



## Southwest Mornington Peninsula Biolink Plan

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# Introduction

This plan outlines works on 10 private properties that will contribute to the reconnection of patches of indigenous remnant vegetation in southwest Mornington Peninsula (SWMP), Victoria, Australia. The conservation zones proposed for these properties cover an area of approximately 30 ha.

This plan is part of [Linking the Mornington Peninsula Landscape](#) (LMPL), a 5-year project of the [Mornington Peninsula Landcare Network](#) (MPLN). The project is funded by the [Natural Resources Conservation League](#) (NRCL). LMPL aims to reconnect fragmented remnants of indigenous vegetation to create wildlife corridors (biolinks) on the Mornington Peninsula. LMPL assists Mornington Peninsula Landcare groups and landholders to develop collaborative local biolink plans for catchments across the Peninsula. These plans focus on works required to achieve the biolink on private properties but also consider public land in the biolink area.

## Biolink landholder engagement and planning process



Rob Nigro of Southwest Mornington Peninsula Landcare, and one of the authors of this report, demonstrating how to build a trap for Indian mynas, 2015.<sup>1</sup>

Engagement of landholders in the process of planning for biolinks is one of the aims of LMPL. The strategy for engagement followed for the SWMP Biolink Plan, as for the other LMPL biolink plans, has been to work closely with the local Landcare group, SWMP Landcare to:

1. Identify a target area with more than 10 properties in it.
2. Develop a flyer tailored to the area and distribute it to the target properties.
3. Refine the number of participating properties to between 8-10 properties, based on response to the brochure, suitability of property and capacity of landholders. This includes initial site visits to select properties, attended by the LMPL coordinator, bush rehabilitation specialist and, where possible, members of SWMP Landcare.
4. Determine initial works areas and prepare map.

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<sup>1</sup> Mornington Peninsula Indian Myna Action Group - <https://www.facebook.com/mpindianmynas/>

5. Undertake follow-up site visits where required
6. Hold a meet-and-greet with participating landholders, including display of properties map, discussion by landholders of their priorities, talk on flora and fauna in the biolink area by local ecologist.
7. Develop plans for the selected works areas on each property (i.e. management actions to achieve biolink), in consultation with landholder.
8. Develop an integrated biolink plan (this Plan) covering the properties that can be used by the local Landcare group to obtain funding for on-ground works.
9. Work collaboratively with members of the Landcare group to assist the group to increase its capacity to undertake biolink planning and on-ground works management on private land. For example, having Landcare group members attend property visits and assist in the development of the Plan, and debriefing the group after the Plan has been produced to assist the group to make the most of the Plan.

Once the plan is produced it is intended to be used as a resource by the Landcare group and the Network to guide work on private properties in the catchment. For example, it can be used by the Landcare group or the Network when preparing grant applications for work on private land. As works plans, costings and mappings are already done, and there is in-principle landholder agreement to the planned works, this takes much of the work out of preparing the grant application. In addition, the plans address private land conservation on a catchment scale – all the LMPL biolinks sit within a set of proposed Peninsula-wide biolinks. In 2012, assisted by Mornington Peninsula Landcare Facilitator Jacqui Salter, representatives from (the then) nine Landcare groups on the Mornington Peninsula developed a [map of proposed biolinks covering the entire Peninsula](#). The proposed biolinks are based on an analysis of vegetation quality of the Peninsula, produced by the Arthur Rylah Institute for Environmental Research. Input was sought from local natural resource management professionals and ecologists to ensure scientific integrity.

## About Linking the Mornington Peninsula Landscape (LMPL)

LMPL is a multi-year project which began in 2012 with a pilot plan for the Devilbend area. So far 5 biolink plans have been developed.

- Pilot year (2013-2014): Devilbend region (Western Linkage Biolink Plan)
- Year 1 (2014-2015): Watson Creek Biolink Plan and Sheepwash Creek Biolink Plan
- Year 2: (2015-2016) Main Creek Biolink Plan and Southwest Mornington Peninsula Biolink Plan

In Year 3 (2016-2017) 3 biolink plans will be developed: for Dunns Creek catchment, Merricks-Coolart Catchment, and the Red Hill South region.

The [LMPL website](#) shows the location of the biolink plan areas developed so far in the context of the northern Peninsula.

At the time of writing this plan, over \$50,000 from 4 grant sources has awarded to undertake selected on-ground biolink works detailed in Sheepwash Creek biolink plan, Watson Creek biolink plan and Devilbend biolink plan (known as the Western Linkage plan). Work is well underway for all 4 grants

The MPLN represents the 11 Landcare Groups on the Mornington Peninsula. Its mission is to protect and enhance the unique environment of the Peninsula by promoting responsible care of the land. LMPL is a MPLN initiative and is funded by the NRCL.

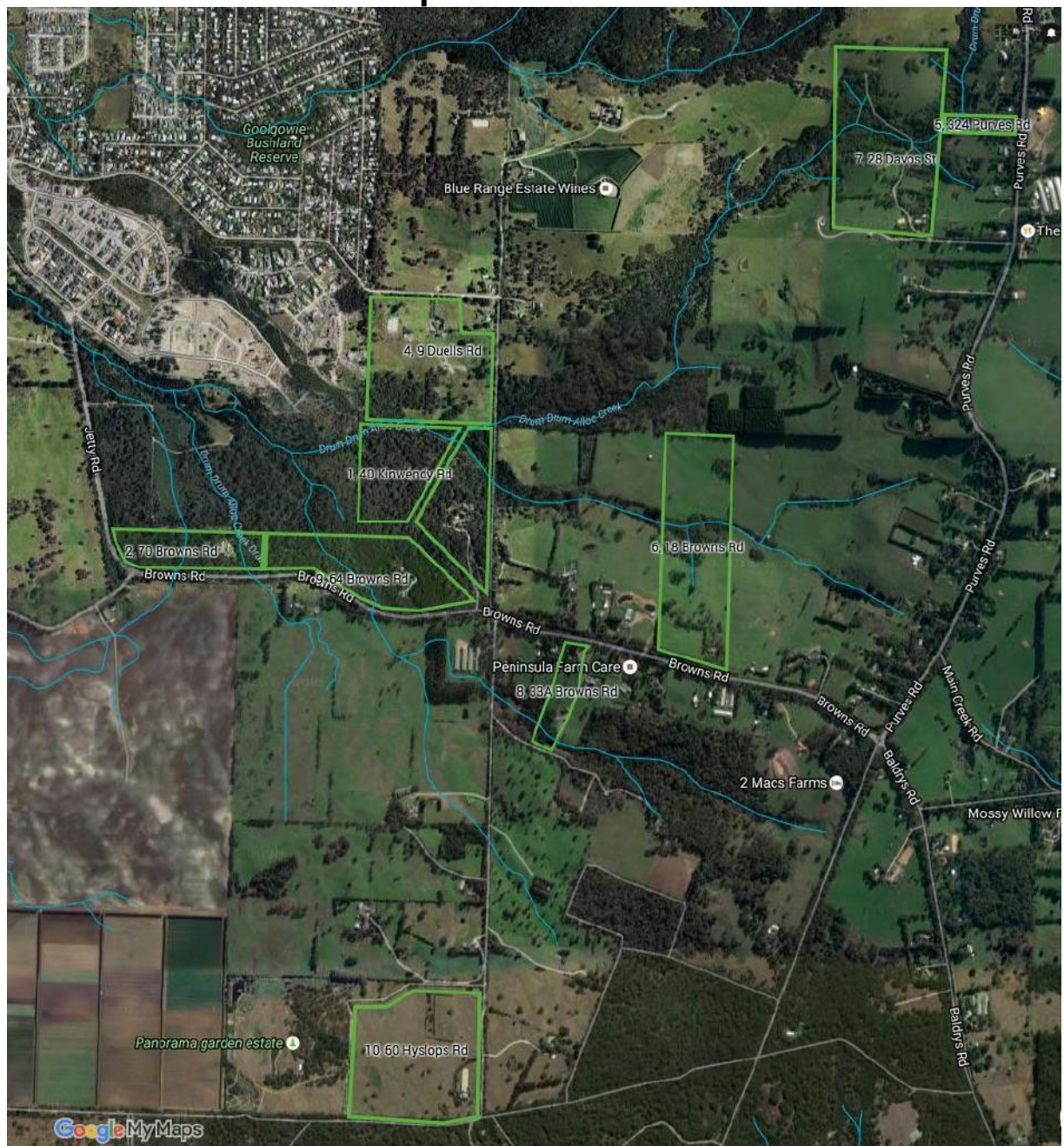
MPLN was formed in 2013 to enable the local Landcare groups to work together more effectively to address local land management issues and develop constructive projects to enhance the environment. The NRCL, formed in 1951, is a not-for-profit company that promotes conservation, ideas and actions that value, conserve and restore ecosystems in a changing environment characterised by climate change, drought and fire risk.

As discussed above under 'Biolink landholder engagement and planning process', the Main Creek Catchment biolink is a component of a set of proposed Peninsula-wide biolinks.

The works proposed for the properties in this plan are based on the bushland restoration approach of 'retention, regeneration and restoration' summarised in the 'The Science of Restoration Ecology' by Peninsula ecologist Gidja Walker (<http://www.spiffa.org/restoration.html>), and, 'Looking after the bush: Natural Regeneration is better than Planting', by Jeff Yugovic, <http://www.spiffa.org/why-natural-regeneration-is-better-than-planting.html>.



**Figure 1: SWMP biolink map**



This map can be viewed online [www.lmpl.org.au](http://www.lmpl.org.au) (click LMPL Biolinks from the menu and then choose "SWMP Biolink" from the dropdown)

## Why are biolinks required on the Mornington Peninsula?

The Mornington Peninsula is an iconic and beautiful region and is considered [the most biodiverse 750 km<sup>2</sup> in Victoria](#). More than 80% of the Mornington Peninsula has been cleared for farming and development. Fragmentation of the landscape over time has led to the decline of many native birds and mammals. As native trees, shrubs, and grasslands have been cleared to make way for farms, residences, and infrastructure, mammals such as swamp wallabies, bandicoots, antechinus, echidna, and skinks have lost habitat and become vulnerable to feral cats and foxes. Many reptiles and birds are also in decline due to loss of habitat and predation from introduced animals.

In order to be healthy, native landscapes must remain connected so that wildlife can move safely between areas of food and shelter. A landscape that is highly fragmented can trap animals in areas that are too small for their needs. Where understorey has been cleared, small mammals and birds that forage on the ground are vulnerable to predators such as cats, dogs and foxes, and their numbers decline rapidly. Those that escape predation may suffer from inbreeding (lack of genetic diversity) and their populations become vulnerable to diseases or sudden death due to disturbances such as pest outbreaks and high-intensity bushfires.

Biolinks are areas of bush and other habitat (such as waterways and stands of paddock trees) that connect areas of valuable habitat and forage. Biolinks enable wildlife to move freely and safely and have access to the broader landscape. This is increasingly important in light of climate change, as the requirement of animals to move to more suitable areas becomes critical.

In a highly fragmented (partially cleared) landscape such as the Mornington Peninsula, creating biolinks may involve the following:

- developing corridors of native vegetation on public and private property
- removing barriers such as electrified fences where possible.

These activities can help provide an effective connection between habitat patches and facilitate wildlife movement. A biolink can also be created by developing patches of bushland that act like 'stepping stones' for wildlife, reducing the distances between individual habitat patches<sup>2</sup>. Some actions taken to create biolinks include weeding, planting, strategic fencing to keep out stock and feral animals and the building of underpasses and overpasses at roads to enable safe passage of wildlife

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<sup>2</sup> Bennett A. 2003., *Linkages in the Landscape: The Role of Corridors and Connectivity in Wildlife Conservation.*, International Union for Conservation of Nature: Forest Conservation Programme, 2003.



## About the SWMP biolink environs



Peninsula Gardens Bushland Reserve. Photo: Rob Nigro

SWMP Landcare's region begins in the Boneo, Fingal and Rosebud West region and extends south west all the way to the westernmost point of the Peninsula.

SWMP Landcare's activities have focused on the Boneo – Fingal – Rosebud West region and down to St Andrews Beach including projects within the Mornington Peninsula National Park (such as restoring grassy bowls at London Bridge environs) rather than the areas further west. The biolink properties detailed in this Plan are in this Boneo – Fingal – Rosebud West region, in an area bounded by Purves Rd to the East, Browns Rd to the South, and Jetty Rd to the West.

The 10 biolink properties are in the catchment of Drum Drum Alloc Creek which runs through 9 of the properties.

Peninsula Gardens Bushland Reserve to the West is a key ecological asset in this region containing high-value remnant vegetation in the form of Swamp Scrub, Damp Sands Herb-Rich Woodland & Heathy Woodland. As at the time of writing, SWMP Landcare was running a project complementary to this biolink plan assisting landholders in the vicinity of the Reserve to improve the quality of bush on their land through weed-control done by experienced contractors, coordinated community fox and rabbit control programs, and training workshops to skill up landholders in plant ID and environmentally sensitive weed control methods. This project was co-funded by the Port Philip and Westernport Catchment Management Authority, the Threatened Species Initiative Grant and Trust for Nature.

Peninsula Gardens and surrounding bushland is itself a stepping stone biolink between Greensbush National park and Arthurs Seat State Park. Drum Drum Alloc Creek which runs through this area is a biolink which serves to connect Tootgarook Wetlands (Tootgarook Swamp) and Arthurs Seat State Park via Peninsula Gardens Bushland Reserve. The 381 ha Tootgarook Swamp is the largest example left of a Shallow freshwater marsh in the Port Philip bay region and contains fifteen state, federal, and

international protected species of fauna, along with another seven species listed as vulnerable. The swamp is also home to up to 24 bioregional endangered plant communities.

The biolink plan area contains several threatened and endangered EVC's within the Gippsland Plains Bioregion, within which Mornington Peninsula sits, and contains breeding colonies of several State threatened fauna species. The area has also one of the largest intact stands of Austral Grasstree and Muttonwood within the Mornington Peninsula.

The area is a large breeding and foraging site for Macropods and several woodland birds which are now considered threatened with the Gippsland Plains Bioregion.

## **SWMP biolink properties: ecological assets and connectivity**



White footed dunnart, Tootgarook Swamp, Mornington Peninsula. Photo: Malcolm Legg.

SWMP biolink properties are clustered around the eastern section of Drum Drum Alloc Creek.

The major ecological asset with connectivity to these properties is Peninsula Gardens Bushland Reserve. A number of the biolink properties also contain significant ecological assets themselves.

### **Properties 1, 2, 3 & 9**

At the western end of the biolink area, biolink properties no. 1, 2, 3 and 9 border Peninsula Gardens Bushland Reserve. These four properties comprising approximately 39.7 ha are predominantly native vegetation with no stock. All have Drum Drum Alloc Creek tributaries running through them. Damp forest containing ancient stands of soft tree fern and warm temperate rainforest with muttonwood remain.

Ecological vegetation classes (EVCs) on these properties include - Lowland Forest (Vulnerable), Grassy Woodland (Endangered), Damp Sands Herb-Rich Woodland(Vulnerable), Heathy Woodland, Swampy

Riparian Woodland (Endangered), Riparian Scrub (Vulnerable), Damp Forest (Endangered), Warm Temperate Rainforest (Endangered), and Swampy Woodland (Endangered).<sup>3</sup>

Significant flora on these properties include Austral Grasstree, Muttonwood, Waxlip Orchid, Sun Orchids, Greenhood Orchids, Onion Orchids, Hyacinth Orchids, Mayfly Orchid and old-growth trees with breeding hollows.

Fauna on these properties include several of the species listed in the table below.

## **Biolink properties 6 & 11**

To the east of these properties are biolink properties 6 and 11 at 14 and 18 Browns Rd respectively. Again Drum Drum Alloc Creek runs through these properties with half a kilometre of creek frontage containing quality remnant bush, particularly on property 6 where the landholders have been undertaking weed control for over 10 years.

A total of approximately 11.6 ha of conservation zones have been proposed for these 2 properties, containing the EVCs Lowland Forest (V), Grassy Woodland (E), Heathy Woodland, Swampy Riparian Woodland (E), Riparian Scrub (V), and Damp Forest(E)

The properties contain old growth stands of eucalypts with breeding hollows and Kangaroos and Swamp Wallabies utilise the area as a grazing and resting site.

Intact stands of remnant bushland along Drum Drum Alloc creek contribute to the biolink.

Several birds which are threatened in the Gippsland Plains Bioregion have been recorded in this area and the State threatened Swamp Skink and Southern Toadlet breed within this vegetation

## **Biolink properties 7 & 9**

To the north properties 7 and 9 are on the northern reaches of Drum Drum Alloc Creek. Immediately to the North West is Mornington Peninsula National Park Arthurs Seat. Property 9 (13.2 ha) already contains extensive areas of conservation maintained in very good condition by the landholders who have lived on the property for many years. It contains areas of South East Coastal Plain Grassland, an ecological community that is currently being assessed by the Federal government as potentially being 'critically endangered' under the *Environment Protection and Biodiversity Conservation Act 1999*.

## **Fauna species in the biolink area listed as critically endangered, threatened or vulnerable**

Species	Source	Status
White-footed Dunnart ( <i>Sminthopsis leucopus</i> )	Legg 2014 <sup>4</sup>	<i>Lower Risk Near Threatened - Flora and Fauna Guarantee Act 1988</i> (Vic)
Lewin's Rail ( <i>Lewinia pectoralis</i> )	Legg 2014	Vulnerable – <i>Flora and Fauna Guarantee Act 1988</i> (Vic)
Powerful owl ( <i>Ninox strenua</i> )	Legg 2014	Vulnerable – <i>Flora and Fauna Guarantee Act 1988</i> (Vic)

<sup>3</sup> Status of EVCs is for the Gippsland Plains Bioregion, within which the Mornington Peninsula sits. From here on, V=Vulnerable, E=Endangered.

<sup>4</sup> Legg, M, 2014, *Mornington Peninsula Wildlife Atlas*, Mornington Peninsula Shire (unpublished).

Swamp skink ( <i>Lissolepis coventryi</i> )	Legg 2014	Vulnerable – <i>Flora and Fauna Guarantee Act 1988</i> (Vic)
Southern toadlet ( <i>Pseudophryne dendyi</i> )	Legg 2014	Vulnerable – <i>Flora and Fauna Guarantee Act 1988</i> (Vic)
Grey goshawk ( <i>Accipiter novaehollandiae</i> )	Legg 2014	Threatened, - <i>Flora and Fauna Guarantee Act 1988</i> (Vic)

## Ecological Vegetation Classes (EVCs)\* in the biolink area

EVC	Status within the Gippsland Plains Bioregion
Damp Sands Herb-Rich Woodland	Vulnerable
Warm Temperate Rainforest	Endangered
Lowland Forest	Vulnerable
Swampy Riparian Woodland	Endangered
Damp Forest	Endangered
Riparian Scrub	Vulnerable
Grassy Woodland	Endangered
Swampy Woodland	Endangered
Damp Heathy Woodland	Vulnerable
Heathy Woodland	Least Concern

\* For more information about EVCs see Appendix 3



# Works planned for private land

## Property 1, 40 Kinwendy Rd

No stock is run on this 9.6 ha property whose western edge backs onto Peninsula Gardens Bushland Reserve.



Property 1. View online at [https://www.google.com/maps/d/viewer?mid=1F39u\\_edXAoJ9j-70TLu-0BCZKIM](https://www.google.com/maps/d/viewer?mid=1F39u_edXAoJ9j-70TLu-0BCZKIM)

This property is largely remnant bush managed for conservation. While the understorey is mostly dominated by Austral Grasstrees, streamside vegetation along the northern boundary is high quality and includes mid and groundstorey. EVCs include Damp Sands Herb-Rich Woodland (V), Swampy Riparian Woodland (E), Riparian Scrub (V), Damp Forest (E), and Warm Temperate Rainforest (E).

Large stands of Austral Grasstrees exist with several heathy and herbaceous species within the middle and understories.

Several birds which are threatened in the Gippsland Plains Bioregion and the State threatened Swamp Skink, Lewins Rail and Southern Toadlet breed along the creekline.

Powerful owls are known to hunt possums within the woodlands and kangaroos and swamp wallabies utilise the area as a breeding and foraging site.

Patches of warm temperate rainforest with muttonwood persist along the creek.

Both North and South branches of Drum Drum Alloc Creek converge on this site creating a largish soak/riparian zone.

Linear creek frontage 400m





Property 1. Photo: Rob Nigro

### Relevant works to date

PPWCMA grant funds have been used to control woody weeds throughout all woodlands on the site. These works require 5 years of follow up works.

Property owners have engaged in woody weed management throughout their tenure.

### Works recommended for biolink

No. of polygons	2
Area in polygons (measured flat from above)	1.9 ha

The north and south branches of Drum Drum Alloc Creek have become the primary source of infection to the areas adjacent to the stream on this property, bringing new weed seeds and layering weedy canes and branches downstream each year. As Melbourne Water is the responsible funding authority, for the zone 20m either side of the creek (via Stream Frontage Grants), this plan concentrates on control of woody and grassy weeds suites located beyond 20 meters of the riverbank top. The installation of species appropriate nest boxes together with the implementation of feral animal control programs is recommended.

### Key weeds to be controlled

Sweet pittosporum, Sallow wattle, Boneseed, Polygala, Coast tea tree, Bluebell creeper.

## Property 2, 70 Browns Rd



Property 2. View online at <https://www.google.com/maps/d/viewer?mid=1ZyO7jaG8FS8uFlLqCpMrZrCUHTQ>

This is a 7.4 ha property whose northern edge backs onto Peninsula Gardens Bushland Reserve. Two branches of Drum Drum Alloc Creek run through the property north south: one in the western half, the other in the eastern half of the property.

This property, which is largely covered in remnant indigenous vegetation is managed for conservation and recreational activities.

EVCs include Damp Sands Herb-Rich Woodland (V), Swampy Riparian Woodland (E), Riparian Scrub (V), Damp Forest (E), and Warm Temperate Rainforest (E).

Large stands of Austral Grasstrees exist with several heathy and herbaceous species within the middle and understories.

Several birds which are threatened in the Gippsland Plains Bioregion and the State threatened Swamp Skink, Lewins Rail and Southern Toadlet breed along the drainage line.

Swamp wallabies and kangaroos use the area as a breeding and foraging site and traverse Browns road through to Fergussons Swamp.

Patches of warm temperate rainforest with muttonwood persist along the drainage line.

Linear creek frontage	440m
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Significant woody weeds (pine and sweet pittosporum) infestation along roadside boundary of property P2. Photo: Rob Nigro

## Relevant works to date

2016 PPWCMA grant works used to control woody weeds throughout all woodlands on the site which will require 5 years of follow up works.

## Works recommended for biolink

No. of polygons	2
Area in polygons (measured flat from above)	3.8 Ha

The property requires a sweep through for small woody weedlings while major works are required to remove mature pines around main house (P2) and adjacent to roadsides (P1). Pine tree removal will predominantly involve ringbarking larger species but trees around the house will need to be felled, and the wood removed, and the stumps ground. Mature pines will need to be monitored to assess habitat potential prior to removal. Installation of nesting boxes to shelter a range of species potentially displaced from pine removal is recommended.

In P2 (house zone) a small revegetation site around house is recommended, and in P1, adjacent to roadsides, some direct seed sowing is recommended. Contributions towards feral cat and fox programs are recommended.

## Key weeds to be controlled

Pine (various sp.) Sweet pittosporum, Sallow wattle, Coast tea tree.

## Property 3, 20 Kinwendy Rd



Property 3. View map online at <https://drive.google.com/open?id=1Uaf1vt4IFx40xcLlfpjCnS12Dro&usp=sharing>



Property 3. Photo: Rob Nigro.

This 9.5 ha property is covered almost entirely in high quality remnant vegetation and is managed for conservation. Two tributaries of Drum Drum Alloc Creek run across the northern corner of the property. The landholders, one of whom is co-author of this report, are passionate about conservation and knowledgeable and experienced in bush rehabilitation techniques and management. For many years, they have controlled weeds and feral animals on this property.

EVC's on this property include Lowland Forest (V), Grassy Woodland (E), Damp Sands Herb-Rich Woodland (V), Swampy Riparian Woodland (E), Riparian Scrub (V), Warm Temperate Rainforest (E), and Swampy Woodland (E)

Large stands of Austral Grasstrees persist with several heathy and herbaceous species within the middle and understories.

Several birds which are threatened in the Gippsland Plains Bioregion and the State threatened Swamp Skink, Lewins Rail and Southern Toadlet breed along the creekline.

Powerful owls are known to hunt possums within the woodlands and swamp wallabies use the area as a breeding and foraging site.

Both the dusky and the agile antechinus, sugar gliders and several hollow-breeding bird species use the old-growth eucalypts to breed in, while echidnas forage throughout the woodlands.

Patches of warm temperate rainforest with muttonwood persist along the creek.

Linear creek frontage	80m
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## Relevant works to date

2016 PPWCMA grant funds have been used to comprehensively control woody weeds throughout all woodlands on the site, which will require 5 years of follow up works.

Property owners have engaged in woodland woody weed management throughout their tenure.

Melbourne Water Streamline Frontage program-funded weeding works within the riparian zone of the creek have been occurring for over a decade.

## Works recommended for the biolink

No. of polygons	3
Area in polygons (measured flat from above)	1 ha

Woody and grassy weed issues a constant concern from the vectors of Drum Drum Alloc Creek, motor vehicle traffic and feral species movement. This plan recommends weed control targeting both woody and herbaceous species in P1,P2 & P3

Also recommended:

- trial seed-abatement measure of angled solid corrugated iron fencing combined with strategic revegetation, in P3
- installation of nest boxes for specific large hollow-dependent species including wood ducks (*Chenonetta jubata*) and powerful owls (*Ninox strenua*)



- monitoring programs of the white-footed dunnart (*Sminthopsis leucopus*), swamp skink (*Lissolepis coventryi*), victorian smooth froglet (*Geocrinia Victoriana*) and southern toadlet (*Pseudophryne dendyi*)
- on-going fox, feral cat, black rat and Indian myna (*Pseudophryne dendyi*) control programs (multi-property).

### **Key weeds to be controlled**

Blackberry, Pittosporum, Boneseed, Polygala, Bluebell creeper.

## Property 4, 9 Duells Rd



Property 4. View online at <https://drive.google.com/open?id=1QX8hu97ORpNbxumPMQ1eoBVvfjk&usp=sharing>

This 18.8 ha property has Peninsula Gardens Bushland Reserve to its south west and Drum Drum Alloc Creek along its southern boundary. Approximately 30-40% of the property is covered in remnant indigenous vegetation and is managed for conservation. Cell rotational sheep grazing is conducted on the remainder. The landholders are passionate about conservation and have conducted extensive weed control works.

Linear creek frontage	400m
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Old growth native trees on property 4. Photo Rob Nigro

## Relevant works to date

2016 PPWCMA grant funds have been used to control remove woody weeds throughout all woodlands on the site which, will require 5 years of follow up works.

Property owners have engaged in woodland woody weed management throughout their tenure.

Melbourne Water Streamline Frontage program-funded weeding works have been occurring in the riparian zone of the creek for over a decade.

## Works recommended for biolink

No. of polygons	2
Area in polygons (measured flat from above)	4.62 Ha

### P1

This is the existing conservation area where small infestations of Blackberry, Boneseed, Polygala, Montbretia, Spear thistle and Arum lily persist. Grassy weeds consist of a suite of commonly sown pasture grasses. The area is moderately steep, southwest facing foothill forest and heathy open woodland with a long history of dairy and beef cattle grazing. Grazing pressure has resulted in the loss of the middle vegetation storey and most of the indigenous understorey and groundcovers.

### Recommendations:

- Biodiversity – particularly woodland birdlife - would be enhanced from the revegetation of the middle storey. The zone is adequately fenced and gated to allow the safe transition of macropods and monotremes which inhabit surrounding bushland.
- The installation of a range of suitable nest boxes would complement works in the zone as throughout Winter and now Spring 2016 Powerful owls (*Ninox strenua*) have been heard calling.
- Maintenance and protection of biodiversity would similarly be enhanced through on-going commitment to feral cat and fox control programs (multi-property).

## P2

P2 is a proposed new area to function as a seasonal shade/shelter paddock to be used only occasionally to protect sheep from extreme heat or extreme wind chill. It is to be managed for persistence of a palatable native grass understorey - i.e. Weeping grass (*Microlaena spp*) and Wallaby grass (*Danthonia spp*). Fencing is required. Some additional overstorey may need to be installed during to improve the capacity of the area to function as an effective shelterbelt for stock. Installed trees will need to be protected from stock initially. Strategic weed control and strategic grazing will be required (integrated weed control or IWM). The following resources may assist with shelterbelt design and integrated weed control:

### o Integrated weed control

- Department of Primary Industries Victoria, 'Native pasture management', 2011, [http://cdn.connectingcountry.org.au/press/wp-content/uploads/2014/09/DPI\\_Native\\_Pasture\\_Management\\_brochure\\_final\\_OP\\_TIMISED-FOR-WEB.pdf](http://cdn.connectingcountry.org.au/press/wp-content/uploads/2014/09/DPI_Native_Pasture_Management_brochure_final_OP_TIMISED-FOR-WEB.pdf),
- Land and Water Australia (Australian Government), 'Productive native pastures in the high and medium rainfall zone', [https://www.wool.com/globalassets/start/on-farm-research-and-development/production-systems-eco/environment/biodiversity/lww\\_veg\\_productive-native-pastures-in-the-high-medium-rainfall-zones1.pdf](https://www.wool.com/globalassets/start/on-farm-research-and-development/production-systems-eco/environment/biodiversity/lww_veg_productive-native-pastures-in-the-high-medium-rainfall-zones1.pdf)
- Meat and Livestock Australia, 'Grazing management for productive native pastures', <http://publications.mla.com.au/go/6js1ursjc8smsxx>
- Michele Sabto, Integrated Weed Management in Native Pastures, <https://iwmnativepastures.wordpress.com/>

### o Shelterbelt design

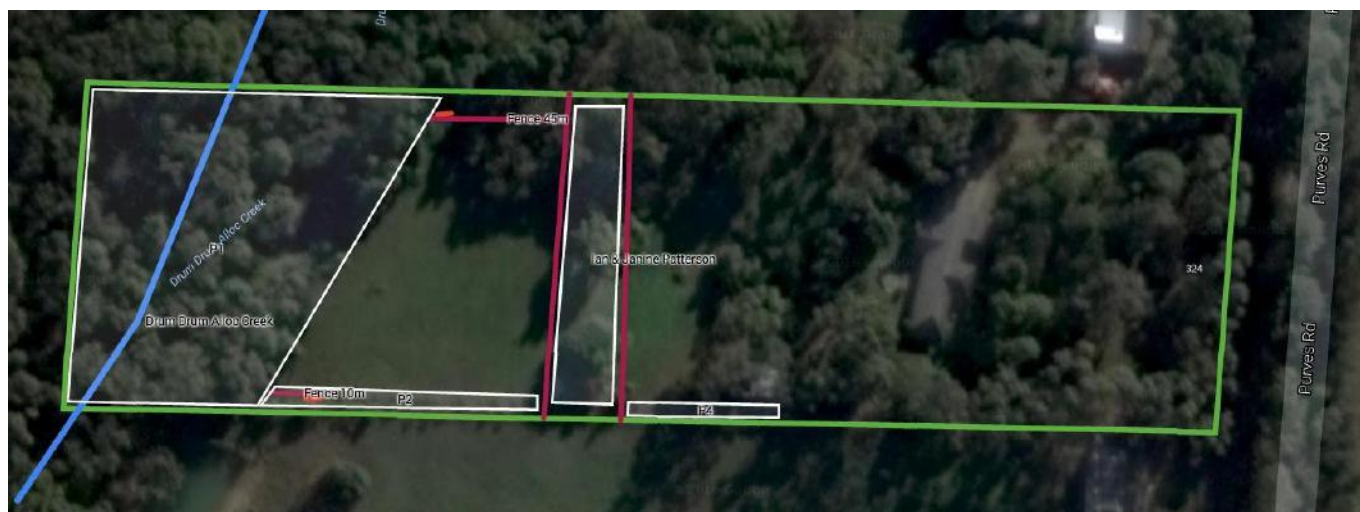
- Mill, Lisette, 'The economic benefits of native shelterbelts report', Basalt to Bay Landcare Network, <http://basalttobay.org.au/index.php/active-projects/81-the-economic-benefits-of-native-shelter-belts-report-01-14>

## Key weeds to be controlled

Blackberry, Boneseed, Polygala, Montbretia, Spear thistle and Arum lily.

## Property 5, 324 Purves Rd





Property 5. View online at <https://www.google.com/maps/d/viewer?mid=1vPKo2XO8de8n0eKw024jxsazhQs>

This 2 ha property is managed for conservation and recreational purposes. No stock are run on the property. The upper reaches of Drum Drum Alloc Creek runs north south through the western lower end of the property. Adjacent to the creek is a 0.45ha area of remnant bushland (P1), with king ferns and old-growth trees - Swamp gums (*Eucalyptus ovata*), Manna gums (*Eucalyptus viminalis*), and Messmate stringybarks (*Eucalyptus obliqua*) - many of which are old enough to be hollow-bearing, providing rare habitat for arboreal mammals and some birds.

Linear creek frontage	80m
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Property 8. Photo: Rob Nigro

## Relevant works to date

Melbourne Water Streamline Frontage program funded weeding works have been occurring within the riparian zone of the creek for over a decade.



## Works recommended for biolink

No. of polygons	4
Area in polygons (measured flat from above)	0.6 ha

### P1

Sections of this remnant vegetation block require control of infestations of Sweet pittosporum, Blackberry, and Ragwort. As Melbourne Water is the responsible funding authority for the zone 20m either side of the creek (via Stream Frontage Grants), this plan concentrates on eradication of woody and grassy weeds suites located beyond 20 meters of the riverbank top.

### P2

Proposed new shelterbelt, with the aim of abating wind, slowing runoff and serving as connecting wildlife corridor. Requires revegetation (mid-storey and overstorey), fencing and farm gates, including one kangaroo gate to aid safe transition of Swamp wallabies and Eastern grey kangaroos across the property

### P3

Proposed new shelterbelt. Treatment as for P2.

### P4

Proposed new 1 ha shelterbelt. Treatment as for P2.

### Feral control and nest boxes

Maintenance and protection of biodiversity would be enhanced through on-going commitment to feral cat and fox control programs (multi-property).

As hollow-bearing trees are lacking, nest boxes should be installed.

### Key weeds to be controlled

Sweet pittosporum, Blackberry, and Ragwort.

## Property 6, 18 Browns Rd



Property 6.

View online at <https://www.google.com/maps/d/viewer?mid=1MC1FXgC25DoQW4MOsUDcMLRmLLg>

This 20 ha property consists of 6 main paddocks. Cattle are run on the property. Drum Drum Alloc South Branch bisects the property west-east and is bordered by high-quality remnant riparian and swamp scrub vegetation. The landholders have undertaken weed control in this area over many years.

Linear creek frontage	300m
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Property 6

## Relevant works to date

Property owners have engaged in woodland woody weed management throughout their tenure.

## **Works required for biolink**

### **P1**

This polygon adjacent to the stream is in good condition but still requires control of woody weeds and grassy species. As Melbourne Water is the responsible funding authority for the zone 20m either side of the creek (via Stream Frontage Grants), this plan concentrates on eradication of woody and grassy weeds suites located beyond 20 meters of the riverbank top.

### **P3**

In this polygon, which is inside P1, some revegetation, in addition to the weed control described for P1, is required. In particular middle storey vegetation is lacking.

### **P2**

This is a polygon where regrowth of native vegetation is occurring. Revegetation is proposed. In particular middle storey vegetation, which is currently lacking.

### **P5 and P6**

New shelterbelt areas are proposed for the western and eastern boundaries. Benefits include improved connectivity for wildlife and shade and shelter for stock. Both require repair of existing fencing and new fencing to exclude stock, as well as revegetation with overstorey and mid-storey species.

### **Nest boxes and feral control**

The inclusion of a range of nest boxes throughout the works zones would further encourage wildlife to colonise zones lacking mature tree hollows. Although rabbits do not seem to pose a serious problem it would be prudent to allow funding for warren fumigation if discovered whilst weeding the zones. Similarly, multi-property fox and feral cat baiting programs currently operating in the valley are having beneficial effects throughout the site and some funding should be allocated to maintain these.

### **Key weeds to be controlled**

Sweet pittosporum, Sallow wattle, English ivy and Blackberry whilst at the herbaceous level a range of exotic pasture grasses and the expansion of Smilax (*Asparagus asparagoides*) pose the greatest threats.

## Property 7, 28 Davos St



Property 7.

View online at [https://drive.google.com/open?id=165Gj0\\_IYFcPymjDtVFKqN-fYoCg&usp=sharing](https://drive.google.com/open?id=165Gj0_IYFcPymjDtVFKqN-fYoCg&usp=sharing)

This 25ha property is owned by landholders passionate, and very knowledgeable about conservation.

The north section of the property consists of remnant open forest and wet sclerophyll forest (fern gullies) which form part of the headwaters of Drum Drum Alloc Creek. A management track allows access to northern paddocks of horse agistment. The owners have been restoring the open forest and fern gullies cast for over 30 years beginning when they first restored the fern gully south of the maintenance track. Main species controlled have been blackberry with controlled burning as a main



management tool then follow-up with the grubbing out method. Further follow up has consisted of years of continuous removal of woody weeds up until present day.

The ongoing control of woody weeds such as sweet pittosporum, sallow wattle and blackberry is crucial to the preservation of this important area of high quality bush, forming part of the headwaters of Drum Drum Alloc Creek.

EVCs on this property include Herb rich Foot-Hill Forest (V) and Swampy Riparian Woodland (E). Rare and valuable native grasslands, occur in 4 areas on the property:

1. the NW corner of the property (approx. 1 ha)
2. the NE corner of the property
3. the southernmost 80% of the NE grazing paddock and
4. P4.

These grassland areas are predominantly *Microlaena stipoides* (Weeping Grass) with orchid species (Thelymitra sp. - Sun Orchid) closer to the border of the open forests.

Introduced pasture grasses cover approximately 20% of the top third of the NE grazing paddock heading towards the northern boundary.

The management track leads to one of three tributaries which divide two soil types - older volcanic basalt soils to the south and granitic soils to the north. The agistment comprises two horses on three paddocks contained to three boundaries in the northern-most section of the property. Agistment has a medium impact on steeper native grassland slopes and a medium impact on natural floristics to the ground-storey in the open forest to management track to the south

Linear creek frontage	750m
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Rare native grassland on property 7. The grass shows evidence of grazing by kangaroos and is in good condition.

### Relevant works to date

See above.

### Works recommended for biolink

No. of polygons	4
Area in polygons (measured flat from above)	5.5 ha

1 and P2 require woody weeding. P3 is an erosion-prone steep slope. P4 consists of rare native grassland of predominantly *Microlaena stipoides* (Weeping grass) with *Thelymitra* species (sun orchid).

It is strongly recommended that the next future management actions be fencing off of the native grasslands so as to protect them from detrimental effects of grazing domestic stock, in the following order of priority: a) fencing off of the NW corner (approx. 1 ha), b) fencing off the NE corner of the property (approx. 0.6 ha) c) fencing off P4.

### Key weeds to be controlled

Sallow wattle, sweet pittosporum, blackberry,

## Property no. 8, 33A Browns Rd



Property 8.

View online at <https://drive.google.com/open?id=1VfFTIJ87nVXVRuwOdR1B8TxYGOg&usp=sharing>

This 3.6 ha property is a narrow block that slopes sharply down in a south westerly direction to Drum Drum Alloc Creek from Browns Rd. The creek is on the southern border, approximately 60 metres of riparian vegetation. The creek and forms part of one southern tributary into Drum Drum Alloc Creek. A remnant stand of Eucalyptus Woodland to Open Woodland runs 150 approximately metres at its widest point in a northerly and southerly direction. A flood plain of Melaleuca Scrub runs in-between. The EVCs are Damp Sands Herb-rich Woodland (V) and Riparian Scrub (V). The present distribution of this habitat is depleted by land clearance through-out this section of catchment and is narrowed down to linear fragmented remnants with severe weed infestations of Arum Lily and Blackberry.

The property is being lightly grazed by domestic animals on the upper slopes in the most northern part and this has a light impact on the degree of slope to Woodland areas. There is one significant section of *Microlaena stipoides* (Weeping Grass) on the lower part of the slope described above that the land-holders are aware of. Interestingly, there is a division of older volcanics: basalts on the northern upper slope (Browns Road) to older dune: siliceous sands (characteristic of Greens Bush) down to swamp deposits: alluvial sands in the riparian zone. Given more habitat restoration in future, properties like

these can become examples for land-holders upstream and downstream for sustainable land management within a very fragmented catchment area.

Linear creek frontage

60m



Creekside vegetation, Property 8

## Works recommended for biolink

No. of polygons	2
Area in polygons (measured flat from above)	0.6 ha

### P1

Woody and grassy weed control - primarily sallow wattle, sweet pittosporum, blackberry and arum lily – in P1 and P2.

View online at [https://drive.google.com/open?id=1lmXSJ4aA9SnKuqmGZ9CuGeju\\_Rs&usp=sharing](https://drive.google.com/open?id=1lmXSJ4aA9SnKuqmGZ9CuGeju_Rs&usp=sharing)

This 13 ha property is covered in remnant indigenous vegetation of high quality and is managed for

The property has high ecological values. Large stands of Austral Grasstrees occur on the higher elevations, with several healthy and herbaceous species within the middle and understories. Large intact stands of riparian scrub with warm temperate rainforest (muttonwood) occur on the lower elevations.

EVC's on the property include Lowland Forest (V), Damp Sands Herb-Rich Woodland (V), Swampy Riparian Woodland (E), Riparian Scrub (V), Warm Temperate Rainforest (E), and Swampy Woodland (E).

Several bird species which are threatened in the Gippsland Plains Bioregion use the area, and the State threatened Swamp Skink, Lewins Rail and Southern Toadlet breed along the drainage lines.

Powerful owls are known to hunt possums within the woodlands and kangaroos and swamp wallabies use the area as a breeding and foraging site.

Both dusky and agile antechinus, sugar gliders and several hollow breeding bird species use the old growth eucalypts to breed within, while echidnas forage throughout the woodlands looking for food.

Patches of riparian scrub and warm temperate rainforest with muttonwood persist along the drainage lines.

Linear creek frontage	440m
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Property 9. Photo: Rob Nigro

## Relevant works to date

PPWCMA grant funds have been used to control woody weeds throughout all woodlands on the site, which will require 5 years of follow up works.

The landholders have engaged in woodland woody weed control throughout their tenure.

Melbourne Water Streamline Frontage-program funded weeding works have occurred within the riparian zone.

## Works recommended for biolink

No. of polygons	1
Area in polygons (measured flat from above)	2 ha

P1 is adjacent to the southern boundary roadside. As the roadside is the greatest source of infection bringing and spreading woody weeds the recommendation is to focus on control of weeds throughout the southern boundary. As the property supports a wide array of arboreal species, nesting boxes should be incorporated into the project in zones lacking in suitable hollow bearing trees. Some contribution to the existing multi-property feral cat and fox control project is also recommended.

## Key weeds to be controlled

Sweet Pittosporum, Sallow Wattle, Bluebell Creeper, Monterey Pine, Bridal Creeper, English Blackberry, Boneseed, Montbretia, Arum Lily, Angled Onion and Thistles.

## Property no. 10, 60 Hyslops Rd



### Property 11

View online at <https://www.google.com/maps/d/viewer?mid=19aGONUUhq-DK8LFMhSJWqAMw8>

The main focus on this cattle property is to enrich flora species diversity with re-vegetation principles.<sup>5</sup> The property borders Greens Bush (Mornington Peninsula National Park) to the South. This area pre 1750 would be classed Eucalyptus Woodland to Open Woodland. The EVC (Ecological Vegetation Class) listed for this area is Damp Sands Herb-rich Woodland.<sup>6</sup>

In addition to the three polygons discussed here there are currently 20 fenced off zones protecting approximately 40m2. These fenced off zones are around significantly aged remnant Eucalyptus species including *Eucalyptus viminalis ssp. pryoriana* – (Coast Manna-gum) with hollows and stags. These areas require further enrichment of middle-storey compact plantings.

### Works recommended for biolink

No. of polygons	3
Area in polygons	3.2 ha

<sup>5</sup> Yugovic, J, 'Looking after the bush: Natural Regeneration is better than Planting', Southern Peninsula Indigenous Flora and Fauna Association, <http://www.spiffa.org/why-natural-regeneration-is-better-than-planting.html>

<sup>6</sup> Extant EVCs are vegetation community profile at the time of mapping (i.e. the 1990s). Pre-1750s EVCs have also been described, which are expert interpretations of the vegetation classes as they would have been prior to European impact, taken nominally as the year 1750.

(measured flat from above)

**P1**

Polygon 1 consists of an established planting of both middle-storey and over-storey indigenous species presently up to 3 metres high. This zone is proposed for further enrichment planting of middle-storey species.

**P2**

Polygon 2 is a new planting of middle and over-storey indigenous species that has suffered in recent dry weather. This zone is proposed for replacement of failed plants.

**P3**

Polygon 3 is situated nearest to the Greens Bush boundary and is a proposed new re-vegetation area requiring new fencing with middle-storey and over-storey species to connect a small corridor from Greens Bush to Polygon 2.

## **Complementary works on nearby public land**

In Peninsula Gardens a volunteer crew from the Friends of Peninsula Gardens undertakes woody weed control once a month under the supervision of the Mornington Peninsula Shire's Natural Systems Team.

Mornington Peninsula Shire's natural systems team also conducts annual fox control (10-80 baiting).

Mornington Peninsula Shire has a roadside management program but it is severely underfunded and as a result it can take years for these roadsides to become a priority, if at all. The authors of this report and SWMP Landcare urge biolink landholders and other local residents to approach Mornington Peninsula Shire Council to address the condition of the roadside. Unless these roadsides are already included in the Shire's long-term strategy, residents must prove that: there is ecological value in fixing the roadside, that amenity/erosion and other 'Planning Act' concerns are considered, that the community supports the rehabilitation, that roadside weed control helps you keep your weed levels down and that the adjoining landholders also contribute a meaningful level of weed control on their own land.

Meanwhile, as individuals, you can place 'Service Requests' to have the Shire deal with weeds when they impact upon you or your property.

## **Feral Animal Control**

### **Drum Drum Alloc Valley Feral Control Program**

The feral animal control measures proposed under this Plan are envisaged to be carried out under the ongoing Drum Drum Alloc Valley Feral Control Program. This baiting program is run by SWMP Landcare and targets feral cats and foxes. At the time of writing, 6 properties were participating in the program, hosting 14-15 bait stations across all the properties.

The baits are for carnivorous mammals. The only native carnivorous animal on the Peninsula is the antechinus (dusky and agile) but species are not attracted to the bait.

The program runs for 6 weeks twice a year, in Autumn and Spring. In weeks 1-2 attractants are put out on sandpits. In weeks 3-6, live baits go out.

During the first two weeks, monitoring is conducted to ensure that feral animals are present. Cameras are used. A sandpad is created (1m squared of packing sand with an attractant in the middle). A camera is placed nearby or alternatively, the contractor relies on a foot print analysis.

Multiple pads are created to see what bait is being taken by what animal so that the program can be targeted for maximum effectiveness.

The current annual cost of this program is \$3000 (\$1500/6-week program x 2 per year). The program is currently funded from various grant sources, including Trust for Nature and the Stephanie Rennick Flora and Fauna Foundation. It has been running in this form for 4 years.

An alternative program could be the MPLN Feral Control Program. This is a participatory program recently developed by Jacqui Salter, Mornington Peninsula Landcare Facilitator, in conjunction with Mal Legg, Peninsula ecologist and one of the authors of this report.

### **MPLN Feral Control Program**

This program was developed in 2016 by Jacqui Salter, Mornington Peninsula Landcare Facilitator, in conjunction with Mal Legg, Peninsula ecologist. It involves the landholders in the process – their main role is to check traps and fauna cameras, and replenish baits.



## For biolink landholders

One of the main purposes of producing this community-driven biolink plan is to enable you, the participating landholders to expand your environmental works beyond your current level. This can largely be achieved by attracting grant money from government, business and philanthropists. For legal and other reasons these grants normally require applicants to be some sort of legal entity. This is especially the case when dealing with business and philanthropic organisations, and where larger sums of money are required. By far the simplest option is for you to join SWMP Landcare group, which is already established in the area to apply for these grants. Landcare groups have access to grant offers that are unique to this organisation.

However, it is also a good idea for you, as the participating landholders in this particular biolink, to work together to achieve your shared vision of a biolink in the SWMP region. After all, you have now met each other, and know about each other's properties and conservation aspirations. This is a good base from which to build an ongoing productive group in which members can support each other into the future to carrying out the works set out in this plan. Our recommendation is that someone in your group should act as 'communications manager'. That is to say, someone should be in charge of keeping the landholders up to date on progress. This can be done via group email, newsletter, regular meetings etc. Most importantly, this will alert everyone to grant opportunities. Application periods are usually short, so you need to know the moment they are released.

As a group, you should build a database of people you can go to for expertise, in-kind contributions, legal issues etc.

## For SWMP Landcare group and biolink landholders

The information below is addressed to both the Landcare Group and participating landholders.

With this biolink plan in existence, you have a much better chance of securing larger funding amounts. You can highlight the:

- landscape-scale approach of your group,
- length of creekline within the project area,
- the fact that the biolink is aligned to reconnect important existing natural areas
- community-driven cooperative approach,
- the grand design - each grant application contributes to this incrementally.

Regular sources of government-based funding:

- [Melbourne Water](#)
- [Port Phillip and Westernport Catchment Management Authority](#) (PPWCMA)
- [Department of Environment, Land, Water and Planning](#) (DELWP) (State government)
- Various sources via [Landcare](#)

Last but not least, don't just rely on government grants. There are many other sources of funding out there; you just have to find them. A good place to start is the Australian Environmental Grantmakers Network website, which has a [section of resources for grantseekers](#).

# Appendix 1: SWMP biolink works plans and costings estimates

See attached spreadsheet.

## Appendix 2: Additional information regarding proposed actions and indicative costings

This section is based on information written by Blair Luxmoore of EP Consult for Sheepwash Creek Biolink Plan and Watson Creek Biolink Plan.

### Introduction

This information is addressed directly to landholders and to Main Creek Catchment Landcare group members.

While every care has been taken to accurately represent the cost of activities, these figures should only be taken as a guide. You should always seek up-to-date quotes, as market forces will affect pricing over time.

*Costings are based on the assumption that professional contractors are completing all works for you! Any time/equipment/materials you can contribute yourself may bring the cost down.*

There is a wide variety of capability, experience, equipment and work ethic amongst professional environmental companies. They also have differing opinions on what is the 'right' way to do things, given the complexity of dealing with natural systems and risk to wildlife. You can ask for references, or ask them to show you one of their comparable projects that are further advanced than your own, and decide for yourself which contractor you will put your trust in.

Most professional contractors with appropriate OHS and insurance in place charge from \$40 p/h to \$60 p/h ex GST. Price estimates have been based on the lower end of this range, however keep in mind that the cheapest hourly rate is not necessarily the best, as it still depends on the skill level and quantity of work that can be achieved 'per hour'.

You may be able to reduce the cost of your project by delegating simple tasks to your in-house staff such as groundskeepers, farmhands etc. Discuss this option with your contractor to make sure that what you see as 'simple' is actually simple. For example, a common mistake is made when people mistake Native Raspberry for Blackberry. Another common mistake is to assume that Bracken is a weed. In conservation projects, Bracken is not a weed. It is actually highly beneficial.

### Woody weed control

The bulk of the cost of woody weed control is usually incurred in the first 3 years. There will be a significant drop in maintenance costs after this, and you should even be able to start skipping a year or two between maintenance passes.

These figures are based on your individual property needs as of August-September 2016. Please note that Blackberry in particular grows rapidly, so applicable estimates should be revised yearly.

## Grassy/herbaceous weeds

There are two sub-categories here i.e. grassy/herbaceous weed control within *existing bushland*, and within *revegetation sites*.

**Bushland Situation:** Usually, the sheer cost, consistency and level of botanical skill required to effectively manage grassy and other herbaceous weeds makes it unfortunately impractical to address this problem on a large scale. Therefore, costings concentrate on obvious priorities only, such as Cape Ivy, Bridal Creeper, Pampass Grass. This is one of those tasks where different contractors will have varying views. All you can do is hear them out, look at their other projects, and decide for yourself.

**Revegetation Situation:** In contrast to the above situation, most contractors will all agree that grassy/herbaceous weed control in young revegetation sites is necessary and often overlooked. If you see \$0 values for your property in this column, it means there is enough 'good' understory that this task is not needed for your particular revegetation zones.

## Fencing

You will probably only ever install your fencing once, so try to think towards the future and be generous where you can regarding how much land you devote to conservation. Besides the ecologically beneficial concept that 'more is better', there are some more practical realities to consider.

When applying for grants, particularly from Melbourne Water, your case is that much stronger if you have devoted enough land to make a real habitat corridor. Grants are generally assessed by people that know about ecological principles. Melbourne Water is much more interested in projects that fence off/devote at least 20m *each side* of the waterway. You will also get a higher % of your costs covered if you go wide. Even if you can't afford to undertake all the actions within the fence straight away, at least you have the infrastructure in place for when you are ready.

The more land you devote to conservation, the less 'edge-effect' of weed invasion you will have, therefore the less weed maintenance you will have. Wider revegetation areas are also more resilient to wind and drought, thus decreasing the likelihood that trees will come down across your paddock every time there is a storm. Also, don't expect a Koala to cross an entire paddock just to get to a couple of trees!

Your fence may be actively restricting cattle, hence the need for barbed wire and/or electric wiring. Kangaroos and wallabies are most at risk of these devices. They will either go under the lowest wire, or over the highest wire. Try running the barbed/electrified wire at positions other than the top and bottom strand. Think about installing wildlife gates such as depicted in the photo below. It only takes a few; animals will find them.



## **Plant supply & install**

The cost of plant supply and installation varies widely, depending on three main points. They are:-

- 1) The overall number of plants you purchase in a single order. Obviously the more you buy, the cheaper they get.
- 2) The planting density i.e. how many plants per acre you intend to install. The closer they are, the faster it is to install. This actually makes a bigger difference than the first point!
- 3) Access to AND AROUND the planting site.

Nurseries may require a deposit, and may even offer a discount if you are willing to pay this. There are large up-front outlays in growing plants, which specialist indigenous nurseries are sensitive to when quoting you a price. If you are in a position to offer a deposit, bring this up early in negotiations.

Costings are based on the assumption that the nursery that grows the plants will also be employed to install the plants, hence attracting a wholesale price. If the plants are grown by one company and installed by either yourselves or another company, expect to pay at least 50 cents more per plant.

## **Supply & install guards**

The supply and installation of guards is a relatively expensive activity. Guards are not included on any of your sites as there is no reason to assume they are needed until proven otherwise. If you see rabbits, wallabies and/or kangaroos, you will need to consider guards.

The correct guard must be chosen for the situation. It is a common misconception that guards are 100% effective in protecting plants from animals, especially kangaroos/wallabies. Guards can also make weed maintenance more difficult.

A typical green treeguard (or bag as commonly known) with three bamboo stakes only costs about 50 cents. The expense is really in the installation, and similar to plant installation pricing, depends on spacing, access, hardness of the ground etc. For most sites within this biolink, installing guards on a



plant spacing of approx. 1 plant per m<sup>2</sup> would cost about \$3.00 per guard. This is close to the cost of the plant itself so you can see how much cost it adds to a project.

Sen-Tree a spray-on browsing deterrent that is an alternative to guards has also been costed for some plant installation works in this plan. It is much cheaper than guards (approx. 14c per plant including supply and apply) but is only suitable in some situations and for some plants.

Make sure you consider the removal and disposal of guards about three years (or less in many cases) after installation. Not all guards are biodegradable, so do check into this before purchasing. Removal of guards is not priced as the assumption is that all guards will be biodegradable. Having said that, your revegetation will not look 'natural' until all these guards (and stakes) disappear from view, and a lot of people don't like the look of them in the meantime. This is a personal choice for you to consider.

## **Installing hollow logs on the ground**

This item is not quoted due to too many variables. Having said that, most landholders with acreage accumulate branches, logs and leaf litter somehow. Provided you wait till the branches/logs are dead and free of seeds (to avoid spreading weeds), throw them around your revegetation area or into your creek, rather than burning or chipping them. You'll be surprised how quickly it builds up. Try offering this disposal method to your neighbours too.

## **Installing nest boxes above ground**

Again this item is not quoted in full, as there are too many variables. However please don't ignore this important aspect. Just think, ten thousand seedlings will not produce one useable tree hollow for maybe 20 years! Ready-made nestboxes and 'How-to-Install' guides are available from Latrobe University Wildlife Reserve and from local ecologists such as Paul Bertuch of Eco-Agri. They are custom-made for the actual creatures you are trying to attract, and have been researched and developed over a number of years, so they are very effective. Watson Creek Catchment Landcare also have experience building and installing nest boxes.

Nest boxes require some maintenance to the extent that they may be colonised by feral creatures such as Indian Mynas, exotic bee species (Italian Honey Bee), Starlings and European Wasps.

## **Fox control**

Fox control is another one of those aspects that is often overlooked, as the average person cannot 'see' the results in comparison to seeing the results of, for example, installing 500 plants. However, research being done particularly over the last 10 years is consistently showing that foxes are having a much greater impact than previously thought. Foxes are also one of the main spreaders of Sweet Pittosporum berries, Blackberries and other woody weeds that have berries.

Fox control is only effective if adjoining landowners have a coordinated plan, or if your own property is so large that it can be considered a 'landscape-scale program' in its own right. It's actually not that expensive, but just like weed control, it should only be started if you have the means to conduct follow-ups on a yearly basis.

Again this is not estimated for each property as there are too many variables. Furthermore, given that there are ethical concerns here, there are alternate options which are a very personal decision for each landowner to make. These will affect the price too.

## Planning permits

Planning Permits from Mornington Peninsula Shire are actually required in some circumstances for killing trees/large shrubs *even if they are known weeds*. You should check with the Shire if you are unsure.

## Appendix 3: EVCs

### About EVCs

Some of this information is reproduced from the Mornington Peninsula Shire Council website ([http://www.mornpen.vic.gov.au/Environment\\_Waste/Environment/Flora\\_Fauna](http://www.mornpen.vic.gov.au/Environment_Waste/Environment/Flora_Fauna))

### What is an Ecological Vegetation Class?

Native vegetation in Victoria has been classified into distinctive groupings known as Ecological Vegetation Classes or EVCs. These groupings are based on floristic, structural and ecological features of the vegetation. The Department of Sustainability and Environment (DSE) have defined over 300 EVCs within Victoria. Each EVC has been assigned a distinct descriptive name (e.g. 'Coast Banks Woodland) and number (e.g. 002).

### EVC profiles

The Shire also commissioned Jeff Yugovic to put together a profile for each EVC that occurs on the Peninsula<sup>7</sup>. These EVC profiles describe the structure of vegetation within that EVC, what sort of environment it occurs in, its bioregional conservation status, its past and present distribution and major species (all specific to the Mornington Peninsula).

### What are bioregions?

EVCs are classified according to the geographic area or bioregion in which they occur. Victoria has been divided into 28 bioregions - the Mornington Peninsula occurs within the Gippsland Plains Bioregion. The bioregional conservation status of an EVC is an assessment of its conservation status within a particular bioregion based on a number of factors including how commonly it originally occurred, its current level of depletion and current level of degradation. For example, the EVC Grassy Woodland (no. 122) has a bioregional conservation status of vulnerable within the Gippsland Plains Bioregion.

### Why use EVCs?

EVCs are a very useful way to describe different types of vegetation; it means everyone across Victoria is using the same system and common terminology when talking about vegetation. Becoming familiar with the EVC maps and profiles for your area is a great starting point to help you to understand the natural environment around you. Recognising how the composition and structure of native vegetation in your area changes and how these changes relate to soil, topography and other features can really help you to understand the broader ecological picture of what is happening in your patch. EVC profiles can also be used a guide to help you restore a particular EVC.

### Limitations

EVC are a somewhat simplified way to look at vegetation - we humans have a tendency to want to categorise the natural world into distinct units such as EVCs, but nature is not so straight forward, plants do not always arrange themselves into clear, distinct groupings. It can be difficult for the untrained eye (and sometimes the trained one!) to discern just what EVC a certain patch of vegetation should be categorised as - especially if the vegetation is highly modified through weed infestation. But try not to get too bogged down in the finer details - there is no need to

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<sup>7</sup> Yugovic, J, 2002, 'Mornington Peninsula Ecological Vegetation Class Profiles', Biosis Research, commissioned for Mornington Peninsula Shire, <http://www.spiffa.org/uploads/2/6/7/5/2675656/evcs.pdf>

draw a definitive line in the sand on your site where one EVC stops and another starts (most of the time in nature there is almost always a gradual change where EVC overlap one another anyway). Just think of EVCs as a useful tool to for describing vegetation and use the maps and profiles provided by the Shire to help you to understand more about the bushland in your area.

## **Further information**

A list of EVCs by bioregion can be found on the website of The Victorian Department of Sustainability and Environment, at:

<http://www.dse.vic.gov.au/conservation-and-environment/ecological-vegetation-class-evc-benchmarks-by-bioregion#gipp>

To locate EVCs in your area, you can use this Victorian government website:

<http://mapshare2.dse.vic.gov.au/MapShare2EXT/imf.jsp?site=bim>

EVC profiles are provided on the website of the Southern Peninsula Indigenous Flora and Fauna Association: <http://www.spiffa.org/evcs.html>