CONSERVATION PLAN
FOR THE
LONGWOOD
LANDSCAPE ZONE

Conservation Plan for Longwood

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1. INTRODUCTION

Biodiversity Action Planning (BAP) identifies priorities for native biodiversity conservation (Platt & Lowe 2002), and is part of the implementation of the State's Biodiversity Strategy (Crown 1997). In particular, it aims to:

❖ conserve native biodiversity 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, and

❖ achieve community support for landscape planning for biodiversity and the conservation of strategic assets, particularly in rural landscapes (Platt & Lowe 2002).

The diagram on the left shows the biodiversity planning process and how this document fits into that process. Conservation Plans are being developed for priority areas of the State.

2. OBJECTIVES

Conservation plans, such as this one, aim to translate State, regional and catchment plans and targets for biodiversity to a local level. It ensures that private and public resources expended for conservation are targeted to priority sites for priority actions. In this way, available resources can be used for the greatest possible outcomes, based on the best science.

This plan can be used by extension staff, Landcare officers, land managers and the general community to guide these actions.

This Conservation Plan details:
❖ the landscape, vegetation and significant flora and fauna of the area
❖ describes a vision for the area, based on the conservation objectives for the Longwood Landscape Zone
❖ priority assets to be conserved, and the threats to these biodiversity values
❖ priority actions required to protect and restore the assets
❖ broad recommendations for the zone based on tools developed using the best available scientific data.

This Conservation Plan identifies ** priority sites. The protection and management of these sites is important for the conservation of flora and fauna in the local area.

The use of resources available for conservation in the local area should be directed to these sites. Information on assistance available to landholders for conservation, including financial assistance and incentives, is detailed on page ** of this Plan.

3. THE STUDY AREA

3.1 Longwood Landscape Zone

A full description of the Longwood landscape zone can be found at:
http://www.dse.vic.gov.au/dpi/vro/vrosite.nsf/pages/bap_landscape_longwood
This website also provides several useful maps of the zone, including threatened species locations, distribution and conservation status of EVC's, and areas of public land, including reserves. It provides summaries of priority biodiversity actions for the Longwood Landscape Zone, for specific assets as well as different land tenures in general (eg private land, local council land, etc.). It provides threats and management of threatened species, targets to aim for to aid in the conservation of threatened species. A brief description of the zone follows here.

The Longwood Landscape Zone covers an area of approximately 118,292 ha within the Victorian Riverina Bioregion of the Goulburn Broken Catchment (Fig. 1 MAP of Longwood Zone within GBC). Main towns within the zone include Euroa (in the east), Nagambie (to the midwest) and Seymour in the south. The zone consists mainly of the gently sloping or flat riverine plains of the Goulburn River and its associated tributaries. Over 95% of native vegetation cover has been cleared within the zone and the majority of the remnant vegetation is on creeklines and roadsides. The drainage system of the zone lies within the Goulburn River Basin (LCC 1989). The gently sloping or flat riverine plain is comprised mainly of Pleisocene (Quartenary) alluvial sediments (LCC 1983).

Public land occurs along stream frontages (various widths), roadsides and some small reserves, and covers an area of approximately 3% of the zone. Public land Reserves occur mostly along creek frontages, with a few remnant patches as Reserves. The largest Reserve is Tabilk Lagoon Wildlife Reserve (198 ha), which is adjacent to the Goulburn River (Map of Public Land***). Roadside reserves (40-60 m in width, unused roads and streamside remnants provide important habitat and act as linkages across the zone.

Private land covers approximately 97% of the zone (CGDL 2004) (Map of Public land***). This has resulted in extraordinary changes to vegetation, with most of the area cleared. The native vegetation that remains on private land is highly fragmented and consists of scattered trees and treed remnants, usually without understorey, and some areas of native grasses. Most of the zone is included in the Nagambie Landcare Group area.
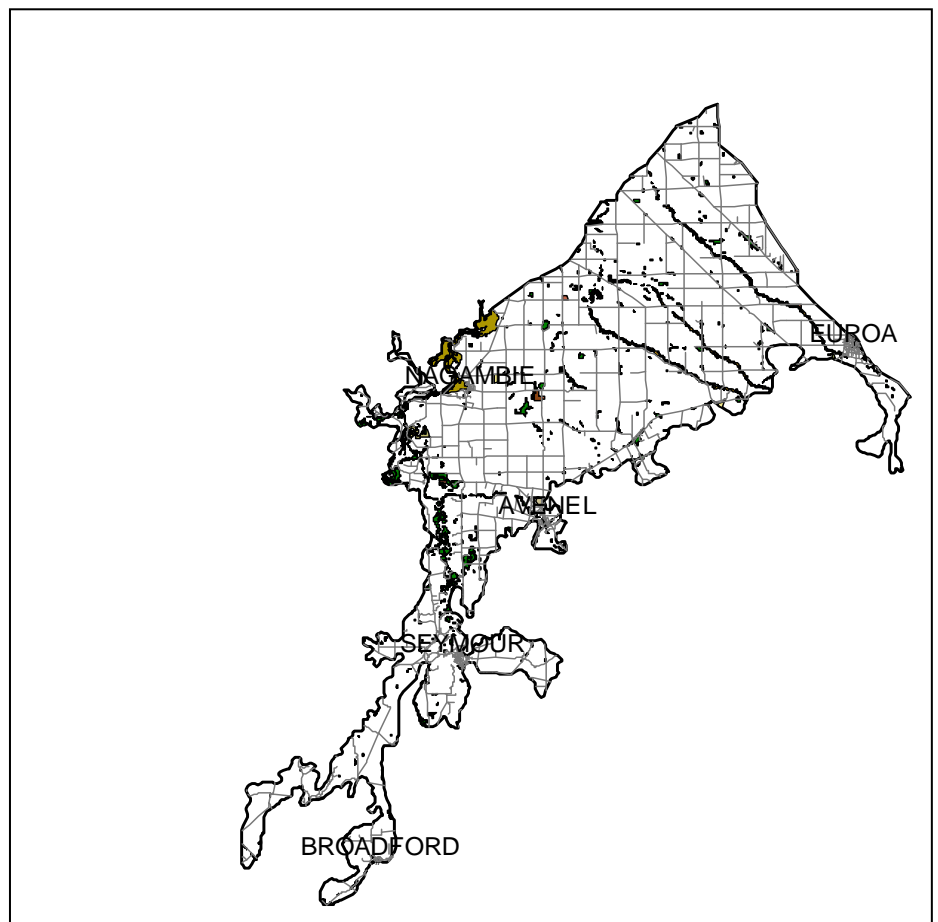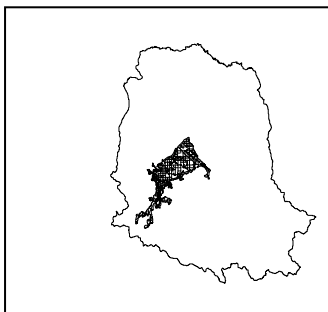
Figure 1: The Longwood Landscape area within the Goulburn Broken Catchment. The public land, waterways, main towns and existing treed vegetation in the zone.

Vegetation

Prior to European settlement, the vegetation of the Longwood Landscape Zone was a mixture of native grasslands, open woodlands and wetlands. Woodland communities were dominated by Grey Box *Eucalyptus microcarpa* and Yellow Box *E. melliodora* and Buloke *Allocasuarina leuhmannii*, with patches of Yellow Gum on sandier sites. Yellow Gum is an important winter flowering species and so provides nectar for endangered species such as the Swift Parrot *Lathamus discolor***. The streamsides and wetlands supported an overstorey of River Red Gum.

Thirty-one Ecological Vegetation Classes[1] (EVCs) have been identified in the zone (Table 1: Fig. 2). The dominant EVCs, are those that are the types of Grassy Woodlands, Grasslands and Wetlands, with some box-Ironbark and box woodlands predominately around the Broadford area.

The majority of native vegetation has been cleared, and currently there is only approximately 3% tree cover in the zone. The majority of EVC's have been substantially cleared, and some no longer occur in the zone. (Fig. 2; Table 1). Twenty-eight of the 31 EVC's (90%) are considered to be Endangered or Vulnerable, one is extinct (Cane Grass Wetland), one depleted (Grassy Dry Forest) and one 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 Longwood 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.

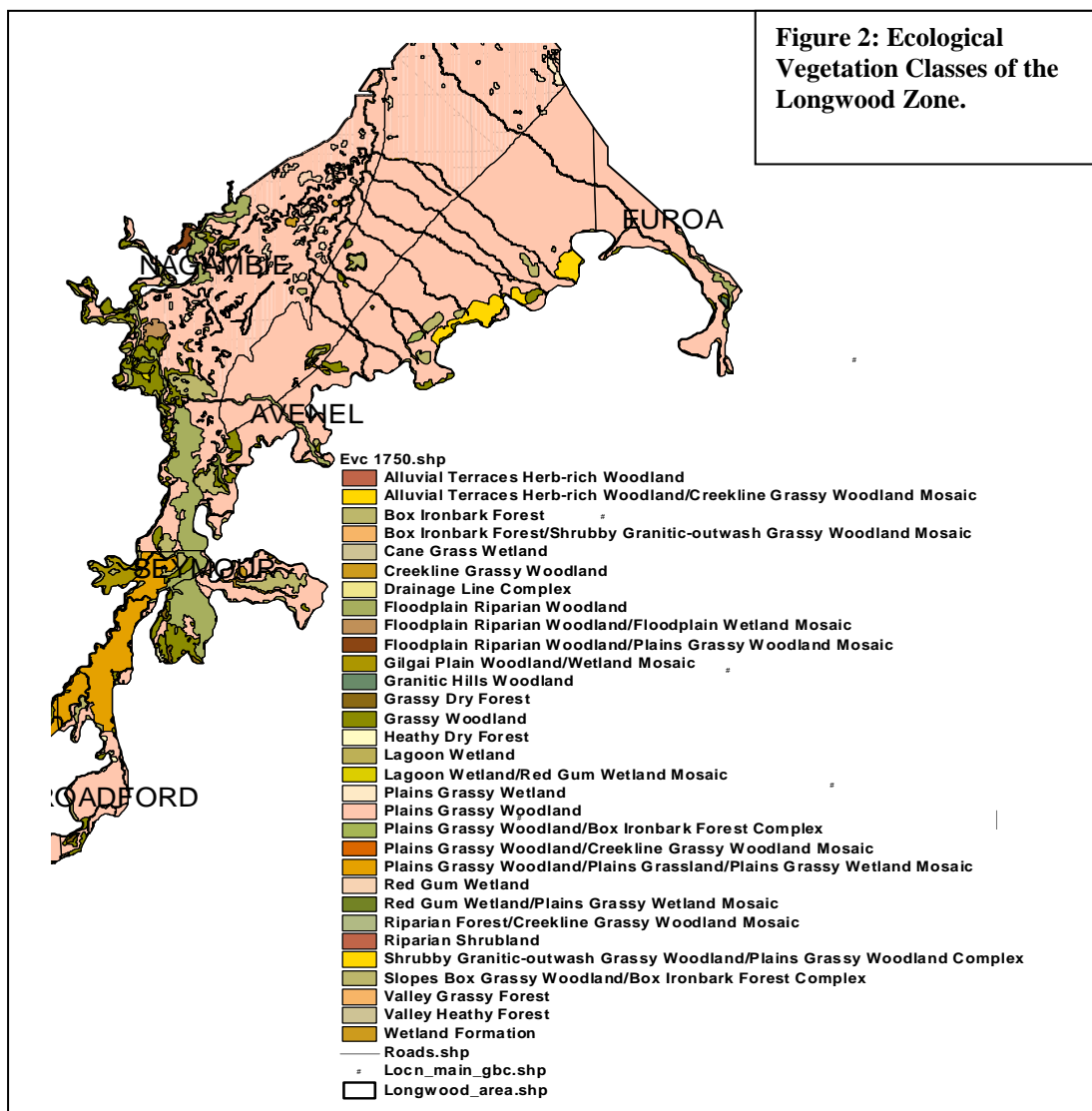**Figure 2: Ecological Vegetation Classes of the Longwood Zone.**

Table 1: Ecological vegetation Classes in the Longwood Landscape Zone, the group and number, conservation status, area of extent prior to European Settlement (i.e. pre-1750), current tree cover extent and the percentage of current extent.

EVC Group	EVC No.	EVC Bioregional Conservation	EVC Name	Pre-1750 Area (ha)	Current Area (ha)	% pre-European cover
14	55	E	Plains Grassy Woodland	87905	1346	1.5
14	263	E	Plains Grassy Woodland/Plains Grassland/Plains Grassy Wetland Mosaic	6632	26	0.4
15	56	V	Floodplain Riparian Woodland	5959	880	14.8
14	175	E	Grassy Woodland	5469	267	4.9
6	61	V	Box Ironbark Forest	3519	332	9.4
14	68	E	Creekline Grassy Woodland	2588	470	18.2
14	274	E	Shrubby Granitic-outwash Grassy Woodland/Plains Grassy Woodland	1270	34	2.7
19	125	E	Plains Grassy Wetland	1145	69	6.0
14	168	E	Drainage Line Complex	707	24	3.4
14	235	E	Gilgai Plain Woodland/Wetland Mosaic	604	28	4.6
19	292	E	Red Gum Wetland	542	126	23.2
6	262	E	Slopes Box Grassy Woodland/Box Ironbark Forest Complex	312	3	1.0
15	256	V	Floodplain Riparian Woodland/Floodplain Wetland Mosaic	307	63	20.5
19	74	E	Wetland Formation	262	12	4.6
7	22	D	Grassy Dry Forest	168	9	5.4
15	250	V	Floodplain Riparian Woodland/Plains Grassy Woodland Mosaic	168	0	0.0
19	333	E	Red Gum Wetland/Plains Grassy Wetland Mosaic	161	68	42.2
7	20	LC	Heathy Dry Forest	133	47	35.3
15	47	E	Valley Grassy Forest	83	<1	1.2
14	287	E	Plains Grassy Woodland/Box Ironbark Forest Complex	81	33	40.7
3	127	E	Valley Heathy Forest	68	1	1.5
19	297	E	Lagoon Wetland/Red Gum Wetland Mosaic	61	0	0.0
19	334	E	Lagoon Wetland	35	2	5.7
14	261	E	Plains Grassy Woodland/Creekline Grassy Woodland Mosaic	31	0	0.0
6	72	V	Granitic Hills Woodland	31	0	0.0
16	67	E	Alluvial Terraces Herb-rich Woodland	22	1	4.5
19	291	X	Cane Grass Wetland	13	0	0.0
16	81	E	Alluvial Terraces Herb-rich Woodland/Creekline Grassy Woodland Mosaic	8	2	25.0
9	19	E	Riparian Shrubland	4	0	0.0
6	247	V	Box Ironbark Forest/Shrubby Granitic-outwash Grassy Woodland Mosaic	2	0	0.0
9	293	V	Riparian Forest/Creekline Grassy Woodland Mosaic	1	0	0.0
TOTAL				118292	3843	3.2

3.2   Wetlands and watercourses

Waterways and wetlands are critical biodiversity features within the Longwood Landscape Zone. The Goulburn River, which is listed under the *Heritage Rivers Act* 1992, flows through the zone. Pranjip, Creightons and Castle Creeks provide a often well-connected system of waterways and remnant vegetation. There are also numerous small wetlands scattered throughout the zone and ** wetlands of Bioregional Conservation Significance.

3.1.2   Significant flora and fauna

For a full list of threatened fauna and flora in the zone, see http://www.dse.vic.gov.au/dpi/vro/vrosite.nsf/pages/bap_landscape_longwood.   This provides not only lists of threatened fauna but also where they occur and how to better manage and enhance existing native vegetation for threatened taxa. In addition, specific habitat needs of patch size, patch condition and patch connectivity are given for a range of species.

Flora

A range of flora, associated with plains grasslands and grassy woodlands are a special feature of this zone. A total of 6 species of threatened flora are known, and are Buloke Mistletoe, Weak Daisy, Water-shield, Eastern Bitter Cress, Euroa Guinea-flower and Plains Leek Orchid.

Fauna

The fauna of the Longwood Landscape Zone includes mammals, birds, reptiles, amphibians, invertebrates and microfauna. For a landscape to function, all of these elements need to be present and interacting if we are to have long-term conservation and sustainability within the zone.

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. Other Threatened fauna in the area includes Squirrel Gliders and Brush-tailed Phascogales, which are often found along connected roadsides with large, old, hollow-bearing trees.

4. Threats

Threats identified in the region were:

- Grazing
- Firewood collection/Timber removal
- Weeds
- Changes in hydrology (eg inappropriate flooding regimes)
- Feral predators

Grazing affects biodiversity conservation because sheep and cattle compact soil, do not allow for regeneration, change nutrient levels in and around native vegetation, contribute to tree dieback and directly compete against native grazers, and small mammals that require tussocky grass for shelter (Wilson *et al* 2004).

Timber removal removes habitat for a range of species, including (bottom of the food chain) species on which larger animals rely, such as fungi, termites and other invertebrates. Fallen timber also provides shelter for regenerating seedlings, protection from fire and hollows for ground mammals. For further information/ brochures on the importance of fallen timber ask one of the members of the Water and Biodiversity Group.

Weeds are a major threat to biodiversity because they compete for space, light and nutrients with native species. As we cause disturbance and change the nutrient balance and canopy cover (i.e. light) then this generally favours weedy, introduced species that have proven to be good adapters to human-dominated landscapes.

Changes in hydrology can particularly affect wetlands, which have evolved to function with the natural cycles of flood and drought. The functioning of wetlands is reduced and so this affects the species that rely on the wetlands, including waterbirds which often rely on flooded wetlands to breed. Changes in hydrology has also resulted in increasing salinity, which is a factor in blue/green algal blooms, tree dieback and loss of productive land.

5. A VISION FOR CONSERVATION

In recognition of the values and threats to the area, DSE's vision for the conservation of the area is that the Longwood Local Conservation Plan will result in:

"the conservation of biodiversity and restoration of ecosystem function,
through working with landowners to protect and enhance existing natural features,
and ensuring that these features are connected and strengthened
through a matrix or 'web' of sustainable native vegetation"

This vision is consistent with the Goulburn Broken CMA's Regional Catchment Strategy, endorsed by the Victorian Government, sets the following targets for biodiversity:

- 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.
- Improve the quality of 90% of existing (2003) native vegetation by 10% by 2030.
- Increase the cover of all endangered and applicable vulnerable EVCs to at least 15% of pre-European cover by 2030.
- Increase the 2002 conservation status of 80% threatened flora and 60% threatened fauna by 2030.

4. PREPARING A CONSERVATION PLAN

If we are to achieve the vision for conservation in the Longwood Landscape Zone, then we need to
- identify which features in the landscape that are a priority for conservation,
- the threats to those features, and
- actions that may be taken to enhance values and reduce threats.

3.3 Methodology

The methodology used to prepare this plan is described fully in
http://www.dse.vic.gov.au/dpi/vro/vrosite.nsf/pages/bap_landscape_longwood. A summary of the methods used follows.

3.2.5 Identification of features in the landscape that are a priority for conservation

Two major methods were used to identify these features. First, a rigorous process of desktop methods were used to identify the general features of the zone, including
- Literature review

- Analysis of maps and spatial data from DSE's Corporate Geospatial Database Library (CGDL) such as current extent of Ecological Vegetation Classes, current tree cover, wetland mapping, land tenure, wildlife records, and flora and fauna records (CGDL, DSE 2003).
- Aerial photograph interpretation
- Discussion with individuals with good knowledge of the flora and fauna of the area

From this desk top analysis, a series of sites likely to have conservation values were identified.

Identify flora and fauna species

Full species lists of all flora and fauna recorded within the study area were analysed. from available records. Species of conservation significance were identified, on the basis that they are listed as Threatened under either State or Commonwealth legislation. Additionally, some species were selected as focal species for the conservation plan. The role of 'focal species' is described below.

Generate list of environmental assets

The identified environmental features, and species of flora and fauna, were categorised into a series of 'nested' environmental assets. By managing each of these asset categories, management of the biodiversity of the study area would be assured.

Generate list of focal species

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, some species have been found only in remnants of a certain size. If we can select the species that requires the largest remnant size, then by fulfilling the needs of that species may result in the conservation of all species with smaller remnant size requirements. The factors used here were remnant size and isolation distance.

Describe and assess sites

A selection of sites identified from these desktop methods were then sampled in the field using
- 20 minute bird surveys, and
- vegetation assessments.

Sites were given a ranked value of either very high, high, medium or low, based on a range of factors including conservation status of the EVC, presence of threatened species or focal species, site area, and the results of the field assessment. The information will be useful for site managers, and is fully described in Section 6.
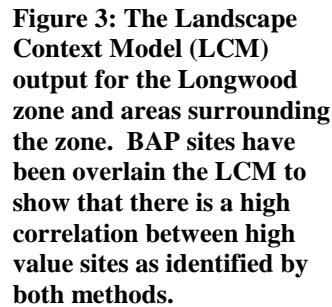
3.4 Landscape Context Model

Whilst the methods above have identified the highest priority sites for protection and restoration, there is little point conserving remnants if they are not viable in the long term. To achieve viability, the remnants need to be linked together to form a viable, functioning landscape.

Therefore, in addition to BAP sites, the 'Landscape Context Model' (Ferwerda 2003) was used to aid in determining the major linkages between BAP sites, and the probability of any area within the zone having a high value biodiversity asset.

The Landscape Context Model works within a GIS environment, and uses a model of "known habitat" (based on mapping for tree cover, wetland, and major watercourses) to identify large remnants, key remnant clusters and key linkages between remnants (See Fig.4). 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 are not included in the model.

For these reasons, the Landscape Context Model is described as showing areas that have the highest (or least) probability of containing additional sites of conservation interest. Generally, though the Model is very useful in identifying the areas of the landscape that should be used to link and strengthen a network of conservation sites, and create a sustainable landscape.

Figure 3: The Landscape Context Model (LCM) output for the Longwood zone and areas surrounding the zone. BAP sites have been overlain the LCM to show that there is a high correlation between high value sites as identified by both methods.

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.

* 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

6. KEY BIODIVERSITY VALUES

The approach of using Key Biodiversity Values has been used to group together higher vertebrates (birds, mammals, reptiles and fish) and plants which utilise the same type of habitat.

Key biodiversity values for the Longwood Zone	Locally significant species
Plains Grassy Woodland BVT Was historically the dominant vegetation type in the landscape; now the vegetation type requiring the largest increases in extent	**Fauna**: Woodland bird community, Squirrel **Flora:** Glider, Tree Goanna EVCs as listed in Table 1,
Wetlands Breeding and feeding habitat for fish and waterbirds; large number of threatened plants. Critical to landscape function and sustainability.	**Fauna**: Waterbirds, including Musk Duck, Blue-billed Duck, White –bellied Sea Eagle **Flora:** Ridged Milfoil, Striped Milfoil, Slender Water-Millfoil, Winged Water-starwort, Riverina Bitter-cress, Swamp Billy-buttons, Slender Water-ribbons.
Goulburn River, Major creeklines The most significant areas of native vegetation remaining in the landscape. Major bioregional habitat links. Habitat for the majority of threatened species found in the zone.	**Fauna:** Bush Stone-curlew, Tree Goanna, Squirrel Glider, Temperate woodland bird community, Superb Parrot, Brown Treecreeper, Nankeen Night-heron **Flora:** Wetland Blown Grass
Roadside Vegetation This provides a network of connections	**Fauna:** Brush-tailed phascogale, Squirrel Glider, Grey-crowned Babbler **Flora:**
Lowland riverine fish community Listed community under FFG; Threatened species included within the listing	**Fauna:** Hardhead, Freshwater Catfsih, Golden Perch, Flat-headed galaxis, Mountain Galaxis, River Blackfish
Tree Goanna Focal species in area for home range needs (160 ha), connectivity (gaps of < 1 km) and mature tree densities. The largest predator in the ecosystem	**Fauna:** Squirrel Glider, Bush Stone-curlew, isolation-sensitive species of woodland fauna, mature tree-dependent fauna, litter-dwelling and soil-dwelling fauna
Bush Stone-curlew Large woodland bird; focal species representing other ground-dwelling fauna, especially in relation to predation risk.	**Fauna:** soil dwelling invertebrates and microbes.
Plants of special concern Threatened plants with small populations and/or restricted occurrences and/or no recruitment where protection from grazing will not be sufficient to ensure survival and ongoing recruitment	

8. MANAGING FOR CONSERVATION - PRIORITY ACTIONS

The following 8 pages provide maps and actions for the key biodiversity assets.

Plains Grassy Woodland BVT

➢ Target existing BAP sites within Plains Grassy Woodland BVT's and protect and restore, including linkages.

➢ Increase cover of Plains grassy Woodland BVT's

➢ Improve the condition of priority sites where Vegetation Quality Assessments have been carried out by encouraging retention of fallen timber, eradication of regionally listed weeds in zone and protecting or enhancing as defined by the mapping

➢ Identify and prioritise potential sites for habitat expansion and improved connectivity using the Landscape Context map as a guide.

➢ Undertake active weed control at all BAP sites

➢ Manage causes of weed invasion at priority sites (e.g. roadside drains, irrigation drains)

➢ Identify additional areas for protection and restoration

Plains Grassy Woodland Broad Vegetation Type
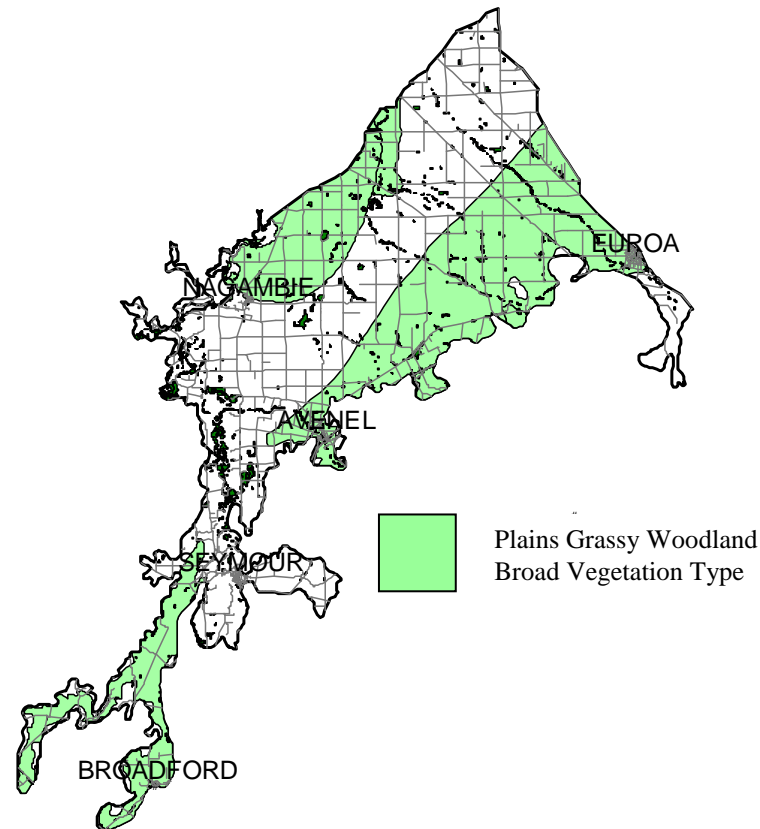
| **Example of a BAP site within Plains Grassy Woodland BVT Relatively good condition**	**Example of a site within Plains Grassy Woodland BVT Relatively poor condition**
The flora reserve *** near the Euroa township contains some elements that would have been present prior to European settlement, including native grasses and understorey. Although protected from grazing, the collection of fallen timber and a reduction in the number of large, hollow-bearing trees, weed invasion and the small size of the reserve identify the ways in which the habitat values of this site could be improved.	At this site there is no opportunity for recruitment as the site is grazed. However, there are some large old trees in relatively good health. The trees occur as an isolated remnant amongst farmland, offering habitat to only the most mobile and generalist species (eg typical farm birds, such as magpies, cockatoos and noisy miners).
Actions for this site include: ➢ Active weed control. ➢ Active feral herbivore control to encourage recruitment ➢ Restore linkages to other remnants ➢ Increase size of the reserve through incentives to adjacent landowners	**Actions for this site include:** ➢ Increasing the size of the site through fencing ➢ Linking this site with the nearest roadside remnants.. ➢ Enhancing with understorey ➢ Weed control

Waterways

➢ Continue control of foxes and feral cats along all waterways, particularly in the section of the Goulburn River as recommended in Coman (2002)
➢ Negotiate Conservation Licences with licencees of Water Frontages
➢ Improve the condition of riparian vegetation by stopping collection of fallen timber, addition of shrubs and understorey and weed control, to provide additional instream organic material and food.
➢ Restore linkages between the Pranjip, Castle and Goulburn Rivers system and associated wetlands and floodplains by removal or breaching of levees at 80% of priority sites identified by Cottingham et al. (2001) and MDBC (2003)

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NAGAMBIE

AVENEL

SEYMOUR

_____ Major Waterways

BROADFORD

15
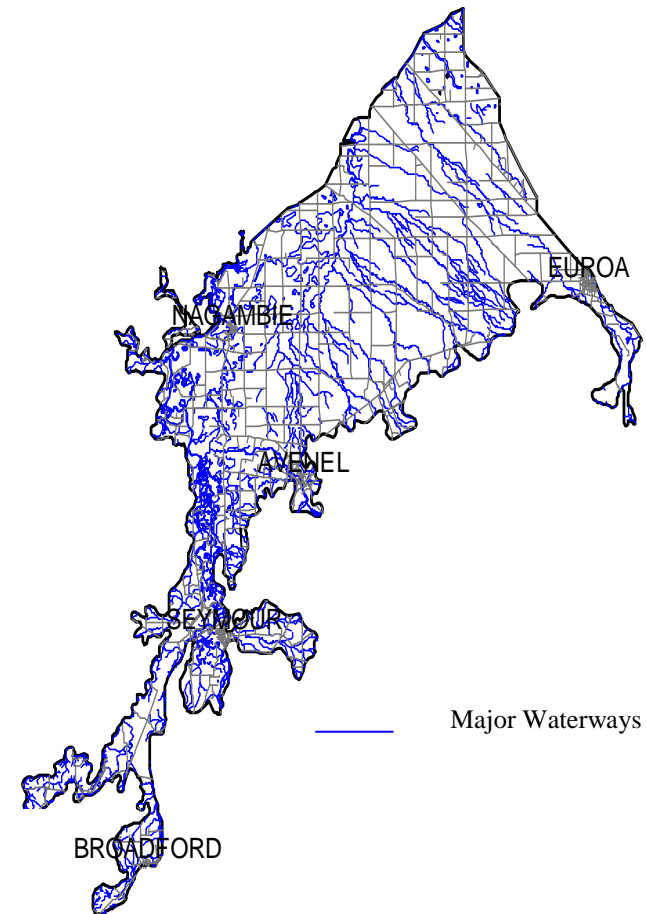
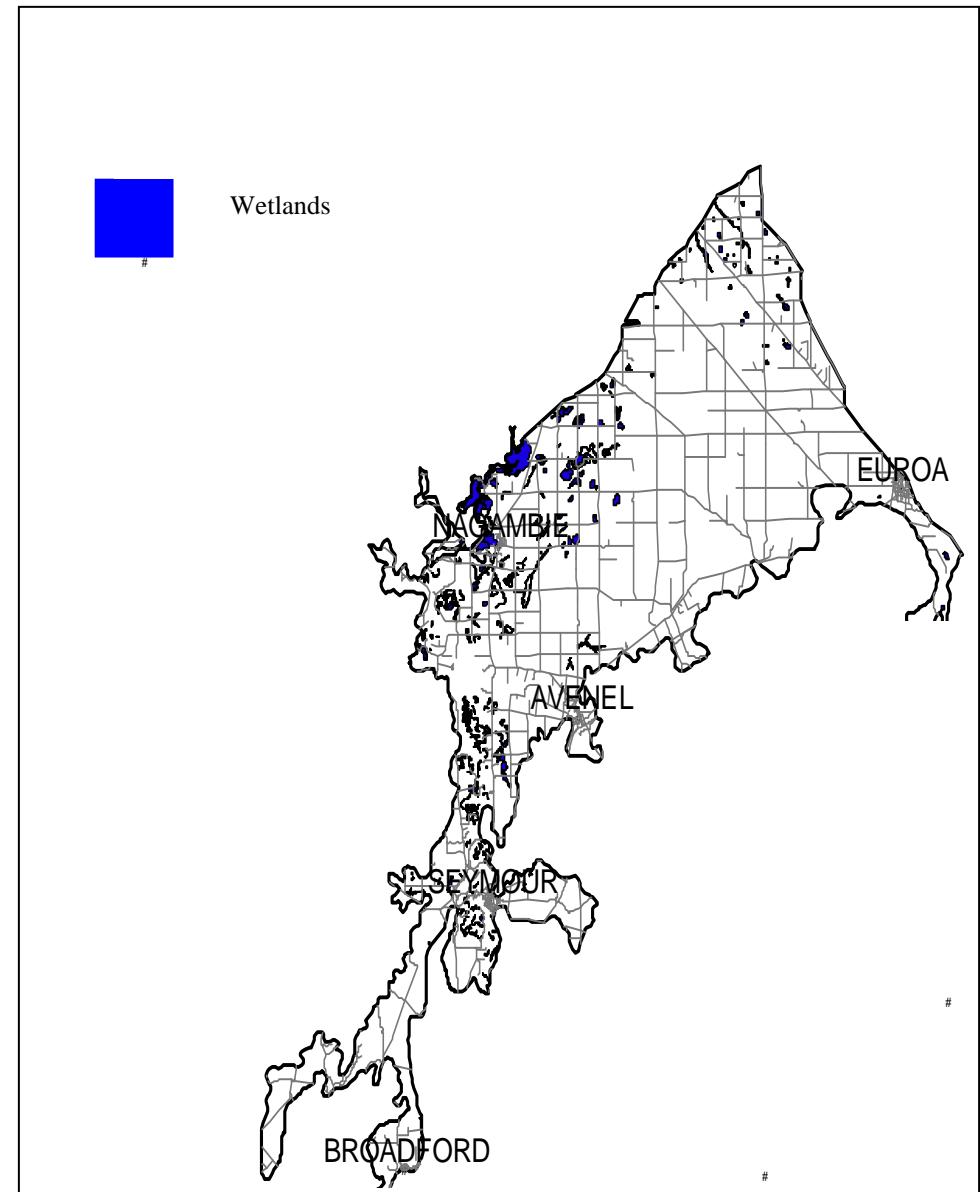| Example of a waterway in relatively good condition	Example of a waterway in relatively poor condition
Actions for this site include the following: ➢ ➢ Active weed control to control and prevent weed invasion.	**Actions for this site include the following:** ➢ ➢ Active weed control to control and prevent weed invasion.

Wetlands

- ➢ Protect and manage all BAP sites for conservation
- ➢ Restore hydrological regimes to the most significant wetlands in the zone
- ➢ Restore habitat connectivity and natural flows along drainage lines and creeklines connecting the above wetlands, using the Landscape Context Model output as a guide.
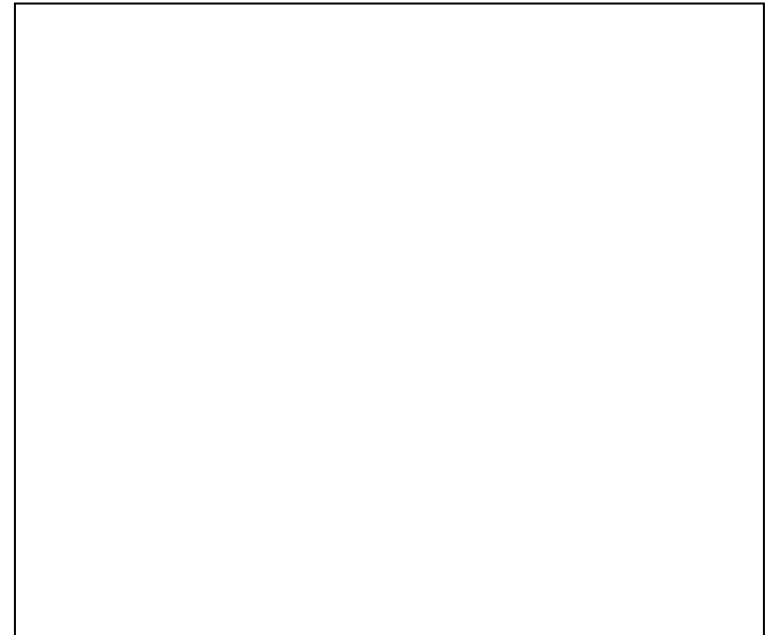

Wetlands

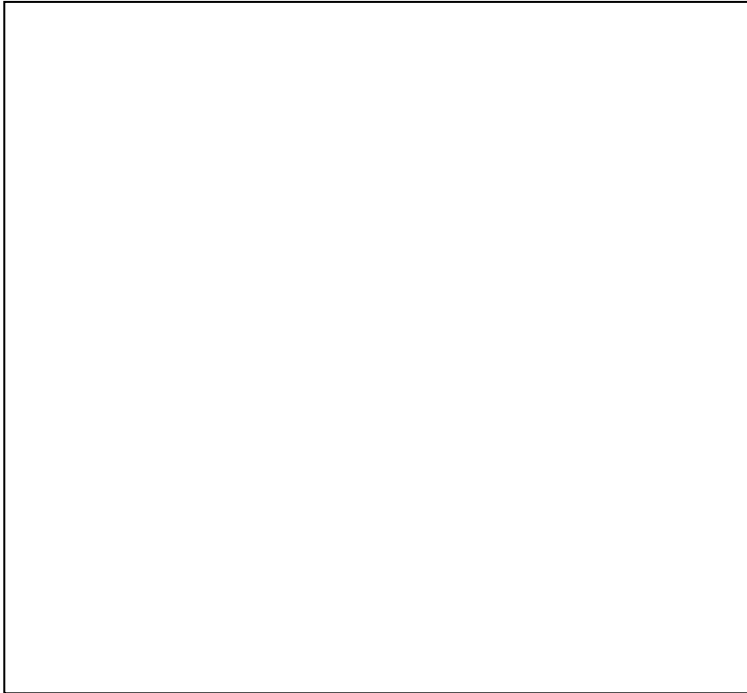| **Example of a wetland.** **Relatively good condition**	**Example of a wetland.** **Relatively poor condition**
Actions for this site include the following:	**Actions for this site include the following:**
➢ Increase natural disturbance regime e.g. grazing and burning to every two years	➢ Active weed control and control of Phalaris
➢ Active feral herbivore control to encourage recruitment	➢ Active feral herbivore control to encourage recruitment
➢ Active weed control to control and prevent weed invasion.	➢ Active weed control to control and prevent Paterson's Curse
	➢ Encourage neighbouring landholders to fence and regenerate areas adjacent to roadside.

Roadsides

Roadsides are a critical part of the biodiversity values of the Longwood zone. They often contain large old trees with hollows, provide linkages across the landscape and often contain elements of remnant vegetation (eg shrubs, grasses and herbs) not found in paddocks due to grazing.

- ➢ Revegetate linkages between roadsides of significance
- ➢ Enhance roadsides by encouraging adjacent landowners to widen roads to at least 40 metres.
- ➢ Protect existing high conservation roadsides through signage and education of stakeholders.
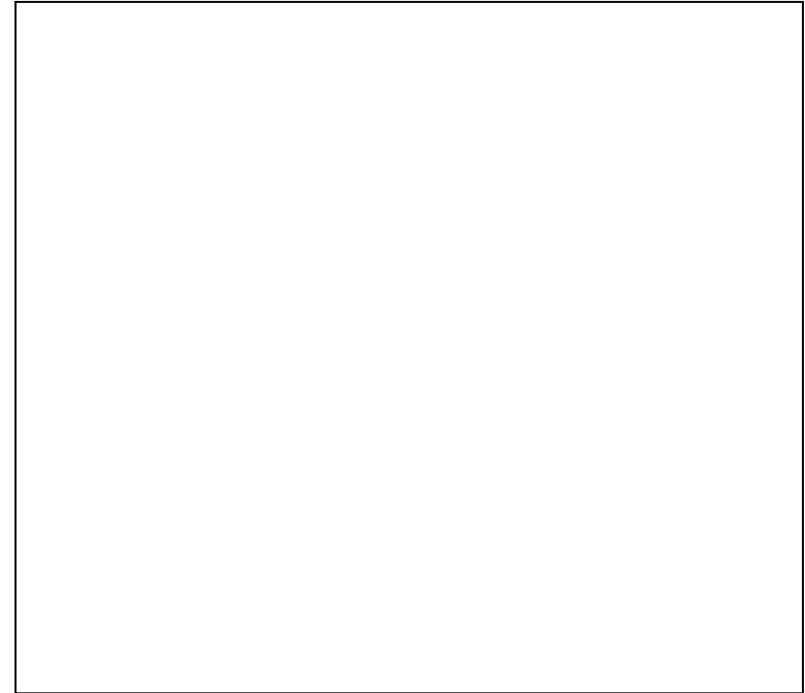
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Roads of conservation significance

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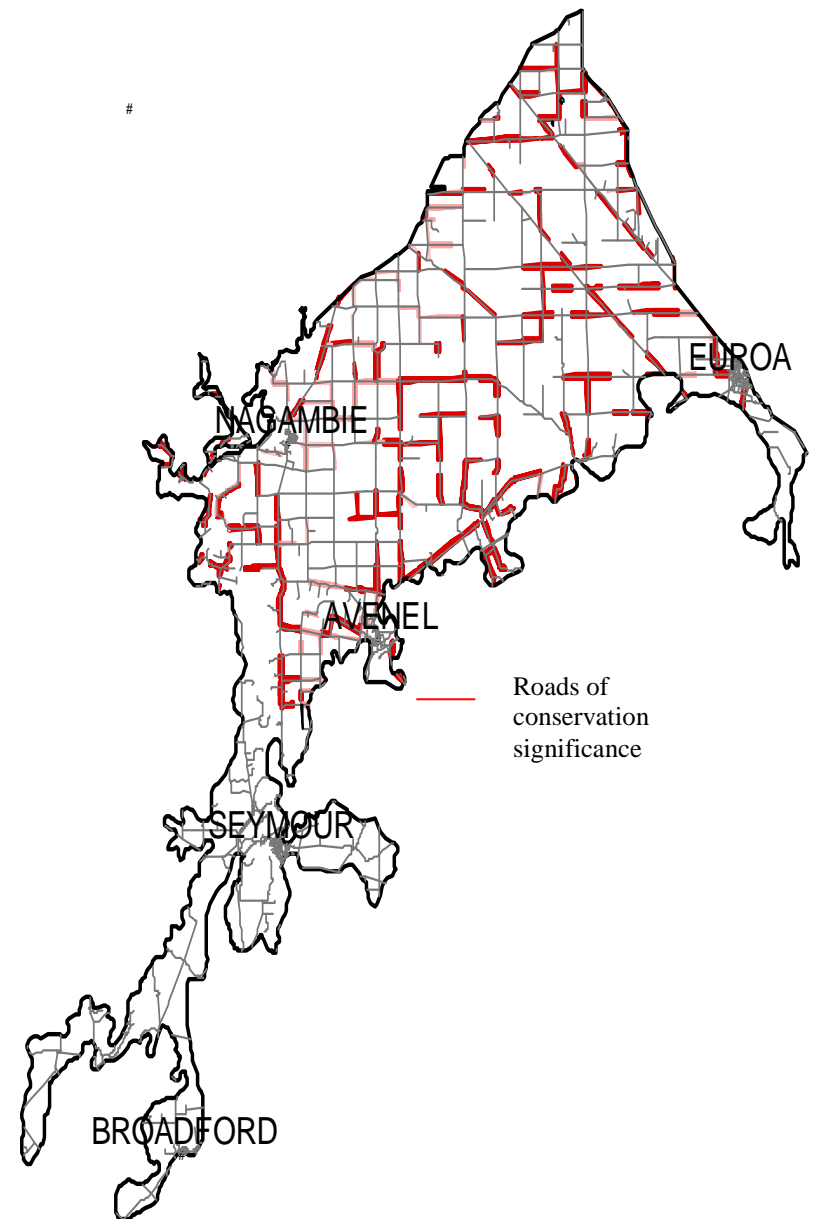
Example of roadside vegetation in good condition	**Example of a roadside site in poor condition**
This	
Actions for this site include:	**Actions for this site include:**
➢ Active weed control	➢ Active weed control
➢ Signage to inform road workers of importance and inclusion in Local Council Plans	➢ Revegetation with understorey
➢ Encourage adjoining landowners to fence within their boundary to widen road.	➢ Encourage adjoining landowners to fence within their boundary to widen road.

9. PRIORITY ACTIONS FOR OTHER KEY BIODIVERSITY VALUES

Biodiversity asset		Action
Lowland Riverine Fish Community		➢ Implement Broken Creek environmental flow project, with negotiated environmental flow regimes (GBCMA 2004) ➢ Restore linkages between the Broken Creek system and its floodplain by the removal or breaching of levees at 80% of priority sites identified by Cottingham(see Cottingham et al. 2001, MDBC 2003) ➢ Negotiate Conservation Licences with licencees of Water Frontages ➢ Manage populations of introduced fish, especially Common Carp, in line with the National Management Strategy for Carp Control (MDBC 2002) ➢ Improve the condition of riparian vegetation to provide additional instream organic material and food.
Tree Goanna		➢ Encourage Moira Shire to prohibit firewood collection from all High and Medium value roadsides ➢ Retain fallen timber on all public land (parks Victoria 2004) ➢ Encourage retention of fallen timber on private land ➢ Encourage revegetation of key gaps in landscape by overlaying BAP sites with areas identified as having a high rating on the Landscape Context Model to facilitate dispersal ➢ Undertake initial surveys in 2005 to provide baseline data ➢ Encourage a community education program ➢ Continue control of foxes and feral cats along the Broken Creek system as recommended in Coman (2002)
Bush Stone-curlew		➢ Continue control of foxes and feral cats along the Broken Creek system as recommended in Coman (2002) ➢ Undertake a community education program ➢ Protect and enhance sites , particularly BAP sites on private land, managing the ground layer to maintain short (<10cm high) ground cover and abundant fallen timber ➢ Establish ten predator-proof enclosures at known stone-curlew sites ➢ Enhance the vegetation condition of all public land sites by 1-2 points.

Significant plants of concern		➢ Undertake surveys for all the listed species to establish baseline data on abundance and distribution in accordance with VROTPop procedures (see Earl 2001) ➢ Identify current threats to existing populations and, where possible, manage threats to increase population sizes ➢ For taxa ranked as a high conservation priority in the zone, encourage research into their life histories and ecological requirements.

7. FOCAL SPECIES

Focal species can be used by extension staff to engage landowners and get them interested in managing land for particular species. The conservation of those species may then aid in the conservation of other species. For example, conserving squirrel Glider habitat is also likely to conserve some Brush-tailed phascogale habitat where the species' ranges overlap. Several focal species have been identified for the area, and the 'right' focal species for an area within the zone will vary and rely upon extension staff to interpret the landscape and understand which species occur in the area of interest (eg within a Landcare groups area).

Table 2: The seven focal species identified in the Longwood Landscape Zone, and their minimum requirements in terms of patch size, minimum distance between remnants (isolation threshold), approximate home range size and an estimate of the number of breeding units (pairs or groups).

	Squirrel Glider	
	Minimum patch size	Usually roadside or stream lengths
	Minimum distance between patches	50m
	Home range size	2ha
	Isolation threshold	50m
	Current estimation of breeding units	Unknown
	EVCs utilised by Squirrel Glider	Box Ironbark, Grassy Woodlands
	Jacky Winter	
	Minimum patch size	10ha
	Minimum distance between patches	Tolerant of gaps
	Home range size	<5ha
	Isolation threshold	1km
	Current estimation of breeding units	20
	EVCs utilised by Jacky Winter	Box Ironbark, Grassy Woodland BVT
	Brush-tailed Phascogale	
	Minimum patch size	10 - 40ha
	Minimum distance between patches	<100 m
	Home range size	<5ha
	Isolation threshold	1km
	Current estimation of breeding units	unknown
	EVCs utilised by Brush-tailed Phascogale	Box Ironbark, Grassy Woodland BVT
	Rufous Whistler	
	Minimum patch size	10ha
	Minimum distance between patches	not - sensitive
	Home range size	2ha
	Isolation threshold	<2km
	Current estimation of breeding units	20
	EVCs utilised by Rufous Whistler	All EVC types

	Brown Treecreeper	
	Minimum patch size	30ha
	Minimum distance between patches	500m
	Home range size	20ha
	Isolation threshold	<1km
	Current estimation of breeding units	40
	EVCs utilised by Tree Goanna	Box ironbark, Grassy Woodland BVT, Wetland EVCs

	Tree Goanna	
	Minimum patch size	Large, old trees critical
	Minimum distance between patches	500m
	Home range size	160ha
	Isolation threshold	<500m
	Current estimation of breeding units	20
	EVCs utilised by Tree Goanna	All except Floodplain woodlands

	Diamond Firetail	
	Minimum patch size	>20 ha (better 100+ ha)
	Minimum distance between patches	Dense shrubs and native grass cover
	Home range size	?ha
	Isolation threshold	<1 km
	Current estimation of breeding units	?
	EVCs utilised by Diamond Firetail	Box-Ironbark,

11. MANAGING FOR CONSERVATION - PRIORITY SITES

11.1 Identifying priority sites

Several sites have been identified within the Longwood Landscape Zone. These sites contain remnant vegetation and vary greatly from a stand of paddock trees to the Broken-Boosey Linear Park Network. Almost all of these sites have been assessed either on-site or by observation from the nearest public land, and where possible a bird survey undertaken.

Mapping of these sites is available, in either hard-copy form or digital data, from DSE, Water and Biodiversity Group. The examples below show
- the priority of sites for protection and restoration, and
- how sites are identified, including the numbering system for sites.

11.2 Site information available for managers

Each site has been assigned a number that identifies it in a database. 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.
An example of the data held is given below.

Site Number	792512-3
Biodiversity Asset	Wetland
Conservation Status	Very High
Management Action	Restore
EVC	292
EVC status	E
Focal Species	Brolga
	Brown Treecreeper
Threatened Spp Record?	N
Buffered for Focal Species?	Y
Veg Quality Score	14 (out of 20)
Management Agreements	N/A

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

Map and site information is available from DSE, Water & Biodiversity Group. It will allow extension staff to:
- ❖ be pro-active in targeting sites
- ❖ act as a basis for informed management of the site
- ❖ provide a rationale for applying grants
- ❖ provide a tool for landholders and the wider community
- ❖ provide a tool to show how a site fits into the wider landscape.
- ❖ use a benchmark against which future improvements in management can be monitored.

11.2.1 Additional data available

- GIS mapping products incorporating aerial imagery, BAP sites, threatened species localities
- Species information, site preferences, photos, biological data
- Access to BAP database for vegetation quality assessments and bird survey lists

11.2.2 Keeping the information up to date

This process is not set in stone now the mapping has been completed. In order for BAP mapping to remain as up to date and relevant as possible, it is important that site data continue to be added to the information already held. For example, additions may include a vegetation quality assessment at a site where one has not been carried out previously, or updating a vegetation quality assessment, or even adding high value sites that have not been identified previously. This version is only the first draft and it can be added to and updated.

11.2.3 What you can do

When about to visit a site, take some time to look at the site mapping and think about how it fits into the wider landscape.

- Are there threatened species recorded nearby that could benefit from a vegetated corridor?
- What are the options for widening roadsides to provide a link?
- Ask for species information if you cannot access it, or ask for a species list for the site. Staff in the Water and Biodiversity Group will be pleased to provide that information
- 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.

11.3 Assistance available for managers

11.3.1 Property planning and management tools

LOCAL AREA PLANS	WHOLE FARM PLANS	ENVIRONMENTAL MANAGEMENT SYSTEM
Local Area Plans consist of more than just biodiversity goals and BAP can provide input into the preparation of LAPs so that on-ground works can be planned that have a benefit for wildlife and the local community.	Protecting biodiversity on a farm should be part of any Whole Farm Plan as there are economic benefits from protecting habitat. BAP mapping can inform the process.	Aims to assist farmers to voluntarily adopt best agricultural practice for native biodiversity.

Advice and information
Land for Wildlife provides ongoing advice and information to assist land managers. Members of Land For Wildlife receive regular newsletters, technical notes, and access to expert advice and site assessment.
Incentives for on-ground works
Environmental Management Incentives, made available through the GBCMA, provide cost-share assistance for fencing, revegetation, and weed and pest management.
Management payments
Programs such as Carbon Tender, Bush return, and Bush Broker may provide management payments for conservation management of properties
Permanent Protection
A Conservation Covenant permanently protects sites for conservation. It may provide assistance to rate relief, tax concessions, and payment for the costs of on-ground works.

12. Monitoring, research and survey

The following actions have been identified as necessary increase knowledge of the biodiversity values within the Longwood Landscape Zone and to ensure their on-going protection.

Biodiversity asset	Indicator	Conservation Goal	Methodology	Frequency	Essential?
Plains Grassy Woodland BVT	Changes in extent	Increase to 15% pre-1750 cover by 2030	Remote sensing comparisons; CAMS inputs	Every 5 years	Yes
	Changes in condition – assumption based (area protected)	10% improvement in the quality of 90% of existing vegetation through fencing, protection and public land management programs	CAMS; TFN reporting; PV reporting; Shire reporting	Every 5 years	Yes
	Changes in condition based on VQA at sites	20% improvement in the quality of protected sites	Site-based assessments of protected and unprotected sites	Every 5 years	Yes
	Changes in landscape context	Increases in total cover, connectivity and the number of large patches	Remote sensing comparisons, LCAT comparisons	Every 5 years	Yes
	Changes in the matrix – land use, % native pasture, abundance of scattered trees	Maintain or increase the current cover of native pasture and scattered paddock trees	Remote-sensing	Every 5 years	No
	Changes in landscape functionality	Improvement in functionality	Site-based assessments using LFA or likely fauna-response groups (e.g. woodland birds, terrestrial invertebrates)	Every 5 years	No, ideally at least as a one-off study
Wetlands	Changes in extent	Maintain current extent	Remote-sensing comparisons	Every 5 years	Yes
	Changes in condition (assumption-based) – area/number fenced; area/number with restored flows	Improve the condition of 25% of wetlands by 2015 and 70% by 2030	CAMS; GBCMA reporting	Every 5 years	Yes
	Changes in condition – site-based	Improve the condition of 25% of wetlands by 2015 and 70% by 2030	ISC-type assessments of a set of managed and unmanaged wetlands	Every 5 years	Yes
Waterways	Changes in condition and functionality (assumption-based) – area/number fenced; area/number with restored flows; area/number with added woody debris		CAMS inputs; ISC assessments	Every 5 years	Yes
	Changes in extent	Increase extent to 15% pre-1750 cover by 2030	Remote sensing; CAMS inputs	Every 5 years	Yes
	Changes in native fish community	Increase the diversity of the native fish community and the proportion of native/exotic fish	Site-based surveys based on Monash University's current set of sampling sites	Every 5 years	No
	Changes in landscape functionality of the riparian zone	Improvement in riparian functionality	Site-based assessments using LFA or likely fauna-response groups (e.g. woodland birds, terrestrial invertebrates)	Every 5 years	No, ideally at least as a one-off comparative study
Northern Plains Grassland	Changes in extent	Increase to 15% pre-1750 cover by 2030	Remote sensing comparisons; CAMS inputs	Every 5 years	Yes
	Changes in condition – assumption based (area protected)	10% improvement in the quality of 90% of existing vegetation through fencing, protection and public land management programs	CAMS; TFN reporting; PV reporting; Shire reporting	Every 5 years	Yes

	Changes in condition based on VQA at sites	20% improvement in the quality of protected sites	Site-based assessments of protected and unprotected sites	Every 5 years	Yes
	Changes in landscape context	Increases in total cover, connectivity and the number of large patches	Remote sensing comparisons, LCAT comparisons	Every 5 years	No
	Changes in landscape functionality	Improvement in functionality	Site-based assessments using LFA or likely biotic-response groups	Every 5 years	No, ideally at least as a one-off study
Lowland Riverine fish community		•		•	
Bush Stone-curlew	Number of pairs of Bush Stone-curlews and number raising young	• Increase the current population size by 20% as a result of increased breeding success and adult survival • Reduced fox numbers	• Standardised surveys throughout the district, initially re-surveying sites used in the early 1990s • Fox scat counts at the set of protected and unprotected sites	Every year initially At least every year	Yes No
Tree Goanna	Population size	Increase population size by 10% from 2005 levels	Population surveys throughout the project area	Every 2 years	
Grey-crowned babbler	Recruitment of young into the population	Increase the average number of birds in family groups from three to four as a result of increased breeding success	Population surveys throughout the project area	Every 2 years	
Squirrel Glider	Squirrel Glider population size and recruitment	Maintenance or increase in current population size and recruitment levels compared to 2001 levels established by R. Van der Ree	Population surveys based on standard 1000 ha sampling unit used for BTPs across Victoria. At least two such areas established – one in the high quality Angle Road section; one in the degraded southwestern section	Every year initially to determine population variance from year to year	
Plants of special concern	Population size(s)	Increase the number of populations of every species to > 5 populations, each with > 50 plants	Repeat VROTPop assessments at known sites and translocation sites	Every 5 years	Yes for VROTS; No for other species
	Recruitment	Successful recruitment of young individuals into the population	Repeat VROTPop assessments at known sites and translocation sites	Every 5 years	Yes for VROTS; No for other species

13. Bibliography & References

Ahern, L.D., Lowe, K.W., Berwick, S., Robinson, D. & Handley, K. (2003b). Biodiversity Action Planning: landscape plans for the Northern-mid Goulburn Broken CMA. DSE and GBCMA, Melbourne.

Coman, B. (2002). An interim fox-control strategy for the Broken-Boosey State Park. Report to Parks Victoria.

Cottingham, P., Stewardson, M., Roberts, J., Metzelling, L., Humphries, P., Hillman, T. & Hannan, G. (2001). Report of the Broken River Scientific Panel on the environmental condition and flows of the Broken River and Broken Creek. Technical Report 10/2001. Cooperative Research Centre for Freshwater Ecology. Canberra, ACT.

GBCMA (2003). Goulburn Broken Regional Catchment Strategy. GBCMA, Shepparton.

GBCMA (2004). Draft Goulburn Broken Regional River Health Strategy. GBCMA, Shepparton.

Johnson, G. & Baker-Gabb, D. (1994). The Bush Thick-knee in northern Victoria (part 1): conservation and management. *ARI Tech Report Series* No. 129. DCNR, Melbourne.

Koehn, J.D. & O'Connor, W.G. (1990). Biological Information for Management of Native Freshwater Fish in Victoria. DCE, Freshwater Fish Management Branch, Melbourne.

Lambeck, R.J. (2002). *Landscape Planning for Biodiversity Conservation in Agricultural Regions*. Biodiversity Tech. Paper No. 2. Environment Australia, Canberra, ACT.

Lyon, J, Schreiber, E.S.G. & Butcher, R.J. (2002). Prioritising wetlands for management of biodiversity conservation. Report to Goulburn Broken Catchment management Authority. Freshwater Ecology, DNRE, Arthur Rylah Institute for Environmental Research.

Moira Shire Council (1998). Roadside Management Plan and Mapping of significant roadsides. Moira Shire Council.

Robinson, D. 1998. Lowering the goals? Habitat requirements of vertebrates and other wildlife groups in Victoria's Northern Plains and how well they match up. Pp. 49-59 in *Down to Grass Roots: Proceedings of a Conference on Management of Grassy Ecosystems* (eds Craigie, V. & Hocking, C.). Victoria University, Melbourne.

Robinson, D. & Mann, S. (1996). Natural values of the public lands along the Broken, Boosey and Nine Mile Creeks of northern Victoria. Unpublished report to Australian Heritage Commission. Goulburn Valley Environment Group, Shepparton.

Parks Victoria (2004). Broken Boosey State Park: environmental conservation management objectives. Draft management plan. Parks Victoria, Bendigo.

Webster, R. & Baker-Gabb, D. (1994). The Bush Thick-knee in northern Victoria (part 2): population monitoring between 1985 and 1991. *ARI Tech Report Series* No. 129. DCNR, Melbourne

Whitchurch, A. (2003). Broken, Boosey and Nine Mile Creek Weed Mapping Report. DPI, Benalla.

Wierzbowski, P., Lowe, K.W., Handley, K, Berwick, S., Robinson, D. & Ahern, L.D. (2002). Biodiversity Action Planning: Strategic Overview for the Victorian Riverina Bioregion. DNRE, Melbourne.