TASMANIAN
LAND
CONSERVANCY

Silver Peppermint Reserve

Management Plan 2015 - 2020

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Front Image: Detail: Silver peppermint bark © Matt Newton

Contact Address

Tasmanian Land Conservancy

PO Box 2112, Lower Sandy Bay,

827 Sandy Bay Road, Sandy Bay TAS 7005

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

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Acknowledgements

Silver Peppermint Reserve was created in 2005 after a generous gift from Dr Damian Hope, whose aim was to have this area protected for its conservation values in perpetuity. We sincerely thank Damian and his family for creating this lasting conservation legacy in Tasmania and their ongoing connection with the organisation.

The TLC would also like to acknowledge the generous support given by the Tasmanian Parks and Wildlife Service who manage the adjacent Mt Bethune Conservation Area with their assistance with fire suppression and reducing the threat of illegal wood removal, and to the DPIPWE Save The Tasmanian Devil Team for regular monitoring of Tasmanian devil and other species on this reserve.

The TLC acknowledges the data provided by Land Information System Tasmania (theList) and DPIPWE Natural Values Atlas which has been used to prepare boundary maps and maps of special values.

The TLC greatly appreciates the assistance of its many supporters and volunteers who continue to contribute time and labour towards management of this special area including fencing after fire and regular clean up, weeding and surveillance events.

Acronyms

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
STTDP	Save the Tasmanian Devil Program, 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

INTRODUCTION

Background

Silver Peppermint Reserve was gifted to the Tasmanian Land Conservancy (TLC) in 2005. The Reserve comprises 43 hectares of dry heathy forest near Ellendale in the Derwent Valley and can be accessed via Ellendale Road and then Rockmount Road (Fig 1). A conservation covenant is registered on the land title under the *Nature Conservation Act 2002* and the Reserve contains several species and vegetation communities listed as threatened under Australian and Tasmanian legislation. A detailed background report of the Reserve its history and natural values is available on the TLC's web site.

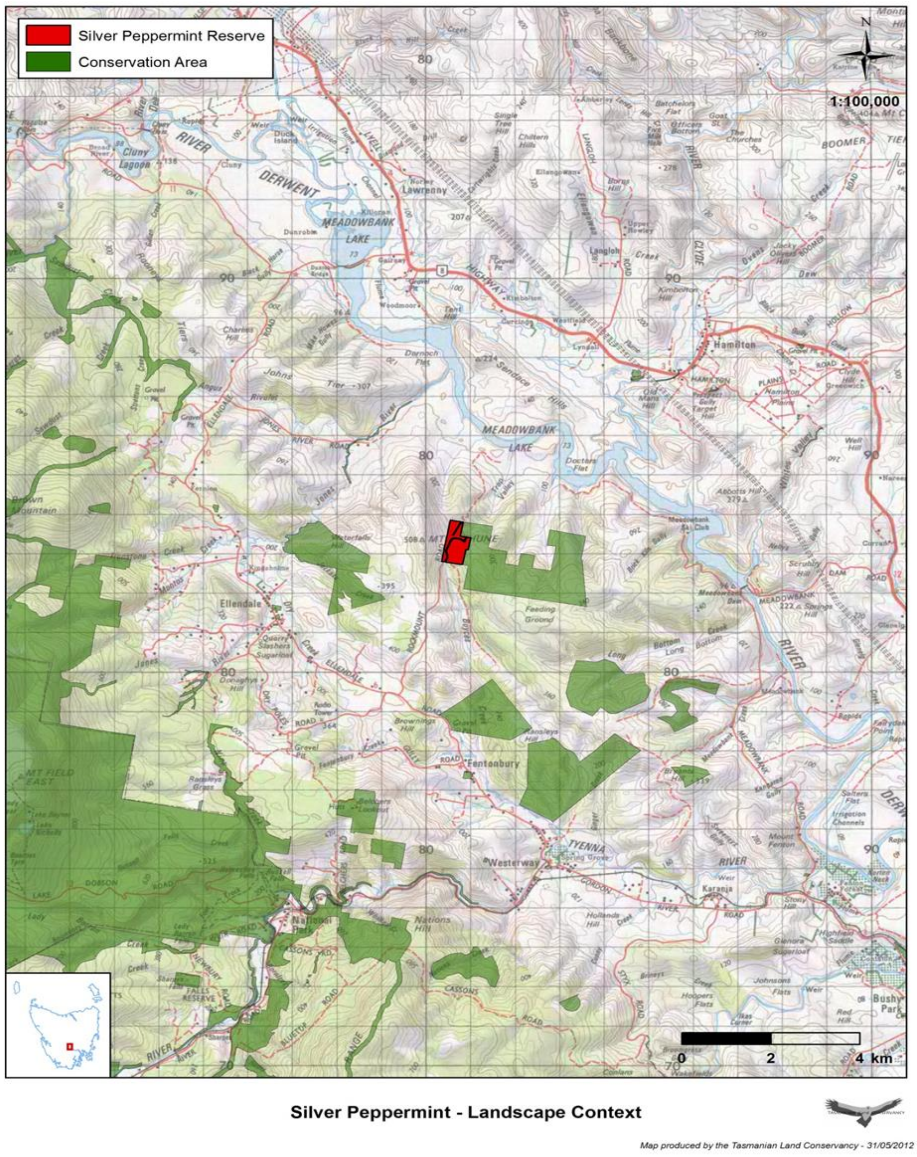

Figure 1 Location of the Silver Peppermint Reserve, Fentonbury.

RESERVE MANAGEMENT FRAMEWORK

Adaptive Management

The TLC aims to demonstrate excellence in management for biodiversity conservation and has adopted the Open Standards for the Practice of Conservation, which is an international system of adaptive management developed by the Conservation Measures Partnership (http://www.conservationmeasures.org). The Open Standards provides a guide to planning and implementing conservation actions through adaptive management (Figure 2).

Figure 2 Open Standards adaptive management model

Conservation Action Planning

This management plan represents the outcomes of the first and second stages of Conservation Action Planning, using the Open Standards adaptive management model. Conservation targets have been selected that describe broad ecosystem classes or habitat types, often with nested targets that are dependent upon the protection of the primary target. Ecological indicators are selected for each target and used to monitor changes in their condition. Threats to each of the targets are then identified, along with the factors that contribute to the threats, and these are prioritised depending on the extent, likelihood and severity of the impact of these threats to the conservation targets. Strategies to manage these threats are developed, with consideration given to their environmental, social and economic feasibility of each strategy.

Implementation of Management Strategies

Strategies to mitigate the threats to conservation targets are assessed for their feasibility and prioritised based on a combination of factors. These include likelihood and extent of mitigating the threat, the resources required and the resources available to implement the strategy.

Five-year work plans are developed to implement the management strategies and to record the specific activities to be undertaken, their timing and the resources required. Work plans also allocate budgets, allowing the TLC to plan ahead to ensure appropriate capacity to deliver reserve management activities.

Ecological parameters are also considered when scheduling works, to ensure that projects are undertaken when they are most likely to succeed. Progress against activities in the work plan is reviewed annually.

Monitoring and Evaluation

The TLC implements a monitoring and evaluation strategy across all of its permanent reserves. Monitoring of specific ecological indicators enables the collection of scientifically robust information on the status and trends of the conservation targets. Measuring the success of management actions is also critical for ensuring successful long-term management of the targets. A monitoring and evaluation plan is prepared for each reserve; this plan has four types of monitoring conducted at intervals from 1 to 5 years:

- Long-term ecological monitoring establishes a baseline measure of ecological indicators as an early warning of deleterious changes in the conservation targets. The results of this monitoring allow reserve managers to develop mitigation measures and reduce future costs of remedial management.
- Annual reserve assessments are undertaken annually by TLC staff across all permanent reserves to identify any new or emerging threats that have the potential to reduce the viability of the targets. Early identification of threats allows early management interventions to mitigate a threat.
- Management effectiveness evaluation provides land managers with information that is essential to determine the adequacy of management efforts. Data are collected on management inputs and biodiversity outputs, using indicators specific to measuring the success of management strategies. This information is then used by TLC reserve managers to make more-informed decisions on land management, measure progress towards performance objectives and determine the effectiveness of management strategies.
- Change detection analysis using remote sensing GIS data, is undertaken to assess the impact of management strategies on vegetation cover and changes in surrounding land cover that could indicate any 'leakage' – shifting of threatening process from a reserve to surrounding areas. Where this is identified, the TLC works with neighbouring landholders to develop local or regional mitigation strategies.

Reporting and Adapting

The results obtained from the monitoring program are used to adapt and direct on-ground works programs and update annual work plans and reserve management plans. The status of conservation targets, trends in ecological indicators and outcomes of reserve management activities are communicated to the TLC Board and TLCs Science Council, stakeholders and the community through a range of regular communication channels including an annual report.

OVERVIEW

VISION	The Silver Peppermint Reserve is managed for its dry forest values.

CONSERVATION TARGET	GOAL
Dry forest ecosystem	Improve the 2014 condition of the forest
SOCIAL TARGET	GOAL
Community connection to the landscape	Community are engaged with the Reserve and region
STRATEGIES	OBJECTIVES
Access control	Wood hooking absent by 2017 Domestic stock from neighbouring farms do not trespass on the Reserve
Fire Management	No fires on reserve prior to 2045
Weeds and Phytophthora	The extent and abundance of thistle and blackberry are reduced over time *Phytophthora*, domestic rubbish and no new weeds are introduced to the Reserve
Reserve activities	Reserve visitation over 10 people per year

CONSERVATION TARGET

Dry Forest Ecosystem

Goal: Improve the 2014 condition of the forest

The dry forest ecosystem identified at Silver Peppermint Reserve occurs across the entire area of the Reserve, although five vegetation communities (TASVEG) are grouped under this target. Two of these communities are listed as threatened under the *Nature Conservation Act 2002*: the *black* gum (*E. ovata)* forest (DOV) and the silver peppermint (*E. tenuiramis*) forest on sediments (DTO).

The forest at Silver Peppermint Reserve has been burnt twice in six years by unplanned wildfires, in Nov 2007 and Jan 2013. The vegetation was recovering well following the moderate intensity Nov 2007 fire, when a high intensity wildfire swept through the property in Jan 2013. The two fires in short succession resulted in a reduction in the structure, complexity and species diversity of the vegetation. Spear and Californian thistles dominate the understorey in the north western section of the property, while a dense layer of bracken occurs as the understorey over the remaining area of the property.

Viability

The viability of the Dry forest target has been rated as fair. The vegetation condition indicators together tell a story of low floristic diversity and species richness, low structural complexity, a high rate of recruitment (following fire) and a relatively high weed burden. The trends of the ecological indicators will be better quantified over time. An inappropriate fire regime (two fires within ten years, with the most recent fire being high intensity) have resulted in vegetation that has low structural complexity and low species diversity for this type of forest.

Key Environmental Attribute	**Indicator**
Vegetation condition	Floristic diversity, recruitment and structural complexity
	Extent of weeds
Fauna	Bird and mammal diversity and occupancy

Threats and management

Wood hooking – Silver Peppermint Reserve has been subject to illegal wood hooking for many years prior to the acquisition of the property by TLC. Since TLC has owned the property illegal wood hooking continued until installation of roadside fencing in 2015. Illegal wood hooking has contributed to the degradation of the structural complexity of the forest.

Weeds – the removal of the understorey and tree canopy by wildfire has allowed the rapid invasion of thistles being blown in from neighbouring pastoral properties. It is likely that this impact will decrease with increasing cover of native vegetation as the area recovers from fire.

Inappropriate fire regime – Silver Peppermint Reserve has been subject to two wildfires in ten years. Arson was the likely source of the Nov 2007 fire, which burnt approximately 13 ha of the Reserve. An escaped campfire at Lake Repulse 12 km to the northwest caused a very large, intense wildfire in Jan 2013.

Phytophthora – *Phytophthora cinnamomi* is a soil borne pathogen that affects native vegetation, particularly heaths. The heathy understorey vegetation at Silver Peppermint Reserve is highly susceptible to PC, particularly species of the families *Epacridaceae, Fabaceae* and *Proteaceae*.

Domestic stock grazing – introduces weeds and reduces regeneration of many native species.

Threat	***Impact***	***Threat rating***	***Management strategy***
Wood hooking	Loss of coarse woody debris and structural complexity	medium	• Access control
Inappropriate fire	Loss of vegetation diversity and structural complexity	low	• Fire management • Build resilience to climate change
Weeds and disease	As noted in text	low	• Weeds and Phytophthora • Access control
Domestic grazing	As noted in text	low	• Access control

SOCIAL TARGET

Community connection to the landscape

Objective: Community are engaged with the Reserve and region

The TLC encourages connection to the landscape as an end in itself, and to ensure that reserve networks are valued and supported in the community. Access to this reserve and the ability to use it as a base to explore the region is a goal for all of our reserves and for reserves generally.

We also aim to foster a community volunteer relationship with this Reserve. Where possible the TLC will enlist the help of the community to assist with onsite reserve activities such as assessment, monitoring, fencing and weed management to deepen connection with the landscape as well as to enjoy the reserve and the region.

Viability

Viability for this target is rated as good, from events already held on the reserve, including a successful Research Open Day held in 2014.

Key Attribute	Indicator
Community involvement	No of events, activities and visitors

Threats

The lack of knowledge, understanding and appreciation of this landscape are the primary threat to achieving this objective. This may arise from a lack of, or poor communication with stakeholders or the lack of opportunities for the wider community to become, or remain, engaged with the TLC.

Threat	Impact	Threat rating	Management strategy
Lack of knowledge	Lost opportunities to better understand and manage the reserve	Low	• Maintain reserve activities

MANAGEMENT STRATEGIES

Access control

Objective: Wood hooking absent by 2017

Illegal access by wood hookers has been occurring for many years on the Silver Peppermint Reserve and has reduced the structural complexity of the vegetation in many areas. It is also is associated with arson, vandalism, dumping of rubbish/green waste. The TLC has constructed fences along roadsides and installed signs at access points to deter wood hooking. Any ongoing illegal access to Silver Peppermint Reserve will be monitored using automatic surveillance cameras. Cameras will be located along internal tracks and positioned so that they are able to record registration plates of vehicles using those tracks. Images, location and date information will be provided to the police with the aim of prosecuting wood hookers.

Fencing will also need to be maintained to control straying domestic livestock from neighbours.

The annual reserve assessment will include monitoring of fences and unauthorised tracks to determine the effectiveness of this strategy.

Key actions:	***Details***
Fencing and track closure	Maintain fencing either side of roadway
Signage	Entry signage and signage on fence lines to be maintained
Remote cameras	Used to detect illegal activities at key times of year
Key monitoring:	***Details***
Annual reserve assessment	Undertaken annually by TLC staff to identify emerging issues

Fire management

Objective: No fires on reserve prior to 2045

A high frequency of bushfires, including a very high intensity fire in 2013, has reduced the structural complexity of the vegetation at the Reserve. The TLC will take seek to reduce the frequency of fires at the reserve through discussions with neighbouring private landowners and the Parks and Wildlife Service. Lighting of fires will not be permitted at the Reserve. TLC's fire management policy and procedures will apply.

Weeds and Phytophthora

Objective: The extent and abundance of thistle and blackberry are reduced over time, *Phytophthora*, domestic rubbish and no new weeds are introduced to the Reserve

Native ecosystems are under threat from weeds and pathogens including *Phytophthora cinnamomi*. 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.

The understorey of the Dry forest target at Silver Peppermint Reserve is particularly susceptible to *Phytophthora cinnamomi.* Soil tests carried out on samples for the Reserve have returned negative, thus it is likely the reserve is presently phytophthora free. To minimise the chance that this pathogen is introduced to the reserve all visitors will be required to comply with the TLC Weed and Pathogen Policy 2012.

The weeds in the reserve include blackberry, a variety of thistles and other, less problematic weeds such as exotic grasses and flat weeds. As the Reserve sits within a landscape of agriculture and timber plantations, and the area has been so intensively burnt, only a small effort will be expended on weed control, and this will be directed towards eradication of blackberry and reduction in the density of thistles.

Key actions:	***Details***
Implementing TLC's PC policy	Wash down of vehicles after visits, boot hygiene etc
Weed control	Blackberry eradication, reduce density of thistles
Monitoring	
Annual reserve assessment	Undertaken annually by TLC staff to identify emerging issues

Annual reserve assessment and neighbour relations

Objective: No new threats emerge from 2015

Annual reserve assessment and liaising with neighbours is routinely conducted by TLC staff to identify any new or recurring threats that have the potential to reduce the viability of the targets. On Silver Peppermint Reserve these threats include:

- Weeds – gorse, ragwort, pampas grass, blackberries and thistles are widespread in the local area
- Livestock - the neighbouring property is grazed by sheep and cattle
- Fire - the Reserve has been burnt twice in the past decade

The TLC recognises the importance of maintaining good relationships with neighbouring landowners and regularly communicates with neighbours about shared management issues and cooperative approaches to regional land management issues such as livestock, feral animals, weeds and fire management. Neighbours are informed about any TLC management strategies or issues that have the potential to impact on their land. Similarly, TLC talks to neighbours about activities or management issues on adjoining land that have the potential to impact on the values of TLC Reserves.

Key actions:	***Details***
Contact neighbours	Discuss issues of cross-tenure land management issues
Monitoring:	
Annual reserve assessment	Track any new threats, monitor success of existing strategies

Reserve Activities

Objective: Reserve visitation over 10 people per year

The TLC encourages visitors, especially supporters, to its reserves. The Silver Peppermint Reserve, however, is not regularly visited by supporters and bushwalkers, due to other major attractions in the immediate area. The Reserve is an important research site for STTDP and for TLC's long term monitoring of recovery after fire and these activities combined with regular volunteer working bees help stimulate ongoing connection with the Reserve.

Key Actions	**Details**
Communications	Develop and provide visitors with information on reserve values, use conditions, biosecurity protocols and seasonal constraints.
Community engagement	Hold events and foster interested groups through TLC communication channels, e.g. web, newsletter, blog, public events etc. to support and protect the reserve
Key Monitoring activities	**Details**
Visitor numbers	Monitor visitor numbers and activities. (No of events, activities and visitors)

MANAGEMENT PLAN PROCESS

Management Plan Status

The TLC is currently operating and reporting against the targets outlined in this i management plan which is due for revision in 2020. As part of the Open Standards adaptive management process, progress on target viability, management effectiveness and our understanding of biology and social impacts are reported on annually.

Management Responsibilities

TLC staff are responsible for undertaking the management of the reserve. This includes the co-ordination of contractors, consultants and volunteers where they are required to implement the management actions outlined in this Plan. Relevant experts from the TLC Board and Science Council will also be requested to provide advice and guidance where needed. Wherever possible, the TLC works with neighbours to manage cross-tenure threats. The TLC will endeavour to act as a good neighbour to all parties and, where possible, undertake co-operative or complementary management where both parties seek a similar outcome (e.g. weed control and fire management). The TLC will undertake every endeavour to ensure that management of this reserve does not have a detrimental impact on the surrounding area.

Long-term management costs will be met through the TLC Foundation, an endowment fund that seeks to use compounding interest to pay for the costs of the organisation, and by ongoing fundraising or through relevant partnerships and grant opportunities as they become available.

Stakeholder Involvement

The major stakeholders to this plan are the Tasmanian Parks and Wildlife Service who manages the adjoining Mt Bethune Conservation Area and DPIPWE through the Private Land Conservation Program who monitor the status of the conservation values identified in the covenant. These stakeholders as well as TLC supporters and neighbouring landowners may be involved with practical implementation of management actions and any monitoring or adaptive changes needed.

Management Plan Review

This document will guide on-ground management of the reserve over the coming years and be the basis to develop annual work plans and budgets. The plan identifies a range of conservation targets, threats, strategies and actions based on our best current knowledge but these may change over time as our information increases and monitoring data can better inform our activities. In implementing the adaptive management process identified by the TLC's Reserve Management Policy, progress towards meeting the objectives of this plan will be reviewed at regular intervals not exceeding every two years. These reviews may lead to minor amendments to the plan.

A full review of the plan will occur at a time no earlier than five years and no later than ten years from the date of adoption of this plan.