

Background Report 2019

Little Swanport Reserve



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Front Image: Little Swanport Reserve Fundraising Brochure (© TLC)

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Table of Contents

Background	5
Introduction	6
Location and context	6
Access	6
Fundraising Campaign	8
Legal Status.....	10
Stakeholders	10
Cultural values and history	11
Tasmanian Aboriginal Palawa Land	11
European Management History	11
Natural values	15
Climate.....	15
Geology, soils and topography	15
Hydrology and Environmental Flows	15
Vegetation	16
<i>Eucalyptus globulus</i> dry forest and woodland (DGL).....	19
<i>Eucalyptus pulchella</i> forest and woodland (DPU)	20
<i>Eucalyptus amygdalina</i> forest on Cainozoic deposits (DAZ).....	20
<i>Eucalyptus viminalis</i> wet forest (WVI)	21
Lowland grassland complex (GCL)	21
Bursaria-Acacia woodland (NBA).....	22
Regenerating cleared land (FRG)	23
Flora.....	23
Fauna	24
Threatened and priority species.....	24
Invasive Pests, Weeds and Disease	27
Scientific research	29
Management Plan Overview	29
References	30
Acronyms and abbreviations	30
Appendix 1: Flora and Fauna recorded on Little Swanport Reserve	31

Acknowledgements

The Tasmanian Land Conservancy acknowledges the traditional owners of the Little Swanport Reserve and region. We pay respect to elders past and present and acknowledge today's Tasmanian Aboriginal community.

A fundraising campaign launched by the TLC in May 2018 was successfully reached by 30 June 2019 enabling the acquisition and permanent security of this important parcel of land. We sincerely thank all the donors and supporters who gave so generously to this campaign without their support we could not have secured these conservation values. We also acknowledge the photography of Andy Townsend, Mat Newton, Rob Blakers and Eddie Safarik for showcasing the reserve in all its splendour and especially the outstanding swift parrot and other bird images kindly supplied by Chris Tzaros (Birds Bush and Beyond Ecological Services and Wildlife Photography) that showcased its conservation significance.

A successful discovery day held on 9 September 2018 attracted over 50 attendees who learned about the property's history and ecology from TLC staff and local specialists including Tom Tenniswood (conservation covenant landholder), Terry Higgs (Glamorgan-Spring Bay Council), Derek Hamer and Hayden Dyke (neighbouring landholders). This event was also supported by our TLC volunteers Jess Brown, Erin Harris and Emily Pressnell. Since TLCs involvement the adjoining neighbours on 'Muirland' Peter Huttemeier and Fiona Hutchins have also shown continued support.

The TLC sincerely thanks all those who have contributed to make this campaign a success enabling the protection and creation of the Little Swanport Reserve.

BACKGROUND

The Tasmanian Land Conservancy

The Tasmanian Land Conservancy (TLC) is a not-for-profit, a-political, registered environmental organisation that protects private land of high conservation significance in Tasmania.

TLC 2050 Mission

In partnership with others, the TLC will:

- *Take a lead role in building a landscape scale approach to conservation including a world-class system of reserves*
- *Demonstrate excellence in management for nature conservation.*
- *Contribute to Tasmania becoming a centre for knowledge for nature conservation and planning.*
- *Develop and implement innovative mechanisms for 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 background report together with the Little Swanport Reserve Management Plan 2019-2024 and the implementation of the strategies and actions contained within them, including monitoring and reporting, all contribute to the TLC achieving its mission.

INTRODUCTION

Little Swanport Reserve (the Reserve) is a 157 hectare biodiverse parcel of land supporting several threatened vegetation communities including old growth blue gum forest. It provides habitat for endangered species including swift parrot and supports an important complement of woodland dependent bird species and critical weight range mammals. The Reserve is situated on the Tasman Highway north of Triabunna with a 1.2 km frontage onto the Little Swanport River, providing a natural connection between land, water and coast. The Reserve was previously part of the privately owned 'Hillmont' estate and purchased by the TLC in 2019, following a successful public fundraising campaign.

Location and context

Little Swanport Reserve is situated at the junction of Bresnehans Road and the Tasman Highway within the locality of Little Swanport on Tasmania's east coast. It is approximately 105 km north east of Hobart and 25 km north of the Triabunna township immediately after crossing the bridge over the Little Swanport River. The Reserve is in the lower Little Swanport River catchment on undulating hill slopes near where the Little Swanport River meets the sea. The surrounding land use is relatively diverse with large coastal grazing properties, residential/holiday settlements, tourist accommodation, and olive and oyster farming enterprises. The estuary mouth of the Little Swanport River is a popular spot for recreational fishing and other holiday activities and supports several successful oyster farming enterprises.

The Reserve is immediately adjacent to a number of private conservation covenanted properties and within a 5 km radius of the Butlers Ridge Nature Reserve to the east and the Little Swanport Conservation Area on the coast (Figure 1).

Access

Vehicle access to the Reserve is directly off the Tasman Highway via Bresnehans Road, travelling north from Hobart via the East Coast (A3) or south from Launceston via the Lake Leake Road (B34) then south of Swansea. Three entry gates occur along the Bresnehans Road boundary affording direct access to the Reserve with the interior containing multiple access roads and walking tracks linking the land's most accessible parts.

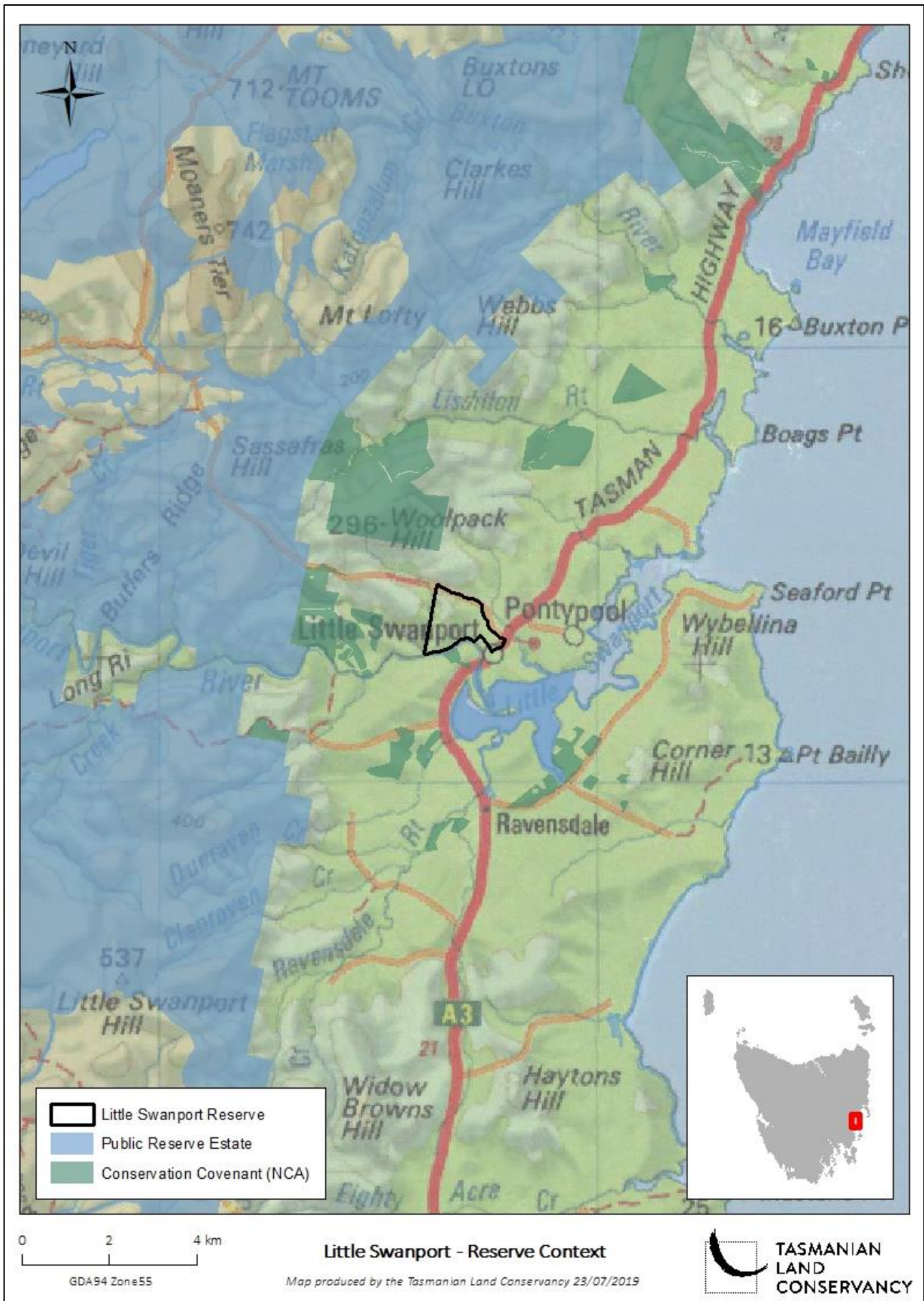


Figure 1 Location of Little Swanport Reserve

Fundraising Campaign

TLC commended a public campaign in May 2018 to raise funds for purchase and future management costs of the Little Swanport property. The campaign focused on the Reserve's irreplaceable old-growth blue-gum forest community and its provision of critical habitat for the nationally endangered swift parrot *Lathamus discolor* with other nationally threatened fauna in a supporting role. As part of the TLC's East Coast Discovery Weekend, Little Swanport Reserve was the focus of an open day on 9 September 2018. The event attracted over 50 people and featured guided walks with specialists talking about features of interest at designated stopping points. The fundraising campaign was declared a success in early July 2019 and a celebration event was planned at the Spring Bay Mill Triabunna in September 2019. The Little Swanport property has now been secured as a TLC permanent reserve and a conservation covenant on title is pending.

Protecting Little Swanport

TOWERING OLD-GROWTH BLUE GUM (*EUCALYPTUS GOBULUS*) FOREST IS ONE OF THREE THREATENED FOREST COMMUNITIES PROVIDING ESSENTIAL HABITAT FOR A DIVERSITY OF THREATENED SPECIES AT LITTLE SWANPORT, MAKING IT A VITAL ADDITION TO TASMANIA'S PROTECTED AREA NETWORK.



Located in the state's south-east coastal fringe between Swansea and Triabunna, Little Swanport is surrounded by a patchwork of private and public reserves where only a quarter of old-growth blue gum forest remains since European settlement. Complimented by direct frontage to the Little Swanport River, the property serves as an important link between aquatic and terrestrial habitats and supports an impressive number of threatened plants and wildlife.

With only 2000 swift parrots (*Lathamus discolor*) remaining, unless foraging and breeding habitats are protected scientists predict the world's fastest parrot could be extinct within 15 years. Not only does the protection of Little Swanport ensure critical habitat for the swift parrot, but the TLC's Bird Conservation Fund will activate a potent mix of research and evidence-based ecological monitoring to offer the best long-term conservation effort for the swift parrot and other bird species.

The range of biodiversity and intact habitats across Little Swanport also underpins its conservation significance. The grassy understorey beneath eucalypts supports a host of mammals and birds

favouring Tasmania's east coast lowland woodlands; including the eastern quoll (*Dasyurus viverrinus*) and Tasmanian devil (*Sarcophilus harrisii*), eastern barred bandicoot (*Perameles gunnii*), bettong (*Bettongia gaimardi*) and spotted quail thrush (*Cinlosoma punctatum*). Meanwhile, its river frontage of nearly 1.5 kilometres secures a unique ecotone for freshwater and estuarine species to survive and flourish.

The TLC has long prioritised the natural values of the surrounding Little Swanport landscape for protection and worked with numerous landholders to establish perpetual conservation covenants on their land. The addition of the 150-hectare Little Swanport property into this reserve network will provide an important ecological link and help to avoid the fragmentation of a range habitats that contribute to the areas rich natural values. Protecting Little Swanport will secure critical conservation corridors which will increase landscape-scale connectivity, offering the best chance of survival for the creatures of this precious east coast landscape.

Front: Blue gum (*Eucalyptus globulus*) forest, Little Swanport. Photo: Andy Townsend
 Inside fold: Bird's-eye view of Little Swanport river. Photo: Matthew Newton
 Above right: Swift parrot (*Lathamus discolor*). Photo: Chris Teatos, Birds, Bush and Beyond
 Above left: Bettong (*Bettongia gaimardi*). Photo: Joe Skemesh

Figure 2 Little Swanport Reserve fundraising campaign brochure

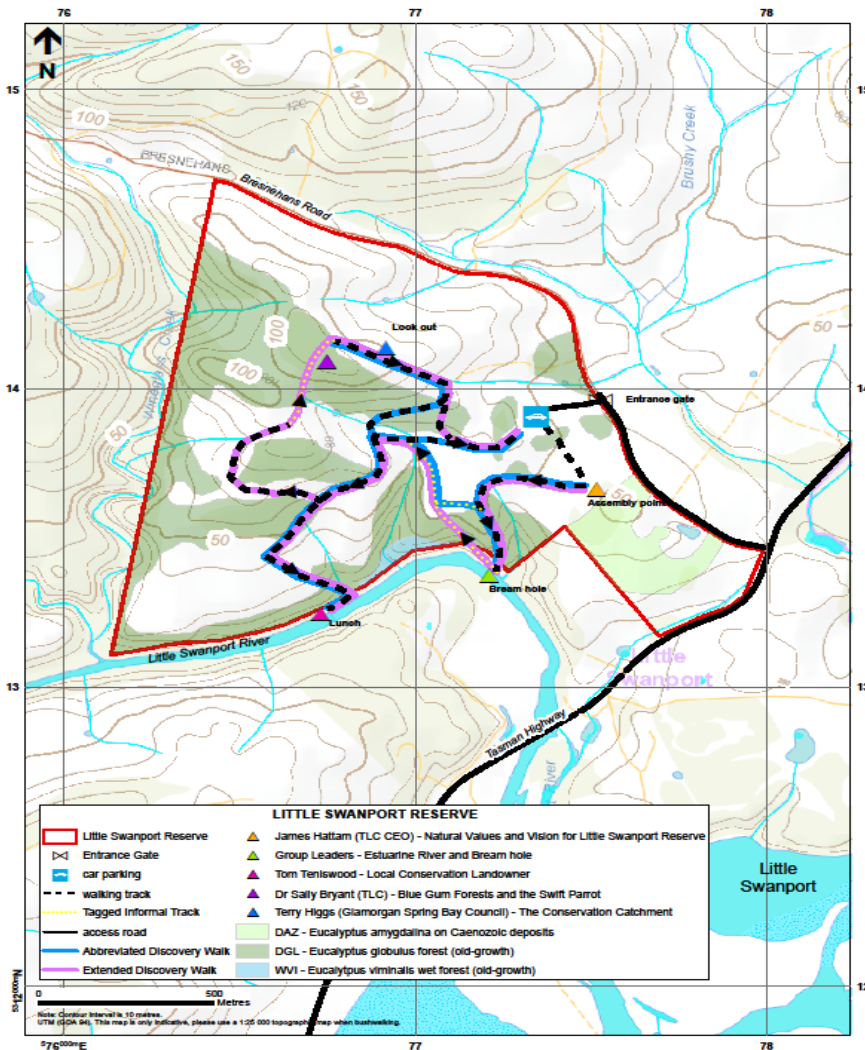


Fig 3 Discovery Day event 9 Sept 2018 (pic above) and map showing the walking route.

Legal Status

Little Swanport Reserve is private freehold land formerly known as 'Hillmont' contained on a single title (PID 7533133, Title Ref 33784/7). The property did not contain permanent fixed dwellings or infrastructure other than boundary fencing and gates. 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.

A conservation covenant under the *Nature Conservation Act 2002* will be registered over the Reserve stipulating the TLC is to manage the land for conservation and to prevent degradation of its natural values. A small area of land may be excluded from the covenant to provide for placement of built infrastructure on the site in the future if desired.

A number of species and vegetation communities listed as threatened under Australian and Tasmanian legislation occur on the Reserve with additional species potentially occurring there due to habitat or as a corridor for movement. Constraints may apply to activities which could adversely affect these species. The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) is the Australian Government's key piece of legislation to protect threatened species and ecological communities. In Tasmania the *Threatened Species Protection Act 1995 (TSPA)*, *Nature Conservation Act 2002*, and *Forest Practices Act 1985* provide protective mechanisms for threatened species and ecological communities.

A survey for Aboriginal cultural sites is planned but has not yet been undertaken.

Stakeholders

Key stakeholders include:

- Neighbouring landowners especially covenanted properties;
- Private Land Conservation Program (DPIPWE), which administers conservation covenants;
- TLC supporters
- Tasmanian Aboriginal community.

The TLC seeks to engage with all interested parties when preparing reserve management documents and invites them to make comment at any time.

CULTURAL VALUES AND HISTORY

Tasmanian Aboriginal Palawa Land

The Little Swanport Reserve is situated in the region traditionally managed by the Oyster Bay Nation whose lands extended along the East Coast of Tasmania. Some of the clans of this nation moved seasonally from inland to the High Country during spring and summer and then returning to the coast for autumn and winter. But not all Aboriginal people left their territory with some staying permanently by the coast all year round. Migrations provided a varied diet with plentiful seafood, seals and birds as well as good hunting ground for kangaroos, wallabies and possums further inland. The High Country also provided opportunities to trade for resources such as ochre with the North-west and Northern tribes, and to harvest intoxicating gum from *Eucalyptus gunnii*, found only on the plateau. The key determinant of camp sites was topography, with the majority of camps along river valleys, adjacent north facing hill slopes and on gentle slopes bordering a forest or marshland (Brown 1986).

The Poredareme clan of the Oyster Bay Nation specifically managed the Little Swanport territory and in winter spent time in the coastal areas of their own lands. Later in the season around August they moved west to the Eastern Marshes, and through St Peters Pass to Big River Country before returning to the coast in January.

The indigenous name for the Little Swanport area was recorded by George A Robinson in 1831 as TEE.BE.LEB.BER.RER.MEN.NAPE.BONE.YER.MEN.NAN.YER (reference Long Name Farm, also confirmed in Plomley's Tasmanian Aboriginal Place Names). At 37 letters, it is reputed to be the longest recorded place name in Australia and means 'place where a moving stream flows into a large estuary surrounded by hills', a fitting description of Little Swanport's coastal grazing land (Long Name Farm).

European Management History

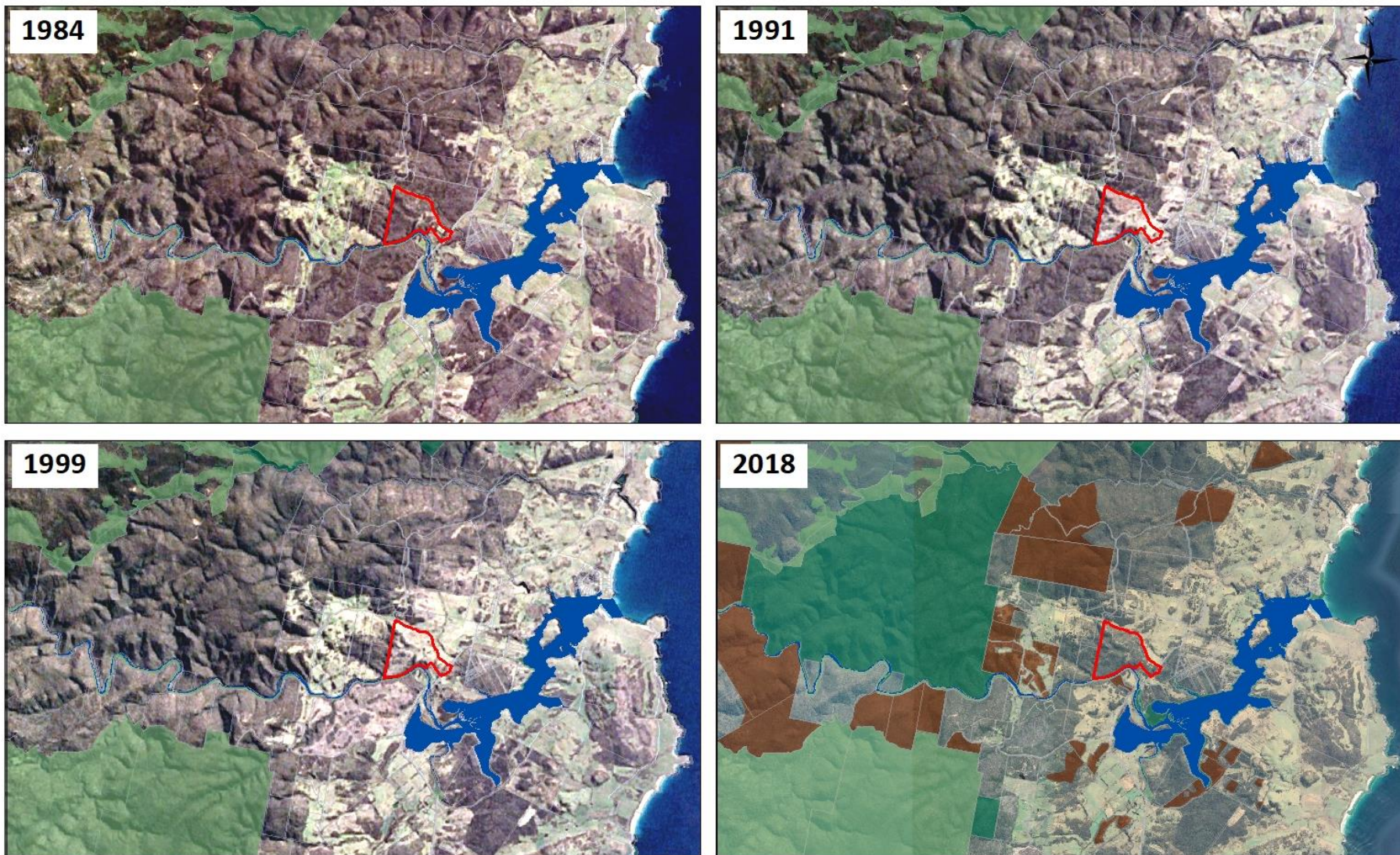
Farming in the Little Swanport area began in the 1850's with land primarily being cleared for sheep grazing. Over time other pursuits such as stock agistment, cropping including irrigation cropping, shellfish farming and recreation especially around the 'Gumleaves' property off Swanston Road began to increase and extend development. Prior to the TLC's purchase, this property was part of a larger private estate called 'Hillmont' which comprised a vacant rural allotment that had been partly cleared for livestock (mainly sheep) grazing, and then over time logging and some gravel extraction. Sheep grazing continued on the property right up until purchase.

The original vegetation in the Little Swanport area was almost entirely comprised of dry sclerophyll forest but this has been reduced to around 30 to 40% native vegetation cover (Dell 2005) due to land clearing. Historic aerial imagery shows that much of the Reserve was cleared during 1990-1991 (see

Figure 4) presumably for timber harvesting, as blue gum was a valuable commodity at that time. This history accords with the adjacent property south of the river which was logged in 1998-1999 (H. Dyke, *pers comm*; Figure 4). Some patches of forest and woodland vegetation were retained on the steeper less accessible slopes in the south western portion of the Reserve, including the riparian strip along the Little Swanport River. The results of past timber clearing are evidenced on the property by the numerous piles of large tree stumps, now decaying and forming habitat for wildlife.

The northern third of the property was the most heavily cleared and was maintained as open pasture for sheep grazing until around 2010-2012. Much of this area is now being overtaken by Acacia regrowth, but there are still patches of open grassland derived from clearance of the original woodland vegetation. Natural regeneration has occurred over the last 20 to 30 years adjacent to retained areas of native vegetation in the southern and western areas of the property (Figure 4, Figure 5) and this vegetation is beginning to resemble the patches of old growth.

Part of the eastern section had previously been worked as a gravel extraction area and a relatively large waterhole has resulted as a part of this process. Prior to purchase there were also several areas of dumped rubbish spread across the property comprising building materials, car bodies and general farm equipment including a caravan and associated livestock pens. This rubbish was removed prior to settlement as part of the conditions of sale.



Little Swanport Reserve
 Little Swanport River
 Cadastre
 Formal reserve
 Informal Reserve
 Private Reserve (Perpetual)

0 2 4 km
 GDA94 Zone 55

Little Swanport Reserve - Catchment History

Map produced by the Tasmanian Land Conservancy 23/07/2019



Figure 4 Historic imagery showing the history of clearing and reservation in the middle and lower reaches of the Little Swanport catchment (reserve boundary in red)



Little Swanport Reserve
 Little Swanport River
 Cadastre

0 500 1,000 m
 GDA94 Zone 55

Little Swanport Reserve - Management History

Map produced by the Tasmanian Land Conservancy 23/07/2019



Figure 5 Higher resolution historic imagery showing the progression of natural regeneration on Little Swanport Reserve since 2003 (note logging took place in 1990-1991, but high-resolution imagery is not available before 2003)

NATURAL VALUES

Climate

The coastal location of Little Swanport experiences a relatively mild climate with few temperature extremes. Climate records from the Swansea Post Office weather station show a mean temperature range of 7.7 – 17.9°C. Temperatures are hottest in February, with monthly minimum and maximum averages of 11.8 °C and 22.2 °C respectively, and coldest in July with monthly minimum and maximum averages of 3.6 °C and 13.3 °C (Bureau of Meteorology 2019).

Swansea receives an average annual rainfall of 593 mm, falling on 123 days (Bureau of Meteorology 2019). An analysis of long-term rainfall figures for the East Coast region indicates a trend towards lower annual rainfall (Dell 2005). Average yearly evaporation at Swansea is 1025 mm per year and evaporation exceeds precipitation for nine months of the year (Dell 2005).

Geology, soils and topography

The Reserve is situated in the lower Little Swanport Catchment, on undulating lower slopes with an elevation from <10m a.s.l. along the Little Swanport River up to approximately 110m a.s.l. along ridgelines in the north-west of the property (Figure 6). The majority of the Reserve has slight/moderate slopes however the area immediately adjoining the Little Swanport River has steeper slopes.

The bedrock of the Little Swanport catchment is dominated by Jurassic dolerite, with smaller areas of Triassic sandstone, siltstone and mudstone as well as Quaternary sediments dispersed through the area. Soils derived from these geologies are highly diverse.

The underlying geology in the Reserve is mostly Jurassic dolerite with a discrete outcrop of Quaternary sediments in the eastern section. Soils on the higher ridgelines and hillslopes in the western portion of the Reserve are derived from dolerite and are shallow to skeletal and very rocky. Soils in the lower eastern section of the Reserve are derived from Quaternary alluvium, overbank and floodplain sediments and tend to be more prone to erosion, especially where groundcover is scant (Dell 2005; Kidd 2008).

Hydrology and Environmental Flows

The Little Swanport River originates from the Inglewood Hill area (600m AHD*) and flows eastwards into the Little Swanport estuary, approximately 61 km downstream from its source. The major tributaries of the river are Crichton Creek, Nutting Garden Rivulet, Eastern Marshes Rivulet, Pine Rivulet, Green Tier Creek and Pepper Creek. Subsidiary streams that directly flow into the Little Swanport estuary are Ravensdale Rivulet, Lisdillon Rivulet and Buxton River. The Little Swanport River

and subsidiary streams drain a catchment area of approximately 609km. The catchment can be divided into three regions:

- the upper catchment, a broad plateau supported a number of large dryland grazing properties as well as smaller residential and mixed farming properties;
- the middle catchment, which is rugged and primarily forested; and
- the lower catchment, on undulating low-lying agricultural land with diverse land uses. The Reserve falls within the lower catchment.

River flow monitoring in the Little Swanport River was carried out over an 18 year period from 11 June 1971 to 22 February 1990 at a site upstream of the Tasman Highway. The winter flows for the period of record ranged from 3,000ML to 140,000ML while the corresponding summer flows ranged from 400ML to 122,000ML. The mean winter and summer catchment yields were 56,000ML and 23,000ML respectively (DPIPWE 2003).

Water flows throughout the catchment are highly variable, with river heights and flows responding rapidly to rainfall events but also dropping quickly after events. Periods of low to no flow during warmer months are a natural characteristic of the river (Uytendaal 2003). Water quality is generally poorest in the upper catchment due to land clearing, drainage modification and nutrient runoff which can result in higher summer water temperatures, lower dissolved oxygen and increased groundwater influence on stream salinity.

A Little Swanport Catchment Management Plan was produced by the NRM staff of Glamorgan Spring Bay and Southern Midlands Council in 2003 in consultation with the voluntary members of the Little Swanport Catchment Plan Implementation Committee. This plan was reviewed and revised for the period from 2010-2015 (Little Swanport Catchment Plan Implementation Committee 2010).

Vegetation

Six native vegetation communities have been mapped on the Little Swanport Reserve (Fig 6). Blue gum *Eucalyptus globulus* dry forest and woodland (DGL) is the dominant vegetation community, occurring on ridgelines and slopes and in isolated patches throughout cleared areas, indicating that it would have once covered a large proportion of the undulating land in the north of the Reserve. This community grades into white peppermint *Eucalyptus pulchella* forest and woodland (DPU) in some areas in the west of the property, with *E. globulus* and *E. pulchella* occurring as co-dominant species in the canopy. An outcropping of Quaternary ironstone gravel in the east of the property supports a discrete area of black peppermint *Eucalyptus amygdalina* forest on Cainozoic sediments (DAZ). There is also a narrow strip of wet forest dominated by white gum *Eucalyptus viminalis* (WVI) along the Little Swanport River, in sheltered conditions on deep soils at the base the steep south-facing slope.

There are also areas of Bursaria-Acacia woodland (NBA), Lowland native grassland (GCL) and Regenerating cleared land (FRG) in the northern and eastern sections of the property. These

vegetation communities are derived from previous clearance of the forest and woodland communities and are in a transitional state of regeneration.

Old growth and advanced regrowth (following logging circa 1991) forest covers approx. two-thirds of the Reserve, with younger, acacia-dominated regrowth, open grassland and disturbed land over the remainder. As shown on Figure 5, vegetation clearance in 1990-1991 avoided the steep slopes and ridgetops in the south and west as well as patches of forest in the south-east of the property. These areas are classified as old growth, based on the size of mature trees and the presence and density of characteristics such as tree hollows, fallen logs and coarse woody debris. Areas classified as advanced regrowth include those which regenerated relatively quickly following clearing (Figure 5). These areas contain most of the species and structural elements of old-growth vegetation including a eucalypt canopy and diverse mid- and understorey but lack old-growth characteristics such as mature or over-mature trees.

Three of the vegetation communities within the Reserve are listed as threatened under Tasmania's *Nature Conservation Act (2002)* and extend across the majority of the property. The extent, condition and conservation status of vegetation communities is shown in Table 1. Detailed descriptions of the different vegetation communities are also provided below.

Table 1 Vegetation communities on the Little Swanport Reserve

TASVEG code	TASVEG description	NCA*	Condition	Area (ha)
DAZ	<i>Eucalyptus amygdalina</i> inland forest and woodland on Cainozoic deposits	v	Old growth	3.5
			Advanced regrowth	2.8
DGL	<i>Eucalyptus globulus</i> dry forest	v	Old growth	51.5
			Advanced regrowth	29.7
			Acacia-dominated regrowth	46.4
DPU	<i>Eucalyptus pulchella</i> forest and woodland		Old growth	4.6
			Advanced regrowth	8.1
FRG	Regenerating cleared land		Quarry	1.4
GCL	Lowland grassland complex		Open grassland	6.9
WVI	<i>Eucalyptus viminalis</i> wet forest	e	Old growth	2.3
			Total area	157.3

* Tasmanian *Nature Conservation Act 2002*

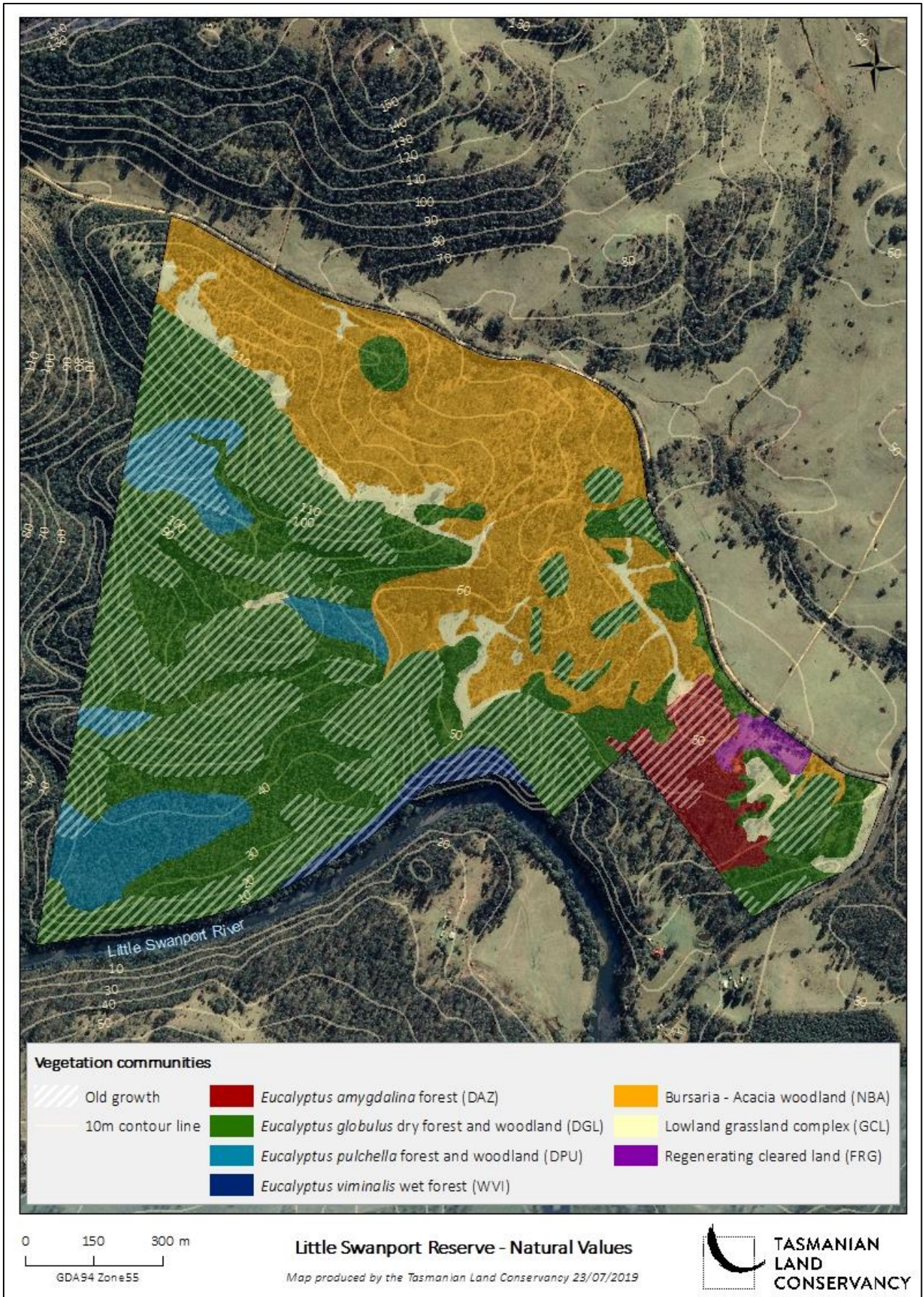


Figure 6 Vegetation communities on Little Swanport Reserve

Eucalyptus globulus dry forest and woodland (DGL)

Eucalyptus globulus dry forest and woodland (DGL) is the dominant vegetation community and is listed as threatened in Tasmania. It occurs in two age classes across the Reserve: as old growth and advanced regrowth (Figure 6).

Areas of old growth and advanced regrowth share similar species diversity but are differentiated by a higher density of mature and hollow-bearing trees and coarse woody debris in old-growth areas.

Tasmanian blue gum *Eucalyptus globulus* is the dominant canopy species in these areas, with white peppermint *Eucalyptus pulchella* as the co-dominant. Black peppermint *Eucalyptus amygdalina*, black gum *Eucalyptus ovata* and white gum *Eucalyptus viminalis* also occur as scattered trees. The species composition and structure of understorey layers varies with topography and aspect, with more open mid-stories and shrubbier, sparser understories on skeletal soils of ridgelines and drier north-facing slopes. South-facing aspects tend to support more dense mid-storey vegetation, while deeper soils in flatter areas tend to support grassy/ sedgy understories. Common midstorey and tall shrub species include prickly box *Bursaria spinosa*, oyster bay pine *Callitris rhomboidei*, pinkberry *Leptocophylla divaricata* and wattles *Acacia* spp. Common understorey species include velvet tussockgrass *Poa rodwayi*, weeping grass *Microlaena stipoides*, sagg *Lomandra longifolia*, ivy-leaf violet *Viola hederacea*, grassland woodsorrel *Oxalis perennans* and small St Johns-wort *Hypericum gramineum*.



Image 1: *Eucalyptus globulus* dry forest at Little Swanport Reserve, showing mature forest surrounded by early regrowth dominated by *Acacia* species.

***Eucalyptus pulchella* forest and woodland (DPU)**

E. globulus dry forest (DGL) intergrades with white peppermint *Eucalyptus pulchella* forest and woodland (DPU) in the western half of the Reserve (Fig 6). Within both communities, Tasmanian blue gum and white peppermint often occur as co-dominant species, making it difficult to accurately determine the boundaries between these communities. As with the DGL community, this community occurs as both old growth and advanced regrowth.

The understorey of this community is variable, with dense grassy/sedge understoreys in areas with deeper soils, and open shrubby understoreys in shallower soils on slopes and ridgelines. The understorey composition is very similar to that of DGL.

***Eucalyptus amygdalina* forest on Cainozoic deposits (DAZ)**

This threatened community, dominated by black peppermint *Eucalyptus amygdalina*, occurs as a relatively small, discrete patch in the central east of the Reserve (Figure 6, Image 2). The majority of this was retained during the 1990-1991 logging and is classified as old growth. It features a canopy of mature black peppermint over an open mid-story of prickly box, and a sparse shrubby understorey dominated by bracken, native cranberry *Astroloma humifusum*, peachberry heath *Lissanthe strigosa*, creeping bossia *Bossiaea prostrata* and hairy guineaflower *Hibbertia hirsuta*.

A small area in the east of this community was cleared in 1990-91 but has regenerated fairly rapidly (Fig 5) and now has a denser mid-story of black wattle and a grassy/ sedgy understorey of thatch sawsedge *Gahnia radula*, swordsedges *Lepidosperma* sp. and wallaby grasses.



Image 2: Mature black peppermint forest showing the open, dry structure.

***Eucalyptus viminalis* wet forest (WVI)**

This threatened community occurs as a narrow strip in deep soils along the valley floor and lower slopes adjacent to the Little Swanport River. It features a tall canopy of white gum *Eucalyptus viminalis* with scattered Tasmanian blue gum, over a tall shrub layer dominated by dogwood *Pomaderris apetala*, with stinkwood *Zieria arborescens*, forest daisybush *Olearia lirata* and native currant *Coprosma quadrifida* also occurring. The understorey is sparse, with patches of variable sword-sedge *Lepidosperma laterale*, bracken *Pteridium esculentum* and mother shieldfern *Polystichum proliferum* and weeping grass *Microlaena stipoides* with a thick covering of leaf litter, amid piles of coarse woody debris deposited by periodic flooding. There are localised outbreaks of weeds such as sun spurge *Euphorbia helioscopia* and prickly sowthistle *Sonchus asper*, particularly on the margins of the river which transports propagules from upstream.

Lowland grassland complex (GCL)

Small patches of the Reserve contain open grassland dominated by native grasses, sedges and herbs. This vegetation is derived from clearance and grazing of the original forest vegetation is likely to

naturally regenerate with shrubs and trees over time. Commonly occurring species in the grassland areas include wallabygrass *Rytidosperma* species, spear grass *Austrostipa* species, weeping grass *Microlaena stipoides*, common bogsedge *Schoenus apogon*, shortstem sedge *Carex breviculmis*, native cranberry *Astroloma humifusum* and kidneyweed *Dichondra repens*. Several pasture weeds are also present, including centaury *Centaureum erythraea* and common dandelion *Taraxacum officinale*.

These areas would have originally supported blue gum/white peppermint forest and woodland communities (Image 3) but were cleared before 1990 and were maintained as open pasture for sheep grazing. Given the rapid encroachment of black wattle *Acacia mearnsii* into former grazing areas, many of these areas could eventually revert back to woodland if left un-grazed.



Image 3: Areas of lowland grassland complex are the result of past disturbance, but are rapidly being recolonised by black wattle

Bursaria-Acacia woodland (NBA)

This vegetation type occurs across the northern part of the Reserve and is early successional regrowth dominated by silver wattle *Acacia dealbata* and black wattle *Acacia mearnsii*. The understorey includes a diverse range of low shrubs, grasses, sedges and herbs including creeping bossia *Bossiaea prostrata*, native cranberry *Astroloma humifusum*, shortstem sedge *Carex breviculmis*, swordsedges *Lepidosperma spp*, kangaroo grass *Themeda triandra*, wallabygrass *Rytidosperma sp.*, velvet tussockgrass, weeping grass and native bluebells *Wahlenbergia spp*.

These areas were cleared in the early 1990s and were subsequently grazed by stock until around 2010-2012. They have regenerated densely with acacia over the last decade are expected to transition to eucalypt forest over time.

Regenerating cleared land (FRG)

A small area in the east of the property was previously used as a quarry. This area is very gravelly with minimal topsoil, but is being slowly colonised by spreading wattle *Acacia genistifolia*, silver wattle *Acacia dealbata* and a relatively diverse range of low shrubs, grasses and herbs such as matted bushpea *Pultenaea pedunculata*, prostrate guineaflower *Hibbertia prostrata*, wallaby grasses, hairy ricegrass *Tetrarrhena distichophylla* and trailing native-primrose *Goodenia lanata* (Image 4). Areas directly adjacent to the large dam also support regenerating Tasmanian blue gum and black peppermint.



Image 4: Former quarry area, showing exposed gravelly soils.

Flora

Flora surveys undertaken by the TLC include the first round of long-term monitoring surveys in early December 2018, and roaming surveys undertaken as part of vegetation mapping in early- mid 2018. These surveys have recorded 163 flora species from 61 families, of which 148 (91%) are native and 14 are endemic to Tasmania. This high floristic diversity is characteristic of the threatened vegetation communities present and also reflects the variation of soils and topography within the Reserve. Disturbance has also played a role in creating high species richness by providing open habitat for grassland specialists, ephemerals, orchids and other early successional species.

The full list of species recorded is in Appendix 1.

Fauna

Little Swanport Reserve is a biodiverse parcel of land containing a range of micro habitats for fauna which include:

1. Large intact patches of mature eucalypt forest with extensive old growth trees bearing multiple hollows of varying sizes;
2. Interspersed patches of open grassland with dense sag/sedge cover for reptiles and small mammals;
3. Scattered fallen timber and heaped wood piles providing cover, denning sites and decaying wood resource for many vertebrate and invertebrate species;
4. Light open forest with a healthy understorey including *Acacia* and *Pomaderris* groves providing rich invertebrate and nectar sources;
5. Heavily wooded steep gullies with rock piles, scree slopes and overhangs suitable for rodents, reptiles and small cryptic species;
6. Several small dams and fresh watering points;
7. Easily accessible river frontage for marine and estuarine species including platypus with numerous crossing points enabling dispersal corridors into the wider landscape.

Collectively these mosaics provide excellent food, shelter, breeding and nesting resource for most of Tasmania's small mammals including brown bandicoot, bettong, spotted-tail quoll and Tasmanian devil as well as a large compliment of woodland birds, reptiles, amphibian and invertebrate species.

Threatened and priority species

Surveys to date have recorded three vegetation communities listed as threatened under the Tasmanian *Nature Conservation Act 2002* as listed in Table 2. The majority of these communities are in good condition, comprising old growth or advanced regrowth with similar species and structural diversity, as outlined above.

Three nationally threatened fauna species and the conservation significant Tasmanian bettong *Bettongia gaimardi* have been recorded on the Reserve to date. The Tasmanian devil *Sarcophilus harrisii* and the spotted-tailed quoll *Dasyurus maculatus maculatus* were recorded on monitoring cameras (Appendix 1) as the forests, woodlands and grasslands across the Reserve providing foraging, resting and breeding habitat. Both these species are wide-ranging, with large home ranges and their ability to move many kilometres in a night means the Little Swanport Reserve is also a critical corridor connecting coastal habitats and large reserved areas higher up the catchment.

The critically endangered swift parrot *Lathamus concolor* was recorded on the Reserve in autumn 2018 with two birds flying over. The Reserve contains extensive blue gum forest and abundant old-growth trees with nesting hollows. This provides excellent nesting and foraging habitat for this iconic

species, which has declined dramatically due to clearing of blue gum forests and predation by the introduced sugar glider *Petaurus breviceps*. In 2011 TLC secured covenants on two properties along the Little Swanport River, through the Woodland Birds Project to protect swift parrot habitat. One of these covenanted properties is located directly across the Little Swanport Reserve on the south side of the river and the other is 1 km to the west.

Searches of online databases revealed an additional 23 threatened biota which are known to occur within 5 km of the property (Table 2). Of these, seven additional threatened flora species and five additional threatened fauna species have the potential to occur at the Reserve given the presence of suitable habitat. The property also provides good habitat for threatened mammals such as the eastern quoll and eastern barred-bandicoot.

Note that marine, aquatic and extinct species have been omitted from Table 2, as well as species that are predicted to occur based on range boundaries but have not been recorded within 5 km and for which there is no suitable habitat at the property. The full list of threatened biota known or predicted to occur within the area is in Appendix 2.

Table 2 Threatened biota known or with the potential to occur on the Little Swanport Reserve

Species	Status*	Distance and date of closest record	Comment
Vegetation communities			
DAZ – <i>Eucalyptus amygdalina</i> forest and woodland on Canozoic deposits	v	Recorded on site	Approximately 6.3 ha of this community occurs on site
DGL – <i>Eucalyptus globulus</i> dry forest and woodland	v	Recorded on site	Approximately 127.6 ha of this community occurs on site, although 46 ha is in poor condition
WVI – <i>Eucalyptus viminalis</i> wet forest	e	Recorded on site	Approximately 2.3 ha of this community occurs on site
Flora			
Helicopter bush <i>Spyridium vexilliferum</i> var. <i>vexilliferum</i>	r	Recorded within 500 m; 1945	Suitable habitat in heathy areas (DAZ, some areas of DGL and DPU) and rocky outcrops on ridgelines and upper slopes.
Fennel pondweed <i>Stuckenia pectinata</i>	r	Recorded within 500 m; 2011	No suitable aquatic habitat within reserve
Blue devil <i>Eryngium ovinum</i>	v,V	Recorded within 1 km; 2002	Suitable habitat in grassy areas (DGL)
Slender twigsedge <i>Baumea gunnii</i>	r	Recorded within 5 km; 1989	No suitable creekline or swampy habitat within the Reserve; may occur along the adjacent Little Swanport river

Species	Status*	Distance and date of closest record	Comment
Tasmanian rayflower <i>Cyphanthera tasmanica</i>	r	Recorded within 5 km; 2001	Suitable habitat occurs on hillsides and gullies on the Reserve
Apsley bentgrass <i>Deyeuxia apsleyensis</i>	r	Recorded within 5 km; 2003	No suitable <i>Eucalyptus amygdalina</i> – <i>E. viminalis</i> forest habitat exists on the Reserve
Barbers gum <i>Eucalyptus barberi</i>	r	Recorded within 5 km; 2013	Suitable habitat for this species (dolerite geology and dry sclerophyll forests) occurs within the Reserve.
Star clubsedge <i>Isolepis stellata</i>	r	Recorded within 5 km; 1996	No suitable wetland or swampy habitat within the Reserve; may occur along the adjacent Little Swanport river
Clubmoss everlastingbush <i>Ozothamnus lycopodioides</i>	r	Recorded within 5 km; 2001	Suitable habitat for this species (dolerite geology, rocky slopes and dry sclerophyll forests) occurs within the Reserve.
Fairy fanflower <i>Scaevola aemula</i>	e	Recorded within 5 km; 1982	Suitable habitat for this species (dolerite geology and dry sclerophyll forests) occurs within the Reserve.
Propeller plant <i>Stenanthemum pimeleoides</i>	v,V	Recorded within 5 km; 2004	Suitable habitat for this species occurs within areas of DAZ on the Reserve.
Forest germander <i>Teucrium corymbosum</i>	r	Recorded within 5 km; 1999	No suitable <i>Allocasuarina verticillata</i> or <i>Eucalyptus viminalis</i> woodland habitat
Yellow bladderwort <i>Utricularia australis</i>	r	Recorded within 5 km; 1984	No suitable aquatic habitat for this species exists on the Reserve.
Fauna			
BIRDS			
Swift parrot <i>Lathamus discolor</i>	e,CE	Recorded on site (2018)	Suitable habitat exists on property, including extensive areas of <i>E. globulus</i> which provides foraging habitat and suitable tree hollows for breeding.
Wedge-tailed eagle <i>Aquila audax</i> subsp. <i>fleayi</i>	e,E	No nest but recorded within 5 km; 2014	Suitable habitat exists on property, including large eucalypts suitable for nesting.
Masked owl <i>Tyto novaehollandiae</i>	e,V	Recorded within 5 km; 2002	Suitable habitat exists on property, including tree hollows suitable for nesting.
MAMMALS			
Tasmanian devil <i>Sarcophilus harrisii</i>	e,E	Recorded on site (2018)	Suitable foraging and breeding habitat is present, and the connectivity of the site to other

Species	Status*	Distance and date of closest record	Comment
			areas of vegetation is critical for this wide-ranging species.
Spotted-tailed quoll <i>Dasyurus maculatus</i>	r,V	Recorded on site (2018)	Suitable foraging and breeding habitat is present, and the connectivity of the site to other areas of vegetation is critical for this wide-ranging species.
Eastern barred bandicoot <i>Perameles gunnii</i>	V	Not Recorded but within 5 km; 1988	Grasslands and dry forests with grassy understorey (DGL and DPU) would provide suitable foraging and breeding habitat.
Eastern quoll <i>Dasyurus viverrinus</i>	E	Not Recorded but within 5 km; 1996	Suitable foraging and breeding habitat exists in dry forests and grassland on the property.
INVERTEBRATES			
Chaostola skipper <i>Antipodia chaostola</i>	e,E	Recorded within 5 km	Suitable <i>Gahnia</i> habitat exists as patches within dry forests on the property and across the river

* **r,v,e** – rare, vulnerable and endangered under the Tasmanian Threatened Species Protection Act 1995 (species) or the Tasmanian Nature Conservation Act 2002 (communities); **V, E, CE** – vulnerable, endangered and critically endangered under the Australian *Environment Protection and Biodiversity Conservation Act 1999*

Invasive Pests, Weeds and Disease

Six invasive fauna species have been detected on monitoring cameras on the Reserve to date: the feral cat *Felis catus*, fallow deer *Dama dama*, European rabbit *Oryctolagus cuniculus*, European hare *Lepus europaeus*, black rat *Rattus rattus* and house mice *Mus musculus*.

Predation by feral cats is listed as a key threatening process under federal legislation, in recognition of the seriousness of the threat they pose to native fauna species. In addition to direct impacts, feral cats also compete with native carnivores and can transmit diseases to wildlife, humans and livestock. Cats are the primary host of the *Toxoplasma gondii* and *Sarcocystitis* parasites, among others. Many marsupials appear to be particularly susceptible to toxoplasmosis, the disease which may result from infection with *T. gondii*, with species such as the eastern barred bandicoot usually dying within 2-3 weeks of infection. At least two individuals (one ginger, one tabby, Image 5) are present on the reserve, with 13 detections in 288 camera trap nights to date, with most activity detected at monitoring site DADE001.



Image 5 Feral species detected on Little Swanport Reserve during monitoring surveys (L to R top feral cat, black rat, bottom fallow deer, European hare)

Prior to purchase the Reserve was managed primarily for sheep grazing and this, together with past timber clearing has had a profound impact on the structure and diversity of native vegetation. Introduced fallow deer and rabbits have probably increased grazing and browsing pressure and can outcompete native herbivores for food resources. Rabbit populations respond to seasonal conditions and can increase rapidly in response to vegetation growth. Fallow deer were introduced into Tasmania in the 1830s, and since then have spread widely throughout the Little Swanport area. Deer were detected on camera surveys, and their scats and prints observed on the Reserve. While they may be present all year round, they can easily access the Reserve via the Little Swanport River.

Fifteen introduced plant species have been recorded to date, including small localised patches of gorse *Ulex europaeus*, great mullein *Verbascum thapsus* and common pasture weeds including introduced grasses, flatweeds and clovers.

There has been no reporting of diseases or pathogens such as root rot *Phytophthora cinnamomi*, myrtle rust *Puccinia psidii* or chytrid fungus *Batrachochytrium dendrobatidis* on the Reserve. Once a weed or pathogen is present in an area it is usually impossible to eradicate. As native ecosystems in many areas are under threat from weeds, pests and disease, strict hygiene practices should be implemented. These include ensuring that all vehicles, boots, clothes and equipment entering the property are clean, dry and free of seeds and soil.

SCIENTIFIC RESEARCH

Apart from species surveys, no scientific research has been conducted on Little Swanport Reserve as yet. In June 2018 researchers from the Australian National University were invited to use the Reserve for monitoring and restoration actions for the nationally endangered swift parrot *Lathamus discolor* but this has not occurred as yet.

MANAGEMENT PLAN OVERVIEW

This background document supports the Little Swanport Reserve Management Plan 2019-2024 (Tasmanian Land Conservancy 2019).

VISION	Little Swanport Reserve is managed for its threatened old growth values and connectivity function.
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CONSERVATION TARGET	GOAL
Old growth dry forest and woodland	Protect old growth forest and promote succession of regrowth vegetation
Improved ecological condition	Promote natural regeneration and improve condition of disturbed areas
Hollow dependant species	Improve breeding security for hollow dependent species especially swift parrot
Landscape connectivity	Ensure keystone species utilise the area and radiate across the wider landscape
Little Swanport River riparian zone	Maintain resilience of the riparian zone along the Little Swanport River
MANAGEMENT STRATEGIES	OBJECTIVES
Manage access	Manage access and visitor facilities to reduce risks especially inappropriate fire
Adaptive nest boxes and hollow protection	Improve security for hollow dependent species through predator control and nest box deployment
Invasive species management	Reduce weeds and invasive fauna to improve habitat quality and security of threatened and critical weight range species
Fire management	Protect old growth values from inappropriate fire and ensure appropriate fire regimes promote natural regeneration and species diversity
Facilitate natural regeneration	Ensure degraded areas and vegetation communities regenerate into appropriate ecological successional stages
Support neighbour networks	Support community networks to address mutual issues in the landscape especially weeds and fire management

REFERENCES

- Bureau of Meteorology (2019). Monthly climate statistics: 092038 Swansea Post Office. Available from http://www.bom.gov.au/climate/averages/tables/cw_092038.shtml. Accessed 29/01/2019.
- Dell, M (2003) Hydrogeological setting for areas subject to soil salinity in Tasmania. Tasmanian Geological Survey Record 2000/05. Natural Heritage Trust and Mineral Resources Tasmania.
- DPIPWE (2003) Little Swanport Catchment Water Resources Information Package. Department of Primary Industries, Water and Environment Water Assessment and Planning Branch.
- Kidd, D (2008) Soils of the Little Swanport Catchment. In *Little Swanport Catchment Plan 2010 – 2015*, pp21 -22, Little Swanport Catchment Plant Implementation Committee (2010). Little Swanport, Tasmania, Australia
- Little Swanport Catchment Plan Implementation Committee. 2010. *Little Swanport Catchment Plan 2010-2015*. Little Swanport, Tasmania, Australia.
- Tasmanian Land Conservancy (2019). Little Swanport Reserve Management Plan 2019-2024. Tasmanian Land Conservancy, Tasmania, Australia.
- Uytendaal, A (2010) Water Overview. In *Little Swanport Catchment Plan 2010 – 2015*, pp21 -22, Little Swanport Catchment Plant Implementation Committee (2010). Little Swanport, Tasmania, Australia

ACRONYMS AND ABBREVIATIONS

DPIPWE	Tasmanian Government Department of Primary Industries, Parks, Water and Environment
EPBCA	Australian <i>Environment Protection and Biodiversity Conservation Act 1999</i>
IUCN	International Union for Conservation of Nature
NC Act	Tasmanian <i>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 3.0)
TFS	Tasmania Fire Service
TLC	Tasmanian Land Conservancy
TSPA	Tasmanian <i>Threatened Species Protection Act 1995</i>
UTAS	University of Tasmania

APPENDIX 1: FLORA AND FAUNA RECORDED ON LITTLE SWANPORT RESERVE

Table A 1 Flora species list

Species name	Common name	Status	Veg communities
Dicots			
APIACEAE			
<i>Apium prostratum subsp. prostratum</i>			DGL
<i>Hydrocotyle hirta</i>	Hairy pennywort		DGL
ASTERACEAE			
<i>Argentipallium dealbatum</i>	white everlasting		DPU
<i>Bedfordia salicina</i>	Tasmanian Blanket Leaf	end.	DGL
<i>Brachyscome spathulata subsp. spathulata</i>			DGL
<i>Cassinia aculeata</i>	Dolly Bush		DGL
<i>Cirsium vulgare</i>	Spear Thistle	i	DAZ, DGL, DPU
<i>Cotula australis</i>	waterbuttons		DAZ
<i>Euchiton sphaericus</i>	globe cottonleaf		DAZ, DGL
<i>Hypochoeris radicata</i>	Cat's ear	i	DAZ, DGL, DPU
<i>Lagenophora huegelii</i>			DGL
<i>Lagenophora stipitata</i>			DGL
<i>Leptorhynchus nitidulus</i>			DPU
<i>Leptorhynchus squamatus var. squamatus</i>			DGL
<i>Olearia lirata</i>	Daisy Bush		DGL
<i>Senecio quadridentatus</i>	Cotton Fireweed		DGL
<i>Solonygyne dominii</i>	smooth flatherb		DGL
<i>Sonchus asper</i>		i	WVI
<i>Taraxacum officinale</i>	dandelion	i	DGL
BORAGINACEAE			
<i>Cynoglossum suaveolens</i>	houndstongue		DGL
CAMPANULACEAE			
<i>Wahlenbergia gracilentia</i>	Annual bluebell		DGL, DPU
<i>Wahlenbergia gymnoclada</i>	Naked Bluebell		DGL, DPU
<i>Wahlenbergia multicaulis</i>	Tadgells Bluebell		DGL
<i>Wahlenbergia stricta</i>	tall bluebell		DGL
CARYOPHYLLACEAE			
<i>Scleranthus biflorus</i>	Twin-flower Knawel		DAZ, DGL
CASUARINACEAE			
<i>Allocasuarina littoralis</i>	Bulloak		DAZ, DGL, DPU
<i>Allocasuarina verticillata</i>	Sheoak		DGL
CHENOPODIACEAE			
<i>Einadia nutans subsp. nutans</i>	Climbing Salt-bush		DGL, DPU
CLUSIACEAE			
<i>Hypericum gramineum</i>	Small St. Johns Wort		DGL, DPU
CONVOLVULACEAE			
<i>Convolvulus angustissimus var. angustissimus</i>	blushing bindweed		DGL

Species name	Common name	Status	Veg communities
<i>Dichondra repens</i>	Kidney-weed		DAZ, DGL, DPU
CRASSULACEAE			
<i>Crassula sieberiana</i> subsp. <i>sieberiana</i>	Austral Stonecrop		DGL
DILLENIACEAE			
<i>Hibbertia hirsuta</i>	Hairy Guinea-flower	end.	DPU
<i>Hibbertia prostrata</i>			DAZ
EPACRIDACEAE			
<i>Astroloma humifusum</i>	Native Cranberry		DAZ, DGL, DPU
<i>Epacris impressa</i>	Common Heath		DAZ, DGL, DPU
<i>Epacris tasmanica</i>	Tasman Heath	end.	DGL, DPU
<i>Leptecophylla divaricata</i>		end.	DGL, DPU
<i>Lissanthe strigosa</i> subsp. <i>subulata</i>			DAZ, DGL, DPU
ELAEOCARPACEAE			
<i>Tetradlea labillardierei</i>			DAZ
EUPHORBIACEAE			
<i>Beyeria viscosa</i>	Pinkwood		DGL
<i>Euphorbia lathyris</i>	caper spurge	i	DGL
<i>Euphorbia helioscopia</i>	sun spurge	i	WVI
DROSERACEAE			
<i>Drosera pygmaea</i>			DGL
FABACEAE			
<i>Bossiaea prostrata</i>	Creeping Bossiaea		DAZ, DGL, DPU
<i>Daviesia ulicifolia</i> subsp. <i>ulicifolia</i>			DAZ
<i>Hovea heterophylla</i>			DGL, DPU
<i>Indigofera australis</i>	Native Indigo		DGL
<i>Kennedia prostrata</i>	Running Postman		DAZ
<i>Pultenaea pedunculata</i>	Matted Bush-pea		DAZ
<i>Ulex europaeus</i>	Gorse	d	DPU, DAZ
GENTIANACEAE			
<i>Centaurium erythraea</i>	Common centuary	i	DAZ, DGL, DPU
GERANIACEAE			
<i>Geranium</i> sp.	Cranesbill		DGL
<i>Pelargonium australe</i>	Austral Stork's Bill		DGL
GOODENIACEAE			
<i>Goodenia lanata</i>	Native Primrose		DAZ, DGL, DPU
<i>Goodenia ovata</i>	Parrot's Food		DGL
HALORAGACEAE			
<i>Gonocarpus tetragynus</i>	Common Raspwort		DAZ, DGL, DPU
<i>Gonocarpus teucroides</i>	Raspwort		DGL
LAMIACEAE			
<i>Ajuga australis</i>	austral bugle		WVI
<i>Prunella vulgaris</i>	heal-all	i	DGL
LAURACEAE			
<i>Cassytha pubescens</i>	downy dodderlaurel		DGL
LINACEAE			
<i>Linum marginale</i>	Native Flax		DAZ
MALVACEAE			
<i>Asterotrichion discolor</i>	Currajong	end.	DGL
MIMOSACEAE			

Species name	Common name	Status	Veg communities
<i>Acacia dealbata</i> subsp. <i>dealbata</i>	Silver Wattle		DGL, WGL
<i>Acacia genistifolia</i>	Spreading wattle		DAZ
<i>Acacia mearnsii</i>	Black Wattle		DAZ, DGL, DPU
<i>Acacia melanoxylon</i>	Blackwood		DGL
<i>Acacia mucronata</i> subsp. <i>longifolia</i>		end.	DGL
<i>Acacia verticillata</i> subsp. <i>verticillata</i>			DGL
MYRTACEAE			
<i>Callistemon pallidus</i>	Lemon Bottlebrush		DGL
<i>Calytrix tetragona</i>	Fringe-myrtle		DGL
<i>Eucalyptus amygdalina</i>	Black peppermint	end.	DAZ, DGL, DPU
<i>Eucalyptus globulus</i> subsp. <i>globulus</i>	Tasmanian Blue Gum		DAZ, DGL, DPU
<i>Eucalyptus ovata</i>	Black Gum		DGL
<i>Eucalyptus pulchella</i>	White Peppermint	end.	DGL, DPU
<i>Eucalyptus viminalis</i> subsp. <i>viminalis</i>	Manna Gum		DAZ, DGL, DPU
<i>Leptospermum grandiflorum</i>	Grand Tea-tree	end.	DGL
<i>Leptospermum lanigerum</i>	Woolly Tea-tree		DGL
<i>Leptospermum scoparium</i> var. <i>scoparium</i>	Broad-leaf Manuka		DGL
<i>Melaleuca gibbosa</i>	Small-leaved Melaleuca		DGL
OLEACEAE			
<i>Notelaea ligustrina</i>	Native Olive		DGL
OXALIDACEAE			
<i>Oxalis perennans</i>	Native Oxalis		DAZ, DGL, DPU
PITTOSPORACEAE			
<i>Bursaria spinosa</i> subsp. <i>spinosa</i>			DAZ, DGL, DPU
PLANTAGINACEAE			
<i>Plantago varia</i>	Variable Plantain		DGL
POLYGALACEAE			
<i>Comesperma volubile</i>	milkwort		DPU
PRIMULACEAE			
<i>Anagallis arvensis</i> var. <i>arvensis</i>	Scarlet Pimpernel	i	DAZ, DGL, DPU
<i>Samolus repens</i>	Creeping Brookweed		DGL
PROTEACEAE			
<i>Banksia marginata</i>	Silver Banksia		DGL
<i>Hakea epiglottis</i> subsp. <i>epiglottis</i>		end.	DGL
<i>Lomatia tinctoria</i>	Guitar Plant	end.	DAZ
RANUNCULACEAE			
<i>Clematis aristata</i>	Climbing Clematis		DGL
<i>Clematis gentioides</i>			DPU
RESEDACEAE			
<i>Reseda luteola</i>	weld	i	DGL
RHAMNACEAE			
<i>Pomaderris apetala</i> subsp. <i>apetala</i>	Dogwood		DGL
<i>Pomaderris pilifera</i>	Hairy Yellow Dogwood		DGL, DPU
<i>Spyridium obovatum</i> var. <i>obovatum</i>	Dusty Miller	end.	DGL
ROSACEAE			
<i>Acaena echinata</i>	Sheep's Burr		DGL, DPU
<i>Acaena novae-zelandiae</i>	Buzzy		DGL, NBA, DPU
<i>Crataegus monogyna</i>	Hawthorn	i	DGL
RUBIACEAE			

Species name	Common name	Status	Veg communities
<i>Coprosma quadrifida</i>	Native Currant		DGL, DPU
RUTACEAE			
<i>Correa reflexa</i> var. <i>reflexa</i>	Common Correa	end.	DGL, DPU
<i>Zieria arborescens</i>	stinkwood		WVI
SANTALACEAE			
<i>Exocarpos cupressiformis</i>	Native Cherry		DGL, DPU
SAPINDACEAE			
<i>Dodonaea viscosa</i> subsp. <i>spatulata</i>			DGL, DPU
SCROPHULARIACEAE			
<i>Veronica calycina</i>	hairy speedwell		DAZ, DGL
<i>Verbascum thapsus</i>		i	DGL
STYLIDIACEAE			
<i>Stylidium graminifolium</i>	Trigger Plant		DGL
THYMELAEACEAE			
<i>Pimelea humilis</i>	Dwarf Rice-flower		DGL, DPU
<i>Pimelea</i> sp.			DGL
URTICACEAE			
<i>Urtica incisa</i>	scrub nettle		WVI
VIOLACEAE			
<i>Viola hederacea</i> subsp. <i>hederacea</i>	Native Violet	end.	DGL
Gymnosperms			
CUPRESSACEAE			
<i>Callitris rhomboidea</i>	Oyster Bay Pine		DAZ, DGL, DPU
Monocots			
CYPERACEAE			
<i>Carex appressa</i>	tall sedge		DGL
<i>Carex breviculmis</i>	shortstem sedge		DPU, DGL
<i>Carex inversa</i>	tussock sedge		DAZ
<i>Eleocharis acuta</i>	common spikesedge		DGL
<i>Ficinia nodosa</i>	knobby clubsedge		DGL
<i>Gahnia radula</i>	Thatch Saw Sedge		DAZ
<i>Lepidosperma curtisiae</i>	Curtis's Sword sedge		DAZ, DGL, DPU
<i>Lepidosperma gunnii</i>	Narrow Sword-sedge		DAZ, DGL, DPU
<i>Lepidosperma inops</i>	Fan sedge		DPU, DGL
<i>Lepidosperma laterale</i>	Variable Sword-sedge		DGL, DPU
<i>Schoenus apogon</i>	Common Bog-rush		DPU, DGL
JUNACEAE			
<i>Juncus kraussii</i> subsp. <i>australiensis</i>	Sea Rush		DGL
<i>Juncus pallidus</i>	Pale Rush		DGL
<i>Juncus subsecundus</i>	Finger Rush		DGL
<i>Juncus bufonius</i>	Rush		DGL
<i>Luzula meridionalis</i>	Meridian		DGL
HEMEROCALLIDACEAE			
<i>Arthropodium milleflorum</i>	Pale Vanilla-lily		DGL
<i>Caesia parviflora</i> var. <i>parviflora</i>	pale grasslily		DGL
<i>Dianella tasmanica</i>	Flax lily		DGL
IRIDACEAE			
<i>Diplarrena moraea</i>	white flag iris		DPU
ORCHIDACEAE			

Species name	Common name	Status	Veg communities
<i>Acianthus pusillus</i>	Mosquito Orchid		DGL
<i>Dipodium roseum</i>			DAZ
<i>Gastrodia sesamoides</i>	potato orchid		WVI
<i>Microtis</i> sp.	onion orchid		DGL
<i>Thelymitra</i> sp.	sun orchid		DAZ
<i>POACEAE</i>			
<i>Austrostipa mollis</i>	soft speargrass		DGL
<i>Austrostipa pubinodis</i>	tall speargrass		DPU
<i>Austrostipa rudis</i> subsp. <i>australis</i>	Southern speargrass		DGL, DPU
<i>Austrostipa semibarbata</i>	fibrous speargrass		DGL
<i>Austrostipa stuposa</i>	Corksrew speargrass		DGL, DPU
<i>Deyeuxia monticola</i>	mountain bentgrass		DAZ
<i>Elymus scaber</i>	rough wheatgrass		DGL
<i>Holcus lanatus</i>		i	DGL
<i>Microlaena stipoides</i>	Weeping Grass		DAZ, DGL, DPU
<i>Poa labillardierei</i> var. <i>labillardierei</i>	Tussock Grass		DGL, DPU
<i>Poa rodwayi</i>	Silver Tussock		DGL, DPU
<i>Poa hookeri</i>	Hookers tussockgrass		DPU
<i>Rytidosperma caespitosa</i>	common wallabygrass		DGL, DPU
<i>Rytidosperma penicillatum</i>	slender wallabygrass		DGL, DPU
<i>Rytidosperma setacea</i>	bristly wallabygrass		DGL
<i>Themeda triandra</i>	Kangaroo Grass		DAZ, DGL, DPU
<i>Tetrarrhena distichophylla</i>	Hairy Rice-grass		DGL
<i>RESTIONACEAE</i>			
<i>Apodasmia brownii</i>	Coarse Twine-rush		DGL
<i>TYPHACEAE</i>			
<i>Typha latifolia</i>	Cumbungi	i	DGL
<i>XANTHORRHOEACEAE</i>			
<i>Lomandra longifolia</i>	Sagg		DAZ, DGL, DPU
Ferns			
<i>ADIANTACEAE</i>			
<i>Adiantum aethiopicum</i>	Common maidenhair		DGL
<i>Cheilanthes austrotenuifolia</i>	Rock Fern		DGL
<i>ASPLENIACEAE</i>			
<i>Asplenium flabellifolium</i>	Necklace Fern		DGL
<i>DENNSTAEDTIACEAE</i>			
<i>Pteridium esculentum</i>	Bracken		DAZ, DGL, DPU
<i>DRYOPTERIDACEAE</i>			
<i>Polystichum proliferum</i>	Mother Shield Fern		DGL
<i>POLYPODIACEAE</i>			
<i>Microsorium pustulatum</i> subsp. <i>pustulatum</i>	Kangaroo fern		DGL

*end. – endemic; r,v,e – rare, vulnerable and endangered under the Tasmanian Threatened Species Protection Act 1995; V, E, CE – vulnerable, endangered and critically endangered under the Australian Environment Protection and Biodiversity Conservation Act 1999

Table A 2 Fauna species on Little Swanport Reserve compiled during site assessments

Common name	Scientific name	Status*	Record type	Date
BIRDS				
black currawong	<i>Strepera fuliginosa</i>	endemic	calling	27/3/2018
grey currawong	<i>Strepera versicolor</i>		calling	27/3/2018
forest raven	<i>Corvus tasmanicus</i>		sighted, calling	7/6/2018
yellow-tailed black cockatoo	<i>Calyptorhynchus funereus</i>		sighted	27/3/2018
green rosella	<i>Platycercus caledonicus</i>	endemic	sighted	27/3/2018
eastern rosella	<i>Platycercus eximius</i>		sighted	Nov 2018
swift parrot	<i>Lathamus discolor</i>	end ,CE	sighted, calling	27/3/2018
black-faced cuckoo shrike	<i>Coracina novaehollandiae</i>		seen	9/9/2018
fantail cuckoo	<i>Cacomantis flabelliformis</i>		calling	27/9/2018
pallid cuckoo	<i>Cacomantis pallidus</i>		calling	27/9/2018
shining bronze cuckoo	<i>Chrysococcyx lucidus</i>		calling	27/9/2018
satin flycatcher	<i>Myiagra cyanoleuca</i>		calling	27/9/2018
grey shrike-thrush	<i>Colluricincla harmonica</i>		calling	9/9/2018
grey butcherbird	<i>Cracticus torquatus</i>		calling	7/6/2018
Australian magpie	<i>Cracticus tibicen</i>		calling	7/6/2018
laughing kookaburra	<i>Dacelo novaeguineae</i>		calling	7/6/2018
golden whistler	<i>Pachycephala pectoralis</i>		calling	27/3/2018
spotted quail-thrush	<i>Cinlosoma punctatum</i>		seen	27/3/2018
European blackbird	<i>Turdus turdus</i>	i	calling	27/9/2018
Bassian thrush	<i>Zoothera lunulata</i>		fauna camera	Nov 2018
dusky woodswallow	<i>Artamus cyanopterus</i>		calling	27/3/2018
brush bronzewing	<i>Phaps elegans</i>		calling	27/9/2018
dusky robin	<i>Melanodryas vittata</i>	endemic	calling	27/3/2018
scarlet robin	<i>Petroica boodang</i>		seen	27/9/2018
spotted pardalote	<i>Pardalotus punctatus</i>		calling	7/6/2018
striated pardalote	<i>Pardalotus striatus</i>		calling	7/6/2018
grey fantail	<i>Rhipidura albiscapa</i>		sighted	7/6/2018
beautiful firetail	<i>Stagonopleura bella</i>		calling	27/9/2018
Tasmanian scrubwren	<i>Sericornis humilis</i>	endemic	seen	27/9/2018
superb fairy wren	<i>Malurus cyaneus</i>		calling	7/6/2018
brown thornbill	<i>Acanthiza pusilla</i>		seen	7/6/2018
yellow-rumped thornbill	<i>Acanthiza chrysorrhoa</i>		calling	27/9/2018
strong-billed honeyeater	<i>Melithreptus validirostris</i>	endemic	calling	27/9/2018
New Holland honeyeater	<i>Phylidonyris novaehollandiae</i>		calling	27/3/2018
crescent honeyeater	<i>Phylidonyris pyrrhopterus</i>		calling	7/6/2018

eastern spinebill	<i>Acanthorhynchus tenuirostris</i>		calling	7/6/2018
yellow wattlebird	<i>Anthochaera paradoxa</i>	endemic	sighted	7/6/2018
noisy miner	<i>Manorina melanocephala</i>		calling	7/6/2018
yellow-throated honeyeater	<i>Lichenostomus flavicollis</i>	endemic	calling	27/3/2018
silveryeye	<i>Zosterops lateralis</i>		calling	27/9/2018
Tasmanian wedge-tailed eagle	<i>Aquila audax subsp. fleayi</i>	end.,e,E	sighted	27/3/2018
white-bellied sea eagle	<i>Haliaeetus leucogaster</i>	-, v	flying over	27/9/2018
brown goshawk	<i>Accipiter fasciatus</i>		sighted	7/6/2018
tawny frogmouth	<i>Podargus strigoides</i>		fauna camera	Nov 2018
white faced heron	<i>Egretta novaehollandiae</i>		sighted	27/9/2018
black cormorant	<i>Phalacrocorax sulcirostris</i>		sighted	27/9/2018
MAMMALS				
brushtail possum	<i>Trichosurus vulpecula</i>		scats, camera	07/08/2018
common wombat	<i>Vombatus ursinus</i>		fauna camera	06/06/2018
Tasmanian bettong	<i>Bettongia gaimardi</i>		fauna camera	06/06/2018
brown bandicoot	<i>Isodon obesulus</i>		fauna camera	Nov 2018
fallow deer	<i>Dama dama</i>	i	scats, prints	7/6/2018
feral cat	<i>Felis catus</i>	i	fauna camera	7/6/2018
European rabbit	<i>Oryctolagus cuniculus</i>	i	Scats	7/6/2018
brown hare	<i>Lepus europaeus</i>	i	fauna camera	Nov 2018
red-necked wallaby	<i>Macropus rufogriseus</i>		sighted	7/6/2018
short-beaked echidna	<i>Tachyglossus aculeatus</i>		sighted	7/6/2018
Tasmanian devil	<i>Sarcophilus harrisii</i>	end.,e,E	fauna camera	13/7/2018
spotted-tail quoll	<i>Dasyurus maculatus</i>	v	fauna camera	Nov 2018
Tasmanian pademelon	<i>Thylogale billardierie</i>	endemic	Fauna camera	06/06/2018
water rat	<i>Hydromys chrysogaster</i>		fauna camera	06/06/2018
black rat	<i>Rattus rattus</i>	i	fauna camera	7/7/2018
house mouse	<i>Mus muscula</i>	i	fauna camera	13/7/2018
AMPHIBIANS				
Banjo frog	<i>Limnodynastes dumerilii</i>		calling dam	Nov 2018
smooth frog	<i>Geocrinia laevis</i>		calling	27/09/2018
common froglet	<i>Crinia signifera</i>		calling	27/09/2018
REPTILES				

blotched blue tongue	<i>Tiliqua nigrolutea</i>	fauna camera	Nov 2018
mountain dragon	<i>Rankinia diemensis</i>	sighted	09/09/2018
White's skink	<i>Egernia whitii</i>	sighted	27/09/2018
metallic skink	<i>Niveoscincus metallicus.</i>	sighted	27/09/2018

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