Upper Campaspe Landcare Network

UPPER CAMPASPE LANDCARE NETWORK (UCLN)

2015 Strategic Plan

Above: Students from Woodend Primary School on their way to the Campaspe River to help Ashbourne Landcare on a planting day.

*Front cover photo: A male Golden Whistler (*Pachycephala pectoralis*), one of the most beautiful songsters of the Wombat Forest. Usually solitary, the birds start pairing for breeding in spring, their persistent, clear, ringing musical calls are heard throughout the day.*

Acknowledgment of Country

The Upper Campaspe Landcare Network acknowledges Aboriginal Traditional Owners within the region, their rich culture and spiritual connection to Country. We also recognise and acknowledge the contribution and interest of Aboriginal people and organisations in land and natural resource management.

Disclaimer

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Upper Campaspe Landcare Network

NORTH CENTRAL Catchment Management Authority

Connecting Rivers, Landscapes, People

THE NORMAN WETTENHALL FOUNDATION

State Government Victoria

www.uppercampaspelandcare.org.au

Executive Summary

Overview

The Upper Campaspe Landcare Network (UCLN) is made up of 16 local Landcare groups that have the Campaspe River or its tributaries running through their areas. This document provides an overview of the Upper Campaspe region and the collective aspirations, vision and direction for the Network and its member groups over the next five years.

Landcare groups in the Network are actively involved in projects such as protecting waterways, restoring native vegetation, preserving and enhancing wildlife habitat, building walking tracks and interpretive signage in reserves. They also establish wildlife corridors, biolinks and develop partnerships with community groups e.g. schools, while providing community education about environmental issues. They also develop local community environmental focused social networks.

This strategy summarises the natural and cultural values of the region and highlights those parts most valued by the Landcare community and how groups have historically contributed to their enhancement and protection. It outlines the asset based approach to our strategic planning process, to better identify what we are trying to protect and how to do it.

This plan was developed in collaboration with the 16 Landcare groups through strategic planning workshops and individual group consultation. Groups identified their key assets and their most significant on-ground achievements, analysed common themes and challenges. The role of the Network 'umbrella' group was examined and network and ecological objectives developed.

What's in the document:

- Strategic context and background of the strategy development
- Network and ecological principals
- Physical description of our catchment; climate, indigenous heritage, flora and fauna, soils and member groups
- Asset based approach to land management
- Key assets and values
- Key biolinks and buffers
- Key recommendations

Where to from here

This is the first step in the ongoing development of planning and collaboration between local Landcare groups and the Network. The process has highlighted the impressive and extensive works undertaken by Landcare groups in the Campaspe catchment and identified how the Network can best support them.

Seven 'network' and six 'ecological' objectives have been identified and are detailed in this document. A common vision has been developed. *"The Upper Campaspe is populated with caring communities working together to protect biodiversity, create connectivity across the landscape and a healthy, productive region now and in the future."*

Some preliminary activities have already been identified to aid groups. A key outcome has been highlighting the need for the Network to facilitate future collaboration and planning within and between groups. Two critical foci have been identified for action:

1. Improve our knowledge of our assets, key threats and develop targets and actions to address them.
2. Develop cluster groups around identified biolinks, buffers and other landscape zones or shared issues.

Our outcomes

We will improve our knowledge of the environmental assets and the key threats to them within the region and develop targets and actions to address them.

We will identify wildlife corridors, biolinks and buffers to protect threatened species and link remnant vegetation.

We will establish communication across the groups to work together to create these outcomes.

We will build on individual Landcare groups' significant achievements by effectively working together and achieving greater outcomes for the local environment.

How to use this Strategy

This document, which has been developed in collaboration with our Landcare groups, provides a snapshot of the Upper Campaspe region and the collective aspirations of its Landcare groups at a particular point in time. As the beginning of a planning process, it is the first step in a long term and ongoing process of planning and collaboration between groups and for the Network.

Section 1 – Introduction

Gives an overview of the role of the Network and outlines how this strategy was developed.

Section 2 – Network objectives

Outlines the ecological and social goals, and overall objectives, as identified by Landcare Groups through the strategic planning process.

Section 3 – Our catchment

Summarises the physical features of the Upper Campaspe region, including the flora, fauna, soils, and climate. This section also includes information on member groups and their achievements.

Section 4 – Catchment assets

Maps and documents the assets of our region as identified by our groups. An analysis of our assets, their health and identification of 'focal areas' is also included in this section.

Section 5 – Where to from here

Outlines the next steps in the planning process from here, and how the results of this strategy will inform the activities of the Network.

Several hundred-year-old Red Gums growing along the Campaspe River at Langley. Due to their age, and hollows, they provide important habitat for native fauna.

Contents

Section 1 – Introduction

Our vision

The following vision was crafted by member groups.

"The Upper Campaspe is populated with caring communities working together to protect biodiversity, create connectivity across the landscape, and a healthy, productive region now and into the future."

Riperian vegetation in the Campaspe region.

Who we are

The Upper Campaspe Landcare Network (formerly called the Upper Campaspe Combined Landcare Groups) was formed seventeen years ago, as a result of a number of Landcare groups working together to deliver a large Natural Heritage Trust Grant.

Over the years, the Network has secured and distributed funding through Envirofund, Community Water Grants and Second Generation Landcare Grants, employing a coordinator for much of the time. Much of the history of the Network has been lost due to a lack of archiving of material over time and lags in activity due to lack of funding. Much has been achieved on ground both by the Network and its member groups over this time however, there is little record of on-ground works funded or overseen by the Network. An ongoing task is to collate and archive this information digitally, and to make this information accessible to member groups. Most recently the Network has been successful in obtaining Bushfire Recovery funds, Parks Victoria grants, Second Generation Landcare Grants and Victorian Local Landcare Facilitator Initiative funding to undertake a number of projects, as well as employ a local facilitator, for the last three years.

The Network currently represents sixteen Landcare and related groups active in the Upper Campaspe catchment including: Woodend, Ashbourne, Tylden, Trentham, Malmsbury, Carlsruhe, Pipers Creek, Campaspe Valley, Baynton-Sidonia, Langley, Newham, Taradale and Metcalfe Landcare Groups, Campaspe River and Land Management Group, Friends of Bald Hill and Friends of Black Hill.
See Map 1: 'The Upper Campaspe Landcare Network area and Member Groups' on the next page.

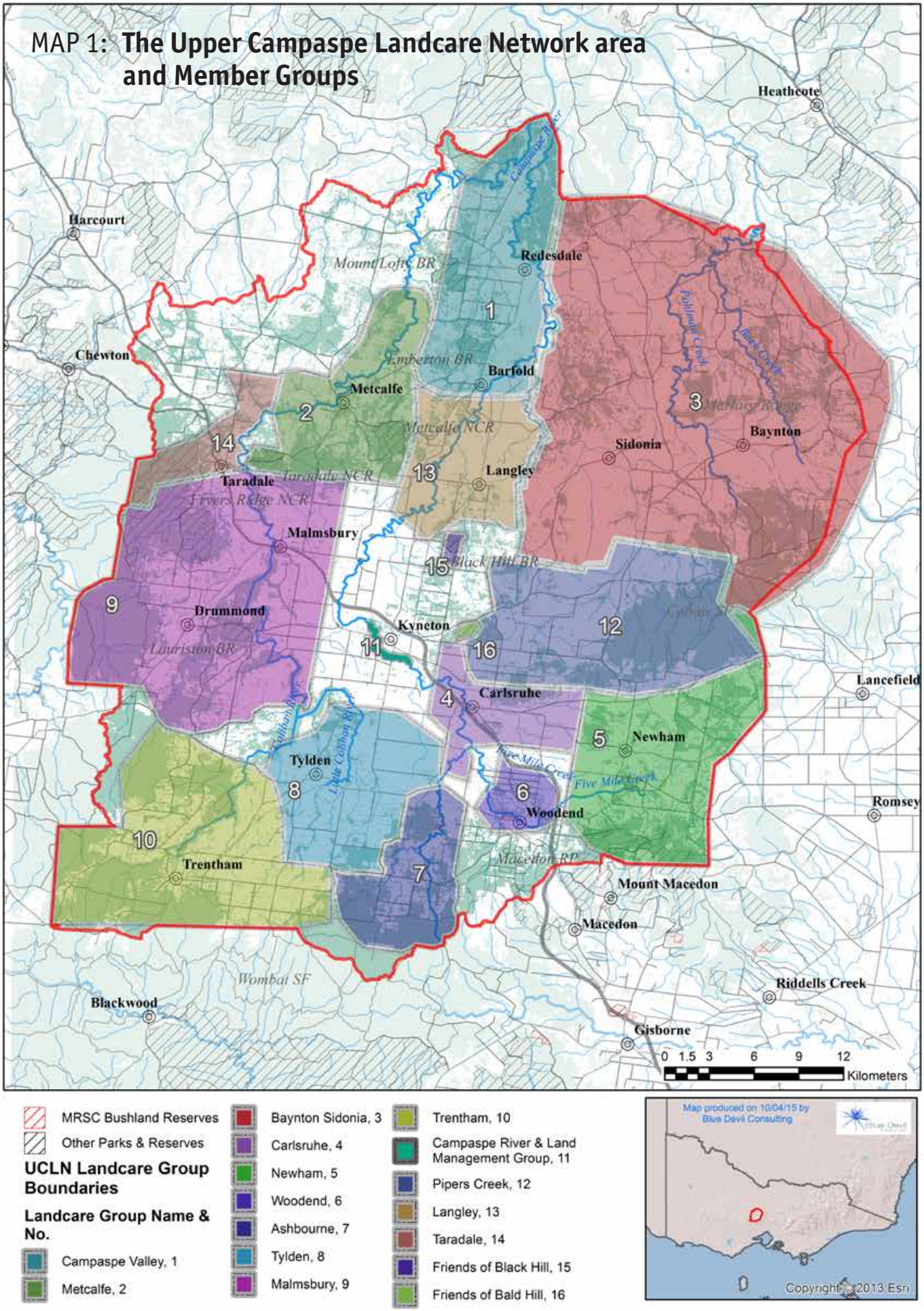
Strategic background

In September 2010 the Network undertook a strategic planning activity. At the time, a facilitated workshop identified that the highest priorities for the Network were to:

- communicate and actively engage all groups within the Network
- educate a new 'green' demographic
- green townships within the Network
- coordinate sustainable land management
- reduce duplication and ease community burn out.

In April 2013 the Network undertook a Business Planning process to further strengthen and focus the activities of the Network and the committee. Some of the roles identified for the Network as part of this process included:

- bringing member groups together
- coordinating information sessions
- developing cluster groups to facilitate member groups working together
- develop common projects between member groups
- identifying unifying issues between groups
- securing ongoing funding for facilitator
- connecting with member groups in the north of the catchment (Mt Alexander Shire)
- regional record keeping
- connecting with the younger demographic and school groups
- building trust and developing credibility with existing groups.


MAP 1: The Upper Campaspe Landcare Network area and Member Groups
Heathcote
Harcourt
Redesdale
Mount Lofty BR
Chewton
Emberton BR
Barfold
Metcalfe
Metcalfe NCR
Sidonia
Baynton
Taradale
Taradale NCR
Langley
Rivers Ridge NCR
Malmsbury
Black Hill BR
Drummond
Kyneton
Lauriston BR
Carlsruhe
Lancefield
Newham
Tylden
Five Mile Creek
Woodend
Romsey
Trentham
Macedon RP
Mount Macedon
Macedon
Wombat SF
Riddells Creek
Blackwood
Gisborne
0 1.5 3 6 9 12
Kilometers
MRSC Bushland Reserves
Other Parks & Reserves
UCLN Landcare Group Boundaries
Landcare Group Name & No.
Campaspe Valley, 1
Metcalfe, 2
Baynton Sidonia, 3
Carlsruhe, 4
Newham, 5
Woodend, 6
Ashbourne, 7
Tylden, 8
Malmsbury, 9
Trentham, 10
Campaspe River & Land Management Group, 11
Pipers Creek, 12
Langley, 13
Taradale, 14
Friends of Black Hill, 15
Friends of Bald Hill, 16
Map produced on 10/04/15 by Blue Devil Consulting
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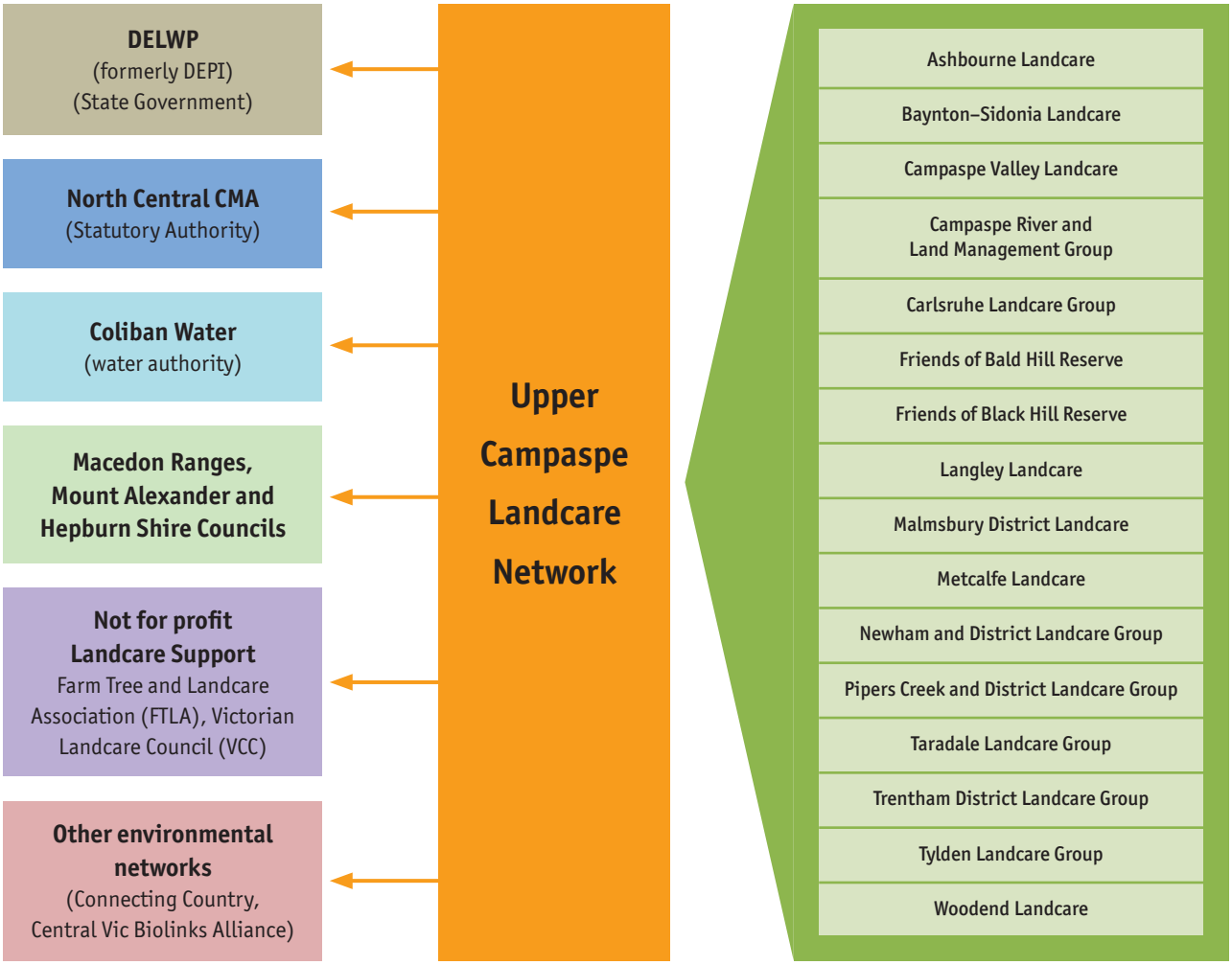
Who's who in the Landcare scene



Acronyms used in this document

CMA	Catchment Management Authority
DELWP	Department of Environment, Land, Water and Planning (Victorian State Government)
EVC	Ecological Vegetation Class
IPPC	Intergovernmental Panel on Climate Change
MAS	Mount Alexander Shire
MRIMAG	Macedon Ranges Indian Myna Action Group
MRSC	Macedon Ranges Shire Council
MYa	Million years ago
NCCMA	North Central Catchment Management Authority
NRM	Natural Resources Management
RCS	Regional Catchment Strategy (North Central CMA)
RWS	Regional Waterway Strategy (North Central CMA)
SoE	State of the Environment (Mount Alexander Shire report)
UCLN	Upper Campaspe Landcare Network (previously known as Upper Campaspe Combined Landcare Groups)

Strategic context

The following table outlines the key environmental agencies at work within the region, and the context of their plans to the Network.

Agency	Strategy	Details
North Central CMA	Regional Catchment Strategy 2013	The Regional Catchment Strategy is a key planning document that sets regional priorities for the future management of natural resources across the North Central CMA region. It provides a clear roadmap for the future investment in the regions natural assets for the next six years to achieve cost effective outcomes for government and community.
	North Central Waterway Strategy 2014–2022	The North Central Regional Waterway Strategy (RWS) is the key strategic document to guide investment and works for the region's rivers and wetlands over the next eight years.
	Invasive Plants and Animals Strategy 2010	This strategy sets clear goals and actions for invasive species management over the next five years. It outlines high-risk invasive species and priority natural assets under threat from invasive species in North Central Victoria, and highlights the importance of coordinated action and community engagement in tackling these issues.
	Landcare Support Plan 2014	This plan provides a framework for Landcare groups across the North Central CMA region for the next five years. Consistent with the 2012 Victorian Landcare Program Strategic Plan – Supporting Landcare, it outlines the five functions of Landcare that the North Central CMA will support including; Operate, Engage, Collaborate, Do and Tell.
Department of Environment, Land, Water and Planning (DELWP)	Victorian Waterway Management Strategy 2014	The Victorian Waterway Management Strategy provides the framework for government, in partnership with the community, to maintain or improve the condition of rivers, estuaries and wetlands. The framework is based on regional planning processes and decision-making, within the broader system of integrated catchment management in Victoria.
	Biosecurity Strategy for Victoria 2014	This strategy covers threats to primary industries, the environment, social amenity and human health, across Victorian public and private land, freshwater and marine habitats. Its primary focus is on new and emerging high-risk threats, rather than on established threats that are currently managed by government, industry, the community or other parties.
	Invasive Plants and Animals Policy Framework 2014	This framework presents the overarching Victorian Government approach to the management of existing and potential invasive species, within the context of the *Biosecurity Strategy for Victoria*. *It replaces the former policy, the Victorian Pest Management – A Framework for Action, 2002*.

Agency	Strategy	Details
Macedon Ranges Shire Council	Environment Strategy (under review)	The strategy is structured around environmental themes including healthy ecosystems, sustainable land management, water quality, climate change, recycling, waste, air quality, and sustainable water use. It outlines actions Council will take to address the themes. Currently being reviewed.
	Weed and Pest Animal Strategy 2014–2024	The purpose of the *Weed and Pest Animal Strategy* is to: • Identify a set of Council priorities for weed and pest animal control actions • Establish a weed and pest animal management framework which takes an asset based protection approach and is effective and cost efficient • Build the capacity of the local community in invasive weed and pest animal management • Facilitate integrated management of public and private land • Establish a robust monitoring, evaluation, review and improvement program
	Open Space Strategy 2014	The Open Space Strategy provides direction to Council for the planning and provision of open space within the Shire in an ongoing manner over the next ten or more years. The strategy complements Council's Natural Environment Strategy which provides direction for bushland reserves along with site specific Bushland Management Plans.
	Macedon Ranges Planning scheme	The Macedon Ranges Planning Scheme includes a number of clauses that seek to protect the natural values of the region. These include • Living Forests policy • Cobaw Link • Environmentally Sensitive Overlays • Vegetation Protection Overlays Full details can be viewed at http://planningschemes.dpcd.vic.gov.au/schemes/macedonranges

Barfold strategic planning workshop.

Agency	Strategy	Details
Mount Alexander Shire Council	Environment Strategy 2014	This strategy provides a 'State of the Environment' (SoE) report that assesses the current state of the Mount Alexander Shire environment, a strategic framework that provides long-term direction to Council plans and decision-making and a four-year action plan that sets out the activities that will be done to implement the strategic framework. Specific themes include climate change, greenhouse and energy, land and biodiversity, urban development, planning and sustainable transport, waste and resource efficiency and water.
	Roadside Conservation Management Plan 2012–2017	This five year Plan brings together new ideas, concepts and available data to make informed management decisions and provide consistent and clear advice to the community. The objectives of the plan are: • Improve conservation values and connectedness of roadsides to bushlands and adjacent farms • Reduce fuel for fire and increase bushfire preparedness on roadsides • Reduce feral animals and control the spread of existing weeds and avoid the outbreak of new weed species on roadsides
Hepburn Shire Council	Environmental Sustainability Strategy 2011–2015	The Environmental Sustainability Strategy sets out to document the principles, markers and the actions that can be taken to become more sustainable in Council operations and provision of services to the community. The strategy is built around four themes: • Culture of Sustainability Leadership • Responding to the Effects of Climate Change, Peak Oil and Resource Challenges • Caring for Our Natural Assets • Community and Business Connection
Coliban Water	Biodiversity Strategy 2012–2016	This strategy is an integral part of the Coliban Water Sustainability Strategy and delivers on objectives of the business' Environmental Policy, including: • Minimising biodiversity loss • Managing facilities and land in a manner that demonstrates good environmental stewardship • Contributing to catchment management and promoting a conservation ethic within the community • Working in partnership with environmental stakeholders.

A strategic planning workshop under way.

How this Strategy was developed

With the employment of a Landcare Facilitator in 2012 the Network identified that to access funding, and support the actions identified in the 2010 planning session, that more in depth strategic planning needed to be undertaken.

The development of this Network Strategy aims to guide and inspire the actions of the Network over the next five years, through:

- the development of a shared vision for Landcare in the catchment
- effectively engaging with Landcare, other natural resource management (NRM) groups and land managers in the catchment
- focusing the efforts of Landcare groups in the Upper Campaspe catchment
- tapping into local knowledge to identify the key natural assets of the catchment and prioritise areas for action
- fostering a landscape scale approach to Landcare projects in the region
- being a tool to access funding to implement significant on-ground projects
- documenting the on-ground achievements of Landcare and other NRM groups in the region.

> *'It makes sense if you coordinate your actions with your neighbours.'*
>
> Penny – Newham

A number of workshops were run with the Upper Campaspe Landcare community in 2013, to begin the process of collecting valuable information on on-ground works and the assets of the region, and to begin the process of collaborative planning between groups.

The two initial workshops were held in February and April of 2013, in Woodend and Barfold respectively. At both workshops, participants were asked to identify and map the top three achievements and top three assets (as agreed by members within groups prior to the workshops) of each Landcare group. (Map 7: 'Sample of Landcare Group On-ground Works' on page 52 illustrates the breadth of works undertaken by groups in the region.)

Groups that attended the February 2013 workshop in Woodend included Woodend, Newham, Carlsruhe, Trentham, Ashbourne and Tylden Landcare.

Groups that attended the April 2013 workshop in Barfold included Campaspe Valley, Baynton Sidonia, Tylden, Malmsbury and Metcalfe Landcare.

Feedback and information was sought from groups that were unavailable to attend the workshops individually.

> *'Without a strategy, we are like a boat without a rudder.'*
>
> Phil – Campaspe Valley

A final workshop was held in September 2013 in Kyneton and attended by representatives from Newham, Campaspe Valley, Carlsruhe, Tylden, Baynton Sidonia, Metcalfe and Trentham Landcare Groups. At this workshop, the results of mapping from information collected at the first two workshops was presented to groups (see Map 7: 'Sample of Landcare Group On-ground Works' on page 52 and Map 8: 'Key Assets' on page 57). This information served as a springboard to take on the next step of the planning process; to focus on the shared approach and goals for the Network.

Key outcomes of this workshop included identification of why we should develop a Strategy, what our approach as a Network should be, key barriers that we face and our goals and objectives as a Network (our goals and objectives are outlined further on page 15).

Our Network principles

The Network principles below were developed at our final strategy meeting, they act as a guide for how the Landcare Network is run, and also influence its key activities.

Barfold strategic planning workshop.

Shared and grassroots

- Clustering neighbouring groups together to work on shared issues and goals.
- Having respect for each other, and taking a supportive approach.
- Being inclusive of different approaches across the Network.
- Allow people in groups to follow their interests and passion (we need both agriculturists and conservationists).
- Sharing education, knowledge and awareness within the Network, between Landcare groups and with the wider community.

Systematic

- To coordinate activities with the goal of establishing connectivity across the landscape – connectivity of the landscape – collaboration of the people.
- By aligning activities our efforts can be more effective.
- To be systematic in tapping into peoples passion by engaging them young, with a primary and secondary school focus.
- Have flexible Landcare boundaries within the Network so we can align landholders' passion and knowledge with appropriate groups and projects.

Science based

- That our activities and approach to Landcare is based in good science and scientific knowledge. eg. weed eradication – if you are going to control the weeds then follow up, follow up, follow up.
- That we strive to solve the big problems by researching land management science and knowledge.
- That the Network be a storehouse for knowledge and research for our Landcare members.
- We seek to have a balance between biodiversity and productivity in the landscape.

Scaled

- We work at a Landscape scale because we can be more effective ecologically – we can achieve greater successes if we coordinate action with our neighbours.
- The Network allows for collaboration at smaller and larger landscape scales depending on ecological and human system needs.
- Working together at a landscape scale enables us to team up for funding bids instead of competing.
- A larger scale Network attracts money and support, and makes for more effective lobbying.

Section 2 – Network objectives

The following Network objectives were developed from the strategic planning process and the Network's Statement of Purpose. Objectives have been split up into Network objectives (which relate primarily to the role the Network should play in supporting member groups) and Ecological objectives (the overarching ecological goals that member groups share).

Network objectives

1. Facilitate collaboration amongst Landcare groups

Facilitate and support groups to collaborate so that we can achieve larger scale ecological outcomes, acting as a communication hub for Landcare in the region.

2. Facilitate learning and solutions to barriers

The Network will:

- foster learning, knowledge sharing and solutions to barriers.
- continue to take on best practice scientific approaches.
- be the place where Landcare groups come together and learn from each other and scientific experts.
- liaise with key organisations to keep abreast of relevant knowledge and new approaches.

3. Broker partnerships

The Network will broker formal and informal partnerships with other stakeholders to enable landscape scale effort, and to ensure that efforts by community, environmental agencies and government are co-ordinated.

4. Raise awareness and promote Landcare

The Network will undertake education and awareness activities about the ecological environment: the problems, and the solutions with the community. The Network will publicise Network and Landcare member aims, approaches and activities to gain public involvement and support.

5. Be strategic

Create a strategic framework and work ethic amongst the Network to enable our vision and solutions to be implemented.

6. Map our landscape knowledge

Undertake Mapping for the region capturing our existing assets as a baseline and our desired assets as our vision. "Map our environment as was, as is, and how we would like it to be in the future."

7. Support our social capital

Support the social structure of the local community of which Landcare groups are a part, providing meaningful support to groups at the local level; accessing funding, expert advice, provision of training, advocacy and support with governance.

Our ecological objectives

*A Musky Hood Orchid (*Caladenia gracilis*).*

Herb-rich Grassy Woodland at Bald Hill Reserve near Kyneton.

*Grass Trigger Plant (*Stylidium gramnifolium*).*

Tawny Frogmouth juvenile.

1. **Connecting our biodiverse landscape: use principles of connectivity to maintain and restore a functional, biodiverse landscape.**
   - Protect and buffer large areas of remnant vegetation
   - Revegetate between large patches of remnant vegetation
   - Revegetate the understorey species missing from our landscape
   - Protect roadside vegetation
   - Protect large old isolated farm trees
   - Propagate and revegetate indigenous endangered flora

2. **Rejuvenate river systems: to rejuvenate the river systems, from the little creeks and streams to major rivers and for these river systems to act as a major link in the landscape for habitat.**
   - Improve water quality
   - Increase macro invertebrate population
   - Increase habitat for platypus

3. **A focus on endangered, flagship species and ecosystems: maintain and restore habitat for iconic, endangered and threatened species and ecosystems.**
   - Grassy woodlands –retain at least 30% in landscape.
   - Wetlands,
   - eg. Powerful Owl, Black Duck, Phascogale, Black Gum, Hairy Anchor Plant

4. **Control weeds and feral animals: take a strategic approach to controlling invasive weeds and feral animals with a focus on:**
   - Weeds – Crack Willow, Hawthorn, Gorse, Blackberry, Texas Needlegrass.
   - Feral animals – foxes, rabbits, cats, deer and Indian myna.

5. **Healthy trees: protect large old paddock trees by reducing threats including:**
   - Overgrazing
   - Lack of regeneration
   - Soil compaction
   - Physical removal

6. **Healthy and productive soils: take action to maintain healthy, productive soils. Work to reduce:**
   - Erosion
   - Salinity
   - Weed populations
   - Pest animal populations

A presentation on Taungurung Aboriginal culture organised by the Baynton Sidonia Landcare group.

Some barriers to achieving our goals (as identified by participants in the final workshop)

Barriers identified by participants in the final workshop include:

- absentee landholders
- not engaging new landholders
- not engaging the older, established landholders
- new landholders are time poor, commute and don't have the knowledge
- non-participation by large landholders – gaps in landscape scale projects and in community attitude
- succession within committees, and gaining new members
- getting the money and the people on the ground to do the work
- differences in opinion in groups about technique and approach – takes up time (interminable debates).

Newham & District Landcare's Biolink project aims to link remnant vegetation pockets such as Hanging Rock (seen here) with corridors of vegetation to the Cobaw Ronges.

Section 3 – Our catchment

Location

The Upper Campaspe Landcare Network region is located in central Victoria and covers an area of 167,942 ha. It extends over two bioregions, the Central Victorian Uplands bioregion extending over most of the southerly part of the region and the Goldfields bioregion over the north. The region stretches from Heathcote in the east to Malmsbury in the west, Trentham in the south and to the southern shores of Eppalock in the north.

Administrative authorities

The area largely extends over the local government areas of the Macedon Ranges Shire Council, Mount Alexander Shire Council and Hepburn Shire Council. Most of the area is within the boundaries of the North Central CMA, with a very small amount of the area included in the Port Phillip and Westernport CMA area.

Geographic context

In 2013 45% of the area was mapped to have native vegetation cover by the statewide government vegetation mapping processes, however not all that vegetation is in good condition. When the condition of that vegetation cover was taken into account a much lower area, 28% of the region, can be considered to be 'intact' native vegetation.

Major parks managed by Parks Victoria include Macedon Regional Park and Fryers Ridge Nature Conservation Reserve. There are also many smaller streamside reserves, such as Turpins Falls and Windmill Bridge on the Campaspe River. The Wombat State Forest, Cobaw State Forest and Lauriston Nature Conservation Reserve are managed by DELWP. Small protected areas of public land managed by local government include Bald Hill and Black Hill.

Elsewhere vegetation in the region is highly fragmented occurring in small isolated patches on private land.

Indigenous cultural heritage of the region

European invasion of Australia resulted in profound changes to the Traditional Owners and their landscape. Land clearing and occupation by the settlers, particularly along watercourses, displaced the Aboriginal people from their traditional land and deprived them access to many of their most abundant food, camp and water resources.

The upper Campaspe catchment is the Country of two Traditional Owner groups: Dja Dja Wurrung Clans Aboriginal Corporation west of the river and Taungurung Clans Aboriginal Corporation to the east of the river.

The riverine environment of the Campaspe River would have provided a rich diversity of food sources. Plant foods were the mainstay of the indigenous people, with hundreds of plants, such as the Myrnong, Cumbungi and Nardoo being utilised. The Coliban/Little Coliban junction is also the source/quarry of the tachylite used throughout central Victoria for small stone tools. This stone was of major importance to Victorian clans.

Aboriginal cultural heritage sites and areas are protected by legislation under the *Aboriginal Heritage Act 2006* and the *Aboriginal Heritage Regulations 2007*. As Indigenous heritage sites and places are at the core of Indigenous people's physical, spiritual and cultural existence and identity, Aboriginal Affairs Victoria must be consulted regarding their identification, protection and enhancement.

Dja Dja Wurrung elder Ricky Nelson. The Dja Dja Wurrung clan is one of the two traditional owner groups for the Upper Campaspe. The other is the Taungurung clan.

Waterways

The major waterways of the Upper Campaspe catchment include the Campaspe River and its tributaries, including Pohlmans Creek, Pipers Creek, Five Mile Creek and McIvor Creeks. The Campaspe's major tributary is the Coliban River which flows from Trentham, through the three Coliban Water storages (Upper Coliban, Lauriston and Malmsbury reservoirs) before reaching Lake Eppalock. Significant tributaries of the Coliban include Back Creek, Little Coliban River and Kangaroo Creek.

Since 1836, when explorer Major Thomas Mitchell named the Campaspe River, the landscape has undergone significant change. The cumulative effects of the gold rush, the building of reservoirs and water supply systems, native vegetation clearing, farming systems and urban development are clearly reflected in the current condition of the waterway (North Central CMA, 2005). Results from the 2010 Index of Stream Condition survey reveal that only 7% of streams in the Campaspe catchment are in good condition, 39% are in moderate condition and 54% are in a poor to very poor condition. River reaches and tributaries in moderate condition are found in the uppermost section of the catchment, at the headwaters of the river systems.

There are no recognised significant wetlands systems within the Campaspe catchment, although the water storages of Lake Eppalock, Upper Coliban, Lauriston and Malmsbury reservoirs all support aquatic values and provide drought refuge.

(Information sourced from the Campaspe River Regional Guide, North Central CMA available at http://www.nccma.vic.gov.au/Publications/StrategiesPlans/index.aspx?itemDetails=7612&objectType=kms&searchfields=cs_ItemName).

One of the traditional owner groups of the Upper Campaspe catchment is the Dja Dja Wurrung clan. Seen here are young Dja Dja Wurrung dancers Kristy Atkinson (left) and Harley Dunolly-Lee.

Current land use

Over the last few decades land use and demographics in the region has changed. Substantial areas of agricultural land have been subdivided into smaller lifestyle or amenity properties, resulting in a broader mix of land uses.

Agricultural production is still the dominant land use in some areas, with sheep, cattle and potato farming being common. However, intensive production of horticultural crops, such as grapes, olives and organic vegetables, is increasing. An anticipated increase in Victoria's population to six million people by 2020 will further drive land use change.

The region also contains a number of public land areas, including Parks, Reserves and State Forests. Other public land includes numerous smaller bushland reserves, roadsides and streamside reserves.

Flora

Vegetation of the Upper Campaspe catchment

The vegetation of the Campaspe catchment varies greatly across the landscape, from the damp forests at the foothills of the Macedon Ranges and the drier foot hill forests of the Great Dividing Range, to the box ironbark forests and woodlands to the north. It contains 30 ecological vegetation classes (EVCs) across two bioregions, many endangered or vulnerable. Overall loss of indigenous vegetation since European settlement is illustrated in the graph below, and shows 28% of original vegetation cover remains (this figure has been calculated as a combination of vegetation cover and health of vegetation).

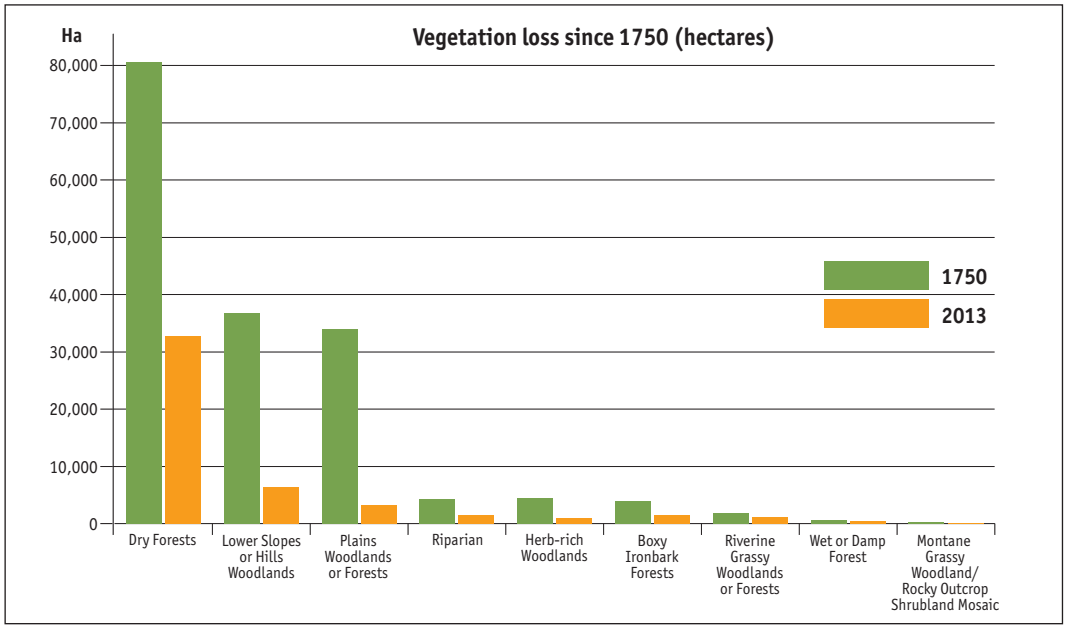


Figure 1. Vegetation loss in the Upper Campaspe catchment since European settlement.

Condition of remnant vegetation (as measured in habitat hectares – a measure of the quality of vegetation as used by DELWP) varies across the catchment and EVC type. Broadly, the more intact vegetation types are also the least endangered in the catchment. The distribution of indigenous remnant vegetation remaining in the catchment is determined by a number of factors, including geomorphology and climate, as well as past and present land use practices. Map 4: 'Ecological Vegetation Classes (EVCs) Bioregional Conservation Status' on page 30 illustrates the conservation status of vegetation types across the region.

What are Ecological Vegetation Classes (EVCs)?

EVCs are the standard unit for classifying vegetation types in Victoria. Over 300 different EVCs have been identified across the state.

EVCs are described based on the dominant lifeforms present (eg. trees, shrubs, grasses, sedges), ecological characteristics (eg. forest, woodland or grassland) and position in the environment (riparian, foothills, montane).

EVCs form a mosaic across the landscape, depending on variations in rainfall, altitude, aspect, underlying geology, soil fertility, water holding capacity and topography. Where the same EVC occurs in different areas or bioregions it may differ in species composition, but have very similar habitat and ecological processes operating.

To view the distribution of EVCs across the state, and for detailed descriptions of each EVC, see the Department of Environment, Land, Water and Planning (DELWP) website www.delwp.vic.gov.au.

Landcarers young and old come together during a working bee to replace walking track steps which were burnt in a wildfire at Black Hill Reserve.

Vegetation description by EVC supergroups

EVC supergroups have been put together by DELWP to assist with mapping broad vegetation types across the state. Descriptions of the supergroups below give a broad picture of the vegetation across the catchment. Map 5: 'Ecological Vegetation Classes (EVCs) Supergroups distribution' on page 31 shows the broad distribution of these vegetation classes across the catchment.

Dry Forests

Generally speaking, Dry Forests are our most intact and dominant vegetation group, occurring across the catchment from Macedon and Wombat Forests in the south, east around Malmsbury and west across the Cobaws, and up to Metcalfe and Barfold, with its northern-most reach at Mount Lofty. It is well represented in public reserves across the catchment, but less so on private land. Their conservation status is generally of least concern in the catchment, compared to other vegetation types, although some EVCs within this class are classified as depleted or vulnerable.

The EVCs that are part of this supergroup and occur in the catchment include Heathy Dry Forest, Shrubby Dry Forest, Grassy Dry Forest, Herb-rich Foothill Forest, Valley Heathy Forest, Grassy Forest, Shrubby Foothill Forest, Valley Grassy Forest. Shrubby Foothill and Shrubby Dry Forest are found in the south and are dominated by Messmate (*Eucalyptus obliqua*), Narrow-leaf Peppermint (*E. radiata*) and Candlebark (*E. rubida*), with an understorey of Wattles, Peas and Grasses. Grassy Dry Forest and Valley Heathy Forest occur in the north of the catchment and are dominated by Yellow Box (*E. melliodora*), Red Stringybark (*E. macrorhynca*), Long-leaved Box (*E. goniocalyx*) and Messmate (*E. obliqua*) with an understorey of Peas, Heaths and Grasses. Large patches of Heathy Dry Forest are in the west of the catchment and some in the east, dominated by Red Stringybark (*E. macrorhynca*), Red Box (*E. polyanthemos*) and Long-leaved Box (*E. goniocalyx*), with an understorey of Heaths and Peas.

Lower Slopes or Hills Woodlands

These EVCs occur mostly on private land in the catchment and are not well represented in public reserves. There are significant patches in the north of the catchment; in and around Baynton, Taradale and Metcalfe, large patches occur north of Kyneton and small patches can be found near Newham and on the northern edge of the Cobaws in the south. They are fragmented across the landscape and are one of the most endangered vegetation types in our catchment.

EVCs in our catchment that are part of this supergroup include Grassy Woodlands, Hillcrest Herb-rich Woodland and Scoria Cone Woodland. Grassy Woodlands occur in the north and are dominated by Grey Box (*Eucalyptus microcarpa*), Yellow Gum (*E. leucoxylon*) or Yellow Box (*E. melliodora*), with a species rich understorey of grasses, peas and herbs. Hillcrest Herb-rich Woodland occurs in the north and is dominated by Manna Gum (*E. viminalis*) and Swamp Gum (*E. ovata*) with an understorey of grasses and herbs. Scoria Cone Woodland, found in isolated patches across the catchment, is characterised by Manna Gum (*E. viminalis*) and Drooping Sheoak (*Allocasuarina verticillata*), with an understorey of shrubs, grasses and herbs.

Plains Woodlands or Forests

Only one EVC of this supergroup is found in the catchment – Plains Grassy Woodlands. This vegetation type is dominated by Manna Gum (*Eucalyptus viminalis*) and Swamp Gum (*E. ovata*), with a species rich understorey of shrubs, grasses and herbs.

Very small, isolated and fragmented patches are found mostly in the north of the catchment; north of Kyneton and Langley, between Metcalfe and Barfold and some north of Woodend and around Newham. Less than 20% of the original cover of this endangered vegetation type is left in the catchment, and it is vulnerable to loss and degradation in the landscape due to its isolation and fragmentation, and land management practices on private land.

Herb-rich Woodlands – Alluvial terraces and/or creeklines

Very small, isolated and fragmented patches are found on waterways throughout the catchment, mostly within the intact vegetation of public reserves, particularly along the Coliban River in the south of the catchment. Roughly 10% of this endangered vegetation type is left in the catchment and is particularly vulnerable to degradation and loss, especially on private land, due to land management practices.

EVCs in our catchment that are part of this supergroup include Alluvial Terraces Herb-rich Woodland/Creekline Grassy Woodland Mosaic, Creekline Herb-rich Woodland and Damp Sands Herb-rich Woodland. The overstorey is dominated by Manna Gum (*Eucalyptus viminalis*) and Swamp Gum (*E. ovata*), with an understorey of shrubs, grasses, herbs and sedges.

Riparian and Riverene Grassy Woodlands or Forests

The six EVCs are highly fragmented across the landscape and are found in isolated pockets along waterways throughout the catchment. The most intact remnants, particularly of Creekline Grassy Woodlands, are found in the south of the catchment, in the public reserves. Nearly all EVCs are endangered, with as little as 20% remaining collectively.

The EVCs in this supergroup are found in our catchment, including Swamp Scrub, Riparian Forest, Riparian Forest/Swampy Riparian Woodland Mosaic, Swampy Riparian Woodland, Stream Bank Shrubland and Creekline Grassy Woodlands. Riparian Forest is dominated by Narrow-leaved

Cumbungi reeds at the Cascades, Metcalfe.

Peppermint (*Eucalyptus radiata*), Manna Gum (*E. viminalis*) or Swamp Gum (*E. ovata*), with an understorey of riparian shrubs, grasses and sedges, and ferns in the south of the catchment. Riparian Scrub or Shrubland is dominated by Woolly Teatree (*Leptospermum lanigerum*), Blackwood (*Acacia melanoxylon*) and Prickly Moses (*A. verticillata*) with an understorey of rushes and sedges. Creekline Grassy Woodlands dominated by Red Gum (*E. camaldulensis*), sometimes Yellow Box (*E. melliodora*) with understorey of Blackwood (*A. melanoxylon*), *Carex* and *Poa* species.

Wet or Damp Forests

These EVCs are of least concern in terms of conservation, due to their intact nature and strong representation in public reserves, primarily Wombat State Forest and Macedon Regional Park.

EVCs in this supergroup include Damp Forest and Wet Forest, and are only found in the south of the catchment. Damp Forests are characterised by an overstorey of Messmate (*Eucalyptus obliqua*) with an understorey of wattles, shrubs, tree and ground ferns and grasses. Wet Forests of the Macedon Ranges are dominated by Mountain Ash (*E. regnans*) with an understorey of shrubs and ferns. The Damp and Wet forests of the Wombat State Forest are also renowned for their diversity of fungi.

Montane Grasslands, Shrublands or Woodlands

Montane Grasslands Shrublands or Woodlands occur in very small pockets on Mount Macedon. They are of least concern in terms of their conservation significance, due to their intact nature and protection as part of a public reserve. These vegetation communities are characteristed by an overstorey of Mountain Ash (*Eucalyptus regnans*) and Snow Gum (*E. pauciflora*), with an understorey of Flax, Grasses, Ground Ferns and Peas. Snow Gum is also found in frost hollows near Woodend, Tylden and Trentham.

Wetlands

Plains Grassy Wetland is the only EVC that is part of this supergroup in the catchment. It is dominated by semi aquatic and aquatic vegetation including grasses, sedges and herbs. Redgum (*Eucalyptus camaldulensis*) is sometimes present. These sensitive ecosystems have an endangered status, with less than 20% remaining. They occur in very isolated pockets in the south of the catchment and are not particularly well mapped. Most patches would occur on private land, and be vulnerable to degradation due to draining and stock damage. It should be noted that this vegetation type was not identified as an asset by our Landcare Groups, perhaps due to its rarity.

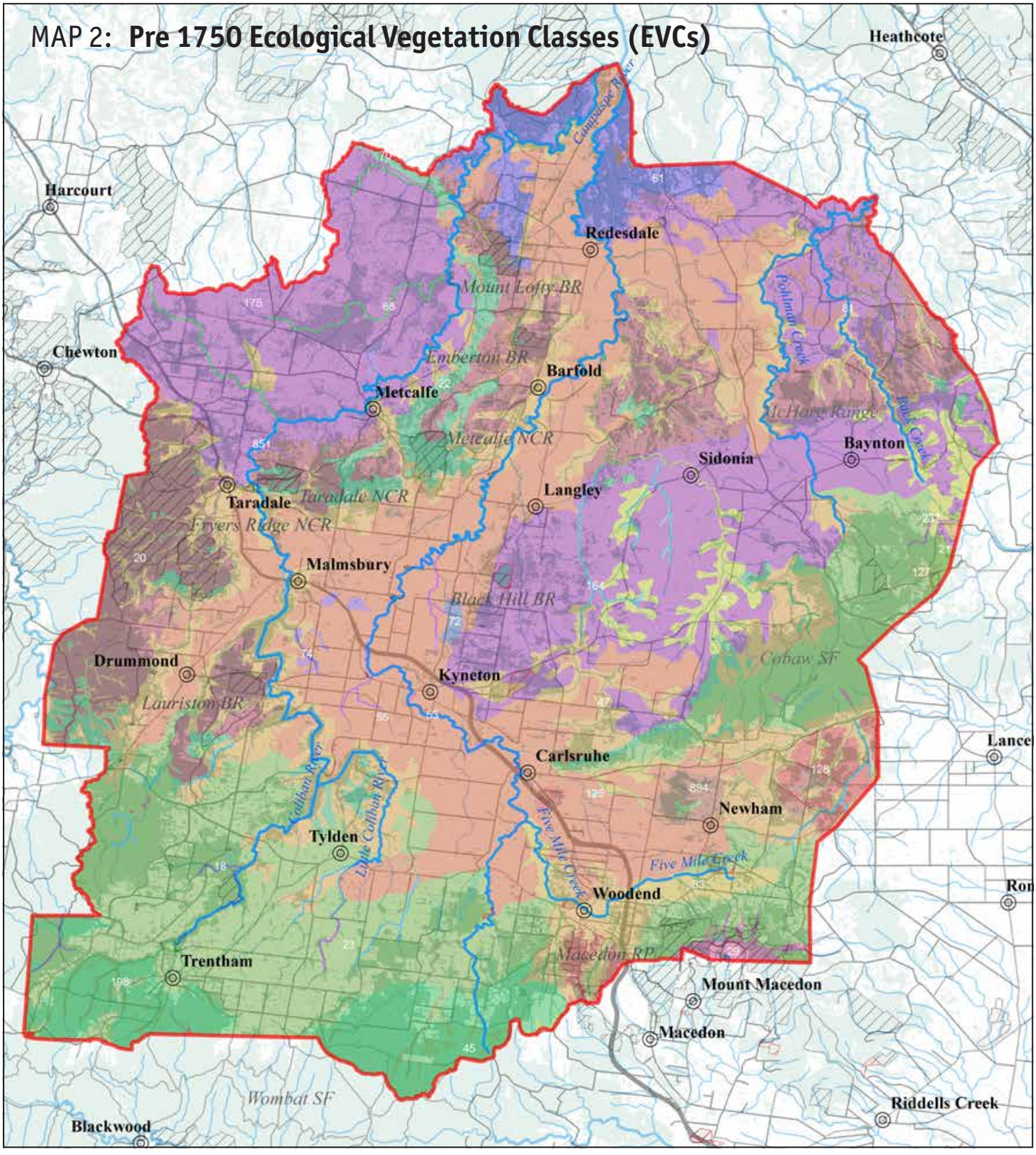
Bioregions

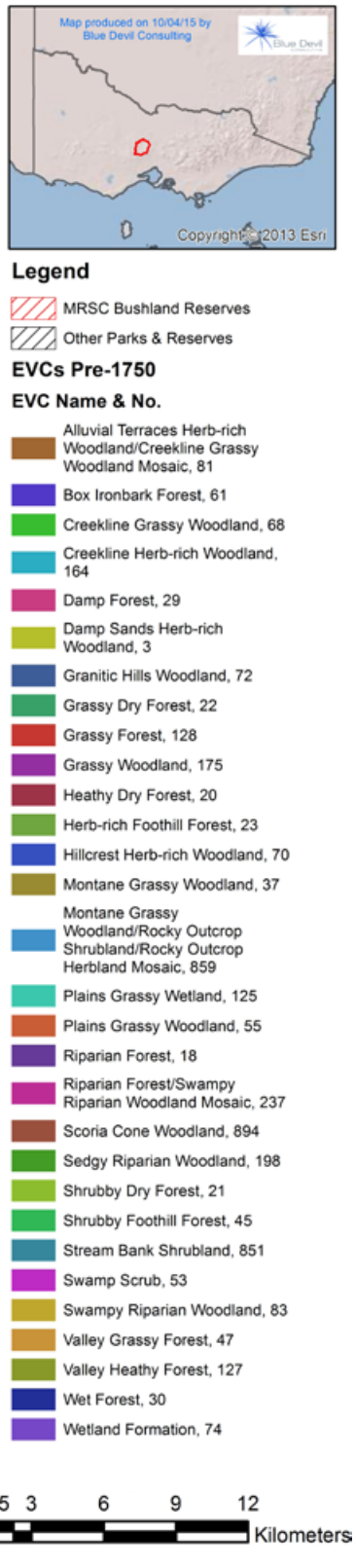
The Upper Campaspe catchment contains two bioregions – bioregions are a landscape-scale approach to classifying the environment using a range of attributes such as climate, geomorphology, geology, soils and vegetation. The following vegetation descriptions have been taken from the Biodiversity Action Plan for each bioregion.

The Central Victorian Uplands Bioregion, in the southern end of the catchment, is dominated by Lower Paleozoic deposits giving rise to dissected uplands at higher elevations, amongst granitic and sedimentary (with Tertiary colluvial aprons) terrain with metamorphic and old volcanic rocks which have formed steeply sloped peaks and ridges. The less fertile hills support Grassy Dry Forest and Heathy Dry Forest ecosystems. Herb-rich Foothill Forest and Shrubby Foothill Forest ecosystems dominate on the more fertile outwash slopes. The granitic and sedimentary (with Tertiary colluvial aprons) terrain is dominated by Grassy Woodlands much of which has been cleared. Lower lying valleys and plains are dominated by Valley Grassy Forest and Plains Grassy Woodland ecosystems.

The Goldfields Bioregion, located in the northern section of the catchment, is dominated by dissected uplands (predominantly a northerly aspect) of Lower Palaeozoic deposits. Metamorphic rocks have formed steeply sloped peaks and ridges. A variety of relatively poor soils are dominant with yellow, grey and brown texture contrast soils (Chromosols and Sodosols) and minor occurrences of friable earths (Dermosols and Ferrosols). The climate is temperate with uncertain rainfall varying from 400 to 700 mm per annum, usually higher in winter. Maximum temperatures range from 12 to 32 degrees Celcius, daily minima range from 2–15 degrees. Box Ironbark Forest, Heathy Dry Forest and Grassy Dry Forest ecosystems dominate the lower slopes or poorer soils. The granitic and sedimentary (with Tertiary colluvial aprons) terrain is dominated by Grassy Woodlands much of which has been cleared. Occasional low-lying corridors of alluvial valleys between the uplands are dominated by Low Rises Grassy Woodland and Alluvial Terraces Herb-rich Woodland ecosystems.

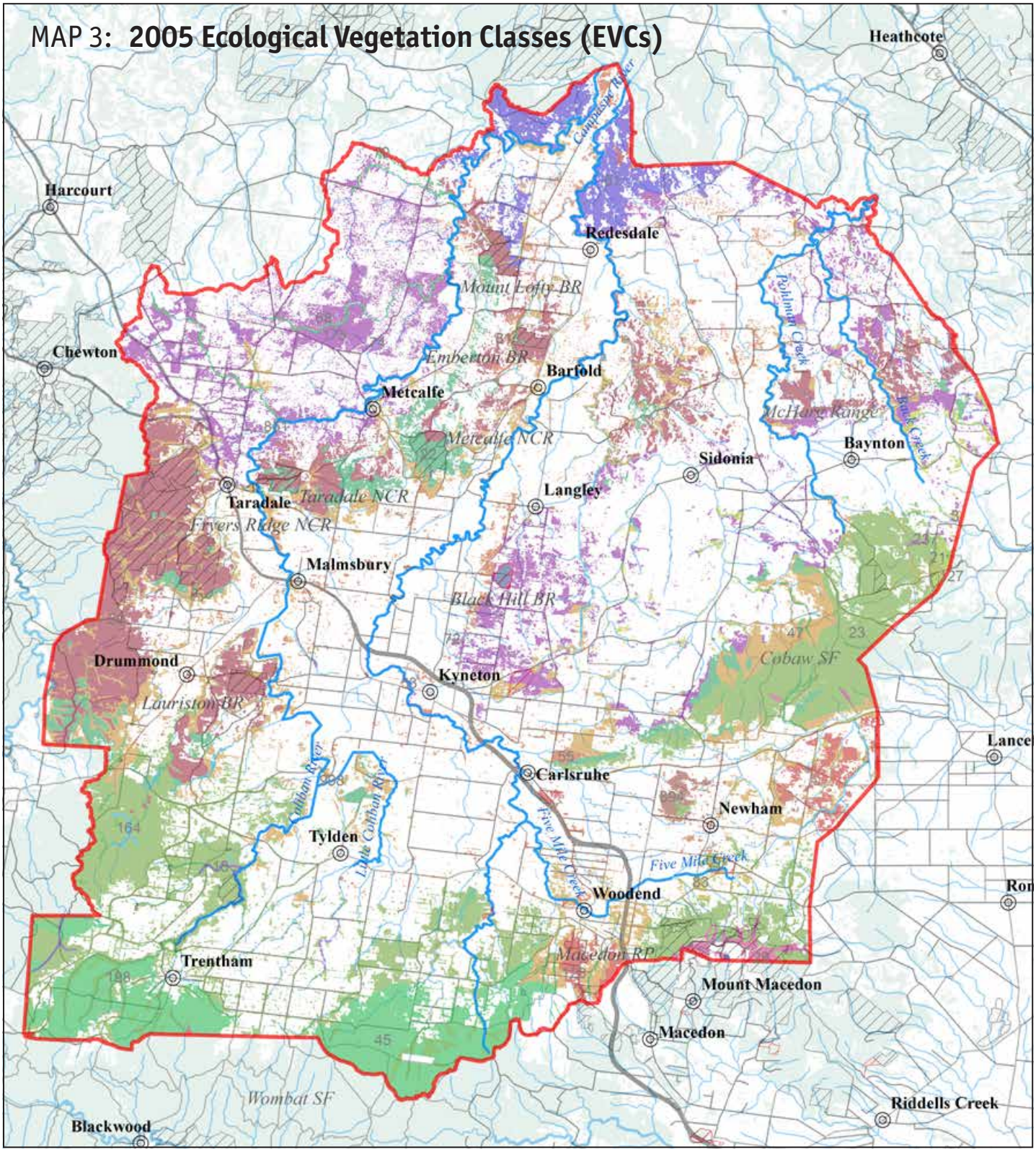
The Wombat Forest near Trentham.

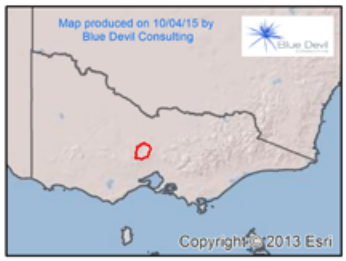

MAP 2: Pre 1750 Ecological Vegetation Classes (EVCs)
Heathcote
Harcourt
Redesdale
Mount Lofty BR
Chewton
Emberton BR
Barfold
Metcalfe
Metcalfe NCR
McHarg Range
Baynton
Sidonia
Taradale
Taradale NCR
Fryers Ridge NCR
Langley
Malmsbury
Black Hill BR
Drummond
Kyneton
Cobaw SF
Lauriston BR
Carlsruhe
Newham
Tylden
Five Mile Creek
Woodend
Trentham
Macedon RP
Mount Macedon
Macedon
Wombat SF
Riddells Creek
Blackwood



William Terry, Macedon Ranges Shire Council Environmental Officer with President of the Friends of Bald Hill, Carolyn Robb at Bald Hill Reserve near Kyneton.

Women from Trentham Landcare at a working bee to plant trees alongside the Domino Trail.


MAP 3: 2005 Ecological Vegetation Classes (EVCs)
Heathcote
Harcourt
Redesdale
Mount Lofty BR
Chewton
Emberton BR
Barfold
Metcalfe
McHarg Range
Metcalfe NCR
Baynton
Sidonia
Taradale
Taradale NCR
Langley
Fryers Ridge NCR
Malmsbury
Black Hill BR
Drummond
Kyneton
Cobaw SF
Lauriston BR
Carlsruhe
Newham
Tylden
Woodend
Five Mile Creek
Trentham
Macedon RP
Mount Macedon
Macedon
Wombat SF
Riddells Creek
Blackwood



Legend

- MRSC Bushland Reserves
- Other Parks & Reserves

EVCs 2005

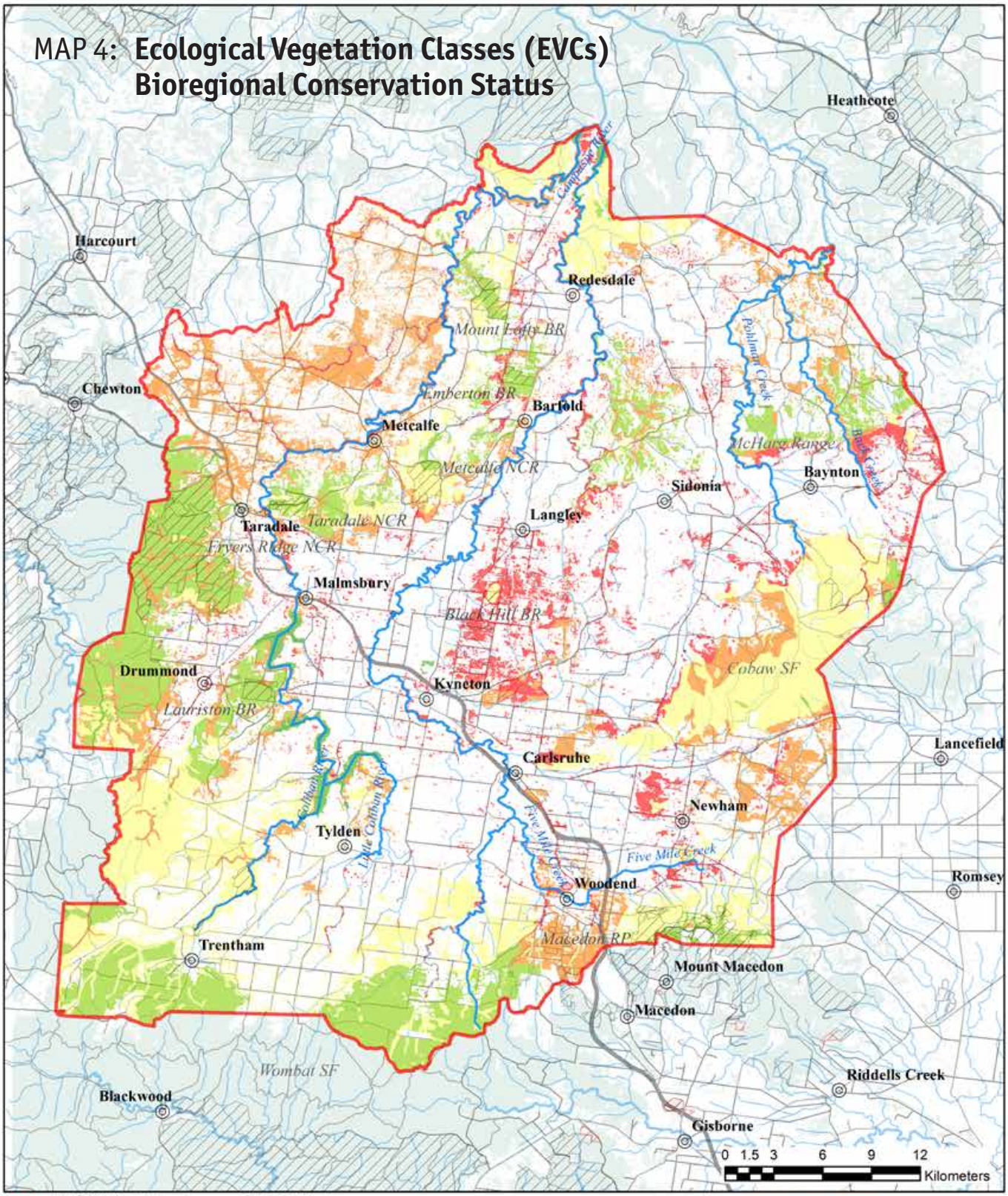
EVC Name & No.

- Alluvial Terraces Herb-rich Woodland/Creekline Grassy Woodland Mosaic, 81
- Box Ironbark Forest, 61
- Creekline Grassy Woodland, 68
- Creekline Herb-rich Woodland, 164
- Damp Forest, 29
- Damp Sands Herb-rich Woodland, 3
- Granitic Hills Woodland, 72
- Grassy Dry Forest, 22
- Grassy Forest, 128
- Grassy Woodland, 175
- Heathy Dry Forest, 20
- Herb-rich Foothill Forest, 23
- Hillcrest Herb-rich Woodland, 70
- Montane Grassy Woodland, 37
- Montane Grassy Woodland/Rocky Outcrop Shrubland/Rocky Outcrop Herbland Mosaic, 859
- Plains Grassy Wetland, 125
- Plains Grassy Woodland, 55
- Riparian Forest, 18
- Riparian Forest/Swampy Riparian Woodland Mosaic, 237
- Scoria Cone Woodland, 894
- Sedgy Riparian Woodland, 198
- Shrubby Dry Forest, 21
- Shrubby Foothill Forest, 45
- Stream Bank Shrubland, 851
- Swamp Scrub, 53
- Swampy Riparian Woodland, 83
- Valley Grassy Forest, 47
- Valley Heathy Forest, 127
- Wet Forest, 30
- Wetland Formation, 74

0 1.5 3 6 9 12
Kilometers

Krista Patterson Major and young Banjo Ford from Woodend Landcare planting with the 'Thursday Crew' – a group of blokes who come together every Thursday to work on environmental projects around the Woodend region. They describe themselves as a 'Men's Shed without the Shed'. Lake Earshaw, seen here, was previously completed obscured by weeds but thanks to the Thursday Crew will soon be a pleasant picnic spot once more.

*A young Landcarer looking at the Bushy Clubmoss (*Lycopodium deuterodensum*) in the Wombat State Forest near Trentham.*


MAP 4: Ecological Vegetation Classes (EVCs)
Bioregional Conservation Status
Heathcote
Harcourt
Redesdale
Mount Lofty BR
Chewton
Emberton BR
Barfold
Metcalfe
Metcalfe NCR
McHarg Range
Baynton
Sidonia
Taradale
Taradale NCR
Langley
Fryers Ridge NCR
Malmsbury
Black Hill BR
Drummond
Kyneton
Cobaw SF
Lauriston BR
Lancefield
Carlsruhe
Newham
Tylden
Five Mile Creek
Woodend
Romsey
Trentham
Macedon RP
Mount Macedon
Macedon
Wombat SF
Riddells Creek
Blackwood
Gisborne
0 1.5 3 6 9 12
Kilometers
MRSC Bushland Reserves
Other Parks & Reserves
EVC Bioregional Conservation Status
EVC Status
Not Applicable
Least Concern
Depleted
Vulnerable
Endangered
Map produced on 10/04/15 by Blue Devil Consulting
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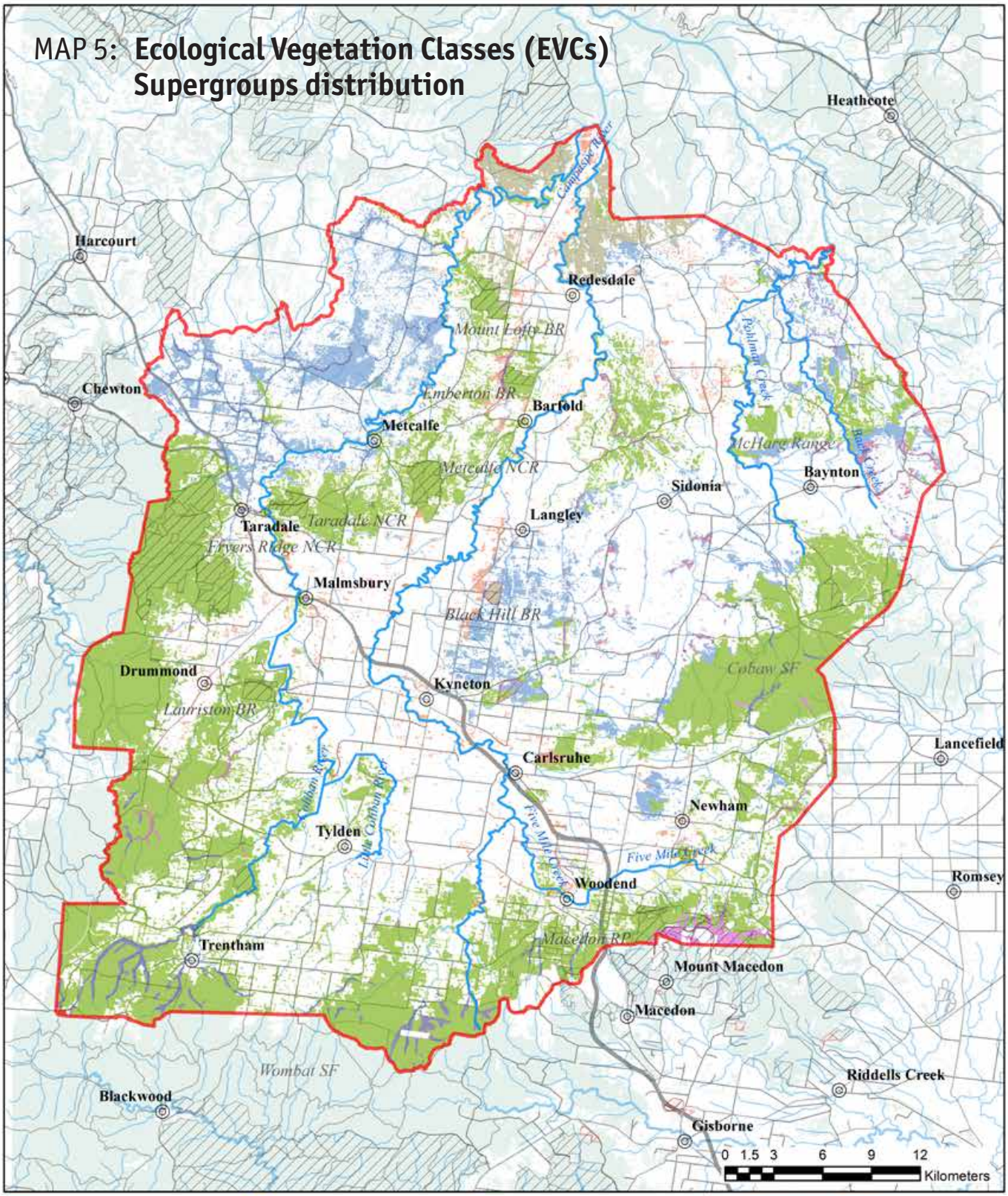
MAP 5: Ecological Vegetation Classes (EVCs) Supergroups distribution
Heathcote
Harcourt
Redesdale
Mount Lofty BR
Chewton
Emberton BR
Barfold
Metcalfe
Metcalfe NCR
McHarg Range
Baynton
Sidonia
Taradale
Taradale NCR
Langley
Fryers Ridge NCR
Malmsbury
Black Hill BR
Drummond
Kyneton
Cobaw SF
Lauriston BR
Lancefield
Carlsruhe
Newham
Tylden
Five Mile Creek
Woodend
Romsey
Trentham
Macedon RP
Mount Macedon
Macedon
Wombat SF
Riddells Creek
Blackwood
Gisborne
0 1.5 3 6 9 12
Kilometers
MRSC Bushland Reserves
Other Parks & Reserves
EVC Broad Vegetation Types
Group Name
Box Ironbark Forests
Dry Forests
Herb-rich Woodlands
Lower Slopes or Hills Woodlands
Montane Grasslands, Shrublands or Woodlands
Plains Woodlands or Forests
Riparian Vegetation
Riverine Grassy Woodlands or Forests
Wet or Damp Forests
Wetlands
Map produced on 10/04/15 by Blue Devil Consulting
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Significant flora species

The following table lists the threatened flora of the region. Flagship species include the Black Gum and Hairy Anchor Plant. A full list of flora species recorded in the catchment can be found on the UCLN website (www.uppercampaspelandcare.org.au).

Threatened flora

Common name	Scientific name	Victorian status
Purple Eyebright	*Euphrasia collina subsp. speciosa*	Presumed extinct
Basalt Peppercress	*Lepidium hyssopifolium*	Endangered
Black Gum	*Eucalyptus aggregata*	Endangered
Buxton Gum	*Eucalyptus crenulata*	Endangered
Lanky Buttons	*Leptorhynchos elongatus*	Endangered
Large-flower Crane's-bill	*Geranium sp. 1*	Endangered
Large-headed Fireweed	*Senecio macrocarpus*	Endangered
Maroon Leek-orchid	*Prasophyllum frenchii*	Endangered
Matted Flax-lily	*Dianella amoena*	Endangered
Purple Eyebright	*Euphrasia collina subsp. muelleri*	Endangered
Round-leaf Flat-pea	*Platylobium rotundum*	Endangered
Small Sickle Greenhood	*Pterostylis lustra*	Endangered
Southern Shepherd's Purse	*Ballantinia antipoda*	Endangered
Sutton Grange Greenhood	*Pterostylis agrestis*	Endangered
Tough Scurf-pea	*Cullen tenax*	Endangered
Wombat Bossiaea	*Bossiaea vomata*	Endangered
Arching Flax-lily	*Dianella sp. aff. longifolia (Benambra)*	Vulnerable
Ausfeld's Wattle	*Acacia ausfeldii*	Vulnerable
Austral Toad-flax	*Thesium australe*	Vulnerable
Castlemaine Spider-orchid	*Caladenia clavescens*	Vulnerable
Clover Glycine	*Glycine latrobeana*	Vulnerable
Cottony Cassinia	*Cassinia ozothamnoides*	Vulnerable
Cup Greasewort	*Aneura rodwayi*	Vulnerable
Golden Cowslips	*Diuris behrii*	Vulnerable
Late-flower Flax-lily	*Dianella tarda*	Vulnerable
Long Eryngium	*Eryngium paludosum*	Vulnerable
Midlands Spider-orchid	*Caladenia sp. aff. concolor (Midlands)*	Vulnerable
Ornate Pink-fingers	*Caladenia ornata*	Vulnerable
Pale Hickory-wattle	*Acacia sporadica*	Vulnerable
Purple Diuris	*Diuris punctata var. punctata*	Vulnerable
Scented Bush-pea	*Pultenaea graveolens*	Vulnerable
Slender Club-sedge	*Isolepis congrua*	Vulnerable
Striped Water-milfoil	*Myriophyllum striatum*	Vulnerable
Trailing Hop-bush	*Dodonaea procumbens*	Vulnerable
Veined Spider-orchid	*Caladenia reticulata s.s.*	Vulnerable
Whorled Zieria	*Zieria aspalathoides subsp. aspalathoides*	Vulnerable
Australian Anchor Plant	*Discaria pubescens*	Rare
Blue Burr-daisy	*Calotis cuneifolia*	Rare
Branching Groundsel	*Senecio cunninghamii var. cunninghamii*	Rare

Common name	Scientific name	Victorian status
Broad-lip Diuris	*Diuris X palachila*	Rare
Brooker's Gum	*Eucalyptus brookeriana*	Rare
Common Extinguisher-moss	*Encalypta vulgaris*	Rare
Creeping Grevillea	*Grevillea repens*	Rare
Dwarf Cassinia	*Cassinia diminuta*	Rare
Dwarf Silver Wattle	*Acacia nano-dealbata*	Rare
Emerald-lip Greenhood	*Pterostylis smaragdyna*	Rare
Floodplain Fireweed	*Senecio campylocarpus*	Rare
Fryerstown Grevillea	*Grevillea obtecta*	Rare
Fuzzy New Holland Daisy	*Vittadinia cuneata var. morrisii*	Rare
Golden Moth Orchid	*Diurus chryseopsis*	Rare
Goldfield Boronia	*Boronia anemonifolia subsp. aurifodina*	Rare
Goldfields Grevillea	*Grevillea dryophylla*	Rare
Hairy Beard-heath	*Leucopogon microphyllus var. pilibundus*	Rare
Half-bearded Spear-grass	*Austrostipa hemipogon*	Rare
Kamarooka Mallee	*Eucalyptus froggattii*	Rare
Naked Beard-orchid	*Calochilus imberbis*	Rare
Narrow-leaf Star-hair	*Astrotricha linearis*	Rare
Pale-flower Crane's-bill	*Geranium sp. 3*	Rare
Rising Star Guinea-flower	*Hibbertia humifusa subsp. humifusa*	Rare
Rosemary Grevillea	*Grevillea rosmarinifolia subsp. rosmarinifolia*	Rare
Sand Brome	*Bromus arenarius*	Rare
Short-bristle Wallaby-grass	*Rytidosperma setaceum var. brevisetum*	Rare
Small-flower Grevillea	*Grevillea micrantha*	Rare
Small-flower Mat-rush	*Lomandra micrantha subsp. tuberculata*	Rare
Southern Swainson-pea	*Swainsona behriana*	Rare
Spotted Hyacinth-orchid	*Dipodium pardalinum*	Rare
Sticky Wattle	*Acacia howittii*	Rare
Streaked Wattle	*Acacia lineata*	Rare
Tangled Pseudanthus	*Pseudanthus orbicularis*	Rare



*From left: A small Spider Orchid (*Caladenia parvia*), found in early spring at the Bald Hill Reserve near Kyneton.*
*A yellow Variable Billy Button (*Craspedia variabilis*) found at the Bald Hill Reserve near Kyneton.*
*A male Early Nancy (*Wurmbea dioca*) flower, also called the 'Harbinger Of Spring', seen at Bald Hill Reserve.*

Common name	Scientific name	Victorian status
Tufted Club-sedge	*Isolepis wakefieldiana*	Rare
Tufted Hair-grass	*Deschampsia cespitosa*	Rare
Variable Bossiaea	*Bossiaea heterophylla*	Rare
Waterbush	*Myoporum montanum*	Rare
Wiry Bossiaea	*Bossiaea cordigera*	Rare
Woodland Plume-orchid	*Pterostylis sp. aff. plumosa (Woodland)*	Rare
Wombat Bush-pea	*Pultenaea reflexifolia*	Rare
Yakka Grass	*Sporobolus caroli*	Rare
Yarra Gum	*Eucalyptus yarraensis*	Rare
Annual Buttercup	*Ranunculus sessiliflorus var. pilulifer*	Poorly known
Black-tip Greenhood	*Pterostylis bicolor*	Poorly known
Bluish Raspwort	*Haloragis glauca f. glauca*	Poorly known
Fringed Midge-orchid	*Corunastylis ciliata*	Poorly known
Glandular Blanket-fern	*Pleurosorus subglandulosus*	Poorly known
Hypsela	*Hypsela tridens*	Poorly known
Inland Sickle-fern	*Pellaea calidirupium*	Poorly known
Oval Woodrush	*Luzula ovata*	Poorly known
Plains Joyweed	*Alternanthera sp. 1 (Plains)*	Poorly known
Slender Bindweed	*Convolvulus angustissimus subsp. omnigracilis*	Poorly known
Slender Bitter-cress	*Cardamine tenuifolia*	Poorly known
Slender Tick-trefoil	*Desmodium varians*	Poorly known
Smooth Nardoo	*Marsilea mutica*	Poorly known
Upright Panic	*Entolasia stricta*	Poorly known
Cut-leaf Burr-daisy	*Calotis anthemoides*	
Buloke	*Allocasuarina luehmannii*	
River Red-gum	*Eucalyptus camaldulensis*	

*Local flora found in the Upper Campaspe Region. Top left: Black-anther Flax-lily (*Dianella admixta*). Left: Swamp Daisy (*Allittia cardiocarpa*), seen at Bald Hill Reserve near Kyneton. Right: Silver Banksia (*Banksia marginata*) found near the Wombat Trail, Trentham.*

Fauna

Based on records from the Victorian Biodiversity Atlas over 250 species of native fauna have been recorded in the area covered by the Upper Campaspe Landcare Network. These are mostly species typically found in forest or woodland habitats, however, some species such as the endangered Striped Legless Lizard, have also been recorded from small areas of native grassland that are present in the area.

Clearing and fragmentation of habitat, feral animals, timber harvesting and a range of other threats have resulted in a dramatic reduction in population numbers and the distribution of many native fauna species. As a reflection of this fifty-five native fauna species occurring in the Network area are currently listed as threatened and at least several have become extinct, such as the Eastern Quoll.

Even once common and iconic species, such as the Koala, are in decline. Koala populations in the Macedon Ranges have been monitored since the 1970s. During this period Koala populations have steeply declined due to loss of habitat, being hit by vehicles, predation by dogs or death from the effects of wildfire. Koalas are now rare and may become locally extinct in some parts of that shire.

Within the region larger patches of remaining native vegetation tend to have the greatest diversity of native fauna species. In largely cleared areas or where remaining native vegetation exist in smaller patches, species diversity tends to decline significantly due to lack of suitable habitat. However, research indicates that the overall percentage of native vegetation within an area also impacts on native fauna species diversity, population sizes and the long term viability of populations.

Mammals

Thirty-three native mammal species have been recorded for the Network area.
Seven species are listed as threatened.

Arboreal mammals include the Koala and gliding species such as the Feathertail Glider, Greater Glider and Sugar Glider. Other arboreal mammals include the Common Brush-tail Possum, Mountain Brushtail Possum, Common Ringtail Possum, Eastern Pygmy-possum and the Brush-tailed Phascogale.

Ground dwelling mammals recorded in the area are Agile Antechinus, Dusky Antechinus, Yellow-footed Antechinus, Bush Rat, Swamp Rat, Water Rat, Dingo, Black Wallaby, Eastern Grey Kangaroo, Short-beaked Echidna, Spot-tailed Quoll and Common Wombat.

Eleven species of native microbat have also been recorded in the area. These are the Chocolate Wattled Bat, Common Bent-wing Bat, Common Bent-wing Bat (eastern ssp.), Eastern False Pipistrelle, Gould's Long-eared Bat, Gould's Wattled Bat, Large Forest Bat, Lesser Long-eared Bat, Little Forest Bat, Southern Forest Bat, White-striped Freetail Bat. The larger bat species the Grey-headed Flying-fox has also been recorded.

The Platypus has also been recorded in some local waterways.

*Powerful Owl (*Ninox strenua*) chick in the Wombat Forest near Trentham. Powerful Owls are listed as vulnerable and are Australia's largest owl. Their habitat is threatened by the clearing of forests and woodlands. Victoria is thought to have as few as 500 pairs.*

Birds

Over two hundred species of birds have been recorded in the area. Thirty-five species are listed as threatened. Bird species that are common include Crimson Rosella, Willie Wagtail, Australian Magpie, Grey Shrike-thrush, Rufous Whistler, Southern Boobook, Brown Goshawk, Australian Raven, Superb Fairy-wren, Wedge-tailed Eagle and Brown-headed Honeyeater. Birds species that tend to occur in the higher rainfall foothill forests include Scarlet Robin, Red-browed Finch, White-Browed Scrub-wren, Striated Thornbill and Eastern Spinebill.

Reptiles

Twenty species of reptile have been recorded in the Network area. One species is listed as threatened,

This includes six species of snake – the Eastern Brown Snake, Little Whip Snake, Lowland Copperhead, Red-bellied Snake, Tiger Snake and White-lipped Snake – and ten species of Skink. Other reptile species include the Marbled Gecko, Common Blue-tongued Lizard and Tree Dragon. The endangered Striped Legless Lizard is found in grassland habitat.

Amphibians

Eleven amphibious species that have been recorded are the Pobblebonk Frog, Growling Grass Frog, Spotted Marsh Frog, Southern Brown Tree Frog, Verreaux's Tree Frog, Common Froglet, Plains Froglet, Victorian Smooth Froglet, Southern Bullfrog, Brown Toadlet and Common Spadefoot Toad. Two species – the Growling Grass Frog Brown toadlet – are listed as threatened.

Fish and other freshwater aquatic fauna

Twenty-one freshwater aquatic fauna have been recorded in local waterways. Nine species are listed as threatened. Native fish species recorded are the Australian Grayling, Common Galaxias, Mountain Galaxias, Spotted Galaxias, Bluenose Cod, Murray Cod, Golden Perch, Macquarie Perch, Estuary Perch, Sea Mullet, Southern Pygmy Perch, Black Bream, River Blackfish, Flat-headed Gudgeon and Freshwater Catfish. Other species are the Freshwater Shrimp, Common Yabby, Upland Burrowing Crayfish, Short-headed Lamprey, Short-finned Eel, Long-finned Eel.

Brush-tailed Phascogales are listed as vulnerable. Clearing of habitats with suitable hollow bearing trees and predators such as foxes and cats pose a threat to these shy animals. They have a very large home range (females 20–70 hectares, males 100 hectares) and forage for their diet of insects, spiders and centipedes.

Significant fauna species

The following table lists the threatened fauna of the region. Flagship species include the Powerful Owl and the Phascogale. A full list of fauna species for the region can be found on the UCLN website (www.uppercampaspelandcare.org.au).

Threatened fauna

Common name	Scientific name	Victorian status
Bluenose Cod (Trout Cod)	*Maccullochella macquariensis*	Critically endangered
Golden Sun Moth	*Synemon plana*	Critically endangered
Plains-wanderer	*Pedionomus torquatus*	Critically endangered
Regent Honeyeater	*Anthochaera phrygia*	Critically endangered
Barking Owl	*Ninox connivens connivens*	Endangered
Brown Toadlet	*Pseudophryne bibronii*	Endangered
Blue-billed Duck	*Oxyura australis*	Endangered
Bush Stone-curlew	*Burhinus grallarius*	Endangered
Eltham Copper Butterfly	*Paralucia pyrodiscus lucida*	Endangered
Freckled Duck	*Stictonetta naevosa*	Endangered
Freshwater Catfish	*Tandanus tandanus*	Endangered
Grey-crowned Babbler	*Pomatostomus temporalis temporalis*	Endangered
Grey Falcon	*Falco hypoleucos*	Endangered
Growling Grass Frog	*Litoria raniformis*	Endangered
Intermediate Egret	*Ardea intermedia*	Endangered
Macquarie Perch	*Macquaria australasica*	Endangered
Masked Owl	*Tyto novaehollandiae novaehollandiae*	Endangered
Spot-tailed Quoll	*Dasyurus maculatus maculatus*	Endangered
Striped Legless Lizard	*Delma impar*	Endangered
Superb Parrot	*Polytelis swainsonii*	Endangered
Swift Parrot	*Lathamus discolor*	Endangered
Australasian Shoveler	*Anas rhynchotis*	Vulnerable
Australian Grayling	*Prototroctes maraena*	Vulnerable
Black Falcon	*Falco subniger*	Vulnerable
Brush-tailed Phascogale	*Phascogale tapoatafa*	Vulnerable
Chestnut-rumped Heathwren	*Calamanthus pyrrhopygius*	Vulnerable
Common Bent-wing Bat (eastern ssp.)	*Miniopterus schreibersii oceanensis*	Vulnerable
Eastern Great Egret	*Ardea modesta*	Vulnerable
Flat-headed Galaxias	*Galaxias rostratus*	Vulnerable
Greater Glider	*Petauroides volans*	Vulnerable
Grey Goshawk	*Accipiter novaehollandiae novaehollandiae*	Vulnerable
Grey-headed Flying-fox	*Pteropus poliocephalus*	Vulnerable
Hardhead	*Aythya australis*	Vulnerable
Murray Cod	*Maccullochella peelii*	Vulnerable
Musk Duck	*Biziura lobata*	Vulnerable
Painted Honeyeater	*Grantiella picta*	Vulnerable
Powerful Owl	*Ninox strenua*	Vulnerable
Speckled Warbler	*Chthonicola sagittatus*	Vulnerable

Common name	Scientific name	Victorian status
Square-tailed Kite	*Lophoictinia isura*	Vulnerable
White-throated Needletail	*Hirundapus caudacutus*	Vulnerable
Yarra Pygmy Perch	*Nannoperca obscura*	Vulnerable
Black-eared Cuckoo	*Chrysococcyx osculans*	Near threatened
Brown Treecreeper (south-eastern ssp.)	*Climacteris picumnus victoriae*	Near threatened
Crested Bellbird	*Oreoica gutturalis gutturalis*	Near threatened
Diamond Dove	*Geopelia cuneata*	Near threatened
Diamond Firetail	*Stagonopleura guttata*	Near threatened
Eastern Pygmy-possum	*Cercartetus nanus*	Near threatened
Emu	*Dromaius novaehollandiae*	Near threatened
Golden Perch	*Macquaria ambigua*	Near threatened
Hooded Robin	*Melanodryas cucullata cucullata*	Near threatened
Latham's Snipe	*Gallinago hardwickii*	Near threatened
Nankeen Night Heron	*Nycticorax caledonicus hillii*	Near threatened
Common Bent-wing Bat	*Miniopterus schreibersii GROUP*	
Unspecked Hardyhead	*Craterocephalus stercusmuscarum fulvus*	

Geology

In this part of the world, the soils that occur are very strongly determined by the parent material from which they have formed. In the UCLN area three basic rock types make up the majority of the land area and thus which constitute the soils of those areas:

Sandstones

These rocks are marine sediments of the Ordivician period (485–443 MYa) and are interbedded shales and sand stones. They were deposited as horizontal beds of mud under an ancient ocean and compressed into the much harder rocks we see at the surface now. During a subsequent period of uplift (about 380 Mya during the Devonian period) the rocks were folded and twisted and thus in some places the beds are now almost vertical. This geology forms the bedrock of the entire area covered by UCLN and is exposed at the surface at various places from the southern to northern boundaries. Subsequent weathering has resulted in country that is gently undulating for the most part.

Granites and granodiorites

These rocks formed when huge masses of molten magma were forced up into the Ordovician sandstone sediments, during the late Devonian period (after the uplift event mentioned earlier). Slow cooling underground resulted in the formation of large crystals of their dominant quartz and felspar minerals. These mineral crystals are easily seen in these rocks with the naked eye. These granitic rocks have been exposed by subsequent uplift and erosion of the overlying sediments. Examples include the area south of and including Mt Alexander, and the Sidonia/Pastoria/Baynton hills. Most of the area is granodiorite. Granite, which is mineralologically slightly different to granodiorite, is found at the outer edge of these zones. This mostly hilly country typically has large granitic boulders (tors) evident.

Metamorphic rocks

When the magma of the granitic intrusions was pushing through the marine sediments, the high temperatures and pressures at the edge of the intrusions resulted in changes to the sedimentary rocks. In these narrow contact zones (called metamorphic aureoles) around the intrusion the rocks become harder (Castlemaine slate is an example). The harder rocks in the aureoles are more resistant to erosion and as a result the contact zone typically shows up as a band of steep, hilly country between the gently undulating hills of both the sandstone zones and the granitic zones. Examples include the hills to the west and south of Metcalfe and the southern edge of the Cobaw Ranges near Carlsruhe.

Turpin Falls, on the Campaspe River between Metcalfe and Langley.

Newer volcanics

Within the last 2 million years Victoria had a period of extensive volcanic activity. Parts of the UCLN area were covered by fluid basalt lava during that time. The lava came from several eruption points around the region including Green Hill near Metcalfe. In the southern part of the catchment the basalt flows cover large areas resulting in generally flat landscapes with some dissection by streams (for example, the area where the Campaspe River runs from Carlsruhe through Kyneton and north towards Langley).

In the more northern part of the area the flows followed old stream lines resulting in narrow bands of basalt which has been left exposed by subsequent erosion of the softer rocks on either side. This leads to flat topped hills dissected by rivers and streams, shown quite strikingly around Redesdale and Mia Mia.

Old river beds buried under these basalt flows often contained gold deposits. These were the deep lead workings around Malmsbury and Taradale.

In the southern part of the area, some volcanoes produced a more viscous lava (andesite) which flowed more slowly than the basalt lavas. Hanging Rock is one such eruption point.

Volcanic landscape near Metcalfe – lava plain in foreground and Green Hill (eruption point) on horizon. Yellow Box and River Red-gum are the trees.

Volcanic landscape near Kyneton (grey dermosol).

The soils of the Upper Campaspe catchment

General note on soil nomenclature

Various soil classification systems have been used in Australia to help describe and relate the different soils we have. The most recent is the Australian Soil Classification, a description of which can be found at this website (http://www.clw.csiro.au/aclep/asc_re_on_line/soilhome.htm).

This system divides all soils into large groupings called Orders, with the different orders having different patterns of soil profiles. Any new writing or information on Australian soils will use this system.

Soils on sandstone

Erosion gully in duplex soil, north east of Redesdale.

These soils are typically fine in texture with duplex profiles. They are predominantly chromosols although in the north there will be some sodosols (the distinction is that sodosols have sodic, dispersive B horizons). The A horizons are usually loamy with fine sandy clay loams being quite common. The A horizon is often pale grey, with a darker staining of organic matter at the surface. The A horizons are usually relatively shallow. The B horizon rests on weathered bedrock and is usually yellowish in colour but in the more northern parts of the region subsoil colours are redder, indicating better drainage.

These soils are usually quite infertile in their original state and can be quite acidic. Most major nutrients and many trace elements are deficient in these soils. The soils are moderately well drained but the subsoils are unstable and prone to erosion if disturbed.

These soils have supported forestry in the south and grazing across the entire region. Research in the middle of last century showed that these soils needed liming and heavy applications of phosphate to support improved pasture species.

These soils are prone to dryland salinity.

Soils in the metamorphic aureoles

These steep, hilly areas have shallow, stony soils, the harder metamorphic rocks being resistant to weathering. These soils support eucalypt forest. Some areas have been cleared for pasture. The soils will share properties with those of the sandstone areas.

Soils on granitic rocks

These soils are typically duplex in character and are mostly chromosols. Because of the weathering resistant coarse quartz crystals in the parent rocks, these soils are usually sandy, with A horizons that vary from sandy loams to fine sandy loams and B horizons that are typically sandy clays. The depth of these soils varies enormously across the landscape depending on the mineralogy of the rocks and the erosion and deposition of weathering products.

Originally these soils supported eucalypt forest. Candlebark gum is typical in the cooler wetter south of the region. Many areas have been cleared for grazing and most of the area's orchards and vineyards are found on these soils, for example around Harcourt, and further south near Baynton. The soils are moderately well-drained but tend to be chemically infertile and acidic.

These soils are prone to gully erosion if the subsoil is exposed.

Mixed eucalypt forest and native grasses on duplex soil near Tylden.

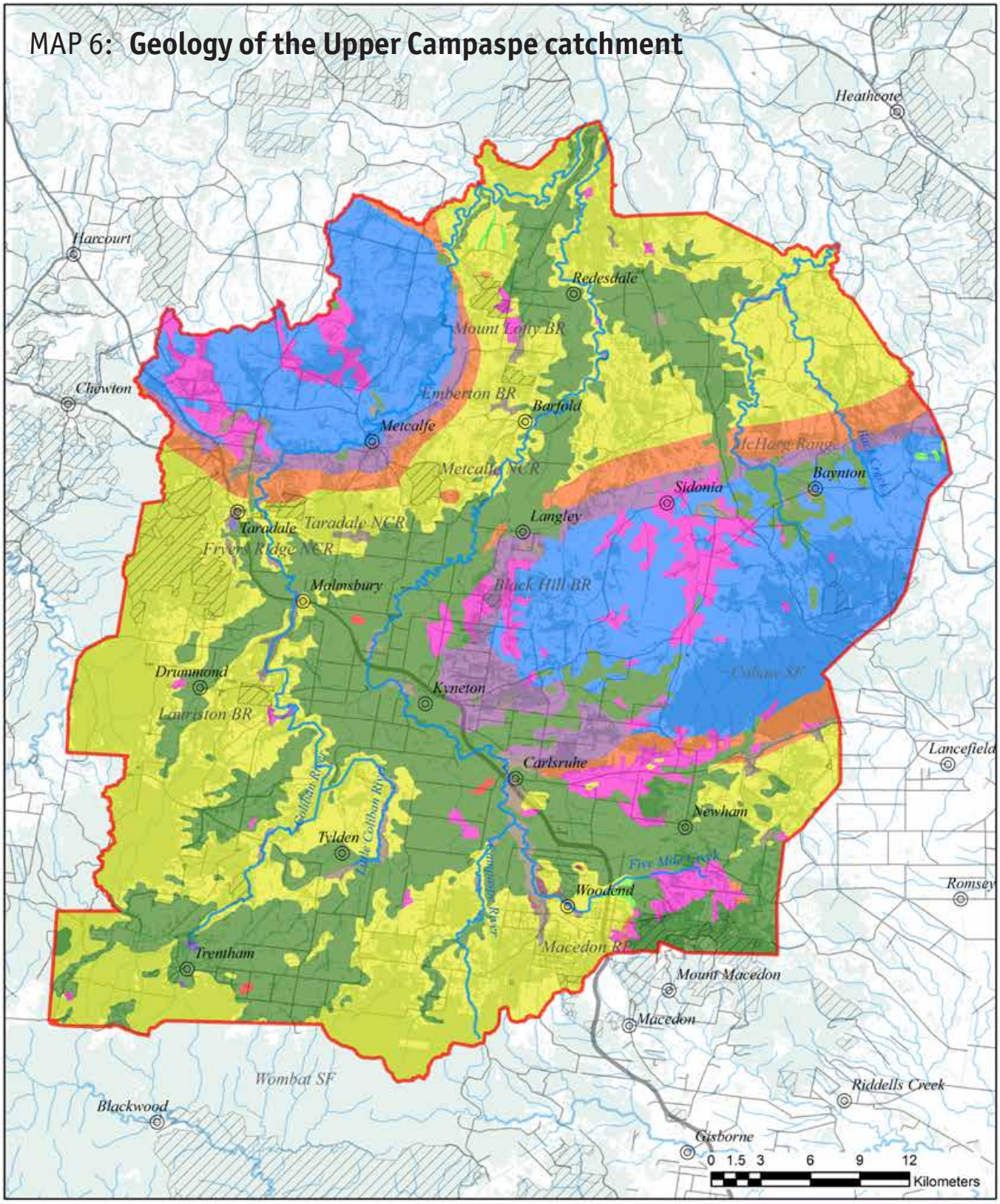
Soils on volcanics

The minerals in basalt weather to clay and hence all the soils formed on volcanic rock in the region have fine textures. Most are gradational with clay loam A horizons and clay B horizons. They are generally chemically fertile soils. Considerable variation of soils exists however. In the south, the soils are often deep and red in colour with excellent structure and drainage (ferrosols and red dermosols). Originally supporting tall forest, many of these soils were cleared and have been used for grazing and for potato farming (Tylden/Trentham/East Trentham). In terms of productivity, these red soils are probably the best in the catchment.

As one moves north, soils become shallower and darker in colour. Around Kyneton and Malmsbury brown and grey dermosols are common with black soils in low lying areas. The brown soils are found on ridges and the edge of escarpments where the drainage is better. The grey soils are found in flatter, less well-drained areas. These soils usually have good structure at the surface but subsoils are poorly-structured and these soils are characterised by their poor drainage. Many, especially the grey soils, are waterlogged during winter. These soils originally supported open woodlands of manna gum and swamp gum in the south and river red gum, yellow box and grey box in the north.

The EVC herb-rich foothill forest in the Wombat Forest.

MAP 6: **Geology of the Upper Campaspe catchment**



Legend

- Parks & Reserves

Geology

Rock Types

- Alluvial terraces
- Alluvium
- Colluvium
- Duricrust
- Granite
- Granodiorite
- Gravels
- Metamorphics
- New Volcanics
- Sandstone
- Swamps and Lakes

Climate

The Macedon and surrounding regions experience cool and relatively wet winters and warm, dry summers. Average annual rainfall ranges from 823.5 (Kyneton, 1961–1990) in the more highly elevated ranges to 580 mm (1900–?, Redesdale) in the lower elevation areas of the catchment.

Comparison of mean rainfall and temperature in the catchment.

	Mean rainfall	Min rainfall	Max rainfall	Mean January temperature	Mean July temperature
Kyneton	781	378	1216	27.2	10
Redesdale	580	245	1098	29.8	11.9

Climate change

Victoria's climate is changing and is likely to change further in the future. Despite the heavy rains in 2011–2012 Victoria is experiencing a long-term drying trend. The "Big Dry" of 1997–2009 in Victoria was the driest period on record, surpassing previous droughts. In the past two decades Victoria has experienced a 10–20% reduction in late autumn and winter rainfall and a decreased frequency of very wet years. Under a median climate change scenario in 2030 rainfall of the Macedon Ranges is likely to diminish to that currently experienced in Charlton in Victoria (RMCG, 2012).

Hot weather has become more common and severe in Victoria. Average temperatures in Victoria have risen approximately 1°C since the 1950s, and this has been associated with large increases in the number of extreme heat events. The spring of 2013 has been Australia's warmest on record. Data indicates that the Macedon region has warmed 0.7°C over the last century (RMCG, 2012). Under a median climate change scenario in 2030 temperatures of the Macedon Ranges are predicted to be like Ouyen is today (RMCG, 2012).

These changes are affecting water supply, agricultural productivity, human health, our natural environment and the number of extreme events such as wildfires and floods (IPCC, 2014; SoE, 2013). There is uncertainty around the magnitude of future changes but, given the state's vulnerability to climate change, adaptation to these new environments will be inevitable. These changes have relevance to community landcare in thinking about species suitability for revegetation and what landscape configurations will most support species adaptation and resilience as well as minimise the impact on communities from large-fire and flood events.

A working bee at Little Coliban River near Tylden which planted approximately 2000 trees. It was a joint effort between Tylden Landcare, Australian Conservation volunteers, Bendigo TAFE students and Latrobe University students. Seen here are Samantha Hall and Manu Scheltema.

Directory of Groups

Djed Radi Mansbridge with a tray of endangered Hairy Anchor plants at an Ashbourne Landcare planting day. If it were not for the efforts of many dedicated Landcarers plants such as these could have been lost to the region forever.

Ashbourne Landcare

Active for: 18 years
Members: 44 members (50/50 permanent residents and weekenders)

Key areas of activity:

The Ashbourne Landcare area is bounded by the Woodend-Tylden Road in the north, Harpers Road on the east, Falloons Road and Gleeds Lane on the west, and the head of the Campaspe River at the top of the Great Dividing Range, to the south. Ashbourne Landcare Group has an active committee that meets between 5–7 times annually. Member events such as field days, walks, working bees and guests speakers, are held 4–5 times per year. Various interest groups have been formed to record local flora and fauna species, and the aim is to broaden these to plant propagation, and more.

Ashbourne Landcare's Action Plan concentrates on weed eradication, particularly Gorse, Blackberry, Hawthorn and Willow, and restoration of relevant areas to engender bio-diversity. A long-term objective is to create a series of biolinks within this farming community and remnant bushland straddling the linear riparian zone of the Campaspe River. Members also value opportunities to learn about the natural environment and its care.

Ashbourne Landcare's particular subcommittee, WAG (Weed Action Group) was formed in 2012 to set up a landholder agreement program to tackle all areas of extensive gorse and blackberry infestations. This successful program engaged 40 landholders to sign up to three-year weed removal plans, and has brought about greater community participation and neighbourhood awareness.

Identifying Texas Needle Grass at a weed identification field day. Landcare groups work tirelessly at controlling and managing weeds.

Baynton–Sidonia Landcare

Active for: over 20 years
Members: 150

Key areas of activity:

Many people who live adjoining this area are members of their local Landcare group, as well as Baynton–Sidonia. Baynton–Sidonia have a very successful community engagement program in the form of regular walks, talks and workshops. The Baynton–Sidonia Landcare group is active in working toward sustainable land management in the region. Due to the relative absence of subdivision in the Baynton area, it remains one of the most intact farming areas in the Macedon Ranges area. They have been working closely with the North Central CMA's Kyneton Woodlands Project.

Other projects include:

- Telstra Direct seeding project on McHarg Ranges and ongoing revegetation.
- Threatened flora protection (banksias, casuarinas etc) – collected seed, propagated and planted around district.
- Quarterly newsletter – involvement and creation of the local community is a high priority for this Landcare group.

Campaspe River and Land Management Group

Active for: over 20 years
Members: 10

Key areas of activity:

This Kyneton based group has been active for many years with a static membership of local Kyneton residents. The top projects are weed control along the river (Crack Willows, Blackberries and Gorse), repairing the river walk path following flooding – currently 4 km long, with excellent interpretive signage.

Campaspe Valley Landcare

Active for: over 20 years
Members: 20

Key areas of activity:

The Campaspe Valley Landcare Group is within the area between the lower reaches of the Coliban and Campaspe Rivers leading to Lake Eppalock. The area includes the town of Redesdale and the Barfold district. Its geographic centre is situated approximately 20 km north of Kyneton. It includes members in the Shires of Mount Alexander, Macedon-Ranges, Mitchell and the City of Greater Bendigo. The group's main focus is landholders as many members are farmers and hobby farmers. They have held Walk & Talk mornings at various properties of members of the group. Other key projects include Texas Needle Grass mapping and landholder education (in conjunction with Malmsbury Landcare), Langley School revegetation and roadside Gorse control.

Carlsruhe Landcare Group

Active for: 5 years
Members: 25

Key areas of activity:

Carlsruhe Landcare group has a core, dedicated committee that drives the group forward. The group is very focused on the Carlsruhe township – mowing, gorse spraying and generally keeping it looking its best. The Campaspe river and Yelka Park are also a major focus of the group – it is public land and the group has put in walking paths, seats and interpretive signage up to showcase this wonderful asset. The group is currently focused on a biolink from the township to the Cobaw forest.

Members of the Campaspe River Walk committee, Don Smith and Peter Harding, discuss the vexed issue of weed control. For over 20 years they have removed weeds, created walking paths and revegetated along a four kilometre stretch of the Campaspe River.

Friends of Bald Hill

Active since: December 2014
Members: Currently 20 with a potential for 30

Key area of activity:

The Friends of Bald Hill is a newly formed group where members will work in partnership with the Macedon Ranges Shire Council to actively manage the reserve through an integrated approach to protect its rich diversity of indigenous flora and fauna including state and national significant species.

The key foci for the partnership will be to implement the Macedon Ranges Shire Environmental Management Plan.

Activities will include:

- Conduct on-ground activities such as weed removal, flora and fauna monitoring, seed generation and revegetation and general maintenance,
- Increase community awareness and interest in the reserve's ecological, geological and cultural significance through special speakers and presentations, guided day and spotlight night walks, developing brochures and a website, installation of nest boxes for ongoing monitoring, and developing informal trails with interpretive signage,
- Continue close connections and involvement with the Pipers Creek Landcare Group.

Friends of Black Hill Reserve

Active since: 1979
Members: 15

Key areas of activity:

The Friends Of Black Hill these days comprise a motivated group of local volunteers and their families, old and young, and new members are always welcome. Meetings and working bees are held throughout the year, usually involving much socialising and a BBQ lunch.

Over the years many thousands of trees have been planted, walking tracks created including many hundreds of steps on the steeper sections. Drainage channels have been dug, with pipes buried under walking tracks to reduce flooding and erosion.

Picnic tables, Rotunda and Information Boards, together with walking track signs have been installed. Close to 80 nesting boxes have been installed throughout the reserve to provide lodgings to the wide variety of fauna that calls Black Hill home.

Langley Landcare

Active for: 18 years
Members: 20

Key areas of activity:

Langley is in the Macedon Ranges. Membership is all from landholders in the area, many of whom work from and live on their properties which range in size from 25 acres up to 60–70 acres. There are some parcels of land where the landholders live in other parts of Victoria but still support the Langley Landcare group's efforts.

Top projects include the restoration of 5–6 km of Jimmy Poulter Creek (named in memory of a landholder) as well as other as yet unnamed small creeks and tributaries of the Campaspe.

If money was no object Langley would love to use a steam weeder to reduce the use of chemicals.

Malmsbury District Landcare

Active for: 17 years
Members: 55 households

Key areas of activity:

Malmsbury crosses Macedon Ranges, Hepburn and Mt Alexander Shires; 75% of members live locally and 80% have smaller lifestyle properties. The group produces a bi-monthly newsletter and hosts annual public meetings on topics of natural history. Current projects include the revitalisation of the Malmsbury Channel Reserve, which drains into the Coliban River and gorse control on the river's tributary in the Kangaroo Creek valley. Ongoing woody weed control and revegetation is also carried out on the Malmsbury Common, also bordering the Coliban River.

Over 18,000 indigenous trees and shrubs have been grown and planted on members properties since 2009 with additional plants going into plantings in the vicinity of Malmsbury–Metcalfe Road, the Friends of Malmsbury Botanic Gardens arboretum and local primary school planting projects. Field days and excursions to see projects or items of educational or environmental interest have also been popular and are frequently conducted in conjunction with neighbouring Landcare groups.

The group also conducts regular activities under the Clean Up Australia banner, tackling local features such as the Lauriston NCR and the Drummond Avenue of Honour. Flora and fungi species lists have been prepared for local reserves and the group has produced a kit to aid the identification of introduced needle grasses and works in conjunction with Hepburn Shire to control local outbreaks of Pattersons Curse.

Metcalfe Landcare

Active for: 6 years
Members: 30

Key areas of activity:

Most members have been there for less than 10 years having moved up from Melbourne. Metcalfe has a static population with an overlay not to allow future development

Top three projects: 1) Roadside beautification program, 2) Coliban River woody weed control and revegetation 3) Strategic planning, where are we heading. Future areas of activity are an integrated Gorse control program for landholders.

Robert Pearse from Langley Landcare is seen here taking a break on the Campaspe River. "Our long-term vision is to create biolinks along the several creeks that rise in the foothills of Black Hill and run down into the Campaspe River."

Macedon Ranges Indian Myna Action Group

Active for: 1 year
Members: 100

Key areas of activity:

MRIMAG operates under the auspices of Woodend Landcare, with support from Macedon Ranges Sustainability Group and several MRSC councillors and membership is free.

To date 70 traps have been made by the group's volunteers and distributed from Bullengarook to Kyneton. The traps are simple but effective wire constructions – over 300 Indian mynas have been caught and humanely destroyed. Traps remain the property of MRIMAG and are loaned to members, moved to hot spots accordingly.

An information brochure and photographic ID sheet are currently being prepared by MRIMAG. Future plans include engaging with other Landcare groups in the UCLN and surrounds, conducting an Indian myna survey and holding a forum for trappers and members of the public.

Newham and District Landcare Group

Active for: 10 years
Members: 104 households

Key areas of activity:

Newham Landcare's focus for the next 50 years will be to continue development of the Campaspe Maribyrnong Headwaters biolink. Through revegetation and protection and buffering of remnant vegetation, connectivity between Cobaw State Forest and Macedon Regional Park will be achieved. Educational activities focus on the natural values of the area and how landowners can enhance these. The group is heavily involved with the local school – providing funding for environmental educational activities, running Waterwatch and propagating activities for the students and their families.

President of Newham and District Landcare, Penny Roberts, walks through the landscape that her group is revegetating. The group is involved with the local school which harvests seeds and propagates plants for Newham's Landcare projects.

Pipers Creek and District Landcare Group

Active for: 20 years
Members: 16

Key areas of activity:

Pipers Creek Landcare are focused on gorse and blackberry, and an integrated management plan –linking Bald Hill Reserve and surrounding landholders and implementing the Macedon Ranges Shire Council Bald Hill Reserve Management Plan. They have had a great success, but now need non-compliant landholders to control weeds – seeking MRSC support for this.

Pipers Creek are pro-native and distribute native plant (and anti-cypress pine) advice to new landholders. They also distribute free plants to new members funded by Envirofund and plants supplied by Goldfields Nursery.

The group has two Indian myna traps and an active trapping program. Regular BBQ meetings are held at various member locations. There is high participation in neighbouring Landcare group activities eg Baynton-Sidonia. Pipers Creek Landcare has the slogan Landcare – "I care" and finds it works.

Taradale Landcare Group

Active for: 15 years
Members: 15

Key areas of activity:

Taradale Landcare Group has, until recently, been in recess. The group has previously undertaken extensive gorse control with follow up revegetation, focusing on waterways on both private and public land in the township. The group has also worked on education and on ground activities in partnership with schools and other community groups.

Young cyclists enjoy riding along the Domino Trail near Trentham. The trail is maintained by Trentham District Landcare group.

Children help with planting at a Woodend Landcare planting event.

Trentham District Landcare Group

Active for: 16 years
Members: 70

Key areas of activity:

Trentham Landcare's main focus is landholders with 50 acre blocks. Those with large holdings are not active members and don't come to meetings. There are also commuters and people who work from home. They are aiming for weed-free Trentham. They hold monthly working bees using cut and paste weed control techniques (funded by Shire).

Trentham Landcare is involved in the maintenance and control of weeds on the Domino Trail, a popular walking trail which runs through the forests on the outskirts of Trentham.

Trentham is the fastest growing community in the Hepburn Shire with growth of 2–3% per annum. Top projects are the distribution of trees to members and North Central CMA weed and flora survey at Trentham Falls on Coliban River.

Tylden Landcare Group

Active for: 16 years
Members: 30

Key areas activity:

Tylden landcare group has had a focus on Gorse control and revegetation along Premier Mine Road, working with multiple partners, landowners and the wider community. District Gorse control is to be a priority for the landcare group in coming years; particularly mapping. The group has provided

Tim McCaw from Bendigo TAFE at a planting day on the Little Coliban River near Tylden. The project which grew out of a Victorian Landcare grant aims to eradicate weeds and revegetate the Little Coliban River.

trees to members and has run a series of guest speakers to meetings. During more recent times Tylden landcare group has prioritised the rehabilitation of the Little Coliban River. An ongoing partnership has been established between landcare and the Tylden school where students have grown indigenous seedlings for the river rehabilitation project. A project within the river rehabilitation program is the reintroduction of a locally endangered species – the Hairy Anchor Plant (*Discaria pubescens*).

A planting day on the Little Coliban River, near Tylden.

Woodend Landcare

Active for: more than 20 years
Members: 50

Key areas of activity:

The group focus is on Five Mile Creek and public land and run approximately 10 planting/ maintenance/activity days each year.

The Landcare group also works in other areas around Woodend including Slatey Creek Reserve, various Railway and VicRoads reserves. They work closely with the Macedon Ranges Shire Council, North Central CMA, local community groups and schools. In addition, Woodend Landcare hosts a number of education and training events for the Woodend Community each year.

Landcare members often volunteer at schools to run the 'Waterwatch' program, a science-based activity aimed at teaching students the importance of healthy waterways.

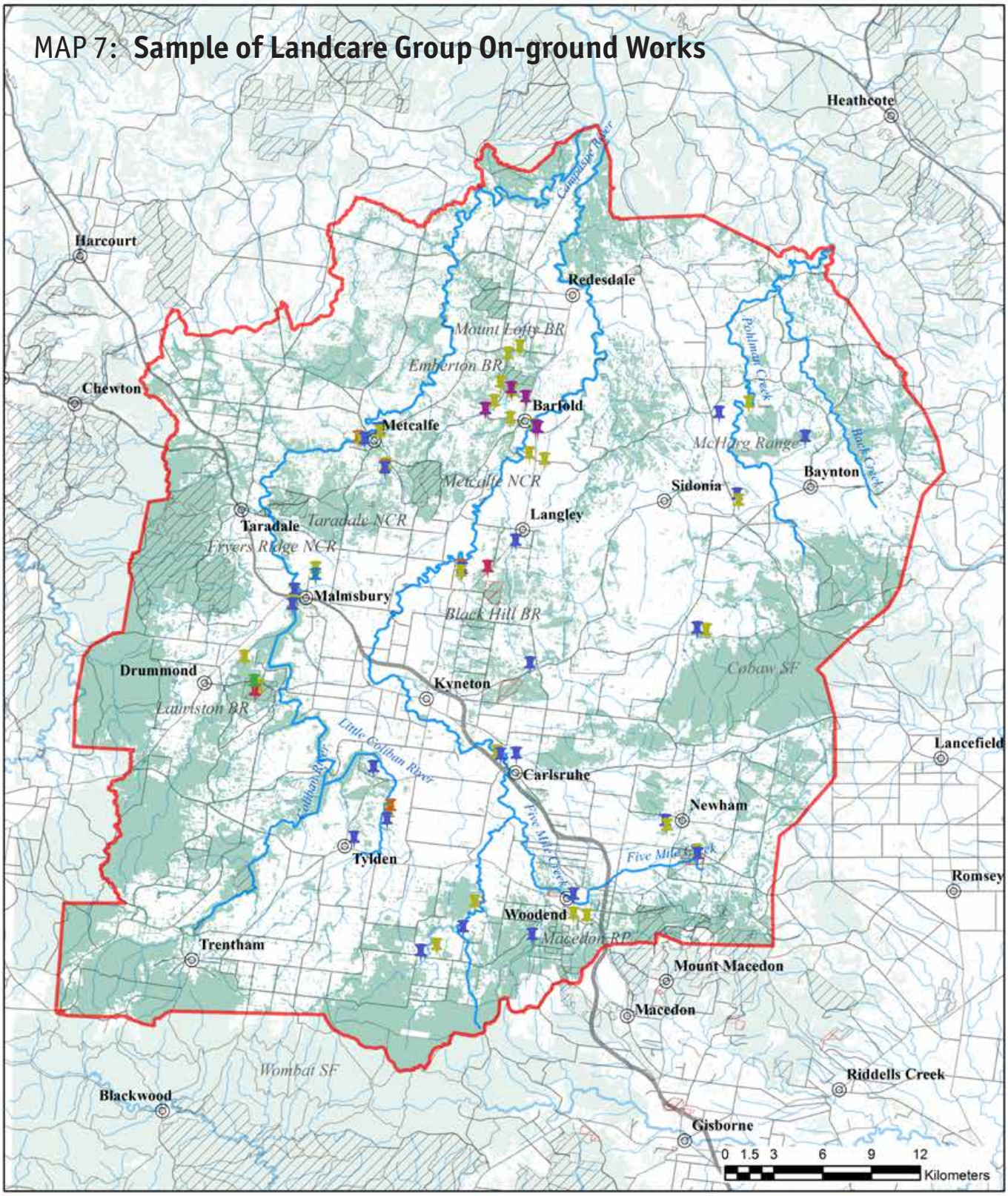
Snapshot of on-ground achievements

As part of the first two workshops, information on the 'top 3' on-ground achievements was collected. This information is presented in Map 7: 'Sample of Landcare Group on-ground works' on the next page and is also presented as a matrix in Appendix 3, page 69. Common themes include woody weed control (particularly Gorse), remnant vegetation protection and revegetation, waterway protection and enhancement and community involvement and education.

The maps represent a 'snapshot' of the on-ground achievements of groups and are a broad representation of the breadth and volume of works undertaken by Landcare groups in the region, rather than a comprehensive record.

President of Ashbourne Landcare, Alan Denehey, examines a Gorse infestation in Ashbourne. Ashbourne Landcare has a subcommittee known as the Weed Action Group, involving 40 landowners tackling extensive Gorse and Blackberry infestations.

MAP 7: **Sample of Landcare Group On-ground Works**



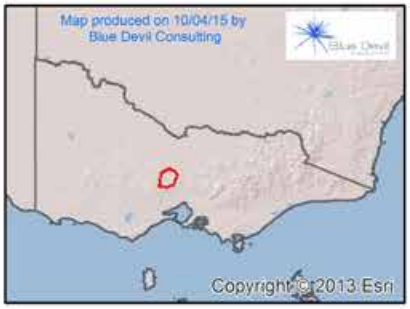
MRSC Bushland Reserves

Other Parks & Reserves

Sample of Our On-ground Achievements

Output Type

- Education Activities
- Flora and Fauna Survey
- Fencing
- Workshops
- Seed Collection and Prop.
- Weed Control
- Revegetation



Please note that this map does not aim to represent the full breadth of member Landcare groups' on-ground activities, but has mapped the 'top three' achievements as nominated by groups in the strategic planning workshops.

Section 4 – Catchment assets

What is the 'asset' approach?

The starting point for any conservation strategy is identifying the important elements (or assets) of that landscape that we want to conserve. Every landscape has one or more reason why it is important for conservation such as having an outstanding example of an ecological system or community or a species restricted to that area.

Those assets ideally should represent and encompass the full array of biodiversity in an area. However assets need not be restricted to biodiversity assets. Other natural or cultural resources needing conserving can equally be a focus if they are important to people engaged in conserving an area.

Selected assets then provide the basis for developing strategic actions for conservation, based upon their viability and particular stresses affecting their health.

UCLN members and the Environmental Officer for MRSC William Terry.

Documentation of key assets

A full list of key assets identified by groups, and an analysis of those assets can be found in Appendix 2, page 68.

Ecological processes

Ecological processes are the fundamental mechanisms that create and maintain natural ecosystems. They include climatic processes, natural disturbance regimes, hydrological cycles and interactions between species. Maintaining these inter-related processes is essential for sustaining all life now and into the future. Ecological processes that provide benefits to humans are referred to as 'ecosystem services'. These include a stable climate, clean air, pest control and pollination.

Whilst there is a need to focus on protecting and managing individual key biodiversity assets, these actions are more likely to be effective if consideration is also given to the ecological processes that support these assets. By combining the key assets and ecological processes approach a range of actions can be identified to improve ecological processes and protect key assets at a local or regional scale.

Some potential examples include avoiding the clearing of native vegetation, improving environmental flows, controlling pest animals and plants, strategic development of biolinks and the implementation of ecological burning regimes. Building the resilience of ecosystems will also provide the best chance of adapting to the impacts of climate change.

Key potentially threatening processes

Potentially threatening processes are actions, activities or processes that threaten or may threaten the survival, abundance or evolutionary development of native species, native vegetation, ecosystem or ecological processes.

The following key threatening processes to biodiversity in the region have been identified by the NCCMA.

- Clearing of native vegetation
- Climate change
- Habitat fragmentation and isolation
- Alterations to hydrological flows
- Pest plants and animals
- Altered fire regimes
- Timber harvesting and firewood collection
- Grazing
- Salinity
- Nearby land uses

Assets identified by our groups

In the first two workshops, groups were asked to identify the top three assets for their group. A general discussion about what was meant by an asset was had, and we discussed that it could be a landscape type, a vegetation type, a geological feature, a waterway, a species, a soil type, a historical or cultural feature. Map 8: 'Key Assets' on page 57 illustrates the key assets as mapped by groups. These assets have been analysed and aggregated into groups to allow us to make some strategic decisions on how we will manage them; refining them from a disparate grouping of isolated elements into something that we can form a strategy around in terms of how to protect, monitor and manage them. The following six key asset types have been identified and mapped:

1. Waterways and Riparian Vegetation:

This includes the Campaspe and Coliban Rivers and their tributaries, and associated remnant riparian vegetation. Riparian vegetation is made up of the following vegetation types: Stream-bank Shrubland, Creekline Grassy Woodlands, Alluvial Terraces Herb-rich Woodland mosaic, Swamp Riparian Woodland and Sedgy Riparian Woodland (comprising the Riparian and Riverine and Grassy Woodlands or Forest supergroups). This asset links all of the member groups together as all have a focus or activity on waterways.

Riparian areas are very productive parts of the landscape as they reliably provide resources, such as nectar and bark, for most of the year (Palmer 2009). Riparian areas have also been found to provide

*Milkmaid (*Burchardia umbelata*).*

*Wiry Bossiaea (*Bossiaea cordigera*).*

refuge areas during drought and climate change (Bennett et al 2009). The linear nature of riparian areas also facilitates dispersal of native fauna. Protection and restoration of riparian areas form an integral part of rebuilding landscape connectivity, especially in more cleared areas.

Riparian vegetation on public land in the southern part of the catchment is generally of very high quality when compared to riparian vegetation lower in the catchment.

Management of stock is considered to be the key management issue for riparian vegetation on private land. As mentioned below in the 'North Central CMA assets' section, the Campaspe and Coliban Rivers are both classified as moderate – poor in health.

2. Dry Forests

As mentioned in the EVC supergroup descriptions above, Dry Forests are the dominant vegetation type throughout the catchment. This vegetation type has been most commonly identified as an asset by Landcare groups due to its predominance in the catchment and the fact that it is highly represented in public reserves (many of which have been identified as individual assets by Landcare groups). Dry Forests provide important habitat for many fauna species particularly woodland birds and vulnerable species such as the Brush Tailed Phascogale (Tuan). Whilst Dry Forests are in relatively good health in the catchment, threats to their health include poor management practices, land clearing on private land and invasion by pest plants and animals.

3. Grassy Woodlands

This asset comprises the Herb-rich Woodland, Lower Slopes or Hills Woodlands and Plains Woodlands or Forests EVC supergroups. They occur from the foothills of the ranges in the south to the northern most part of the catchment. These ecosystems are endangered and highly vulnerable, due to their fragmented and isolated nature, and the fact that they are not well represented in public reserves. Much of this remnant vegetation can be found on roadsides, particularly in the north of the catchment, where they have been protected from land management practices that threaten their health. The herbs and grasses that make up the species richness of these ecosystems are particularly sensitive to disturbance from grazing and other farming practices. Invasive plants such as Texas and Chilean Needle Grass, and Nasella, are also key threatening agents.

4. Damp Forest

Damp Forest occurs in the southern most end of the catchment and is well represented in the Macedon Regional Park and Wombat State Forest. Both Damp Forest and Shrubby Foothill Forest EVCs are included in this asset. Generally speaking this asset is of least concern in the catchment due to its intact nature and because it occurs mostly on public land. Damp Forests are a key habitat for many threatened fauna and flora species in the region, including many birds eg. the Powerful Owl and mammals eg. Spotted Quoll.

Walkers enjoy the Domino Trail near Trentham.

5. Healthy Soils

The productive soils in the south of the catchment (Trentham, Ashbourne and Tylden east) have been identified as important farming assets of the region. They are also quite stable in terms of susceptibility to erosion and salinity. Soils on sandstone are predominant across the catchment. They support grazing across the region, but are prone to dryland salinity. Their subsoils are unstable and prone to erosion if disturbed.

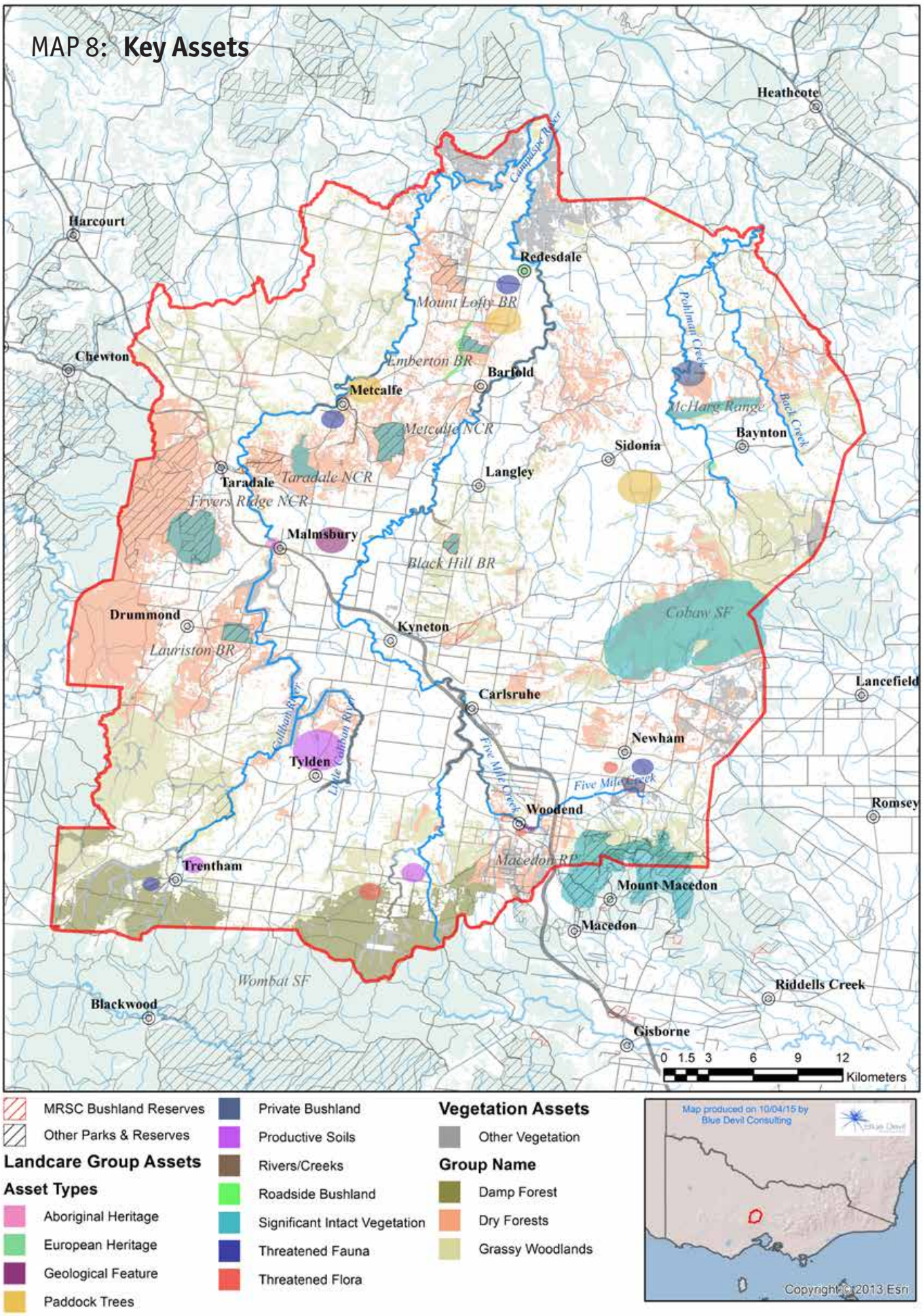
6. Paddock Trees

Paddock Trees are an iconic feature of our landscape; some can be 200–800 years old. Very old trees play an important role in the landscape, providing habitat through fallen leaf litter, nectar and hollows for many insect, lizard, frog, mammal and bird species. Paddock Trees are very important in maintaining habitat connectivity as they may often be the only native vegetation on private land. They are especially important in providing stepping stones in the landscape where remnant vegetation is isolated and fragmented. Paddock Trees on private land are important in providing hollows for habitat, as these may often be missing in public land reserves due to past logging of large trees in those reserves. Large trees on private land may also play a role in mitigating salinity and erosion and protecting soil health.

Threats to the values that mature paddock trees provide includes; a lack of natural regeneration (often due to grazing pressures), stock damage, natural senescence, stresses due to a changing climate, nutrient build up in the soil, soil compaction, salinity, fire and removal due to development.

Landcare groups in the north (Campaspe Valley, Baynton Sidonia and Metcalfe) in particular identified paddock trees as assets, but they play an important role in provision of habitat and landscape connectivity across the whole of the catchment.

Rob Burdett and John Walter from Malmsbury District Landcare alongside the fence that Landcare recently built after extensive weeds were removed. Along with other members of Malmsbury District Landcare, they are working on a long term project – 'Reclaim The Channel Reserve', to remove weeds, plant native vegetation and create a walking path.



Please note that this map does not aim to represent all of the assets that Landcare groups' value in the region, but are the 'top three' or key assets as nominated by groups in the strategic planning workshops.

Assets identified by North Central CMA

The Campaspe River is identified as a priority waterway in the 2014 North Central CMA Waterway Strategy.

Within the NCCMA Regional Catchment Strategy (RCS), regional priority setting for threatened species means that there is more focus on the bioregions and their communities (and flora and fauna) in the lower end of the UCLN catchment. In this lower end of the catchment there is much less, and more fragmented vegetation, waterways are in poorer health and there are a high number of threatened species.

In the Upper Campaspe, and the Central Victorian bioregion, the RCS identifies two priority biodiversity asset areas:

1) Central Victorian Uplands Region 1: Daylesford/Wombat
2) Central Victorian Uplands Region 3: Kyneton Woodlands

North Central CMA strategic planning links

The North Central CMA targets are to improve the river reaches in the Upper Campaspe region to moderate – good by 2050, and to have a Willow-free upper catchment by 2030. Most of the river reaches are in very poor condition, and Crack Willows are in most reaches.

North Central CMA projects

Caring for the Campaspe project

The four year (2012–16) 'Caring for the Campaspe' project is the first large scale on-ground works project to be implemented, delivering river health improvements for the river. Funded to $3.73M by the Victorian government, the overall project target is to improve the condition of 400 ha of riparian vegetation along the Campaspe River leading to improvements in aquatic and riparian ecosystem health.

Alan Denehey, President of Ashbourne Landcare group looking out across the Campaspe River in an area that was sprayed for Blackberries.

The project area encompasses the riparian zone along the entire 220 km length of the Campaspe River from Ashbourne to Echuca. The Campaspe River tributaries, floodplain and adjacent land use are excluded unless project work in these areas will have a direct benefit to the Campaspe River.

July 2013 marked the beginning of three years of on-ground implementation of fencing, weed control and revegetation works on both private and public land along the river.

In early 2013, 650 landholders adjoining the river were contacted directly (with the assistance of local government) regarding opportunities to be involved in the project. The on-ground output targets for the project include:

- 80 km of riparian fencing
- 163 ha of woody weed control
- 48 ha of Willow control
- 80 ha of revegetation
- community engagement activities.

Over 130 individual landholders from along the length of the river expressed an interest in being involved in the project with which the North Central CMA is progressively working.

Maeve McNamara (six) and Meg Shurey (eight) examining some of the plants they have grown from seed at the school for the Newham Landcare group.

Acknowledging that there is more demand than current funding levels, the North Central CMA is also working together with Landcare and community groups to support complementary works along the river through other funding opportunities. In this way, community groups can also benefit from the project with boosted membership and positive partnership projects. One such example is a successful Communities for Nature grant involving Upper Campaspe Landcare Network and Ashbourne Landcare.

The Caring for the Campaspe project is also extending upon previous Willow removal works completed by the Upper Campaspe Landcare Network at Windmill Bridge and the Campaspe River and Land Management Group through the Kyneton township. Fencing and weed control along the river in the Langley area also extends upon previous successful grant-funded works of Langley Landcare.

Kyneton Woodlands Project

In 2012, the North Central CMA secured $2.46M through the Australian Government's Clean Energy Future program to improve carbon storage and the biodiversity of remnant grassy woodlands on private land in the Kyneton district. Rolling out to June 2017, the Kyneton Woodlands project will assist landholders to protect, manage and re-establish biodiverse carbon stores on their land.

Grassy woodlands were once widespread through the Edgecombe, Greenhill, Langley, Pastoria, Pipers Creek and Sidonia districts north of Kyneton. However, they are now considered at high risk of extinction as remnants are reduced to isolated, small patches in decline. The project aims to re-establish 610 hectares of woodland vegetation and to protect and enhance 950 hectares of remnant woodlands.

The large scale fencing and revegetation works will contribute to a healthier, more sustainable local environment and boost the local economy through the support of businesses involved in fencing, planting, seed collection, weed control and nursery propagation of plants. Participating landholders may even be able to generate income from credits for carbon sequestration.

A Project Reference Group meets regularly to guide the project and involves representatives from the Macedon Ranges Shire Council and the local community with expertise in business, natural resource management or community development. The Macedon Ranges Shire will also be undertaking complementary weed management annually on public land and roadsides within the Kyneton Woodlands project area.

The project regularly partners with Baynton Sidonia Landcare to deliver biodiversity and cultural awareness community engagement events that are well attended.

Macedon Ranges Shire Council Bushland Reserves in the Upper Campaspe catchment

Bald Hill Bushland Reserve

Owned and managed by Macedon Ranges Shire Council, the reserve is located approximately three kilometres east of Kyneton in the Pipers Creek district. The reserve features a rich diversity of indigenous flora and fauna including state and nationally significant species and supports the largest and most intact area of native vegetation within the Kyneton region.

Black Hill Bushland Reserve

Located to the north of Kyneton near Langley district, the reserve is owned by both Macedon Ranges Shire Council and the Department of Environment Land Water and Planning. Black Hill Bushland Reserve is well known for its unique granite outcrops amongst the dense eucalyptus forests that provide habitat for many native species, which include Brush-tailed Phascogale and a variety of Gliders.

Hanging Rock Reserve

Macedon Ranges Shire Council manages the reserve for multiple user groups including a range of recreation organisations. The area immediately around the rock is managed for conservation and protection of species such as Greater Gliders and resident Powerful Owls. The reserve forms an island of natural habitat, which acts as an important wildlife corridor for species travelling between the Macedon Range and the Cobaw Range.

Marsh Court Reserve

Owned and managed by Macedon Ranges Shire Council, the reserve is a unique area of public land running alongside the Campaspe River in Ashbourne. The reserve is in the process of being restored by a dedicated team of Landcare locals with support from the North Central CMA and Macedon Ranges Shire Council. With the recent restoration, the site has potential to provide quality riparian habitat for native species including Platypus.

Woodend Grassland Reserve

The Council managed Woodend Grassland Reserve is located close to the township of Woodend and is one of the last remaining grassland areas in the region. It consists of a high diversity of indigenous grasses, lilies, herbs and orchids, many that are considered rare in the region.

Macedon Ranges Shire Council has developed Environmental Management Plans for Bald Hill, Hanging Rock and Woodend Grassland Reserves. A management plan is currently being developed for Black Hill Reserve.

Section 5 – Where to from here

What has become very clear through these initial planning processes is that many of the values motivating member groups are shared. This suggests that there is much potential for member Landcare groups to work collaboratively towards those values and achieve outcomes at greater scales, and possibly in more effective manners, than working in isolation.

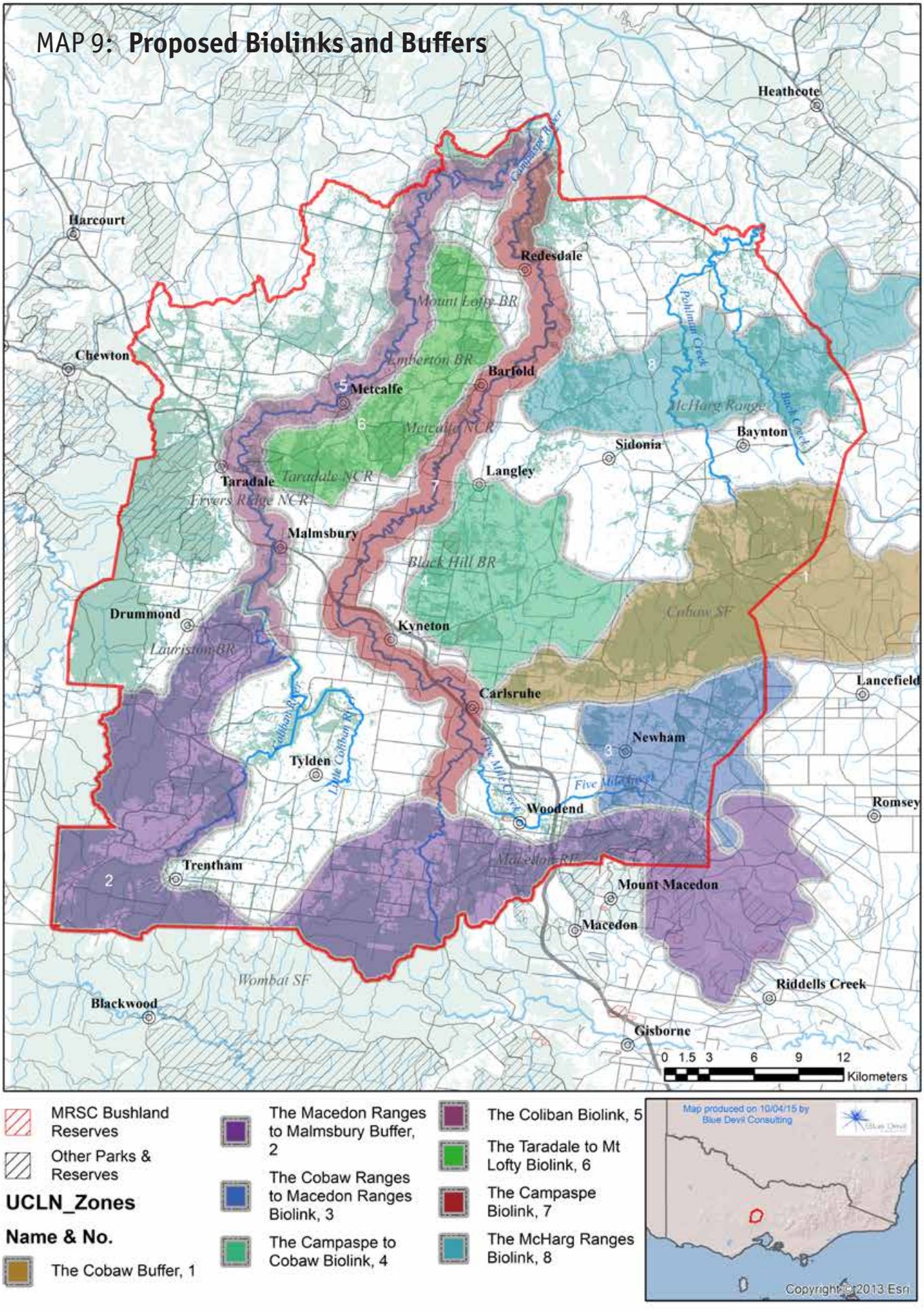
A strategic discussion amongst Landcare members.

Examples of this are the waterways. All member groups identified waterways as key assets and had projects to improve waterway quality. With waterways being highly significant in terms of their contribution to maintaining landscape connectivity and providing important habitat in dry times, the Network is contributing to the maintenance and improvement of key landscape features for long-term conservation of biodiversity.

With many of the groups' work being undertaken in areas once supporting grassy woodlands, working together the Network could potentially play a significant role in improving the health of these highly endangered ecosystems.

Collectively member groups' assets represent some key elements essential to re-establishing landscape-scale connectivity and ecological function in the region. Map 9: 'Proposed Biolinks and Buffers' on the next page brings together the Assets identified in this study, and using the principles of connectivity, maps potential priority zones for re-establishing ecological connectivity across the UCLN area. The Zones that this process identifies are as follows.

The Cascades, a significant geological feature, found on the Coliban River near Metcalfe.


MAP 9: Proposed Biolinks and Buffers
Heathcote
Harcourt
Redesdale
Mount Lofty BR
Chewton
Emberton BR
Barfold
Metcalfe
Pohlman Creek
McHarg Range
Buck Creek
Baynton
Sidonia
Metcalfe NCR
Taradale
Taradale NCR
Langley
Fryers Ridge NCR
Malmsbury
Black Hill BR
Drummond
Kyneton
Cobaw SF
Lauriston BR
Lancefield
Carlsruhe
Newham
Tylden
Five Mile Creek
Woodend
Romsey
Trentham
Macedon BR
Mount Macedon
Macedon
Wombat SF
Riddells Creek
Blackwood
Gisborne
0 1.5 3 6 9 12
Kilometers
MRSC Bushland Reserves
Other Parks & Reserves
UCLN_Zones
Name & No.
The Cobaw Buffer, 1
The Macedon Ranges to Malmsbury Buffer, 2
The Cobaw Ranges to Macedon Ranges Biolink, 3
The Campaspe to Cobaw Biolink, 4
The Coliban Biolink, 5
The Taradale to Mt Lofty Biolink, 6
The Campaspe Biolink, 7
The McHarg Ranges Biolink, 8
Map produced on 10/04/15 by Blue Devil Consulting
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Key biolinks and buffers identified in the Campaspe catchment

1. The Cobaw Buffer

Focuses on buffering and protecting the Dry Forest and Grassy Woodland vegetation of high integrity around the Cobaw Ranges and extending ecological connectivity through to the Grassy Woodlands around the Kyneton Woodlands project.

2. The Macedon Ranges to Malmsbury Buffer

This zone focuses on components of, and land surrounding, the highly significant intact vegetation of the Macedon Regional Park, the Black Forest and Wombat State Forests, connecting and protecting the major blocks of high integrity Damp and Dry Forest that run east–west across the Great Dividing Range.

3. The Cobaw Ranges to Macedon Ranges Biolink

This zone connects the relatively intact landscapes through the Jim Jim ridge, passing through Hanging Rock to provide a north-south connection between the Cobaw and Macedon Ranges, and that complements and extends the works being undertaken in the Port Phillip and Westernport CMA catchment to achieve the same end.

4. The Campaspe to Cobaw Biolink

A north-south extending zone providing connectivity between the Cobaw Ranges and the Campaspe River and the Taradale to Mount Lofty Biolink where it also meets the Campaspe River. It encompasses Langley Bush Reserve and Black Hill Reserve, and encompasses the Blackhill–Cobaw Biolink identified by Langley Landcare.

5. The Coliban Biolink

links and protects vegetation along the length of the Coliban River and its tributaries.

6. The Taradale to Mt Lofty Biolink

A north-south running zone connecting major blocks of high integrity Dry Forest and Grassy Woodland from Taradale, through Metcalfe, taking in the Taradale Nature Conservation Reserve, the Metcalfe Nature Conservation Reserve, the Emberton Nature Conservation Reserve to the Mount Lofty Nature Conservation Reserve.

7. The Campaspe Biolink

Connects and protects vegetation along the length of the Campaspe River.

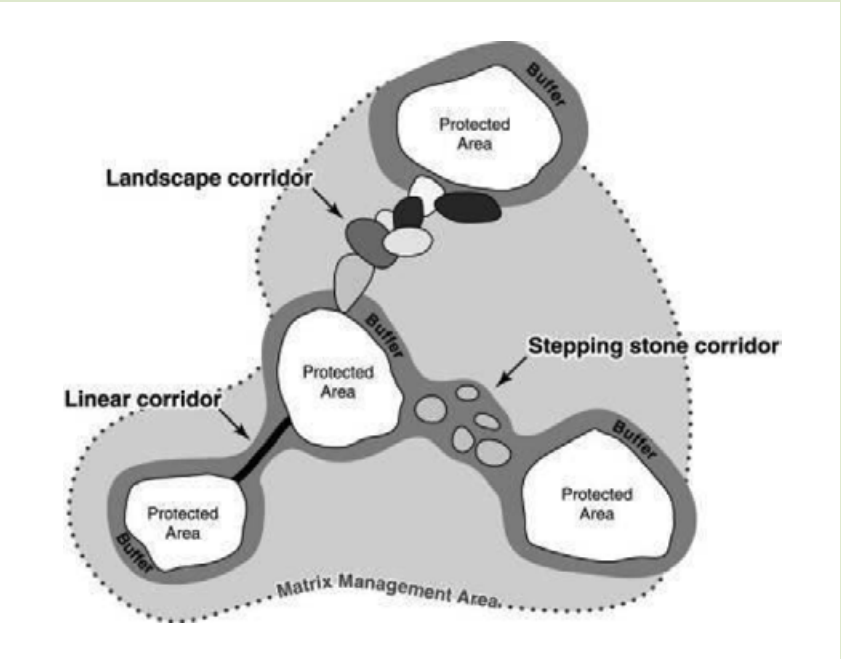
8. The McHarg Ranges Biolink

Extends from the Campaspe River easterly to the reserves outside the catchment near Heathcote. The zone consolidates the relatively large patches of Grassy Woodland and Dry Forest over the privately held land through the McHarg Range.

Further consultation with member groups is needed around these zones. They could provide a useful framework for developing collaborative actions between groups that address key assets, while building larger-scale ecological connectivity in the landscape.

Connectivity between assets

Ecological connectivity in the landscape is important in that it allows resident populations in a remnant patch of habitat to interact with populations in other remnant patches. It allows nomadic species to move through the landscape. Connectivity is required for migratory species and is important in allowing species to respond to environmental changes and recover from disturbances.



Children enjoying the forest landscape in the Wombat Forest near Trentham.

Recommendations for the Network

It is clear at the end of this strategic planning phase that this is just the first step for our Network in terms of planning. This is the first detailed strategic planning process undertaken by the Network in the seventeen years it has been running. It's the first time for many member groups that they've been involved in a process like this; not just focussing on their local objectives, but looking at the broader picture and a 'landscape scale' approach (although many member groups have been working outside their 'local' patch to build broader connections in the landscape).

We need to acknowledge that such planning processes take time to be done well, and that continuing to engage groups meaningfully is critical in developing a realistic plan. With that in mind, the following recommendations are actions that the Network can take to support member groups in their individual activities, and to facilitate the meeting of our shared ecological goals.

Addressing Network objectives

Some thought needs to be put into how we will implement the objectives of the Network. This is one of the key learnings to come out of the strategy process – the role of the Network as identified by our member groups and the Network's relevance to them as an organisation. More planning on how to meet our Network objectives needs to be undertaken. A first step may be to 'brainstorm' an actions table for each of the identified Network objectives. This may be done with the committee, or as a wider group with members of each group participating. From here, an activity table and implementation plan should be developed. Plans, processes or policies for each objective could be developed eg. communication plan, education strategy etc. Resources should be allocated to implement activities that meet these objectives.

Meeting our ecological objectives

Ongoing conversations, consultation and planning is the next step in assisting groups to meet our shared ecological objectives. The next stage of the planning process should involve refining member groups' collective ecological objectives by developing goals, targets and activities that meet these objectives. The next steps in the planning process should be:

1. Improve our knowledge of our assets and the key threats to them, develop targets and actions that address key threats. Activities may include;
   - Mapping and identifying weed issues across the catchment; develop an integrated weed strategy
   - Mapping high conservation vegetation on private land
   - Developing a series of workshops on key assets to facilitate learning (this could be part of a planning process that develop targets and goals at the same time)
   - Scope potential asset-based projects
   - Scoping and establishing processes that allow the Network to capture learnings and new knowledge to continually refine and improve strategic directions and actions of the Network
   - Monitoring and evaluation processes as part of project development.
2. Develop cluster groups around identified biolinks and buffers, other landscape zones or shared issues. This process should include;
   - Checking with groups that identified biolinks and buffers are accurate and appropriate
   - Test group interest – which zones should we focus on first
   - Develop finer scale planning within zones eg. Refine assets and threats, undertake finer scale mapping, develop actions to protect assets and deal with threats.
   - Scope potential zone-based projects

*President of Friends of Bald Hill, Carolyn Robb, at a Cherry Ballart tree (*Exocarpus cupressiformis*) growing out of a rock at Bald Hill Reserve near Kyneton.*

Appendices

Appendix 1 – Vegetation loss since 1750

EVC SuperGroup	Area in 1750 (Hectares)	Area in 2013 (Hectares)	Percentage remaining
Dry Forests	80634.10	32753.1	40.62
Lower Slopes or Hills Woodlands	36758.84	6302.1	17.14
Plains woodlands or Forests	34018.04	3266.8	9.60
Riparian	5214.22	1413.9	27.12
Herb-rich Woodlands – Alluvial terraces and/or creeklines	4528.83	915.6	20.22
Box Ironbark Forest or Dry/lower fertility Woodlands	3952.02	1492.4	37.76
Riverine Grassy Woodlands or Forests	1828.87	1134.9	62.05
Wet or Damp Forest	586.15	394.67	67.33
Wetlands	291.02	75.34	25.89
Montane Grassy Woodland/ Rocky Outcrop Shrubland Mosaic	10.33	8.15	78.93

*Blackwood seeds (*Acacia melanoxylon*) harvested and ready for planting.*

Appendix 2 – Top three assets identified by Groups at workshops

* X indicates that no specific location within the group's boundary was recorded for the asset.

	Abiotic			Species	Vegetation Type						Biolink	Habitat	Heritage	Waterways	Recreational
	Landscape features	Soils	Climate		Forest	Grassy Woodland	Grass-land	Paddock Trees	Riparian	Wet-lands					
Campaspe Valley				Peregrine Falcon		Barfold Reserve, sig roadside veg		X					Halls, Bridges and Mining	Campaspe	
Langley						Blackhill Reserve and especially on creeklines		X						Campaspe, local creeks	
Metcalfe	Cascades, Turpins Falls				Metcalfe and Taradale Flora Reserves			X						Coliban	
Baynton Sidonia	McHarg Ranges				X			X			Remnant forest joined by Pohlmans Creek		Burke & Wills Track, Baynton Hall	Pohlmans Creek	
Malmsbury	Volcanic cones/ flows				Upper Lodden Flora Reserve, Lauriston Nature Reserve								Aboriginal heritage on Coliban/ Back Creek	Coliban	
Tylden		Productive pastures	X		X		X					Remnant veg, fauna refuge		Little Coliban, Campaspe and seasonal creeks	
Carlsruhe	Carlsruhe Common								Campaspe, Five Mile Creek					Campaspe River and tribs	
Newham	Hanging Rock Reserve (flora and fauna values), geological feature, Aboriginal and European heritage			Phascogale, Swift Parrot, Powerful Owl, Lathams Snipe, *Dianella aomena*, *Lepidium hyssopifolium*	Macedon Regional Park, Cobaw State Forest, Roadside veg	Roadside veg								Five Mile Creek (gully off west of Jim Jim)	
Woodend				BlackGum					Five Mile Creek				Stone High St Bridge, Ruby McKenzie Park Weir	Five Mile Creek	Walking and cycling trail along Five Mile Creek, Woodend Childrens Park and adjacent veg on creek
Ashbourne			Rainfall belt 900 mm–1200 mm	Common flora and fauna, Black Gum, Orchids	Wombat				Campaspe					Campaspe	
Trentham	Trentham Falls	Highly productive soils		Powerful Owl											

Appendix 3 – Top three on-ground achievements identified by Groups at workshops

	Waterways					Roadsides		Remnant veg mgmt	Flora and fauna surveys	Biolinks	Public land management	Community activities	Other	Partner-ships
	Revegetation	Gorse	Black-berry	Other	Fencing	Woody weed control	Texas Needle	Woody weed control						
Campaspe Valley	Langley School					Dallistons Rd Gorse, Watchbox, Mill School, Mitchells La & Siddles Rd Broom, Gorse	Dallistons Rd Gorse, Watchbox, Mill School, Mitchells La & Siddles Rd Broom, Gorse	Dallistons Rd Gorse				Walk and talk at members properties		Powercor funding
Langley	Jim Poulter Ck	Jim Poulter Ck			Jim Poulter Ck								Seed collection for use by treeproject	
Metcalfe	Snodgrass Creek rehab, Coliban River (Cascades to Redgum Bridge)	Snodgrass Creek rehab, Coliban River (Cascades to Redgum Bridge)												
Baynton Sidonia	Burke & Wills Track, Prendergasts La, McHarg Range (direct drill and tubestock)	Pohlmans Creek				Bourke & Wills Track, Prendergasts La						Native display garden at Rowanston	Veg Report Burke & Wills Track	MRSC, Telstra
Malmsbury	Malmsbury Common, Channel Reserve	Malmsbury Common (Willow and Gorse), Channel Reserve, Kangaroo Creek						Lauriston Reserve (Gorse, Pines)	Texas Needle Grass mapping, Lauriston Reserve (fungi also)			Walking track		Coliban Water
Tylden	Little Coliban River (near Gluepot Bridge), Premier Mine Road				Little Coliban River (near Gluepot Bridge)							Plant propagation with Primary School		Premier Mines
Carlsruhe	Yelka Park Biolink Stage 1, Campaspe River	Campaspe River Willow control												
Newham	Mixed Corridor planting (Jim Jim?), Hanging Rock Reserve, Biolinks project	Gorse contol to coincide with mixed corridor planting						Hanging Rock Reserve (Gorse, Broom & Laurel)		Campaspe–Maribyrnong biolink project; desilting dam and offstream watering, direct seeding to link remnants, Pattersons Curse control and tubestock reveg				
Woodend	16,000 plants along Five Mile Creek							Management (including planting) of Slatey Creek Black Gum Reserve			Woody weed control near rail reserves around Quarry Rd & Bawden Rd, management of Slatey Creek Black Gum Reserve (incl. planting), creation of Newell Reserve			
Ashbourne	Riparian biolink from Ashbourne Road to Marsh's Court Reserve							Marsh's Court Reserve Gorse	Bird and koala population data		Ashbourne Reserve revegetation		Weed control on private land, esp WAG integrated weed control (Gorse, Blackberry)	
Trentham				Weed control Trentham Falls, Stony Creek Reserve, on the Campaspe								Collection of local seed for revegetation (plants grown by Tree project)	Revegetation on private properties (Dunns, Turners, Elliots, Halls, Keaneys)	

Appendix 4 – References

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Jenny Waugh and Penny Roberts, President of Newham & District Landcare at a planting undertaken as part of the Campaspe Maribyrnong Headwaters Biolink. "What I would like to see is this landscape linked between Cobaw State Forest and Macedon Regional Park. I would like to see a continuous network of native vegetation and be part of a strong community that values and maintains it," said Penny.

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*Golden Everlasting (*Xerochrysum bracteatum*), seen at Black Hill Reserve.*

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Back cover photo: Water flowing over the Cascades, near Metcalfe after a summer environmental flow release.

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