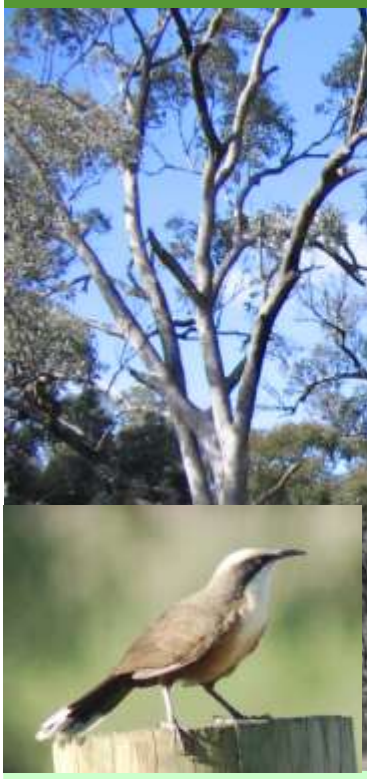
Conservation Plan
for the
Violet Town Landscape Zone



Biodiversity Action Planning
in the
Mid Goulburn

Victoria
The Place To Be
Department of Sustainability and Environment
Department of Primary Industries
Trust for Nature
GOULBURN BROKEN CATCHMENT MANAGEMENT AUTHORITY
Australian Government

Developed By:

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Front cover: Grassy Woodland near Baddaginnie
Inset: Grey-crowned Babbler (Pomatostomus temporalis) Photos: DSE Water and Biodiversity 2006

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EXECUTIVE SUMMARY

The **ultimate aim** of Biodiversity Action Planning (BAP) is to achieve broad-scale conservation of native biodiversity. BAP identifies priorities for the conservation of native biodiversity, as part of the implementation of the Victorian Biodiversity Strategy 1997. It is not a 'stand-alone' project; rather a process for translating objectives set out in Victoria's Biodiversity Strategy to regional, catchment and local level (Victoria's Biodiversity Strategy fulfils a statutory requirement under Section 17 of the *Flora and Fauna Guarantee Act 1988* and provides the biodiversity action plan for Victoria).

To **translate objectives** from state to regional, catchment and local landscape level, Victoria was first divided on a bioregional basis (bioregions) and then at a landscape level (landscape zones). The 'Victorian Riverina Bioregional Plan' and the 'Mid Goulburn Region North Landscape Zone Plan' outline biodiversity priorities at the bioregional level. This 'Violet Town Landscape Zone Conservation Plan' has been developed at the local (landscape) level and is intended to assist government agencies (primarily extension staff) and the community, to work in partnership towards achieving catchment targets, by setting priority areas for protection and enhancement of native biodiversity. This plan is also intended to enable biodiversity priorities, data and advice, to be disseminated through existing planning processes, to landholders and agencies.

The **methodology** used to develop this plan is according to the 'Developers Manual for Biodiversity Action Planning in the Goulburn Broken Catchment (GBCMA 2004a)'. Two important components of the BAP process, are the 'focal species' approach and the 'key biodiversity assets' approach. The **focal species** approach uses the habitat requirements of a particular species, or a group of species, to define the attributes that must be present in a landscape, for these species to persist. Six focal species have been identified in the Zone: Jacky Winter, Brush-tailed Phascogale, Brown Treecreeper, Sacred kingfisher, Bush-stone Curlew, and Grey-crowned Babbler. These focal species have been chosen in order to promote the uptake of actions, for conservation within the Zone.

The **key biodiversity asset** approach is a method of grouping biodiversity assets (eg. birds, animals and plants) that use the same type of habitat. Five key biodiversity assets were identified for the Violet Town Zone: Grassy Woodlands, Major creeklines, Wetlands, Box-Ironbark Forest and Plants of Local interest. The grouping of these assets will assist in targeting the very high value sites first, down to the lowest priority sites.

The **Violet Town Landscape Zone** is located within the Goulburn Broken Catchment of Victoria. The Zone, which is approximately 126,409 hectares, is within sections of the Victorian Riverina and Northern Inland Slopes Bioregions and the Local Government area of Greater Shepparton City Council, Strathbogie and Rural City of Benalla. Since European settlement much of the vegetation in the Zone has been cleared, leaving a fragmented landscape, with many of the remnants being highly modified.

Within the Violet Town Landscape zone 547 **priority environmental sites** have been identified. These priority sites have been determined and ranked (very high, high, medium or low) based on factors such as, size, quality, Ecological Vegetation Class (EVC) conservation status, threatened species, landscape context and field surveying. These sites contain remnant vegetation and vary greatly in size, from a stand of paddock trees, to areas such as the Reef Hills State Park.

Management actions (advisory only) have been developed for the Violet Town Landscape Zone, based on the results of desktop analysis and surveying. It is intended that government agencies and the community, work together to incorporate these actions, in to existing projects/strategies, for the benefit of biodiversity conservation in the Violet Town Landscape Zone, as well as the Mid Goulburn Region and the Goulburn Broken Catchment.

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1.0 BACKGROUND

Figure 1: BAP Process

1.1 INTRODUCTION

The ultimate aim of Biodiversity Action Planning[1] (BAP) is to achieve broad-scale conservation of native biodiversity. BAP identifies priorities for the conservation of native biodiversity, as part of the implementation of the Victorian Biodiversity Strategy (Crown 1997). In particular, it aims to:

- Conserve native biodiversity[2] by maintaining viable examples of the range of ecosystems that occur naturally in Victoria,
- Promote a more strategic and cost-effective expenditure of public funds for the protection, restoration and ongoing management of priority biodiversity sites
- Achieve community support for biodiversity landscape planning and the conservation of strategic assets, in rural landscapes (Platt & Lowe 2002).

In order to achieve these aims, effective planning for native biodiversity also requires detailed planning at a bioregional and landscape level. Therefore, Victoria was first divided on a bioregional basis (Appendix 1) and then at a landscape level (landscape zones)(Appendix 2).

At the regional scale the 'Bioregional Strategic Overview for the Victorian Riverina Bioregion' and the 'Landscape Plan for the Goulburn Broken CMA - Mid Goulburn Region - North Zones', identifies the broad priorities for biodiversity conservation in the region. They also provide the foundation for producing detailed plans, such as the 'Violet Town Landscape Zone Conservation Plan (Ahern et al 2003). At the landscape level, this Violet Town Landscape Zone Conservation Plan, is intended to provide a biodiversity conservation resource for the community at a local level. Figure 1 illustrates the BAP process and where the Violet Town Landscape Zone Conservation Plan (highlighted in red) fits within a policy context.

1.2 OBJECTIVES

The 'Violet Town Landscape Zone Conservation Plan' has been developed at the local (landscape) level and is intended to assist government agencies (primarily extension staff) and the community, to work in partnership towards achieving catchment targets. This plan aims to ensure that private and public resources expended for conservation are targeted to priority sites. In this way, available resources can be used for the greatest possible outcomes. There are 547 priority sites, identified in the Violet Town Zone, ranging across very high, high, medium or low value. The protection and management of these priority sites, is important for the conservation of flora and fauna in the local area.

Broadly, this plan details:

- The landscape, vegetation and significant flora and fauna of the Violet Town Zone,
- Conservation vision for the Violet Town Landscape Zone,
- Priority assets to be conserved, their biodiversity value and threatening processes,
- Actions to protect and restore these assets, and
- Monitoring opportunities for the Zone.

[1] For further information on Biodiversity Action Planning visit the Department of Sustainability and Environment website at www.dse.vic.gov.au
[2] Biodiversity: the natural variety of life: the sum of our native plants and animals, the genetic variations they contain, and the natural ecosystems they form (NRE 1997)

1.3 CONTEXT FOR DEVELOPING THE VIOLET TOWN CONSERVATION PLAN

The Goulburn Broken Regional Catchment Strategy (GBRCS) identifies a vision for biodiversity in the catchment. The vision is that "the community will work in partnership with Federal and State Governments and other agencies, to protect and enhance ecological processes and genetic diversity, to secure the future of native species of plants, animals and other organisms in the catchment" (GBCMA 2003 p87). This Hughes Creek Landscape Conservation Plan is to assist in achieving this vision, through providing a strategic coordinated approach, for conservation of priority assets.

The GBRCS also identifies targets and priorities for the catchment (refer to Appendix 3 for further detail). The following points are intended to provide a summary of the Goulburn Broken Regional Catchment Strategy targets and priorities for biodiversity conservation. For further information please refer to GBCMA 2003.

The Goulburn Broken Catchment Management Strategy identifies the following biodiversity resource condition targets for native vegetation in the catchment:

1. Maintain the extent of all native vegetation types at 1999 levels in keeping with the goal of 'Net Gain' listed in Victoria's Biodiversity Strategy 1997,
2. Improve the quality of 90% of existing (2003) native vegetation by 10% by 2030,
3. Increase the cover of all endangered and applicable vulnerable Ecological Vegetation Classes to at least 15% of their pre-European vegetation cover by 2030,
4. Increase 2002 conservation status of 80% threatened flora and 60% threatened fauna by 2030,
5. Maintain the extent of all wetland types at 2003 levels where the extent (area and number) has declined since European settlement, and
6. Improve the condition of 70% of wetlands by 2030, using 2003 as the benchmark for condition (GBCMA 2003 p11).

Priorities for action to conserve biodiversity in the Goulburn Broken are driven by the conservation significance of the biodiversity asset. Regional investments in biodiversity conservation in the Goulburn Broken Catchment are driven by the following goals (in order of priority):

1. **Protecting** existing viable remnant habitats and the flora and fauna populations they contain (ie through reservation, covenants, management agreements, fencing and statutory planning),
2. **Enhancing** the existing viable habitats that are degraded (management by controlling threats such as pest plants and animals, grazing, salinity, promotion of natural regeneration and/or revegetation with understorey), and
3. **Restoring** under-represented biodiversity assets to their former extent by revegetation (to create corridors, buffers, patches of habitat) (GBCMA 2003).

It is intended that the actions outlined in this plan will complement the targets of the GBRCS and other policy/strategies pertinent to the state, catchment and region (eg. Victoria's Native Vegetation Management – A Framework for Action (NRE 2002a): Goulburn Broken Native Vegetation Management Plan (GBCMA 2000): and the Victorian River Health Strategy (NRE 2002b). This plan is also intended to integrate such policies (eg. targets and legislative requirements) in to the one document, for use by local communities. For example, this plan incorporates aspects of legislation (eg. Action Statements prepared under the Flora and Fauna Guarantee Act 1988), in to recommended on-ground actions, for the conservation of threatened species and communities.

The Biodiversity Action Planning (BAP) process uses current scientific knowledge to produce an 'ideal' landscape for biodiversity conservation. This 'ideal' landscape provides for the current levels of species abundance, diversity and interactions. BAP attempts to take a strategic approach to the conservation of threatened and declining species and vegetation types, by looking for opportunities to conserve groups of species in appropriate ecosystems (Platt & Lowe 2002). It is therefore intended that this South West Landscape Zone Conservation Plan will assist government agencies and the community, to work in partnership towards achieving catchment targets and an 'ideal' landscape, by setting priority areas for protection and enhancement of native biodiversity.

This plan is not intended to be a method of 'taking over' land, but rather a resource document, that assists with identifying priority assets and methods of action, to protect or restore valuable assets, through voluntary extension principles. This document may be used by agencies and community groups, for informing existing projects and for strategic planning. However, it must be remembered that this document is by no means 'comprehensive', as the BAP process relies on the regular updating of information, to keep it accurate and timely. The plan has therefore been developed as an adaptive plan, to enable management actions and information to be modified, in response to further information (eg monitoring).

This plan will be reviewed when necessary to ensure that it remains a 'living' document. It is also intended that extension staff will use Geographic Information System (GIS) programs, databases and DSE/DPI staff, to fully identify and understand the BAP process and to provide further information to the community. Consultation and extension with relevant stakeholders, including agencies and community groups, was conducted (and will continue to occur) throughout the development and implementation of this plan. It is envisaged that this plan will be a valuable resource, for identifying priority biodiversity sites and initiating further conservation works in the Zone, and at a later stage, will lead to further sites and projects being identified by interested individuals and groups.

2.0 THE STUDY AREA

2.1 LANDSCAPE

The Violet Town Landscape Zone covers an area of 126,409 ha, and contains sections of the Victorian Riverina and Northern Inland Slopes Bioregions, within the Goulburn Broken Catchment (Figure 2). Main towns within the zone include Benalla (in the east), and Violet Town (central, south) and the zone crosses the Local Government areas of City of Greater Shepparton, Strathbogie and Rural City of Benalla. It is bounded to the North by the Broken River and to the South by the boundary of the Central Victorian Uplands Bioregion. The Hume Highway is the major regional roads traversing the Zone. The Northern Inland Slopes Bioregion is comprised of low hills, once covered with a diversity of drier forests and woodland types, with EVC's differing to those found on the Riverine Plains Bioregion. Over 95% of native vegetation cover has been cleared within the zone and the majority of the remnant vegetation occur as scattered, isolated and small remnants.

Private land covers 97% of the zone (CGDL 2005). Clearing in the zone has been selective, with much more clearing on the fertile riverine plains and less clearing in dry, less fertile areas such as Box-Ironbark Forests and the northern Inland Slopes bioregion. The native vegetation remaining on private land is highly fragmented, and usually occurs as isolated remnants.

Public land covers the remaining 3% of the Zone and is predominantly associated with land along creek frontages, with a few remnant patches as Reserves. Other public land areas within the Zone include Reef Hills, which is a large State Park near Benalla with diverse vegetation types and a number of threatened species. The waterways and roadsides contain important habitat elements, such as large old trees and a diversity of structure, as well as providing important linkages across landscapes.

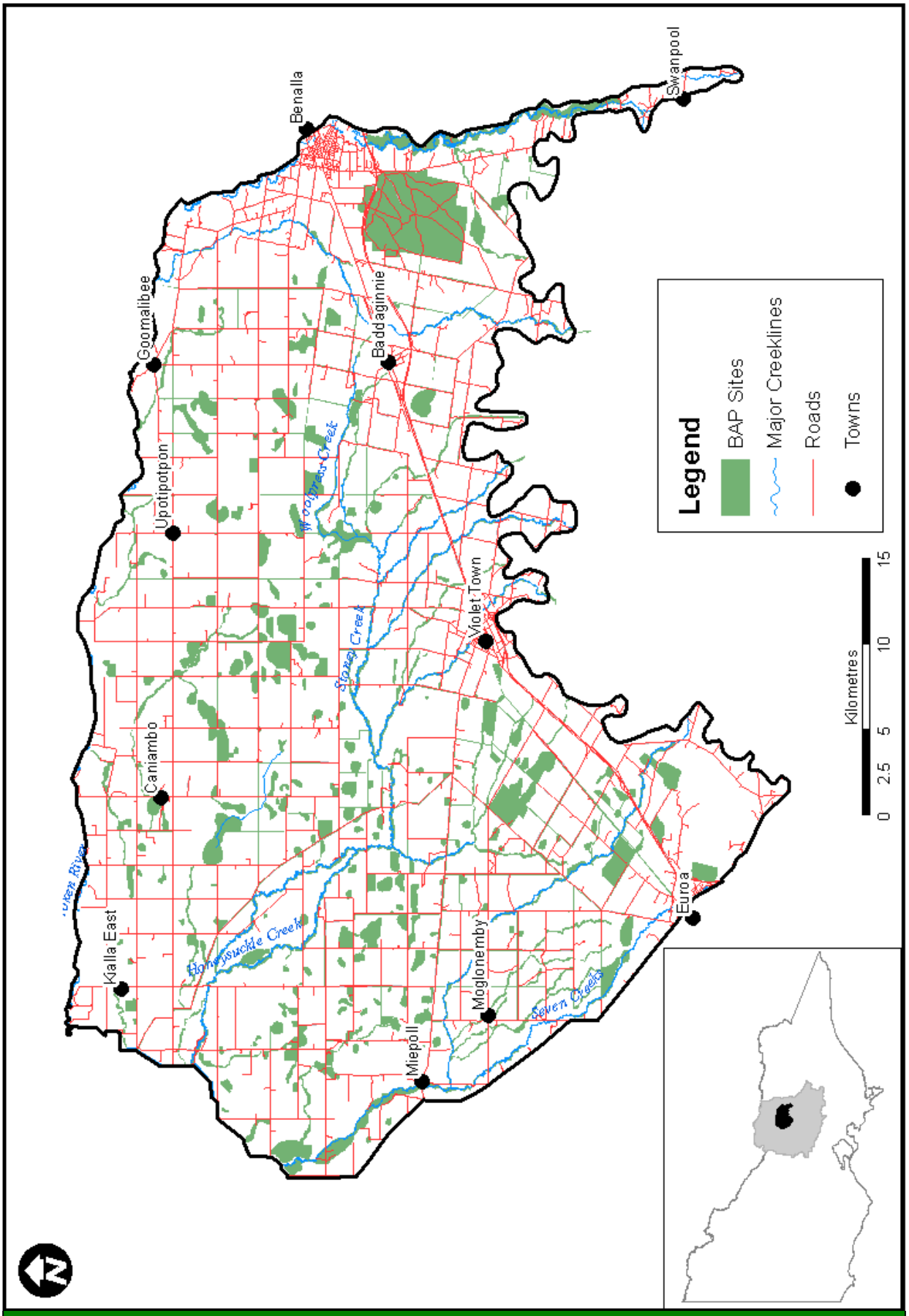

Figure 2: Violet Town Landscape Zone

2.2 VEGETATION

Ecological Vegetation Classes (EVC[3]s) are a vegetation classification system, derived from groupings of vegetation communities based on floristic, structural and ecological functions. Mosaics (combinations of EVCs) are a mapping unit, where the individual EVCs could not be separated, at the scale of 1:100,000 (Berwick, 2003).

Prior to European settlement, 24 EVCs were known to have been present within the Violet Town Landscape Zone (Figure 3). The most wide spread EVCs were Grassy Woodlands, Grassy Forest and Wetlands, and some Box-Ironbark forest and Box woodlands.

Woodland communities in the Victorian Riverina Plains Bioregion were dominated by Grey Box *Eucalyptus microcarpa*, Yellow Box *E. melliodora* and Buloke *Allocasuarina leuhmannii*.

Box-Ironbark Forests occur on the low sedimentary hills of Koonda and Dookie within the Northern Inland Slopes Bioregion. Understorey plants include Bent-leaf Wattle, Bush Peas, Common Cassinia with small shrubs, herbs and native grasses making up the understorey.

Waterways and wetlands are critical biodiversity features within the Violet Town Landscape Zone. Major waterways include Honeysuckle Creek, Sheep Pen Creek, Stoney Creek, Woolpress Creek and Seven Creeks. A number of small to medium sized wetlands (< 150 ha) with River Red Gum and associated box species remain, the largest being Jubilee Swamp Wildlife Reserve (147 ha) (Ahern et al 2003). There are also numerous small wetlands scattered throughout the zone which are of Bioregional Conservation Significance: Morphett swamp Wildlife reserve, Sawpit Creek Dam, Lehmanns Swamp, Coopers lane wetland, McBurney Swamp and Gum Swamp.

The majority of native vegetation has been cleared, and currently there is 12% tree cover in the zone. There has been selective clearing of EVC's with drier areas less cleared than EVC's associated with more fertile soils. Of the 24 EVC's thought to occur in the zone prior to settlement, 21 (88%) are considered to be Endangered or Vulnerable, two depleted (Box-Ironbark Forest; Grassy Dry Forest) and one EVC is of Least Concern (Heathy Dry Forest) (See GBCMA 2000 for details of categories). The Goulburn Broken Native Vegetation Plan describes goals and targets that have been set for the vegetation communities within the catchment. This includes ensuring that all EVCs are at least 15% of the pre-European cover by 2030 (GBCMA 2000). The majority of EVCs within the Violet Town Landscape Zone are below the 15% target (80%) (Table 1). Therefore, revegetation in this zone could be used to help achieve bioregional targets. For further details on each EVC contact GBCMA or DSE staff.

The current extent of native vegetation in the Violet Town Zone has dramatically reduced (Figure 3 & 4) since European settlement, primarily due to clearing. Table 1 identifies the EVCs in the Violet Town Landscape Zone, including their Bioregional Conservation Status (BCS), their pre-European settlement extent and current (as of 2003) extent (in hectares and % cover). Table 1 also identifies the area of 'Private Land No Tree Cover' and Unknown/Unclassified EVCs (Ahern et al 2003).

The Goulburn Broken Regional Catchment Strategy (RCS) identifies goals and targets that have been set for the vegetation communities within the catchment (Appendix 3). This includes "increasing the cover of all 'Endangered' and 'Vulnerable' (where applicable[4]) EVCs to at least 15% of their pre-European vegetation cover by 2030" (GBCMA 2003). The majority of EVCs within the Violet Town Landscape Zone are below the 15% target (Table 1) and are therefore considered 'Endangered' (17) or 'Vulnerable' (3) at the Bioregional level (Ahern et al 2003).

[3] For further information on each EVC, refer to the Department of Sustainability and Environment website at www.dse.vic.gov.au
[4] Applicable to Ecological Vegetation Classes that are 'Vulnerable' and are below 15%

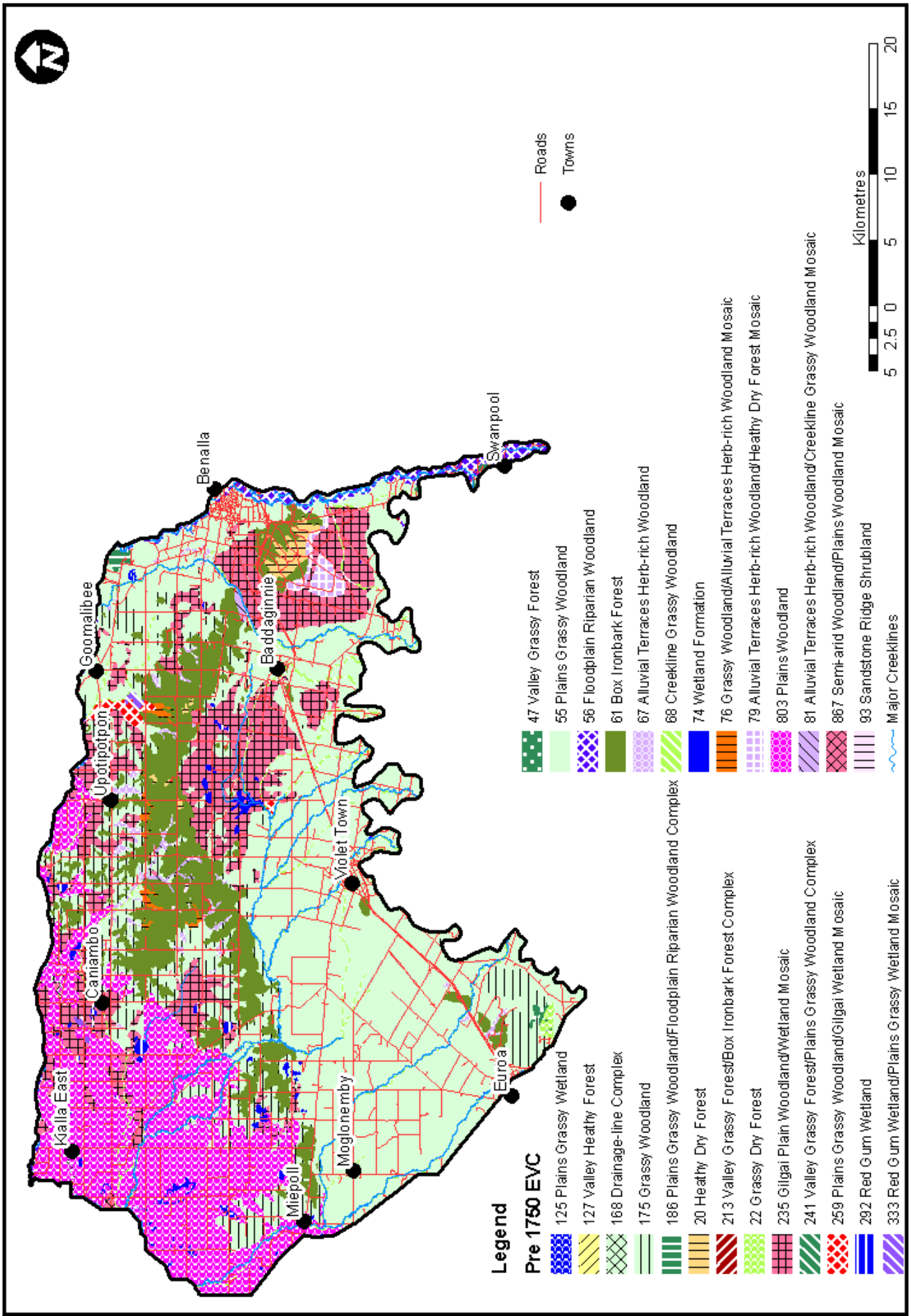

Figure 3. The distribution of EVC's prior to European settlement

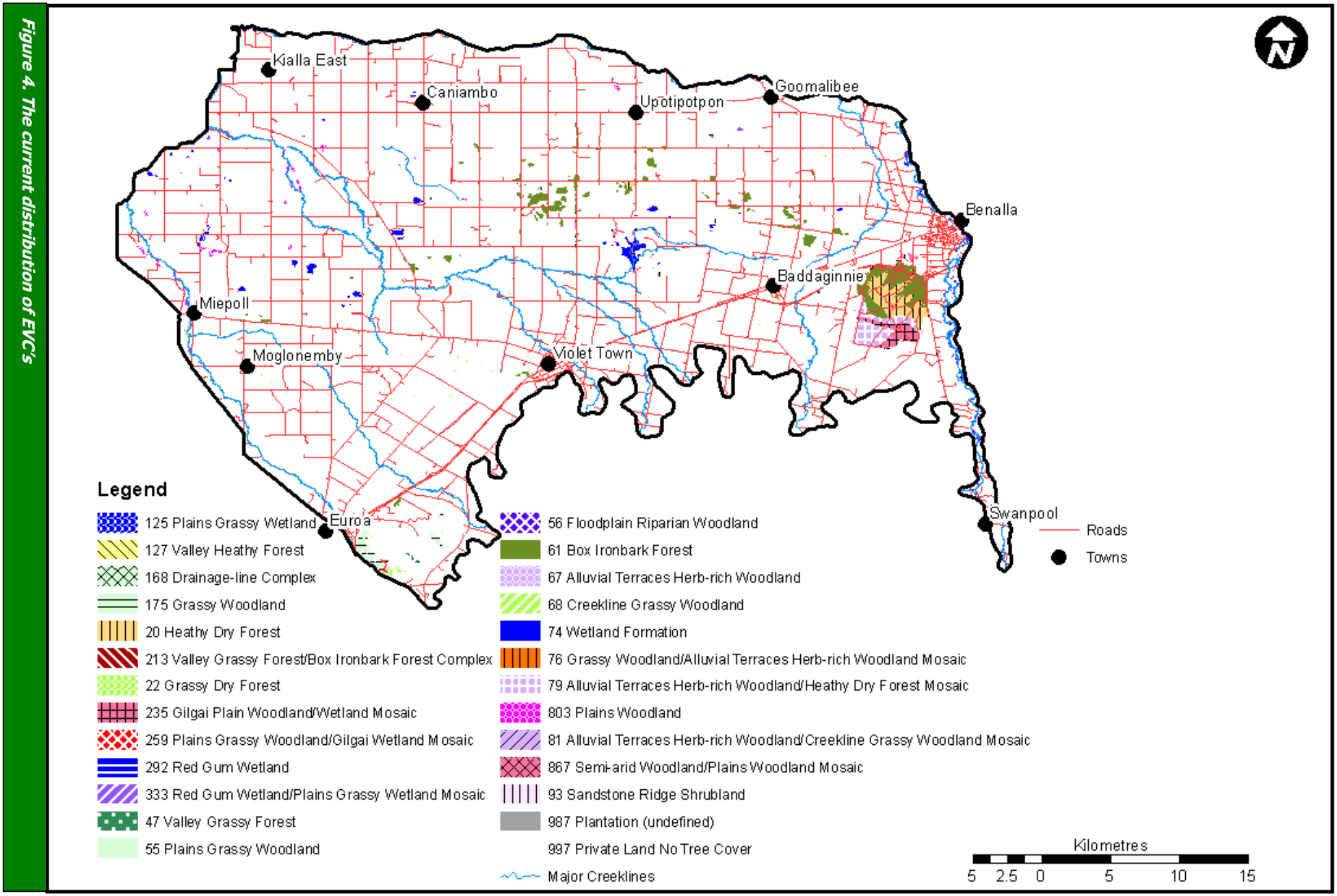

Figure 4. The current distribution of EVC's

Table 1: Violet Town Zone Ecological Vegetation Classes (pre-1750 and current)

EVC Group	EVC Number	EVC Bioregional Conservation Status	Ecological Vegetation Class (EVC) Name#	Pre-1750 Vegetation Area (ha)	Current Area of Vegetation (ha)	Current Area of Vegetation (%)	Catchment (15%) Target (ha)*
4	61	V	Box Ironbark Forest	14788	4353	29.4	2218
5	76	E	Low Rises Grassy Woodland/Alluvial Terraces Herb-rich Woodland	345	8	2.3	52
5	175	E	Grassy Woodland	13096	445	3.4	1964
6	20	LC	Heathy Dry Forest	751	1227	163.4	113
6	22	D	Grassy Dry Forest	210	41	19.6	32
6	47	V	Valley Grassy Forest	283	35	12.4	42
6	127	E	Valley Heathy Forest	2	2	85.0	<1
6	241	E	Valley Grassy Forest/Plains Grassy Woodland Complex	6	4	66.6	1
14	55	E	Plains Grassy Woodland	70043	2349	3.4	10506
14	186	E	Plains Grassy Woodland/Floodplain Riparian Woodland Complex	183	0	0.0	27
14	235	E	Gilgai Plain Woodland/Wetland Mosaic	17186	0	0.0	2578
14	259	E	Plains Grassy Woodland/Gilgai Plains Woodland/Wetland Mosaic	448	0	0.0	67
14	867	E	Pine Box Woodland/Riverina Plains Grassy Woodland Mosaic	72	0	0.0	11
15	56	V	Floodplain Riparian Woodland	2330	1513	64.9	350
15	68	E	Creekline Grassy Woodland	3151	580	18.4	473
15	168	E	Drainage Line Complex	77	0	0.0	12
16	67	E	Alluvial Terraces Herb-rich Woodland	1085	17	1.6	163
16	79	V	Alluvial Terraces Herb-rich Woodland/Heathy Dry Forest Mosaic	757	734	97.1	114
16	81	E	Alluvial Terraces Herb-rich Woodland/Creekline Grassy Woodland Mosaic	246	6	2.3	37
18	93	E	Broombush Mallee	31	0	0.0	5
19	74	E	Wetland Formation	613	348	56.8	92
19	125	E	Plains Grassy Wetland	206	52	25.0	31
19	292	E	Red Gum Wetland	366	110	29.9	55
19	333	E	Red Gum Wetland/Plains Grassy Wetland Mosaic	138	14	10.1	21
			TOTAL	**126413**	**11838**	**9.4**	**18873**
Table Information including column A & B modified from Ahern et al 2003 & CGDL 2005				*A*	*B*	*C*	*D*

Column C derived from (column B divided by column A) multiplied by 100 (for %)

Column D derived from (column A divided by 100) multiplied by 15

 # EVC names have altered since Ahern et al 2003 & are listed according to current corporate date (CGDL 2005)

Explanation of Terms:

- 'EVC Number' refers to the unique number attributed to that EVC in available literature (eg. CGDL 2005).
- 'EVC Bioregional Conservation Status' (BCS) refers to the threatened status of the EVC in the bioregion (eg. Murray Fans). Endangered (E) means that 'less than 10% of the pre-European extent remains, whilst Vulnerable (V) is defined as 'less than 10-30% pre-European extent remaining' (Platt 2002).
- 'Ecological Vegetation Class (EVC) Name' is the name given to that unique community.
- 'Pre-1750 Vegetation Area' refers to the area of vegetation cover (ha) prior to substantial clearance (eg. Pre-European Settlement).

2.3 SIGNIFICANT FLORA AND FAUNA

2.3.1 Flora:

Photo: Chocolate Lily (Arthropodium strictum) (NRE 2002e)

A range of flora, associated with wetlands, plains grassy woodlands and heathy forests are associated with the Violet Town Zone overstorey species include: River Red Gum (*Eucalyptus camaldulensis*), Grey Box (*Eucalyptus microcarpa*), White Box (*Eucalyptus albens*), Yellow Box (*Eucalytpus melliodora*), and Buloke (*Allocasuarina luehmannii*).

The range of small trees and shrubs include: Gold-dust Wattle (*Acacia acinacea*), Mallee Wattle (*Acacia montana*), Golden Wattle (*Acacia pycnantha*), Sweet Bursaria (*Bursaria spinosa*) and Gorse Bitter-pea (*Daviesia ulicifolia*).

The Voilet Town Zone also contains a range of groundcover plants including Wallaby Grass (*Austrodanthonia spp*), Plump Spear- (*Austrostipa aristiglumis*), Kangaroo Grass (*Themida triandra*) Flax Lilies (*Dianella* spp.). Plants that favour wetter environments, such as Lesser Joyweed (*Alernathera denticulata*), Common Sneeze-weed (*Centipeda cunninghamii*), Common Spike-sedge (*Eleocharis acuta*) and Upright Water-milfoil (*Myriophyllum crispatum*) may also be found (Earl *et. al*. 2001).

There are 16 species of threatened flora, recorded within the Violet Town Landscape Zone (NRE 2002c). These species are noted in Appendix 5, along with their threatened status (as per the Flora Information System), the State Level *(Flora and Fauna Guarantee Act (FFG Act) 1998)* and the National Level (*Environmental Protection and Biodiversity Conservation Act (EPBC) 1999*) (Ahern et al 2003).

Examples of threatened flora recorded in the Violet Town Landscape Zone include:

- Bent-leaf Wattle (*Acacia flexifolia*) (rare in Victoria)
- Woolly Wattle (*Acacia lanigera* var. *lanigera*) (rare in Victoria)
- Hickory Wattle (*Acacia penninervis* var. *penninervis*) (rare in Victoria)
- Buloke (*Allocasuarina luehmannii*) (listed under FFG)
- Crimson Spider-orchid (*Caladenia concolor*) (Vulnerable in Australia, endangered in Victoria and listed under FFG)
- Forest Bitter-cress (*Cardamine papillata*) (vulnerable in Victoria)
- Swamp Billy-buttons (*Craspedia paludicola*) (vulnerable in Victoria)
- Purple Diuris (*Diuris punctata* var. *punctata*) (vulnerable in Victoria and listed under FFG)

Photo: Crimson Spider Orchid (Caladenia concolor)
Photo: T. Edmonds 2005

2.3.2 Fauna:

There are 50 recorded threatened fauna species in the Violet Town Zone (Viridians 2005) (refer to Appendix 5 for species, their threatened status and relevant acts) (Ahern et al 2003).

More than 150 bird species have been recorded in the zone, and of these 24 are considered threatened at the State level (FFG Act 1988). Of particular importance in the zone is the provision of habitat for Bush Stone-curlew, nectar resources for Swift Parrots, and roadside habitat for Grey-crowned Babblers.
Examples of threatened woodland species recorded in the Violet Town Landscape Zone include:

- Bush-stone Curlew (*Burhinus grallarius*) (Threatened in Australia, endangered in Victoria),
- Grey-crowned Babbler (*Pomatostomus temporalis*) (endangered in Victoria, listed under *FFG Act 1988*), and
- The Temperate Woodland Bird Community
- Squirrel Glider (*Petaurus norfolcensis*)
- Brush-tailed Phascogale (*Phascogale tapoatafa*)
- Regent Honeyeater (*Xanthomyza phrygia*)
- Swift Parrot (*Lathamus discolor*) (endangered in Victoria, listed under *FFG Act 1988*),

Examples of threatened species recorded within the Violet Town Landscape Zone, predominantly associated with wetlands include:

- Hardhead (*Aythya australis*) (vulnerable in Victoria),
- Australasian Shoveller (*Anas rhynchotis*) (vulnerable in Victoria),
- Musk Duck (*Biziura lobata*) (vulnerable in Victoria),
- Freckled Duck (*Stictonetta naevosa*) (endangered in Victoria) and
- Little Egret (*Egretta garzetta*) (endangered in Victoria) (Ahern et al 2003).

Photo: Freckled Duck (Stictonetta naevosa). By Peter Rogers (NRE 2002f)

Examples of threatened fish recorded within the Violet Town Landscape Zone include:

- Golden Perch (*Macquaria ambigua*) (vulnerable in Victoria),
- Trout Cod (*Maccullochella macquariensis*) (Endangered in Australia)

3.0 PREPARING A CONSERVATION PLAN

3.1 METHODOLOGY

The methodology used to develop this Conservation Plan is based on the 'Goulburn Broken Biodiversity Action Planning Developer's Manual' (GBCMA *in prep.*). This document provides the background information relating to BAP in the Goulburn Broken Catchment, and is designed to ensure consistency during the development of the plans.

The methodology used to prepare this plan contained eight main elements. These were,
1) Identification of Conservation Features and Threatened Species,
2) Ground-truthing of Potential BAP Sites,
3) Field Surveying of BAP sites,
4) Prioritisation of BAP sites,
5) Generation of Focal Species List,
6) Generation of Key Biodiversity Asset List,
7) Development of Actions for Key Biodiversity Assets, and
8) Landscape Context Analysis.

Step 1. Identification of Conservation Features and Threatened Species
Features in the landscape that are of potential priority for conservation were identified, as well as flora and fauna species of conservation significance (eg. threatened under State or Commonwealth legislation). This involved desktop analysis of data (eg. literature review; spatial data (eg EVC, trees cover, wetlands, flora and fauna records, aerial photographs); corporate databases (eg. Biosites, Victorian Fauna Display and Flora Information Systems); local knowledge investigations; and the Landscape Context Model (refer to Step 8). From this analysis, a series of sites likely to have conservation values and threatened species, were identified and mapped using GIS (CGDL 2005).

Step 2. Ground-Truthing of Potential BAP Sites
Involved surveying the Zone from the roadside, to compare desktop analysis data (Step 1) to the actual on-ground area, in regards to presence/absence, type of vegetation and raw condition.

Step 3. Field Surveying of BAP Sites
Sites were prioritised for survey as per the 'Goulburn Broken Biodiversity Action Planning Developer's Manual' (GBCMA *in prep.*). This prioritisation method is shown in Appendix 6. One hundred of the sites requiring ground-truthing were field surveyed (on-site or from the nearest public land). This involved:
3.1) Bird Surveys: Undertaken in accordance with the Birds of Australia – Atlas Search Methods (1-2-hectares, twenty minutes) (Birds Australia 2001).
3.2) Vegetation Quality Assessment (VQA)(DSE 2004): Site-based habitat and landscape components were assessed against a pre-determined 'benchmark' relevant to the vegetation type being assessed (eg. grasslands, wetlands, plains grassy woodlands) (Refer to Appendix 7 for form).
3.3) Threat Identification: Whilst undertaking the Vegetation Quality Assessment (DSE 2004), a list of threatening processes (eg. pest plants and animals) at the priority sites, were recorded.

Step 4. Prioritisation of BAP Sites
The 100 sites were given a ranked value of very high (VH), high (H), medium (M) or low (L), based on a range of factors (eg. conservation status of the EVC, presence of threatened species, size, VQA score). Sites not surveyed, nor automatically ranked (as per Appendix 6), were given a ranked value to the lesser of the available options (until surveying occurs).
Step 5. Generation of Focal Species List

The focal species approach (Lambeck 1997) uses the habitat requirements of a particular species, or group of species, to define the attributes that must be present in a landscape for these species to persist. For example, if a species that requires the largest remnant size is selected, then fulfilling the needs of that species may result in the conservation of all species, with smaller remnant size requirements. The factors used in this plan to select focal species were, remnant size and isolation distance (GBCMA *in prep.*).

Step 6. Generation of Key Biodiversity Asset List

The identified environmental features, including flora and fauna species, were categorised in to a series of 'nested' environmental assets. For example; similar species or environmental features may be located in 'nested assets' such as; creeklines, wetlands or ecological vegetation classes.

Step 7. Development of Actions for Key Biodiversity Assets

This step involved the development of a list of actions aimed at protecting and enhancing the biodiversity values in the Zone, by reducing the identified threats for each key biodiversity asset (as determine in Step 6). Available information (eg. Actions for Biodiversity Conservation (ABC) database) (DSE 2005a) and the Mid Goulburn Landscape Plan (Ahern et al 2003) were also used to compile the actions.

Step 8. Landscape Context Analysis

To achieve long-term viability of the priority 'BAP' sites, they need to be linked and/or increased in size and total tree cover, to form a viable functioning landscape. The Landscape Context Model (LCM) (Ferwerda 2003) uses a model of "known habitat" (based on mapping for tree cover, wetland, and major watercourses) to identify large remnants, key remnant clusters and the key linkages between them. However, because of potential limitations of the input data, areas of conservation significance (particularly grasslands and sparse woodlands) may not be identified. Similarly, areas with minimal conservation significance may be included, because habitat quality data is not included in the model.

However, the Landscape Context Model is useful as a background to BAP mapping, as it identifies areas that have the highest (or least) probability of containing additional sites, of conservation interest (as per Step 1). Therefore the model can be used to identify the areas of the landscape, that should be used to link and strengthen a network of conservation sites, and create a sustainable landscape. The model can also be used to further determine the major linkages between BAP sites. The Violet Town Zone priority (BAP) sites and Landscape Context Model are shown in Appendix 8.

4.0 IDENTIFYING PRIORITY SITES

In the Violet Town Landscape Zone 547 sites have been identified as Biodiversity Action Planning (BAP) priority sites, for conservation management. These sites are termed BAP sites. They contain remnant vegetation and vary greatly from a stand of paddock trees, to large forested areas such as the Reef Hills State Forest. One hundred of these BAP sites have been ground-truthed and surveyed. A summary of these results is provided in Section 5.0.

In order to identify the BAP sites, each site was assigned a number that identifies its location and the associated data. This unique number has been calculated using the map-index (map reference) number (1:25,000 map) and a site number (eg. 1-547). An example of the site identification numbering system (eg. how the site(s) are identified, using the site number system) is illustrated below (Figure 5). An example of the data that is contained in the database (referred to as attribute table), for each BAP site is detailed below (Figure 6).

The location of the 547 BAP sites (in map form) is available, in hard copy (overview map) and electronic form (CD - specific maps) in Appendix 10. Appendix 10 also provides; an Attribute Table identifying information relating to each site (eg. site number, asset type, conservation status, EVC and focal species), a bird list, definitions list and an assets map.

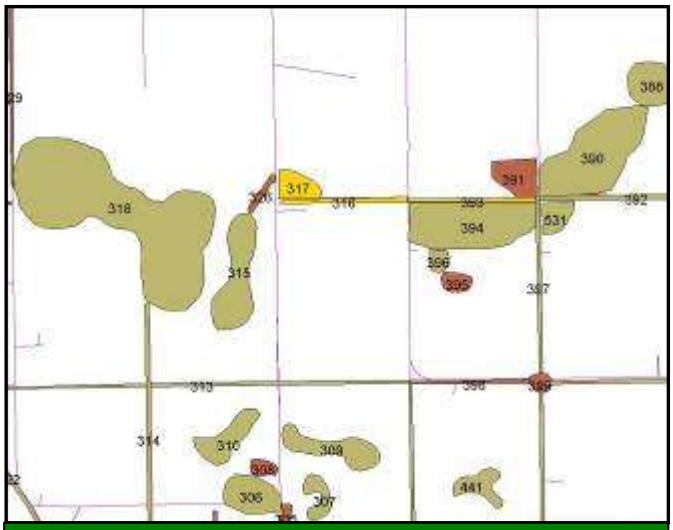

Figure 5– An example of the site numbering system

Site Number:	318
Biodiversity Asset	Plains Woodland (Section 6.2)
Site Priority	Very High
EVC	803 (Section 2.2)
EVC Conservation Status	E (Endangered)
Focal Species	Bush-stone Curlew (*Burhinus grallarius*) (Section 6.1)
Threatened Flora	Buloke (*Allocasuarina luehmannii*)
Threatened Fauna	Swift Parrot (*Lathamus discolor*)
Vegetation Quality Score	16/20 (Section 5.1)
Landholder	Private
Threats	230 (Pest Plants), 293 (Land Clearance)

Figure 6– An example of the data contained in the database (attribute table)

5.0. SUMMARY OF SITE SURVEYING

5.1. VEGETATION QUALITY ASSESSMENTS

A small number of BAP sites were assessed based on habitat features of, 1) Large trees, 2) Canopy Cover, 3) Understorey, 4) Weediness, 5) Recruitment, 6) Organic Litter, 7) Logs (and Landscape Component Scores of), 8) Size, 9) Neighbourhood and 10) Core Area. They were scored out of a maximum score of 20 (assumed intact habitat). An example of the assessment sheet is provided in Appendix 7. It is hoped that extension staff will be able to complete more assessments in the future

5.2 BIRD SURVEYS

One hundred of the 547 priority BAP sites had bird surveys completed, resulting in 82 bird species being identified. A list of birds sighted within the Violet Town Landscape Zone is provided in Appendix 9. A number of threatened species were identified during surveying, including, Superb Parrot (*Polytelis swainsonii*), and Grey-crowned Babbler (*Pomatostomus temporalis*).

5.3 CONSERVATION THREATS

Whilst undertaking the bird surveys (DSE 2004), a list of threatening processes (e.g. pest plants and animals) at the priority sites, were recorded according to the Actions for Biodiversity Conservation (ABC) database (DSE 2005a). These included:

- Vegetation Clearance (Land Clearance – removal of native vegetation),
- Habitat Fragmentation/Edge Effects (includes 'Adjacent Land Use Practices'),
- Waterways (instream barriers) (Changes in hydrological regimes e.g. wetlands),
- Animals – Domestic Stock (Inappropriate grazing management (e.g. timing, stocking rate)),
- Firewood Collection & Cleaning Up (Removal of Habitat)
- Animals – e.g. Pest Species - Foxes and Rabbits,
- Invasion by Environmental Weeds (Pest Plants),
- Recreational Activities – motorised (Transport and Recreation), and
- Removal of Rocks/Soil (Impacts of Roadworks on Roadside Vegetation).

Vegetation/Land clearance (a key threatening process under the EPBC Act 1999) (Wierzbowski et al 2002) particularly occurred in the past, however it continues to be a threat to conservation values within the Zone. Practices such as inappropriate earth works (e.g. removal of natural depressions/wetlands, removal of native vegetation cover) and illegal tree removal, is a threat to biodiversity values.

Habitat fragmentation (a potentially threatening process for fauna in Victoria under the FFG Act 1988 (Wierzbowski et al 2002)) is primarily the result of historical land clearance. A range of species such as the Superb Parrot (*Polytelis swainsonii*) and Grey-crowned Babbler (*Pomatostomus temporalis*) are detrimentally affected by habitat fragmentation. It affects their ability to source food and suitable habitat required for their survival (e.g. leads to less effective immigration, emigration and breeding success). Habitat fragmentation also favours species such as Noisy Miners (*Manorina melanocephala*) (Bennett 1993). Elevated competition from these aggressive species (although native to Australia) threatens species diversity, by the exclusion of less aggressive species (e.g. Grey-crowned Babblers) from remnants.

Adjacent land use practices[6] (e.g. intensive irrigation and inappropriate earthworks, can also lead to the colonisation of fragmented remnant areas by weeds, waterlogging of vegetation, high watertable depths, nutrient run-off and an increase in sediment input to rivers and streams (DPI 2005).

Changes in hydrology (e.g. hydrological regimes) threaten biodiversity values, particularly for wetlands, which have evolved to function with the natural cycles of flood and drought. Alteration to natural flow regimes of rivers and streams, is listed as a threat to Victorian waterways under the FFG Act 1988 (Wierzbowski et al 2002). A change in water regimes (including temperature and water quality) can dramatically alter system appearance and functioning, disrupt natural productivity cycles and cause changes in vegetation and habitat. This in turn affects the fauna that relies on wetlands (eg. for resources and breeding). However, environmental water allocations (EWA) are a process for providing appropriate hydrological regimes to wetlands with natural cycle interruptions (Howell 2002).

Inappropriate grazing management[7] affects biodiversity conservation through soil compaction; removal of vegetation; changed nutrient levels in and around native vegetation; tree dieback and results in competition for fodder by native animals, which require tussocky grass for shelter (Wilson & Lowe 2002). A number of the surveyed sites had a diverse range of understorey (e.g. 10% of sites had more than 75% cover). However a number sites surveyed, were heavily grazed, often resulting in minimal shrub or ground cover. A number of isolated trees in paddocks, are stressed and showing sign's of dieback (e.g. dead limbs and loss of trunk bark). It is important to retain these trees as habitat for a range of species (e.g. birds, bats, reptiles and insects).

The removal of fallen timber (or 'cleaning up') was evident along roadsides and within private remnants. Removal of fallen timber can result in a loss of habitat for birds; mammals, reptiles and insects, exposing them to predation by introduced predators. With a reduction in insect populations, timber removal also reduces the number of insect-eating birds in an area. For example, the Bushstone Curlew (*Burhinus grallarius*) is just one of the species that is severely impacted upon by timber removal, due to loss of insects and the loss of fallen timber that is used as habitat and camouflage for the protection of chicks (DSE 2005a).

Photo: Firewood collection in remnant vegetation

Pest Animals are a threat to conservation values of the area. Predation of native wildlife by the Cat (*Felis catus*) and by the introduced Red Fox (*Vulpes vulpes*) are listed as potentially threatening processes under the FFG Act 1988 (Wierzbowski et al 2002), due to their impact on native species. The European Rabbit (*Oryctolagus cuniculus*) and European Hares (*Lepus europaeus*) compete for habitat, remove native vegetation and disturb soil structure. Macropod grazing is also emerging as an issue in areas of remnant vegetation to have an interface with agricultural land.

Pest Plants (Weeds) are a major threat to biodiversity because they compete with native species, for essentials (e.g. space, light and nutrients). Invasion of native vegetation by environmental weeds is listed as a potentially threatening process under the FFG Act 1988 (Wierzbowski et al

[6] The term inappropriate (in this sense) refers to the purposeful movement of soil/vegetation without considering the natural landscape (e.g. water flow).

[7] The term inappropriate (in this sense) refers to grazing native vegetation without consideration of stock capacity, time of year or length of time.

2002). Examples of weeds evident in the Zone include; Paterson's Curse (*Echium plantagineum*), Horehound (*Marrubium vulgare*), Sweet Briar (*Rosa rubiginosa*), Peppercorns (*Schinus molle*), Boxthorn (*Lycium ferocissimum*), Arrowhead (*Sagittaria graminea*), Bridal Creeper (*Asparagus asparagoides*) and Willows (*Salix* spp). Weeds are especially evident on roadsides due to escaped garden/agricultural plants, machinery disturbance (e.g. roadworks) and poor vehicle hygiene. Pest plants invading remnants can also be a result of adjacent land practices (e.g. agricultural weeds) and animal movement (e.g. birds).

Transport and Recreational Pursuits (e.g. motorised activities) can also lead to increased weeds and loss of native vegetation). Removal of Rocks and Soil was evident along roadsides, where graders had caused impact on native vegetation.

5.4 SITE PRIORITISATION

As illustrated below (Figure 7), the 547 BAP sites have been given a priority status (ranked value) of very high (VH), high (H), medium (M) or low (L), based on a range of factors (conservation status of the EVC, presence of threatened species, size, VQA score). This prioritisation occurred at 3 stages; prior to surveying; following surveying and for unsurveyed sites. For example, prior to surveying, large sites with high EVC conservation status and threatened species, that did not require ground-truthing, were automatically given a priority status of very high (VH). Following surveying (refer to 5.1, 5.2 & 5.3), the surveyed sites were given a priority status based on the three factors above and the VQA score (Appendix 7). Unsurveyed sites that required ground-truthing, but were not able to be surveyed (e.g. more than 100 sites that required ground-truthing), nor able to be automatically ranked as Very High prior to surveying, were given a ranked value to the lesser of the available ranking's (until surveying can be conducted). Further information on the method used to prioritise the sites is identified in Appendix 6.

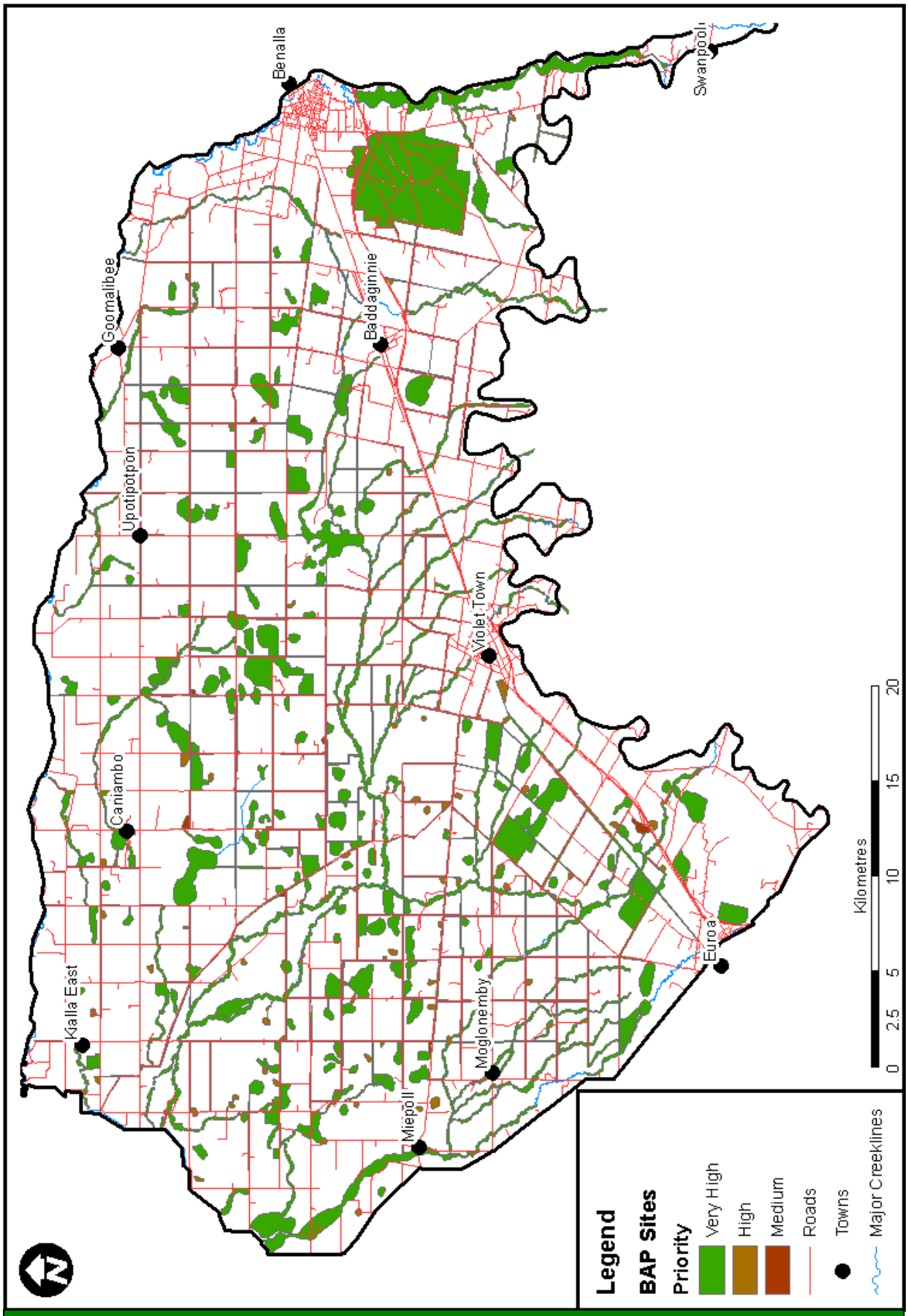

Figure 7 – Biodiversity Action Planning (BAP) Sites – Prioritised from Very High to Medium

6.0 BIODIVERSITY ASSETS

6.1 FOCAL SPECIES

Research shows that different species have different types of responses to landscape change. The focal species approach therefore uses the habitat requirements of a particular species or group of species, to define the attributes that must be present in a landscape, for these species to persist. Broadly, the focal species are predicted to be the most sensitive species (in a given landscape) to a threat or ecological process. Such that, their conservation should also conserve other less-sensitive species found in the same vegetation type. It is important to note that the focal species approach will not ensure the conservation of all other species. Focal species should be seen only as a way of defining and guiding targets (eg. patch size and connectivity) for our landscape restoration strategies (Lambeck 1997).

Additional benefits of a focal species approach are that it allows for the monitoring of actions (eg. can undertake regular surveys to establish if focal species are becoming more common and using new sites). It also provides the community and organisations implementing on-ground works, with an 'iconic/focal' species (if they don't already have one), in order to increase enthusiasm for implementing works.

The six focal species identified in the Violet Town Zone, and their ecological requirements (thresholds[9]) are identified below (Table 2). A definition of the ecological terms used include:

- Minimum patch size (patch size threshold) – refers to the minimum patch size of vegetation required for the species to maintain viable populations,
- Critical distance between habitat patches (isolation threshold) – refers to the size of the gap between habitats, beyond which, on a daily basis, the animal doesn't generally cross (GBCMA in prep.)
- Dispersal threshold – refers to the distance (km) for which the species has been known to travel (e.g. for breeding, migration), but generally does not on a daily basis,
- Ecological Vegetation Class (EVC) – the vegetation community that the species prefers, and
- Other requirements – identifies some other known requirements (not comprehensive) for the species to survive, or to inhabit an area.

An example of a focal species project already occurring in the Violet Town Zone, is the Grey-crowned Babbler (*Pomatostomus temporalis*) project. Every year strategic plantings are carried out in order to connect a network of woodland remnants, which will allow Grey-crowned Babblers to access more food and thereby increase breeding success. The newly connected remnants can then provide habitat for the expanding populations of other species that will benefit from the increased connectivity such as squirrel gliders.

It is envisaged that community groups and agencies may target one, or a combination of, the focal species identified (Table 2), for planning and implementation of on-ground works in the Zone. The focal species are only a suggestion of species to focus on-ground works. Other species may also be the focus for on-ground works, given new information and community desire to implement works for another species. Keeping in mind that if we aim to cater for these species, we are also assisting a suite of species and working towards overall vegetation cover targets for the catchment.

[9] Thresholds refer to the point at which relatively rapid change occurs (eg loss of species). Therefore, these should be used as a minimum target only.

Table 2: Focal Species and their Habitat Requirements –Violet Town Zone

	**Jacky Winter (*Microeca fascinans*)**	
	Minimum patch size (threshold)	10 ha
	Critical distance between patches	<500m
	Dispersal threshold	<2km
	Ecological Vegetation Class	Box Ironbark, Grassy Woodland
	Some other requirements (general)	Noisy miner control and increase remnant widths
	**Brown Tree Creeper (*Climacteris picumnus*)**	
	Minimum patch size (threshold)	30 Ha
	Critical distance between patches	500m
	Dispersal threshold	1 km
	Ecological Vegetation Class	Box ironbark, Grassy Woodland, Wetland EVCs
	Some other requirements (general)	>40 tons/ha of fallen timber
	**Brush-tailed Phascogale (*Phascogale tapoatafa*) – Threatened**	
	Minimum patch size (threshold)	100 ha
	Critical distance between patches	10 km
	Dispersal threshold	1.4 km (Rhind 2002)
	Ecological Vegetation Class	Grassy woodlands, Grassy forest, Box Ironbark
	Some other requirements (general)	Hollows, mature rough barked Trees; good ground layer; fallen timber and litter
	**Grey-crowned Babbler (*Pomatostomus temporalis*)**	
	Minimum patch size (threshold)	>2ha, >1km of continuous roadside
	Critical distance between patches	<500m form known site
	Dispersal threshold	<2km, very few records >10km
	Ecological Vegetation Class	Grassy Woodland
	Some other requirements (general)	Mature trees, shrubs, corridors
	**Bush-stone Curlew (*Burhinus grallarius*)**	
	Minimum patch size (threshold)	>1ha, >40m wide
	Critical distance between patches	<1km
	Dispersal threshold	<2km from known site
	Ecological Vegetation Class	Creeklines, woodlands
	Some other requirements (general)	Fallen logs, Fox control
	**Sacred Kingfisher (*Todiramphus sanctus*)**	
	Minimum patch size	>10 ha
	Critical distance between patches	Not Relevant
	Dispersal threshold	Not Relevant
	EVC utilised	Riparian vegetation
	Some other requirements (general)	Hollow bearing trees

Habitat Requirement Source: Variety of Sources (GBCMA in prep.)
Photo Credits (NRE 2002d): Brown Treecreeper & Bush-stone Curlew (Ian McCann), Jacky Winter & Sacred Kingfisher (Wendy Opie), Brush-tailed Phascogale (Peter Robertson), Grey-crowned Babbler (Eileen Collins)

6.2 KEY BIODIVERSITY ASSETS

Biodiversity Action Planning (BAP) attempts to take a strategic approach toward the conservation of threatened and declining species and vegetation types, by looking for opportunities to conserve groups of species, in appropriate ecosystems. The identification of the appropriate biodiversity assets to focus conservation effort is the most critical part of the BAP process. This approach has been used to group together species that use the same type of habitat. By protecting these assets, habitat for a suite of threatened species associated with that habitat can be conserved (e.g. by choosing 'Wetlands' as a key biodiversity asset, it incorporates all of the species that live in, and use a wetland, as well as the individual threatened species). Another benefit of this approach is that specific actions (Section 7.0), based on the requirements of each asset (e.g. to counter threats and improve the status of the asset), can be developed. Planning and implementation of on-ground works and actions that specifically target each of these assets, can then be undertaken (GBCMA in prep.).

The 547 BAP sites in the Violet Town Zone have been categorised according to five key biodiversity assets: Grassy Woodland, Wetlands, Box-Ironbark Forest, and Major Creeklines (Figure 8). For further information on each asset, along with threatened species examples, refer to Table 3.

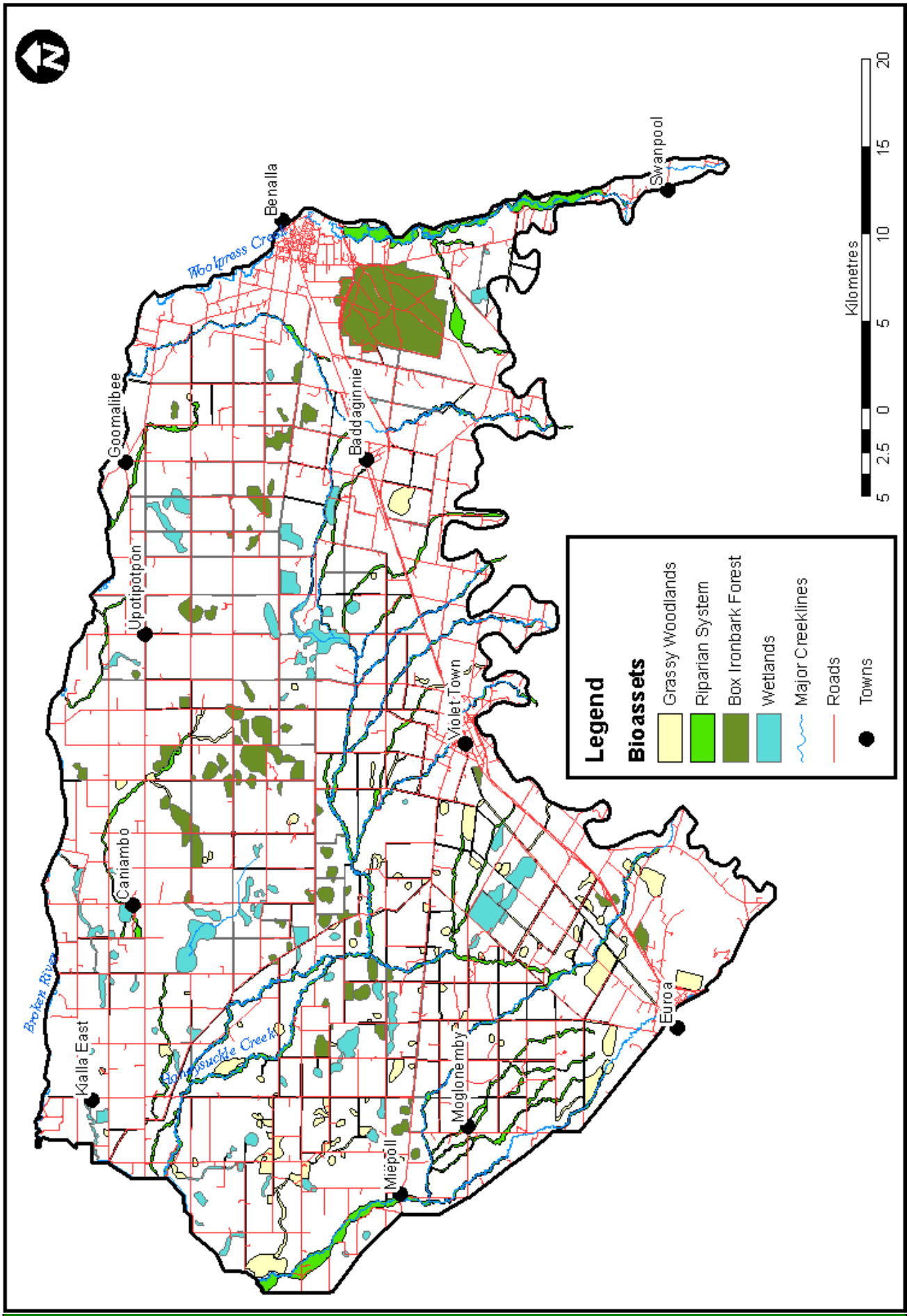

Figure 8 – Location of Key Biodiversity Assets – Violet Town Landscape Zone

Table 3: Key Biodiversity Assets – Violet Town Zone

Key Biodiversity Assets	Examples of Threatened Species per Asset
1) Grassy Woodland Was historically the dominant vegetation type in the landscape; now the vegetation type requiring the largest increases in extent. Characterised by Grey Box, Buloke & Redgum overstorey, with scattered shrubs—Dillwynea, Eutaxia and Acacia and a grassy ground layer dominated by Wallaby Grass, Kangaroo Grass and various herb species.	**Fauna:** Brown Treecreeper (*Climacteris picumnus*), Jacky Winter (*Microeca fascinans*), Grey-crowned Babbler (*Pomatostomus temporalis*) Squirrel Glider (*Petaurus norflocensis*), Tree Goanna (*Varanus varius*), Bush Stone curlew (*Burhinus grallarius*) **Flora:** Leek Orchids (*Prasophyllum* sp. aff. *diversiflorum*), Buloke (*Allocasuarina luehmannii*), Purple Diuris (*Diuris punctata*), Hickory Wattle (*Acacia penninervis* var. *penninervis*)
2) Wetlands The Violet town zone contains a number of ephemeral wetlands, some of which are classified as bioregionally significant—Morphett swamp Wildlife reserve, Sawpit Creek Dam, Lehmanns Swamp, Coopers lane wetland, McBurney Swamp and Gum Swamp.	**Fauna**: Australasian Bittern (*Botaurus poicilopiilus*), White-bellied Sea-Eagle (*Aquila audax*), Latham's Snipe *(Gallinago hardwickii*), Great Egret (*Ardea alba*), Hardhead, Freckled Duck (*Stictonetta naevosa*), Barking Marsh Frog (*Limnodynastes fletcheri*), Small-spike rush *(Eleocharis pusilla)* **Flora:** Ridged Water-Milfoil (*Myriophyllum porcatum*), Striped Milfoil (*Myriophyllum striatum*), Slender Water-Milfoil (*Myriophyllum gracile* var. *lineare*), Winged Water-starwort (*Callitrichie umbonata*), Riverina Bitter-cress (*Cardamine moirensis*), Swamp Billy-buttons (*Craspedia paludicoa*).
3) Major creeklines	**Fauna:** Bush Stone-curlew, Tree Goanna, Squirrel Glider, Temperate woodland bird community, Brown Treecreeper, Nankeen Night-heron, Sacred Kingfisher **Flora:** Wetland Blown Grass
4) Box-Ironbark Forest	**Fauna:** Brush-tailed phascogale, Squirrel Glider, Grey-crowned Babbler **Flora:** Purple Diuris (*Diuris punctata*), Crimson Spider orchid (*Caladenia concolor*)

* The numbering of the Key Biodiversity Assets (1-4) is only intended to assist with the identification of the assets throughout the remainder of the report. Scientific names listed only once.

7.0 PRIORITY ACTIONS - KEY BIODIVERSITY ASSETS

Priority actions for the Violet Town Landscape Zone have been developed and grouped based on each 'Key Biodiversity Asset' (eg. Wetland, roadside vegetation)(refer to Section 6.2). Priority actions for the key biodiversity assets were developed based on the following factors, (1) size/extent (2) condition and (3) landscape processes (eg. habitat connectivity, hydrological regimes). The condition (2) section was also further split in relation to; education/extension; on-ground works; threatened species; and pest plants and animals. For example; an action relating to the condition of a remnant, due to rabbits, can be found under; 'condition' – 'pest plants and animals'.

For each of the five key biodiversity assets (1-4), the following pages identify:
A) An introduction to the asset in the Violet Town Landscape Zone,
B) Photographic example of the asset in 'good condition' for the zone, and
C) Proposed actions for each of the assets in the Zone (broader actions in Ahern et al 2003).

It is proposed that the community and agencies in the Violet Town Zone investigate options for implementing these actions in to existing projects/policies. For example, BAP sites (refer to Appendix 10) in each asset type, should be targeted in order of priority (Very High, High, Medium to Low) in relation to these actions (where applicable). This forms the basis of BAP, where the very high value sites, that require less cost for long-term protection, will provide the highest prospect for conservation (GBCMA *in prep*.).

Note: The Flora and Fauna Guarantee Act 1988 provides for the listing of Victoria's threatened plant and animal species, ecological communities and potentially threatening processes. Under the Act, an Action Statement must be prepared. Action Statements outline what is required for the species conservation. They are developed based on a rigorous legislative process (Acts of Parliament) and are therefore of high priority. For further information refer to the 'Actions for Biodiversity Conservation Database' (ABC) (DSE 2005a).

7.1) KEY BIODIVERSITY ASSET – GRASSY WOODLANDS

1A) Introduction –Grassy Woodlands:

Grassy Woodlands were the most dominant biodiversity asset within the Violet Town Landscape Zone prior to the introduction of agriculture but are now endangered. The Grassy Woodland biodiversity asset is made up of the EVC group numbers 5, 14, 15 & 16 (See Table 1). They can be found on public and private land including creeklines and roadsides.

The majority of Plains Grassy Woodland in the zone occurs on private land, roadsides and edges of larger public land. These remnants serve many important functions, including water conservation, aesthetic values, habitat values, sources of native seed and sources of food, shelter and nesting sites for a range of woodland birds and mammals (Lunt 1998).

This asset is scattered throughout the Violet Town Landscape Zone. Many of the areas in the zone that once contained these vegetation types have been cleared for agriculture, leaving fragmented landscapes. Other threats include Adjacent Land Use Practices, Grazing, Pest Plants and Pest Animals. The actions identified below are intended to assist in the protection of the remaining remnants within the zone. However, these actions are specific to the Violet Town Landscape Zone and are by no means comprehensive for the region.

1B) Photographic Example - Grassy Woodlands:

Example of a Grassy Woodlands BAP Site of 'Good Condition' for the Violet Town Zone

Photo: Grassy Woodland– A Key Biodiversity Asset –Violet Town Landscape Zone (Photo: Rowhan Marshall)

C) Actions Proposed –: Grassy Woodlands

Size/Extent:

- **Create buffers**, through revegetation, on freehold land abutting roadside remnants or reserves to widen the habitat.
- **Increase connectivity** to remnants and reserves along roadsides and the riparian areas.
- **Expand** patch size and improve connectivity of isolated or partly disconnected patches

Condition:

Education/Extension

- **Encourage** landholders to increase the size of existing remnants, to establish new areas of indigenous species of trees and shrubs, and to retain or establish buffer zones of revegetation or unimproved, uncultivated pasture around woodland.
- **Liase** with Parks Victoria, DSE, Trust for Nature, committees of management and adjacent landholders, to establish the best practice for reserve management.
- **Encourage protection** (fencing) of all remnants and manage grazing practices to benefit the grassy woodland (such as exclude all domestic grazing stock in remnants to allow plants to set seed and regenerate. Manage stock grazing to benefit the native vegetation once plants have set seed).
- Organise **community education** activities relating to the importance of Plains Grassy Woodlands and associated flora and fauna species, specifically targeting high priority remnants in paddock environments.
- Further **promote** the benefits of protecting and enhancing remnant patches through extension and voluntary programs, such as Environmental Management Incentives.
- **Educate** landowners on the need to retain fallen in privately owned sites and making sure that fallen timber is not removed illegally from public land.
- **Educate landowners** about the importance of ephemeral wetlands how to recognise them and how to protect them.

On-ground Works

- **Protect** high priority sites, through covenants or incentives.
- **Minimise disturbance** at high value sites to prevent erosion and minimise weed invasion.
- **Ensure** clusters or individual specimens of large, hollow-bearing trees and dead standing trees are retained and protected throughout the zone.
- **Enhance** high value sites such as Balmattum, and significant roadsides such as the Violet Town–Dookie Road and the Violet Town–Shepparton Road, and continue to control weeds such as Phalaris.
- **Identify** additional native grassland paddocks for protection and restoration, where artefact grasslands were once grassy forests.
- **Planting** alternative timber supplies, to reduce the impact of firewood collection on roadsides, remnants and waterways.
- **Protecting and Enhancing** Populations of Buloke (*Allocasuarina luehmannii*), Sweet Bursaria (*Bursaria spinosa*), Leafy Templetonia (*Templetonia stenophylla*), Variable Glycine (*Glycine tabacina*) as species which are not listed as rare and threatened in the state but are at risk within the Violet Town Zone.

Threatened Species

- **Install nest boxes** where hollows are deficient to increase the number of nesting hollows for woodland birds and Squirrel Gliders.
- **Modify stocking levels and grazing times**, as necessary, to benefit threatened species
- **Encourage** community groups to work on threatened species projects such as Purple Diuris (*Diuris punctata*), Leek Orchids (*Prasophyllum*. Sp. aff. *pyriforme*, *P*. sp. aff. *diversiflorum*), and Euroa Guinea Flower (*Hibbertia humifusa*)

Pest Plant and Animals

- Continue ongoing **control of foxes and feral cats**.
- Reduce the number of feral herbivores and native macropods that may exceed the carrying capacity of a site especially around Balmattum
- Irradicate **Feral Bee** populations to allow the hollows to be used for native animals.
- Control regionally listed **weeds** and environmental weeds from sites.

Landscape Processes (ie. habitat connectivity):
• **Identify and prioritise potential** sites for habitat expansion and improved connectivity as identified by the landscape context model and maps provided in this document.

7.2) KEY BIODIVERSITY ASSETS – WETLANDS

A) Introduction – Wetlands:

Wetlands are amongst the most important, productive and valuable ecosystems within the Violet Town Landscape Zone. They perform vital functions including water purification, nutrient processing, flood management and maintenance of the watertable. They provide habitat, refuge, and breeding (nursery areas) for many common and threatened species (Howell 2002). Wetlands can also include dams and drainage depressions on private land that are only full during the wettest times of the year (ephemeral wetlands). Most of the ephemeral wetlands within the Goulburn Broken Catchment are on private land and are therefore at a high risk of being altered by agricultural practices such as lazering and ploughing.

High value wetlands in the Zone include Jubilee Swamp Wildlife Reserve, Morphett swamp Wildlife reserve, Sawpit Creek Dam, Lehmanns Swamp, Coopers lane wetland, McBurney Swamp and Gum Swamp.

There are a number of threats affecting wetlands in the Zone, such as land clearing, changed hydrological regimes, adjacent land use practices and pest plants and animals. The actions identified below are intended to assist in the protection of the remaining wetlands within the Violet Town Landscape Zone. However, these actions are specific to the Zone and are by no means comprehensive for the region. Other documents (eg. Wetlands Directions Paper for the Goulburn Broken) (Howell, 2002), provide direction for protecting wetlands in the catchment.

B) Photographic Example – Wetlands:

Example of a Wetland BAP Site of within the Violet Town Zone

Photo: Wetland – A Key Biodiversity Asset –Violet Town Landscape Zone (Photo: Doug Robinson)

C) Actions – Wetlands:

Size/Extent Related:

- **Implement a buffer zone** around all identified wetlands (as far out beyond the rim of the basin as possible) to increase the size of wetlands and provide for their protection.

Condition Related:

Education/Extension:

- **Provide extension** to all landholders with wetlands in the Zone, to assist with recognition of the benefits of wetlands and associated plants and animals on their properties.
- **Provide opportunities for education** of landholders and school children regarding the benefits of wetlands on farms (eg. Violet Town Public School) (eg. a campaign on the productive value of intact wetlands, in coordination with agriculture).
- **Development of a site management plans** for all identified wetlands in the Zone, particularly, Jubilee Swamp Wildlife Reserve, Morphett swamp Wildlife reserve, Sawpit Creek Dam, Lehmanns Swamp, Coopers lane wetland, McBurney Swamp and Gum Swamp
- **Encourage landholders** with wetlands to protect (fence/mange stock) them.
- **Encourage the grazing** of wetlands under management, only when dry, to prevent seed set of weeds.
- **Encourage the appropriate use of chemicals** and other water contaminants on farms and within local communities.
- **Prevent** further removal of wetlands, through education (and legislation where required).
- **Investigate** the use of 'Index of Wetland Condition Assessments' (DSE 2006) in conjunction with Vegetation Quality Assessments (still required to allow priority comparisons).

On-ground Works:

- **Protect** (via incentives) all identified wetlands in the Zone, commencing with very high value sites such as Jubilee Swamp Wildlife Reserve, Morphett swamp Wildlife reserve, Sawpit Creek Dam, Lehmanns Swamp, Coopers lane wetland, McBurney Swamp and Gum Swamp.
- **Protect existing or implement vegetative cover** on inflow paths to increase water quality.
- **Encourage the fencing** of sites to exclude grazing, particularly when wet, or prior to being wet, to allow flowering and seed-set of native plants.
- **Identify a demonstration site** (show casing very high value site) for educational purposes.
- **Seek approval** from Mid Goulburn IC for the Links program to provide off-stream-watering points for private wetlands.

Threatened Species:

- **Encourage Landowners** to fence off or partially fence off wetlands drainage depressions to allow Ridged Water-milfoil and Winged Water Starwort to spread through the zone.
- **Encourage Landowners** to direct seed or transplant Ridged Water-milfoil and Winged Water Starwort into wetlands/dams/drainage depressions that do not have stock access.

Pest Plants and Animals:

- **Encourage the continuation of fox and cat control programs** for the benefit of all species.

Landscape Processes (eg. Regimes, habitat connectivity):

- **Form clusters of wetlands** by giving priority to protecting wetlands that are in close proximity to one another, or in close proximity to a high value site.
- **Restore and deliver natural hydrological regimes** to wetlands, for the benefit of flora and fauna.
- **Continue to seek** environmental water allocations for priority wetlands.

7.3) KEY BIODIVERSITY ASSET – MAJOR CREEKLINES

A) Introduction – Major creek-lines:

Waterways, such as rivers, streams, creeks and lagoons, are the lifeblood upon which most of the other assets depend. There are a number of major waterways in the Zone, including—Broken River, Stony Creek, Woolpress Creek, Seven Creeks and Honeysuckle Creek. All of these creeks and rivers run from the eastern or south eastern part of the zone across to the north western corner of the zone. The Major Creek lines within the zone comprise a very important refuge system for a number of threatened taxa, and also provide abundant opportunity for expansion of habitat patches, restoration of linear corridors and consolidation of broader links (SKM Draft 2006).

Creekline vegetation remnants retain good connectivity, especially on the all of the major creeks. Sections of Seven, Honeysuckle, Stoney and Woolpress Creek are reserved as Public land Water Frontage. However, many parts of these creeklines still have stock access directly to the water, which results in higher nutrient input and higher sediment loads. Other vegetation removal and heavy grazing from the riparian zone will also increase runoff into the creeks thereby increasing erosion, suspended sediments and increasing nutrient loads. Grazing of the riparian zones also prevents, recruitment of all structural layers of vegetation, which results in a lack of habitat for native species. The land lying north of two lines linking Miepoll-Violet Town and Violet Town-Benalla falls within the Sheep Pen Creek 'High Priority Area' for salinity management. Recommendations for environmental flows are outlined in SKM (Draft 2006), which includes flow I for both Seven and Honeysuckle Creeks to improve the hydrology, geomorphology, water quality, fish and macro invertebrate health, in-stream and riparian flora.

B) Photographic Example – Major creek-lines:

Example of a Major Creekline BAP Site on Seven Creeks

Photo: Seven Creeks – A Key Biodiversity Asset – Major Creekline (Photo: Tobi Edmonds)

C) Actions – Major creek-lines:

Size/Extent Related:

- **Buffer** all Major Creeklines (Broken River, Stony Creek, Woolpress Creek, Seven Creeks and Honeysuckle Creek) with the assistance CMA Waterways grants.
- **Extend** the area of native vegetation adjoining Major creeklines through revegetation or protection.

Condition Related:

Education/Extension:

- **Encourage** the retention of logs, leaf litter and dead trees, as habitat for reptiles and bats.
- **Take tours** to other modelling regions (such as those of the upper Murray) to observe the improvements to water quality that has resulted from the protection and revegetation of riparian zones.
- **Continue** the extension work of the CMA Waterways Program.

On-ground Works:

- **Protect** all Major Creekline frontages (eg. Old Coach Road, Murray Valley Highway).
- **Continue to support** Sheep Pen Creek Land Management Group in their efforts to restore habitat.
- **Undertake** the flow recommendations for Honeysuckle Creek and Seven Creeks (SKM Draft 2006)
- **Manage grazing** on public land to benefit native species following the principal "that adjustments to stocking numbers should be based on the condition of the ecosystem rather than the condition of the stock" (www.dse.vic.gov.au/dse/nrenfor.nsf).
- **Negotiate** conservation licences with the licensees of water frontages.

Threatened Species:

- **Manage grazing** on Public Land to benefit Bush Stone-curlew and Regent Honeyeater.
- **Exclude** regular burning at sites which host Grey-crowned Babblers to allow for shrubs to grow and provide an insect habitat.
- **Raise awareness** among Landowners north of Violet Town, between Violet Town–Shepparton Road and Violet Town–Dookie Road; of the habitat requirements for Barking Owl.
- **Raise awareness** among Landowners between Benalla and the Baddaginnie–Goomalibee Road; of the habitat requirements for Carpet Pythons.
- Conduct **Ecological burns** to benefit Purple Diuris.
- **Manage grazing** in drainage depressions and ephemeral wetlands to exclude grazing in these areas while they are wet and susceptible to pugging. This will allow for the growth and reproduction of Ridged Water-milfoil.
- **Encourage** fishing groups to target introduced species such as Trout, Carp and Redfin and prevent the restocking of trout in waterways.

Pest Plants and Animals:

- **Undertake pest plant management** (for priority weeds such as Arrowhead (*Sagittaria odeling es s*) for all high priority sites and encourage stakeholders to coordinate the removal of weeds (eg. Community working bees).
- **Undertake pest animal management** (eg. Foxes and Cats) in areas adjoining all reserves for the benefit of threatened fauna such as Bush Stone Curlew, Ground Cuckoo-shrike, Squirrel Glider and Turquoise Parrot.

Landscape Processes (eg. Hydrological regime, habitat connectivity):

- **Revegetate** corridors between Major Creeklines to increase habitat connectivity across the landscape.
- **Restore and/or revegetate** nodes (where Major Creeklines meet up) to provide habitat from which fauna can breed and disperse.
- **Restore** the linkages between the Pranjup, Castle and Goulburn Rivers system and associated wetlands and floodplains by the removal or breaking of levees at 80%.

7.4) KEY BIODIVERSITY ASSET – BOX IRONBARK

Introduction – Box Ironbark:

Box Ironbark Forests are open forests that occur on low hills at altitudes between 150-230m, with an annual rainfall between 500-650mm. The skeletal sandy loam to clay loam soils are often erodible, and are of low fertility with a poor moisture holding capacity. In the Violet Town landscape zone they occur in a belt running west from reef hills across to Miepoll. The overstorey is dominated by Red Box, Red Stringybark (Eucalyptus macrorhyncha), Long-leaf Box, Yellow Box and Red Ironbark (E. tricarpa). The understorey is a scattered shrub layer which includes Golden Wattle, Spreading Wattle, Daphne Heath (Brachyloma daphnoides), Grey Everlasting (Ozothamnus obcordatus) and Sweet Bursaria (Bursaria spinosa). The sparse ground layer includes Wallaby Grasses, Spear Grasses, Red Anther Wallaby Grass (Joycea pallida), Black Anther Flax Lily (Dianella revoluta), Shiny Everlasting (Bracteantha viscosum) and Chocolate lily.

Over 60% of the Box Ironbark Forest in the Goulburn Broken Catchment has been lost since European settlement. Of the 40% that remains, most has been disturbed at some stage and is degraded. Many of the plants and animals that relied on this habitat are also threatened. The main threats include: inappropriate grazing regimes, mining, isolation, lack of understorey and ground layer, lack of natural regeneration, weed invasion, pest animals and loss of old trees through harvesting and loss of fallen timber.

B) Photographic Example – Box Ironbark:

Example of a Box Ironbark BAP Site in the Violet Town Zone

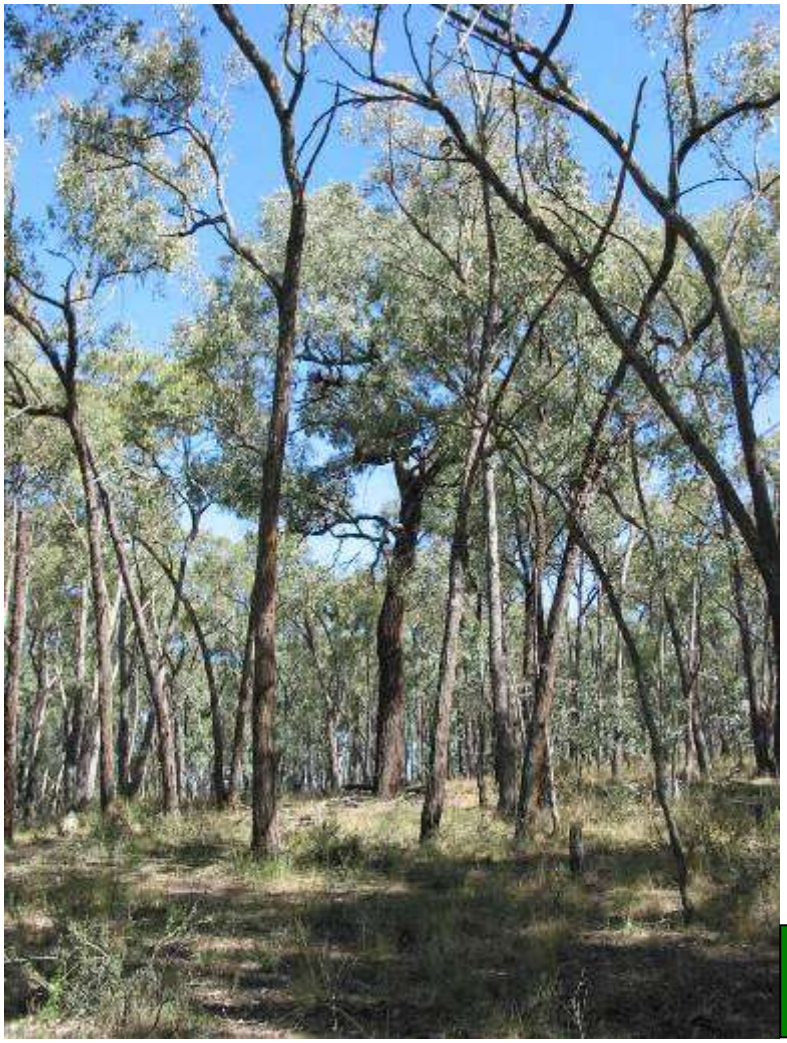

Photo: Box Ironbark – A Key Biodiversity Asset in the Violet Town Zone (Photo: Rowhan Marshall)

C) Actions – Box Ironbark:

Size/Extent:

- **Encourage landholders to increase the size** of existing remnants, to establish new areas of indigenous species of trees and shrubs, and to retain or establish buffer zones with revegetation or fence out and allow regeneration around Box Ironbark forest.
- **Protect significant roadsides** such as Lamonts Rd, Sloans Rd, Plozzas Rd, Griffens Rd.

Condition:

Extension/Education

- **Organise community education activities** relating to the importance of Box Ironbark Forests and associated flora and fauna species, specifically targeting high priority remnants in paddock environments.
- Further **promote** the benefits of protecting and enhancing remnant patches through extension and voluntary programs, such as Environmental Management Incentives and Land for Wildlife.
- **Encourage** retention of fallen timber in privately owned Box Ironbark Forest sites.

On-ground Works

- **Maintain and improve condition** of all identified high value sites by encouraging the retention of fallen timber and hollow bearing trees, and manage regionally listed weeds.
- **Protect** clusters or individual specimens of large, hollow-bearing trees are retained and protected throughout the zone.
- **Exclude all grazing** to allow trees, shrubs and native ground cover regenerate.
- **Leave any dead standing trees**. Install nest boxes where natural hollows are in short supply to increase the number of nesting hollows for animals such as Brush-tailed Phascogales.
- **Restore structural diversity** by revegetating degraded remnants with indigenous shrubs and ground cover, if regeneration has not occurred following fencing (eg. No existing seed source).
- **Replant** species that are becoming rare within the zone such as Cane Spear-grass (*Austrostipa breviglumis*)

Pest Plant and Animals

- **Minimise disturbance** at high value sites to prevent erosion and minimise weed invasion.
- **Reduce** all herbivore (including Macropod) populations in and around Box Ironbark remnants such as Reef Hills and private remnants around Earlston; to allow for the regeneration of native understorey and ground cover species.
- **Continue ongoing contro**l of foxes and feral cats for the protection of threatened species and focal species including Brush-tailed Phascogale, Sugar Gliders and Hooded Robins.

Threatened Species

- **Encourage** community groups to work on threatened species projects such as Crimson Spider Orchid (*Caladenia concolor*)

Landscape Processes (eg. Hydrological regime, habitat connectivity):

- **Increase connectivity to important reserves and remnants** such as Reef Hills.
- **Identify and prioritise potential sites** for habitat expansion and improved connectivity as identified by the landscape context model and maps provided in this document.

8.0 Monitoring

Monitoring is a fundamental component of all management activities and an important tool, which can be used to enhance the knowledge of biodiversity assets and manage for their on-going protection (Robinson *in prep*.).

The following table (Table 4) provides a basis for monitoring in the Violet Town Landscape Zone. Where possible, this information will feed in to the various Goulburn Broken Catchment monitoring programs. It identifies a general monitoring outline, including actions that may be conducted to determine progress towards achieving catchment biodiversity targets. It identifies the key biodiversity asset, key indicators for monitoring and the suggested frequency/intensity of monitoring.

It is important to note that many of the monitoring activities listed below are already taking place, through a variety of mechanisms (eg. Collection of data via local/catchment and Statewide databases and processes). Where existing mechanisms are already in place, they will continue to be used. However, there are other monitoring activities that are needed, to provide useful information and allow for accuracy assessment of the Catchments progress, towards meeting the Biodiversity Resource Condition Targets (RCT's).

A wide variety of monitoring actions are listed below. However this does not result in a binding commitment of those organisations (eg. Time or funding), to undertake all of the monitoring. Rather, this table is intended to be a source of ideas for agency staff and community groups (eg. Community groups may be interested in conducting future surveys). Interested persons can contact the Goulburn Broken Catchment Management Authority, Shepparton, or the Department of Primary Industries and Department of Sustainability and Environment Offices, Tatura, to discuss ideas and to ensure a coordinated approach (refer to Section 10.0 for contact information).

Whilst Table 4 outlines monitoring actions, evaluation of the BAP process also needs to occur, to evaluate the effectiveness of the BAP process (eg. In engaging people and prioritising works). An evaluation plan is therefore being developed to provide an overarching evaluation process for BAP in the Goulburn Broken Catchment.

Table 4: Monitoring - Violet Town Zone

Key Biodiversity Asset	Key Indicators for Monitoring	Frequency/Intensity
1) Major Creeklines		
	• Trends in environmental flows and in-stream habitat condition (as measured by ISC)	Five yearly* ISC assessments
	• Trends in water quality	Once yearly as part of EPA monitoring: five yearly as part of ISC: at least 30 sites (GBCMA 2004b)
	• Monitor the trends in condition and functionality of riparian vegetation/stream frontages condition (resurveying of sites using VQA assessments; area/number fenced; area/number with restored flows)	Every 5 years, 30 sites: part of ISC; CAMS inputs
	• Surveying of mean habitat width of waterways in Zone	Every 5 years, all sites (or in accordance with existing waterways monitoring), aerial photography
2) Wetlands		
	• Monitoring of wetlands using index of wetland condition guidelines, as well as Vegetation Quality Assessments (to allow priority comparison).	Every 5 years
	• Number of significant wetlands with improved hydrological regimes	Every 5 years
	• Percentage (%) of sites with barriers to natural flow	Every 5 years
3) Grassy Woodlands		
	• Refer to "All Key Biodiversity Sites" below	See below
4) Box Ironbark Forest		
	• Refer to "All Key Biodiversity Sites" below	See below
5) Plants of local interest		
	• Health and size of the populations , as well as noting any threats	Monitor a selection of species every year so that each species is monitored at least every 3 years.
All Key Biodiversity Assets		
	• Trends in vegetation condition (resurvey the 100 sites using VQA assessments) (this includes threats data)	Every 5 years, wetlands – 20 sites; woodlands/grasslands – 30 sites

	• Trends in bird survey data (resurvey the 100 sites using bird survey method)	Every 5 years, wetlands – 20 sites; woodlands/grasslands – 30 sites
	• Photographic point surveys (re-photograph the 100 sites)	Every 5 years: when complete VQA and bird surveys
	• Vegetation Quality Assessments, bird surveys and photographic point surveys at the remaining unsurveyed BAP sites	Within next 5 years, to allow monitoring of these sites (as outlined above)
	• Inclusion and surveying of up to date data and information (if any changes), or addition of sites (eg. If not already an identified site)	Once yearly, all new information; all sites
	• Trends in Focal Species reporting/sightings (eg. Population size, age distribution, frequency of records, number of birds/pairs recorded, habitat (eg number of sites/EVC), breeding success, recruitment)	Initial survey throughout zone to establish baseline data on population size and structure, subsequent two-yearly as part of bioregional program: across the zone
	• Monitoring of threatened species, against current records	Every 2 years: across the zone
	• Undertake surveys for all of listed (threatened) species to establish baseline data on abundance and distribution in accordance with VROTPop procedures	Within next 5 years: across the zone
	• Subsequent assessments of selected populations (as per above threatened populations) to determine population trends	Within next 5 years (subsequent to above action): across the zone
	• Trends in connectivity and characteristics of sites within landscape (eg. Size of remnants)	Every 5 years; aerial photography
	• Overlay of on-ground works areas against this plans mapping data	Once yearly (end financial year), all applicable sites
	• Number of incentives processed and implemented for priority sites for all Key Biodiversity Assets (private land only)	Once yearly, in accordance with incentive mapping and overlaying of on-ground works areas (as per above action)
	• Trends in plants of special concern (eg. Undertake monitoring of River Swamp Wallaby-grass in the zone to further determine management requirements)	Once; then as required

* Five yearly refers to five times per year

9.0 FURTHER INFORMATION - PRIORITY SITES

Priority Site Data:
Appendix 10 provides further information for the 547 priority BAP sites within the Violet Town Landscape Zone. This information has been derived using the Geographical Information System – Arcview 3.3. It is intended that the priority site information and other information detailed in this plan, will allow groups and staff (eg. Extension staff and community groups) to:

- Be pro-active in targeting sites,
- Act as a basis for informed management of the site,
- Provide a further rationale for applying incentives,
- Provide a tool for landholders and the wider community,
- Provide a tool to show how a site fits into the wider landscape, and
- Provide a benchmark against which future improvements in management can be monitored.

How To Use The Data Provided:
The data provided is intended for use by a range of agencies and community groups, to assist with biodiversity conservation in the Zone. It is particularly targeted towards agency extension officers. For example, it is anticipated that prior to, or following a site visit, an extension officer will investigate the data associated with a site, such as;

- What is the Ecological Vegetation Class of the site?
- How does the site fit in to the wider landscape?
- Are there any management agreements or incentives for the site (eg. Covenant, bush tender)?
- Are there threatened or significant species recorded at the site or nearby?
- What is the rating of the site and those near it (eg. Very high, high, medium or low)?
- What is the overarching management recommendation for the site (eg. Protect or restore)?
- What are the actions recommended for the site? (eg. Pest plant management) (Negotiations need to occur to get the best possible outcome for all involved)
- What are the options available to the landholders to fulfil these actions(eg. Fencing incentive)?
- What are the options for joining the site to public land? (eg. Widening roadsides to provide a corridor/link)?
- Using the Landscape Context Map (Appendix 8), determine where possible linkages (revegetation) may be of the most benefit – think about the landscape, what we could do to help the area.
- It is also important to remember that sites with scattered trees are still a vital link in the landscape and especially in an area where much of the original vegetation has given way to agriculture. Officers need to determine on site, where the best possible linkages could occur, and often this should include scattered vegetation, as although they generally have not been identified as a site in this plan, they form an important element for providing links between the identified sites.

Keeping The Data Current:
The data contained in this report is by no means 'comprehensive', as this process relies on the regular updating of information, to keep it accurate and timely. Therefore this plan is adaptive, to enable management actions and information to be modified, in response to further information, including monitoring. The plan will also be reviewed when necessary to ensure that it remains a 'living' document. In order for the data and associated maps to remain as up to date and relevant as possible, it is important that site data continue to be added to the database. For example, the Department is not always aware of sightings of flora and fauna by individual landholders or community groups and there are still a number of sites that require Vegetation Quality Assessments and Bird Surveys.

Further Information or To Provide Data:
For clarification of information or to provide further data, please contact the Water and Biodiversity Team, Department of Sustainability and Environment, Benalla on (03) 5761 1611.

10.0 LANDHOLDER ASSISTANCE

There is a range of assistance available for landholders in regards to planning for biodiversity conservation, and implementing works, on their properties. This section is designed to provide an overview of some of the property planning, management tools and incentives, available to landholders and the community, within the Mid Goulburn Region. Also included are some of the programs within the community, which will benefit from the information provided in this plan.

Environmental Incentives	WHOLE FARM PLANS
These financial incentives will provide funding for environmental works such as fencing off of remnants and revegetation projects.	Protecting biodiversity on a farm is an important element when developing and implementing a Whole Farm Plan. Biodiversity Action Planning can inform the process and provide extra information for landholders and extension officers.

Advice and Information:
Please contact your local Department of Primary Industries (DPI)/Department of Sustainability and Environment (DSE) Office, the Goulburn Broken Catchment Management Authority (GBCMA), the Goulburn Murray Landcare Network (GMLN) or Trust for Nature (TFN) (Vic), for further information on biodiversity conservation. There are extension officers within these organisations who can provide advice on a range of aspects such as; whole farm planning, irrigation design, groundwater management, revegetation and protection of remnant vegetation, threatened species protection and best management practices.

Incentives for On-Ground Works:
There is a range of incentives available for landholders within the Mid Goulburn Broken Catchment for catchment works, including:

- Environmental incentives – to assist with the protection and/or enhancement of remnant vegetation, including wetlands and grasslands,
- Tree Growing incentives – to assist with the re-establishment of native vegetation,
- Variety of Whole Farm Planning Incentives – to assist with farm management,
  For the above three points, contact the Department of Primary Industries, Benalla (03) 5761 1611.
- Waterways Incentives – for on-ground works along rivers and creeks contact the GBCMA office, Shepparton on (03) 58 201 100.

Management Arrangements:
Programs such as Carbon Tender, Bush Returns, EcoTender and Bush Broker, may provide incentives and advice, for long-term conservation management on properties. *Contact the GBCMA, Shepparton (03) 58 201 100 or Benalla office (03) 57 611 611 for further information or visit* www.gbcma.vic.gov.au

Permanent Protection:
A Conservation Covenant permanently protects sites for conservation. It may provide assistance for rate relief, tax concessions and incentives for the costs of on-ground works. *TFN (Vic) is the managing organisation in regards to Conservation Covenants; visit their website at* www.tfn.org.au

Other Assistance:

- Goulburn Murray Landcare Network Shepparton – Landcare related advice (www.gmln.org.au)

- Land for Wildlife – a voluntary scheme aiming to encourage and assist landholders to protect and enhance biodiversity values on their properties. *Managed by the Department of Sustainability and Environment – for further information visit* www.dse.vic.gov.au*.*
- Local Government (Greater Shepparton City Council, Strathbogie and Rural City of Benalla) – managing authority for native vegetation statutory planning requirements.

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Thank-you also to person's who have provided photographs. Photographer credit (names) are included under each photograph throughout the report.

A special acknowledgment to all representatives (current and past) on the Goulburn Broken Biodiversity Action Planning (BAP) Steering Committee. This steering committee was established to oversee the BAP process and is responsible for the coordination of BAP, in the Goulburn Broken Catchment. The committee is comprised of personnel from a range of departmental organisations, including the GBCMA, DPI, DSE and TfN (Vic). Core committee members are detailed below, along with contributors to BAP in the Goulburn Broken (eg. Meeting attendance, trial implementation, and plan development). Thank you to person's whom have attended meetings as invited guest's (names not listed) and provided valuable comment.

BAP Steering Committee Members:

GBCMA - Barlow, Tim – Manager, Biodiversity Programs, GBCMA (current)
Brunt, Kate – Biodiversity Projects Coordinator, GBCMA (current)
Bell, Kate – (as) Manager, Biodiversity Programs, GBCMA (past)

DPI - Heard, Rebecca – Native Biodiversity Coordinator, DPI (SIR) (current)
Stothers, Kate – Nature Conservation Coordinator, DPI (Dryland) (current)
Williams, Lance – Planning Officer, DPI (SIR) (past)
Sislov, Alex – Team Leader Environment Programme, DPI (SIR) (current)

DSE - Merritt, Bronwyn – Biodiversity Landscape Plan Project Officer (Upper) (past)
Smith, Stephen – Senior Flora and Fauna Officer, DSE (Upper) (current)
Edmonds, Tobi – Threatened Flora Projects Officer, DSE (Lower) (current)
Wilson, (Dr) Jenny – Biodiversity Projects Officer, DSE (Dryland) (current)
Colbourne, Debbie – (as) Flora and Fauna Planner, DSE (Dryland) (past)
Sheahan, Mark – (as) Biodiversity Team Leader, North East, DSE (past)

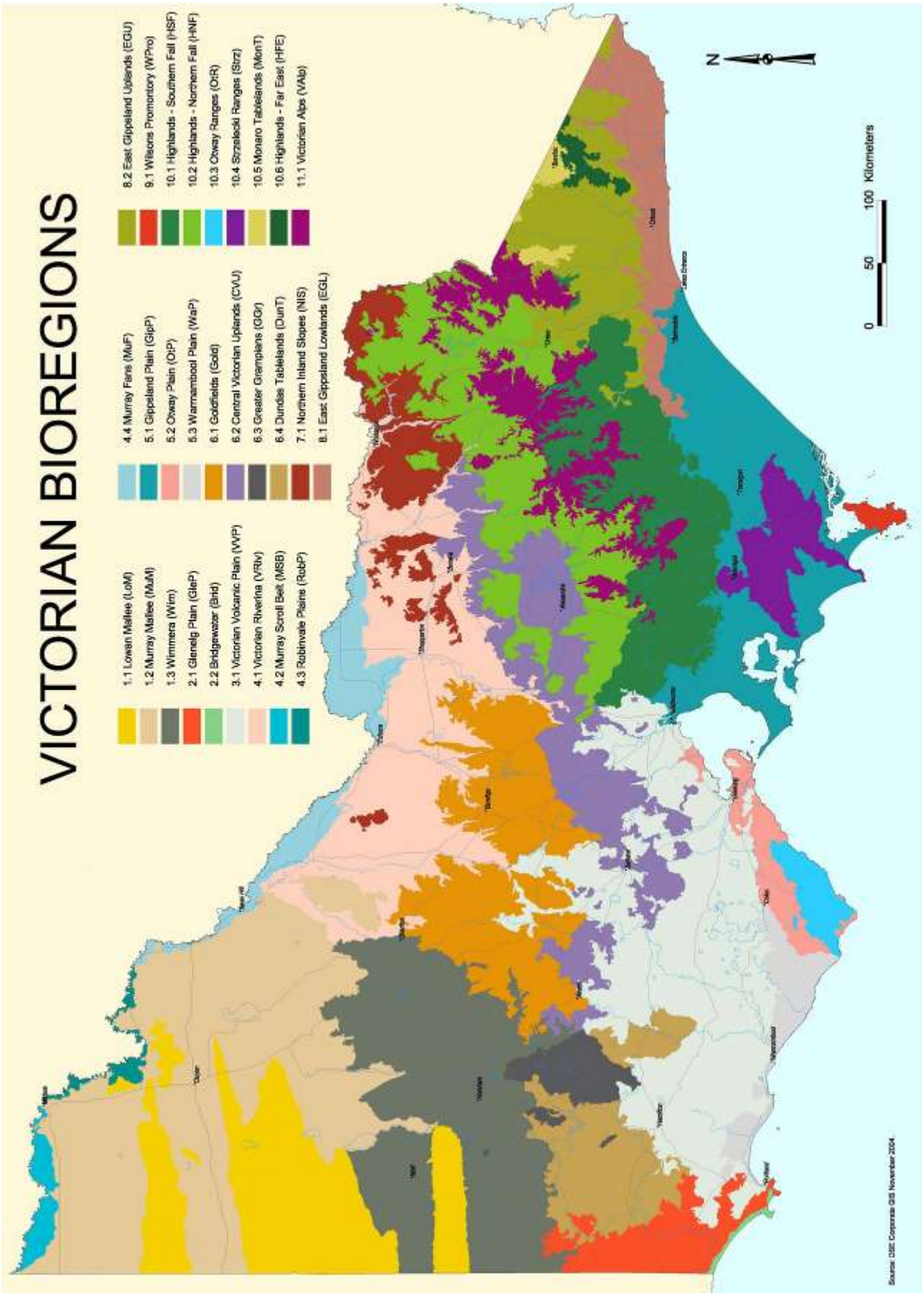
TFN (Vic) - Robinson, (Dr) Doug – Regional Manager, Goulburn Broken – TfN (Vic) (current)

Biodiversity Action Planning Contributors:

Mitchell, Peter – Links Officer, DPI (trial implementation)
Olive, Cathy – Links Officer, DPI (trial implementation)
Weber, Rolf – (as) Acting Biodiversity Team Leader, DSE
Berwick, Sue – (as) Flora and Fauna Planner, DSE (past)
Mentiplay-Smith, Janice – Links Officer, DPI (current)
Howell, Marion – Biodiversity Officer, GBCMA (past)

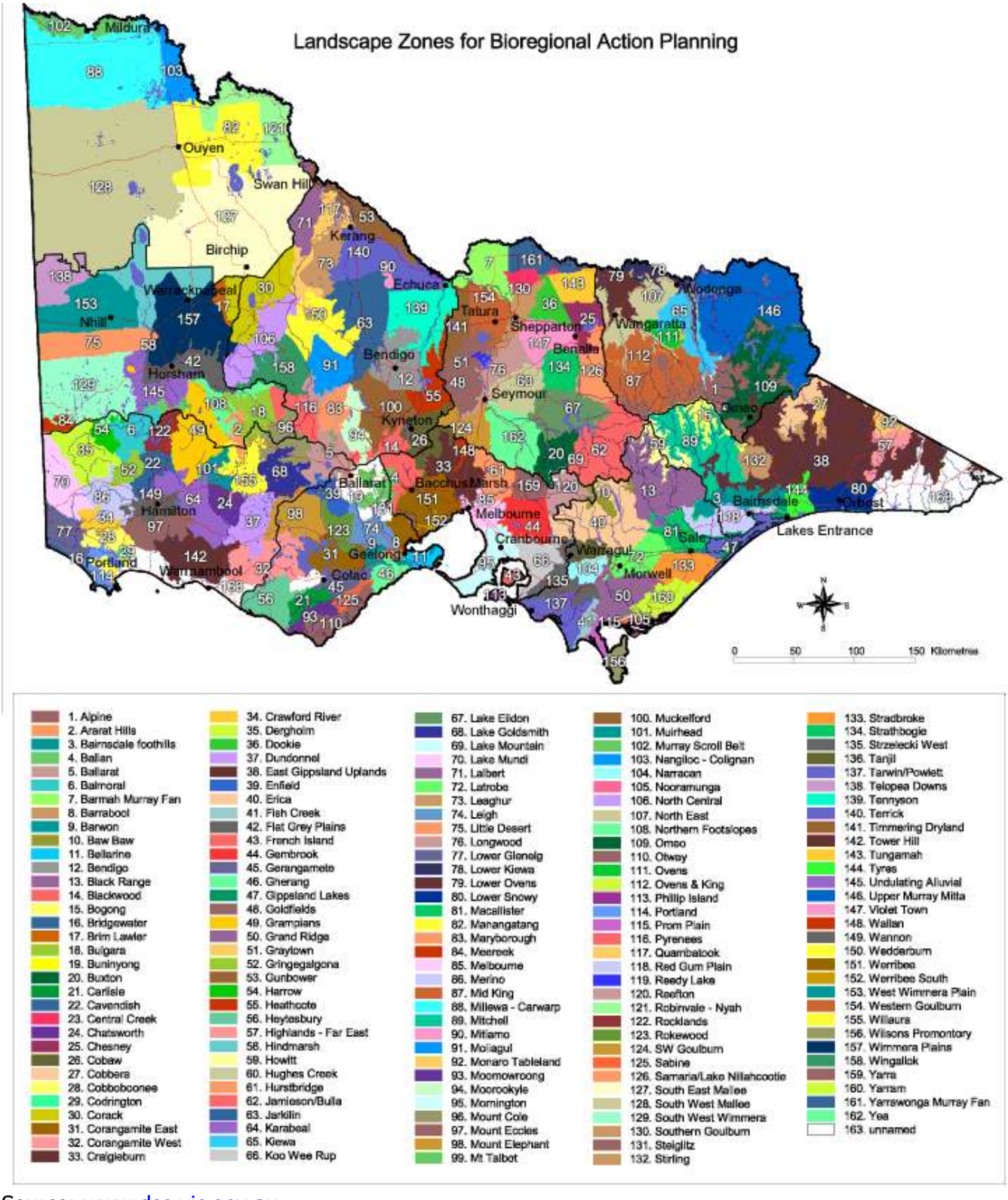
13.0 APPENDICES

APPENDIX 1 – VICTORIAN BIOREGIONS



Source: www.dse.vic.gov.au

APPENDIX 2 – VICTORIAN LANDSCAPE ZONES



Source: www.dse.vic.gov.au

APPENDIX 3 – GOULBURN BROKEN CATCHMENT TARGETS

This Appendix is intended to provide a summary of the Goulburn Broken Regional Catchment Strategy targets and priorities for biodiversity conservation. For further information please refer to GBCMA 2003 or visit www.gbcma.vic.gov.au.

The Goulburn Broken Regional Catchment Strategy identifies the following biodiversity resource condition targets, for native vegetation in the catchment:

1. Maintain the extent of all native vegetation types at 1999 levels in keeping with the goal of 'Net Gain' listed in Victoria's Biodiversity Strategy 1997,
2. Improve the quality of 90% of existing (2003) native vegetation by 10% by 2030,
3. Increase the cover of all endangered and applicable vulnerable Ecological Vegetation Classes to at least 15% of their pre-European vegetation cover by 2030,
4. Increase 2002 conservation status of 80% threatened flora and 60% threatened fauna by 2030,
5. Maintain the extent of all wetland types at 2003 levels where the extent (area and number) has declined since European settlement, and
6. Improve the condition of 70% of wetlands by 2030, using 2003 as the benchmark for condition (GBCMA 2003 p11).

Priorities for action to conserve biodiversity in the Goulburn Broken Catchment (GBC) are driven by the conservation significance of the biodiversity asset. Regional investments in biodiversity conservation in the GBC are driven by the following goals (in order of priority):

1. **Protecting** existing viable remnant habitats and the flora and fauna populations they contain (eg. Through reservation, covenants, management agreements, fencing and statutory planning),
2. **Enhancing** the existing viable habitats that are degraded (eg. Management of threats such as pest plants and animals, grazing, salinity, promotion of natural regeneration and/or revegetation with understorey), and
3. **Restoring** under-represented biodiversity assets to their former extent by revegetation (to create corridors, buffers, patches of habitat) (GBCMA 2003).

APPENDIX 4 –THREATENED FLORA

List of threatened flora and their conservation status in the Violet Town Landscape Zone (NRE 2002c). Table modified from Ahern et al 2003.

Latin Name	English Name	Australian Status*	Victorian Status*	FFG Listed*	FFG Action Statement Number	BNA Assessment*	Species Number*
Acacia flexifolia	Bent-leaf Wattle		r			Un	35
Acacia lanigera var. lanigera	Woolly Wattle		r			Un	5093
Acacia penninervis var. penninervis	Hickory Wattle		r				74
Allocasuarina luehmannii	Buloke			L		Un	678
Caladenia concolor	Crimson Spider Orchid	V	e	L			4347
Callitriche umbonata	Winged Water Starwort		r				575
Cardamine papillata	Forest Bitter-cress		v			Un	5034
Craspedia paludicola	Swamp Billy-buttons		v			Un	4649
Diuris punctata var. punctata	Purple Diuris		v	L			1084
Dodoneaa boroniifolia	Hairy Hopbush		r			Un	1087
Eucalyptus sideroxylon s.s	Mugga		r			Un	4493
Glycine latrobeana	Clover Glycine	V	v	L		Un	1456
Goodenia macbarronii	Narrow Goodenia	V	v	L	72		1513
Isolepis victoriensis	Victorian Club-sedge		k				1788
Myriophyllum porcatum	Ridged Water-milfoil	V	k				2257
Ranunculus pumilio var. politus	Ferny Buttercup		e			Un	4909
Swainsona recta	Mountain Swainson pea	E	e	L		Un	3326
Templetonia stenophylla	Leafy Templetonia		r			Un	3341

Definitions - E: endangered in Australia; k: poorly known in Victoria; e: endangered in Victoria; v: vulnerable in Victoria; r: rare in Victoria; L: listed under FFG; N: nominated under FFG

APPENDIX 5 – THREATENED FAUNA

List of threatened fauna and their conservation status in the Violet Town Landscape Zone (NRE 2002d). Table modified from Ahern et al 2003.

Latin Name	Common Name	Australian Status	Victorian Status	FFG Listed	CAMBA Listed	JAMBA Listed
Struthidea cinerea	Apostlebird		v	L		
Anas rhynchotis	Australasian Shoveler		v			
Porzana pusilla	Baillon's Crake		v	L		
Ninox connivens	Barking Owl		e	L		
Falco subniger	Black Falcon		v			
Oxyura australis	Blue-billed Duck		v	L		
Maccullochella macquariensis	Blue-nosed (Trout) Cod	E	c	L		
Coturnix ypsilophora	Brown Quail		n			
Phascogale tapoatafa	Brush-tailed Phascogale		v	L		
Burhinus grallarius	Bush Stone-curlew		e	L		
Morelia spilota metcalfei	Carpet Python		e	L		
Melanotaenia fluviatilis	Crimson-spotted Rainbowfish		d	L		
Geopelia cuneata	Diamond Dove		n	L		
Stagonopleura guttata	Diamond Firetail		v	L		
Numenius madagascariensis	Eastern Curlew		n		1	1
Sminthopsis crassicaudata	Fat-tailed Dunnart		n			
Galaxias rostratus	Flat-headed Galaxias		d			
Stictonella naevosa	Freckled Duck		e	L		
Plegadis falcinellus	Glossy Ibis		n		1	
Macquaria ambigua	Golden Perch		v			
Ardea alba	Great Egret		v	L	1	1
Accipiter navaelhollandiae	Grey Goshawk		r			
Pomatostomus temporalis	Grey-crowned Babbler		e	L		
Pteropus poliocephalus	Grey-headed Flying-fox	V	v	L		
Coracina maxima	Ground Cuckoo-shrike		e	L		
Aythya australis	Hardhead		v			
Melanodryas cucullata	Hooded Robin		n	L		
Ardea intermedia	Intermediate Egret		e	L		
Turnix velox	Little Button-quail		n			
Egretta garzetta	Little Egret		e	L		
Macquaria australasica	Macquarie Perch	E	e	L		
Galaxias olidus	Mountain Galaxis		k	L		
Biziura lobata	Musk Duck		v			
Nycticorax caledonicus	Nankeen Night Heron		n			
Grantiella picta	Painted Honeyeater		v	L		
Phalacrocorax varius	Pied Cormorant		n			
Ninox strenua	Powerful Owl		v	L		
Xanthomyza phrygia	Regent Honeyeater	E	c	L		
Gadopsis marmoratus	River Blackfish		k			
Platalea regia	Royal Spoonbill		v			

Aepyprymnus rufescens	Rufous Bettong		x	L		
Bidyanus bidyanus	Silver perch		e	L		
Myotis macropus	Southern Myotis		n			
Chthonicola sagittata	Speckled Warbler		v	L		
Lophoictinia isura	Square-tailed Kite		e	L		
Petaurus norfolcensis	Squirrel Glider		e	L		
Lathamus discolor	Swift Parrot	E	e	L		
Varanus varius	Tree Goanna		v			
Neophema pulchella	Turquoise Parrot		n	L		
Ramphotyphlops proximus	Woodland Blind Snake		n			

Definitions: CAMBA listed (China-Australia Migratory Bird Agreement); JAMBA listed(Japan-Australia Migratory Bird Agreement); V: vulnerable in Australia; E: Endangered in Australia; c: critically endangered in Victoria; e: endangered in Victoria; v: vulnerable in Victoria; n: near threatened in Victoria; L: listed under FFG

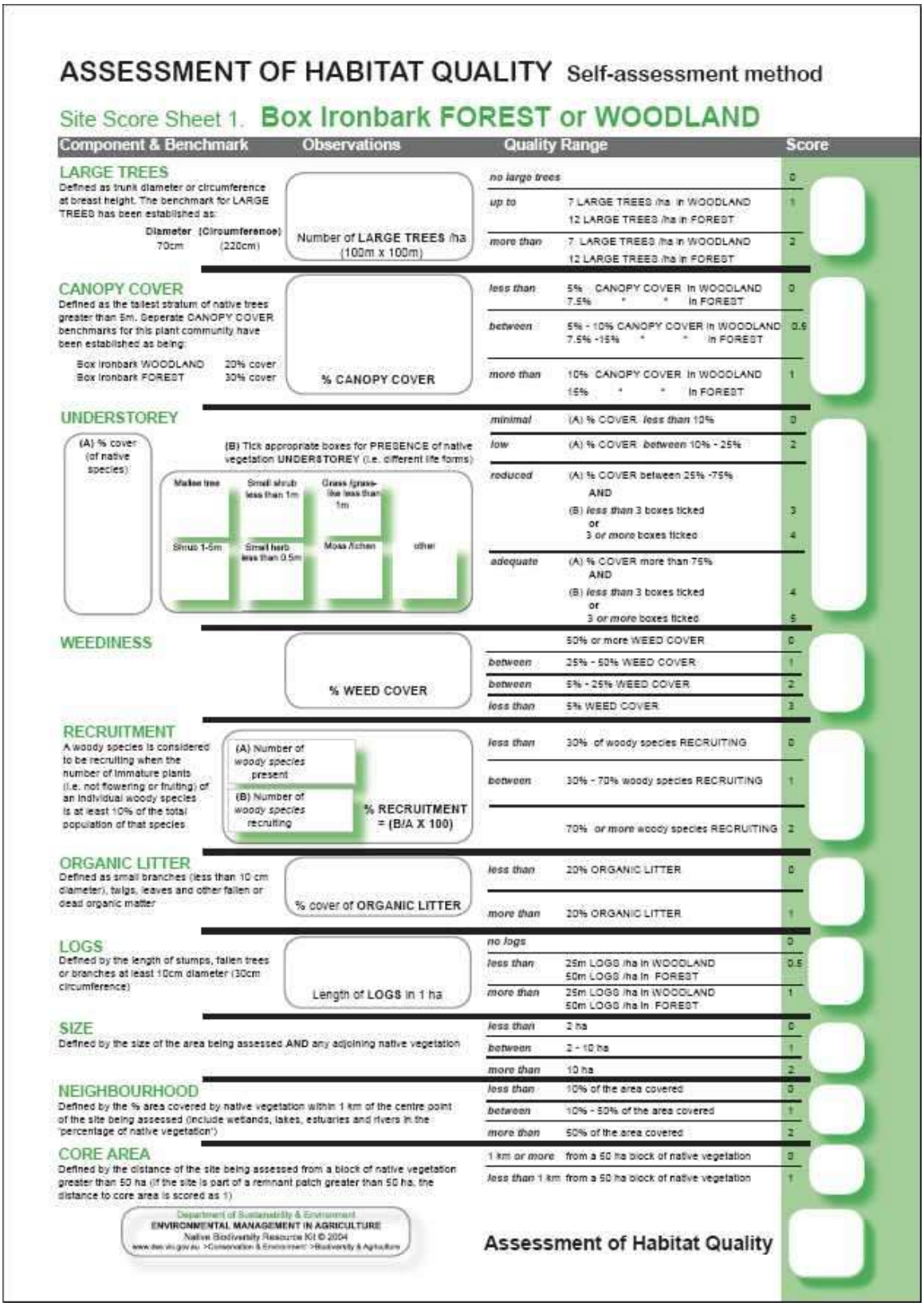
APPENDIX 6 – SITE PRIORITISATION METHOD

To determine the conservation significance and the need for ground-truthing (surveying), sites were prioritised according to the following table (GBCMA *in prep.*). If ground-truthing was required and no survey was completed (eg. more than 100 sites required survey), the minimum priority status was applied. *LCM refers to the Landscape Context Model.

Conservation Status of EVC	Potential habitat within known dispersal range of threatened taxon or focal species, or within priority areas as identified by LCM*	EVC Patch Size	Ground-truthing required to confirm priority rank on basis of vegetation condition	Priority Status: Very High, High, Medium, Low
Endangered	Y	<5ha	Ground-truthing needed	VH or H
E	N	<5ha	Ground-truthing needed	VH or H
E	Y	5-10ha	Ground-truthing needed	VH or H
E	N	5-10ha	Ground-truthing needed	VH or H
E	Y	11-40ha		VH
E	N	11-40ha		VH
E	Y	>40ha		VH
E	N	>40ha		VH
Vulnerable	Y	<5ha	Ground-truthing needed	M, H or VH
V	N	<5ha	Ground-truthing needed	M or H or VH
V	Y	5-10ha	Ground-truthing needed	M, H or VH
V	N	5-10ha	Ground-truthing needed	M or H or VH
V	Y	11-40ha		VH
V	N	11-40ha	Ground-truthing needed	H or VH
V	Y	>40ha		VH
V	N	>40ha		VH
Rare	Y	<5ha	Ground-truthing needed	M, H or VH
R	N	<5ha	Ground-truthing needed	M or H or VH
R	Y	5-10ha	Ground-truthing needed	M, H or VH
R	N	5-10ha	Ground-truthing needed	M or H or VH
R	Y	11-40ha		VH
R	N	11-40ha	Ground-truthing needed	H or VH
R	Y	>40ha		VH
R	N	>40ha		VH
Depleted	Y	<5ha	Ground-truthing needed	M or H
D	N	<5ha	Ground-truthing needed	L or M
D	Y	5-10ha	Ground-truthing needed	M or H
D	N	5-10ha	Ground-truthing needed	L, M or H
D	Y	11-40ha		H
D	N	11-40ha	Ground-truthing needed	M or H
D	Y	>40ha		VH
D	N	>40ha		VH
Least Concern	Y	<5ha		M
LC	N	<5ha		L
LC	Y	5-10ha		M
LC	N	5-10ha	Ground-truthing needed	L or M
LC	Y	11-40ha	Ground-truthing needed	M or H
LC	N	11-40ha	Ground-truthing needed	L or M
LC	Y	>40ha	Ground-truthing needed	H or VH
LC	N	>40ha	Ground-truthing needed	H or VH

APPENDIX 7 – VEGETATION QUALITY ANALYSIS (VQA) ASSESSMENT FORM

There are four survey forms for vegetation types in the Violet Town Landscape Zone (eg. grassland, wetland, plains grassy woodlands or forests and Box Ironbark Forest). The example below is the plains grassy forests/woodland sheet. Refer to DSE 2004 for further information on assessments. Recording of site information and other factors (eg. threatening processes) was also recorded at each of the surveyed sites.



ASSESSMENT OF HABITAT QUALITY Self-assessment method

Site Score Sheet 1. Box Ironbark FOREST or WOODLAND

Component & Benchmark	Observations	Quality Range	Score
LARGE TREES Defined as trunk diameter or circumference at breast height. The benchmark for LARGE TREES has been established as: Diameter 70cm (Circumference) (220cm)	Number of LARGE TREES /ha (100m x 100m)	*no large trees*	0
		up to 7 LARGE TREES /ha in WOODLAND; 12 LARGE TREES /ha in FOREST	1
		more than 7 LARGE TREES /ha in WOODLAND; 12 LARGE TREES /ha in FOREST	2
CANOPY COVER Defined as the tallest stratum of native trees greater than 5m. Seperate CANOPY COVER benchmarks for this plant community have been established as being: Box Ironbark WOODLAND 20% cover; Box Ironbark FOREST 30% cover	% CANOPY COVER	*less than* 5% CANOPY COVER in WOODLAND; 7.5% " " in FOREST	0
		between 5% - 10% CANOPY COVER in WOODLAND; 7.5% -15% " " in FOREST	0.5
		more than 10% CANOPY COVER in WOODLAND; 15% " " in FOREST	1
UNDERSTOREY (A) % cover (of native species) (B) Tick appropriate boxes for PRESENCE of native vegetation UNDERSTOREY (i.e. different life forms): Mallee tree; Small shrub less than 1m; Grass /grass-like less than 1m; Shrub 1-5m; Small herb less than 0.5m; Moss /lichen; other		*minimal* (A) % COVER *less than* 10%	0
		low (A) % COVER *between* 10% - 25%	2
		reduced (A) % COVER between 25% -75% AND (B) *less than* 3 boxes ticked or 3 *or more* boxes ticked	3 / 4
		adequate (A) % COVER more than 75% AND (B) *less than* 3 boxes ticked or 3 *or more* boxes ticked	4 / 5
WEEDINESS	% WEED COVER	50% or more WEED COVER	0
		between 25% - 50% WEED COVER	1
		between 5% - 25% WEED COVER	2
		less than 5% WEED COVER	3
RECRUITMENT A woody species is considered to be recruiting when the number of immature plants (i.e. not flowering or fruiting) of an individual woody species is at least 10% of the total population of that species	(A) Number of *woody species* present; (B) Number of *woody species* recruiting; % RECRUITMENT = (B/A X 100)	*less than* 30% of woody species RECRUITING	0
		between 30% - 70% woody species RECRUITING	1
		70% *or more* woody species RECRUITING	2
ORGANIC LITTER Defined as small branches (less than 10 cm diameter), twigs, leaves and other fallen or dead organic matter	% cover of ORGANIC LITTER	*less than* 20% ORGANIC LITTER	0
		more than 20% ORGANIC LITTER	1
LOGS Defined by the length of stumps, fallen trees or branches at least 10cm diameter (30cm circumference)	Length of LOGS in 1 ha	*no logs*	0
		less than 25m LOGS /ha in WOODLAND; 50m LOGS /ha in FOREST	0.5
		more than 25m LOGS /ha in WOODLAND; 50m LOGS /ha in FOREST	1
SIZE Defined by the size of the area being assessed AND any adjoining native vegetation		*less than* 2 ha	0
		between 2 - 10 ha	1
		more than 10 ha	2
NEIGHBOURHOOD Defined by the % area covered by native vegetation within 1 km of the centre point of the site being assessed (include wetlands, lakes, estuaries and rivers in the 'percentage of native vegetation')		*less than* 10% of the area covered	0
		between 10% - 50% of the area covered	1
		more than 50% of the area covered	2
CORE AREA Defined by the distance of the site being assessed from a block of native vegetation greater than 50 ha (if the site is part of a remnant patch greater than 50 ha, the distance to core area is scored as 1)		1 km *or more* from a 50 ha block of native vegetation	0
		less than 1 km from a 50 ha block of native vegetation	1

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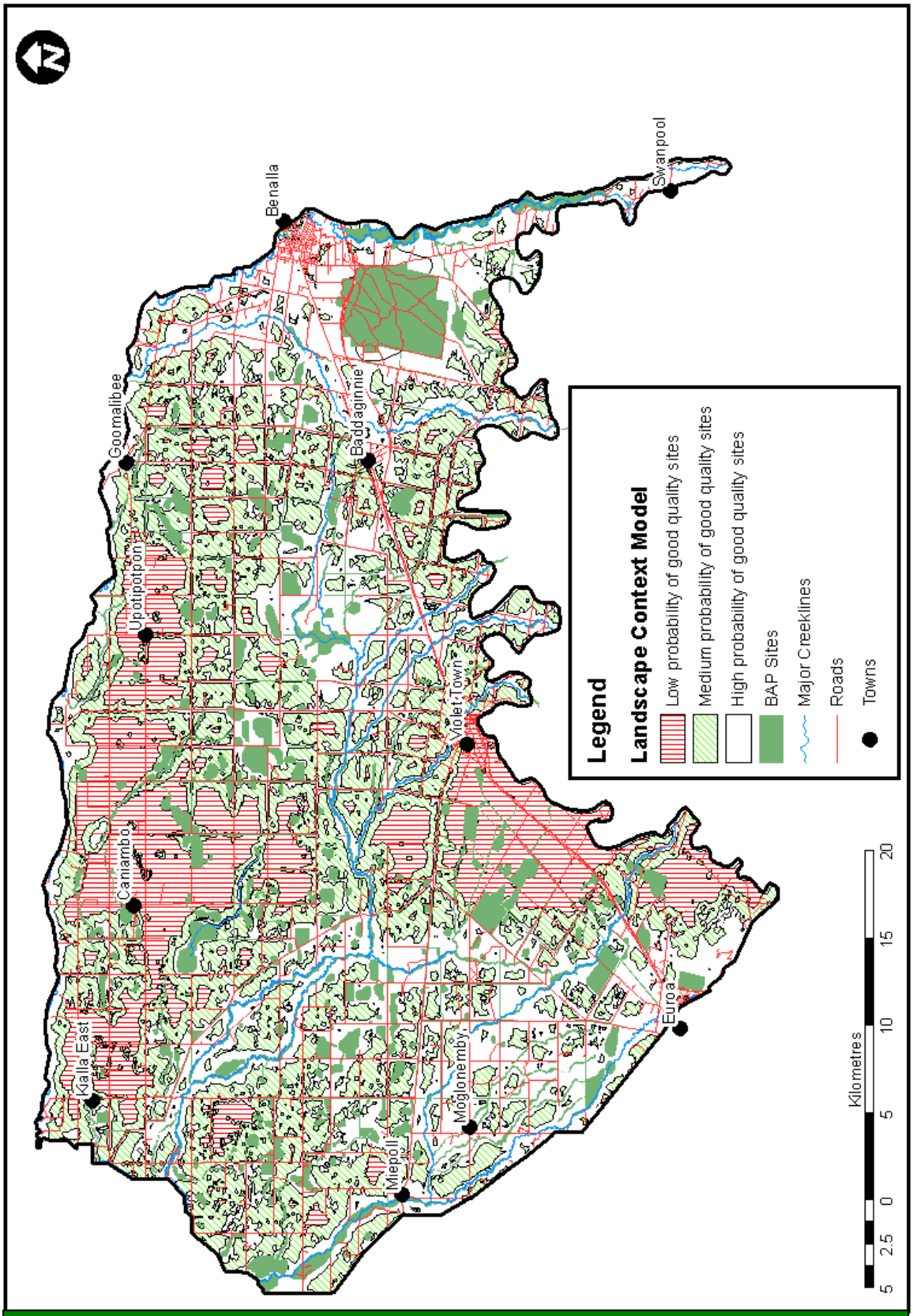
Assessment of Habitat Quality

APPENDIX 8 – LANDSCAPE CONTEXT MODEL (LCM)

The Landscape Context Model Mapping is now also contained on the BAP CD (Version 1, January 2008)* or on the GBCMA website (www.gbcma.vic.gov.au). This mapping can be used in conjunction with the BAP mapping and this Conservation Plan.



PROBABILITY OF FURTHER BAP SITES - LANDSCAPE CONTEXT MODEL – VIOLET TOWN LANDSCAPE ZONE

* To obtain copies of the BAP CD (Version 1, January 2008), or for further information on BAP, please contact bap@gbcma.vic.gov.au OR the Biodiversity Action Planning Officer, Department of Sustainability and Environment (DSE) Benalla at Ph: (03) 57 611 611

APPENDIX 9 – BIRD LIST

This list includes birds surveyed during the 100 site (20 minute) surveys. It is not intended to represent the entire bird population in the Violet Town Landscape Zone. For further information on birds surveyed at each site refer to Appendix 10 and accompanying CD.

Common Name*	Scientific Name
Australian Hobby	*Falco longipennis*
Australian Raven	*Corvus coronoides*
Barn Owl	*Tyto alba*
Black-faced Cuckoo-shrike	*Coracina novaehollandiae*
Black-shouldered Kite	*Elanus axillaris*
Black Swan	*Cygnus atratus*
Black-winged stilt	*Himantopus himantopus*
Black-fronted Dotterel	*Elseyornis melanops*
Blue-faced Honeyeater	*Entomyzon cyanotis*
Brown Falcon	*Falco berigora*
Brown Thornbill	*Acanthiza pusilla*
Brown Treecreeper	*Climacteris picumnus*
Buff-rumped thornbill	*Acanthiza reguloides*
Bush-stone Curlew	*Burhinus grallarius*
Chestnut Teal	*Anas castanea*
Clamorous Reed-warbler	*Acrocephalus stentoreus*
Common Blackbird	*Turdus merula*
Common Bronzewing	*Phaps chalcoptera*
Crested Pigeon	*Ocyphaps lophotes*
Crested Shrike-tit	*Falcanculus frontatus*
Domestic Peahen	*Pavo cristatus*
Dusky Moorhen	*Gallinula tenebrosa*
Dusky woodswallow	*Artamus cyanopterus*
Eastern Rosella	*Platycercus eximius*
Fairy Martin	*Hirundo ariel*
Feral Pigeon	*Columba livia*
Flame Robin	*Petroica phoenicea*
Galah	*Cacatua roseicapilla*
Golden Whistler	*Pachycephala pectoralis*
Grey Falcon	*Falco hypoleucos*
Grey Fantail	*Rhipidura fuliginosa*
Grey Shrike-thrush	*Colluricincla harmonica*
Grey Teal	*Anas gracilis*
Grey-crowned Babbler	*Pomatostomus temporalis*
Hardhead	*Aythya australis*
Hooded Robin	*Melanodryas cucullata*
House Sparrow	*Passer domesticus*
Indian Mynah	*Acridotheres tristis*
Intermediate Egret	*Ardea intermedia*
Jacky Winter	*Microeca fascinans*
Laughing Kookaburra	*Dacelo novaeguineae*
Letter-winged Kite	*Elanus scriptus*
Little Corella	*Cacatua sanguinea*
Little Friarbird	*Philemon citreogularis*
Little Pied Cormorant	*Phalacrocorax melanoleucos*
Little Raven	*Corvus mellori*
Long-billed Corella	*Cacatua tenuirostris*
Magpie	*Gymnorhina tibicen*
Magpie Lark	*Grallina cyanoleuca*
Martin	*Hirundo spp.*
Masked Lapwing	*Vamellus miles*
Mistletoebird	*Dicaeum hirundinaceum*
Mountain Duck	*Tadorna tadornoides*
Nankeen Kestrel	*Falco cenchroides*
Noisy Friarbird	*Philemon corniculatus*
Noisy Miner	*Manorina melanocephala*
Olive-backed Oriole	*Oriolus saggittatus*
Oriole	*Oriolus spp.*
Pacific Black Duck	*Anas superciliosa*
Pelican	*Pelecanus conspicillatus*
Pied Butcherbird	*Cracticus nigrogularis*
Pied Currawong	*Strepera graculina*
Purple Swamphen	*Porphyrio porphyrio*
Raven	*Corvus spp.*
Red-kneed dotterel	*Erythrogonys cinctus*
Red-rumped parrot	*Psephotus haematonotus*
Restless Flycatcher	*Myiagra inquieta*
Rufous Songlark	*Cincloramphus mathewsi*
Rufous Whistler	*Pachycephala rufiventris*
Southern Whiteface	*Aphelocephala leucopsis*
Starling	*Sturnus vulgaris*
Straw-necked Ibis	*Threskiornis molucca*
Striated Pardalote	*Pardalotus striatus*
Striated Thornbill	*Acanthiza lineata*
Sulphur-crested Cockatoo	*Cacatua galerita*
Superb Fairy-wren	*Malurus cyaneus*
Superb Parrot	*Polytelis swainsonii*
Tawny Frogmouth	*Podargus strigoides*
Tree Sparrow	*Passer montanus*
Wedge-tailed eagle	*Aquila audax*
Welcome Swallow	*Hirundo neoxena*
Whistling Kite	*Haliastur sphenurus*
White-backed Swallow	*Cheramoeca leucosternus*
White-browed Babbler	*Pomostostomus superciliosus*
White-eared Honeyeater	*Lichenostomus leucotis*
White-faced Heron	*Egretta novaehollandiae*
White Ibis	*Threskiornis molucca*
White-plumed Honeyeater	*Lichenostomus penicilatus*
White-throated Treecreeper	*Cormobates leucophaeus*
White-winged Chough	*Cocorax melanorhamphos*
Willie Wagtail	*Rhipidura leucophrys*
Wood Duck	*Chenonetta jubata*
Wood Swallow	*Artamus sp.*
Yellow-billed Spoonbill	*Platelea flavipes*
Yellow Rosella	*Platycercus elegans flaveolus*
Yellow-rumped Thornbill	*Acanthiza chrysorrhoa*
Yellow Thornbill	*Acanthiza nana*
Zebra Finch	*Taeniopygia guttata*

* In Alphabetical Order of Common Name

APPENDIX 10 – PRIORTY SITE INFORMATION (MAPPING):

Mapping and accompanying information for each of the 'priority BAP sites' is now contained on the BAP CD (Version 1, January 2008) or on the GBCMA website (www.gbcma.vic.gov.au). This mapping data is designed to be used in conjunction with this Conservation Plan to assist users to obtain further information on priority sites.

HOW TO OBTAIN INFORMATION FROM THE BAP CD:

1. Locate the available mapping data by clicking on the 'BAP Mapping' hyperlink#.
2. Click on the hyperlink relating to the Zone of interest under the 'BAP Mapping' subheading' (e.g. 'Barmah').
3. This will lead to a map identifying priority BAP sites within the chosen Zone.
4. On this map, locate the area/site of interest by clicking on the area.
5. Zoom in or out to the areas/sites of interest, using the North, South, East, West arrows.
6. Click on a BAP site to view the Attribute Table information for that site.
7. Refer to the list of birds surveyed at each site (where available).
8. An explanation of the data provided in the Attribute Table, is provided in the 'Attribute Table Definition' document under the BAP Mapping Subheading
9. For further information to assist with the identification of opportunities to link the BAP sites, refer to 'BAP Mapping', 'Landscape Context Model Maps' and choose the relevant Zone name hyperlink(e.g. 'Barmah').
10. To access the data via the Geographical Information System (GIS) (where available) select 'BAP Mapping',
11. 'GIS data' then either 'BAP GIS layer' or 'LCM GIS layer'.

Note: Mapping data for each Landscape Zone can also be located by clicking on the 'BAP Zones' hyperlink and choosing the Landscape Zone of interest from the map of the Goulburn Broken Catchment.

To obtain copies of the BAP CD (Version 1, January 2008), or for further information on BAP, please contact bap@gbcma.vic.gov.au OR the Biodiversity Action Planning Officer, Department of Sustainability and Environment (DSE) Benalla at Ph: (03) 57 611 611