



9 Valleys Wildlife Corridor Project

Property Site Inspection

“Fitzroy” Martindale Road

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1 Introduction

The 9 Valley Wildlife Trail encompasses Jerry's Plains, Martindale and Sandy Hollow areas. These sites have been recognised for their significant ecological values and identified management requirements to improve condition, connectivity and resilience of native vegetation communities and their habitat.

The 9 Valleys Project engaged directly with the Martindale community through an information session, site assessments and a technical workshop to identify existing biodiversity values and opportunities to retain, protect and enhance these values through suitable on-ground activities to improve landscape connectivity across the Hunter Valley.

A small number of properties participated in site assessments to identify biodiversity values present and opportunities to connect vegetation patches internally and to neighboring properties.

A site assessment was undertaken of FITZROY Martindale which involved a rapid vegetation survey, to identify and confirm vegetation communities present, while also gathering the following information:

- Habitat features including presence of habitat trees, fallen logs, burrows etc.
- Location of all identified vegetation communities, habitat features, potential areas for restoration planting, potential regeneration areas
- Land management issues including weed infestations, pest species
- Location of appropriate tree planting sites to connect contiguous vegetation patches and landscapes
- Areas suitable for restoration i.e. broad scale restoration to increase native grass species diversity
- Endemic tree species and appropriate spacing of trees (based on the existing vegetation communities) to be used in rehabilitation works.

It should be noted that the site assessment was conducted as a "rapid assessment" and was not intended to identify and map all landscape and biodiversity features. The assessment was designed to provide a snap shot of the key biodiversity values to inform advice on restoration and connectivity potential.

This report details advice based on the funding's of the site assessment.

2 General Property Description

The property is located between Wollemi National Park to the east and the south, and Martindale Creek to the west. The property contains some 76 hectares of agricultural land, currently supporting pasture and cattle grazing. The property is largely cleared as a result of past intensive grazing practices (Refer to Features Map 1).

The Martindale Creek is a major feature of the property providing a natural property boundary along the entire western side which is approximately 1.320 kilometres long. To the north (Riparian 1) the creek line spans approximately 465m, here the riparian zone is, on average, 60m wide (centre of creek to end of vegetated area) with the embankment mostly intact, containing good vegetation cover with minimal evidence of erosion. To the south (Riparian 2) the creek line spans approximately 850m, here the embankment is more degraded and weed infested. The creek line is predominantly fenced; there are sections of the creek line where cattle are able to graze.

Past intensive grazing practices immediately adjacent to the riparian zone (Area 1) has reduced the overall diversity of native grass and ground cover species (herbs, rushes and ferns). Given the extent of overgrazing, use of this area for pastureland will likely be difficult without undertaking regeneration and soil improvement activities. The landowner has removed cattle from these intensively grazed areas to improve soil condition and regeneration of native species that may be present.

Along the centre and eastern corner of the property is currently being utilised as pasture land. There is also evidence of native regeneration (Area 2), predominantly Eucalyptus trees, native grasses and ferns.

The cleared land to the centre and east of the property currently supports cattle grazing, however is showing evidence of natural regeneration of a number of Eucalyptus species, native grasses and ferns.



Map 1: Property Features

3 Property Inspection Method

Date of Inspection

The inspection was undertaken with the landowner on the 26th August 2016

Duration of Inspection: 2.0 hours

Inspection Area

The following areas were inspected:

- Proposed ecological burn and existing cattle exclusion zone (A1)
- Native woodland regeneration area (A2)
- Riparian Zones 1 & 2
- Northern and southern property boundary areas (A5 and A6).

The assessment involved identifying the presence of:

- Vegetation Type, extent and condition (within a representative 0.04ha area). This involved undertaking two rapid vegetation surveys within the Riparian Zone 1 and the Eucalypt woodland regeneration within Area 2 east of the property (Map 1). The survey involved identifying dominant plant species included in Tables 1 and 2 below
- Habitat features including tree hollows, fallen logs and dead stags
- Assess condition and structure of the riparian zone.

Identification of management issues, inspecting for the presence of:

- Evidence of pest species
- Soil Erosion
- Priority weed infestations
- Impact of cattle on the riparian zone.

Identify the presence of:

- Existing and potential natural regeneration areas (A1 & A2)
- Potential restoration areas to improve landscape connectivity.

Overall focus of the Site Assessment was to:

- Provide advice on improving the condition of Area 1 and Area 2
- Assess the native woodland regeneration area and investigate the possibility of thinning out some of the regenerating Eucalypts, which are growing very close together
- Inspection of existing weed infestations within the riparian zone and identify priorities for control
- Identify appropriate locations for the creation of connectivity stepping stones and shelter belts.

4 Outcomes

4.1 Vegetation Type

Riparian Zone 1

The overall condition of the Riparian Zone 1 is moderate to good. There is evidence of scattered to patchy weed infestation. The vegetation structure is dominated by multiple native canopy species with sparse to dense mid storey layer. The ground layer is dominated by introduced grasses and native rushes.

Riparian Zone 2

Due to past vegetation clearing and cattle grazing, the overall condition within Riparian Zone 2 is poor to moderate. The weed infestation is mostly scattered to patchy and in some areas contains widespread *Cestrum* infestations. However this zone also contains good native species diversity within the Canopy, mid and ground layers despite greater site disturbance.

Table 1: Dominant Plant Species in the Riparian Zone

| Stratum | Species | Common Name |
|---------------|--------------------------------|-----------------------------------|
| Canopy | <i>Eucalyptus spp.</i> | possibly Grey box need to confirm |
| | <i>Brachychiton populensis</i> | Kurrajong |
| | <i>Angophora floribunda</i> | Rough barked apple |
| | <i>Casuarina spp.</i> | She-oak |
| | <i>Notelaea microcarpa</i> | Native Olive |
| Mid Storey | <i>Melicytus dentatus</i> | Tree Violet |
| Ground Storey | <i>Lomandra longifolia</i> | Spiny Head Mat Rush |
| | <i>Lomandra multiflora</i> | Many Flowered Mat Rush |
| | <i>Microleana stipoides</i> | Weeping Meadow Grass |



Photograph 1: Area of Riparian Zone where Vegetation Assessment Occurred

Table 2: Dominant Plant Species in the Pasture Area

| Stratum | Species Name | Common Name |
|------------|------------------------------------|------------------|
| Canopy | <i>Eucalyptus blakelyii</i> | Blakely's Redgum |
| | <i>Allcasuarina leuhmannii</i> | Bull-Oak |
| Mid Storey | <i>Acacia spp (bipinnate spp.)</i> | |

4.2 Habitat Features

The key habitat features noted during the property inspection include:

Riparian Zone 1 & 2

Riparian Zone 1 - contains a mix of native and exotic species (refer to Table 1). The canopy species is well established and mature providing foraging and roosting habitat for a range of birds and arboreal mammals including threatened species such as Glossy Black Cockatoos, Grey-headed Flying Foxes and Squirrel Gliders. The riparian Zone provides habitat for the Common Wombat; multiple extensive burrows were noted during the site inspection.

There is also evidence of native sapling recruitment indicating that the riparian zone is in good health.

Tree Hollows

The natural regeneration Area2 contains five mature trees with hollows (possibly Blakely's Red Gum, *Eucalyptus blakelyii*). In addition just south of A4, there are also a number of mature Eucalyptus trees which may also contain small hollows. Both sites provide corridor stepping stones potentially linking the mountain areas to the riparian zone. Improving partial regeneration of these areas through cattle exclusion would increase these linkages.

No tree hollows were noted within the Riparian Zone.

Fallen logs and Dead Stags

Debris and fallen logs were noted along the riparian zone providing important habitat for ground dwelling reptile and amphibian species. The riparian zone also provides habitat for wombats with evidence of multiple burrows along the creek banks.

4.3 Threatened Flora and Fauna

No threatened flora or fauna species were recorded during the site inspection. The OEH wildlife database (accessed November 2016) has records of a number of threatened fauna species located in Wollemi National Park to the north and south-east of the property, including:

- Speckled Warbler (approximately 550m north east of the property)
- Squirrel Glider (approximately 420m north east of the corner boundary).
- Little Lorriquet
- Brush-tailed Rock Wallaby (approximately 350m south east of the corner boundary).

4.4 Management Issues

Noxious and Environmental Weeds

A number of Noxious and environmental weed species were identified within the riparian zone and are detailed in Table 3.

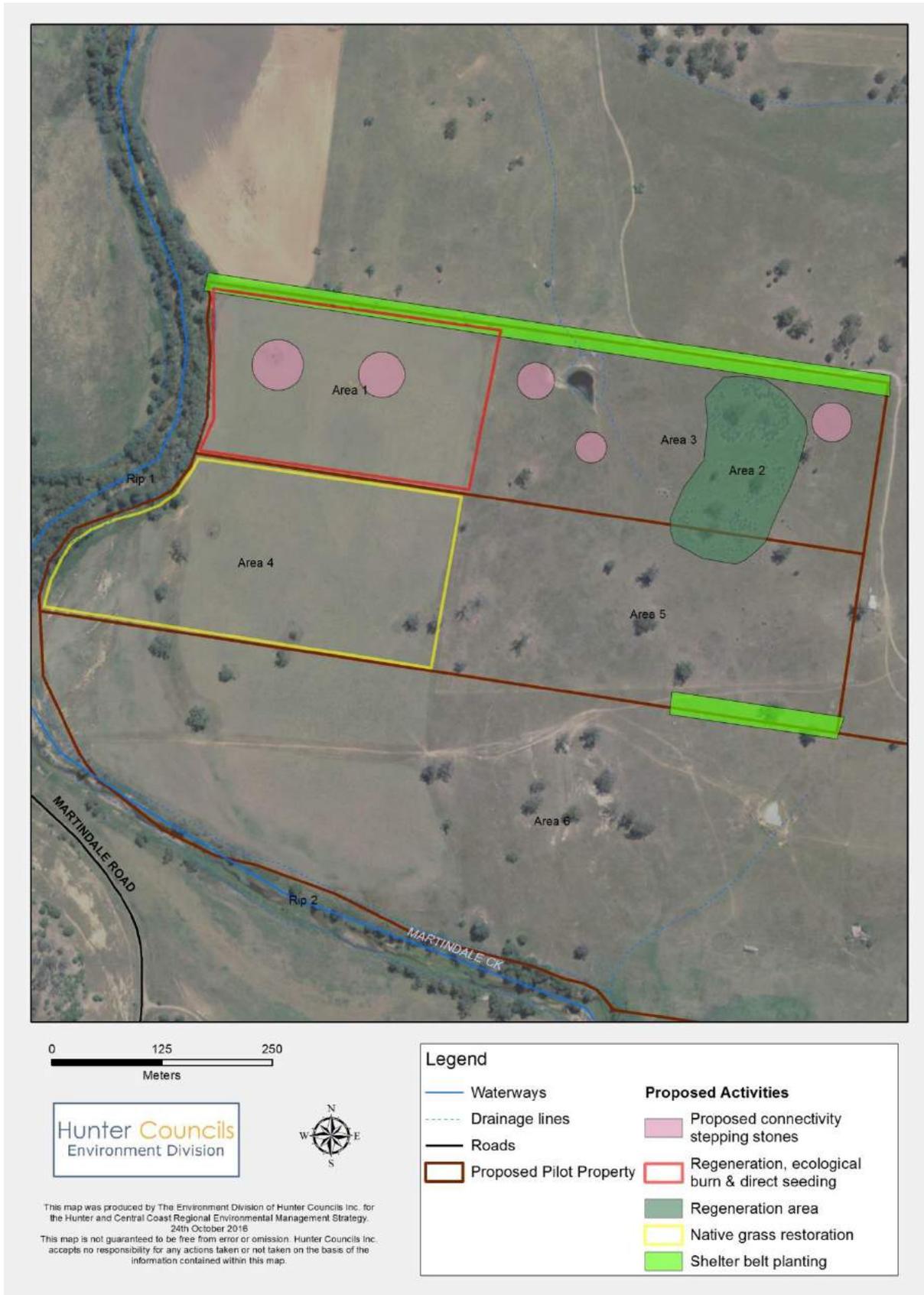
Table 3: Weed Species Located in the Riparian Zone

| Infestation | Species Common Name | Scientific Name | Weed Class |
|--------------------------------|-----------------------------------|----------------------------------|----------------------------|
| Scattered to widespread | Cestrum (Riparian Zone 1 & 2) | <i>Cestrum parqui</i> | Class 3 Noxious |
| | African Boxthorn (Area 1, 4) | <i>Lycium ferocissimum</i> | Class 3 Noxious |
| Scattered / Patchy | Patersons Curse (Riparian Zone 2) | <i>Echium plantagineum</i> | Environmental |
| | Galenia (Riparian Zone 2) | <i>Galenia pubescens</i> | Environmental |
| | Blue Heliotrope (Riparian Zone 2) | <i>Heliotropium amplexicaule</i> | Regionally prohibited weed |

5 Managing and Enhancing Conservation Corridors (proposed on-ground activities)

The 9 Valleys Wildlife Trail project is primarily focused on developing functional wildlife corridors throughout the Jerrys Plains to Giants Creek region. As such a number of opportunities exist that would enable the creation of an east / west 'stepping stone' corridor through the 'Fitzroy' Property. Please note there are a number of other opportunities that exist that would increase the extent of wildlife habitat throughout the property, but the proposed actions included in this report are limited to the area of the site inspection.

Following are details of the management priorities identified during the site inspection. The location for each of these actions is detailed on Map 2.



Map 2: Proposed on-ground Activities

5.1 Landscape Connectivity (Stepping stones and Shelter belts)

Stepping Stones

Stepping stones or landscape connectivity is the connection of two patches of vegetation which are isolated or devoid of any vegetation features. There is opportunity to improve connectivity along the northern side of the property which may involve:

- Planting endemic native species including a mix of trees, shrubs and ground covers to create habitat suitable for woodland birds and arboreal mammals within a number of identified stepping stone locations (covering a 100 square metre area) along Area 1 and Area 3 which could potentially link the riparian zone to the National Park.

Shelter Belts

Creating shelter belts have a number of benefits including protection of livestock from extreme temperatures and strong winds, provides both roosting and foraging habitat for native animals, prevent soil and wind erosion and also protection from fire. A number of shelter belts have been identified on the property and include:

1. Create shelter belts along the eastern boundary (A1 and A3). These shelter belts should be at least 5 metres wide and located at least 2 metres from the fence line. A mix of endemic Eucalypt species as well as lower growing species such as *Allocasuarina*, *Acacia* should be planted. This planting will link with the existing native tree regenerating area currently being utilised for pasture.
2. Along the south eastern property boundary between A5 and A6 the creation of shelter belts would benefit both cattle and also create suitable fauna habitat eventually connecting to existing established paddock trees.



Photograph 2: Identified shelter belt planting site northern boundary of A3



Photograph 3: Potential site for shelter belt planting (eastern boundary A6 facing south)

5.2 Native Regeneration Activities

Fencing Riparian Zone

Both Riparian Zones 1 and 2 are currently fenced to exclude cattle from accessing the creek bank. There are sections of the fence where cattle can still access the riparian zone. It is proposed that the remaining sections of the riparian zone are fenced to further reduce the impact of cattle on native vegetation and also reduce bank and soil erosion.

Fencing the Regenerating Woodland Area 2

A section of the existing native regeneration area to the north east of the property could be fenced to exclude cattle. This area would link in with the native vegetation on the adjacent National Park land Map 2. Excluding cattle from this site would also encourage regeneration of mid storey species important woodland habitat.



Photograph 4: Proposed regeneration area to be fenced to exclude cattle (Area 2)

5.3 Broad Scale Native Grass Restoration

Both Area 1 and Area 4 are fairly degraded with a dense monoculture of introduced grasses and annuals. The landowner has removed cattle from the fenced site to improve the soil condition and to encourage native regeneration.

Area 1 has been identified as a potential site for assisted native grass restoration to increase native species diversity and also improve soil condition.

A number of options are available and include:

1. Site preparation – undertake comprehensive weed control of all introduced grass and annual species including African Love Grass, Fireweed, Thistles etc. in accordance with the DPI Noxious and Environmental Weed Control Handbook
2. Avoid any areas where native grass species are regenerating
3. Refer to the work Mt Annan Botanical Gardens have undertaken to restore grassy woodlands following weed control (Section 6). This may include direct seeding of grasses or establishing a seed production area.



Photograph 5: Potential direct native grass seed restoration site and scheduled ecological burn site (Area 3)

5.4 Ecological Burn

An ecological burn covering a 1.5ha area (within Area 1) has been scheduled by the Rural Fire Service in November 2016 to encourage natural regeneration of native grasses and potentially shrub and tree species.

Currently there is little evidence of native regeneration within the cleared and overgrazed pasture Areas 1 and 4. African Lovegrass was originally introduced in an attempt to improve pasture and as a result displaced most of the native species.

The ecological burn will potentially reduce weed species infestations; encourage native grass species regeneration and improve soil condition. The landowner also plans to designate this area as pasture land on a rotational basis.

5.5 Weed Control

Riparian Zone

The main priority weeds identified within both Riparian Zones 1 and 2 include:

Cestrum – is widespread along sections of the creek line. Please note any widespread infestations along the steep sections of the embankment should be inspected by the Department of Primary Industries & Water (Section 6) to ascertain the appropriate weed control methodology for the site. Options include:

- Continuation of the current machinery based removal process - the landowner has commenced physical removal of Cestrum from sections of the creek line within Riparian Zone 2 (using machinery)
- Apply cut/paint control method (in accordance with the Noxious and Environmental Weed Control Handbook) to scattered and patchy infestations (this should reduce disturbance and erosion along the creek bank). Infestations are concentrated under canopy areas – care is to be taken not to impact on native trees and shrubs.

African Boxthorn – is predominately scattered to patchy throughout both riparian zones but more concentrated within Riparian Zone 2. The following control options include:

- Cut/paint scattered individuals
- Foliar spray or basal bark herbicide application of widespread infestations - as per the Noxious and Environmental Weed Handbook
- Control all juvenile plants

Galenia – is predominantly scattered to patchy and is concentrated along sections of Riparian Zone 2. Infestations are currently not widespread. It is important to monitor infestations and ensure that they do not begin to invade and spread throughout the riparian zone.

Pasture Lands

The main problematic weeds which were observed outside the riparian zone include African Boxthorn. These infestations are predominantly scattered to patchy and concentrated under tree canopies.

6 Further Information and Resources

African Boxthorn Control

www.dpi.nsw.gov.au/_data/assets/pdf_file/0004/206176/African-boxthorn.pdf

African Love Grass Control

Cuneo. P, Scott. J, Catelotti. K. 2016. *'Seed Production and Direct Seeding to Restore Grassy Understorey Diversity at Mt Annan'*, Mt Annan Botanical Gardens.

[Galenia pubescens - NSW WeedWise - NSW Government](#)

Green Cestrum Control

www.dpi.nsw.gov.au/_data/assets/pdf_file/0004/235408/Green-cestrum.pdf

<https://site.emrprojectsummaries.org/2016/03/05/seed-production-and-direct-seeding-to-restore-grassy-understorey-diversity-at-mount-annan-nsw/>

Paterson Curse Control

[Paterson's curse - NSW WeedWise - NSW Government](#)