

Lower Liffey World Heritage Reserve

Background Report 2017



www.tasland.org.au

Tasmanian Land Conservancy (2017). Lower Liffey World Heritage Reserve Background Report 2017. Tasmanian Land Conservancy, Lower Sandy Bay, Tasmania, Australia.

Copyright ©Tasmanian Land Conservancy

The views expressed in this report are those of the Tasmanian Land Conservancy. It may be reproduced for study, research or training purposes subject to an acknowledgment of the sources and no commercial usage or sale. Requests and enquires concerning reproduction and rights should be addressed to the Tasmanian Land Conservancy.

Front Image: Lower Liffey wet forest - photo Matthew Newton

Contact Address

Tasmanian Land Conservancy

PO Box 2112, Lower Sandy Bay,

827 Sandy Bay Road, Sandy Bay TAS 7005

|ph: 03 6225 1399 | www.tasland.org.au



Table of Contents

Background	5
Introduction	6
Location and context	6
Access	6
Legal Status	9
World Heritage Area Status	9
Stakeholders	9
Environmental Parameters	11
Climate	11
Geology, Geomorphology and Soils	11
Hydrology	12
Natural values	12
Flora and Fauna	12
Threatened and priority species	12
Vegetation	13
Pests, Weeds and Disease	15
Scientific research summary	17
Cultural history	17
Management history	17
Management Plan Overview	18
References	19
Acronyms and abbreviations	19
Appendix 1: Flora species	20
Appendix 2: Fauna species	22

Acknowledgements

The purchase of Lower Liffey Reserve was made possible by the generous gifts from many supporters, a gift and loan from the Rob and Sandy Purves Environmental Trust, and by the actions of Gunns Pty Ltd and Dr Bob Brown. The TLC acknowledges that their generosity and commitment to conservation has been further endorsed by this property recognised with world heritage status. The TLC also greatly appreciates the assistance of its many supporters who continue to provide overwhelming assistance through donations and voluntary labour for the ongoing management of the Lower Liffey WHA Reserve.

The TLC acknowledges the data provided by Land Information System Tasmania (*theList*) and the DPIPWE Natural Values Atlas used in compiling maps and tables in this document.

BACKGROUND

The Tasmanian Land Conservancy

The Tasmanian Land Conservancy (TLC) is a non-profit, non-political, private organisation that works towards achieving sustainability and biodiversity conservation in Tasmania.

TLC 2050 Mission

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

- Take a lead role in building a landscape scale approach to conservation including a worldclass system of reserves.
- Demonstrate excellence in management for nature conservation.
- Contribute to Tasmania becoming a centre for knowledge in nature conservation and planning.
- Develop and implement innovative mechanisms for achieving nature conservation.
- Provide opportunities and mechanisms for communities and individuals to achieve nature conservation.
- Demonstrate organisational leadership through exceptional governance, a positive working environment and financial sustainability.

This management plan and the implementation of the strategies and actions within it, including monitoring and reporting, contribute to the TLC achieving its mission.

INTRODUCTION

The Lower Liffey Reserve (the Reserve) is 14.76ha of wet forest which was acquired in 2010 as part of the TLCs 'New Leaf' project. The New Leaf project was launched to conserve 28,000 hectares of native forest formerly owned by the commercial logging company Gunns Limited. That purchase was made possible by the generous loan and gifts from the Elsie Cameron Foundation, Graeme Wood Foundation, and Rob and Sandy Purves Environmental Trust, and by the actions of Dr Bob Brown.

Bob Brown tells the story of the Lower Liffey Reserve acquisition:

'At the time Gunns announced it was selling off much of its forested lands in Tasmania, I noticed one block was near the Liffey Falls. Just 14 hectares, I know this land well - it touches corners with the 100 hectare block on the other (east) side of the Liffey River which I bought in 1990 and which became the first Bush Heritage Australia property.

I went up and checked out the block: it is tattered but formed an important complement to the Liffey Falls Reserve camp area - it is on the west bank of the river opposite the camp. So I took the unusual (desperate) step of telephoning Gunns' CEO, Greg L'Estrange in Launceston, who I had met before and is a thoroughly good fellow. He was immediately interested in my suggestion that the block go to TLC's good hands - and so it did!'

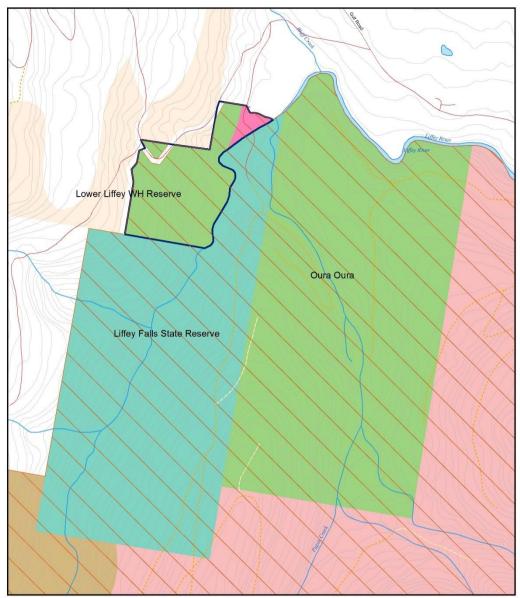
The Reserve has been heavily logged at some point in the past and is in the early stages of regeneration. It is bounded to the east by the Liffey River and rises from about 270m above sea level along the river to about 510m above sea level on the western boundary.

Location and context

The Reserve is located in the Meander Valley, approximately 42km south-west of Launceston (GDA94 grid reference 481618 E, 5385283 N). It is situated on the northern boundary of the Liffey Falls State Reserve, is adjoined to the north by informal reserve on State Forest and close to Oura Oura – the inaugural private protected area owned by Bush Heritage Australia (see Figure 1). Together, these blocks form important protection for the upper Liffey valley and the Liffey Falls and were accepted as an extension to the Tasmanian Wilderness World Heritage Area in 2013.

Access

The Reserve is accessed in the north-east corner by the unsealed Parks access road into the adjoining Liffey Falls State Reserve where cars can safely park and this facilitates easy access and camping in the cleared river flats of the Reserve. It is also bisected in the north-west corner by the Forestry Tasmania unsealed Bogan Road where very limited safe parking occurs. The Reserve can also be relatively easily accessed by foot from the campground within the Liffey Falls State Reserve.



Lower Liffey World Heritage Reserve - local context

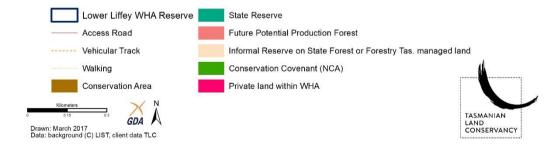


Figure 1 Local context of Lower Liffey WHA Reserve

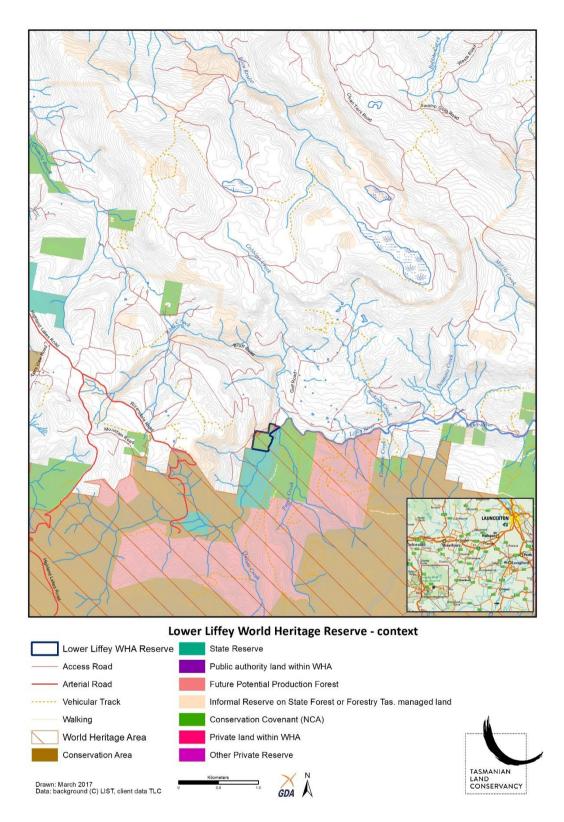


Figure 2 Broad context of the Lower Liffey World Heritage Reserve

Legal Status

World Heritage Area Status

In 2013, the Lower Liffey Reserve was given World Heritage Area status as an extension to the Tasmanian Wilderness World Heritage Area and forms part of the northern boundary of the TWWHA. This status is recognised through the World Heritage Convention to areas having both natural and cultural heritage of Outstanding Universal Value.

The Reserve is private freehold land in one title (PID 2003475; CT 38867/1). A conservation covenant under the *Nature Conservation Act 2002* is registered over most of the area of the Reserve with the cleared river flat camping area excluded (see Figure 3), The covenant requires the owner of the Reserve to manage the land for conservation and to prevent degradation of its natural values.

The Reserve meets the objectives of the International Union for Conservation of Nature (IUCN) Category IV – Habitat/species management area, the primary objective of which is to maintain, conserve and restore species and habitats.

Several threatened species under Australia's *Environment Protection and Biodiversity Conservation*Act 1999 (EPBC Act) and Tasmania's *Threatened Species Protection Act 1995* occur on the Reserve and constraints may apply to activities which could adversely affect them. In Tasmania the, *Nature*Conservation Act 2002, and Forest Practices Act 1985 may also apply for threatened species.

The *Meander Valley Interim Planning Scheme 2013* is the current local government planning instrument but at the time of writing, a new State-wide Planning Scheme is imminent. Any developments planned for the land may need to be approved by the Meander Valley Council.

Stakeholders

Key stakeholders include:

- the Parks and Wildlife Service, which manages the adjoining Liffey Falls State Reserve and owns the lower access road and bridge over the Liffey River;
- Bush Heritage Australia which owns and manages Oura Oura to the east of the Reserve;
- Forestry Tasmania, which abut the Reserve to the west and north
- Two private neighbours –of the cleared land abutting the Reserve to the north and one who has rights over the reserved road on the western boundary of the Reserve
- the Private Land Conservation Program (DPIPWE), which administers conservation covenants in Tasmania; and
- TLC supporters.

The TLC seeks to engage with all interested parties when preparing reserve management plans and background reports. These plans and documents are available on the TLC's web site www.tasland.org.au; comments are welcomed and can be made at any time.

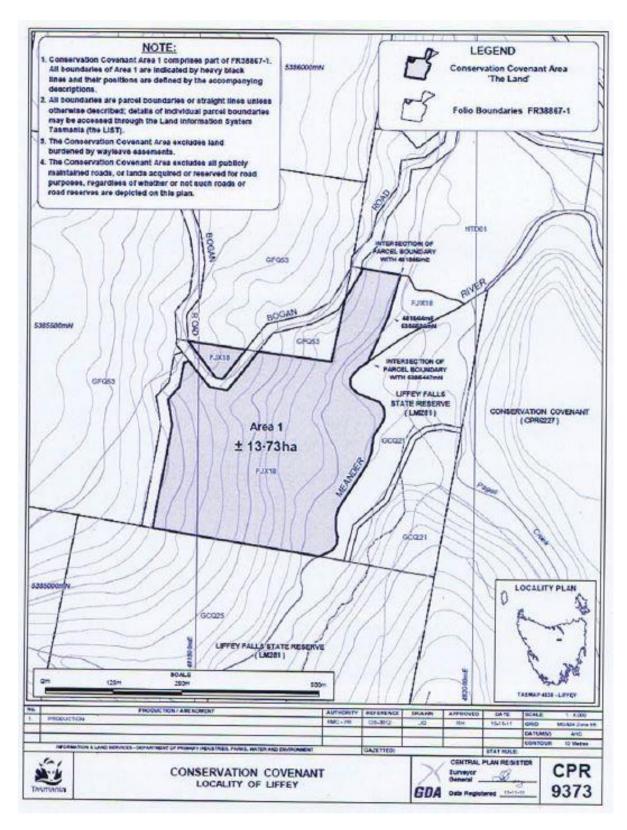


Figure 3 Conservation Covenant area Lower Liffey World Heritage Reserve

ENVIRONMENTAL PARAMETERS

Climate

Lower Liffey WHA Reserve experiences a cool temperate climate. The nearest weather station to the Reserve was located 5.6km to the east at Liffey but was closed in 1998 (station no. 91052). The average annual rainfall recorded from this station was 1075mm, with an average of 107 rain days per annum. The monthly averages recorded at this station can be seen in Table 1.

The Liffey station was at an elevation of 270m above sea level as compared to the significantly higher altitudinal range of the Reserve (approximately 385-510m asl). As a result, the Reserve may receive higher rainfall than experienced at this station.

Rainfall (mm)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean	52.7	55.5	55.9	81.9	105.5	108.4	137.7	133.3	107.3	95.5	68.5	67.5
Median	49.3	45.2	42.2	78.7	81.7	97.3	130.1	125.3	105.0	86.4	63.2	59.2

Table 1. Average monthly rainfall recorded at station no. 91052

The average annual maximum temperature recorded at station no. 91211 is 17° C, while the average annual minimum temperature is 5.3° C. The monthly maximum and minimum temperatures recorded at this station can be seen in Table 2.

Temperature (°C)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Highest Daily	33.6	33.8	30.8	25.9	23.3	17.1	17.5	16.6	20.5	26.2	27.6	30.8
Lowest Daily	14.2	14.8	13.1	11.4	10.0	7.2	4.6	6.3	7.9	8.0	11.7	13.4

Table 2. Monthly maximum and minimum temperatures recorded at station no. 91211

Geology, Geomorphology and Soils

Three separate substrates occur on the Reserve. The western end of the Reserve features upper glacio-marine sequences of pebbly mudstone, pebbly sandstone and limestone of the Lower Parmeener Supergroup (Permian). Through the centre of the Reserve freshwater and paralic sandstone and mudstone of the Lower Parmeener Supergroup can be found, which may contain coal measures. At the eastern end of the Reserve along the river lie undifferentiated Cenozoic (quaternary) sequences of alluvial sand, gravel and mud. These sediments are regularly reworked on the small, but active floodplains.

Hydrology

There are two small gullies within the Reserve which drain to the east into the Liffey River. The Liffey River, which forms the eastern boundary of the property, drains via the Meander and South Esk Rivers to the Tamar River.

NATURAL VALUES

Flora and Fauna

The Reserve has not been surveyed in detail, but is already known to support a wide range of flora and fauna species typical of wet forest and rainforest (see Appendix 1, Appendix 2). Motion sensor cameras installed in April 2016 (Fig 3) have identified seven native mammals and two introduced rodent species and a good compliment of native birds, both these lists are likely to increase as more time is spent on-site. Given the available habitat, in particular the old growth elements and riparian zone along the Liffey River, a much wider range of species are likely to utilise the Reserve.

Threatened and priority species

Motion sensor cameras have identified Tasmanian devil *Sarcophilus harrisii* and spotted-tailed quoll *Dasyurus maculatus* in the Reserve and both these species are listed as threatened on State and Commonwealth legislations (see Table 3). Habitat exists for a number of additional listed species which will be targeted in future survey efforts

Table 3 Threatened species likely to utilise the Reserve

Species	Common name	Conservation Status (TSPA/EPBCA)#	Status/significance at Lower Liffey Reserve
Aquila audax fleayi	Tas. wedge-tailed eagle	e/EN	Suitable habitat on the Reserve
Accipiter novaehollandiae	Grey Goshawk	e/-	Suitable habitat on the Reserve
Dasyurus maculatus	Spotted tailed quoll	r/VU	Identified on the Reserve
Sarcophilus harrisii	Tasmanian Devil	e/EN	Identified on the Reserve
Tyto novaehollandiae	Masked Owl	e/VU	Suitable habitat on the Reserve

[#] listed on the Tasmanian *Threatened Species Protection Act 1995* (TSPA) and/or the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBCA).

Vegetation

Regenerating wet eucalypt forest occupies most of the area of the Reserve, corresponding with one vegetation community under the TASVEG 3.0 classification: brown-topped stringybark (*Eucalyptus obliqua*) wet forest (WOB) (Fig 4). This community is considered well reserved in Tasmania. The small covenant exclusion zone where camping occurs next to the road and bridge has been cleared in the past and is classified as regenerating cleared land, and tiny pockets of riparian scrub are classified as Eastern riparian scrub.

Most of the forest community has been heavily logged in the past, with only relatively small areas in the riparian zone along the Liffey River unaffected by logging. As a result, there are generally only scattered mature eucalypts in the canopy over an understorey dominated by early successional species. Brown-topped stringybarks to 25m in height are the dominant canopy species, along with occasional gum-topped stringybark (*E. delegatensis*) and white gum (*E. vminalis*). The understorey is generally dominated by a mid-storey of mature silver wattle (*Acacia dealbata*), but there are also relatively open sites dominated by tree ferns (*Dicksonia antartica*). The ground layer is largely open, with typical deep rotting litter and is dominated over most of the Reserve by a range of fern species.

A range of rainforest trees and shrubs are locally dominant in the riparian zone along the Liffey River and along some internal drainage lines, including a small area of tall, old growth myrtles (*Nothofagus cunninghamii*) in the un-logged forest along the river.

The regenerating cleared land (ex-pasture) has a few overstorey eucalypts has areas of gravel from continual use for parking and short grassy areas where tents and casual campfires keep the ground open.

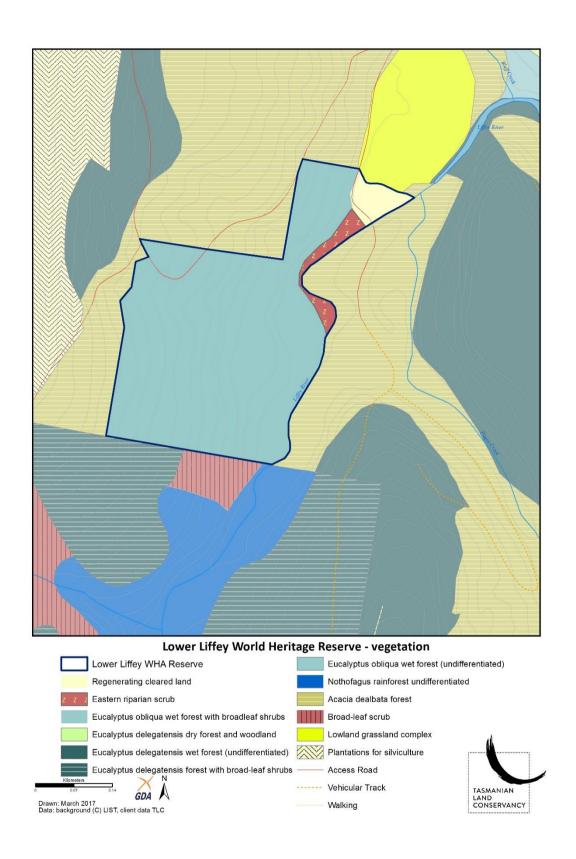


Figure 4 Vegetation communities on Lower Liffey WHA Reserve

Pests, Weeds and Disease

Native ecosystems in many areas are under threat from weeds, pests and disease, including *Phytophthora cinnamomi* (PC). Weeds and pathogens are spread to new areas when contaminated water, mud, gravel, soil and plant material or infected animals are moved between sites.

Contaminated materials are commonly transported on boots, equipment and vehicles. The infection status of an area is never fully known and distribution will change over time, so it is crucial that strict hygiene practices are implemented at all sites. Once a weed or pathogen is present in an area it is usually impossible to eradicate.

Left uncontrolled, environmental weeds and other introduced species have the potential to displace native species, modify habitat and disrupt 'natural' ecological interactions.

Four environmental weed species are known to occur on the Reserve: elderberry (*Sambucus nigra*.); blackberry (*Rubus fruticosa*), foxglove (*Digitalis purperea*) and Elisha's tears (*Leycesteria formosa*). (Fig 5).

The Reserve contained scattered elderberry plants at the time of acquisition, with some occurring as small trees with trunk diameters up to 200mm. While mature elderberry has been removed, some ongoing recruitment from seed can be expected. Scattered blackberry plants occur across the Reserve, intertwined with vegetation in the groundcover, while foxglove is present in exposed, previously disturbed areas such as road margins. A few Elisha's tears plants have been found and removed as well. These weed species are subject to annual control work (Fig 5).

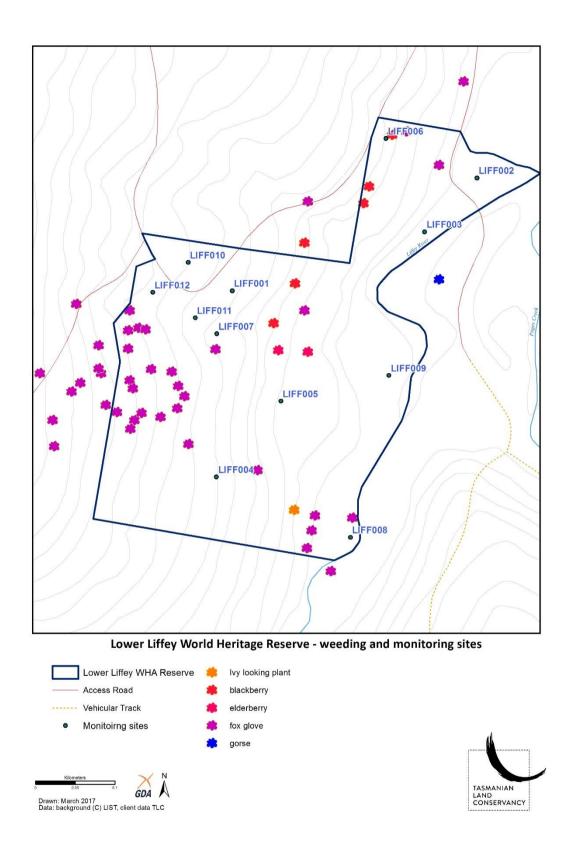


Figure 5 Location of weed control on Lower Liffey Reserve

Scientific research summary

No scientific research has been conducted at Lower Liffey World Heritage Reserve to date.

Cultural history

Little is known of the Aboriginal history of the area. There is some evidence to suggest that the area surrounding Liffey Falls was a significant meeting place for Tasmanian Aborigines. The Liffey River was originally called Tellerpangger by the Panninher clan who occupied the area.

Information contained on Wikipedia reports: "In 1827 a significant massacre of up to sixty of the Pallittorre clan by European colonists took place in the vicinity. Settlers on a reprisal raid for the murder of a stockman are said to have surprised the gathered Pallittorre on a winter dawn in 1827. They are reported in the Colonial Times to have killed "an immense quantity". About 60 died or were wounded and perhaps 40 more Pallittorre died in two further skirmishes in the next 18 days, as did three colonists.

The initial massacre is reported in The Sydney Morning Herald as happening at Liffey Falls, while the Colonial Times and Tasmanian Advertiser (6 July 1827) report events as occurring near Quamby's Bluff:

"They were surrounded whilst sitting round their fires, when the soldiers and others fired at them when about 30 yards distant. They report that there must be about sixty of them killed and wounded."

Management history

Logging

With the exception of areas on the lower slopes and the riparian zone along the Liffey River, the wet forest on the Reserve was fairly heavily logged in the recent past and is in the early stages of regeneration.

Fire

There is no information on fire history or clear evidence of past fires. The rainforest species in the understorey of the wet forest are sensitive to fire. During dry summer conditions there is the potential for fires to start on or near the Reserve as a result of arson or escaped camp-fires. There is also an ongoing risk from wildfires in the broader landscape, whether they result from arson, accidental ignition or natural ignition sources such as lightning.

MANAGEMENT PLAN OVERVIEW

The management plan developed for the Lower Liffey WHA Reserve is outlined in the vision, targets and strategies shown below and contained in a separate document (The Lower Liffey WHA Reserve Management Plan, TLC 2017). The plan was reviewed by the TLC's Science and Planning Advisory Council, approved by the TLC Board and is available via the TLC web site (www.tasland.org). The TLC uses an adaptive management framework to generate the management plan, to record monitoring of progress towards goals and objectives and to generate annual work plans based on the results of previous implementation and monitoring.

VISION	Lower Liffey WHA Reserve is managed for its wet forest ecosystem.

CONSERVATION TARGET	GOAL
Wet forest ecosystem	Maintain or improve the 2016 condition of the forest.
SOCIAL TARGET	GOAL
Community connection to the	Community are engaged with the Reserve and region.
landscape	
STRATEGIES	OBJECTIVES
Improve knowledge of flora and	By 2020 species of conservation significance which occupy or utilise the
fauna	Reserve have been identified and their habitat is being managed effectively.
Access management	Exclude known threats, including fire, weeds and disease.
Exotic species management	The number and extent of weeds is reduced over time.
Fire management	Exclude fire.
Community access	The Reserve provides community access to the adjoining recreational area.
Annual Reserve assessment and neighbour relations	Exclude known threats, including fire, weeds and disease.
	No new threats emerge from 2016.

References

Tasmanian Land Conservancy (2017). Lower Liffey World Heritage Reserve Management Plan 2017 – 2021. Tasmanian Land Conservancy, Tasmania Australia.

Acronyms and abbreviations

DPIPWE Tasmanian Government Department of Primary Industries, Parks, Water and

Environment

EPBC Act Australian Environment Protection and Biodiversity Conservation Act 1999

IUCN International Union for Conservation of Nature

NC Act Tasmanian *Nature Conservation Act 2002*

NVA Natural Values Atlas database (DPIPWE)

PWS Tasmania Parks and Wildlife Service, DPIPWE

TASVEG Tasmanian Vegetation Monitoring and Mapping Program (TASVEG 2.0, 19 February

2009)

TFS Tasmania Fire Service

TLC Tasmanian Land Conservancy

TSP Act Tasmanian Threatened Species Protection Act 1995

UTAS University of Tasmania

WHA World Heritage Area – status designated at the World Heritage Area Convention

APPENDIX 1: FLORA SPECIES

Species list collected during on-site visits by TLC staff.

Family	Species Name	Common Name	Comment
Dicotyledons (trees, shr	ubs and herbs)		
ADOXACEAE	Sambucus sp.	elderberry	introduced
ASTERACEAE	Olearia argophylla	musk	
	Olearia phlogopappa	dusty daisybush	
ATHEROSPERATACEAE	Atherosperma moschatum	sassafras	
MIMOSACEAE	Acacia dealbata	silver wattle	
	Acacia melanoxylon	blackwood	
MYRTACEAE	Eucalyptus delegatensis	gum top stringy bark	
	Eucalyptus obliqua	brown top stringy bark	
	Leptospermum lanigerum	woolly tea-tree	
NOTHOFAGACEAE	Nothofagus cunninghamii	myrtle	
PITTOSPORACEAE	Pittosporum bicolor	cheese wood	
PLANTAGINACEAE	Digitalis purpurea	foxglove	introduced
POLYGALACEAE	Comesperma volubile	blue lovecreeper	
PROTEACEA	Lomatia tinctoria	guitar plant	
RANUNCULACEAE	Clematis aristata	clematis	
RHAMNACEAE	Pomaderris apetala apetala	dogwood	
ROSACEAE	Acaena novae-zelandiae	common buzzy	
	Rubus fruticosa	blackberry	introduced
RUBIACEAE	Coprosma quadrifida	native currant	
Monocotyledons (grass	es, sedges and rushes, lilies and orchi	ds)	
CYPERACEAE	Carex sp	sedge	
JUNCACEAE	Juncus sp	rush	
POACEAE	Poa sp.	tussock grass	
Pteridophytes (ferns an	d related plants)		
BLECHNACEAE	Blechnum nudum	fishbone water fern	
	Blechnum watsii	hardwater fern	
DENNSTAEDTIACEAE	Histiopteris incisa	batswing fern	
	Pteridium esculentum	bracken fern	
DICKSONIACEAE	Dicksonia antarctica	soft treefern	
DRYOPYERIDACEAE	Polystichum proliferum	mother shield fern	

HYMENOPHYLLACEAE	Hymenophyllum sp.	filmy fern	
	Polyphlebium venosum	bristle filmy fern	
POLYPODIACEAE	Phymatosorus pustulatus	kangaroo fern	

APPENDIX 2: FAUNA SPECIES

The fauna species list has been collected from images captured on TLC fauna cameras in April 2016 and during installation of ecological monitoring in December 2016.

Таха	Scientific name (e = endemic)	Common name	Status ¹
MAMMALS			ı
DASYURIDAE	Dasyurus maculatus	Spotted-tailed quoll	v/VU
DASYURIDAE	Sarcophilus harrisii (e)	Tasmanian devil	e/EN
PERAMELIDAE	Isoodon obesulus	Southern brown bandicoot	
MACROPODOIDEA	Macropus rufogriseus	Bennetts wallaby	
MACROPODOIDEA	Thylogale billardierii (e)	Tasmanian pademelon	
PHALANGERIDAE	Trichosurus vulpecula	Common brushtail possum	
VOMBATIDAE	Vombatus ursinus	Common wombat	
MURIDAE	Rattus rattus	Black rat	
MURIDAE	Unknown species	Rodent2	
CANIDAE	Canis familiaris	Domestic dogs with coats ©	
BIRDS			
ACANTHIZIDAE	Acanthiza ewingii (e)	Tasmanian Thornbill	
ACANTHIZIDAE	Sericornis humilis	Tasmanian Scrub wren	
ARTMIDAE	Strepera fuliginosa (e)	Black Currawong	
ARTMIDAE	Strepera versicolor	Grey Currawong	
CACATUIDAE	Calyptorhynchus funereus	Yellow-tailed Black-Cockatoo	
CORVIDAE	Corvus tasmanicus	Forest Raven	
CUCULIDAE	Cacomantis flabelliformis	Fan-tailed Cuckoo	
MELIPHAGIDAE	Melithreptus affinis (e)	Black-headed Honeyeater	
MELIPHAGIDAE	Melithreptus validirostris (e)	Strong-billed Honeyeater	
MELIPHAGIDAE	Lichenostomus flavicollis (e)	Yellow-throated Honeyeater	
MUSCICAPIDAE	Zoothera lunulata	Bassian Thrush	
PACHYCEPHALIDAE	Colluricincla harmonica	Grey Shrike-thrush	
PACHYCEPHALIDAE	Pachycephala pectoralis	Golden Whistler	
PARDALOTIDAE	Pardalotus punctatus	Spotted Pardalote	
PARDALOTIDAE	Pardalotus striatus	Striated Pardalote	

Lower Liffey World Heritage Reserve Background Report 2017

Таха	Scientific name (e = endemic)	Common name	Status ¹
PETROICIDAE	Petroica rodinogaster	Pink Robin	
PSITTACIDAE	Platycercus caledonicus (e)	Green Rosella	
ZOSTEROPIDAE	Zosterops lateralis	Silvereye	