



## Main Creek Biolink Plan

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# Introduction

This plan outlines works on 12 private properties that will contribute to the reconnection of patches of indigenous remnant vegetation in Main Creek catchment on the Mornington Peninsula, Victoria, Australia. The conservation zones proposed for these properties cover an area of approximately 17 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



Main Creek Catchment Landcare members at working bee 2013. Photo: J. Salter

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

1. Identify a target area with at least 20 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, 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, Bushland Rehabilitation Specialist, and often members of the Main Creek Catchment Landcare Group committee.
4. Determine initial works areas and prepare map.

5. 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.
6. Undertake follow-up site visits where required
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 funded by the NRCL which began in 2012 with a pilot plan for the Devilbend area. So far, five biolink plans have been developed.

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

In Year 3 (2016-2017), biolink plans will be developed for Merricks-Coolart Catchment Landcare Group and the Red Hill South Landcare area.

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 four grant sources has been awarded to undertake selected on-ground biolink works detailed in Sheepwash Creek Catchment biolink plan, Watson Creek Catchment biolink plan and the Devilbend biolink plan (known as the Western Linkage plan). Work is well underway for all four 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 2014 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>.

## 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>1</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>1</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 Main Creek catchment



Photo: Greg Holland

Main Creek is the longest stream on the Peninsula, rising near Arthurs Seat summit and discharging its waters into Bushranger Bay, east of Cape Schanck. Main Creek catchment includes Green Bush, the largest remnant area of bushland on the Peninsula. Micro-environments created partly by tributaries of Main Creek and other streams host a range of vegetation communities including fern gullies. For example, in Greens Bush major Main Creek tributary Lightwood Creek flows through some almost undisturbed fern communities and where the overlying sands deepen and the forest opens out to heathland, Austral Grass-trees grow.

Alongside Main Creek there are still patches of open forest dominated by Messmate (*Eucalyptus obliqua*) including some old enough to support hollows suitable for native animals such as Sugar Gliders and the Little Forest Bat.

In the forest canopy are birds that probe bark such as the White throated Treecreeper, the Crested Shrike Tit and the Varied Sittella with its beautiful musical song. Higher up still there are nectarivores such as the White Eared Honeyeater, and the Spotted Pardalote which actually nests in a burrow in a sandy bank.

## Main Creek biolink properties: ecological assets and connectivity



Main Creek Biolink properties. This map can be viewed online at [www.lmpl.org.au](http://www.lmpl.org.au) (click LMPL Biolinks from the menu and then choose “Main Creek Biolink” from the dropdown)

Main Creek biolink properties form a corridor from Splitters Creek at the intersection of Main Creek and Old Main Creek Rd, down to Splitters Creek's junction with Main Creek. The properties are contiguous with one exception at the southern end where there are two non-participating properties. The biolink area comprising the 12 properties has connectivity with sites containing major ecological assets, including the Greens Bush section of Mornington Peninsula National Park. A number of the biolink properties also contain significant ecological assets themselves. Splitters Creek runs through 7 of the 12 biolink properties.

At the southern end of the biolink area, close to the junction of Splitters and Main Creek, properties 3 and 11 connect with the eastern boundary of Greens Bush and have Splitters Creek running through them. On property 11, the connection is through a 3.6 ha patch of bush containing high quality remnant vegetation with EVC No 3, Damp Sands Herb-rich Woodland that has a conservation status of Vulnerable<sup>2</sup>. On property 3, a large new conservation area has been proposed, with works beginning with revegetation.

Travelling north, Splitters creek bisects properties 4 and 5 north-south. The predominant EVC is Damp Sands Herb-rich Woodland (V). Approximately half of the 9ha of property 4 is dedicated to conservation, including streamside, which is fenced off and where there is good quality remnant bush that has benefitted from regular weeding works undertaken by the owners themselves. Proposed biolink works are designed to support the landholders in the significant job of weed control in these areas.

Immediately to the north, approximately 40% of property 5, a 9 ha property is dedicated to conservation, including the fenced off Splitters Creek. Works proposed for this property are also predominantly weed control.

On property 9, the western neighbour of property 5, at least 60% of the property is fenced off and dedicated to conservation. EVCs include two EVCs with the status of vulnerable: 23 - Herb-Rich Foothills Forest and 3 - Damp Sands Herb-Rich Woodlands. Works proposed include weed control to support natural regeneration after a major pine-tree removal project undertaken by the landholder.

On property 10 immediately to the north, a large bush block is being well managed by the landholder. Proposed biolink works for this property are therefore limited to supporting the landholder to improve the understorey of a nearby wetland, first revegetated over 7 years ago and requiring additional plants.

On property no. 1 to the east, Splitters Creek bisects the property north-south. Proposed biolink works include fencing off a stand of mature blackwoods and revegetating with a long-term view to re-establishing ground flora.

Property 7 (to the north of property 1) is demonstration property for sustainable food production. On this property, a new 0.8 ha conservation area has been proposed around a planned new wetland.

On property 6 (over Old Main Creek Rd), the owners plan to rehabilitate an existing 0.8 ha bush block through sustained weed control.

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<sup>2</sup> Status of EVCs is for the Gippsland Plains Bioregion, within which the Mornington Peninsula sits. From here on, V=Vulnerable, E=Endangered

## 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	Lower Risk Near Threatened - Flora and Fauna Guarantee Act 1988 (Vic)
Lewin's Rail ( <i>Lewinia pectoralis</i> )	Legg 2014	Vulnerable – Flora and Fauna Guarantee Act 1988 (Vic)
Great Egret ( <i>Ardea alba</i> )	Legg 2014	Vulnerable – Flora and Fauna Guarantee Act 1988 (Vic)
Royal spoonbill ( <i>Platalea regia</i> )	Legg 2014	Near Threatened - Advisory List of Threatened Vertebrate Fauna in Victoria, Victorian Dept. of Environment, Land, Water and Planning, 2013
Powerful owl ( <i>Ninox strenua</i> )	Legg 2014	Vulnerable – Flora and Fauna Guarantee Act 1988 (Vic)
Swamp skink ( <i>Lissolepis coventryi</i> )	Legg 2014	Vulnerable – Flora and Fauna Guarantee Act 1988 (Vic)
Southern toadlet ( <i>Pseudophryne dendyi</i> )	Legg 2014	Vulnerable – Flora and Fauna Guarantee Act 1988 (Vic)

## EVCs in the biolink area

EVC	Status
3. Damp Sands Herb-rich Woodland	Vulnerable
16. Lowland Forest	Vulnerable
23. Herb-rich Foothill Forest	Vulnerable
83. Swampy Riparian Woodland	Endangered

## Vegetation Quality Ratings

Standard vegetation quality ratings have been used in assessing and describing remnant vegetation throughout the biolink. The following description defines the vegetation quality ratings that have been used:

**Retention:** High quality vegetation with a high level of diversity presence and diversity of indigenous species. Low levels of weed invasion and disturbance, less >30% weed cover.

**Restoration:** Moderate level of indigenous species presence and diversity. Moderate to high levels of weed invasion and disturbance with 30-70% weed cover.

**Rehabilitation:** Highly modified ecosystem with limited indigenous species still present and/or weed levels of greater than 70% cover.

# Works planned for private land

## Property 1, 18 Valley View Lane



### Property 1

This 5.5 ha property is bisected North to South by Splitters Creek. Alpacas graze the property, with the exception of the creek, which is fenced off. Streamside weeding works have been conducted through the assistance of a Melbourne Water Stream Frontage grant and the landholders are committed to continued weed control along the creek.

Linear creek frontage	140m
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### Relevant works to date

The landholders have received a Melbourne Water Stream Frontage Grant as well as contributing their own funds and labour for many years, concentrating on woody weed control along the creek.

### Works recommended for biolink

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

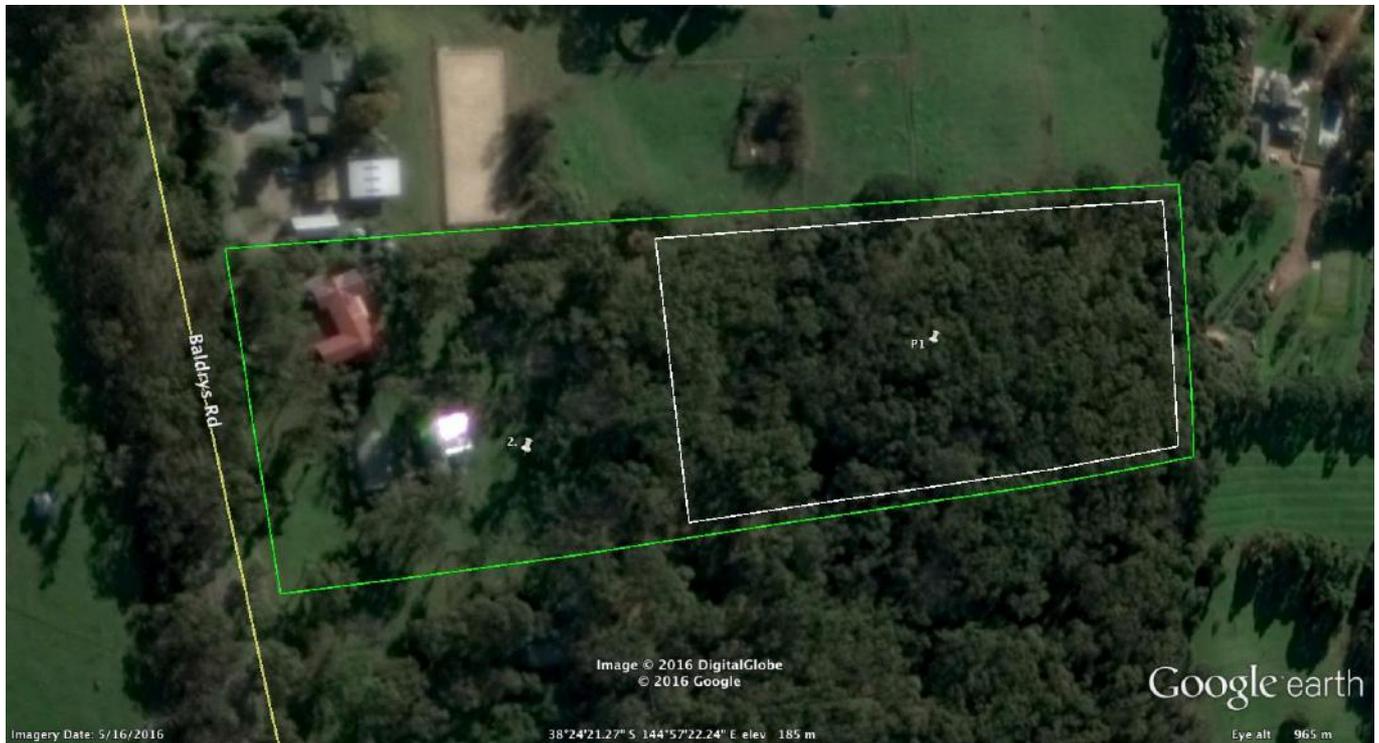
- P1 is fenced on three sides and would require one length to be fenced. It contains a large stand of mature blackwoods and therefore requires some infill eucalyptus planting and some long-term ground flora weed control in order to prepare site for the potential establishment of indigenous ground flora vegetation. Weeds present are pasture grass weeds. Some ivy is also present. A high density of mature trees exists so site requires 50 eucalyptus species.
- P2. An existing fenced planting of indigenous species with mature upper story species. A small amount of pittosporum and pine trees are present. Site is approximately three metres wide.

Extend this width to at least 10 metres wide by extending width on both this property and property to the south.

## EVCs onsite

EVC 23 - Herb-Rich Foothills Forest

## Property no. 2, 390 Main Creek Rd



### Property 2

This is a property of approximately 3.8 ha. Approximately 2 ha is bush with the remaining area containing a significant number of remnant trees still present with cleared understory. There is potentially an issue with tree die back at this property and it is likely to be due to Cinnamon Fungus and related to a change in water drainage from a property on other side of Baldrys Rd. The remnant bushland area (P1) is of restoration quality and some woody weed control is currently being conducted by the owners at the west end of the block. Ground flora weed invasion appears to be restricted to the edges of the bush block where clearing has occurred to maintain a fuel reduction zone around the property.

### Relevant works to date

Some woody weed control of mature pittosporum is occurring on the western edge of P1.

### Works recommended for biolink

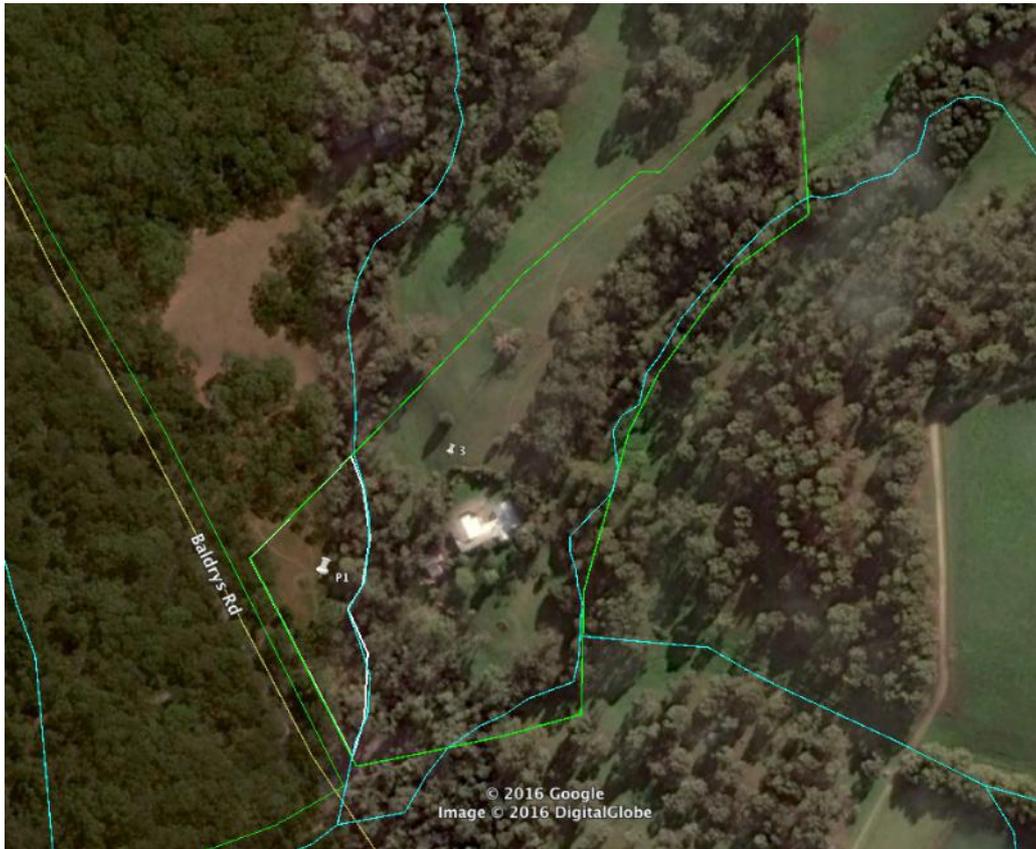
No. of polygons	1
Area in polygons (measured flat from above)	2 Ha

P1 has a moderate infestation of passionfruit vine and blackberry including patches of blackberry approximately 10x2m and 5x5m with smaller patches throughout. A low level of pittosporum infestation throughout with medium sized pittosporum up to 1.5m. Ground flora layer has a high level of infestation of pasture weeds on edges.

## EVCs onsite

23 Herb-rich Foothill Forest

### Property 3, 210 Baldrys Rd, Main Ridge



#### Property 3

This is a 4.5 ha property at the junction of Main Creek and Splitters Creek. The property borders Greens Bush to the west. To the north is a property that although not officially part of the biolink has a sympathetic landholder who has successfully rehabilitated the streamside area of Splitters Creek, partly with the ongoing assistance of Melbourne Water. To the east are some patches of remnant vegetation consisting largely of remaining canopy species only, these are surrounded by cleared grazing and pasture land.

In the western corner is a 162m long section of Splitters Creek and along the eastern boundary there is a 366 m long section of Main Creek. Neither of these waterways is fenced. No stock is run on the property. The paddocks are currently used occasionally for visiting horses.

The section of Main Creek on the property has a moderate level of woody weed infestation, including willows and karamu. It contains a good stand blackwoods. The understorey is dominated by pasture grasses.

Linear creek frontage	528m (162m Splitters Ck + 366m Main Ck)
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#### Relevant works to date

Some willow control along Main Creek has occurred in the past. Further work is required.

## Works recommended for biolink

No. of polygons	1
Area in polygons (measured flat from above)	0.52 ha

Revegetation of P1 is to occur using tree and shrub species consistent with the EVC. Spraying of circles with a broad spectrum herbicide is to occur 2 to 4 weeks prior to planting. This will control the variety of pasture weeds present on the site and allow for the revegetation to establish.

There are piles of branches & logs in some of the paddocks. Rather than burning them, the more substantial pieces (especially hollow ones) should be moved into P1.

## EVCs on site

No 3. Damp Sands Herb-Rich Woodland (V).

## Property 4, 80 Valley View Lane



Property 4

This 10 ha property is bisected north to south by Splitters Creek. Approximately half of the property is dedicated to conservation, including the creek which is fenced off and where there is good quality remnant bush. This remnant bush has benefitted from regular weeding works undertaken by the owners themselves. The rest of the property, excluding the house area and shedding, consists of paddocks grazed by cattle.

The owners are passionate about conservation and knowledgeable regarding the ecological assets on their property.

There are woody weeds present to varying levels, as well as patches of good indigenous understorey that will enable successful regeneration.

P1 (2.1ha) has pittosporum infestation that worsens towards the end of the block (away from the creek). The landholders have been working on the site controlling pittosporum and have received some advice on good techniques. There is a high level of indigenous ground flora diversity with at least four species of ferns present. Pittosporum infestation at the creek end of P1 is limited to scattered individuals. Some blackberry, mostly juvenile, throughout - large patches have been treated but require follow up. The area of P1 towards the end of the block has a high level of pittosporum infestation - up to 70% cover in most areas throughout this zone. Cut/paint and remove (pile up and burn) is

recommended due to the high quality of the ground flora vegetation. However frill/fill would also work and reduce hours required by 20-30%. Ground flora weeds include limited patches of forget-me-nots and scattered pasture weeds.

P2 (0.9ha) has some pittosporum but at a low density. There is a large blackberry infestation of about 70% of the site but it is less than 1m high at the moment. There is still some remnant ground flora present including poas, lomandras etc.

Linear creek frontage	230m
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Main Creek Biolink landholders head towards Splitters Creek on property 4 during a landholder meet-and-greet day, July 2016

### Relevant works to date

Weed control streamside and thinning of pittosporum throughout creek edge of P1.

### Works recommended for biolink

No. of polygons	2
Area in polygons (measured flat from above)	3 ha

- P1: Treatment of pittosporum, blackberry and ground flora grass weeds throughout entire polygon.
- P2: Treatment of blackberry infestation and the small amount of pittosporum throughout the site. Spraying with broadleaf specific herbicide with some cut/paint required to prevent off-target damage. Scattered pittosporum throughout - frill/fill & cut/paint.

### EVCs onsite

EVC No 3 Damp Sands Herb-rich Woodland (V).

## Property 5, 50 Valley View Lane



Property 5

This 9 ha property is the northern neighbour of property no. 4. It is bisected north-south by Splitters Creek. Approximately 40% of this property is dedicated to conservation, including the fenced off Splitters Creek. The remainder, excluding house and shedding, is grazed by cattle. The landholders are passionate about conservation and have put significant effort into weed control in the conservation areas.

P1 is a fenced off conservation block to the west of the creek. It is approximately 1.8ha of remnant vegetation of restoration quality with moderate to high infestation of pittosporum and moderate to high level of blackberry infestation throughout site (50-70% coverage). Ground flora weeds include thistle and forget-me-nots. Pittosporum infestation is approximately a 15% canopy coverage of mature individuals and approximately 30-40% coverage of 1-2m tall pittosporum.

P2 is part of the fenced off P1 but has been separated out into a separate polygon as it requires revegetation.

Linear creek frontage	217m
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### Relevant works to date

The landholders have done considerable work on P1 with their own labour and are knowledgeable about weeds and indigenous plants. Along the creek, they have been assisted by Melbourne Water Stream Frontage Grant.



Property 5, looking towards Splitters Creek

## Works recommended for biolink

No. of polygons	2
Area in polygons (measured flat from above)	2.3 ha

- P1: Treatment of pittosporum, cut/paint and frill/kill technique required. Blackberry treatment will require knapsack spraying in thick areas and cut/paint in areas of high quality to minimise off-target damage.
- P2 requires revegetation, area doesn't need any fencing. Some natural regeneration is occurring on the edges. Infill planting and blackberry control is required.

## EVCs on site

No 3 Damp Sands Herb-rich Woodland (V)

## Property 6, 508 Main Creek Rd



### Property 6

Alpacas graze this 7.4 ha property, which is the north-eastern neighbour of property 8.

Splitters Creek runs north-south along the northwest boundary of the property and is fenced off. The landholder intends to fence and revegetate streamside, with the assistance of a Melbourne Water Stream Frontage grant. The streamside vegetation while severely degraded contains some ground flora and tree ferns.

Linear creek frontage in polygons	245m
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### Relevant works to date

In the northern corner of the property, adjacent to the roadside P1 is a 0.8 ha block that has been designated as a conservation zone and has been fenced off.

P1 has a high infestation of pittosporum. Canopy coverage is approximately 80% with a mixture of mature and mixed aged trees.



Property 6, looking towards Splitters Creek

## Works recommended for biolink

No. of polygons	1
Area in polygons (measured flat from above)	0.8 Ha

- P1. Due to high level infestation, it is recommended that only 50% of the pittosporum are treated in the first year with the smaller individuals being cut and removed, piled over the fence and burnt. This will allow for a gradual opening up of the site to sunlight and thus the effect of the ground flora vegetation can be monitored rather than potentially requiring a high level of ground flora work because the site has been opened too quickly. As there is a high level of Ivy infestation (50-70% cover) on the ground and in the canopy, gradual removal/control of pittosporum is recommended. Pasture weeds have invaded the edges of the site. However there is still some remnant ground flora vegetation and a high level of prickly currant bush regeneration.

## EVCs onsite

EVC 23 Herb-rich Foothill Forest

## Property 7, Mossy Willow Farm, 547 Main Creek Rd



Property 7

This 5.3ha property is a demonstration sustainable farm. Splitters Creek runs north-south along the western edge. Sheep and cattle graze the majority of the property along with free-range chickens. Vegetables are also grown on the farm. One of the property managers has a horticulture background and the other is an arborist by training.

The landholders intend to fence off and revegetate the creek with the assistance of a Melbourne Water Stream Frontage Grant.

Linear creek frontage in polygons	245m
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### Relevant works to date

Melbourne Water Stream Frontage funding has been received in the past. However it hasn't been sought for several years.

### Works recommended for biolink

No. of polygons	1
Area in polygons (measured flat from above)	0.85Ha

A large section of property (P1) is to be given over to revegetation. A wetland is also being created in this space so confirmation of the area will be required prior to obtaining funds. It is recommended to establish only upper and middle story vegetation initially.

### EVCs on site

EVC 23 Herb-rich Foothill Forest (V)

## Property 8, 556 Main Creek Rd



### Property 8, 556 Main Creek Rd

Cattle are agisted on this 12.5 ha property, which is over the road from biolink property no. 7 (Mossy Willow Farm). To the north east is another biolink property, no. 6.

Splitters Creek runs North South through the eastern portion of this property and is not fenced off. The landholder intends to fence and revegetate streamside, with the assistance of a Melbourne Water Stream Frontage grant. The streamside vegetation, while severely degraded from cattle usage, contains some ground flora and tree ferns.

Linear creek frontage in polygons	245m
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### Relevant works to date

In the NW corner of the property, a 1.5 ha block (marked "A" on the map) has been designated as a conservation zone and has been fenced off and is being revegetated with indigenous plants.

P1 is a 0.6 ha area adjacent to the roadside which has a large infestation of Desert 5.5Ash with a lot of juveniles present, some Bridal Creeper and a small amount of Pittosporum. On the northwestern edge of this polygon are a row of large pines. The landholder has started to get rid of the desert ash.

### Works recommended for biolink

No. of polygons	1
Area in polygons (measured flat from above)	0.6 Ha

- The section near the roadside has a large infestation of Desert Ash with a lot of juveniles present, some Bridal Creeper and a small amount of Pittosporum. The area adjacent to the creek would require fencing and has a very high level of infestation of the ground flora layer with pasture weeds. Its doubtful whether restoration works on the ground flora layer are worthwhile here. Could be done as patches and over a very long time period
- Treatment of woody weeds throughout P1. Fencing of this site is required prior to revegetation preparation and implementation. Site preparation for revegetation requires the spraying of tree circle with a broad spectrum herbicide 2-4 weeks prior to planting. Planting to only include tree and shrub species due to the high level of ground flora weeds present.

## EVC's present onsite

83 Swampy Riparian Woodland (E).

## Property 9, 356 Baldrys Rd



### Property 9, 356 Baldrys Rd

This 5.5ha property is owned by landholders passionate and very knowledgeable about conservation. Approximately half of the property is already fenced off and dedicated to conservation (P1). The landholders have a small number of sheep and horses but these are not permitted in P1 or P2.

The north-eastern corner of P1, extending into the neighbouring biolink property (Property 10) is EVC 23 - Herb-Rich Foothills Forest (V) and this joins an extensive area through the next few properties to the north. Here there are mature messmate stringy barks, narrow-leaf peppermint gums, and a few yellow box, but almost no understory bushes. A patch of very tall exotic pines (*P. radiata*) on the eastern fence line effectively killed off most native vegetation in that area but these pines have recently been removed by the landholder.

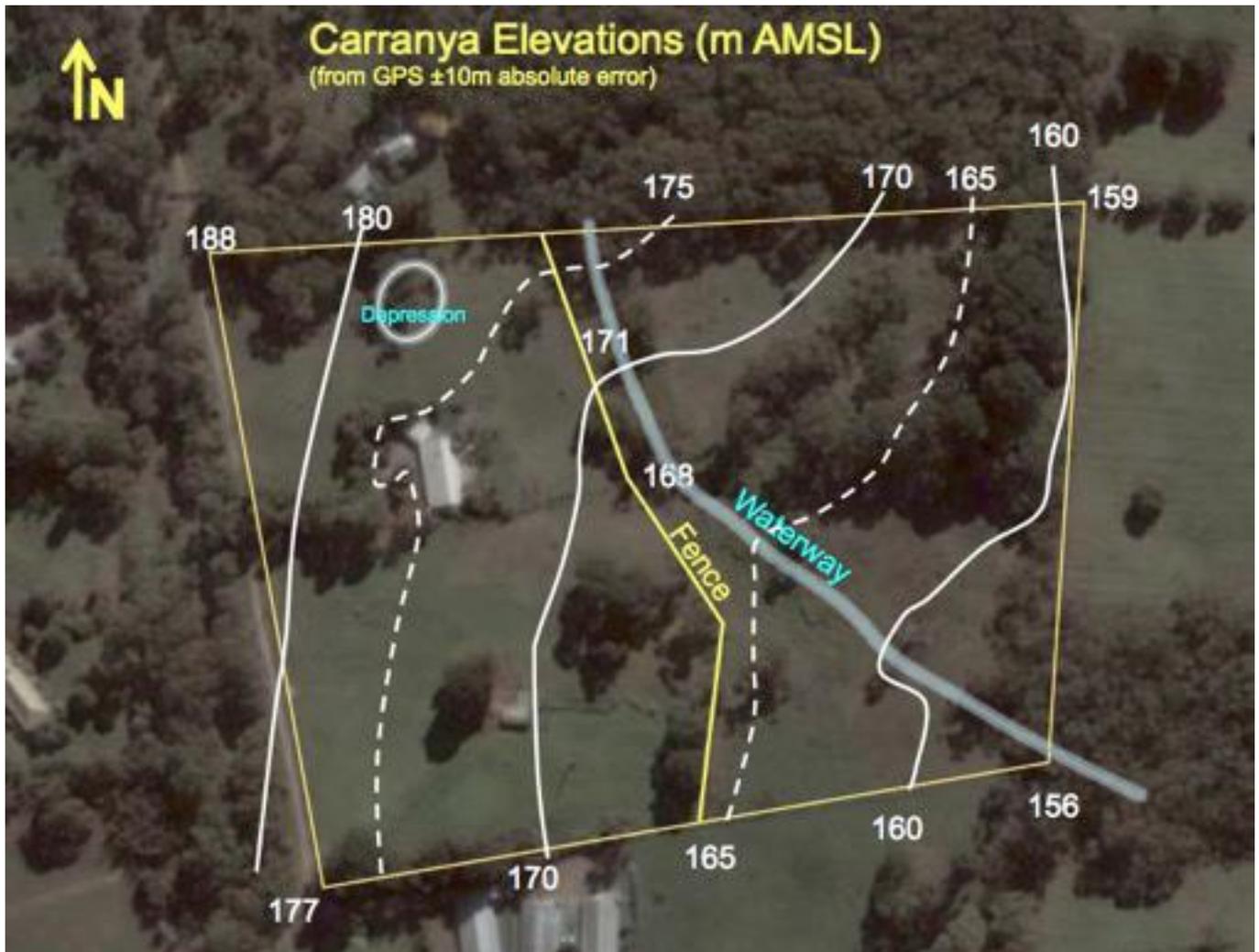
Remnants of EVC 3 – Damp Sands Herb Rich Woodlands - are little more than a few scattered swamp gums and manna gums and one yellow box. In the wetlands adjacent to the western border of P1 are a few swamp gums and a lone blackwood. A major issue here is that the natives are mostly mature trees, approaching the end of their lifetime and there are no younger trees to provide replacements; enabling this to happen is a priority.

In the southern half of P1 and extending to the southeastern area of scrub is EVC 3 - Damp Sands Herb-Rich Woodlands. The landholder plans to assist this southeastern area to evolve towards EVC 83 - Swampy Riparian Woodland

## Relevant works to date

A wetland along the middle of the western fenceline of P1 was the first major conservation works to be conducted by the landholder. This involved minor earthworks, weed control and some revegetation. The wetland is now well established, and its weed control is undertaken frequently. This wetland was established on an area of poorly drained soil that appears to be sustained by underground water movement - see the Carranya elevation figure below for approximate location. Transects dug across the region indicate a sharp transition from relatively-poor sandy loam to a deep vein of dark (almost black) sandy loam with considerable biological content. The transition occurs in <1m in some parts and is strongly indicative of a pre-historic creek through the area, one that silted up when the scrub was cleared. It may have been added to by deposition from vegetation taking advantage of the regular water supply. That there has been an area of poorly-drained soil for some time is indicated by the prevalence of swamp plants, including a number of mature specimens.





Above: Basic map of Carranya showing the approximate location of the original waterway and swampy depression, along with contours of height above mean sea level. The fence designates the boundary between farm and region being returned to EVC status. Courtesy Greg Holland.

With the assistance of Main Creek Catchment Landcare Group, the landholder has begun revegetating P2.

In the north-eastern corner of P1, extensive pine tree removal has been undertaken and large piles are scheduled to be burnt. A high level of inkweed infestation is occurring that will require control prior to planting. Moderate amounts of natural regeneration are occurring on the edges.

**Works recommended for biolink**

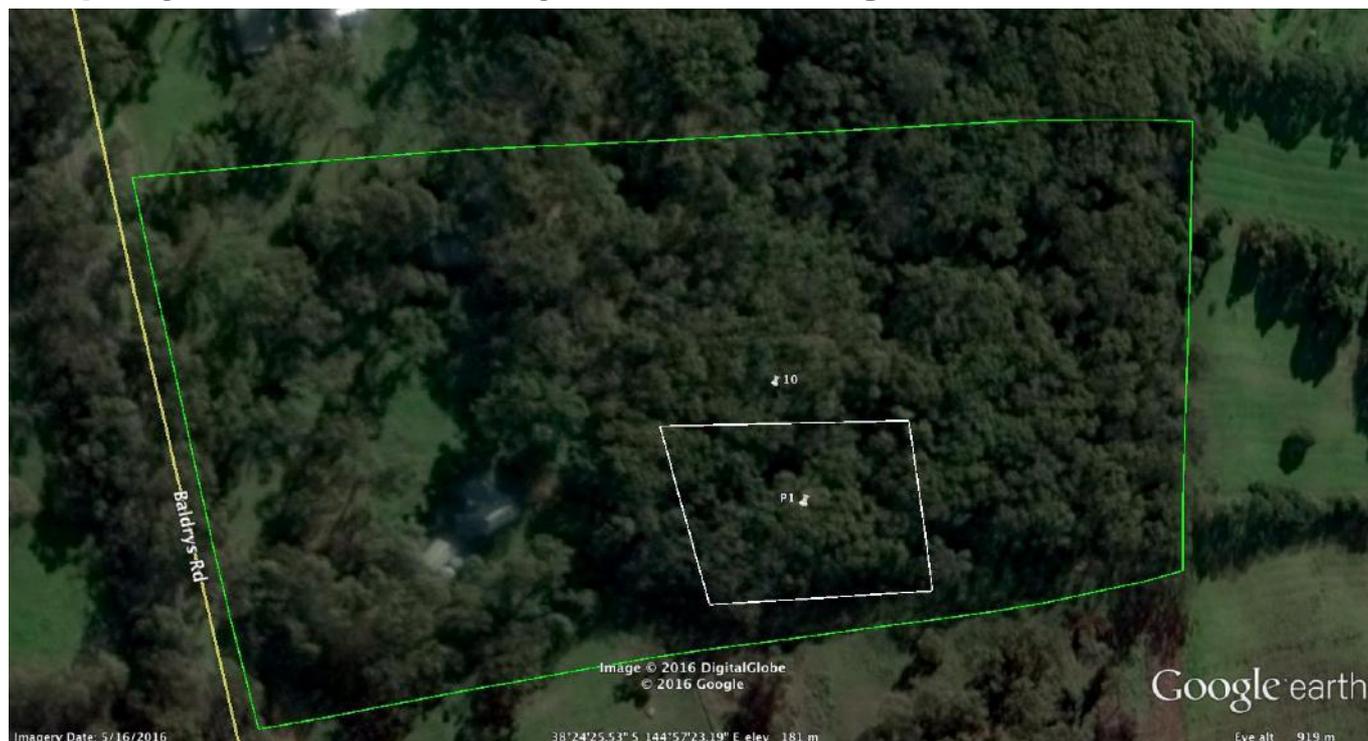
No. of polygons	2
Area in polygons (measured flat from above)	2.19 ha

- P1, a large revegetation area requires a small amount of woody weed control for mature inkweed that require cut/paint technique in order to control. Site preparation in the form of spraying circles for revegetation is required 2-4 weeks prior to planting.
- P2 requires infill planting of the existing shelter belt planting

**EVCs onsite**

EVC 23 - Herb-Rich Foothills Forest, EVC 3 - Damp Sands Herb-Rich Woodlands.

## Property no. 10, 368 Baldrys Rd, Main Ridge



Property 10, 368 Baldrys Rd

This is a property of approximately 5.5ha, at least 1/3 of which is dedicated to conservation. The property slopes down to west from Baldrys Rd is divided up roughly four zones. The first to the west is the houseblock, east of that the middle block is lightly timbered with indigenous trees and grazed by horses, with the exception of P1, a fenced wetland area of just under 0.5 ha.

The final zone to the east of roughly 1 ha is fenced off from livestock and has been managed for conservation by the landholders who have undertaken extensive weed control. It is good quality messmate forest - EVC 16 Lowland Forest (V) - with intact understorey.

### Relevant works to date

The landholder has established a wetland area in P1 in a natural depression adjacent to an existing dam. In addition to minor excavations, this area was revegetated with species of the EVC 83 Swampy Riparian Woodland.

Regular weed control work has been conducted throughout the 1 ha conservation block to the east. Two species of weeds, banana passionfruit and inkweed, have been missed due to plant identification issues. This has been rectified and these weeds are to be treated by the property caretaker.

### Works recommended for biolink

No. of polygons	1
Area in polygons (measured flat from above)	0.5 ha

P1: A small amount of revegetation with ground flora species around the wetland area is required.

### EVCs onsite

EVC 16 Lowland Forest (V) and EVC 3 - Damp Sands Herb-Rich Woodlands (V).

## Property 11, 130 Valley View Lane, Main Ridge



Property 11, 130 Valley View Lane

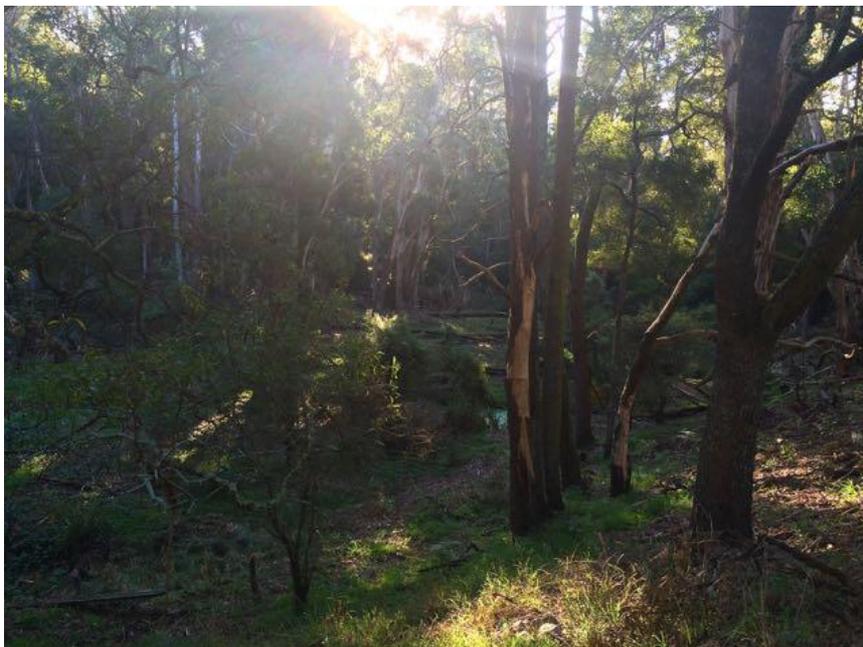
This is a 6.3 ha property with Greens Bush on its western boundary. To the east is a 5.5 ha rural property with little vegetation on it other than pasture.

Splitters Creek runs through this property from north to south and there is remnant vegetation along its entire length. The owners have undertaken successful creekside restoration with the assistance of Melbourne Water Stream Frontage program. The owners are passionate about conservation and approximately 80% of the property is dedicated to conservation.

P1 occupies the entire western half of the property and contains moderate to high level of infestation of pittosporum and small amounts of blackberry. Weed control has been Approximately 10 700m<sup>2</sup> have been treated (Pittosporum cut, painted and removed). This has allowed for a significant amount of ground flora species to regenerate on the site. The remaining area is yet to be treated. There is potential for some revegetation along fencelines in the paddock between house and creek. This paddock is occasionally used for a horse but infrequently. Approximately 500m<sup>2</sup> could be revegetated.

The central portion of P1, identified as P1a, has already been treated and has been separated into a separate polygon with only follow-up weeding planned.

Linear creek frontage	140m
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Property 11

### Relevant works to date

- Woody weed and blackberry control works conducted on the streamside with assistance of Melbourne Water Streamside Grant
- Woody weed control works conducted in P1a by contractors, at landholders own cost.
- Woody weed control works conducted in P1 by landholders themselves (own labour).

### Works recommended for biolink

No. of polygons	2
Area in polygons (measured flat from above)	3.66 ha

- There are piles of branches & logs in some of the paddocks. Rather than burning them, the more substantial pieces (especially hollow ones) should be moved into (P1).
- Follow up of Blackberry and ground flora weeds in regenerating area of P1 (P1a). This will encourage the natural regeneration of indigenous ground flora species and prevent the establishment of invasive ground flora weeds such as *Erharta erecta*.
- Treatment of woody weeds throughout the remaining area of P1, approximately 25 000m<sup>2</sup>. Weeds are mostly pittosporum, and the cut, paint and removal of larger pittosporum is allowing for rapid regeneration of ground flora species and is recommended to be continued.

### EVCs onsite

EVC No 3 Damp Sands Herb-rich Woodland

## Property 12, 410 Barkers Rd



Property 12 (note that works area not mapped because proposed works are scattered throughout property in small areas).

Existing bushland throughout this property has very high quality of ground flora vegetation with the presence of diverse herbaceous species including many wildflowers and orchids (5 species identified) not present on other sites in the biolink. This is largely due to the fact that the site has never had any stock on it. The site has extensive *Microlaena* grasslands with small infestations of flat weeds which the landholder has under control. A variety of specimen native plants have been planted throughout the property.

### Works recommended for biolink

Approximately 6-8 mature pittosporum toward back of property and Old Main Creek Rd side of property are to be removed. One mature Desert Ash to be controlled. Small amount of blackberry to be cut and paint due to high diversity of species. A medium patch of African corn-flag to be wiped.

### Nearby public land

Main Creek Catchment Landcare Group is very aware of the importance of weed control on the public land which surrounds and crosses through the biolink area. It has spoken with the Shire Natural Systems Team officers regarding weeding Macphersons Lane which was recently opened up for electricity supply line management. It was agreed that such weeding was highly desirable. Management of the triangle of public land between Main Creek Road, Barkers Road and the extension of Old Main Creek Road was also raised.

This Landcare Group recognises that the Shire is underfunded for weed management, but will work cooperatively with the Shire to achieve a positive outcome on these matters. It may be possible to hold a working bee for that purpose once commitments to present ongoing project are underway. The Group will also be approaching the MP Shire and Melbourne Water regarding active weed control at the Baldrys Crossing picnic area

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 Main Creek Catchment Landcare group urge biolink landholders and other local residents to approach Mornington Peninsula Shire 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.

## **Where to from here? For biolink landholders and Main Creek Catchment Landcare group**

### **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 Main Creek Catchment 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 Main Creek Catchment region. After all, you have now met each other, and know about each others' 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 Main Creek Catchment 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: Main Creek biolink works plans and costings estimates**

See spreadsheet 'Appendix 1'.

## **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, Pampas 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. 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 as 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 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 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>