Sandy Point Koala Action Plan

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Report by

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Sandy Point Koala Action Plan

Contents

1. Summary

Koala project
The Sandy Point Koala Action Project, with the support of the Victorian Government, aims to address issues facing the local koala population through:

- Collecting information to help understand the situation of our koalas
- Involving the community in looking after koalas
- Restoring and revegetating areas for healthy and connected koala habitat
- Creating a community action plan for managing koalas long term.

History and genetics of koalas in Sandy Point
Historical information has been collected from community members, reports and records to try to understand the origins of the Sandy Point koala population and their genetic health and diversity, to help to inform management decisions. The population is known to have ebbed and flowed over the years in response to environmental and population pressures and changes, at some times booming and other times dropping low. Some koalas may have been brought into Sandy Point from other areas / island populations in the past.

Genetic research on 11 individuals (in 2018) suggests that the Sandy Point koalas are likely to be a remnant population of the larger South Gippsland koala population, which is a population with important conservation significance. Because the Sandy Point koala population has been isolated for a long time, it suffers from a low level of genetic diversity.

A community population count in September 2017 counted 31 koalas, and another in October 2019 counted 30. However, we think that the population is likely to be quite a bit higher as surveying by this method is unlikely to pick up all of the animals, and because not all areas of koala habitat could be surveyed. We estimate around 50 (between 30-60) koalas may live in and around Sandy Point. Evidence of koalas (scats) have also been found across a wide range of sites across town and the rural areas surrounding it.

Habitat assessment and recommendations
Koala habitat was mapped across the town and rural areas over 2017/18. Habitat was found to be overall in fairy good condition with little sign of overbrowsing occurring currently. There are good patches of habitat but connection between patches is low with animals travelling across farmland and on roads to move between patches of bush. The four main recommendations from the habitat assessment are to:

1. Protect ‘mother’ trees in the reserve from koala browsing and collect seed for propagation
2. Do revegetation projects to provide wildlife corridors and food sources / habitat – in the coastal reserve, on private land, and encourage landholders to plant trees. Consider landscape-scale habitat connections in the future.
3. Scope out and plan for future maintenance requirements of plantings to maximise the likelihood of success of revegetation projects
4. Plan for monitoring the health of trees for signs of overbrowsing

Sandy Point Koalas Action Plan

A Koala Action Plan has been developed, capturing community input from two workshops and including the other recommendations in this report. The Action Plan (summary below, and full version in Section 7.4) can be used by the community and updated periodically to track koala actions.

Table 1. Summary of Koala Action Plan actions

	Done or underway / ongoing	Future actions
Planning	• Community koala count 2017 and 2019 • Look up historical records on koalas • Genetic study of scats (Fed Uni) • Map habitat and plan for revegetation	Actions: 1. Contact agencies, experts and koala managers to share findings of the project and ask for assistance with next steps 2. Connect with local groups (Waratah / Walkerville) and find out about other local koala populations. 3. More work to understand genetics, health & options for future management 4. Seek advice on how to manage & monitor population change and risk of overbrowsing 5. Community koala count (repeat biannually) 6. Apply for grants to fund ongoing work Ideas: 7. Work with other agencies / Council (re fencing, veg clearing) 8. Seek advice on genetic diversity of local coast manna gums
Community	• Create koala info brochure • Interpretive signs about koalas / wildlife • Collect names of interested volunteers • Promote koala awareness/ projects at community events / markets • Educate about tree planting: what, when, how	Actions: 1. Wildlife road signs (underway) 2. Include koalas and other wildlife in broader Sandy Point signage project Ideas: 1. "Adopt a tree" program to water trees for people who don't live here permanently / for weeding /maintenance of reserve sites 2. Encourage dog awareness and control, especially at night (broader issue linked to other SP groups as well)
Wildlife care	• Raise money to support wildlife carers • Raise awareness of wildlife carers & their contact details • Injured wildlife response: set up a "phone tree", train volunteers	Actions: 1. Recruit and train more local volunteers to be involved in wildlife rescue, care and transport 2. Continue to fundraise to support local wildlife carers 3. Monitor / manage wombat mange issues (Di Cooper has offered to coordinate this Ideas: 4. Develop information point to record injured / dead koalas (Di Cornwell has started this) 5. Idea to promote & fundraise for wildlife carers by offering visits to their shelter (with donation) e.g. on one day in school holidays
Reveg and on-ground	• Monitor and protect mother trees • Design and build tree guards for reserve planting • Give away trees to town residents • Offer funding for planting habitat corridors • Collect and grow seed for planting projects	Actions: 1. Coordinate volunteer maintenance (e.g. monitoring trees, removing guards) & seek funding for contractor maintenance Ideas: 2. Community volunteers collect and grow seed for future plantings 3. Managing reserve rather than letting coastal tea-tree take over 4. Investigate using fire as a management tool & explore partnerships for cultural burning

It is important to note that the Action Plan needs to be owned and driven by people in the community for efforts to be a success.

2. Introduction

Sandy Point is a small coastal town with permanent population of around 200, growing to several thousand during holiday periods. Koalas live and move in and between fragmented habitat in the township, surrounding lifestyle blocks and farms, and the coastal reserve.

Koalas are a local icon and are much loved by the local community and visitors alike. However, the health and future viability of the population of koalas at Sandy Point is a community concern.

Various community meetings and action have been held over the years to help address koala issues, including around revegetation / tree planting and issues like mange, as they arise. It is a community priority to protect and manage the local koala population to ensure that it remains healthy and sustainable into the future. During 2016/17 there were a number of mange cases and meetings were held where community actions were brainstormed.

In 2017, members of the Koala Action Group prepared a grant application and were successful in securing funding ($49,870) funding from the State Biodiversity On-Ground Action Grant (September 2017) to implement the Koala Action Project. The grant is auspiced through the Sandy Point Community Group.

The Sandy Point Koala Action Project aims to address issues facing the local koala population through:

- Collecting information to help understand the situation of our koalas (community surveys, genetics assessment)
- Involving the community in looking after koalas (awareness raising and education)
- Restoring and revegetating areas for healthy and connected koala habitat (planting trees and corridors)
- Creating a community action plan for managing koalas long ter

This report includes the following:

- Historical and genetic information about koalas at Sandy Point
- Results of the community koala count undertaken in October 2017
- Results of the koala habitat assessment and habitat recommendations
- An action plan containing actions from community meetings in November 2017 and April 2018 and from this report

Wildlife care (looking after sick and injured wildlife) and koala health issues are a critical part of the management of local koala population, and these are discussed in the action planning and captured in the report. However, because the scope of this report is to report on the work done through the biodiversity grant, which dovers on surveys and assessments and on-ground work (revegetation and environmental management), and so there is less information about wildlife health issues in this report.

3. History and Ecology of Koalas at Sandy Point

3.1 Historical scan results

The following is a summary of what we currently know and understand about the history of the Sandy Point koala population (for full notes from a historical scan undertaken during community meeting in November 2017 see Appendix 1).

- There was a koala population through the bush around Waratah Bay originally long before Europeans arrived. The population was affected by land clearing since settlement in the late 1800's, and by periodic drought over the years. There have been boom/bust cycles to the koala population over the years, in response to a range of factors including food source availability, drought and climatic conditions.
- The first graziers arrived in the area in the 1860's. A diary entry from 1910 of a local farmer refers to all the gums being dead and seeing what he described as possibly 'the last native bear in Sandy Point' (see Appendix 3). It is not known whether this was actually the last koala from the remnant population.
- There may have been koalas moved in in the 1940's at a time when there was a large translocation program of koalas around Victoria. At this point the details of any relocations (where moved from, and when) have not yet been confirmed. There are also anecdotal reports of local people transporting koalas in from neighbouring areas such as Waratah / Walkerville.
- In the 1950's and 1960's the estate (town) was built.
- In the 1970's manna gums in the reserve were all eaten out in a drought year, and people started planting manna gums in Sandy Point.
- In the 1980's, some Sandy Point koalas were taken to Phillip Island (presumably when the Sandy Point population was high). Between 1982 and 1992, local school groups planted koala trees in the coastal reserve (there are around 10 plantation areas). The viability of these plantations is discussed later in this report.
- More recently in the two years to 2017, a total of 17 koalas had to be euthanised from mange.

3.2 History of koala translocations in Victoria and at Sandy Point

Overbrowsing occurs when koala populations grow to unsustainable densities, leading to defoliation of their favoured food trees. In severe cases widespread tree death can occur and sometimes starvation of koalas. Since 1923 this has been managed in Victoria by translocating koalas out of high-density sites, with initial translocations onto islands. Later the government re-introduced koalas back to mainland habitat left unoccupied after a dramatic population crash in the early 1900s. The only remnant populations thought to have survived the population crash were in South Gippsland and the Mornington Peninsula.

Unfortunately only a relatively small number of koalas founded the island populations, so their descendants which were re-introduced back onto the mainland had very low genetic diversity. As such, the level of genetic variation in Victorian koala populations is very low compared to NSW and QLD, which may reduce the ability of the species to adapt to future environmental pressures such as climate change or disease (Wedrowicz et al. 2018).

Koalas in South Gippsland (known as the Strzelecki Koala) however have a higher genetic diversity as it is a remnant population, not derived from translocated island stock, and is therefore of high conservation significance (Wedrowicz et al. 2018). Victoria's Koala Management Strategy (DSE 2004)

states "therefore if significant remnant genetic resources persist in South Gippsland it is imperative to ensure that habitat is protected as far as possible".

It wasn't clear whether the Sandy Point koala population were a remnant population or whether the koalas are descendants of translocated island stock, or a mixed population. The following map from Victoria's koala management strategy show the location of release sites (reintroduction from island populations), and Sandy Point is not recorded as a site (the nearest site is Inverloch, in 1977). However it is possible that French Island or Phillip Island animals were released at Sandy Point and not officially recorded.

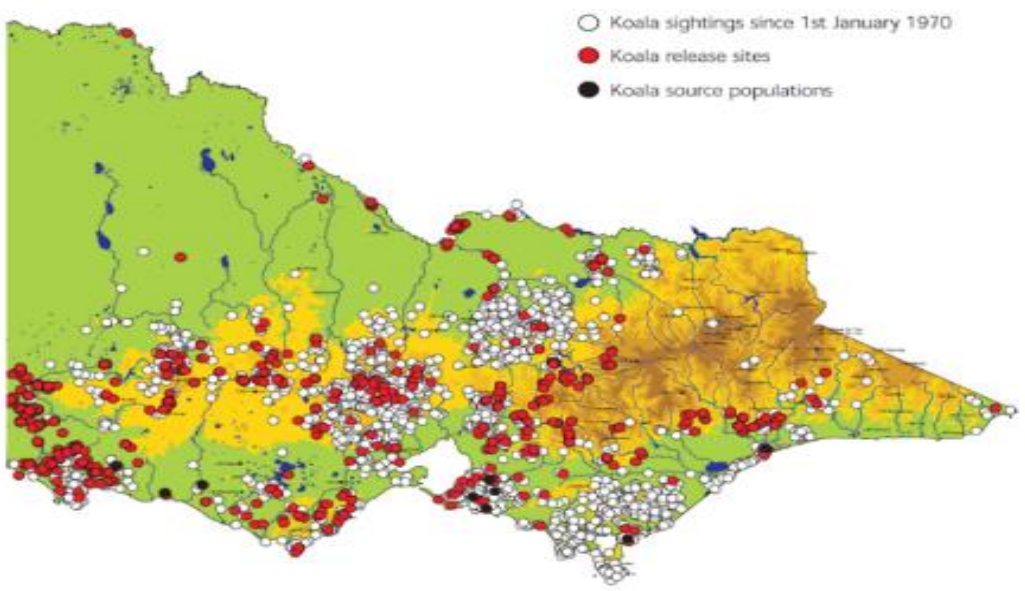


Figure 1. The distribution of Koala release sites (DSE 2004)

Anecdotally, there were a few people in the local community that took a real interest in the Koala population at Sandy Point, and it's likely that there were informal releases of individual animals especially from wildlife carers.

3.3 Genetic testing

Genetic testing of koala scats can identify information such as the origin populations of koalas, their sex and age, and details on their health status. Koala scats were collected during fieldwork in March 2018, which were assessed by a genetics team at Federation University. The results are below (Executive Summary of the report, October 2018):

This report presents the findings of a study into the Sandy Point koala population using genetic data and DNA isolated from sampled koala scats. The study was initiated and funded by the Sandy Point Community Koala Action Group (SPCKAG).

The SPCKAG carried out a koala survey of the Sandy Point area during March 2018 and collected 22 scat samples for genetic analysis. A total of 20 scat samples provided reliable data for analysis from which 11 individual koalas (6 females and 4 males) were detected.

Key findings:

1. *Genetic data from the Sandy Point koala population were compared to koalas sampled in South Gippsland, Cape Otway (translocated from French Island) and Raymond Island (translocated from Phillip Island). Genetic comparisons of these populations revealed that*

*the **Sandy Point koala population is a remnant of the larger South Gippsland koala population**, rather than from French or Phillip Island.*

2. *Genetic diversity in the Sandy Point koala population was significantly lower than koalas sampled from South Gippsland, Cape Otway or Raymond Island. The **low level of genetic diversity in the Sandy Point koala population** is likely driven by its isolation and consequent lack of recent koala migration into the area, followed by successful breeding (gene flow). Inbreeding may or may not currently play a role in the population's low diversity and warrants further investigation. Questions such as whether the high incidence of sarcoptic mange in the population is related to the population's low level of genetic diversity also remain to be answered.*
3. ***Continuing to improve and extend koala habitat to support the local koala population will be important for the future preservation of this koala population**. The low level of genetic diversity present in Sandy Point koalas makes this population susceptible to future stochastic events (e.g. novel disease and/or changes in climate and the environment, which could, for example, influence the suitability and/or availability of food sources). Potential strategies to increase the population's genetic diversity and adaptability requires further investigation and assessment of risk.*
4. ***Bacterial infection with Chlamydia pecorum was not detected** in any of the 11 individuals while koala retrovirus (KoRV-A) was detected in 4 individuals (36%). The rate of KoRV-A detected at Sandy Point is slightly higher but statistically similar to the average rate of KoRV-A infection within the greater South Gippsland[1] koala population (27%).*

This research tells us that that the Sandy Point koalas are likely to be a remnant population of the larger South Gippsland koala population, rather than originating from island populations. However, because the population has been isolated for a long time it suffers from a low level of genetic diversity.

Because the scats collected were from a relatively small number of individuals (11), further work needs to be done to understand the genetic situation and health of the koala population, to help inform future management.

3.4 Overbrowsing

Sandy Point has all the characteristics of sites where serious over-browsing occurs: it's a habitat isolate with no connection to other areas, is dominated by Coast Manna Gum, with only one or occasionally two preferred eucalypt species present (DSE 2004). The population is known to have has population booms and busts over time and caused damage to local trees.

As such it would be prudent to monitor trees for signs of overbrowsing. These include reduced canopy density, often with tufts of leaves remaining on twigs beyond the reach of koalas. This characteristic tufted appearance is an important clue that the defoliation is due to koalas rather than insect attack or loss of tree vigour due to other causes (DSE 2004).

It isn't known what the "ideal" koala population size for the existing habitat and koala food sources in Sandy Point are. As discussed later in this report, the habitat appears to be currently in good condition, indicating that the population is stable. However it may be worth seeking further advice as to the carrying capacity of the current food sources to assist in monitoring of both trees and koala

[1] The South Gippsland koala population includes and is equivalent to the Strzelecki Ranges koala population

population. It is possible that it would be difficult to determine an appropriate carrying capacity in a mixed town / rural and fragmented habitat landscape such as Sandy Point.

3.5 Threats to koalas at Sandy Point

There are a number of threats to koalas at Sandy Point. These include:

- Disease, primarily mange due to sarcoptic mites. Wildlife carers report that at least 17 koalas were euthanised from mange in 2016/17 (see Appendix 2). Koalas can catch mange from wombats and foxes, or through contact with areas where they have been. However this episode seems to have passed with no recent cases. Monitoring and management of mange in wombats (and other possible carriers) is an important part of koala management and overall wildlife management.
- Chlamydia is prevalent in most koala populations and can cause breeding problems. It was not detected in the Federation Uni genetic study on the Sandy Point koala population.
- Cars when crossing roads.
- Dog attack. As the koala count record shows, koalas live amongst the house blocks in the Sandy Point township where they are at risk from dogs in backyards. Inappropriate fencing can also cause problems for koalas moving around the township.
- Cows don't like koalas and have been known to trample them when crossing paddocks on the ground.
- Loss of habitat and feed trees through past land clearing practices, though this has been mitigated to some extent by the extensive planting of eucalypts (particularly Coast Manna Gum) by residents in recent decades.
- Limited genetic pool for breeding. With no habitat connectivity between Sandy Point and other bush areas, Sandy Point koalas have no opportunity to breed with koalas from other areas, which over the long term could lead to inbreeding depression.

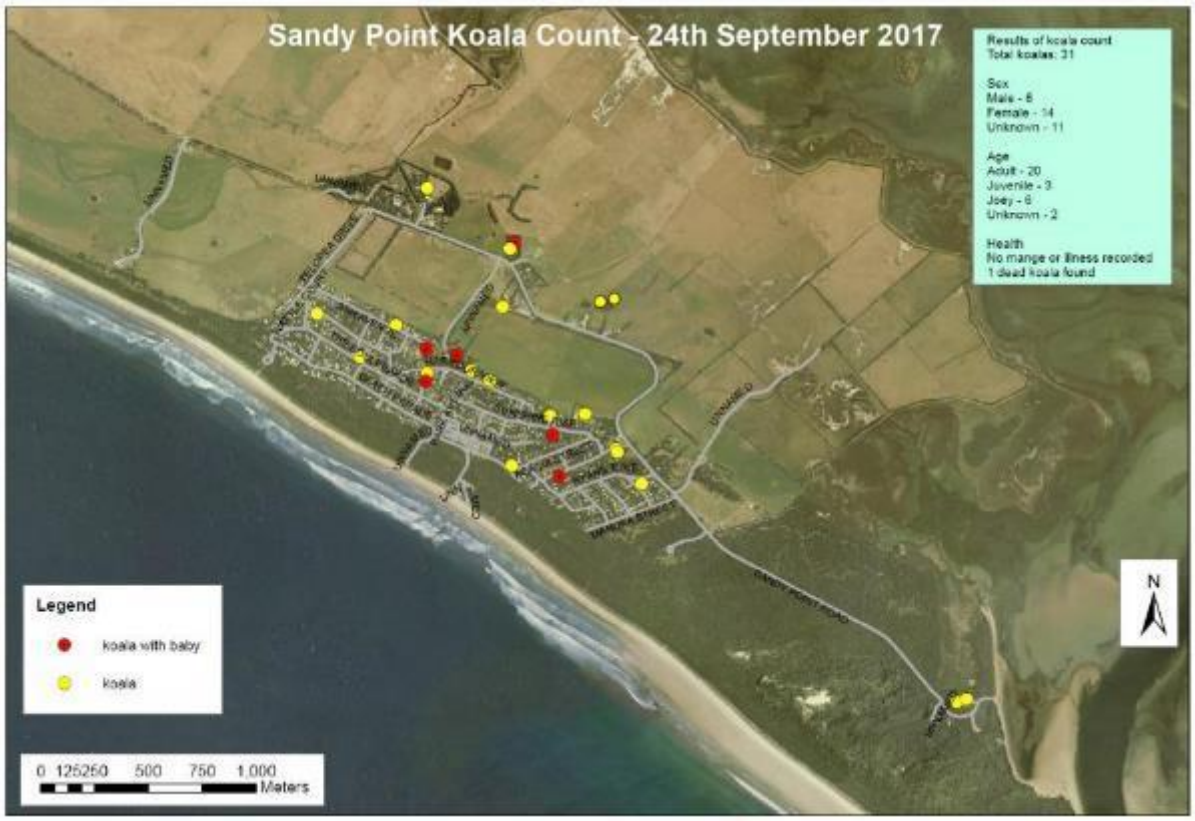
4. Koala Count Method and Results

A third year environmental science / ecology student from Federation University became involved in the project in 2017 (Hannah Buys). The student voluntarily undertook a review of koala count methods for her communications project, and recommended that the direct count method be used, along with providing a manual advising how to conduct the count (Buys 2017).

The first Sandy Point community koala count was held on 24th September 2017. Despite poor weather conditions (heavy morning rain), over 50 volunteers were involved in surveying for koalas in the township, rural areas and coastal reserve.

The count recorded 31 koalas in total, including 6 mother koalas with joeys, and were distributed throughout the town and in rural areas (see map below).

Figure 2. Sandy Point Koala Count results – September 2017



As koalas can be difficult to find, and not every property could be accessed to be surveyed on the day, there are likely to be more koalas than was counted.

One dead koala was found (cause of death unknown). Otherwise, health-wise, nobody reported any mange or obvious ill-health of koalas, and they appeared to be in fairly good condition.

The koala count is planned to be repeated in 1-2 years.

Since the count, presence of koalas have been recorded across other areas during habitat surveys (through recording actual koalas or their scats), as shown in the map below.

Figure 3. Locations of koala sightings and scat sightings from Sept 24th 2017 and 10th/11th March 2018

 = koala sighting and  = scat collected

The count in October 2019 recorded a similar number to the 2017 count – 30 koalas in total, including 3 mother koalas with joeys, and were distributed throughout the town and in rural areas (see map below). All koala were reported to look healthy with no signs of mange. Over 70 people participated in the count.

Figure 4. Sandy Point Koala Count results – October 2019

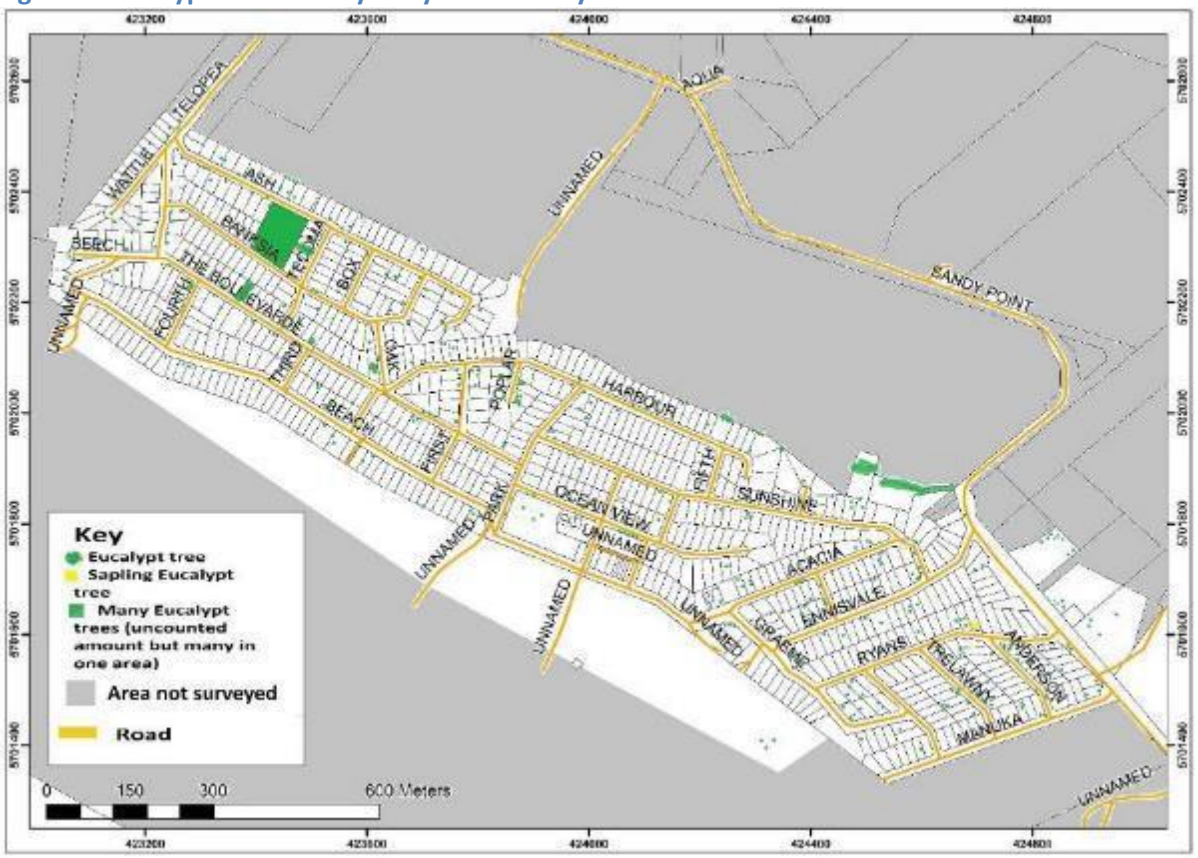
5. Habitat Assessment in Township

The habitat assessment was undertaken in two parts, with the Federation University student who assisted in developing the koala count manual looking at Eucalypts in the Sandy Point township in 2017.

5.1 Survey of Eucalypts in Sandy Point township

The student also spent two days mapping the trees in the Sandy Point township area. Her report says "*On the first day of mapping, two individuals walked along each street in the eastern half of town marking the location of any Eucalypt trees seen from the street onto a map. Due to unfavourable weather conditions on the second day of mapping, the western half of town was mapped from a car. This section should be treated as less accurate than the eastern half, but still gives a good indication of the number and location of eucalypt trees in Sandy Point.*

Figure 5. Eucalypt trees surveyed by Hannah Buys



6. Assessment in Koala Habitat in the Reserve and Rural Areas

Local environmental consultants Nature Matters were engaged to undertake the second part of the habitat assessment for the Sandy Point Koala Project, and this was carried out over the 10th & 11th of March 2018, working with Caitlin Pilkington.

6.1 Method

Coast Manna gums (*Eucalyptus viminalis* ssp. *pryoriana*) are the main feed tree for koalas at Sandy Point. There were a small number of remnant very large old Coast Manna Gums (two in the reserve and three at a farm just north of the town) recorded during this survey, and these appear to be the sole survivors of patches that occurred in the area prior to European settlement. Koalas will eat and sleep in other trees, however we focussed on surveying Coast Manna Gums as they are the main feed tree in the area.

We began the assessment in the reserve, with Ray Henderson and Robbie O'Sullivan taking us to the site of the school plantings, where every year from 1983-1993 the Fish Creek Primary School planted Manna Gums. The location of each group of trees was mapped and individual trees were recorded and assessed via the following critiera;

- Species
- Size based on diameter at breast height (approximate)
    - S (<15cm) M (15-30cm) L (30-70cm) and very large VL (>70cm)
- Health (based on tree canopy health <30% cover, 30%-70% cover, >70% cover)
- Koala scats present
- Scratches

Trees were recorded on a data sheet and were also entered into an online project using the 'Google My Maps' program. This program uses the satellite navigation to locate the data point entered, which can then be used to make maps or for other purposes. A range of photographs were also taken and entered into the project throughout the weekend.

We spent the following day assessing habitat on several rural properties around Sandy Point. On some properties we mapped the location of trees and assessed each tree using the criteria listed above. Due to time constraints, in other areas the trees in a patch were given an average health and the patch boundaries were recorded. Some other properties (where we didn't have permission to access the trees) were assessed via binoculars from the roadside, and the presence of Coast Manna Gums was recorded. We attempted to identify the majority of areas around Sandy Point where Coast Manna Gums are present, however there are other areas where trees were not surveyed.

Throughout the survey period the location of any trees with koalas present was also recorded and entered into the database.

Photographs showing trees in different size classes

Small

Medium

Large

Very large old tree, recovering
From overbrowsing

6.2 Koala habitat in the Sandy Point Reserve

Ten patches of trees were planted by the Fish Creek primary school between 1983-93. There are also three patches planted more recently by others (DSE)). See figure 6 for location of all patches. The details of each planting are shown below in table 1.

Original sign

Zone overgrown with coast wattle

Of the ten plantings done by Fish Creek Primary school in the 80's and 90's, only a relatively small number of trees remain, and those that have survived are generally in poor health. This is likely to be due to a few different reasons. The species planted was largely the inland form of Manna Gum, (*Eucalyptus viminalis*), rather than the coastal variety (*Eucalytus viminalis* sub species *pryoriana*) which naturally occurs in this area. The inland form is not as well suited to the local conditions. It was also planted very closely together, not giving the trees enough room to grow and thrive. Local residents have also explained that these plants failed as they weren't guarded and maintained (no funding or resources was available for this this), or if they were guarded it was done too late.

The plantings done more recently by the foreshore committee used the local Coast Manna Gum (*Eucalyptus viminalis* ssp. *pryoriana*), and these trees have survived and are growing well.

An assessment was made at each of the sites as to the potential for restoration of koala habitat in any of these areas, based on space available, suitability for planting coastal manna gums, and connection / proximity to other patches. Table 2 Below summarises the recommendations for revegetation works (including preparatory works) in the coastal reserve (recommendations should be confirmed on site before planting is undertaken).

Dead trees with guards

Inland Manna Gums planted close together

Figure 6. Map showing habitat zones in reserve (note Roy Henderson trail not shown as imagery is old)

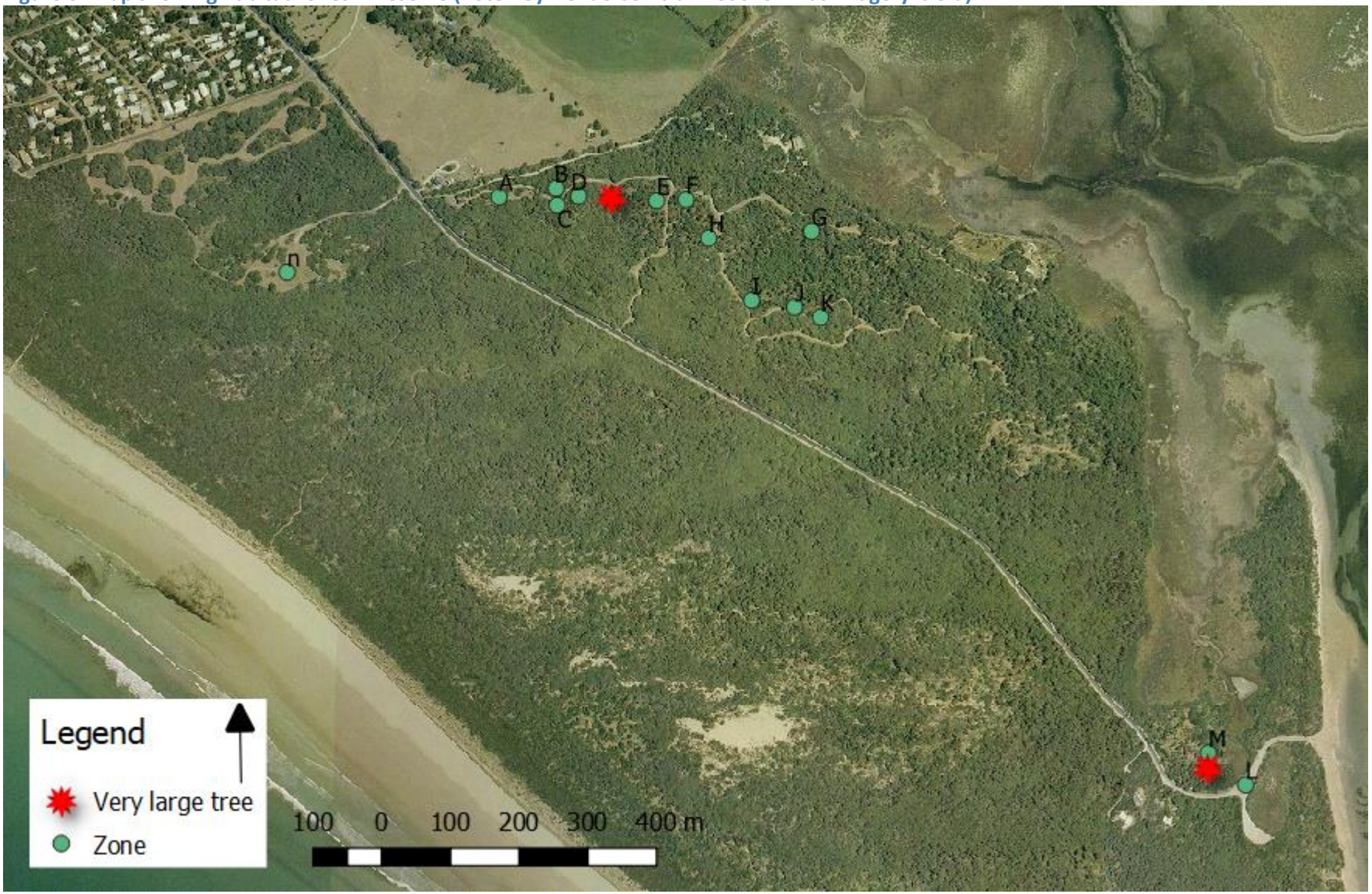


Table 2. Results of habitat assessment in reserve. Zones where planting is recommended are highlighted

Zone	Species	No. live trees	No. dead trees	Health	Planted by	Comments & revegetation recommended (supplementary planting of Coast Manna Gums)
1A	Coast MG	4	25 approx	Poor	Foreshore cttee (1998)	Guards are lying on ground selectively prune, use guards, plant 15-20 trees
1B	Manna gum	35	Some	Poor to average,	School	Planted very close together
1C	Manna gum	10	Many	Poor	School	Planted very close together
1D		0	20		School	Plant 20 trees
	Coast MG	1			Remnant	'Mother' very large old remnant Coast Manna Gum.
1E		0	Some	Large, poor health	School	Remove coast tea tree & wattle, use guards, plant up to 40 trees
1F		0	Many		School	
1G	Manna gum	1		Small, poor health	School	
1H	Manna gum	9		Medium-Large, poor health	School	
1I		0	Some		School	
1J		0	Some		School	Plant 10 trees
1K	Manna gum	1		Medium, average health	School	
1L	Coast MG	3	0	Large, average health	Remnant	No revegetation required. Remnant trees on traffic island at Shallow inlet end of reserve. One koala observed.
1M	Coast MG	47	0	Range of sizes, average health	One remnant and rest by DSE	One remnant is a very large old 'mother' Coast Manna Gum tree. One koala observed and scratches on most trees. Overall trees doing well.
1N	Coast MG	35	0	Small trees, average health	Foreshore cttee	Relatively recent planting at old tip site. Doing well. Scratches on many trees. Guards need maintenance. Room for a handful of trees at E side of this planting.
1O			15			Room for approx. 15 CMG to be planted in this site, half way between town and zone N planting
IP	N/A	N/A	N/A	N/A	N/A	No CM existing; propose to plant in appropriate locations along Roy Henderson Trail (to confirm with local input)

6.3 Koala habitat in rural areas around Sandy Point

There are a large number of Coast Manna Gums growing in the rural areas around Sandy Point. Most of these have been planted, however there are also a few large old trees which may be original remnant trees (particularly at the old farm 'Gyndanook'). Overall they appear to be in good condition, with average health (30-70% canopy cover) or good health (greater than 70% cover). There are a range of sizes. Some properties have many small trees which have been planted in recent years, and others have larger trees which were planted over the last few decades. Sandy Point residents have done a good job at providing feed trees for koalas for a long time now.

Table 3. Coast Manna Gums recorded in rural areas around the Sandy Point township

Zone	Location description	Description
2A	Sandy Point Road (Blue Meadows)	Large number planted in shelterbelts with other indigenous species
2B	Sandy Point Road	Scattered amongst other indigenous trees and shrubs
2C	Sandy Point Road	Many small ones have been planted here, good health
2D	Sandy Point Road / Sunshine Rise	Large number of trees have been planted, healthy and large trees
2E	Sandy Point Road (Ennisvale)	45, most are large and average health (plus 25 non-manna gum eucalypts)
2F	Narkabundah Wildflower Nursery	Large number of healthy coastal manna gums (number unknown)
2G	Sandy Point Road	10 trees, generally large and in good health, scattered amongst other native trees and shrubs.
2H	Sandy Point Road	Large number, medium to large and average health
2I	Shelterbelts north of Sandy Point Road	80 planted in amongst other native (not all indigenous) species. Large, average health.
2J	Tilkum Court	12 observed and one Blue Gum, 6 are large in very good health, 6 medium in average health
2K	Shelterbelts along & adjacent to Telopea Drive	Planted in amongst Banksias, Sheoaks and other indigenous shrubs
2L	Gyndanook	64 occurring in and around old farm on Northern edge of town. All size classes including 3 very large old trees. Most average or good health.
2M	Banksia / Ash Ave reserve	13 Coast Manna Gums and 3 Swamp Gums, all sizes, average or good health.
2N	Creek line revegetation	Fencing and revegetation has been done along drainage line with mixed species including coastal manna gums. Doing well (some areas need supplementary planting with coastal manna gums).
2O	Along roadside between Sandy Point and turnoff to Waratah Bay	Very small number of Coast Manna Gums along roadside for 4.5km from the entrance to Sandy Point (intersection Telopea Drive/Sandy Pt road) to Waratah Bay turnoff. Only 10 observed, most small and in poor or average health.

Figure 7. Map showing rural areas

6.4 Recommendations for improving koala habitat (from 2018)

1. Protect 'mother' trees. The two remnant 'mother' trees in the middle (zone E) and at the end (zone M) of the reserve are clearly preferred by koalas, and both were overbrowsed and in very poor condition at the end of 2017. Since then the shrubs around these trees have been pruned back, and the tree guards reinstated, and both trees are recovering well. It is essential to protect these trees as they are an important source of seed for future revegetation projects.

Recommendation: Continue to monitor the health of the two 'mother' trees (and also the three very large old trees at Gyndanook), ensure guards are working and nearby vegetation is pruned if necessary so koalas can't jump across. Collect seed from these trees.

2. Do revegetation projects to provide wildlife corridors and koala food sources

2.1. Supplementary planting with Coast Manna Gums in reserve. Koalas were observed in the traffic island adjacent to the Shallow Inlet carpark and in the Coast Manna Gum patch planted by the foreshore committee (zone M). The patch planted at the old tip site (zone N) also show sign of browsing by koalas with scratches on many trees and some leaves missing. Given that it is approximately 1.5km from zone M to zone N, it makes sense to replant some Coast Manna Gums (*Eucalyptus viminalis* ssp. *pryoriana*) in between these areas, to provide food for koalas travelling across the reserve.

Recommendation: Supplementary planting of Coast Manna Gums into the reserve as per specifications in table 1. Pruning and/or mulching of Coast Tea-tree or Coast Wattle shrubs may be required in some zones. Trees should be spaced appropriately (not too close to each other) and also not planted to close to other trees or shrubs to prevent koalas or possums from jumping across. Trees should be guarded and guards maintained, and trees monitored and replaced if they don't survive.

2.2. Supporting supplementary planting in the township The koala count clearly showed koalas are living in the Sandy Point township. While the habitat assessment in the township (see section 5) showed a large number of Eucalypt trees, these include a range of species, from local indigenous ones to trees native to other parts of Australia, many of which are not key koala feed trees. As such, should any landholders wish to plant Eucalypts, it makes sense to plant Coast Manna Gums which will provide food and habitat for koalas.

Recommendation: To encourage residents who wish to plant trees on house blocks to consider planting Coast Manna Gums. This could include the provision of free tree seedlings. Guards are recommended to prevent trees being eaten by rabbits while young.

2.3. Revegetation corridors on private land. While there are a large number of Coast Manna Gums that have been planted in rural areas around Sandy Point, there are also some gaps. This means that koalas need to cross paddocks (where they are at risk from cows), go through town (risk from dogs) or along the Sandy Point Road (at risk from cars) to move from one patch of trees to another. Where possible, revegetation corridors to link patches and to enable koalas to move safely may be worth considering. Such corridors would also benefit all other wildlife species in the area. This

recommendation is supported by the genetics study from Federation Uni, and by Victoria's Koala Management Strategy (DSE 2004) which states "Fragmentation of habitat is a serious issue for Koala conservation because of the species' specialisation to a low-energy, low-nutrient diet that leaves little scope for increasing energy expenditure in order to travel between habitat fragments (Hume 1990)" and also that " revegetation actions should aim to increase the size of existing forest or woodland patches, increase the connectivity of remnants through the establishment of corridors and stepping stones of habitat, and provide an increase in tree cover. Only locally-indigenous plants should be used."

Recommendation: Where possible create corridors to link habitat patches. Revegetation should be a mix of local indigenous trees and shrubs, including Coast Manna Gum. Revegetation should be monitored and trees replaced if necessary.

Further, consider landscape-scale habitat connections in future - if the results of the genetic assessment suggest that it would be a good idea to link the koala population at Sandy Point with other neighbouring populations then it may be worth creating a landscape revegetation plan.

3. Ongoing maintenance of plantings Historical failure of plantings has in part been due to a lack of ongoing maintenance (including things like weeding / weed control, monitoring tree guards and removing / upgrading when required, pruning back encroaching vegetation, and monitoring for overbrowsing). It can be challenging to coordinate volunteer labour to ensure maintenance of revegetated areas. This applies to both plantings on public land and on private land.

Recommendation: The whole-of-life requirements should be factored in to any planting project plans, with maintenance requirements (including costs) scoped out and a plan in place to ensure maintenance can be completed (e.g. through seeking funds through DELWP and others for ongoing works in the foreshore reserve, and identifying volunteer requirements for community maintenance efforts). Landholder obligations for maintenance requirements should be clearly written in to agreements where planting is funded on private land.

4. Monitor health of trees. At present the Coast Manna Gums in the rural area appear to be in good health and aren't showing any sign of overbrowsing. However historical anecdotes from Sandy Point indicate that all the Coast Manna Gums in the area have been eaten out at various times in the past (e.g. in 1910 and after a drought in the 1970's). Given the large number of Coast Manna Gums that have been planted on private land in and around the town, perhaps this is less likely to occur now. Nonetheless it seems prudent to keep an eye on the trees so if this does occur again preventative measures may be taken. The method used for this will depend on interest from the local community, and could simply be people keeping an eye on the trees (with the option of referring back to the habitat assessment data to make comparisons). Or a more formal approach could include a regular (annual or biannual?) assessment, perhaps of a subset of the trees surveyed in 2018. This could be done at the same time as any koala counts that are carried out.

Recommendation: community consider method they'd like to use to monitor trees.

7. Community Action and works completed 2017-2020

7.1 Previous actions

Actions taken to support koalas over many years have included planting of food trees in the reserve (over the past 3 decades), encouraging actions on private land (providing free tube stock of koala food trees), mange management programs, and community awareness about threats. A huge amount of community effort has also gone into wildlife care, with local wildlife carers and supporters involved in monitoring, rescuing and transporting sick animals (with responsibilities often falling on a few people).

7.2 Community education and information

A brochure was produced by the koala group in 2017 (and updated in 2018) aimed at community and outlining threats to koalas and community actions. The brohcure was based on content and design that was kindly shared by Friends of Strezelecki Koala / South Gippsland Landcare Network on the Strzelecki koala, and updated for the Sandy Point scenario.
Interpretive signage (installed along the Roy Henderson Track) and a fridge magnet were also completed.
The digital version of the brochure is available here: https://www.sandypoint.vic.au/koalas.html

Figure 8. Educational materials for the koala project (brochure, signs, information magnet)

7.3 Supporting revegetation opportunities through the grant

To encourage planting of wildlife corridors to link up sections of existing habitat (as recommended in section 6.4.2), revegetation projects are being supported through the koala project grant.

To encourage these projects on rural land (private land), an Expression of Interest process was rolled out to seek applications for revegetation projects (corridors of mixed species) on farmland. Applications were sought in 2018 and projects were delivered in 2019 (fencing and planting out of corridors).

Individual coastal manna gum trees are also being offered to the community for supplementary planting in existing bush or on house blocks.

Corridors can be funded through the biodiversity fund; additional funding for revegetation projects in the future could be sought through competitive grants, through the West Gippsland Catchment Management Authority, Landcare, and the Victorian Government.

Planting in the coastal reserve was completed in 2018 - 2020 in line with the recommendations from the habitat assessment.

A description and maps of the project sites is given below.

Table 4. Coast manna gum sites in coast reserve

#	Site (green = new)	No. trees	Maintenance needs
E	2018 planting site	~35 trees, 2018	Pruning and mulching encroaching tea-tree
O	2019 planting site	15 trees, 2019	Pruning and mulching encroaching tea-tree
P	Old tip site	~47 trees, 2015; ~7 trees, 2020	Guards to be checked / removed – wire & new tin guards (working bees). Pruning and mulching encroaching tea-tree
	Mother tree 1	1	Protected by sheath – needs regular maintenance to prune and chip around
	Mother tree 2	1	
L	Old DSE planting	47	No maintenance required
M	Inlet traffic island	3	May need clearing of coast wattle that is choking the trees

Figure 9. Planting project sites in coast reserve (2017 – 2020)

Other project sites (outside of the coast reserve) do not need government support for maintenance:

Table 5. New wildlife corridors on private land

	Site	No. trees	Maintenance needs (by landowner)
P1	Doonagatha	1,400 (0.75 hectares)	Weed management, stock exclusion – by landowner
P2	Ennisvale	800 (0.5 hectares)	Weed management, stock exclusion – by landowner
P3	Gyndanook	~50	Stock exclusion and weeding – by landowner
P4	Multiple other smaller planting sites on various properties	Various	By owners

Figure 10. Planting project sites in coast reserve and on private land (2017 – 2020)

7.4 Community koala action plan

A meeting was held on 12th November 2017 with community members who had expressed interest in this project invited. Eleven people attended.

During this session attendees shared their local knowledge on the history of koalas and their habitat at Sandy Point.

We also brainstormed ideas on ways to protect koalas at Sandy Point, and developed a draft action plan with several ideas compiled under the topics of: Planning, Community activities, Wildlife rescue & health and Revegetation.

Following this meeting a community session (widely advertised and open to all) was run on 7th April 2018, with thirty five people attending. During this meeting we reviewed and updated the draft action plan, with attendees putting their names down to help with various actions.

The Action Plan was updated in July 2020 at the end of the koala grant to capture where we are at at this point.

The Action Plan is on the following pages, and contains all of the various actions identified by the community and through this report and its recommendations. It provides a guide for the range of things that should be done to help manage and protect the koala population. It should be kept "fresh" and updated periodically as more information is known and as the work progresses.

The cells are coloured as follows:

Grey = Action complete or underway / ongoing	White = not yet actioned – future ideas

The future actions are a list of things that the community identified as important to happen, or to investigate. It will be up to people in the community to put their hand up to take ownership of particular actions to get them happening.

A priority level (High/Medium/Low) is suggested for some actions, as captured in the workshop.

Table 6a. Action plan for Sandy Point Koala Project: Planning (priorities for 2020-2022 are highlighted in yellow)

	No.	Action	Who?	When?	Notes	Priority
PLANNING	done	P1. Community koala count	tba	Done in 2017 & 2019. Repeat biannually		M
		P2. Seek historical records on local koala population	Caitlin	Complete	From Parks Vic and other sources	M
		P3. Genetic study of koala scats with Federation Uni	Caitlin/ Fed Uni	Complete	Oct 2018	H
		P4. Map habitat and develop plan for habitat enhancement / linking projects	Nature Matters	Mapping done	Could share maps online for community	H
	future	P5. Contact agencies/experts/koala managers to share project findings & ask for assistance with next steps	WHiSPA	Contact made July 2020		H
		P6. Keep improving understanding of genetics and health and options for future management – further genetic sampling	WHiSPA / volunteers & Fed Uni			H
		P7. Connect with local groups (Waratah / Walkerville) and find out more about other local koala populations				
		P8. Run community koala count 2021	WHiSPA / volunteers			H
		P9. Apply for grants to fund ongoing work - Genetic research work, etc				
		P10. Other research / planning: - Seek advice on genetic diversity of local coast manna gums – should we be planting seeds sourced from other areas, or other species? - Seek advice about how to manage / monitor populations to guard against overbrowsing / overpopulation				
		P11. Work with other agencies – Landcare master plan, Parks, Council, etc – e.g. Council: get in touch with re: fencing; veg clearing				

Table 6b. Action plan for Sandy Point Koala Project: Community (priorities for 2020-2022 are highlighted in yellow)

	No.	Action	Who?	When?	Notes	Priority
COMMUNITY	Done	C1. Create and print koala & tree information community brochure	Di/ Caitlin	Dec 2017 Reprint Dec 2018	Education on what to do when see koala on ground / injured wildlife / koala food trees / koala friendly backyard. Update brochure as required	H
		C2. Collect names of people interested in volunteering (tree planting etc)		underway / ongoing	Some names collected at April 2018 event	M
		C3. Promote koala project at markets / community events		ongoing	Had WHiSPA table at market in Jan 2018 and Jan 2019	
		C4. Promote & share brochure with community / holiday population			Share brochure with tourist info centres; holiday rentals (SEJ, Paragreens; PromAccomm); caravan park; local paper; with Inlet passes; ratepayers	H
	future	C5. Educate property owners re tree planting, what, when, how: suggested local species lists, advice on tree guards etc.		Info is out there	Some info is in brochure. Provide more with future tree projects.	
		C6. Adopt a tree (get neighbours etc to water for absentee landholders)				
		C7. Fundraising			Not needed at this point for planting (wildlife carer fundraising in 3.1)	L
		C8. Encourage dog awareness and control, especially at night			Ongoing issue – other committees are advocating for	L
		C9. Wildlife road signs		Underway – WHiSPA talking to Council	Picture of koala, slow down for koalas, wildlife carer number to call)	H
		C10. Informational / interpretive signage about koalas at Sandy Point		Signs installed in coast reserve Include koala info in future town signs	Include koalas in broader SP signage projects	H

Table 6c. Action plan for Sandy Point Koala Project: Wildlife Rescue & Health (priorities for 2020-2022 are highlighted in yellow)

	No.	Action	Who?	When?	Notes	Priority
WILDIFE RESCUE & HEALTH	done / underway	W1. Raise money to support wildlife carers. Promote & fundraise for carers.	Jude / WHiSPA	Underway - ongoing	Donations to carers through wildlife organisation bank acct. Koala project to share & promote how to donate.	H
		W2. Raise awareness of wildlife carers and their contact details	WHiSPA	Underway	Numbers in brochure / on website Fridge magnets printed & distributed	M
		W3. Injured wildlife response	Di Cornwell	May 2018	Set up phone tree Volunteer names collected Seek extra volunteers to take koalas to carers / transport Investigate handling course (Wildlife Vic); and doing training with local carers Need local equipment to help rescue koalas (baskets; net and pole?)	H
	future	W4. Recruit more local volunteers to be involved in wildlife rescue / care	Di Cornwell		Di tba. Training is being provided.	H
		W5. Monitor / provide information to community on wombat mange issues	Di Cooper		Di Cooper is managing some wombat mange work (2020)	M
		W6. Develop information point to record injured/dead koalas (website, phone)				tba

Table 6d. Action plan for Sandy Point Koala Project: Reveg and onground works (priorities for 2020-2022 are highlighted in yellow)

	No.	Action	Who?	When?	Notes	Priority
REVEG & ON-GROUND WORKS	Done / underway	OG1. Monitor and protect mother trees	Robbio	Early 2018	Pruning and reinstating protection early 2018. Keep an eye on.	M
		OG2. Design / build tree guards	Robbio / Caitlin / M&G Bevis	Aug 2018	Done	H
		GOG3. Give away tubes (habitat trees) and guards to landowners in town	Caitlin / Di Cooper / Cornwell	July 2018	First round of tree giveaways started in May 2018	H
		OG4. Offer funding for projects for landholders to plant habitat corridors in eligible areas	Caitlin	June 2018	Projects underway - to be done by end 2019	H
		OG5. Collect seed and grow seedlings for planting (nursery) for 2018/19 projects	Robbio	Underway		H
	future	OG6. Maintenance plan (for planting sites) & seek funding	Caitlin	2020	Maintenance plan for plantings developed – & funding being sought. Need to coordinate volunteer assistance for maintenance where possible.	H
		OG7. Prepare for planting, collect seeds, grow seedlings (if community volunteers wanted to take on)				L
		OG8. Managing reserve rather than letting coastal teatree take over (clearing it? Men's shed could recycle and use for fundraising?)				tba
		OG9. Investigate using fire as a management tool				tba

8. References

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Appendix 1. Historical scan

The following points were collected from local community members and capture what we currently know and understand about the history of the Sandy Point koala population.

Regarding Koalas

- Comment from Fred Pilkington's diary (1910): referred to the gums all being dead and referred to finding what he thought was the 'last of the native bears seen on Sandy Point, who was "poor and wasted", on a dead gum'. (*It is assumed that this is due to drought and/or overbrowsing by koalas*).
- Ray Henderson said that there were the charred remnants of around 30 trees (manna gums) found in the marsh area on the edge of the coastal reserve
- There have been comments that Keane Pilkington may have brought koalas to Sandy Point from Snake Island in the 1940's
- 1940's – there were massive translocations of koalas in Victoria – there may have been koalas brought to Sandy Point from Phillip Island or French Island at this time (this is so far unconfirmed – records are being sought)
- 1960s. Some people saw koalas around Sandy Point. Jan Hsllis remembers seeing foxes on the beach at night.
- Late 1980s. Phillip Island Nature Parks came and took some koalas (6-8?) to the Koala Conservation Centre, when the Sandy Point population was large.
- Early 1990's rabbits became a problem (on the other side of the main road)
- 2000's – Jude O'Sullican had one koala with mange in the reserve.
- 2015 – 2016 – Many koalas were euthanised by wildlife carers (17 over 2 years to 2016) as a result of mange.

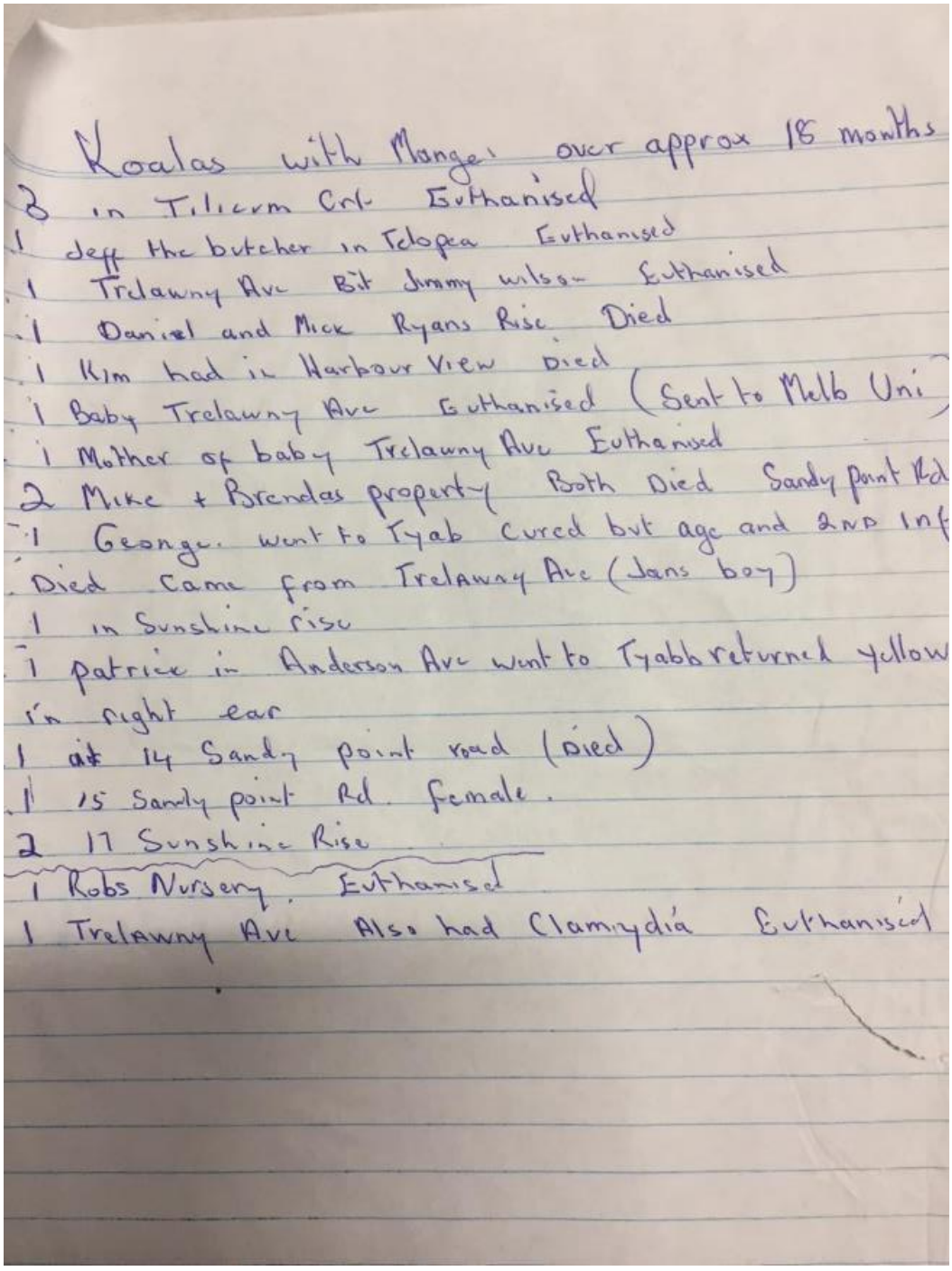
Regarding vegetation

- 1860's first graziers. In 1898 Pilkington brothers took up land.
- Late 1920s or in 30s – last fire through the reserve. Not a wild fire, but it cleared some of the reserve. Charcoal was found in marsh later – leftover manna gums (possibly from a previous fire)
- 1950's (roughly) – large areas of grassland in reserve. Still tea tree but in patches rather than throughout.
- Early 1960s – grazing in reserve was stopped. Had probably been grazed for 6-8 years. Was probably grazed unofficially before this, but there was no water for stock so there was not a lot of grazing. Ray Henderson has mentioned aerial photos from 1960s showing opening grassland.
- Late 1970s – people started planting manna gums in town – there was increasing environmental consciousness. There were 30 mature manna gums in the reserve, which were all eaten out, in a bad drought year. All trees in the reserve died (the 2 big ones in reserve are the only ones of these left).
- 1982-92 – School groups planted manna gums in the reserve. Some were the wrong species, some planted too thickly, and some the koalas ate out the plantations. Planting was done every year for 10 years, however were generally not well maintained. There are around 10 plantations in total.
- Currently (2017): Two large old coastal manna gums from the original stock remain in the coastal reserve. One is in good condition and one is in poor condition. There is another original tree at Simon Pilkington's property (Gyndanook).
  Manna gums have been planted by many landholders in and around the town.

Town development

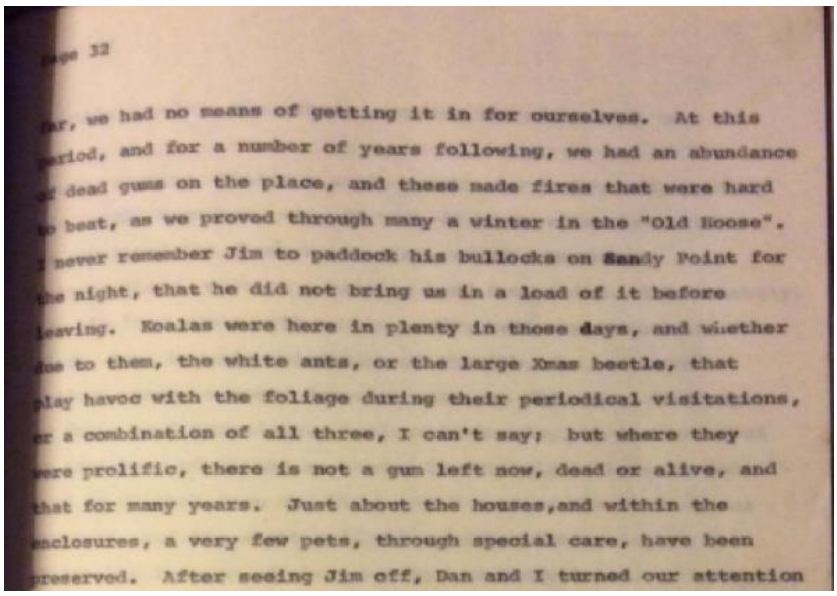
- Late 1800's-1920s and 30s – Walkerville Kilns – trees cut and burnt from wide area around kilns. Koala populations reduced in the Walkerville area as a result.
- 1957 – first blocks in Sandy Point estate sold. First houses built 1957-60.

Appendix 2. List of koalas euthanised due to mange in 2016/17



Koalas with Mange over approx 18 months
3 in Tilcrm Crt Euthanised
1 Jeff the butcher in Telopea Euthanised
1 Trelawny Ave Bit Jimmy wilson Euthanised
1 Daniel and Mick Ryans Rise Died
1 Kim had in Harbour View Died
1 Baby Trelawny Ave Euthanised (Sent to Melb Uni)
1 Mother of baby Trelawny Ave Euthanised
2 Mike + Brendas property Both Died Sandy point Rd
1 George went to Tyab Cured but age and 2ND Inf
Died Came from Trelaway Ave (Jans boy)
1 in Sunshine rise
1 patrice in Anderson Ave went to Tyabb returned yellow
in right ear
1 at 14 Sandy point road (Died)
1 15 Sandy point Rd female.
2 17 Sunshine Rise
1 Robs Nursery Euthanised
1 Trelawny Ave Also had Clamydia Euthanised

Appendix 3. Excerpt from Fred Pilkington's Diary



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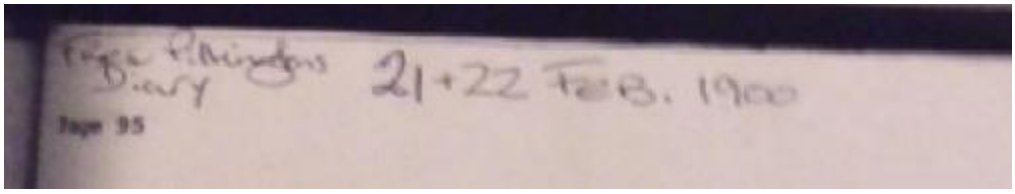
for, we had no means of getting it in for ourselves. At this period, and for a number of years following, we had an abundance of dead gums on the place, and these made fires that were hard to beat, as we proved through many a winter in the "Old Goose". I never remember Jim to paddock his bullocks on Sandy Point for the night, that he did not bring us in a load of it before leaving. Koalas were here in plenty in those days, and whether due to them, the white ants, or the large Xmas beetle, that play havoc with the foliage during their periodical visitations, or a combination of all three, I can't say; but where they were prolific, there is not a gum left now, dead or alive, and that for many years. Just about the houses, and within the enclosures, a very few pets, through special care, have been preserved. After seeing Jim off, Dan and I turned our attention



Fred Pilkington's Diary 21+22 Feb. 1900

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found great destruction done by the fire in grazing area. We walked over the whole place and "Blue Lookout". In my notes of that date, I have just entered, "G.A. completely gutted out". I remember now we found numerous snakes and lizards dead, and charred by the fire, and one poor koala bear. From that one, these were very scarce, though for some years a large white bear, that we frequently saw during our rides over the place, was among the last survivors.

When Carl and I were building this house [Gyndanmook), on arriving at the scene of our work one morning, I found what I believe to have been "The Last of the Mohicans" on a dead gum where our garden is today. He was poor and wasted, for the gums were all dead. I took him in my arms and carried him well into hummocks where he would at least be free from our dogs.