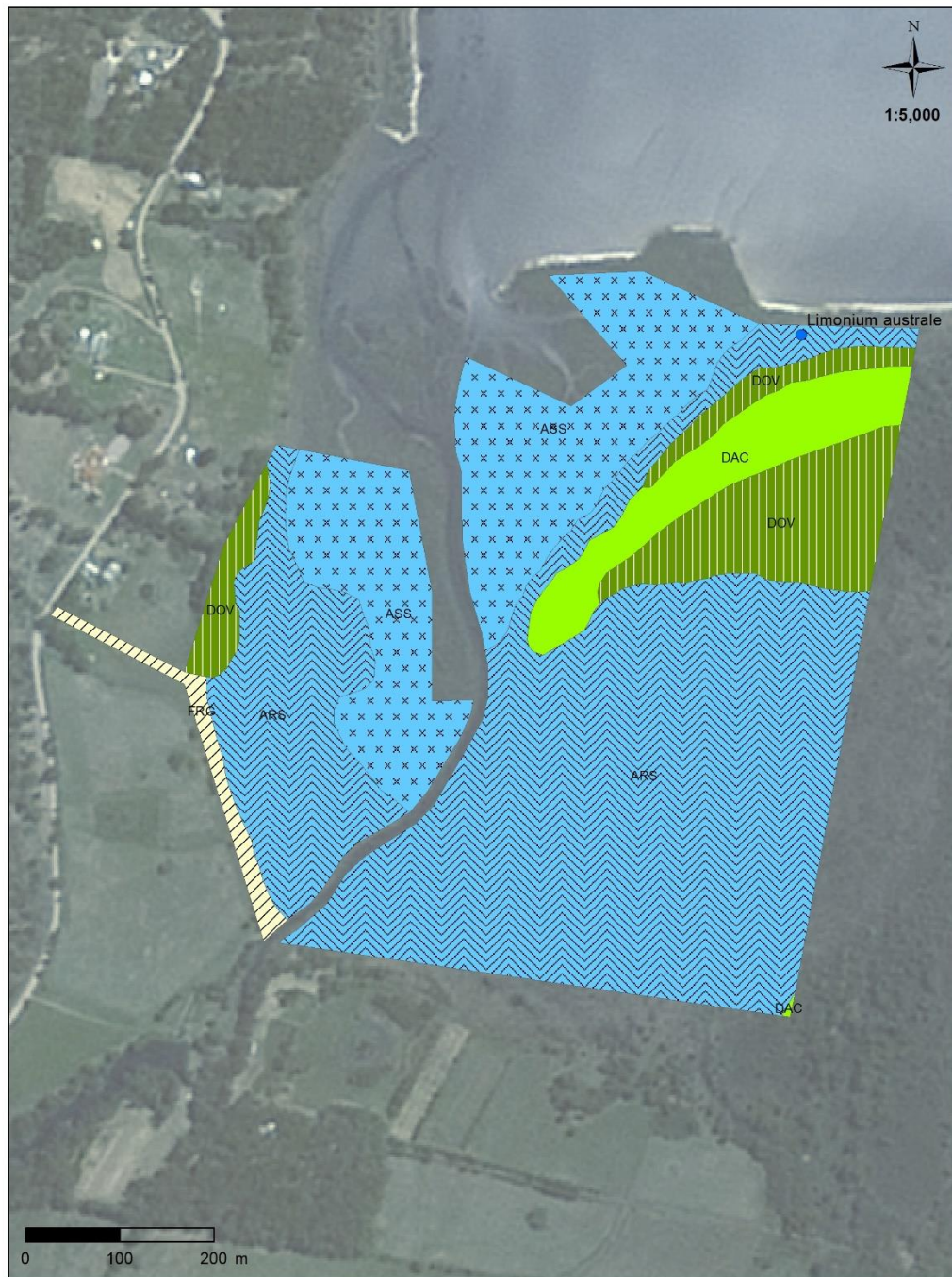
Coastal black peppermint (*E. amygdalina*) forest occurs on a narrow sand spit in the north east of the property and the canopy also includes some white gum (*E. viminalis*). Tall shrubs in this community include banksia *Banksia marginata*, smoke tea-tree *Leptospermum glaucescens*, scented paperbark *Melaleuca squarrosa*, coast wattle *Acacia sophorae* and daisy bush *Olearia sp.* There is a relatively diverse ground cover of smaller shrubs, including necklace she-oak *Allocasuarina monilifera*, common heath *Epacris impressa*, common aotus *Aotus ericoides*, white beard heath *Leucopogon collinus*, spreading guinea flower *Hibbertia procumbens*, broom spurge *Amperea xiphoclada* and pine heath *Astroloma pinifolium*. Due to its exposed site and narrow width this forest community shows evidence of wind throw and has few mature or over-mature trees with full crown development.

Black gum (*E. ovata*) dry woodland and forest (DOV)

The black gum community is listed as endangered under the NCA. It flanks and grades into black peppermint woodland and the saltmarsh. The understorey is similar to the black peppermint forest.

Regenerating cleared land (FRG)

The area of regenerating cleared land flanks the cleared land adjacent to the east. Exotic grass species and blackberry *Rubus fruticosus* spp. are still common on patches of higher ground within this area which are likely to have once been black gum forest grading into white gum on higher ground.



Lutregala Marsh - Terrestrial ecosystems

Map produced by the Tasmanian Land Conservancy - 25/05/2012

Figure 3 Vegetation communities at Lutregala Marsh Reserve

Threatened Species

A comprehensive report of the threatened species on Bruny Island and their conservation needs has been produced by Cochran (2003). A more recent list of threatened species known from or nearby the Lutregala Marsh Reserve is shown in Table 3.

Table 3 Threatened and conservation significant species on or near Lutregala Marsh Reserve, Bruny Island.

Species	Habitat	Status in the Reserve	Status EPBC or TSPA
Eastern quoll	Forest, pasture and saltmarsh fringe	Present. Abundant on Bruny Island.	Nationally Endangered
Forty-spotted Pardalote	White gum trees	Present. Limited white gum habitat but viable colonies nearby	Nationally Endangered
Swift Parrot	Flowering <i>E. globulus</i> , <i>E. ovata</i> and other eucalypt sp	Present and recorded nearby and likely to forage in Reserve	Nationally Endangered
Masked Owl	Old growth trees for nesting	Recorded nearby, nest trees occur in the reserve	State Endangered
Fairy Tern	Sandy or shingle beaches	Recorded breeding on The Neck Beach, may shelter on this coast.	State Vulnerable
White-bellied Sea-eagle	Old growth trees for nesting and roosting	Recorded in the Reserve	State Vulnerable
Sea Lavender	Coastal saltmarsh	Recorded in the Reserve on the coastal margins	State Rare
Broad-striped Ghost Moth	Marshland, grassland and forest	Recorded in the Reserve	Conservation Significant
Swamp Harrier	Marsh and grassland	Recorded in the Reserve, likely breeding	Conservation Significant
Pied Oystercatcher	Coastal beaches	Recorded breeding in the Reserve	Conservation Significant

Geology and geomorphology

A comprehensive report on the physical character of Lutregala Marsh Reserve has been undertaken by Keith Corbett and a copy of this report (Corbett 2016) is available on TLC's web site. An extract is provided below.

The geomorphological features and soils of the Bruny Island Neck area are in the main coastal land forms which have developed in response to progressive changes in sea level caused by glacial-interglacial cycles during the Pleistocene. The marsh and the Bruny Island Neck area in general, would likely have gained their present form during the most recent marine transgression. This occurred during the late Pleistocene and early to mid-Holocene Period when the sea reached its current level about 7,000 years before the present. Around 10,000 years ago the area occupied by the Lutregala Marsh Reserve was probably part of a large, now inundated coastal plain. Rising sea levels would have initiated dune building and the formation of a salt or freshwater lagoon and progressive sediment infilling during the Holocene would have created the current marshy environment.

Pests, Weeds and Disease

Small infestations of radiata pine *Pinus radiata* and Spanish heath *Erica lusitanica* were observed on the Reserve during a working bee in July 2012 and have since been eradicated. Other weeds observed in the Reserve include briar rose *Rosa rubiginosa*, cumbungi *Typha* sp., *Crocosmia montbretia* and small patches of introduced blackberry *Rubus fruticosus* and thistle sp, probably as a result of past farming practices. These outbreaks have been managed under the TLC's Lutregala Marsh Weed Management Strategy 2012 - 2017 for a number of years and are now greatly reduced. There is potential for the wetland rice grass *Spartina anglica* to invade the coastal inlets and bays but no evidence of this species has been detected to date. There is no evidence of the disease *Phytophthora cinnamomi* occurring in the reserve, however, potential exists for the introduction of this disease through visitation and management activities.

Phytophthora cinnamomi causes dieback and/or death of a wide range of native plant species, particularly those of the Proteaceae, Epacridaceae and Myrtaceae families, including some species present at the reserve. *P. cinnamomi* is transported via the transfer of infected soil from one place to another, which can be prevented by ensuring that items that may carry soil, including vehicles, boots, tents and camera tripods, be washed prior to entering the reserve. Hygiene protocols have been prepared by Government to minimise the risk of this disease spreading into new areas.

There is evidence of European rabbit grazing on the perimeter of the Reserve especially in the forest margins and along the grassy verges adjacent to the roadside. It is likely this pest species infiltrates the saltmarsh area during the drier parts of the summer months. A baseline fauna survey detected a large number of feral cats on the Reserve including five different individuals and a number of potentially unidentified cats. The TLC is a key partner in supporting the Kingborough Council and State Government in reducing the impact of feral cats on wildlife and more specifically the program for their eradication from Bruny Island.

Fallow deer *Dama dama* were observed on the reserve in 2015/6 after a small number of animals escaped from nearby Satellite Island in 2012 and subsequently established on Bruny Island. The eradication of fallow deer must be supported by the government and the local community to prevent this species from spreading and causing ongoing damage to natural values.

CULTURAL HISTORY

Bruny Island is significant to Tasmania's Aboriginal people being the birth place of Truganini, a daughter of Mangana, Chief of the Bruny Island people. Her name was the word her tribe used to describe the grey saltbush *Atriplex cinerea*. The Nuenonne word 'lutregala' means 'fine day' in English and Bruny Island as a whole remains a significant place for the traditional owners of this land. It is likely that the region around and including Lutregala Marsh was used extensively by Tasmanian Aborigines prior to and after the arrival of European explorers and settlers. The extensive tidal areas in front of the reserve support shellfish and the marsh itself may have provided opportunities for hunting and gathering. Cultural heritage surveys could well reveal signs of Aboriginal occupation such as middens.

Management history

The good condition of the natural values of this property can be attributed to its previous uses and more sympathetic management in more recent times. The parcel of land known as Lutregala Marsh was originally granted to Thomas Harper in 1829 who attempted to drain and farm it and who established fence lines and weirs to control water inundation. It was then identified as two separate titles. Since this time attempts have been made to drain the southern and central areas of the marsh and to control tidal inundation by the addition of tide control weirs (Mount 1994). These drains are still visible on aerial photographs. Remnant fencing is also still in place throughout the Reserve including sections of wire and fence posts. Clearing has also taken place in the *Eucalyptus* woodland/forest along the eastern boundary of the Reserve but this area is now regenerating well. Cattle grazing is still undertaken on adjacent freehold properties but the boundaries of Lutregala Marsh now have stock-proof fencing to prevent stock straying onto the marsh.

Shared management issues with Parks and Wildlife relate to the continuity of the Reserve with the Bruny Island Neck Game Reserve. Due to their presence on the island, Parks and Wildlife staff have continued to oversee the status and security of the Reserve within their duties and have provided ongoing management support and advice with weed control especially *Erica lusitanica*, blackberry *Rubus fruticosus*, fire management issues and feral pests, especially trapping of feral cats from nearby penguin and shearwater colonies at The Neck as part of the Bruny Island Cat Control Program (B. Edwards, pers comm.).

MANAGEMENT PLAN OVERVIEW

A summary of the management plan developed for Lutregala Marsh Reserve is outlined (Lutregala Marsh Reserve Management Plan, TLC 2015) and is available on the TLC web site.

VISION	Manage Lutregala Marsh Reserve for the saltmarsh values that most depend on it and ensure these values benefit the community and the surrounding environment, both now and in the future.
CONSERVATION TARGETS	GOALS
Saltmarsh	Maintain Saltmarsh in very good condition
Coastal Forest	Enhance the condition of the forest by reducing the impact of cats and weeds by 2021
SOCIAL TARGETS	GOALS
Community connection with the landscape	Community connection with the reserve and region is maintained or enhanced
STRATEGIES	OBJECTIVES
Build Resilience to Climate Change	Build resilience and monitor changes due to climate change
Annual reserve assessment	All potential threats are assessed and reported annually
Feral Animal Control	Minimise the impact of cats on wildlife on the Reserve.
	Support eradication of Fallow deer from the Island
Reserve infrastructure	Access by domestic stock is prevented (ongoing)
Weed management	Existing infestations of blackberry are reduced in extent and density in the Reserve by 2017
TLC pathogen policy	Prevent further spread of weeds and pathogens in the reserve
Fire management	No unauthorised fires occur on the reserve (ongoing)
Revegetation	Native plant species will be the dominant cover class in the revegetation zone by 2020
Community engagement	Enhanced community appreciation of the values of the reserve and region
KEY ACTIONS	MONITORING ACTIVITIES
<ul style="list-style-type: none"> Annual reserve assessment Continue partnering in a cat management strategy for Bruny Island Follow-up weed control efforts Revegetation of cleared land Continue community engagement Adhere to TLC pathogen policy 	<ul style="list-style-type: none"> (Standard) long term ecological vegetation and fauna monitoring Saltmarsh extent, seaward edges of saltmarsh and coastal forest Swift parrot, forty-spotted pardalote and swamp harrier nesting sighting in breeding season Weed extent and density Install and score baited camera traps for feral and native animals Longterm ecological monitoring and annual reserve assessments

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Appendix: Flora of Lutregala Marsh Reserve

Family	Scientific Name	Common Name	Status
	<i>Acacia sophorae</i>	coastal wattle	
	<i>Acacia stricta</i>	hop wattle	
	<i>Allocasuarina monilifera</i>	necklace sheoak	
	<i>Allocasuarina verticillata</i>	drooping sheoak	
	<i>Amperea xiphoclada</i>	broom spurge	
	<i>Aotus ericoides</i>	common aotus	
	<i>Astroloma pinifolium</i>	pine heath	
	<i>Banksia marginata</i>	silver banksia	
	<i>Bedfordia salicina</i>	Tasmanian blanketleaf	
	<i>Caladenia gracilis</i>	musky caladenia	
	<i>Daviesia ulicifolia</i>	spiky bitterpea	
	<i>Dicksonia antarctica</i>	soft treefern	
	<i>Distichlis distichophylla</i>	Australian salt grass	
	<i>Epacris impressa</i>	common heath	
	<i>Eucalyptus amygdalina</i>	black peppermint	
	<i>Eucalyptus globulus</i>	Tasmanian blue gum	
	<i>Eucalyptus pulchella</i>	white peppermint	
	<i>Eucalyptus viminalis</i>	white gum	
	<i>Gahnia filum</i>	chaffy saw sedge	
	<i>Goodenia ovata</i>	hop native-primrose	
	<i>Hibbertia procumbens</i>	Spreading guinea flower	
	<i>Juncus kraussii</i>	Sea rush	
	<i>Leptospermum glaucescens</i>	smoky teatree	
	<i>Leptospermum scoparium</i>	common teatree	
	<i>Leucopogon collinus</i>	white beard heath	
PLUMBAGINACEAE	<i>Limonium australe</i>	sea lavender	r
	<i>Lomatia tinctoria</i>	guitar plant	
	<i>Melaleuca gibbosa</i>	slender honey-myrtle	
	<i>Melaleuca squamea</i>	swamp honey-myrtle	
	<i>Melaleuca squarrosa</i>	scented paperbark	
	<i>Myriophyllum salsugineum</i>	lake watermilfoil	
	<i>Olearia sp.</i>	daisy bush	
	<i>Pomaderris apetala</i>	dogwood	
	<i>Rhagodia candolleana</i>	coastal saltbush	
	<i>Sarcocornia quinqueflora</i>	samphire	
	<i>Sclerostegia arbuscula</i>	shrubby glasswort	
	<i>Stipa stipoides</i>	coast spear grass	

Appendix: Fauna of Lutregala Marsh Reserve

Taxa	Scientific name	Common name	Status ¹
MAMMALS			
Monotremata	<i>Tachyglossus aculeatus</i>	Echidna	
Dasyuridae	<i>Dasyurus viverrinus</i>	Eastern quoll	E
Macropodidae	<i>Macropus rufogriseus</i>	Bennett's wallaby	
Macropodidae		Pademelon	
Macropodidae	<i>Potorous tridactylus apicalis</i>	Long-nosed potoroo	
Petauridae	<i>Pseudocheirus peregrinus</i>	Ring-tailed possum	
Phalangeridae	<i>Trichosurus vulpecula subsp. fuliginosus</i>	Brush-tailed possum	
BIRDS			
Accipitridae	<i>Circus approximans</i>	Swamp harrier	
Accipitridae	<i>Haliaeetus leucogaster</i>	White-breasted sea-eagle	V
Tytonidae	<i>Tyto novaehollandiae</i>	Masked owl	E
Maluridae	<i>Malurus cyaneus</i>	Superb blue fairywren	
Meliphagidae	<i>Lichenostomus flavicollis</i>	Yellow-throated honeyeater	
Meliphagidae	<i>Phylidonyris novaehollandiae</i>	New Holland honeyeater	
Meliphagidae	<i>Anthochaera paradoxa</i>	Yellow wattlebird	
Pardalotidae	<i>Sericornis humilis</i>	Tasmanian scrubwren	
Petroicidae	<i>Petroica multicolor</i>	Scarlet Robin	
Artamidae	<i>Cracticus torquatus</i>	Grey butcherbird	
Sylviidae	<i>Megalurus gramineus</i>	Little grassbird	
Psittacidae	<i>Platycercus caledonicus</i>	Green rosella	
Corvidae	<i>Corvus tasmanicus</i>	Forest raven	
Psittacidae	<i>Lathamus discolor</i>	Swift parrot	E
Pardalotus	<i>Pardalotus quadragintus</i>	Forty-spotted pardalote	E
Laridae	<i>Sterna nereis</i>	Fairy tern	V
Haematopodidae	<i>Haematopus longirostris</i>	Pied oystercatcher	
Anatidae	<i>Cygnus atratus</i>	Black swan	
Charadriidae	<i>Vanellus miles</i>	Masked lapwing	
Rallidae	<i>Gallinula mortierii</i>	Tasmanian native hen	
Rallidae	<i>Porphyrio porphyrio</i>	Purple Swanphen	
Turnicidae	<i>Turnix varius</i>	Painted buttonquail	
INVERTEBRATES			
Amphipoda	<i>Eorchestia palustris</i>	Saltmarsh amphipod	
Amphipoda	<i>Orchestia australis</i>	Saltmarsh beach flea	
Amphipoda	<i>Austrotroides maritimus</i>	Coastal landhopper	
Amphipoda	<i>Keratroides rex</i>	Coastal landhopper	
Amphipoda	<i>Tasmanorchestia sp.</i>	Coastal landhopper	
Amphipoda	<i>Keratroides vulgaris</i>	Forest landhopper	
Amphipoda	<i>Mysticotalitrus tasmaniae</i>	Forest landhopper	
Amphipoda	<i>Mysticotalitrus cryptus</i>	Forest landhopper	
Mollusca	<i>Caryodes dufresnii</i>	Saltmarsh land snail	
Mollusca	<i>Laomavix collisi</i>	Saltmarsh land snail	

¹ *Tasmania's Threatened Species Act 1995* – r = rare, v = vulnerable, e = endangered; *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* – R = rare, VU = vulnerable, EN = endangered; JAMBA – Japan/Australia Migratory Bird Agreement; CAMBA – China/Australia Migratory Bird Agreement; * = Of concern ^ = Needs monitoring – Bryant (2002) Conservation assessment of beach nesting and migratory shorebirds in Tasmania; # = Near threatened – IUCN Red List.

Taxa	Scientific name	Common name	Status ¹
MAMMALS			
Mollusca	<i>Magilaoma penolensis</i>	Saltmarsh land snail	
Mollusca	<i>Paralaoma caputspinulae</i>	Saltmarsh land snail	
Mollusca	<i>Pedicamista coesus</i>	Saltmarsh land snail	
Mollusca	<i>Roblinella gadensis</i>	Saltmarsh land snail	
Mollusca	<i>Succinea australia</i>	Saltmarsh land snail	
Hepialidae	<i>Fraus latistria</i>	Broad-striped ghost moth	
INTRODUCED			
	<i>Oryctolagus cuniculus</i>	European rabbit	i
	<i>Felis catus</i>	Cat	l
	<i>Rattus rattus</i>	Black rat	
	<i>Mus musculus</i>	House mouse	
	<i>Dama dama</i>	Fallow deer	