Better Protection for Special Places

VICTORIAN NATIONAL PARKS ASSOCIATION SMALL PARKS PROJECT

Public Land Conservation Priorities for Central Victoria – Summary, May 2010

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Better Protection for Special Places – Summary (final version), May 2010

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Erratum note: final version includes updated hectare figures on pages 5 and 22.

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2 – Chocolate Lily, Pyrenees Ranges State Forest. Photo courtesy Yasmin Kelsall.
3 – Sanger's Hut, Fryers Range State Forest. Photo courtesy Mary Thompson.

Contents

1. Summary

Victoria's unique and diverse biodiversity is in crisis. According to the Department of Sustainability and Environment (DSE 2008), we are currently losing native vegetation extent and condition at a rate higher than any gains being made through improved protection and management. In the face of increased pressure from climate change, we must increase our efforts.

Victoria's Land and Biodiversity White Paper recognises that public land management needs to address the risks associated with climate change. It states that public land management, in coordination with private land management, will play an important role in protecting biodiversity and building ecosystem resilience (DSE 2009).

The VNPA's Small Parks project involves working with local and regional environment groups to document the values of, and threats to, areas of public land that are poorly managed and/or not presently included in the reserve system.

As part of the project we have developed the first stage of a register of smaller parks (areas generally less than 20,000 ha). Our current focus area is the Central Victorian Goldfields, extending from Stawell in the west to Alexandra in the east.

Based on advice from community groups in Central Victoria and an assessment of values and threats, the VNPA has identified 20 Special Places worthy of better protection and management which have great potential as new 'small' parks in this area. Protection of these sites would contribute greatly to improving connectivity and building climate change resilience across the Victorian landscape.

Cut-leaf Daisy, common in the Mount Cole State Forest. Photo courtesy Warwick Sprawson

The priority sites identified by the VNPA fall within the flagship biolink areas that are outlined in the Victorian Government's White Paper on land biodiversity at a time of climate

change (see figure 1). Better management and protection of priority areas will contribute greatly towards achieving key White Paper outcomes.

State, regional and local conservation groups have supported the state government's proposal for biolinks. Likewise, many local groups are already actively developing local and regional biolink projects, such as the Connecting Country project with Mount Alexander Shire, North Central Catchment Management Authority and City of Greater Bendigo.

The VNPA identified Central Victoria as an area with a relatively high proportion of public land in smaller blocks across the landscape. The larger region was then divided into five sub-regions or zones of similar landscapes (see figure 2 and table 1). The development of the zone or sub-regional classification system built on the approach developed by the Department of Natural Resources and Environment's Box-Ironbark Remnants Project, undertaken in the 1990s (NRE 1996).

The project developed and implemented a five-step process:

Step 1: Site identification.

Step 2: Site assessment.

Step 3: Prioritisation.

Step 4: On-ground assessment.

Step 5: Discussion and recommendations.

Through the Small Parks project, over 115,000 ha of public land has been identified for improved management, and tenure change in some cases, of which approximately 111,000 ha are currently state forest and 3,774 ha are in conservation reserves. The 20 priority sites are generally within the Central Goldfields and Central Victorian Uplands Bioregions. Some smaller areas identified fall in the Victorian Riverina Bioregion.

Figure 1: Parks project area and its relationship to the Flagship and Biolink areas from the Land and Biodiversity White Paper.

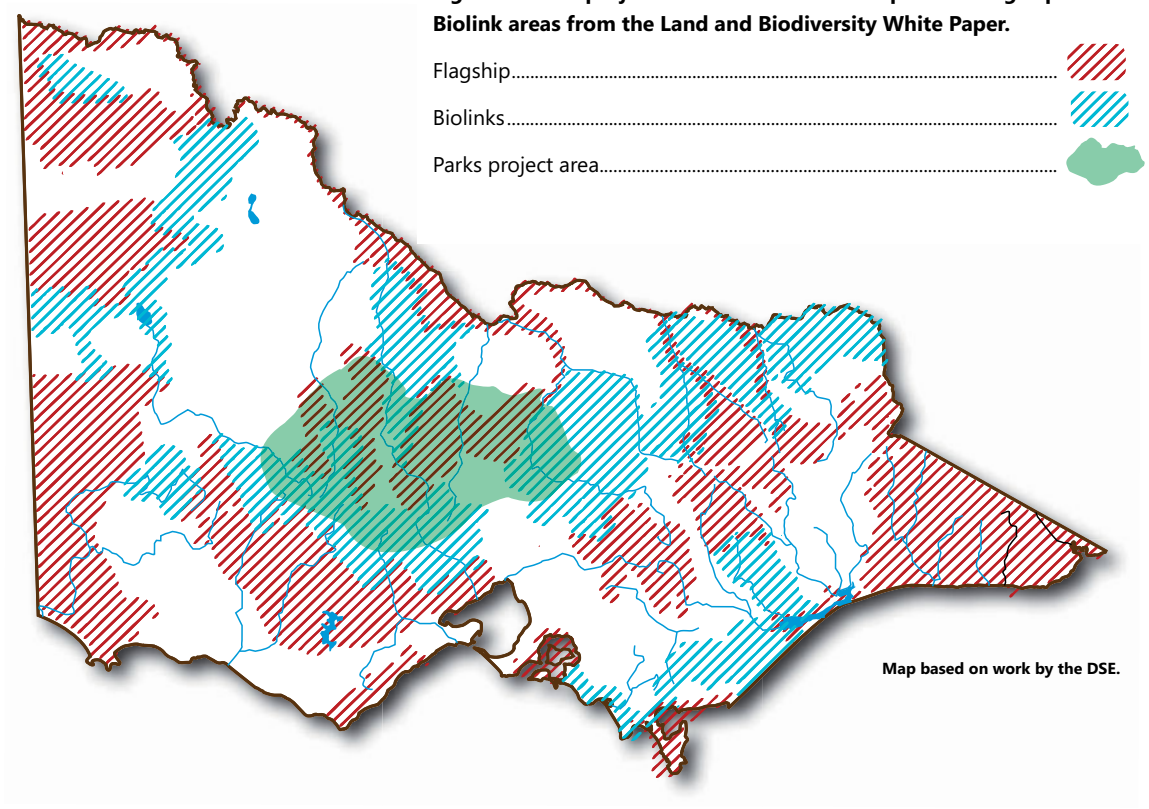


Figure 2: Landscape Zones – Central Victoria

1 Mt Cole State Forest

2 Pyrenees Ranges State Forest – Main section

3 Dunolly-Waanyarra State Forest

4 Kingower State Forest

5 Bealiba State Forest

6 Tunstalls Nature Conservation Reserve

7 Mt Hooghly State Forest

8 Moliagul State Forest

9 Harvest Home State Forest

10 Timor State Forest

11 Muckleford State Forest

12 Mid-Loddon small riparian reserves

13 Wellsford State Forest

14 Upper Loddon State Forest – West section

15 Fryers Range State Forest

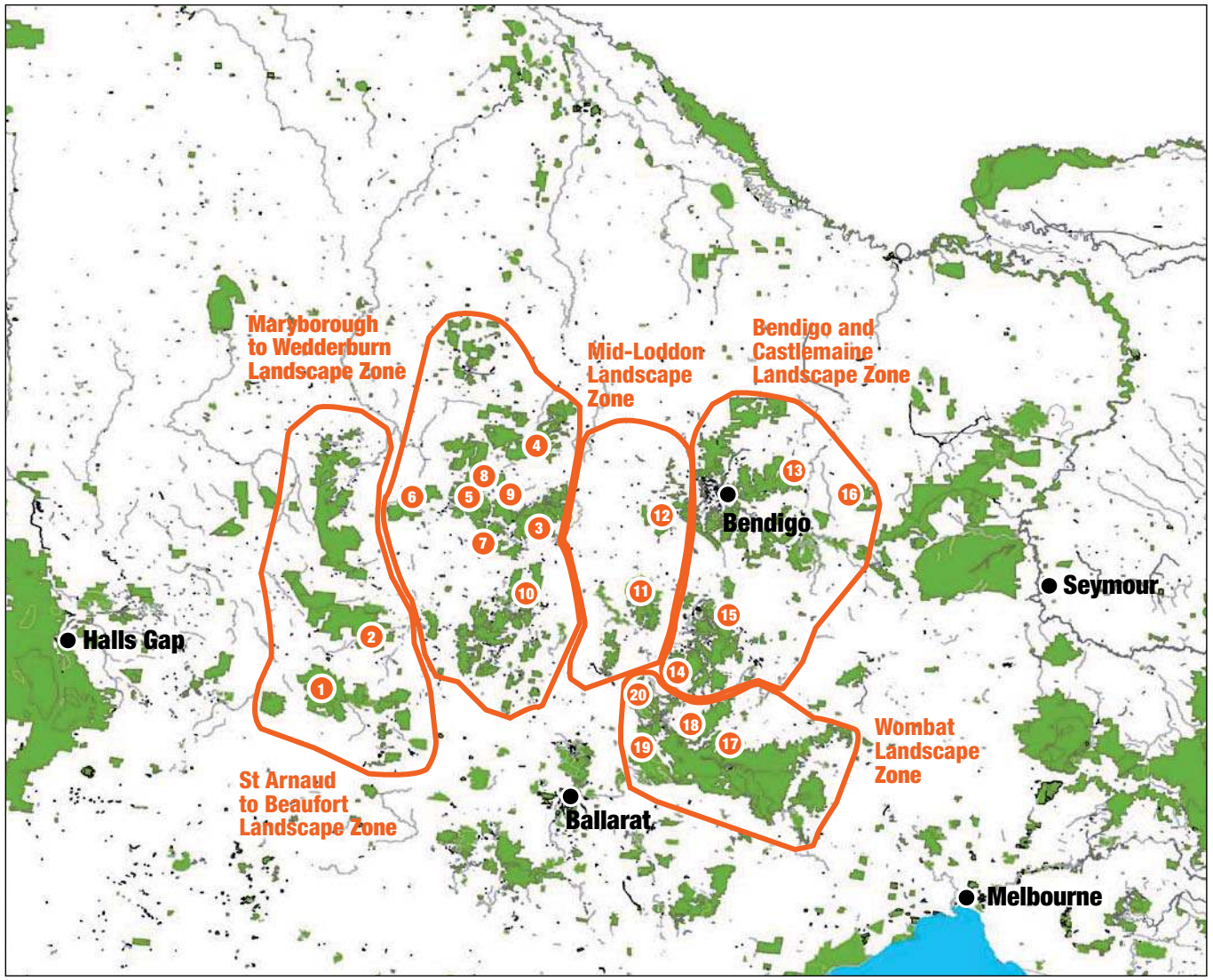
16 Crosbie Nature Conservation Reserve

17 Wombat State Forest – Main

18 Wombat State Forest – Bullarto North

19 Wombat State Forest – West

20 Wombat State Forest – Northwest



LOCATION & LAND STATUS	APPROX AREA	DIVERSITY (no of EVCs*)	THREATENED SPECIES Fauna	Flora	CONSERVATION SIGNIFICANCE	THREATS	RECOMMENDATIONS Management needs	Land tenure
	Ha	H, M, L	H, M, L	H, M, L	H, M, L	H, M, L		Proposed category of tenure
St Arnaud to Beaufort								
Mt Cole State Forest	8,926	H	M	H	H	H	✓	State Park
Pyrenees Ranges State Forest – Main section	14,680	H	M	L	H	H	✓	State Park, include Percydale Historic Area and Landsborough and Landsborough Hill Nature Conservation Reserves
Maryborough to Wedderburn								
Dunolly-Waanyarra State Forest	7,547	M	M	L	M	M	✓	State Park
Kingower State Forest	4,690	H	H	H	M	M	✓	State Park
Bealiba State Forest	7,954	H	H	L	M	M	✓	State Park
Tunstalls Nature Conservation Reserve	1,637	L	L	L	M	L	✓	–
Mt Hooghly State Forest	2,121	M	H	L	M	M	✓	State Park
Moliagul State Forest	1,396	M	L	L	M	M	✓	State Park
Harvest Home State Forest	2,242	M	L	L	M	M	✓	State Park
Timor State Forest	1,379	L	M	L	M	M	✓	State Park
Mid-Loddon								
Muckleford State Forest	3,152	M	H	M	M	M	✓	Add to Maldon Historic Reserve
Mid-Loddon small riparian reserves	81	L	L	L	H	L	✓	–
Bendigo Castlemaine Region								
Wellsford State Forest	7,122	M	H	M	M	H	✓	State Park
Upper Loddon State Forest – West section	1,806	L	L	L	M	M	✓	Add to Castlemaine Diggings National Heritage Park
Fryers Range State Forest	3,321	L	L	L	M	M	✓	Add to Castlemaine Diggings National Heritage Park
Crosbie Nature Conservation Reserve	2,056	M	H	L	M	L	✓	–
Wombat Region								
Wombat State Forest - Main	31,448	H	H	H	M	H	✓	State Park
Wombat State Forest – Bullarto North	5,747	M	M	L	H	H	✓	State Park
Wombat State Forest – West	5,085	H	M	L	H	H	✓	State Park
Wombat State Forest – Northwest	2,820	M	L	L	M	M	✓	Nature Conservation Reserve

Table 1 Summary of Results for High Priority Sites. * Ecological Vegetation Class.

KEY: High (H), Medium (M), Low (L)

CHAPTER 2

2.0 Site descriptions and recommendations

2.1 St Arnaud to Beaufort Zone

Two key areas covering over 23,606 ha have been assessed in this zone. The key sites include:

- Mount Cole State Forest
- Pyrenees Ranges State Forest – Main section

Mount Cole State Forest covers an area of 8,926 hectares, and contains vegetation of high conservation significance. There are large Messmates and Manna Gums in the wetter southern part, with drier woodlands of stringybark and Yellow Box in the north, rare plants including the Mount Cole Grevillea, and many orchids and other native wildflowers. More than 130 bird species are recorded for the area.

The state forest contains small patches of three Ecological Vegetation Classes considered endangered within the Central Victorian Uplands bioregion. The nationally vulnerable Grampians Bitter-pea (*Daviesia laevis*) is also recorded. A number of state-listed rare flora species are also found. The Powerful Owl, Speckled Warbler, Square-tailed Kite and Brush-tailed Phascogale, all state-listed as vulnerable, have been recently recorded within Mount Cole State Forest.

Pyrenees Ranges State Forest – Main section covers an area of 14,680 hectares.

This state forest is a large block of public land that links to both St Arnaud National Park to the north and Mount Cole to the south, via private land. More than 200 species of plants are recorded for the Pyrenees Range, including the state-listed and rare Rayless Daisy-bush (*Olearia tubuliflora*) and Squat Picris (*Picris squarrosa*). There are also over 100 bird species in the area, including the state-listed vulnerable Diamond Firetail and Powerful Owl, and the near-threatened Black-chinned Honeyeater and Brown Treecreeper (south-eastern ssp.).

Richardsons campground at Mount Cole State Forest. Photo courtesy Yasmin Kelsall

While overall the state forest was assessed as containing vegetation of high conservation significance, it contains patches of low, medium and very high conservation significance. About 30% of the EVCs within this forest are under-reserved for the bioregion.

Four key threats affect the priority sites in the St Arnaud to Beaufort landscape. They are:

1. Timber harvesting, including firewood collection.
2. Recreational use, particularly localised trail-bike riding and four wheel driving.
3. Pest animals (especially foxes, rabbits, pigs and cats) and weeds.
4. Inappropriate fire management.

Recommendations for future management St Arnaud to Beaufort Zone

General recommendations for management of the landscape

In general, the landscape area requires a comprehensive reassessment of current management and status. The following management issues within the general landscape require further action:

1. A reassessment of current and future timber harvesting practices and firewood collection.
2. Targeted and sustained control of key pest animals and weeds.
3. Improved fire management, taking account of the ecological requirements of significant EVCs, flora and fauna. This should include a monitoring component.
4. After reaching economic maturity, *Pinus radiata* plantations should be rotated from the state forest because of the significant fire risk presented by pines to the adjacent forest and community.
5. To be effectively managed as an entire landscape, a single management office should be set up within the Pyrenees Shire, rather than the current dispersed state government offices in Maryborough, Daylesford, Bendigo, Creswick and Beaufort.
6. Improved on-ground resourcing is required to address issues including lack of perimeter fencing, off-track driving, poor maintenance of vehicle tracks, poor signage of tracks, and degradation around the perimeter due to adjacent land uses.
7. Infrastructure to develop ecotourism and encourage recreational use should be provided. An economic return from ecotourism could allow for the increase in funding needed for activities such as track and fire trail maintenance, weed and pest animal control and provision of fire-fighting plans. The Pyrenees Shire should be encouraged to investigate the creation of trails for walkers, cyclists and horse riders from accommodation venues to forest access locations.
8. Unauthorised access by trail-bikes, 4WD vehicles and shooters should be controlled.

Specific Recommendations for Mount Cole State Forest

- A trail-bike management plan has been introduced in Pyrenees Ranges State Forest – Main section, and this should be extended to cover Mount Cole State Forest as well.
- A management plan and allocated funding are needed for Sambar Deer and to address pine invasion.
- Targeted management of camping in both designated and undesignated areas is needed, with improved surveillance and signage to reduce the incidence of camping in non-camping areas.
- Pine plantations that extend to the east should eventually be phased out and replaced with native vegetation, thus forming a link to Mount Lonarch State Forest and Ben Major Flora Reserve and State Forest.

Specific recommendations for the Pyrenees Ranges State Forest – Main section

- Exclusion plots would be useful to assess the recovery of the understorey from previous sheep grazing.
- The amount of timber harvesting and firewood collection should be reduced to protect and retain habitat.

Tenure

We recommend that both Mount Cole and Pyrenees Ranges state forests be reclassified to become State Parks. For the Pyrenees, this would include the Percydale Historic Area, Landsborough Nature Conservation Reserve and Landsborough Hill Nature Conservation Reserves.

CHAPTER 2

2.2 Maryborough to Wedderburn Zone

The native vegetation of the Maryborough to Wedderburn landscape is very well linked in a north-south direction. There is also a potential future link that could extend north to the Murray River via a series of wetlands and the Loddon River. Additionally, there are strong links across private land to other public land, particularly to St Arnaud National Park and the Pyrenees to the west. These links are particularly important in the face of the changing climate, and will assist in giving some mobile fauna options for alternative habitats.

The VNPA has identified eight priority areas within the Maryborough to Wedderburn landscape that are candidates for improved management on the basis of their conservation attributes and their current management. These are:

1. Dunolly-Waanyarra State Forest.
2. Kingower State Forest.
3. Bealiba State Forest.
4. Tunstalls Nature Conservation Reserve.
5. Mount Hooghly State Forest.
6. Moliagul State Forest.
7. Harvest Home State Forest.
8. Timor State Forest.

Grassy woodland in Bealiba State Forest. Photo courtesy Practical Ecology

Dunolly-Waanyarra State Forest covers 7,547 hectares. It is bordered to the north by Waanyarra Nature Conservation Reserve, with another section of the reserve close by to the east. Analysis shows Dunolly-Waanyarra State Forest as generally having medium native vegetation conservation significance, with some patches of very high conservation significance at the edges of the reserve associated with patches of grassy woodland along gullies and creeks. Approximately 12% of the EVCs identified by DSE mapping within this forest are currently under-reserved in the bioregion.

Kingower State Forest covers some 4,690

hectares. Inglewood Nature Conservation Reserve adjoins it to the north, and there is significant adjoining vegetation on private land to the east, north and south. Analysis of this area shows Kingower State Forest as generally having medium vegetation conservation significance, with some patches of high conservation significance vegetation. The area has important habitat for a number of significant woodland birds, including the nationally endangered Swift Parrot, as well as a range of state-listed species including the Woodland Blind Snake, Fat-tailed Dunnart and Brown Toadlet.

The forest contains significant orchid species, with records for the nationally endangered McIvor Spider-orchid (*Caladenia audasii*) and state-listed and rare Bristly Greenhood (*Pterostylis setifera*) and Broad-lip Diuris (*Diuris palachila*) and a number of other significant species state-listed as vulnerable and rare.

Bealiba State Forest is a large forest block of 7,954 hectares just outside Dunolly-Waanyarra. The habitat areas further away from Dunolly-Waanyarra have better quality ground storey vegetation. Bealiba State Forest generally has medium vegetation conservation significance with some small patches of high and very high conservation significance associated with Low Rises Grassy Woodland EVC near gullies and Burnt Creek. The forest is dominated by box-ironbark forest, which constitutes around 6,270 ha of the total area. Two other EVCs in the forest are classified as threatened within the Goldfields bioregion.

The forest is home to a wide range of threatened woodland birds, including the Barking Owl, Black-chinned Honeyeater and nationally endangered Swift Parrot. Significant flora includes the Bealiba Ironbark (*Eucalyptus tricarpa subsp.decora*), vulnerable in Victoria, and the rare Cane Spear-grass (*Austrostipa breviglumis*).

Mount Hooghly State Forest covers 2,121 hectares. It is surrounded by private land, with a high coverage of native vegetation to the west which joins the Bealiba State Forest. The block generally has medium vegetation conservation significance, with some patches of vegetation with high and very high conservation significance in the centre associated with lowland patches of Grassy Woodland. It is mostly box-ironbark forest, with some smaller areas of EVCs considered vulnerable in the Goldfields bioregion. Some 20% of the EVCs within this forest are under-reserved within the Goldfields bioregion.

The forest has habitat for a range of significant woodland birds, including the nationally endangered Swift Parrot and the state-listed near-threatened Black-chinned Honeyeater. Significant flora includes the state-listed Buloke (*Allocasuarina leuhmannii*) and the endangered Silky Glycine (*Glycine canescens*).

Moliagul State Forest covers 1,396 hectares. It is linked to Kooyoora State Park to the north, and Moliagul Nature Conservation Reserve and Moliagul Cultural and Natural Features Reserve to the south. This block has medium vegetation conservation significance associated with the EVCs linked to the creeks flowing through the forest. Most of the vegetation is box-ironbark forest (1,198 hectares), with a range of other EVCs represented as well in small patches. The forest has habitat for the state-listed Black-chinned Honeyeater and nationally endangered Swift Parrot. Deanes Wattle (*Acacia deanei*) is also recorded within 1 km of the area.

Harvest Home State Forest covers 2,242 hectares and links with Dunolly-Waanyarra State Forest to the east. To the west it links with Moliagul Historic and Cultural Features Reserve via vegetation on private land. This forest generally has medium vegetation conservation significance with a patch of high conservation significance in the east of the block. About 18% of the EVCs in this forest are under-reserved in the Goldfields bioregion. About half the area has box-ironbark forest, and half a complex of other vegetation types. Harvest Home State Forest has important habitat for the nationally endangered Swift Parrot, as well as the state-listed near-threatened Black-chinned Honeyeater. Significant flora species recorded

include the Dainty Phebalium (*Phebalium festivum*) and Cane Spear-grass (*Austrostipa breviglumis*).

Tunstalls Nature Conservation Reserve covers an area of about 1,637 hectares. The reserve lies within the Avoca River catchment with Cochranes Creek and the Avoca River circling the reserve to the east, south and west. It has a significant number of large old trees, most of the mature trees consisting of Yellow Gums with some scattered Yellow Boxes. There is a small number of Red Ironbarks in one area of the reserve. Preliminary analysis of the reserve showed it to have medium conservation significance, with small areas of very high conservation significance at the edge of the forest boundary, mainly in the north, associated with patches of Grassy Woodland Ecological Vegetation Class (EVC). The reserve is dominated by box-ironbark, with small patches of the vulnerable Low Rises Grassy Woodland (126 ha). It has habitat for a range of woodland bird species, including the nationally endangered Swift Parrot, as well as the state-listed near-threatened Hooded Robin, Black-chinned Honeyeater and Crested Bellbird. The forest contains records for significant flora including the Green-strap Star-liverwort (*Asterella tenera*).

Timor State Forest covers 1,379 hectares and forms part of a larger patch of public land. It has good links to conservation reserves and vegetation generally of medium conservation significance. There are also areas of high and very high conservation significance along the edge of the forest boundary. The vegetation is mainly box-ironbark forest, with very small patches of other endangered EVCs. Around 18% of the EVCs in the state forest are under-reserved within the Goldfields bioregion. A range of significant woodland birds rely on Timor State Forest for habitat, including the nationally endangered Swift Parrot, as well as the state-listed and near-threatened Spotted Quail-thrush, Hooded Robin and Red-backed Kingfisher. Threatened flora recorded include the state-listed Buloke (*Allocasuarina luehmannii*) and Goldfields Grevillea (*Grevillea dryophylla*).

Key threats

The key threats that affect priority sites in the Maryborough to Wedderburn landscape are:

1. Timber harvesting, including firewood collection.
2. Pest animals and weeds.
3. Stock and native animal grazing.
4. Inappropriate fire regimes.
5. Gold prospecting (except Timor State Forest) and other recreational activities.

Recommendations for future management Maryborough to Wedderburn Zone

General recommendations for management of the landscape

Improved management of this landscape will require a significant increase in resourcing, particularly given the large number of sites that it covers. For all blocks here, the following management actions are recommended:

1. Targeted and sustained management of pest animals and weeds
2. The potential expansion of the Wedderburn Conservation Management Network to extend its focus further south and include the large expanse of linking vegetation that extends to the south of Maryborough.

For the state forests only, the following additional management actions are recommended:

3. Fire management regimes that consider the ecological requirements of the EVCs and significant flora and fauna present. Ongoing monitoring should be included.
4. A review of timber harvesting practices, including the collection of fallen timber for firewood.
5. A review of, and improved status for, Special Protection Zones and Special Management Zones, particularly for significant species. Current zoning does

not give ongoing protection to these important areas.

6. The exclusion of gold prospecting from sensitive areas.

The following specific management actions are required for these special places within the Maryborough to Wedderburn landscape.

Kingower State Forest:

- Weed management is required across the 'Big Hill' in the south-western section of the forest. Exclusion plots are required within Habitat Zones 2 and 3 to address the lack of plant recruitment, possibly caused by browsing animals in these areas (see appendix for further information about the habitat zones).
- Timber harvesting, including firewood collection, should be excluded from the forest to allow more large trees to develop, providing valuable habitat.
- Improved signage and maintenance of vehicle tracks are needed to decrease off-track driving, together with the removal of any unnecessary tracks to reduce fragmentation in the forest.
- Exclusion or improved regulation of trail-bike riding.
- Construction of perimeter fencing and measures to reduce degradation around the perimeter.

Tunstalls Nature Conservation Reserve:

- Targeted weed management is a priority in Habitat Zone 5.
- Improved on-ground management is needed to remove barbed wire, including on adjacent farm fences and on parts of the perimeter and internal fencing. This would reduce the hazard to wildlife from the wire.
- Improved signage and maintenance of vehicle tracks, to reduce the incidence of off-track driving.

Bealiba State Forest:

- Weeds should be managed in Habitat Zones 8, 10, 10a and 14 (see Appendix 4).
- Exclusion plots are required to address grazing pressure, particularly in Habitat Zones 1 and 12 (see appendix).
- Timber harvesting, including firewood collection, should be excluded to allow more large trees to develop.
- Improved signage and maintenance of vehicle tracks, to reduce the incidence of off-track driving.

Tenure

We recommend that each of the State Forest areas identified as priorities within the Maryborough to Wedderburn landscape should be reclassified to become State Parks. These are Dunolly-Waanyarra State Forest, Kingower State Forest, Bealiba State Forest, Mount Hooghly State Forest, Moliagul State Forest, Harvest Home State Forest and Timor State Forest.

This increase in areas of reserved land within the Maryborough to Wedderburn landscape will assist in consolidating this important habitat link and also conserve the significant biodiversity values that remain here. It will also assist in addressing the threats of ongoing timber harvesting and gold prospecting in these areas.

2.3 Mid-Loddon Landscape Zone

The Mid-Loddon landscape is recognised for its significant stands of woodland and large red gum trees, high degree of fallen timber and ground litter, and wetlands, particularly Bells Swamp. The landscape has good levels of connectivity.

The very active Mid-Loddon Conservation Management Network plays a key role in working with government and private landholders to document local flora and fauna and carry out or support works to ensure their protection.

This landscape is made up of mostly very small forest areas, ranging from four to 25 hectares in size, with one larger reserve of 3,152 hectares. The areas are therefore split into two main blocks within the landscape:

- Muckleford State Forest, a large block of 3,152 ha.
- Small Riparian Reserves -81 ha (Bells Swamp, Happy Jack Reserve, Yunah Road Natural Features Reserve, Woodstock NFR, Bullock Creek NFR, McGlashans NFR, Leichardt NCR).

Muckleford State Forest, which contains a large proportion of the total area of public land in the wider Maldon region, covers 3,152 hectares immediately to the south of the Maldon Historic and Cultural Features Reserve. It surrounds the Maldon Nature Conservation Reserve, which is in the centre of the State Forest block.

The forest is generally of medium vegetation conservation significance. It is home to a range of significant woodland bird species, including the state-listed and vulnerable Diamond Firetail and Powerful Owl and the nationally endangered Swift Parrot. Significant mammals recorded in the forest include the state-listed Brush-tailed Phascogale.

Significant flora in Muckleford State Forest includes the nationally vulnerable Trailing Hop-bush (*Dodonaea procumbens*) and the rare Whirrakee Wattle (*Acacia williamsonii*).

Mid Loddon Small Riparian Reserves – Total 81 ha

As most of the remaining reserves within the Mid-Loddon landscape are very small (10-20 ha), though with high conservation significance, we have combined the available limited information for some sites. All the reserves within the Mid-Loddon landscape are managed by Parks Victoria. The specific sites are listed below:

- **Bells Swamp** (14 ha). This site is of very high vegetation conservation significance. The state-listed and near-threatened Brown Tree-creeper has recently been recorded here, and the area contains a large number of ancient River Red Gums.
- **Happy Jack Reserve** (13 ha). This reserve is recognised for having a number of very large and significant red gum trees, and its vegetation has high to very high conservation significance.
- **Yunah Road Natural Features Reserve** (approx. 5 ha). This site is also recognised for its very large red gum trees. It is a declared Drought Refuge, a designation given to areas with good soil and lower elevation within the landscape. The VNPA has identified Yunah Road NFR as having high conservation significance. A known Black Wallaby breeding site, it also has very high connectivity with the surrounding landscape.
- **Woodstock Natural Features Reserve** (4-8 ha, with the adjacent recreation reserve it covers 8 ha). This reserve has vegetation of high conservation significance and contains a grassland site of good quality, as well as a number of large old trees.
- **Bullock Creek Natural Features Reserve** (more than 10 ha) has vegetation of high to very high conservation significance and high levels of connectivity, particularly to Bullock Creek and adjoining vegetation.
- **McGlashans Natural Features Reserve** (25 ha) has vegetation of high to very high conservation significance, with high levels of connectivity, particularly on Spring Creek.
- **Leichardt Nature Conservation Reserve**

(approx. 10 ha) has vegetation of high conservation significance, with high levels of connectivity on Bullock Creek.

Threats

The VNPA has identified two key areas of threat to the priority sites in the Mid-Loddon landscape. These are:

1. Collection of fallen timber.
2. Weeds and pest animals (foxes, cats, rabbits).

Recommendations for future management

General recommendations for management of the landscape

Improved management of the Mid-Loddon landscape will require a significant increase in resourcing, particularly given the large number of sites that it covers. For all sites the following management actions are recommended:

1. A strategic plan should be developed to ensure that all the small reserves in the Mid-Loddon are protected and managed adequately, and that strategic rehabilitation, regeneration and revegetation are carried out along creeklines that link the reserves.
2. A strategy to prevent further collection of fallen timber should be implemented, including community education about forest values.
3. Targeted, sustained and well coordinated removal of key weeds and pest animals (particularly foxes, cats and rabbits) is required.
4. Targeted efforts should be incorporated into on-ground reserve management to reduce the incidence of rubbish dumping.

The following additional management actions are required for some of the special places within this landscape:

Muckleford State Forest

- Timber harvesting, including firewood collection, should be excluded to allow more large trees to develop, providing valuable habitat.

Bells Swamp

- Develop a Bells Swamp Management Plan, a proposal for which has been prepared by the Mid-Loddon Landcare Network.
- Extend existing efforts to prevent removal of fallen timber.
- Reinstate strong vegetation connections to the Loddon River.
- Fence areas currently accessed by stock.
- Develop community education targeted at the nature of Bells Swamp being a closed catchment and the resulting important impacts on the swamp of land management in surrounding properties. This would include information on how best to reduce the impacts of agricultural practices on the site.

Tenure

We recommend that Muckleford State Forest be reclassified to be incorporated into the Maldon Historic Reserve.

2.4 Bendigo and Castlemaine Zone

The VNPA has identified four priority areas within the Bendigo and Castlemaine landscape that are candidates for improved management, on the basis of their conservation attributes and their current management. They are:

1. Wellsford State Forest.
2. Upper Loddon State Forest – West section.
3. Fryers Range State Forest.
4. Crosbie Nature Conservation Reserve.

Wellsford State Forest covers 7,122 hectares. It is mostly in the Goldfields bioregion, but has a small portion in the Victorian Riverina bioregion. It is adjoined by Mount Sugarloaf Nature Conservation Reserve, Longlea Commonwealth Land and Bendigo Regional Park, and has good links to Axe Creek and the Campaspe River. The forest has had a long history of logging and periods of recovery. Most of the area is still subject to timber harvesting and a range of other threats.

This forest area generally has medium vegetation conservation significance, with some patches of high conservation significance along the creek. It also contains vegetation of high conservation significance that links to patches in the north and south. Containing around 7,000 hectares of box-ironbark forest, Wellsford State Forest has important habitat for threatened fauna, with recent records for a range of species including the Brush-tailed Phascogale, Diamond Firetail, Grey-crowned Babbler, Speckled Warbler and nationally endangered Swift Parrot.

Also present are a range of rare and threatened plants including the state-listed and vulnerable Ausfeld's Wattle (*Acacia ausfeldii*) and Dainty Phebalium (*Phebalium festivum*), and the rare Small-leaf Goodenia (*Goodenia benthamiana*), Sand Rush (*Juncus psammophilus*), Whirrakee Wattle (*Acacia williamsonii*) and Buloke (*Allocasuarina luehmannii*).

Upper Loddon State Forest – West section covers 1,806 hectares and is within the Goldfields bioregion. It is well linked to both the north and south, and links the wetter forests of the south to the drier Castlemaine and Bendigo blocks. It also forms a significant link between two sections of the Castlemaine Diggings Heritage Park and private land to the south, which then links to Hepburn Regional Park and Wombat State Forest. Tarilta Creek contains a beautiful intact gorge, which is a stunning and long deep gorge with very steep sides, containing many large old trees and an amazing array of fungi and lichen.

The area has habitat for Powerful Owls and Brush-tailed Phascogales. Common Galaxias (*Galaxias maculatus*) are found in the creek, disappearing when it is dry and reappearing after rain.

The forest is generally of medium vegetation conservation significance, but also contains some good examples of very high conservation significance forest. The block has recent records for the Powerful Owl, vulnerable in Victoria, as well as the vulnerable Midlands Spider-orchid (*Caladenia clavescens*) and Scented Bush-pea (*Pultenaea graveolens*) and the rare and Victorian endemic Fryerstown Grevillea (*Grevillea obtecta*).

Crosbie Nature Conservation Reserve of 2,056 hectares is in the Goldfields bioregion, is surrounded by vegetation on private land except to the east, and has good links to public land. Threatened fauna recently recorded there include the state-listed Brush-tailed Phascogale, Diamond Firetail, Grey-crowned Babbler, Painted Honeyeater, Eastern Great Egret and Powerful Owl, and the nationally endangered Swift Parrot.

Significant plants include Ausfeld's Wattle (*Acacia ausfeldii*) and Buloke (*Allocasuarina leuhmannii*). The reserve generally has vegetation of medium conservation significance, with some patches of high conservation significance scattered throughout southern areas.

Fryers Range State Forest covers 3,321 hectares in the Goldfields bioregion and forms a significant link between two sections of Castlemaine Diggings National Heritage Park. In general it has medium vegetation

conservation significance, but with some areas of very high conservation significance. Rare and threatened species recorded include the state-listed vulnerable Brush-tailed Phascogale, and rare Fryerstown Grevillea (*Grevillea obtecta*), a shrub endemic to Victoria.

The forest contains significant post-settlement historic sites, including a mineral spring site, Junction township at Tunnel Hill, Patten's Reef workings, and Charlie Sanger's main hut and mining area.

Threats

The key threats that affect all areas of the native vegetation in the Bendigo and Castlemaine landscape are:

1. Inappropriate fire management.
2. Stock and native animal grazing.
3. Commercial and illegal firewood harvesting and collection.
4. Pest plants and animals.

Recommendations for future management

General recommendations for management of the landscape

The following management activities are recommended for the Bendigo and Castlemaine landscape.

1. Timber harvesting, including firewood collection, requires reassessment in the three state forests in the landscape area. Sourcing wood from private woodlots or plantations should be considered as an alternative.
2. Appropriate fire management, taking account of the ecological requirements of significant EVCs, flora and fauna. This should include a monitoring component.
3. Removal of stock grazing and /or establishment of exclusion plots to monitor understorey recovery.
4. Targeted and sustained management of pest plants and animals, particularly blackberry and gorse. Implementation of a sustained fox control program.
5. Improved on-ground maintenance to reduce the impact of rubbish dumping and garden waste.
6. Maintenance of vehicle tracks and improved signage to reduce off-track driving.
7. Removal or restriction of mining and fossicking to specially zoned and regulated areas, accompanied by an education program.
8. Introduction of restrictions to address the impacts of low-density subdivision close to parks and reserves, especially the growing number of cats and dogs in the area.
9. Community education program.

The following key management actions

Victoria's box-ironbark forests have become a powerful icon of the Central Victorian landscape. **Photo: courtesy Wendy Radford**

should be considered for these priority areas:

Wellsford State Forest:

- Habitat Zones 4 and 5 would benefit from exclusion plots to reduce the impact from browsing animals.
- Timber harvesting, including firewood collection, should be excluded from the forest to allow more large trees to develop and logs to accumulate, providing valuable habitat.
- Exclusion of trail-bike riding from sensitive areas.

Upper Loddon State Forest – west section

- The state-listed threatened Midlands Spider Orchid is not formally protected under the existing Special Management Zone. Permanent protection should be considered to ensure its long-term survival in this site.
- Exclusion of trail-bike riding from the Tarilta Creek valley.

Fryers Range State Forest

- Important areas within the forest, such as those containing large (and small) old trees and historic sites, would benefit from a more permanent form of protection than Special Management Zones.
- Targeted deer and goat removal.
- A management plan and process for track reduction.
- Exclusion of trail-bike riding from sensitive areas.

Crosbie Nature Conservation Reserve

- Targeted protection of large trees and future hollow-bearing trees.
- Weeds identified in Habitat Zones 1, 2, 4 and 7 require active management (refer to appendix for further detail).
- Exclusion plots are required to address the issue of inadequate recruitment across the entire reserve, in particular associated with areas of Heathy Dry Forest and box-ironbark forest.
- A program or network to be established to encourage private landholders adjacent to Crosbie NCR to protect their native vegetation and improve the connectivity of vegetation in the local area. Ideally this program would include high targets for permanent protection, possibly via land acquisition in some cases. It would also target areas of endangered EVCs along creeks and lowlands.

Tenure

In addition to the above actions, we recommend that Wellsford State Forest should be reclassified as a State Park, and that Fryers Range State Forest and Upper Loddon State Forest West should be consolidated into Castlemaine Diggings National Heritage Park, to address key threats identified in this report.

Chocolate Lilies grow near the remains of Sanger's Hut, in the Fryers Range State Forest.

Photo: courtesy Mary Thompson

2.5 Wombat Landscape Zone

The entire extent of Wombat State Forest has been identified as containing very high natural values. The four sections making up Wombat State Forest are:

1. Wombat State Forest – Main.
2. Wombat State Forest – Bullarto North.
3. Wombat State Forest – West.
4. Wombat State Forest – North-west.

Wombat State Forest – Main section is a long block of 31,448 hectares that abuts Lerderderg State Park at its south eastern corner. This section of forest has significant wetter habitats which include Sedgy Riparian Woodland and Damp Forest linked to the drier forests of the Castlemaine and Bendigo landscape. As well as many creeks, the heritage-listed Lerderderg River runs through this section of the forest. This forest area generally has medium vegetation conservation significance, with some smaller patches of high conservation significance.

The area has important habitat for threatened fauna, with recent records for a range of species including the Powerful Owl, Spotted Quail-thrush and Square-tailed Kite, and records in 1992 for the nationally endangered Spot-tailed Quoll, and in 1999 for the nationally vulnerable Growling Grass Frog and state endangered Masked Owl. Also present are at least 20 rare and threatened plant species including the state-listed and endangered Small Sickle Greenhood (*Pterostylus lustra*) and the endemic Wombat Bush-pea (*Pultenaea reflexifolia var. reflexifolia*).

Wombat State Forest – Bullarto North section covers about 5,747 hectares. Analysis assessed the area as primarily of high vegetation conservation significance, with some patches of medium conservation significance vegetation in the south. Some 70% of its vegetation types are under-reserved within the Central Victorian Uplands bioregion. The area has some good links to the Upper Loddon State Forest – West section and other large areas of native vegetation along five creek corridors, and strong links with the main forest area of Wombat State Forest to the south.

This forest area has important habitat for threatened fauna, with recent records for a range of species including the state listed Powerful Owl, Musk Duck and Brush-tailed Phascogale (all vulnerable). There are at least four rare and threatened plants including the state-listed Brooker's Gum (*Eucalyptus brookeriana*), Hairy Beard-heath (*Leucopogon microphyllus var. pilibundus*) and the endemic Wombat Bush-pea (*Pultenaea reflexifolia var. reflexifolia*).

Wombat State Forest – West section covers about 5,085 hectares. This section has high conservation significance, with some patches of very high conservation significance vegetation in the north. Seventy-five per cent of its EVCs are under-represented within the Central Victorian Uplands and Goldfields bioregions. The area has important habitat for threatened fauna, with recent records for the state-listed Powerful Owl (vulnerable), Eastern Great Egret (vulnerable), Intermediate Egret (critically endangered), Masked Owl (endangered) and Musk Duck (vulnerable). Also present are at least four rare and threatened plants including the state-listed Wiry Bossiaea (*Bossiaea cordigera*), Creeping Grevillea (*Grevillea repens*) and Satinwood (*Nematolepis squamea subsp. Squamea*).

Wombat State Forest – North-west section is 2,820 hectares in size and has generally medium vegetation conservation significance, though with many areas of high and very high conservation significance vegetation around the edges. It has important habitat for threatened fauna, with recent records for the state-listed Brush-tailed Phascogale (vulnerable) and FFG listed Common Bent-wing Bat. There are also at least three rare and threatened plants: the nationally endangered Matted Flax-lily (*Dianella amoena*), state-listed Scented Bush-pea (*Pultenea graveolens*) and Fryerstown Grevillea (*Grevillea obtecta*).

Threats

The VNPA has identified four key threats to the natural values of each of the priority sites in the Wombat landscape:

1. Commercial and illegal firewood harvesting and collection.
2. Inappropriate fire management
3. Pest plants and animals.
4. Fragmentation by roads and tracks (a lesser threat).

Recommendations for future management

General recommendations for management of the landscape

To protect the conservation values of the forest, we recommend that Wombat State Forest should be reclassified as a State Park to allow for greater protection of its natural values and removal of key threats.

We also recommend the following management actions to improve the local environment:

1. Reassessing the harvesting of trees for commercial and private firewood supply, with the option of sourcing firewood as a by-product of ecological thinning and, in the longer term, from plantations and private woodlots.
2. Systematic and sustained removal of key pest animals and weeds.
3. Assessment of impacts of local trail-bike riding and areas that should be zoned as restricted.
4. Improved fire management which considers the ecological requirements of EVCs and local flora and fauna, particularly significant species. This should include a monitoring program.
5. Protection of future hollow-bearing trees, particularly from any future logging.
6. A community education program.

The presence of dumped rubbish and barbed wire along the perimeter of some areas, and lack of track maintenance, suggest a general need for improved resourcing and on-ground management. Increased resourcing for on-ground management will be essential to address key threats adequately within Wombat State forest.

Tenure

We recommend that the four sections of Wombat State Forest be reclassified as State Park and combined with Lerderderg State Park.

CHAPTER 3

3. Key themes and general findings

Detailed recommendations for each zone are set out in the previous chapter, but a number of general themes and findings emerged as the report was developed. These themes and findings are:

1. New parks – the building blocks for connectivity.
2. Priority areas and the reserve system.
3. Investing in ecological management.
4. Building connections across the landscape.
5. Building community leadership and knowledge.
6. Timber harvesting and firewood.
7. Managing ecological dimensions of fire.

New parks and priority areas, and the reserve system

The areas identified as priorities in this project should be regarded as just the first public land pieces of a larger picture. The largest areas of intact vegetation and habitat in Victoria are on public land, hence the obvious first step in building a more connected landscape is to ensure the protection and good management of these areas. This is also likely to be the most efficient and effective mechanism for enhancing biodiversity.

The areas (totalling 111,436 ha) of state forest identified in this report are the building blocks or foundations of a large-scale biolink from the Grampians to the Alps. We have looked at current levels of connectivity as part of the methodology of prioritising each location, and there are excellent opportunities in some cases for changing land tenure to increase the security and quality of the linking vegetation.

A Chocolate Lily, Pyrenees Ranges State Forest.
Photo courtesy Yasmin Kelsall

In all cases, community nominators were keen to see improved management, but in the case of state forest areas they identified timber harvesting as a key threat to the integrity of the location. To a lesser extent, other activities that are generally unrestricted in state forest, such as prospecting, and uncontrolled recreation activities such as four-wheel driving and trail-bike riding (both off-road and in causing degradation of tracks), are also of concern.

The VNPA recommends:

- Protecting the 111,436 ha of high conservation value state forest indentified in this report in conservation reserves or state parks, or by consolidating them within existing parks.
- Providing specific funding of $20 million over three years for the 111,436 ha of new parks.

Investing in ecological management

Much of the current scientific thinking about the implications of climate change for biodiversity emphasises the need to improve management of threats, such as controlling pest animals and weeds, as well as restoring connectivity. There are good opportunities

for improving the resilience and quality of habitat on Victoria's public land estate, but this requires increases in resources and better process and practices. Management agencies should make a concerted and combined effort to achieve this.

The VNPA recommends:

- The government commit to significantly increasing funding for ecological management to enable Parks Victoria to manage areas of public land adequately for biodiversity and ecosystem processes.
- Parks Victoria significantly increase funding (by $1 million per annum) for on-ground management for existing parks in Central Victoria.
- Parks Victoria and DSE establish a clear management stream for the management of ecological systems on public land, and a clearly identified budget.
- Site-specific ecological management plans should be established for all public land in Victoria, particularly Nature Conservation Reserves.
- There should be an independent audit (e.g. by the Commissioner for Environmental Sustainability and/or Victorian Environmental Assessment Council) of the ecological condition of public land and opportunities to improve management responses.

Building connections across the landscape

There also needs to be a clear focus on private land through a range of integrated or complementary strategies, including:

- Native vegetation regulation.
- Land Stewardship and incentive programs, including Bush Broker type programs.
- Private protected areas, such as those managed by Bush Heritage or Trust for Nature.
- Conservation covenants.
- Ongoing support for Landcare groups and conservation networks.
- Conservation planning and monitoring.

The current investigation into native vegetation being undertaken by the Victorian Environmental Assessment Council (VEAC) will inform this approach, and it is important that the VEAC process produces detailed and specific recommendations for biolinks at landscape, regional and local scales.

The VNPA recommends:

- Crown land water frontage licences be replaced by riparian conservation licences, funding for riparian land programs across the state be doubled, and high conservation value and key linkages of Crown riparian land be added to, and managed as part of, the reserve system.
- The VEAC Native Vegetation Investigation identify specific strategic links in the Central Victorian landscape (in multiple directions) to maximise the potential for improving conservation and ecological processes.
- The Government implement a balance between market-mechanism-based incentives and strategic cost-share action plans, which achieve defined outcomes for targeted priority locations, rather than diverting all incentive funding to scattergun 'call for expressions of interest' programs.

Building community leadership and knowledge

One unique strength of the Central Victorian biolink is the high level of community activity and interest present. Various local and regionally focused landscape restoration strategic plans have already been developed by community organisations, like the Connecting Country project in the Mount Alexander Shire which has produced a Biodiversity Blueprint.

Other planning documents, like local Biodiversity Action Plans and the Landscape Logic project developed by the North Central Catchment Management Authority (CMA),

can also help to inform local action. Other groups such as the Wedderburn and Mid-Loddon Conservation Management Networks also operate at the landscape scale and aim to improve habitat and increase the extent of vegetation for important species such as Malleefowl in the Wedderburn area and the Bush Stone-curlew in the Mid-Loddon area. These initiatives need to be supported, equipped and built on to ensure strong community leadership and local ownership of landscape-scale initiatives.

Local groups and networks also play a key role in educating and involving the community in the natural values of Central Victoria's landscape.

There is an urgent need to increase resources in community education and awareness of natural values, and fund a substantial ecological research and monitoring program. These are important initiatives which would help develop a regional 'community of effort' towards building greater connectivity and ensuring that our biodiversity is protected and appreciated by all.

The VNPA recommends:

- A regional community education program which engages and involves all users and local community representatives interested in the natural landscape of Central Victoria be established to highlight the unique values of Central Victoria.
- An extensive program of targeted research and monitoring be developed to inform conservation planning and management of ecological processes across Central Victoria.
- Funding be sought to establish a local and regional community monitoring project which both educates and informs conservation practice.
- A region-wide series of workshops be convened by peak environment groups to facilitate a shared understanding, vision and governance of a large-scale biolink project.

Timber harvesting and firewood

Native vegetation on all land tenures across Central Victoria is still subject to timber harvesting for many different purposes, sourcing firewood being the most significant annually. In 2005-06, 65,479 cubic metres (m3) of firewood was sourced in Victoria. Of this, 72% of firewood used in Victoria was sourced from private land and 11% from state forests (DSE, 2009). Of the firewood sourced from state forests, 97% came from the Western region (essentially everything west of the Hume Highway). The Bendigo Forest Management Area's Wood Utilisation Plan shows that the intended volume to be sourced from the district's forests will double in the next three years, from 19,765 m3 (2010-11) to 44,087 m3 (2012-13) (DSE 2010).

Together with other pressures such as wildfires in recent years, an increase in prescribed burns and already stressed forests as reported by the vegetation assessments carried out for six sites (see appendix 6), this means that continuing or increasing firewood collection from native forests in Central Victoria is not sustainable. It will have significant impacts on the region's biodiversity.

The VNPA recommends:

- The government establish a statewide agroforestry program with $10 million funding over four years to offer incentives to private landholders and local governments to develop small-scale firewood lots. The inclusion of some of the recently abandoned plantations formerly owned by Managed Investment Schemes should be considered.

Managing the ecological dimensions of fire

The issue of planned burning was the subject most often referred to in the initial round of submissions to the 2009 Bushfire Royal Commission. The issue is certainly contentious, and there is strong local concern that many of the planned burns recently undertaken in the region have been too hot

and too uniform in distribution.

More significantly, perhaps, the implementation of burns in the region is very inconsistent, with no clear guidelines for the season, frequency, intensity and temporal or spatial mosaic of planned burns for the various vegetation communities. We have also heard of poorly planned road infrastructure being hastily developed to assist in fire management. Most importantly, there has been little monitoring of the long-term effects of natural or planned fire on biodiversity in the region.

Without good data to make decisions, we are possibly wasting large amounts of money and reducing the integrity of our ecosystems with no real benefit to the community, with insufficient scientific basis and little or no monitoring. This is something that would not be acceptable in our hospitals, nor would it be tolerated from our engineers or bridge-builders.

With climate change now upon us, and more frequent fires predicted, land managers in 30 years' time will be desperate for data from long-term scientific monitoring. Whatever fire regimes we may decide on, we must also set up comprehensive monitoring programs now. This would then allow us to make informed judgments on the effectiveness of different fuel reduction programs.

The VNPA recommends:

- DSE implement and maintain a program of long-term data collection, monitoring and modelling of the effects of planned burning programs and of wildfires on biodiversity.
- DSE should identify and prescribe a preferred temporal and spatial burn mosaic specific to each ecological vegetation class (EVC), designed by fire ecologists with input from botanists, zoologists, entomologists, mycologists and microbiologists.
- Burns in the Ecological Management Zone (Zone 3) should be performed according to clear prescriptions designed to achieve identified long-term biodiversity objectives. Prescriptions should be expressed in terms of preferred or required fire frequency, intensity, seasonality and 'patchiness'. Burns in this zone must also be integrated at the local planning level with fuel reduction burning in other zones to maximise possible mutual benefits.
- There should be a formal reassessment by DSE of prescriptions and targets for planned burning, including fuel reduction burns and ecological burns, every four years.

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