SUBMISSION

on

the Biodiversity Conservation Strategy, Sub-Regional Species Strategies for the Growling Grass Frog and Golden Sun Moth and the proposed development in the West, North-West and North Growth Corridors

by
Environment Groups

Victorian National Parks Association, Environment Defenders Office (Vic), Merri Creek Management Committee, Friends of Merri Creek, Western Melbourne Catchments Network, Pinkerton Landcare and Environment Group, Melton Environment Group, Jacksons Creek Eco Network, Southern Brown Bandicoot Recovery Group, Green Wedge Coalition, Cardinia Environment Coalition, Westernport Biosphere Reserve, Keilor Plains and Riddells Creek Landcare, Cardinia Catchment Landcare and Southern Ranges Environment Alliance

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Executive Summary

This submission outlines that the Victorian Government's implementation of the Melbourne Strategic Assessment has been to date inadequate, and not in compliance with the Program Report. In addition, the BCS, SRSS and proposed class of action fail to achieve the environmental outcomes necessary for matters of national environmental significance (MNES) under the Program Report, or the EPBC Act.

As such, the Minister's ability to approve the proposed class of action under section 146B of the EPBC Act is limited.

We submit that in order to approve the proposed class of actions, the Minister must secure the following by way of any approval:

1. Additional measures to protect MNES, including the protection of a new series of Commonwealth Conservation Areas, achieved by way of an approval condition. The Commonwealth Conservation Areas would comprise:
    a. The habitat corridors for Growling Grass Frog originally set out in the Draft BCS, but subsequently removed in the final BCS.
    b. A small Striped Legless Lizard conservation area, shown in Appendix 1.
    c. A series of high quality grassland and other threatened species habitat, shown in Appendix 2.
    d. Such areas as are necessary to protect 80% of Grassy Eucalypt Woodland within the Growth Corridors, including those areas shown in Appendix 3.
    e. All Seasonal Herbaceous Wetlands in areas greater than 2 hectares (or double the condition threshold), including but not restricted to those areas listed in section 3.6 of this submission.
2. The exclusion from the Melbourne Strategic Assessment altogether of the areas described in Section 4.
3. The secure protection of the Biodiversity Conservation Strategy Conservation Areas, by way of an approval condition that no development can occur in these areas (discussed in section 5).

In addition, we have recommended that the Minister, prior to approving any further class of actions, appoint an independent monitor, and delineate their roles and responsibilities along the lines we have suggested in section 7.1 and 7.2 to include a role investigating non-compliances. Where non-compliances are identified, approval of the proposed class of action should provide for the partial suspension of the approval until the non-compliance is addressed.

We understand that the SRSS for the Southern Brown Bandicoot has not yet been prepared, and that the Minister is not contemplating approval any actions relating to development in the south-east, and so have not addressed this species in detail in this submission. We have provided our basic expectations for any future SRSS, and request the opportunity to be heard further on this issue once the SRSS is made available.

We urge the Minister to adopt these submissions, to ensure the correct and proper application of the requirements of the EPBC Act, and to ensure a positive outcome for the matters of national environmental significance that will be impacted by this proposal.

1 Introduction

1.1 Scope of this submission

This submission outlines the concerns of the above-listed environment groups in relation to the most recent stage of the Melbourne Strategic Assessment, which is being guided by the endorsed program 'Delivering Melbourne's Newest Sustainable Communities: Program Report' of December 2009 (**the Program Report**).

In particular, this submission deals with the following documents, which have been submitted to the Federal Environment Minister for Approval: the Biodiversity Conservation Strategy for Melbourne's Growth Corridors (**BCS**) and the Sub-Regional Species Strategies (**SRSS**) for the Golden Sun Moth and the Growling Grass Frog.

This submissions also deals the Victorian Government's request that the Minister approve, under section 146B of the *Environment Protection and Biodiversity Conservation Act 1999* (**EPBC Act**) all actions associated with urban development in the western, north-western and northern growth corridors described by the VC68 Planning Scheme Amendment (a class of actions under section 146B of the *Environment Protection and Biodiversity Conservation Act 1999*) (**the proposed class of action**).

We have been informed that the Victorian Government has not finalized the SRSS for the Southern Brown Bandicoot, and has not sought approval for actions associated with development in the south-east growth corridor. If this is no longer the case, we request an opportunity to make further submissions in relation to this document and approval.

1.2 Minister's Decision-Making Principles

In making any decision to approve the proposed class of actions under section 146B of the EPBC Act, the Minister must consider the issues listed in sections 146E to 146F of the Act.

In particular, we note that the Minister must consider:

- The impact of the proposed action on *all* matters of national environmental significance.
- The principles of ecologically sustainable development, including the precautionary principle.

We also draw the Minister's attention to the guiding ecological principles cited at page 18 of the BCS, in particular the following principle: "Connectivity between habitat areas are important in supporting a diversity of habitat types, important populations of certain species, and habitat connectivity across a landscape".

We are of the view that the BCS and SRSS have not truly applied the ecological outlined above.

Between the Draft BCS and the Final BCS we have seen a huge reduction in the numbers of designated conservation areas (35% across all growth areas, see Table below) and, importantly links in the landscape.

Table 1: Comparison of Conservation areas – Draft BCS versus Final BCS derived from tables in the Public Consultation Report of Findings (DEPI 2013)

Conservation areas	North (ha)	N-W (ha)	West (ha)	S-E (ha)	Total
Draft BCS	3156.7	1014.2	2516.5	732.8	7420.2
Final BCS: Net reduction of area*	592.5	290.8	1350.2	400.8	2634.3
Percent lost	**18.8%**	**28.7%**	**53.7%**	**54.7%**	**35.5%**

*Note: Net reduction figures do not include all the Southern Brown Bandicoot corridors (SE), removed from final BCS, or 3 'Potential Conservation Areas' in draft BCS (W growth corridor) that were not included in final BCS. Six conservation areas categorised in the final BCS as 'Open Space' will have boundaries reviewed (i.e. area reduced) after biodiversity surveys or during the Precinct Structure Planning process (BCS p61). This includes the eastern section of conservation area 22, an area of 106 ha (BCS p106).

The proposed conservation areas that we present in this submission greatly increase the amount of linking in each of these landscapes with only a few additions, greatly improving the potential viability of each MNES under the development proposal.

2 Non-Compliances with the Program Report

We note that under section 146B of the EPBC, the Minister can only approve classes of action in accordance with the Program Report.

In a letter of 4 December 2012, the Environment Defenders Office on behalf of a range of environment groups brought your attention to our concern that the Victorian Government had failed to comply with the Program Report in a number of respects relevant to this class of action.

Since our letter, the Victorian Government has not rectified these non-compliances.

These ongoing non-compliances include:

- The Victorian Government has failed to adequately consult with community groups about the BCS, the SRSS or the Growth Corridor Plans.
- The Victorian Government has failed to prepare the BCS, SRSS or the Growth Corridor Plans in the sequence required by the Program Report.
- It has failed to appoint an independent monitor, as required by the Program Report.

In addition, we believe that the BCS, SRSS and the class of actions will not deliver the specific conservation outcomes required by section 10 of the Program Report, and thus any approval of the proposed class of actions consistent with these documents will not be in accordance with the Program Report. In particular:

- In relation to the Growling Grass Frog, the BCS and SRS fail to either deliver "functioning sustainable populations" of Growling Grass Frogs within and adjacent to the new Urban Growth Boundary with connectivity between populations, or deliver "protection and enhancement of important populations of Growling Grass Frog including the Merri Creek population" and other areas (Program Report, page 58).
- In relation to Grassy Eucalypt Woodlands, the BCS fails to retain and manage in secure conservation reserves eighty per cent of all Grassy Eucalypt Woodland within the Urban Growth Boundary (Program Report, page 51).
- In relation to the Striped Legless Lizard, the BCS fails to deliver "a series of reserves and other managed areas established such that viable populations are maintained across the known distribution of the species" (Program Report, page 60).
- In relation to the Australian Grayling, the BCS fails to address "management of factors, including migration routes, riparian vegetation and water quality, affecting Australian Grayling populations to promote persistence and recovery of the species in Cardinia Creek" (Program Report, page 62).

The Victorian Government's non-compliances to date, and the Federal Minister's decision not to require the Victorian Government to rectify these failures, have severely undermined the Melbourne Strategic Assessment process, and will result in significant negative impacts on MNES.

Significantly, the failure to rectify these failures sets a very bad precedent for future Strategic Impact Assessments.

We have set out below a series of recommendations that, if implemented, would allow the Minister to approve the proposed class of actions consistently with the requirements of the Program Report, and thus the EPBC Act.

It is our view that without rectification of the failures identified above, and the implementation of our recommendations, the Minister's ability to approve the class of actions sought under the EPBC Act is in doubt.

3 Matters of National Environmental Significance

3.1 Overview and Commonwealth Conservation Areas

The BCS and SRSS do not properly implement the requirements of the Program Report, and do not adequately protect MNES.

In the following, we have set out our specific concerns with respect to relevant MNES, and our recommendations. Each of our recommendations is fully justified by reference to:

- Consistency with the Program Report and existing prescriptions.
- Consistency with available science, and other material relevant to matters of national environmental significance (**MNES**).
- The practical feasibility and manageability of the measures proposed.

Crucially, we have recommended that if the Minister approves the proposed class of action, the Minister should ensure the protection of a series of what we term 'Commonwealth Conservation Areas', which would be in addition to the conservation areas set out in the BCS.

We believe the Minister could secure these Commonwealth Conservation Areas in the following way:

- The Minister detail our proposed Commonwealth Conservation Areas in a list, which be appended to any approval of the proposed class of actions as an Appendix.
- The approval would then be subject to the following condition: "No urban development or associated activities may occur in the Commonwealth Conservation Areas described in the Appendix to this approval".

3.2 Growling Grass Frog (GGF)

Summary

The Program Report requires that the Victorian Government ensure for the GGF "functioning sustainable populations…with connectivity between populations" and "protection and enhancement of important populations" (section 10.5).

The BCS and SRSS do not achieve this, and will result in local extinctions of GGF in key locations. In particular, the draft BCS outlined a series of GGF reserves which were later removed in the final BCS, such as the 200m Merri Creek corridor near Lockerbie.

To address this, we recommend that the Minister require the re-instatement of the reserves shown in the Draft Corridor Plans as Commonwealth Conservation Areas.

Discussion

Significant loss of habitat = likely loss of key local populations

The final BCS presents a scenario for the GGF that has a real potential to lead to local extinctions of key populations due to the narrowing of Category 1 habitat corridors for the GGF from the Draft BCS to the final. A clear example is in the Lockerbie region of northern Melbourne, where reductions in corridor widths along the Merri Creek will affect populations of GGF previously recognised as being of high importance[1], and which are already in decline[2].

A key justification for the narrowing, the lack of GGF records, is based on the same inadequate survey data that informed the Draft BCS. We know the dataset is incomplete due to patchy survey efforts. Under-surveyed areas include: Dry, Skeleton and Davis Creeks in the West, Jackson's and Emu Creeks in the North-west and Clyde and Cardinia Creeks and other small drainage lines in the South-east and even Merri Creek in the north.

[1] P 95, 180 'Delivering Melbourne's Newest Sustainable Communities: Strategic Impact Assessment Report' 2009.

[2] The Age 28 June 2012 'Urban spread poses new threat to endangered frogs'; Dr G. Heard, University of Melbourne, unpublished data.

The changes in corridor width across the North Growth Corridor again provide an informative example. In the areas of Lockerbie and Merriang, the areas selected for corridor reductions are those that have received the least survey effort. Hence, the primary basis for the reduction in corridor width – limited GGF records – is potentially very unreliable. This is repeated across the regions covered by the BCS, because the surveys undertaken to inform the plan were heavily constrained by landholder access and staff resources.

The draft BCS sought to incorporate these uncertainties by placing greater weight on assessments of habitat quality. To inform the development of the draft GGF Strategy and hence the Draft BCS, habitat for the GGF was identified by Ecology and Heritage Partners[3] as either Category 1 or Category 2 habitat. The Category 2 areas were defined as "..habitat likely to be used by *L. raniformis* for either breeding, foraging or dispersal, but of lower strategic importance than Category 1 habitat"[4] and " ..not considered necessary to achieve the objectives of the SRS."[5] The Draft and Final BCS identified the Category 2 habitat as habitat that could be destroyed for urban development but for which compensatory habitat is required, paid through a levy. The intent of the payment is to fund offset measures including a huge number of dedicated Growling Grass Frog wetlands.

Category 1 habitat was defined as:

> ..areas of suitable habitat that **must be protected and enhanced** to ensure the long-term viability of important populations of *L. raniformis.*[6]

The Category 1 habitat was shown as comprising a 200 metre buffer on each side of larger waterways, down to as little as a 50m buffer on smaller waterways. A significant difference between the EHP report and the draft SSRS was that although the latter stated that Category 1 areas "..must be protected and enhanced"[7], it also described the Category 1 protection areas as "..'interest' areas within which further refinements will be made during the public consultation process."[8]

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[3] Ecology & Heritage Partners (2011) Sub-regional Growling Grass Frog *Litoria raniformis* Conservation Strategy within the Revised Urban Growth Boundary and Associated 28 Precincts: Technical Background and Guidelines. Prepared for Dept. Sustainability & Environment November 2011

[4] p.65, EHP (2011)

[5] p.65 EHP (2011)

[6] p.64 EHP (2011)

[7] p.17 Draft Sub-regional Species Strategy for the Growling Grass Frog (2011) DSE, Nov 2011

[8] p. 17 SSR (2011). The Draft BCS (2011) used slightly different and inconsistent terminology, referring to Category 1 areas as both "**Proposed** Conservation Areas" (Fig.3) and "**Potential** Conservation Areas" (pp.20 & 100). The draft BCS is explicit that the 'refinement' of the width of corridors would be a process to "..determine appropriate habitat corridor **reductions**.."(e.g. 5.8.3 p.100). [emphasis added]

These "further refinements" in the extent of Category 1 habitat were made on the advice from a Biosis desktop review[9]. They have led to significant removals of Category 1 habitat from entire lengths of waterways and to significant reductions in the width of remaining Category 1 Growling Grass Frog habitat. This is summarised below.

Table 2: Reductions in Category 1 Growling Grass Frog Habitat

Area Category 1	North (ha)	N-W (ha)	West (ha)	S-E (ha)	Total
Draft BCS	1318.31	918.18	2076.71	717.61	5030.81
Final BCS	1009.74	666.83	911.67	329.8	2918.04
Reduction of Area	308.57	251.35	1165.04	387.81	2112.77
Percent lost	**23%**	**27%**	**56%**	**54%**	**42%**

In particular, the revisions as the result of the Biosis desktop review have seen more than half the Category 1 habitat removed in both the west and south-east.

A cursory analysis shows that essentially where there are GGF records, the corridors remain wide and where there is one or no records, the corridors have been narrowed or removed completely. Although much the same modelling and data sit behind both the Ecology and Heritage Partners (2011) and Biosis (2012) reports, the key difference is that Biosis was explicitly tasked to reduce the habitat corridor widths[10].

Unjustified assumptions made in reducing corridors

The Biosis (2012) review takes on board important recommendations from Heard and McCarthy (2011)[11] about corridor width and the need for construction of dedicated GGF wetlands to achieve a reasonable probability for metapopulation persistence. However where it falls down is its assumptions about which corridors should be narrowed, the extent to which they should be narrowed, and their purpose. The key, unjustified assumptions are:

[9] Biosis Research (2012) Review of habitat corridors for Growling Grass Frog *Litoria raniformis* within Melbourne's Urban Growth Areas. Report to Dept Sustainability & Environment June 2012.

[10] The Biosis Review states "The main objective of this project was to advise DSE on locations where it may be acceptable and reasonable to **reduce** the width of the [Growling Grass Frog] corridor from the indicative width shown in the SRSS [draft Sub-regional Species Strategy] .." (p.1) [emphasis added]

[11] Heard, G.W. and McCarthy, M. (2012) Metapopulation viability of the Growling Grass Frog in Melbourne's urban growth areas. Unpublished report for the Dept Sustainability & Environment by the School of Botany, University of Melbourne, July 2012.

1. That the absence of a cluster of GGF records means there is no metapopulation present;
2. That there is a sound ecological basis for the 'default' inter-nodal width of 100m between metapopulations; and
3. That the function of the inter-nodal corridors is to provide gene flow between metapopulations.

Each of these assumptions will be analysed in turn.

Lack of records = lack of metapopulation

The first assumption is clearly acknowledged by Biosis (2012) as a limitation:

> Of course, these records [clusters of GGF records] **may be an artefact of where survey has been undertaken** but without detailed and systematic survey of all streams and the instream habitat contained therein, which was beyond the scope of this study, this [use of clusters of records to identify metapopulation nodes] was considered the best approach to identifying important areas for the species. p.11 [emphasis added]

Contrary to the Program Report requirements, the decision-making around the GGF has not been informed by adequate on-ground survey. Furthermore, the Biosis review did not undertake any further field surveys and has mainly relied on desk-top analysis and historical records. As a result, there is a clear link between the amount of survey effort for GGF and the amount of corridors retained in the GGF Strategy and the BCS.

Even for waterways such as Merri Creek where good [but not complete] occupancy information exists, GGF researchers know that some of the gaps between mapped metapopulations reflect a lack of survey effort, **not** a lack of GGFs[12]. The Biosis review shows no evidence of checking with GGF surveyors and researchers about the nature of the 'gaps'. They could easily have been mapped as: (i) waterway reach well-surveyed, (ii) somewhat -surveyed, and (ii) not surveyed, to aid in understanding the probability of 'false negatives'.

Inter-nodal default width

The second point, the setting of a default width of 100m for the inter-nodal areas has **no ecological or policy basis.** The modelling study undertaken by Heard and McCarthy (2012) for persistence of GGF metapopulations did not address the corridor width needed to ensure functional connectivity between metapopulations. This is not a question on which there is any <u>specific</u> research for GGF. Nevertheless the EPBC Significant Impact Guidelines for GGF, which were developed by an expert panel in collaboration with SEWPaC staff, explicitly state buffer zones of at least 200m around water

[12] For example, on the Merri Creek the "inter-nodal gap" (MC04), between the Merriang (MC03) and Bald Hill (MC05) metapopulations, is a reach that lacks records because there has been little sampling effort - Dr Geoff Heard (pers.com). [corridor codes are those from Biosis 2012]. Although MC04 is defined as an "inter-nodal gap" and the corridor has been narrowed from 200m to 100m, it is nevertheless described by Biosis (2012) as "likely to provide some instream breeding habitat "(p.25) . Heard (pers.com) considers that MC04 includes high quality habitat.

bodies managed for this species, regardless of whether these water bodies are intended as primary habitat or as part of dispersal corridors.

In the case of the Lockerbie Town Centre the GGF Strategy is explicit that the narrowing is for non-ecological reasons:

> …Category 1 area at the Lockerbie town centre has been significantly narrowed to meet **state significant planning objectives** p.23 [emphasis added].

Purpose of inter-nodal corridors

The third assumption, that the purpose of the inter-nodal corridors is to facilitate "..a level of gene flow between metapopulations"[13] is a major reinterpretation of the original definition of Category 1 habitat. Ecology & Heritage Partners (2011) describe this habitat as including breeding and movement/dispersal corridors and waterbodies that "..are suitable, **or that have the potential to become suitable** for L. raniformis.."(p.72). [emphasis added].

The SRSS is explicit both in its description of the recent decline in the range of GGF and the increasingly important role of habitat fragmentation and loss of dispersal corridors in causing GGF decline (p.10). For many waterways, the now fragmented and 'distinct' metapopulations that we see today already reflect this decline. A key challenge to sustain important populations into the future is to provide, as far as possible, for the reconnection of metapopulations through provision of breeding habitat in inter-nodal areas[14]. The provision of 'stepping-stone' areas to provide for some unknown level of genetic connectivity is not sufficient to achieve the Program commitment of "Functioning sustainable populations of *L. raniformis* with connectivity between populations" [15].

Although in general the implications of the narrowed corridors has not been assessed by GGF researchers, Dr Geoff Heard has provided an opinion on the high likelihood of the loss of connection between two metapopulations as a consequence of the narrowing of the corridor on Merri Creek in the vicinity of the proposed Lockerbie Town Centre and the subsequent lack of space in which to create adequately buffered breeding habitat sufficiently protected from adjacent high-density urban land use[16]. At one point, the corridor has been reduced to 20m on one side of the Creek. It is likely that the proposed development will result in the **loss of one of the healthiest known populations of GGF** around Melbourne.

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[13] Biosis (2012) p.5

[14] [14] Hale, J.M., Heard, G.W., Smith, K.L., Parris, K.M., Austin, J.J., and Melville, J. (2013) Structure and fragmentation of growling grass frog metapopulations. Conservation Genetics 14, 313-322.

[15] Geoff Heard (pers.com). Heard's recent research has confirmed that the more isolated metapopulations on the Merri Creek have suffered a decline in genetic diversity. The less disturbed northern population at Donnybrook still retains a genetic diversity congruent with historical diversity (see Hale, J.M., Heard, G.W., Smith, K.L., Parris, K.M., Austin, J.J., and Melville, J. (2013) Structure and fragmentation of growling grass frog metapopulations. Conservation Genetics 14, 313-322)

[16] Geoff Heard letter to MCMC (23 Nov 2011)

Dependence on constructed wetlands for mitigation

The proposed construction of hundreds of GGF dedicated wetlands in compensation for the clearing of Category 2 GGF habitat is an untested mitigation method. Indeed, State government officers stated in a recent meeting that they do not have any clear evidence that constructed ponds will provide long-term suitable GGF habitat. Researchers are reasonably confident, theoretically, that such habitat can be created, but it is untested over the long term, especially on the large scale of landscape urbanization proposed. Further, the operational constraints and realities of creating and effectively managing and monitoring these wetlands remain to be seen.

In particular the key assumptions which underlie the wetland creation modeling predictions are that:

1. the wetlands will remain suitable and high quality in perpetuity; and
2. extinction rates in the instream habitat will not change as a result of urbanisation

The removal of habitat corridors and the reduction in corridor widths in the BCS literally **leaves no room for failure and ignores the most basic elements of the precautionary principle.** There is no 'fall-back position' for compensatory habitat within the growth areas (where it needs to be) for local populations of GGF.

Justification

We consider this request to be justified because:

- There is scientific support for the corridors (Category 1 habitat) delineated by Ecology & Heritage Partners and shown in the draft BCS.
- There is no new science or survey data to support the narrowing and removal of corridors in the final BCS. On the contrary, many of the corridors that have been narrowed or deleted are unsurveyed. There is no ecological basis for the default width of 100m for inter-nodal corridors. To achieve connectivity between metapopulations, breeding habitat is needed in the inter-nodal corridors.
- In view of the major uncertainties, including the locations of existing metapopulations and the likely long-term success of constructed GGF wetlands, application of the precautionary principle is appropriate. This indicates that more, rather than less land should be set aside for GGF conservation at this stage.
- It is highly unlikely that the 'outcomes to be achieved' in the Program Report (p54) will be achieved with the reduced corridors in the final BCS.

Recommendations

We recommend that if the Minister decides to approve the class of action under section 146B of the EPBC Act, he ensure the protection of the following areas, by including them within the list of Commonwealth Conservation Areas:

- GGF Frog Category 1 Habitat corridors shown in the Draft BCS, but removed in the final BCS.

3.2 Southern Brown Bandicoot (SBB)

Summary

The BCS does not contain any provisions for conservation of the Southern Brown Bandicoot and the Southern Brown Bandicoot Sub-regional Species Strategy has not been released.

We understand that the Federal Government is not currently considering an approval for MNES associated with the South-east Growth Area, however we have included this Matter in our submission for consideration by the Federal Government in its decision-making and also as an indication of our intent for any future approvals.

We ask that any approval of a SRSS in the future require the corridors and habitat nodes shown in the draft BCS to be created as conservation reserves for the SBB (including the Clyde-Tooradin Railway line) and a corridor to the west and north (via Cardinia Creek) added. The minimum additions are shown in Map 6 produced by Practical Ecology and wider context is provided by a consolidated map (both provided in Appendix 9 - Maps illustrating habitat corridors and nodes required for the Southern Brown Bandicoot).

This should be accompanied by a detailed management plan that includes all the following elements:

- A reconnected landscape with an integrated functioning biolinks or wildlife corridors.
- Integrated pest control.
- Translocation and genetic management for intractably isolated populations.
- Additional reserve or reserves with a predator proof fence.

Discussion

The Southern Brown Bandicoot (**SBB**) Sub-regional Species Strategy has not yet been made public, furthermore there is an indication via maps shown in the BCS that key habitat requirements for the SBB have been removed. This includes at least two habitat corridors and at least one habitat node for the SBB that were flagged within the draft BCS.

The Program Report requires:

- Functioning sustainable populations of Southern Brown Bandicoot and Growling Grass Frogs within and adjacent to the new Urban Growth Boundary with **connectivity between populations.**
- Protection and enhancement of all populations of Southern Brown Bandicoot including the population at the Royal Botanic Gardens Cranbourne.

The Draft BCS was based on credible studies and analyses by experts. The SRSS has been revised and now delayed to incorporate the findings of an additional study which we would argue is less credible than the earlier studies as the scope for this later report was designed to look for alternatives to the measures (links and habitat nodes) that would have formed the key platform for enabling the Cranbourne population of SBB to remain viable and potentially to interact with populations at least to the south, west, east and north (via Cardinia Creek).

The minimum links and nodes are shown in Map 6 (Practical Ecology). This map, from a respected and expert wildlife consultant, shows extensive and detailed solutions for reconnecting the landscape. It also identifies nodes or local areas of favoured habitat which function as retreats or refuges from which the population recovers. This kind of solution is the minimum needed to ensure sustainable populations of bandicoots.

The Draft BCS indicated two wildlife corridors to reconnect the thriving population of bandicoots at the Royal Botanic Gardens. This approach accords with the peer-reviewed paper that hypothesised that the bandicoots are present in the RBGC because of the energetic active management of high quality habitat, and they remain across northern Western Port in poor quality habitat only because this boom and bust breeding and survival strategy species is able to disperse across the landscape recolonising sites where it has become locally absent. This dispersal is possible because there are wildlife connections in the form of the flood mitigation channels and the unused South Gippsland rail line. In contrast, even in good habitat reserves, once lost the species is not recolonising because of insufficient wildlife connections. Extinction is inevitable from isolated reserves no matter how high the quality of the native vegetation.

The push back from land holders and from developers is reasonable expression of concern that must be addressed, but to abandon the science described above is to fail to address MNES obligations.

Although not shown within the Draft BCS, there is another important link required to connect to the west to The Pines and Langwarrin Flora and Fauna Reserves. In particular, at The Pines FFR there has been major recent investment of >$31M (for mitigation for the Peninsula Link). The lack of a landscape-scale approach to planning is to the detriment of both proposals and a failure to maximise the benefits of the Strategic Assessment process.

Further there are additional opportunities for reconnecting the landscape to the south (for which only one option was shown in the Draft BCS) and to the east to the major wildlife connections of the flood mitigation system of Melbourne Water and the 75 km unused rail line of Vic Track. The success of Commonwealth Caring for our Country and State NRIP funds for fox and pest predatory control is under valued.

The Population viability analyses undertaken prior to the approval (Southwell, Lechner) were undervalued in the first SBB SRSS. Any new strategy must study a larger landscape than the UGB and nearby. If it is confined to the SE Region it still must include Frankston City Council, northern Mornington Peninsula Shire (including the Yaringa EPBC Approval), City of Casey and Cardinia Shire (including the Manks Road EPBC Approval).

The provision of the levy to fund a well developed strategy was a promising provision in the Draft BCS. The new documentation on the Trust Fund and the processes for acquiring land meets some of the early concerns where this information had been insufficient.

Recommendations

We recommend that:

- The Minister provides further opportunity for public comment on the SBB SRSS once it is submitted to the Minister for approval.

- The Minister ensures that any approved SBB SRSS contain the wildlife corridors set out in the draft BCS and detailed above and shown in Appendix 9 - Maps illustrating habitat corridors and nodes required for the Southern Brown Bandicoot.
- The Minister reserves his ability to require any amendments to the BCS necessitated by the approved SBB SRSS (as foreshadowed in the BCS, p. 3).

3.3 Striped Legless Lizard (SLL)

Summary

The Program Report requires that the Victorian Government must ensure that "a series of reserves and other managed areas [is] established such that viable populations are maintained across the known distribution of the species". The BCS does not provide any conservation areas specifically for the SLL.

We therefore recommend that the Minister ensure the protection of a small number of additional SLL reserves within the headwaters of Skeleton Creek, which are outlined in Appendix 1.

We also ask that a link along the upper reach of Skeleton Creek to the Boral Quarry site be included as an additional habitat corridor for this species.

Discussion

The BCS has no conservation areas specifically protected for the Striped Legless Lizard (**SLL**), although there have been small populations inadvertently discovered in the small reserves 5 and 6 in the west.

The Western Grasslands Reserves have not been confirmed to provide habitat for the SLL (only 2 records), whilst an important habitat area (upper reaches of Skeleton Creek) known to support SLL will have no areas of high quality habitat conserved for this species.

For this reason we ask that the Minister protects and manages for conservation purposes the area of remnant grassland and Plains Grassy Wetland (SHW) patches within the headwaters of Skeleton Creek, as shown in Appendix 1 Striped Legless Lizard Commonwealth Conservation Areas. In order to improve the integrity of this reserve, a link along the upper reach of Skeleton Creek to the Boral Quarry site should be added.

The fact that there are no dedicated conservation reserves for the SLL is in contradiction with the Program report which requires:

> A series of reserves and other managed areas established such that viable populations are maintained across the **known** distribution of the species [emphasis added].

Essentially the reserve system has not been targeted to provide for the SLL (unlike GSM and GGF). This is possibly because the prescription was inadequate to avoid impacting the viability of key populations of the species.

The Strategic impact assessment states that the national Recovery Plan utilizes the concept of geographically or ecologically distinct population clusters as the basis of a framework for reservation of the species habitat across its range. Although in draft form, the potential clusters include two

within the study area: West Melbourne, Keilor, Werribee Plains and North Melbourne, Craigieburn Volcanic Plains.

There have been only 2 records of SLL recorded in the WGR whilst there are multiple records shown in the headwaters of, Skeleton Creek. The Keilor Plains immediately west of Melbourne contains one of three known important populations of the species, and the adjacent Ravenhall district has high populations densities - 10- 40 individuals / ha recorded at one site.

It is prudent to say the least, to protect known populations and habitat in the growth corridor whilst the status and viability of the species in the WGR has not yet been established.

Recommendations

We recommend that if the Minister decides to approve the class of action under section 146B of the EPBC Act, he ensures the protection of the following areas, by including them within the list of Commonwealth Conservation Areas:

- The proposed SLL Conservation Areas shown in Appendix 1.

3.4 Australian Grayling

Summary

There are not adequate conservation areas shown within the BCS to promote persistence and recovery of the species in Cardinia Creek, as required by the Program Report.

Conservation areas should be established along the Cardinia Creek to a width of 200 metres (100m each side) to protect this species.

Discussion

The Strategic Impact Assessment (2009) states that this species is present in Cardinia Creek and will be protected by buffers of up to 200m wide and managed to maintain the high conservation values of the creek corridor. This requirement has not been specifically acknowledged or addressed within the BCS. Furthermore the corridors have been narrowed between the Draft and Final BCS to less than 200m in places – particularly in the vicinity of the Clyde North PSP.

The Program report requires: management of factors, including migration routes, riparian vegetation and water quality, affecting Australian Grayling populations to promote persistence and recovery of the species in Cardinia Creek.

It does not appear that adequate consideration has been made within the BCS for the Australian Grayling with the exception that within the table for Conservation Area 36 (GGF Corridors) on p. 136 there is some provision for establishing a management area of 100m either side of Cardinia Creek for the Grayling. A management area does not necessarily equate to a conservation area. The intent of establishing a conservation area of 200 m in total along the length of the creek is not reflected in the final BCS.

Recommendations

We recommend that if the Minister decides to approve the class of action under section 146B of the EPBC Act, he ensure the protection of the following areas, by including them within the list of Commonwealth Conservation Areas detailed above:

- A creek corridor along the length of the Cardinia Creek of 200 metres (100m each side) to ensure the conservation of the Australian Grayling.

3.5 Grasslands, Spiny Rice-flower, Matted Flax-lily and Golden Sun Moth

Summary

The Program will have a huge impact upon the Critically Endangered community Temperate Grassland of the Victorian Volcanic Plain.

The prescription for this MNES did not require the conservation of any areas of grassland within the growth areas. The main compensatory mechanism for this huge impact is the proposed Western Grassland Reserves.

We have now found that these reserves comprise mainly poor quality grassland, whilst high quality sites within the growth areas will be cleared. Furthermore, with the clearing of so much, we are losing integral links in the landscape. This can be partially addressed by protecting a network of high quality grassland areas throughout the growth corridors. These sites will also partially assist in meeting the prescription for Spiny Rice-flower, Matted Flax-lily and Golden Sun Moth.

We propose a network of high quality grassland sites that also often provide habitat for MNES (including Spiny Rice-flower and Golden Sun Moth in particular) be protected. The basis for this is explained below and the sites shown in Appendix 2.

Discussion

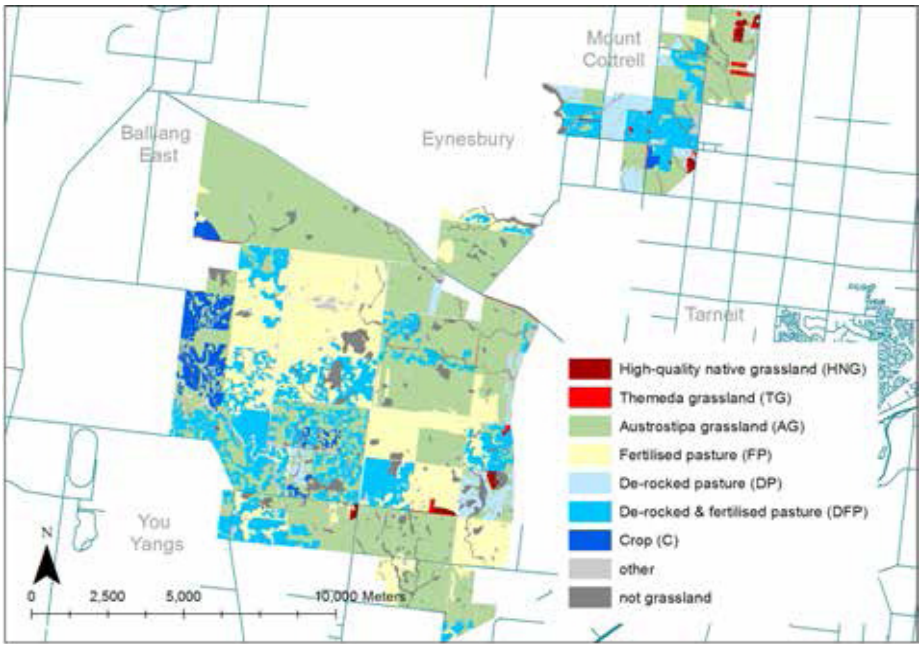
The Strategic Impact Assessment (2009) states that in total 5,197 ha of Temperate Grassland of the Victorian Volcanic Plains will be cleared under the Program.

The main compensatory proposal for the removal of so much of this Critically Endangered community is the establishment of the Western Grasslands Reserve comprising 15,000 ha outside the western growth area.

The Western Grasslands Reserve has been touted as being able not only to meet the offset requirements for grasslands in the north and northwest, but to meet any future requirements for any new species or community listings.

The Western Grassland Reserve has been revealed to comprise mainly vegetation of poor quality or secondary grasslands with very few areas of Very High quality (shown in Figure 1, below). In fact the majority of the grassland reserves comprise fertilised pasture, derocked pasture, fertilised and derocked pasture or crop.

Figure 1: The Western Grasslands Reserves, displayed according to grassland state
Source: p.24 Western Grassland Reserves - Grassland management targets and adaptive management (2011)



The Melbourne Strategic Assessment has entrenched a large centralised offset scheme as its key, but flawed, mechanism to protect Victorian Volcanic Plains grassland communities and a range of MNES.

A recent article in The Conversation highlighted some of the shortcomings of relying on offsets for sound ecological outcomes. A quote from the articles states:

> At best, our averted loss offsets will achieve a continuing decline of biodiversity. At worst, they may provide an incentive for the decline to continue.[17]

The data shown in Figure 1, clearly illustrates a consistent point made by environment groups over the last four years (see Appendix 8 – Excerpts from previous VNPA submissions pertaining to grassland conservation issues via the Melbourne Strategic Impact Assessment). That is that many sites of high conservation significance grasslands within the UGB will be exchanged for a reserve that contains significant areas of low quality, low conservation significance grassland, outside the UGB.

The draft BCS, identified many of the high conservation value areas within the UGB, and if all of these key areas had been retained, it would have gone a long way to resolving this intrinsic flaws in the strategic assessment, even if it lead to a reduction in the overall size of the proposed western grassland reserves. Unfortunately the Final BCS, falls short of the mark.

In contrast, there are many areas of very high quality grassland that will be cleared within the growth areas and only a blanket fee paid for their destruction (regardless of quality). Clearly the grassland reserves provide a poor deal for the clearing of these areas and the greater Melbourne region will lose many areas of high quality grasslands, many of which also provide habitat for species that are MNES

[17] Martine Maron and Ascelin Gordon, 'Biodiversity Offsets Could be Locking in Species Decline', The Conversation, 6 June 2013, http://theconversation.com/biodiversity-offsets-could-be-locking-in-species-decline-14177

including for Spiny Rice Flower, Matted Flax-lily and Golden Sun Moth for which there is a shortfall in protected habitat.

The prescription that was developed for Grasslands was designed to remove all grassland patches in the expanded UGB and most (or all) within the existing UGB. Now that we have the final BCS and can see that there will be very few high quality grasslands left within their former range on the Werribee Plain and in the north, there must be a representative amount protected to ensure that they and key MNES and State threatened species are adequately conserved. We propose that key areas of high quality be added to enhance landscape links to ensure compatibility of management and landuse, to ensure ease of management and to enhance connectivity in the landscape for species and ecosystem processes.

Additionally, there are areas within each of the growth corridors that could assist in meeting the requirements of the program report for the Spiny Rice Flower, Matted Flax-lily or Golden Sun Moth, i.e. that 80% of the highest priority habitats for these species within the VVP bioregion will be permanently protected and managed. We have identified some sites, particularly in the west (as the most targeted survey within grasslands has been undertaken in this growth area) for Spiny Rice-flower and Golden Sun Moth (provided in the Table in Appendix 2). It is likely that some sites in the south-east, north and north west also provide high quality habitat for these MNES.

Furthermore, whilst we know that within each growth area there has been limited on-ground survey undertaken, the precautionary approach should apply to protecting key areas of high quality habitat known to exist in the growth areas.

The rates of on-ground survey of native vegetation within the growth areas are as follows:
Western Growth Area, approximately 65%

- Northern Growth Area, approximately 35%.
- North-west Growth Area, approximately 20%.
- South-east Growth Area, approximately 50%.

On this basis we request that more high quality grassland be protected within the growth areas. We propose that a network of high quality sites that also provide habitat for MNES and state protected species be added to the conservation areas.

We have detailed the network we propose at Appendix 2.

Two types of sites are proposed:

- Category A sites – these are sites that we believe contain high quality grassland. Additionally, they will be either larger, better linked and/or contain MNES or high quality habitat for MNES. These sites are of highest priority for conservation.
- Category B sites – these are sites that we believe are likely to contain high quality grassland and known or likely habitat for MNES, although they may be smaller, more weakly linked in the landscape or be of a lower priority for conservation for other reasons.

Recommendations

We recommend that if the Minister decides to approve the class of action under section 146B of the EPBC Act, he ensure the protection of the following areas, by including them within the list of Commonwealth Conservation Areas:

- The additional high quality grassland areas shown in the maps at Appendix 2 of this submission as 'Category A'.

In addition, we recommend that the Minister takes steps to ensure that the areas marked as 'Category B' in Appendix 2 of this submission be protected via the Precinct Structure Plan process.

3.5 Grassy Eucalypt Woodlands (GEW)

Summary

The BCS, in contradiction with the Program Report, states that 80% of the extent of Grassy Eucalypt Woodland cannot be protected and instead only 61% will be protected whilst an extra 100-200 ha will be added to a GEW offset reserve. This Offset reserve has not yet been secured (as shown in the BCS).

We ask that 80% of the extent of Grassy Eucalypt Woodland be protected within the Growth Corridors, in accordance with the Program Report. We have some examples of how this could be achieved at Appendix 3.

We also ask that a detailed implementation plan be produced for the Grassy Eucalypt Woodland reserve to ensure that implementation commences prior to clearing.

Discussion

The Program Report requires:

- "Eighty per cent of all Grassy Eucalypt Woodland within the Urban Growth Boundary retained and managed in secure conservation reserves".
- "A network of small and medium sized conservation reserves and permanently protected private land habitat in the Hume-Whittlesea Growth Area associated with Merri Creek and Darebin Creek floodplains. These will consolidate and connect key areas of Grassy Eucalypt Woodland and associated habitats (stony knolls, plains grassland, floodplain grasslands and riparian areas".
- "A large conservation reserve outside the Urban Growth Boundary south-west of Whittlesea of at least 1200 ha in size".

A more logical network of managed areas would be achieved by logical additions of GEW to existing conservation reserves.

Examples are shown in Appendix 2 and include:

- Additions to Conservation Area 19 to expand the conservation area to include multiple patches of Plains Grassy Woodland.
- Additions to Conservation Area 26 to expand the conservation area and reduce the edge effect of the reserve.

- Additions to Conservation Area 31 to reinstate conservation areas shown within the Draft BCS and to provide a smoother, more resilient reserve boundary.
- A network of conservation areas within the Wollert region as shown in the Wollert Draft PSP (but with additional provisions for connections).
- Conservation area 25 be expanded to include Grassy Eucalypt Woodland in its immediate vicinity.

Recommendations

We recommend that if the Minister decides to approve the class of action under section 146B of the EPBC Act, he ensure the protection of the following areas, by including them within the list of Commonwealth Conservation Areas:

- Such areas as are necessary to achieve protection of 80% of the extent of Grassy Eucalypt Woodland within the Growth Corridors, including those sites listed at Appendix 2.

We further ask that the Minister ensures the Victorian Government produces a detailed implementation plan for the Grassy Eucalypt Woodland reserve to ensure that implementation commences prior to clearing.

3.6 Seasonal Herbaceous Wetlands

Summary

The Critically Endangered Community, Seasonal Herbaceous Wetlands of the Temperate Lowland Plains (Seasonal Herbaceous Wetlands) was listed during the course of the Melbourne Strategic Investigation.

In accordance with the Program Report, measures should have been taken (such as development of a prescription) to ensure that it is adequately protected and enhanced.

We have not yet seen any evidence of this occurring and submit guidance to be used for the protection of Seasonal Herbaceous Wetlands (double the condition thresholds). We also submit a list of wetlands that require protection as a minimum.

Discussion

The community Seasonal Herbaceous Wetlands of the Temperate Lowland Plains (Seasonal Herbaceous Wetlands) was listed as Critically Endangered in March 2012. In accordance with the Program Report, this community requires a Prescription to be determined. However, it has recently been stated by both DEPI staff and Federal Government staff that there will be no prescription developed as part of this process.

Seasonal Herbaceous Wetlands are not addressed at all within the final BCS and nor were they in the Draft BCS, however the listing of the community was mooted in the Strategic Impact Assessment (2009) where it was estimated that 143 ha of Plains Grassy Wetland community (a key component of the listed community in Victoria) would be impacted under the Program.

It appears that the planned outcome for the community is to simply clear all areas of this community within the growth areas and to use the Western Grassland Reserves to offset these.

We ask that areas known to contain Seasonal Herbaceous Wetlands in areas > 2hectares (or double the Condition threshold) be added to conservation areas and managed in order to preserve their conservation values. As a minimum the areas identified within the DSE report as:

- Herne's Swamp (including the railway line south of Wallan) (55 ha), be excluded from this approval process as part of a larger exclusion. If exclusion is not deemed appropriate, then we require that this area be conserved with adequate protections to ensure that its values are retained.
- Donnybrook Road 1 (3.7 ha), Donnybrook Road 2 (3.4 ha), and Donnybrook Road 3 (3 ha) be conserved as part of a larger conservation area that will protect key areas of Grassy Eucalypt Woodland including Stony Knolls, high quality grassland patches in the north and the wetland community.
- The following areas to be conserved with adequate protections to ensure their values area retained:
    - Muddy Gates Lane (10 ha).
    - Troups Road North (10 ha - refer to extra information in Melbourne Water Report for further information on values).
    - Rockbank Railway Swamp (9ha).
    - Paynes Rd Swamp (4.7 ha in UGB, 7 ha including areas outside UGB).
    - Wyndham Vale Swamp (6.2 ha, 16 ha including area outside UGB).
    - Deanside east (4ha).
    - Chartwell No2 (4ha).
    - Chartwell No. 3 (5 ha in patches).
    - Tarneit (4 ha).

Also that precinct structure plans require adequate survey for this community prior to their finalisation and every effort then made to conserve smaller wetlands within precinct structure plans and Melbourne Water drainage plans.

<u>Protection of areas that are double the Condition Threshold areas</u>

Our proposed requests for ensuring adequate protection for this community are a compromise on the Condition Thresholds that identify areas of 1 hectare as being valid.

Where the DSE study proposes that the clearing of SHW within the growth areas can be offset via management of areas within the Western Grassland reserves, we would argue that this community (and the physical environment it occupies) should remain unaltered and that it is most important that this community is represented in-situ across each growth area. This is on the basis that wetlands (and these type of wetlands in particular) are important in their own right where their function across the landscape both as refuge areas and home habitat for a wide range of species including MNES; Growling Grass Frog, Dwarf Galaxias, River Swamp Wallaby-grass, Swamp Everlasting, migratory species, Australian Painted Snipe and others.

This community is little-known

Any estimates of the extent of this community via mapped and modelled desktop sources will be inadequate as wetlands in Victoria are widely acknowledged as being very much undersurveyed and the DSE's current mapping is known to be woefully insufficient to identify wetlands on the ground. On this basis, following the listing of this community an in-depth on-ground survey should have been conducted to inform decision-making.

In contrast, only a small amount of survey effort was undertaken following the listing, the results of which were provided in the Draft Report, *The impact of Melbourne's growth on 'Seasonal herbaceous wetlands (freshwater) of the temperate lowland plains'*, DSE 2012 unpublished. This study relied heavily on desk-top methods and involved only very limited field assessment i.e. only visiting wetland areas greater than 3 hectares and did not always involve accessing the sites. In fact, investigation by staff of the Merri Creek Management Committee and the Victorian National Parks Association, identified two more potential sites for the community and other areas that are likely that were not identified by the study within the northern growth corridor (Appendix 3).

What the DSE's report on SHW does clearly show is that the Timestamping data is inadequate to identify and protect this Critically Endangered Community or to even ensure that it is offset (refer to example in Appendix 4)!

Finally, a demonstration of the under-representation of wetlands in survey data comes from a recent survey of the Rockbank area commissioned by Melbourne Water (Rockbank Area Wetland Survey, 2013) Appendix 5. This study surveyed over 30 wetlands and found nine wetlands that contained Seasonal Herbaceous Wetland community and furthermore, numerous sites for the GGF.

The Melbourne Water study also demonstrates the value of the community to provide habitat for other MNES, including GGF.

Recommendations

We recommend that if the Minister decides to approve the class of action under section 146B of the EPBC Act the Minister ensures the protection of the following areas, by including them within the list of Commonwealth Conservation Areas detailed above:

- Seasonal Herbaceous Wetlands in areas > 2hectares (or double the Condition threshold), including but not restricted to the following:
    - Donnybrook Road 1 (3.7 ha), Donnybrook Road 2 (3.4 ha), and Donnybrook Road 3 (3 ha).
    - Muddy Gates Lane (10 ha).
    - Troups Road North (10 ha - refer to extra information in Melbourne Water Report for further information on values).
    - Rockbank Railway Swamp (9ha).
    - Paynes Rd Swamp (4.7 ha in UGB, 7 ha including areas outside UGB).
    - Wyndham Vale Swamp (6.2 ha, 16 ha including area outside UGB).
    - Deanside east (4ha).

- Chartwell No2 (4ha).
- Chartwell No. 3 (5 ha in patches).
- Tarneit (4 ha).

We further ask that the Minister excludes Herne's Swamp (including the railway line south of Wallan) (55 ha) from the approval process. If the Minister is unwilling to exclude Hearne's Swamp from the approval process, we ask that the Minister adds this area to the list of Commonwealth Conservation Areas.

4 Areas for exclusion

We believe there to be three characteristics that make areas appropriate to be excluded from the approvals process altogether:

1. Areas that have recorded values that indicate that they are of high importance.
2. Areas are under-surveyed and we believe that adequate survey would confirm their values (or otherwise).
3. The activity planned for the areas is outside the scope of what we believe to comprise a reasonable level of 'urban development'.

Recommendations

In accordance with the characteristics listed above, we believe the Minister should exclude the following areas from any proposed class of action approval:

1. The area under investigation for the Beveridge Interstate Freight Terminal.

   This area is located between the expanded Urban Growth Boundary (east boundary) and interstate rail line (west boundary); and E6/OMR reservation (south) and Whittlesea/Mitchell boundary (north). It is currently zoned 'Farm Zone' but identified as 'Industrial' in the Northern Growth Corridor Plan.

   The Growth Corridor Plan describes the development as such: *The Beveridge Interstate Freight Terminal (BIFT) is a longer term freight, logistics and related industry concept. Planning for this facility is in the very early stages. Almost 1,010 (gross) hectares of land east of the Melbourne-Sydney rail line and north of the E6 reservation is identified for the proposed intermodal freight terminal and associated freight and logistics based industrial area. Further investigations will determine the exact area required for the core terminal requirements, with the remainder of the Precinct designated for industrial and freight related uses.*

   This region has not been subject to any survey effort as part of the Melbourne Strategic Assessment process with the exception of Camoola Swamp (identified as Herne's Swamp in the DSE Seasonal Herbaceous Wetlands study). It contains high quality areas of grassland and known populations of MNES along the railway line as well as GGF along Merri Creek. There is a large area of Seasonal Herbaceous Wetland (55ha) as well as other sites that are suspected to also comprise this community.

2. The extent of the (currently disused) Clyde-Tooradin Railway line to the south-east of Clyde Railway Station.

Although a small portion of this area is currently identified as a conservation area (CA 35), this area is also identified within the Growth Corridor Plan as potentially seeing some development as a site for railway stabling in the future (see Figure 2 below).

The BCS also indicates that there is the potential for future development of this section of railway line, where it states (on p. 134) that:

> There are currently no proposals to restore the rail line beyond Cranbourne, including this section [Conservation area 35]. The rail reserve is in VicTrack ownership and is currently being managed for a shared walking and horse-riding path (currently under construction at Koo Wee Rup) without precluding the restoration of the railway, in part or in whole, if and when warranted. Not all of the 34 meter rail reserve width will be required for permanent works. It is estimated that at least 50 per cent of the reserve width can be left undisturbed (other than to site a signal and/or advisory sign) under the highest impact scenario (track duplication).

Figure 2: Area for exclusion – Clyde Tooradin Railway line south-east of Clyde Railway Station

This area is important habitat for a known population of Maroon Leek Orchid, habitat for Swamp Everlasting, Matted Flax-lily and a known corridor for Southern Brown Bandicoot. To date, no surveys have been undertaken as part of the BCS.

3. The area listed for an intermodal freight terminal in the western growth area.

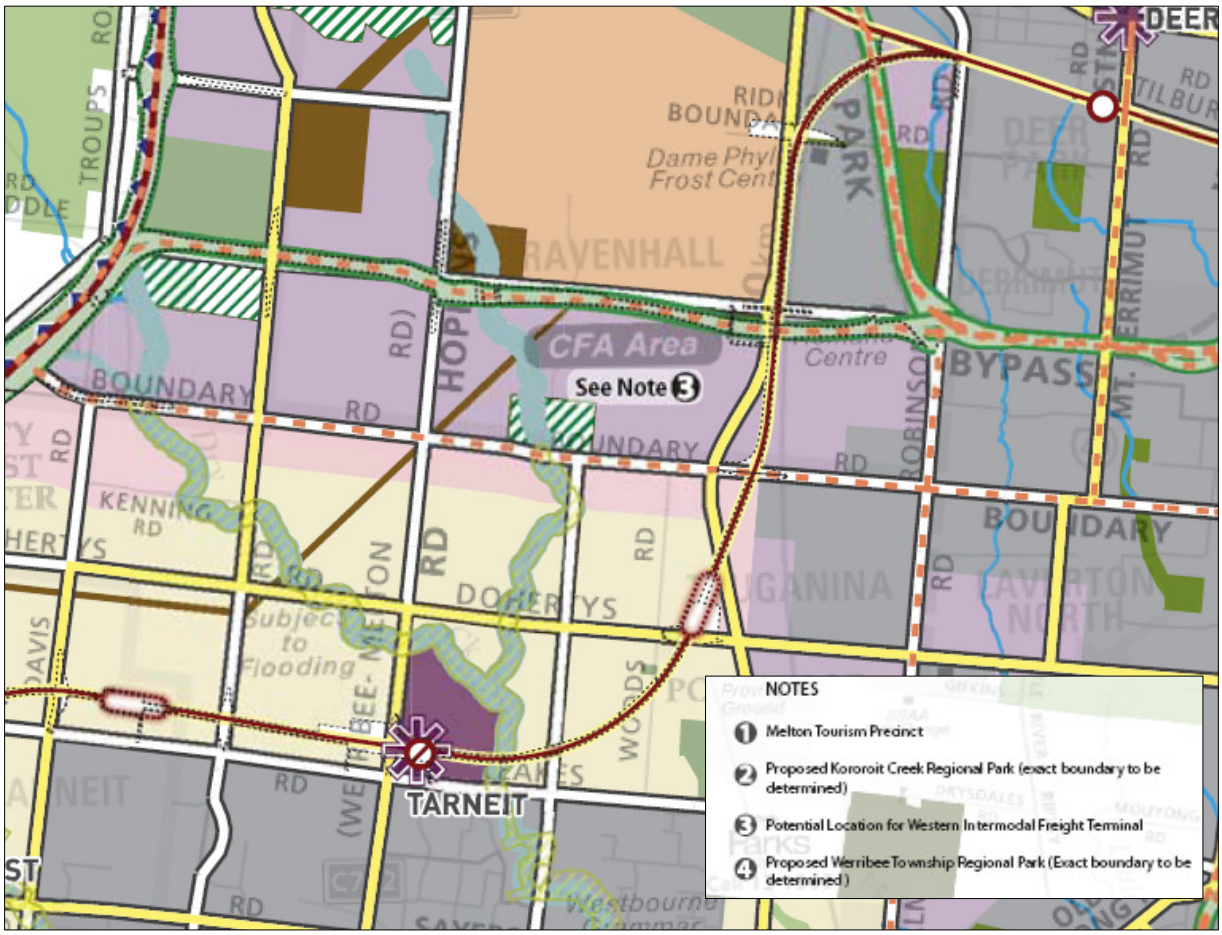
The Growth Corridor Plan states that:

> …the Melbourne West Corridor Plan also makes provision for a new intermodal freight terminal within the Western Industrial node. The precinct between Boundary and Middle Roads has been identified as a potential location for this facility.

Major distribution centers are expected to be locate within and adjacent to the terminal area. There is also the potential for a new Port Shuttle terminal.

There are few other details available in regard to the location and extent of the terminal but it appears that it will be located in the headwaters of Skeleton and Dry Creek (see excerpt of Growth Corridor Plan Map in Figure 3 below).

Figure 3: Area for exclusion – Area for proposed Intermodal Freight Terminal in the west



This area contains areas of high quality grassland, and one of the highest remaining populations of Striped Legless Lizard, other MNES have also been recorded in this area (including Seasonal Herbaceous Wetlands). Skeleton Creek provides an important link in the landscape and contains cultural sites.

5 BCS Conservation Areas

The BCS, at Table 2, describes eight types of conservation areas (together, the BCS Conservation Areas):

1. Nature conservation (19 sites).

2. GGF conservation, floodplain and open space (4 sites).
3. Regional Parks (4 sites).
4. Existing public land (4 sites).
5. Existing offset (1 site).
6. Open space (6 sites).
7. Type of conservation area to be determined (4 sites).
8. Nature Conservation areas outside the UGB (location to be determined) (unknown numbers of sites.

5.1 BCS Conservation Areas – Security and Protection

The BCS states that urban development will be excluded from the BCS Conservation Areas and that each will be protected and managed for conservation in perpetuity.

We strongly support this statement. To adequately ensure the protection of MNES, the BCS Conservation Areas should be completely free from urban development, and related infrastructure.

Accordingly, we urge the Minister to impose conditions on any approval for the proposed class of actions to ensure that no activities occur within the BCS Conservation Areas. This prohibition should extend to urban development and associated activities (such as roads or bridges).

The prohibition should not prevent legitimate conservation activities taking place in the BCS Conservation Areas.

If the Victorian Government or developers wish to undertake works in the BCS Conservation Areas, the Minister should also take steps to ensure that these work are submitted to the Federal Minister for separate approval under the EPBC Act.

Of particular importance in this respect are those BCS Conservation Areas where the boundaries remain to a degree vague, and potentially amendable. We submit that these areas should be locked-down, and protected.

An example of this is the six BCS Conservation Areas titled 'Open Space' (see the BCS, Table 2, on page 62). The BCS states that these areas will be "further surveyed to determine the boundaries of areas required for biodiversity protection", thus suggesting that these areas could be reduced, which would result in major ecological losses. The Minister should ensure that these BCS Conservation Areas are protected in their entirety.

Recommendation

We recommend that if the Minister decides to approve the proposed class of action under section 146B of the EPBC Act, he lock down the boundaries of the BCS Conservation Areas, and ensure their immediate and ongoing protection, by including the following condition:

> No urban development or any associated activities or works (other than approved conservation activities) may occur in the conservation areas described in the Biodiversity Conservation Strategy.

We recommend that the Minister takes steps to clarify that if a person wishes to undertake works (other than conservation activities) in a BCS Conservation Areas, this will need to be referred to the Federal Minister as a controlled action under the EPBC Act. If the Minister subsequently approves such works, the Minister must ensure there is no net reduction in size of the BCS Conservation Reserves (that is, any reduction in the size of one BCS Conservation Reserve must be compensated by an equivalent addition elsewhere).

5.2 BCS Conservation Areas Planning Controls and Tenure

Once the BCS Conservation Areas have been locked down, and immediately protected from urban development in the manner described above, the Victorian Government must have appropriate planning controls and tenure arrangements in place to ensure that these areas are protected and managed in perpetuity.

The Minister must take steps to ensure he is satisfied that the Victorian Government will put such measures in place.

On-title agreements (using section 69 agreements of the Conservation and Forests and Land Act 1987) as proposed in the BCS are at best a transitional strategy and not appropriate for protection in perpetuity for conservation areas in a 'high impact' urban context, with the urban growth areas.

Those consistent with IUCN protected area categories include Trust for Nature covenants and ownership by conservation organisations under the auspices of the National Reserve System Program.[18] Other agreements such as section 173 agreements under the *Planning and Environment Act 1987*, section 69 agreements under the CFL Act 1985 and Land for Wildlife designation do not provide permanent protection and do not qualify as IUCN protected areas so should not be considered part of a reserve system.[19]

Likewise simple transfer of land to the Crown does not guarantee protection in perpetuity, as Victoria has a multi-tenure system for crown land. Protection under the National Parks Act 1975 or as 'nature conservation reserves under the Crown Land (Reserves) Act, must be specified [20] and have equivalent level of protection IUCN category I, II or IV)

For four of the conservation areas, where the type of conservation area is yet to be determined (sites 7,8,9,13): Mt Atkinson Grassland, Mount Cottrell; Middle Road (north), Mount Cottrell; Middle Road (south), Mount Cottrell; and Ballan Road, Wyndham Vale, there is little certainty regarding the fate of these areas should it be found that they provide little value for MNES.

The location and nature of the growth areas means that inevitably there will be future developments and impacts that will occur that are not part of the current program. Some of these threats are currently foreseeable (Fast Rail to Sydney) and others that are not.

Experience shows that the easiest areas to develop are usually areas that are not occupied by housing or industry, i.e. in this case the conservation reserves. We already have the Fast Rail example

[18] Fitzimons 2006
[19] Fitzsimons 2006
[20] Need to specify specifically " Nature Conservation reserves as there 17 different categories of reserves under the Crown Land (Reserves) Act, with different levels of protection).

whereby the preferred route would affect areas of conservation reserve and the Merri Creek within the Donnybrook area.

We ask that the Federal Government ensure that there is a provision within the approval that ensures that the conservation reserves that result from this process will not be allowed to be impacted by future development to ensure that the conservation reserves are maintained in perpetuity.

There are a number of locations identified where large infrastructure is shown to impact conservation areas. This includes existing conservation reserves (Deanside Wetlands and Holden Flora and Fauna reserve) as well as new conservation areas identified within the BCS.

The BCS states that this infrastructure *will only be permitted with the agreement of DSE, and only after appropriate design and construction impact mitigation processes have been put in place. Any such impact within conservation areas will incur an offset or compensatory habitat fee as for areas outside conservation areas. Development that occurs within 20 m of conservation area boundaries will require consultation with DSE to ensure impacts on conservation areas are minimised and the standards for buffers are achieved.*

Recommendations

The Minister should satisfy himself that the BCS Conservation Areas will be adequately protected in perpetuity in the following ways:

- BCS Conservation Areas will be immediately protected by an appropriate zone and planning controls.
- All BCS Conservation Areas currently identified for 'nature conservation' or as 'regional parks' will be placed under an public acquisition overlay and be acquired as soon as possible, and protected under relevant schedules of the *National Parks Act 1975* or under the *Crown Land (Reserves) Act 1978* and have equivalent level of protection IUCN category I, II or IV.

Finally, we also recommend that the Minister ensure that appropriate planning controls be applied to the areas of grassland across the remainder of the Victorian Volcanic Plains in accordance with the 'mitigation strategy' outlined in the strategic impact assessment document (2009).

5.3 Conservation Management Plans

Conservation management plans are required for each conservation area within the BCS. It is stated that each CMP will plan for the conservation of MNES. The Program report requires that State protected matters (native vegetation and flora and fauna) be conserved through the Melbourne Strategic Assessment.

Recommendation

We request that Conservation Management Plans also be developed with consideration of State protected matters.

6 Compensation and Pricing Arrangements for Acquiring Offsets

The document *Draft Habitat Compensation under the Biodiversity Conservation Strategy* (DEPI 2013) provides some detail surrounding financial compensation (or offset payments) for impacts on MNES as part of the Program. However, our understanding is that this document does not form part of the current formal approval process.

The compensation arrangements are key to ensuring the delivery of protection of MNES, and need to have some formal component of recognition in the approval to ensure the State delivers on its commitments.

According to DEPI the "[Melbourne Strategic Assessment] represents a significant costs saving to landowners wishing to develop their land. Costs saving are estimated to be in the order of $500 million over the 30 year period…".

The total package of $986,154,518 million dollars, over 30 -40 years equates to between $24 and $32 million annually over the period. There is likely to be significant variability over this time, due to changes in rates of market demand for housing and development. Income will also vary due to the proposed 'Staged obligation agreement', which allows developers to make staged payments and the extent of works undertaken via 'Works in Kind Agreements".

The Victorian government has recently reviewed its native vegetation regulations, resulting in new proposals to develop 'across the counter' offsets and a centralised offsetting fee. No fee structure has been released for the revised native vegetation scheme and the fee/ compensation structure outlined in Draft Compensation document should be stated to be specific to the Melbourne Strategic Assessment.

There is also likely to be significant purchase price variability across the proposed Western Grassland reserves. According to advice from the property valuation industry, if the Government were to acquire a similar sized parcel (1,000ha), of what it has already purchased in the WGR and no other market transactions have taken place then it would be difficult to argue for a higher/lower price. In relation to the total acquisition, the average price per hectare paid is likely to be higher - this is due to a number of smaller land holdings which would have to be purchased. Smaller land holdings located near the fringe of Melbourne currently sell for a higher rate per hectare (there is also the question of what happens to the improvements/dwellings) i.e. $30,000-$50,000 per hectare for 20-100 hectare properties and higher again for smaller lots. The price paid for properties near the western end of the Western Grassland Reserves are likely to have lower values.

In accordance with *Land Acquisition and Compensation Act* (LACA) there will be other costs associated with the acquisitions, which include solatium (up to 10% of market value), stamp duty on replacement property and other claims which may come up.

While the draft document commits to a price review policy, it is critical in our view that the commonwealth ensure that as far as possible there is consistency and security of the habitat compensation arrangements, over time, by:

- Ensuring that a habitat compensation scheme is established.
- The compensation fees are tied to development in the MSA.

- That a price review, to ensure the value of the compensation is maintained over time.
- That the proposed price take into account market variability and potential additional transaction costs/ claims associated with land purchase.

Recommendation

We recommend that the Minister require as part of its approval that there be consistency and security of the habitat compensation arrangements, over time, by:

- Ensuring that a habitat compensation scheme is established.
- The compensation fees are tied to development in the Melbourne Strategic Assessment.
- Ensuring there be a built in price review, to ensure the value of the compensation is maintained over time.
- Ensuring that the proposed price take into account market variability and potential additional transaction costs/ claims associated with land purchase.

7 Institutional arrangements

7.1 Appointment of Independent Monitor

The Program Report very clearly requires that an Independent Monitor be appointed during Stage 2 of the Melbourne Strategic Assessment (which is now at an end), to provide the Minister with assurance that the Program Report is being properly implemented, and that MNES are being adequately protected.

In particular, the Program Report states:

- "During Stage 2 the Commonwealth receive reports from an Independent party appointed consistent with the approved Reporting and Monitoring Framework and covering all projects under the Program" (section 7, page 44).
- "An independent monitor will be appointed at [Stage 2] to check compliance and provide assurance to the Commonwealth Government that the Victorian Government is effectively implementing the endorsed Program. Independent monitoring will occur frequently early on in the implementation process and greater reliance will be placed on existing Victorian monitoring processes as the Program progresses." (section 11, page 72)
- Table 22 on page 75 of the Program Report lists the specific instruments and activities (including the BCS and the SRSS) that are to be monitored and reported, for the stated purpose of "ensur[ing] that the processes undertaken to prepare urban frameworks, transport frameworks and the reservation of land occur in the manner described the endorsed Program Report". (section 11, page 75)

Despite these requirements, the Independent Monitor has not been appointed, and the required monitoring has not occurred.

This is a very serious breach of the Program Report, and has fundamentally undermined the Minister's ability to be assured that the Program Report has been implemented correctly to date, or that MNES will be adequately protected by any approval of the proposed class of actions.

As the Environment Defenders Office pointed out in their letter to the Minister of 4 December 2012, an appointed independent monitor would have provided the assistance necessary for the Minister to properly identify and address the non-compliances identified in that letter, and to assess the documents and proposed class of action currently before the Minister for approval.

The Victorian Government has failed to appoint the independent monitor. It is therefore beholden on the Minister to take this step himself.

The independent monitor must be independent: that is, he/she be demonstrably separate from State Government agencies directly related to the development of the BCS (i.e. DEPI, DPCD and the GAA). Attachment to independent statutory offices like the Victorian Sustainability Commissioner or Victorian Environmental Assessment Council (VEAC), would be more appropriate than an officer embedded in one of the proponent departments.

Recommendation

We urge the Minister to appoint, as a matter of urgency, an independent monitor.

The Minister should also prepare a document outlining the monitor's roles and responsibilities, which should be drawn from the Program Report, and should include the suggestions we have put forward below.

7.2 Independent Monitor's Roles and Responsibilities

Summary

The independent monitor, as envisaged by the Program Report, will play a key role in ensuring the proper implementation of the Program Report and its related documents and actions, and thus the ongoing protection of MNES.

Accordingly, the Minister should as part of any approval for the proposed class of actions, clearly delimit the independent monitor's role, in particular to include the ability to investigate non-compliances and provide recommendations as to their rectification. Any approval should require that if the independent monitor identifies non-compliances for a particular MNES, that the approval should be partially suspended with respect to that MNES until the non-compliance is rectified.

This process, as well as the other recommendations we have set out below, will ensure that developers and the Victorian Government are held to be accountable on an ongoing basis for the conservation measures on which the Melbourne Strategic Assessment is premised.

Discussion

<u>Monitoring the Melbourne Strategic Assessment and addressing non-compliances</u>

The Melbourne Strategic Assessment's success is predicated on the immediate protection of certain conservation areas from urban development, and the ongoing protection and management of these areas. We have discussed how this can be achieved above.

The importance of these two aspects of the Melbourne Strategic Assessments means that the Minister should ensure, prior to approving the BCS, SRRS or proposed class of actions, that there is an appropriate process in place to ensure on an ongoing basis that the Program Report is being implemented, and in particular that the BCS Conservation Areas and Commonwealth Conservation Areas are being protected and managed as envisaged.

This task should be central to the role of the independent monitor.

In particular, the independent monitor must have the powers, responsibilities and resources to carry out a broad supervisory role, monitoring on a ongoing basis the continued application of the BCS, the SRSS, the Program Report and any approved classes of action.

Furthermore, the independent monitor must have the power and resources to investigate specific potential non-compliances, particularly failures of particular conservation mechanisms (for example, failed translocation of threatened species or degradation in a particular Conservation Areas).

Investigations of specific non-compliances should be commenced either at the instigation of the independent monitor himself/herself, or at the request of any person.

If the independent monitor identifies a non-compliance, the monitor should be able to make recommendations to the Federal and Victorian Governments as to how to rectify the non-compliance. For example, if the independent monitor found that a particular BCS Conservation Area had not been protected to the size set out in the BCS, the independent monitor could recommend ways in which the particular Conservation Area could be expanded to meet the BCS requirement, or propose an alternative and new Conservation Area to be set aside (which may require amendment of a class of action approvals).

Importantly, if the independent monitor identifies non-compliances, any urban development with an impact on the MNES that is the subject of the non-compliance should not receive the benefit of the class of action approval. In other words, the class of action approval should contain a condition such that if the independent monitor identifies a non-compliance, the approval is suspended until the non-compliance is rectified.

The role, powers and responsibilities of the independent monitor are crucial to ensuring the ongoing performance of the Melbourne Strategic Assessment, and particular of development in the growth corridors. As such, a statement of the independent monitor's role, powers and responsibilities, including an outline of the non-compliance process set out above, should be included as an appendix to any approval for a class of actions.

Overseeing the Victorian planning process

Although the Melbourne Strategic Assessment is taking place under the EPBC Act, we note that much of the implementation of the key conservation outcomes required by the EPBC Act is to take place under the Victorian planning process. In particular, a lot of the finer detail associated with the Melbourne Strategic Assessment has been delegated to the Precinct Structure Planning stage.

An key activity of the independent monitor will be to oversee the procedures and outcomes of the Precinct Planning process and ensure that this is being undertaken in accordance with the commitments made in earlier stages of the process.

Prior to PSP's being developed on-ground surveys are to be conducted for MNES (list provided in Appendix 6), as well as precinct design surveys for GGF.

Additional minimisation of impacts upon the following MNES is also deemed to occur at the Precinct Structure Planning stage for the following species:

- Striped Legless Lizard – guided by the prescription for this species.
- Matted Flax-lily.
- Spiny Rice-flower.
- Maroon Leek-orchid.
- Wetlands for Migratory Species.

The minimisation is intended to be guided by the prescription for these MNES. The Victorian Government argues in the final BCS that "[t]he implementation of the BCS will therefore satisfy the requirements of the prescriptions" and that "*prescriptions **cease** to remain in force for:* the four growth corridors; the 28 existing precincts and OMR". (emphasis added)

The BCS leaves many areas questions open and not addressed, and without prescriptions, outcomes from this additional or future work will be uncertain. For example:

- For the Southern Brown Bandicoot – where impacts to SBB need to be further minimised, a precinct will be designed to include a network of retained habitat areas and sympathetic design and construction techniques (in conjunction with further surveys to assess the habitat retention needs of SBB).
- GGF – A GGF conservation management plan must be developed prior to the exhibition of a Precinct Plan. GGF protection measures will be in line with the prescription.
- Australian Grayling – buffers for this species along Cardinia Creek to be determined at the Precinct Planning Stage.
- Maroon Leek Orchid - a Conservation Management Plan is required for a section of the railway reserve around Clyde containing the Maroon Leek Orchid to be prepared as part of the precinct structure planning process to protect the various MNES at this site.
- Conservation reserve areas identified as yet to be determined (sites 7,8,9,13).

It is important that all of these items be adequately covered during the precinct structure planning process.

Recommendations

We recommend that the Minister outline the roles and responsibilities of the independent monitor, and that this be attached as an appendix to any approval of the proposed class of actions.

We recommend that the monitor's role and responsibilities should include the following:

- Ongoing and continual monitoring of compliance of the Victorian Government and urban developers with the Melbourne Strategic Assessment, including approvals under section 146B of the EPBC Act, the Program Report, the BCS and the SRSS, and in particular considering the

ongoing effectiveness of the management of Conservation Areas and other conservation mechanisms.

- The ability to conduct investigations of specific non-compliances with the above documents, at the monitor's own instigation or at the behest of any other person.
- Following the completion of a specific non-compliance investigation, the ability to make findings and recommendations.
- A formal audit report assessing the overall implementation of the Melbourne Strategic Assessment, identifying all past and outstanding non-compliances and other relevant issues, which would be made public, and provided to the Minister every 5 years.

We further recommend that the independent monitor have a role monitoring the implementation of Victoria's planning process, in particular:

- The independent monitor should prepare, and assess compliance with, a guide that outlines all specific considerations required for the Precinct Planning Process within the Growth Areas to complement the current documents that guide precinct planning for general purposes.
- The independent monitor conduct an audit of all Precinct Structure Plans completed to date to ensure compliance with the Program Report. Should the PSPs be found to be uncompliant, the independent monitor should recommend steps to be taken to rectify this.

We finally recommend that if the Minister decides to approve the proposed class of action under section 146B of the EPBC Act including the following conditions:

- "The person(s) taking the action must undertake the action in accordance with any outstanding recommendations from the independent monitor carrying out their functions in accordance with the Appendix."
- "Where the independent monitor has identified a non-compliance with respect to a particular MNES, in accordance with the process outlined in the Appendix, this approval ceases to any actions impacting on that MNES until the non-compliance has been rectified".

7.3 Financial Arrangements - independent trust

Conditions requiring that offset money be paid into independent trust, specifically designated for conservation purposes (as opposed to into DSE's coffers), is welcome.

The document, 'Habitat Compensation under the Biodiversity Conservation Strategy', outlines an arrangement for a trust to hold funds generated by clearing for the purpose of purchasing and managing conservation reserves including the WGR".

This is an important initiative to ensure the integrity of the scheme and untimely the delivery of the proposed outcomes. The trust should have 'trustees' which are independent of the Victorian government and be subject to annual public reporting, independent financial audits and a probity and performance framework.

Recommendations

We recommend that the Commonwealth require an independent trust to be established which includes:

- independent trustees.
- annual public reporting.
- independent financial audits.
- probity and performance framework.

7.4 Communication and the Acquisition Strategy

We have observed that the acquisition strategy (if one exists) is not meeting the needs of landowners affected by the Public Acquisition Overlay. This has resulted in a number of known acts of degradation environmental values and also of social distress. It is not clear what priorities are driving the acquisition and should landowners wish to sell their properties, they should be considered as a high priority for purchase.

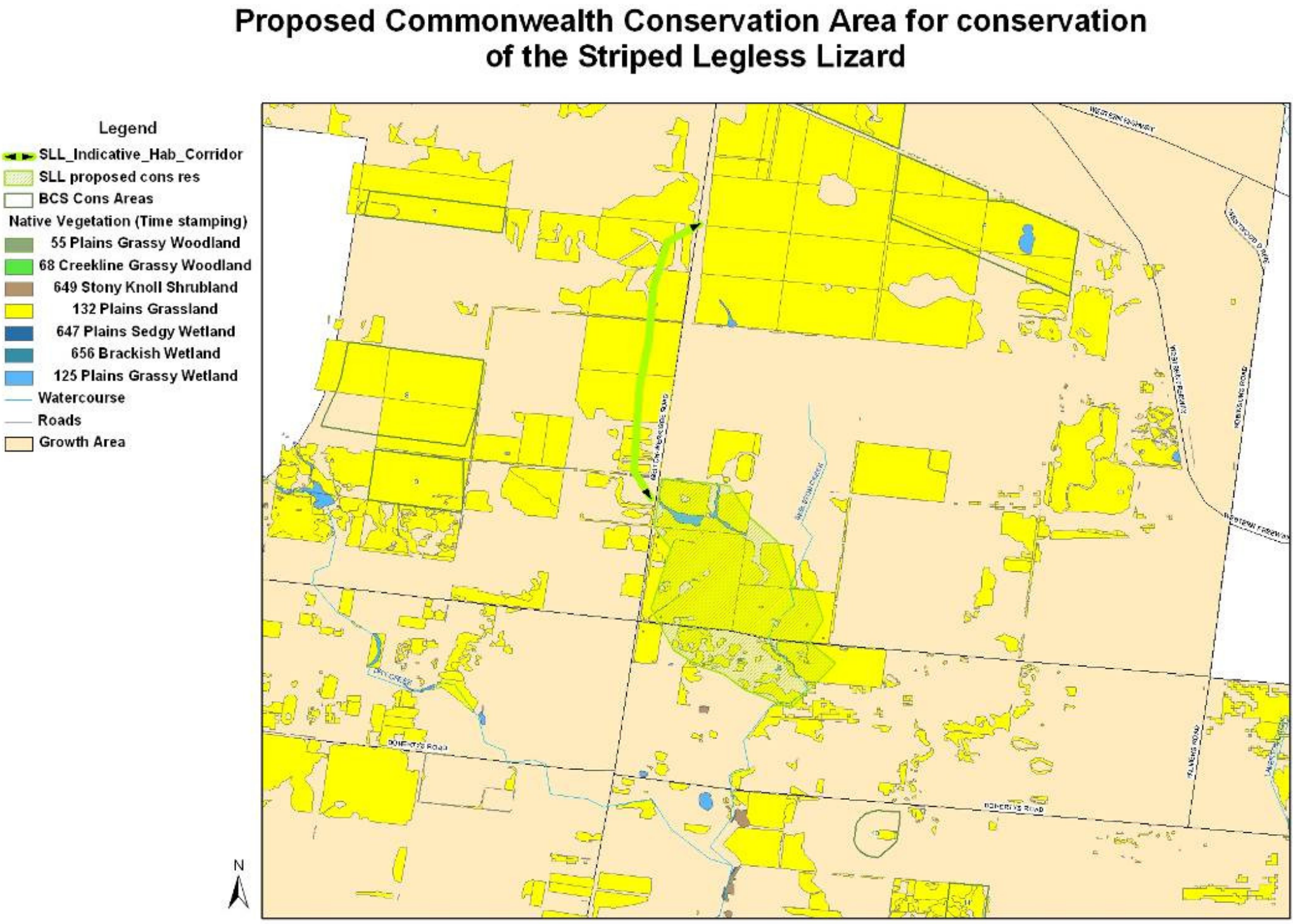
Recommendations

We ask that the Minister in approving the BCS, SRSS or proposed class of action, ensure the following steps are taken:

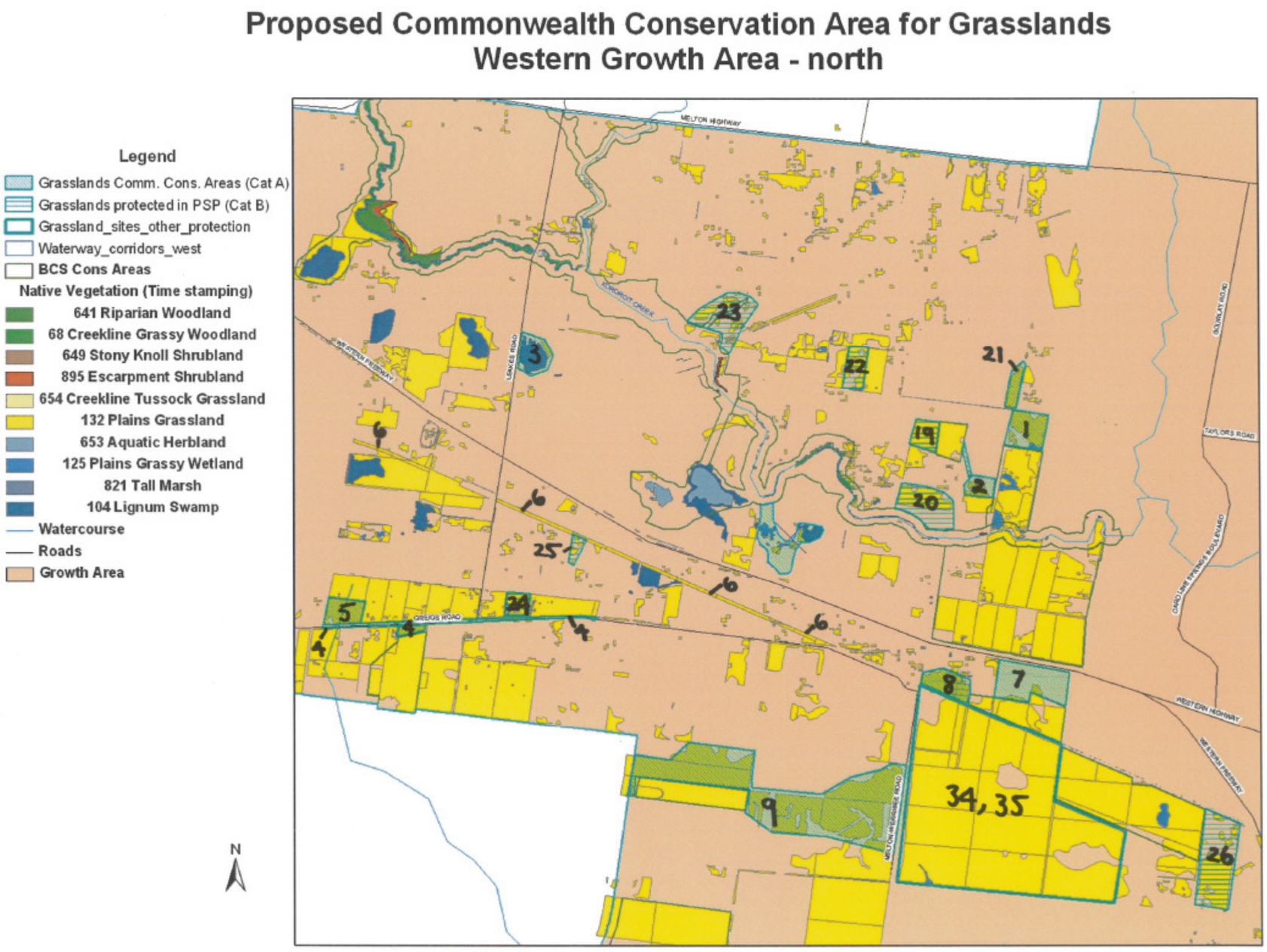
- The development or update of an acquisition strategy that includes clear and transparent guidelines about priorities and timelines for acquisition that combine two key priorities: environmental values and social considerations.
- The development and implementation of a landholder engagement program that focuses on positive landowner engagement, whereby landowners are communicated with early and an empathetic negotiation is undertaken to ensure that the best possible outcome is achieved both for the landholders and for the environment .
- Clear acquisition / management options are provided.

APPENDICES

Appendix 1 Striped Legless Lizard Commonwealth Conservation Areas

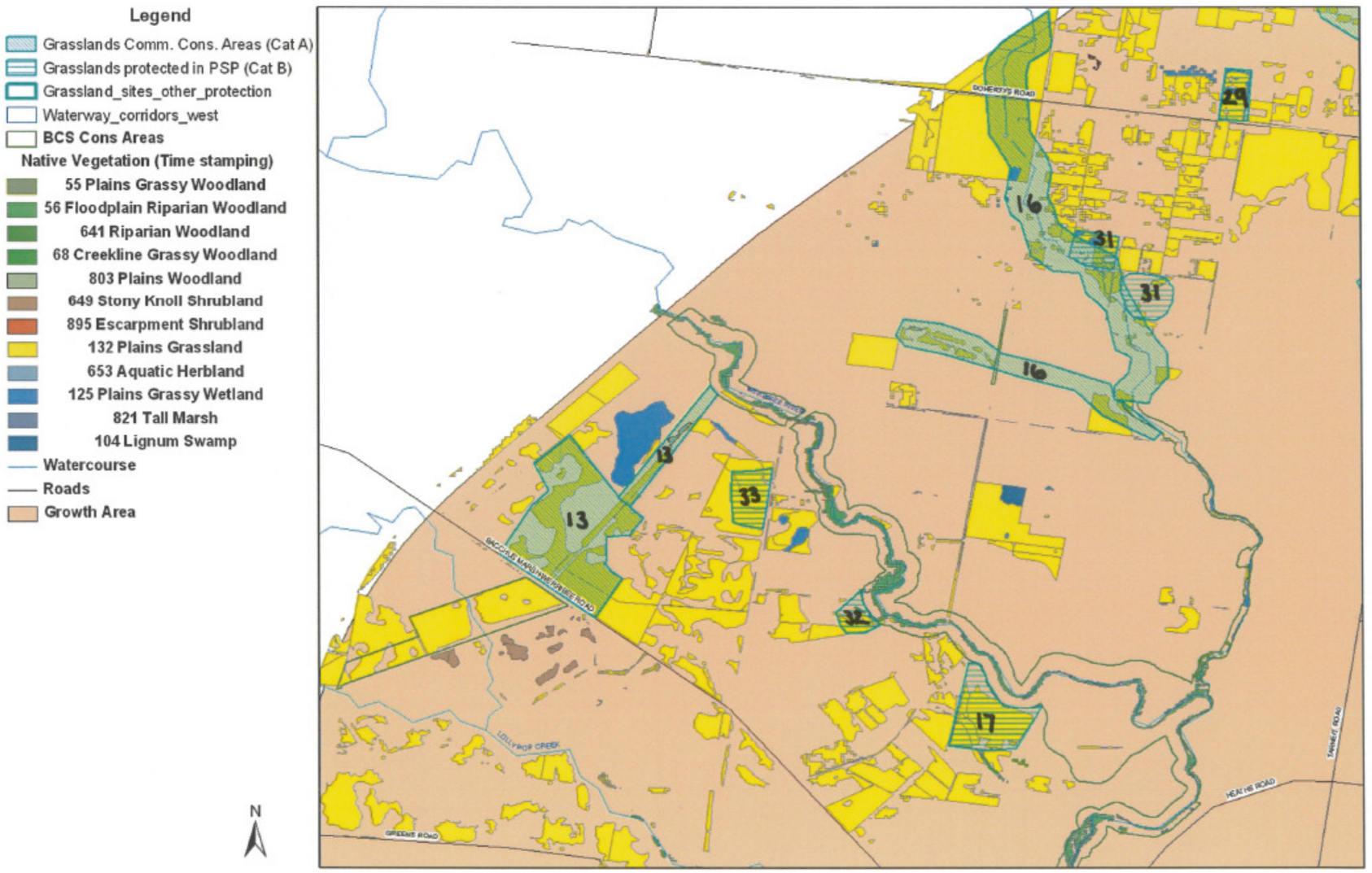


Appendix 2
Areas of High Quality Grassland to be added to conservation areas

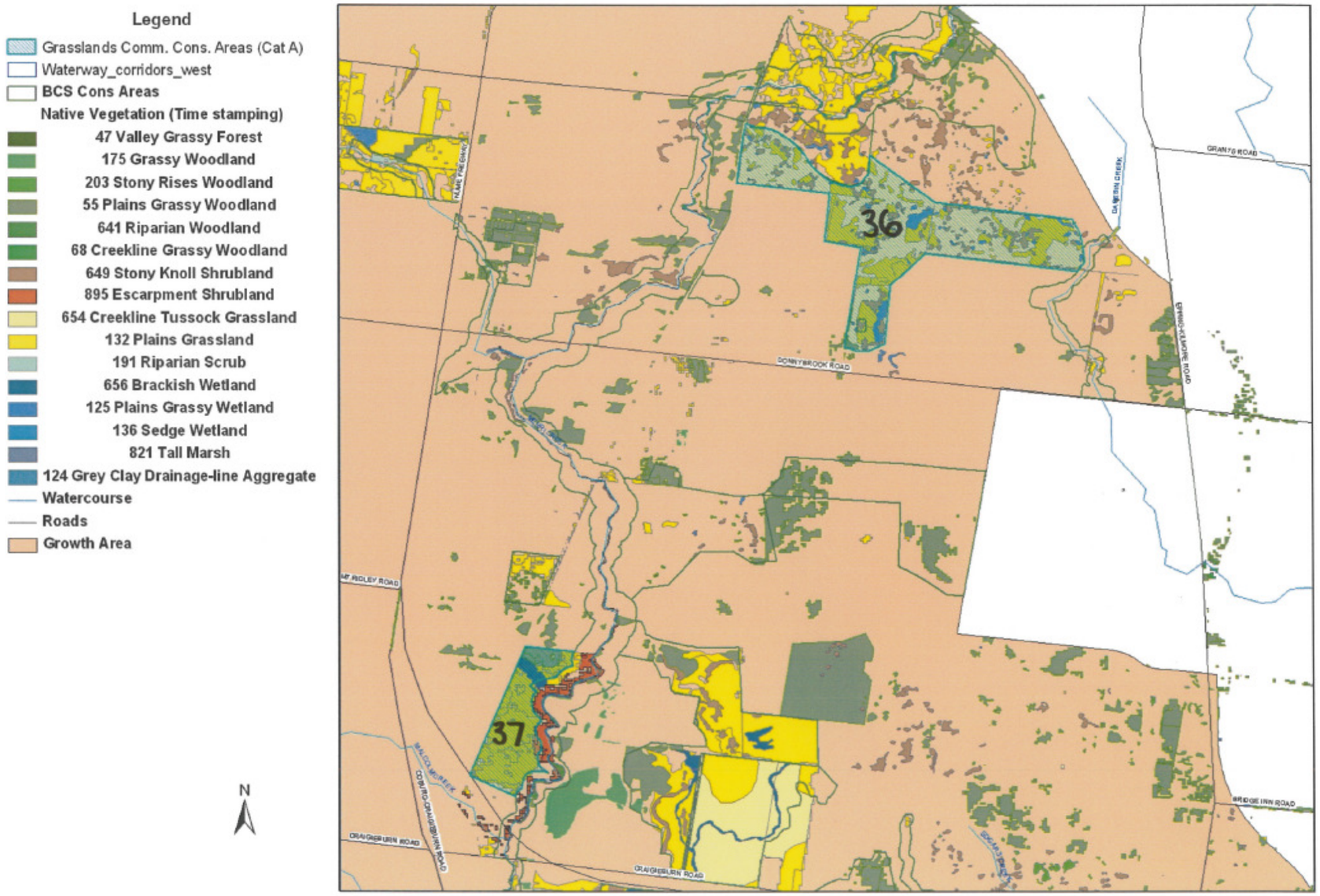


Proposed Commonwealth Conservation Area for Grasslands
Western Growth Area - central

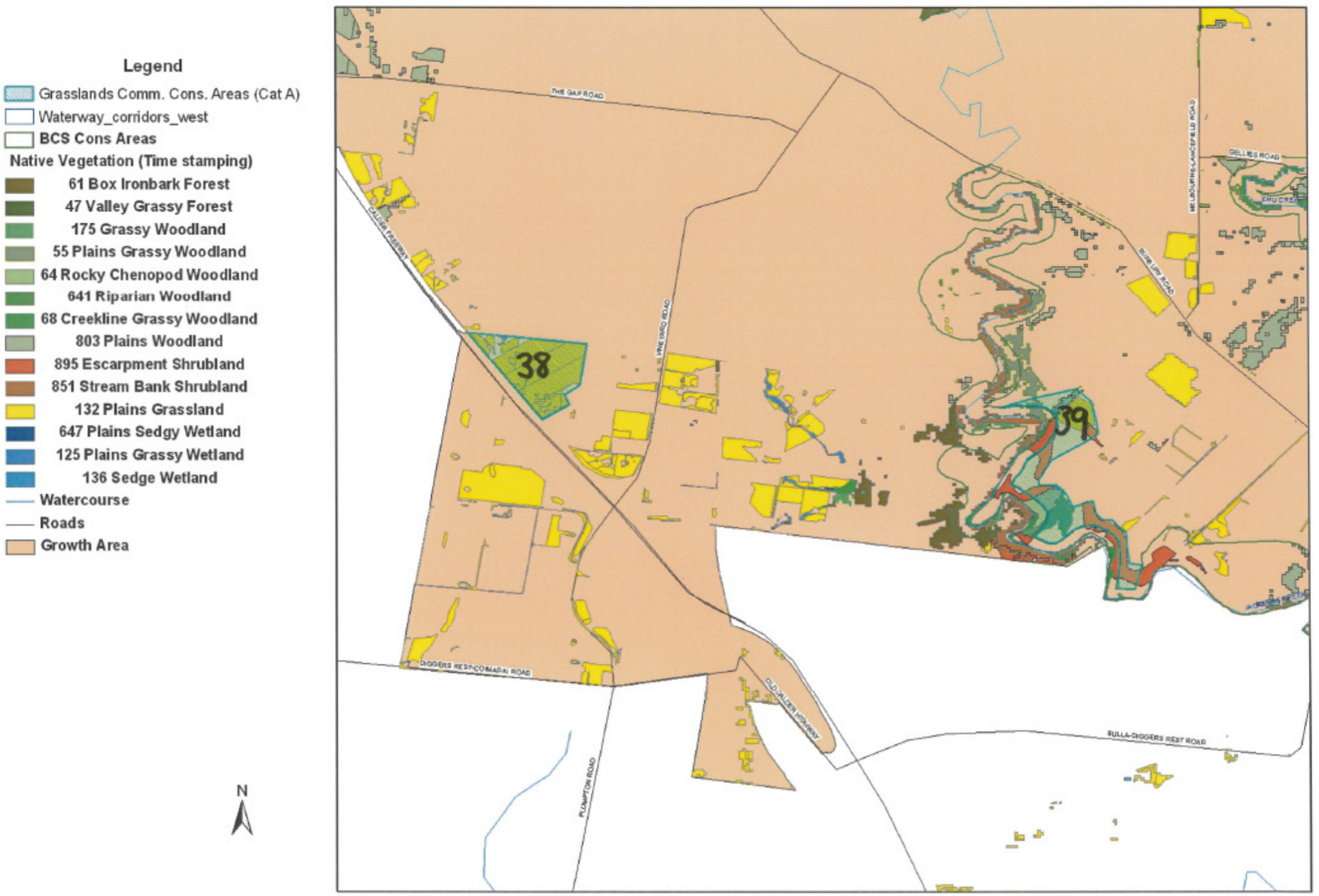
Proposed Commonwealth Conservation Area for Grasslands
Western Growth Area - south-west



Proposed Commonwealth Conservation Area for Grasslands
Northern Growth Area



Proposed Commonwealth Conservation Area for Grasslands
North-western Growth Area



Description of Areas Proposed for Grassland Conservation (as shown in preceding Maps)

Site No.	Location / Name	Priority Level	GCP Zones and Potential Conservation Areas	National & State Listed Values	Conservation Values and Proposed Reserve Description	Supporting Documentation
Western Growth Area						
1	Korbank extension	A	residential	SHW, Natural Temperate Grassland	Upstream part of high quality SHW which is only partly in conservation area, and high quality SHW along drainage line immediately to the north of conservation area. The latter is the very rare EVC Ephemeral Drainage Line Grassy Wetland, and is especially important as it is a relatively intact, diverse example of that EVC. It is surrounded and buffered by high quality grassland which should also be protected.	Rockbank Area Wetland Survey, D Cook et al, 2013, sites N5 and N11. Herbaceous Wetlands Report, DSE 2012, site 12, Timestamping vegetation quality mapping, site description in final BCS
2	Korbank extension	A	residential	Natural Temperate Grassland	though small, an "excellent example of the EVC", containing a diverse range of native herbs, and the only site observed to support a suite of rare grassland annuals across the western investigation area - at least in initial surveys.	Biodiversity Assessment Report, Section H, Biosis 2010, Key Area 2
3	Rockbank Area Wetlands - Leakes Rd Lignum Swamp - Red-gum woodland	A	?GCP landscape reserve	state significant Plains Swampy Woodland and Lignum Swamp habitat, state listed flora	relatively large and intact example of state endangered EVCs. The lignum woodland provides important habitat for a large range of birds in the region, and is an important landscape element. There is also a substantial population of state listed Arching Flax lily.	Rockbank Biodiversity Assessment Report, Biosis

Site No.	Location / Name	Priority Level	GCP Zones and Potential Conservation Areas	National & State Listed Values	Conservation Values and Proposed Reserve Description	Supporting Documentation
4	Greigs Roadside - roadside reserve	A	residential	Natural Temperate Grassland, Striped Legless lizard, Spiny Rice-flower, state listed flora	Species rich, high quality grassland along Greigs roadside, which has been recognised and protected for conservation purposes by Melton Council for over a decade. Rich in rare grassland herbs, including a number of state listed species, and multiple populations of Spiny Rice-flower. Striped Legless lizard recorded in recent surveys. The roadside grassland appears to have been roped off to protect it under current EPBC approval for road widening.	Rockbank Biodiversity Assessment Report,k Melton Council database of high quality grassland sites
5	Greigs Roadside - north block W	A	residential	Natural Temperate Grassland, Spiny Rice-flower	12 ha patch of high quality grassland with significant Spiny Rice-flower population	Biosis Research 2011, Important Sites for Biodiversity Conservation, Melbourne's Urban Growth Zones, Biosis Section E report 2010
6	Ballarat Railway reserve	A	rail easement	Natural Temperate Grassland, multiple populations of national and state listed flora, state significant biosites	high quality species rich linear grasslands along different sections of the rail reserve have been recognised as state significant biosites and managed as such. Surrounding development should ensure on-going appropriate management of the rail reserve.	
7	Ravenhall railway corridor grasslands	A	PCA K1, industrial	Natural Temperate Grassland	high quality themeda grassland, immediately north of Conservation Area B, so may support Spiny rice flower, and Large-fruit Groundsel. This area appears not to have been surveyed for Golden Sun Moth	Ecology and Heritage Partners, Survey of potential conservation areas, Mar 2012, Biosis Section G report 2010, but referring to only a fraction of area K1

Site No.	Location / Name	Priority Level	GCP Zones and Potential Conservation Areas	National & State Listed Values	Conservation Values and Proposed Reserve Description	Supporting Documentation
8	Ravenhall railway corridor grasslands	A	PCA K2, industrial	Natural Temperate Grassland	high quality themeda grassland, with a range of native grass species. Biosis observed a depauperate herb layer in late summer but likely to have undersampled, and noted site was likely to support a range of threatened species. This area appears not to have been surveyed for Golden Sun Moth	Biosis Section G report 2010, Key Area 4, Ecology and Heritage Partners, Survey of potential conservation areas, Mar 2012,
9	Mt Atkinson slopes grassland link	A	part conservation area, part transmission line easement, majority industrial **PCA L**	Natural Temperate Grassland, potential Golden Sun Moth, state listed flora, potential SHW	This strip of grassland along the southern slopes of Mt Atkinson provides the main grassland habitat link between grassland sites about the western edge of Melbourne (through Boral quarry grasslands) and the Western Grassland Reserves. This existing link should be protected now through growth corridor planning considering that the OMR ring freeway is not intended to be constructed for many years, and transport priorities may change by that time. In the event that the OMR Is constructed, it should be designed (e.g. bridge) to protect some of the link to the Western Grassland Reserves. Biosis observed that the eastern part of L contained a good diversity of indigenous grasses, and a low cover of different native herb species including state listed Small scurf pea, whilst EHP observed that area to have quite a high cover of Stipa grasses. Both consultants found weed levels to be high including high threat weeds, and observed impacts of past serrated tussock control and / or cropping and rock removal. In contrast EHP observed from a fenceline that the western part of L was higher quality themeda grassland	Ecology and Heritage Partners, Survey of potential conservation areas, Mar 2012, Biosis Section G report 2010, Rockbank Area Wetland Survey, D Cook et al, 2013

Site No.	Location / Name	Priority Level	GCP Zones and Potential Conservation Areas	National & State Listed Values	Conservation Values and Proposed Reserve Description	Supporting Documentation
					with rocks in place. Whilst Golden Sun Moth was not recorded in surveys, it was a very poor year for detecting the species and EHP note there is a moderate - high likelihood the species is present there. Potentially high quality Seasonal Herbaceous Wetland occurs along the waterway close to Hopkins Rd.	
10	Skeleton Ck headwaters	A	narrow strip future Melbourne Water floodway, majority industrial, part PCA N	Natural Temperate Grassland, likely SHW (small part), Striped Legless Lizard, likely Golden Sun Moth	A substantial area of over 150 ha of native grassland, including substantial patches of high quality Themeda grassland, occurs about the headwaters of Skeleton Ck, esp between Middle Rd and Boundary Rd, but with additional high quality patches occurring immediately sth of Boundary Rd. This is an important habitat area for Striped Legless Lizard with multiple records from the 1970s and 1980s, and an incidental record from the recent surveys (no targeted surveys done for the species). It links via Skeleton Creek tributaries to substantial known SLL habitat in Boral quarry and Ravenhall, whilst a potential southern corridor occurs along the mid-reaches of Skeleton Creek with its rocky escarpments. Rocks are mostly still in place (partial removal in some areas), and Seasonal Herbaceous Wetland / Plains Grassy Wetland occurs along the creek flood plain in sections, invaded by cane grass in parts. A diverse range of herbs occur on some of the themeda rises. Golden Sun Moth was not observed by Biosis on the blocks immediately north of Boundary Rd, but they concluded it was still likely to	Timestamping mapping, Biosis Section F report 2010, DSE Herbaceous Wetlands Survey 2012, Biosis Targeted Species survey 868 Boundary Rd, 2012, DEPI Striped Legless Lizard records (Biodiversity Interactive Map), Barlow, T (1989), Sites of Significance for Nature Conservation in the Werribee Corridor

Site No.	Location / Name	Priority Level	GCP Zones and Potential Conservation Areas	National & State Listed Values	Conservation Values and Proposed Reserve Description	Supporting Documentation
					be present given the extent of suitable habitat and the very poor survey season. The area of contiguous GSM habitat appears to be greater than 100ha, not 50 - 100ha as mapped, and hence potentially meets prescription thresholds. Biosis note that Spiny Rice-flower may also be present.	
11	Woods Rd, Golden Sun Moth grasslands	A	part conservation area, over half residential	Natural Temperate Grassland, Golden Sun Moth prescription, Spiny Rice-flower (small population), state listed flora	An archipelago of high quality, grassy stony knolls, with themeda and a diversity of native herbs, occurs in a substantial area of about 40 ha of stipa-danthonia grassland. The area is part of a contiguous patch of over 100ha of GSM habitat (including the Truganina South grasslands), which meets the prescription thresholds, and also contains a substantial population of state listed Arching Flax-lily, and a small population of Spiny Rice-flower. The conservation area now shown is too much of a compromise as over half of the high quality knolls and the Golden Sun Moth habitat has been left in development areas - the whole of the block should be reserved.	BCS sites descriptions, Biosis research, High Conservation Values site in the growth corridors, Aug 2011, Biosis Research Biodiversity Assessment Report Area 81
12	Dry Creek rocky rise grassland	A	part future Melbourne Water floodway, majority residential	Natural Temperate Grassland, state listed flora	Rocky themeda dominated grassland with a range of native herbs present, extends along a stretch of Dry Ck and along a rocky rise to the north. This area has a concentration of state listed flora, including on some adjacent grassland islands, and is good habitat for SLL and GSM. The area also has recognised landscape and historic values with stone walls.	Biodiversity Assessment Report, Skeleton Creek, Biosis Section C report, Key Area

Site No.	Location / Name	Priority Level	GCP Zones and Potential Conservation Areas	National & State Listed Values	Conservation Values and Proposed Reserve Description	Supporting Documentation
13	Ballan Rd rocky rise grasslands	A	residential	Natural Temperate Grassland, Golden Sun Moth, state listed flora,	Described by Biosis as an "excellent example of the EVC", high quality themeda grassland, with a diversity of grass species and herbs occurs on the rocky rises between Werribee River and Ballan Rd. It supports a dense connected Golden Sun Moth population, observed incidentally, which is significant given relatively large numbers compared to those observed at surveyed sites across the volcanic plains. The grassland patches meet the GSM prescription thresholds. A population of state listed Rye Beetle Grass also occurs at the site. Biosis described the whole area between Werribee River and Ballan Rd as important for conserving biodiversity values in the investigation area. Whilst the grassland patches are fragmented it is possible to design a practical reserve to include and connect most of them.	Biosis Section B report 2010, Key Area 3

Site No.	Location / Name	Priority Level	GCP Zones and Potential Conservation Areas	National & State Listed Values	Conservation Values and Proposed Reserve Description	Supporting Documentation
14	Skeleton Creek Waterway mid-reaches - Boundary Rd to Leakes Rd	A	narrow future Melbourne Water floodway, majority residential and industrial, in draft BCS indicative 100m wide corridors either side	Growling Grass Frog, Striped Legless Lizard, Natural Temperate Grassland, Seasonal Herbaceous Wetland (likely), state listed flora	Skeleton Creek is a key landscape corridor for multiple state and national biodiversity values - values made all the more important given the distance to other reserved waterways including Kororoit Creek and Werribee River. In an urbanising catchment the waterway provides potential habitat for recolonisation from existing Growling Grass Frog populations in the lower reaches of Skeleton Creek, and possible populations in headwater dams and wetlands. There are GGF records about the Skeleton - Dry Creek confluence from 1990. A 100m buffer either side, as present in the draft BCS, has been described by Biosis as sufficient to provide stepping stone wetland habitat between population nodes, and this would be enhanced by grassy wetland habitat currently adjacent to the creek. The creek escarpment contains and links rocky themeda grassland sites, and stony knoll shrublands, so the waterway provides a potential habitat corridor for Striped Legless Lizard and other reptile species. State listed plant species occurring there include Small Scurf-pea, Arching Flax Lily and Pale Spike-sedge. The Skeleton Creek corridor also has important landscape and historical values, including a distinctive escarpment, old stone walls and wells, and nearby homesteads. A 100m wide conservation zone is required either side of the waterway to protect its values and those of the adjacent escarpment.	Biodiversity Assessment Report, Area 81, Biosis Section D Report, Biosis Review of GGF Habitat Corridors, EHP GGF Habitat Assessment and Targeted Surveys, EHP Technical Background and Guidelines

Site No.	Location / Name	Priority Level	GCP Zones and Potential Conservation Areas	National & State Listed Values	Conservation Values and Proposed Reserve Description	Supporting Documentation
15	Dry Creek Waterway - Middle Rd to Skeleton Creek	A	narrow future Melbourne Water floodway, majority residential and industrial, in draft BCS indicative 100m wide corridors either side	Growling Grass Frog, Natural Temperate Grassland, Seasonal Herbaceous Wetland (likely), state listed flora	Dry Creek is a key landscape corridor for multiple state and national biodiversity values - values made all the more important given the distance to other reserved waterways including Kororoit Creek and Werribee River. In an urbanising catchment the waterway provides potential habitat for recolonisation from existing Growling Grass Frog populations in the lower reaches of Skeleton Creek, and possible populations in Dry Creek headwater dams and wetlands. There are GGF records about the Dry Ck - Skeleton Ck confluence, from 1990. A 100m buffer either side, as present in the draft BCS, has been described by Biosis as sufficient to provide stepping stone wetland habitat between population nodes, and this would be enhanced by Plains Grassy Wetland habitat (likely SHW) currently within and adjacent to the creek. The escarpment contains and links adjacent grasslands, including rocky themeda grasslands and herb rich sites. Given its habitats the waterway and escarpment provides a likely corridor for a range of fauna including grassland reptiles, amphibians and waterbirds. A range of state listed flora also occur there including: Small Scurf-pea, Arching Flax Lily, Pale Spike-sedge, Austral Cranesbill, Slender Bindweed and parts of the corridor also have important landscape and historical values, including a distinctive escarpment and old stone walls. A 100m wide conservation zone is required either	Biodiversity Assessment Report, Skeleton Ck, Biosis Section C & D Reports, Biosis Review of GGF Habitat Corridors, EHP GGF Habitat Assessment and Targeted Surveys, EHP Technical Background and Guidelines

Site No.	Location / Name	Priority Level	GCP Zones and Potential Conservation Areas	National & State Listed Values	Conservation Values and Proposed Reserve Description	Supporting Documentation
					side of the waterway to protect these values.	
16	Davis Creek Waterway - Leakes Rd to Werribee River	A	proposed GGF conservation corridor 50m - 100m wide, but this needs widening and extending	Growling Grass Frog, Natural Temperate Grassland, Seasonal Herbaceous Wetland (likely), state listed flora	Davis Creek is an important landscape corridor with multiple state and national biodiversity values. It has an existing population of Growling Grass Frogs in the main stream, western tributary and off-stream waterbodies. There is a concentration of state listed flora occurring close to the waterway, especially about its confluence with a NE tributary, including: Spiny Rice-flower, Arching Flax Lily, Small Scurf-pea, Tough Scurf-pea, Slender Tick-trefoil, Pale Spike-sedge, Plains Joyweed. Plains Grassy Wetland (likely SHW) occurs along some sections. The waterway also links high quality grassland remnants, especially about the crossing of Leakes Rd. To protect these values a 100m wide reserve is needed along either side of the waterway, extended as far as Leakes Rd to link high quality grassland remnants, and slighty along the NE tributary to include state listed flora. A 50m reserve is required either side along the western tributary to protect the GGF population and state listed flora there, which will connect to the Spiny Rice-flower Conservation Area on Sewells Roadside.	Biodiversity Assessment Report, Greek Hill,

Site No.	Location / Name	Priority Level	GCP Zones and Potential Conservation Areas	National & State Listed Values	Conservation Values and Proposed Reserve Description	Supporting Documentation
17	Werribee Waterway grasslands	B	residential	Natural Temperate Grassland, Spiny Rice-flower	This is a substantial block of relatively high quality grassland, albeit weedy, which can be added to adjacent regional park proposal which is currently lacking in grassland habitat. The western part in particular is a priority for protection as it provides good Striped Legless Lizard habitat, supports a population of Spiny Rice-flower, and has an understorey score of 20 out of 25. Grassland remnants which have retained this level of the original plant diversity are now very rare.	Biodiversity Assessment Report, Greek Hill
18	Kororoit Waterway E extension	B	likely future Melbourne Water reserve	SHW, Lava Plain Ephemeral Wetland EVC	A very rare example of Lava Plain Ephemeral Wetland EVC on a rocky tributary of Kororoit Creek. Although weedy important to conserve as part of waterway reserve, given only a handful of examples of this EVC have been recorded.	Rockbank Area Wetland Survey, D Cook et al, 2013
19	Sinclair Road W grassland	B	residential	Natural Temperate Grassland	the western half of a 23ha grassland block which has been described as an "excellent example of the EVC" with a diverse range of native herbs present	Biodiversity Assessment Report, Section H, Biosis 2010, Key Area 4
20	Sinclair Road W grassland	B	residential	Natural Temperate Grassland	themeda dominated primary grassland with relatively few weeds, and likely to contain habitat for a range of threatened species. Should be incorporated into adjacent Kororoit Ck waterway reserve to enhance connectivity.	Biodiversity Assessment Report, Section H, Biosis 2010, Key Area 3
21	Taylors Rd north grasslands - "Saric Court"	B	residential	Natural Temperate Grassland, Spiny Rice-flower	Small high quality Themeda- Stipa grassland, with a range of grassland herbs and substantial population of Spiny Rice-flower. Occurs on private block and adjacent roadside.	Biosis research, High Conservation Values site in the growth corridors, Aug 2011,

Site No.	Location / Name	Priority Level	GCP Zones and Potential Conservation Areas	National & State Listed Values	Conservation Values and Proposed Reserve Description	Supporting Documentation
22	Taylors Rd north grasslands - "Pammamaul"	B	residential	Natural Temperate Grasslands	Small high quality Themeda grassland with a range of native herbs including rare species. Adjacent to tributary, so include in widenened Melbourne Water reserve	Melton Council database of high quality grassland sites on private land.
23	Kororoit Waterway mid-section extension	B	part in likely Melbourne Water reserve, residential	Natural Temperate Grassland, Striped Legless lizard, Growling Grass Frog, state listed flora	a tributary on the NE side of Kororoit Ck near Beatty's Rd crossing, together with adjacent small high quality grassland patches, support multiple recent records of state listed flora and striped legless lizard, whilst the tributary also provides high quality growling grass frog habitat. Listed flora include: large population of Arching Flax-lily together with Tough Scurf Pea, Plains Joyweed, Slender Tick-trefoil. There is an obvious opportunity to protect these values through sympathetic planning and widening of the tributary floodway reserve, and minor widening of Kororoit Waterway reserve to incorporate the grassland patch with Striped Legless Lizard.	Rockbank Biodiversity Assessment Report, Biosis
24	Greigs Roadside - north block E	B	residential	Natural Temperate Grassland, Spiny Rice-flower, state listed flora	high quality grassland patch (7ha) surrounding house, substantial population of Spiny Rice-flower, together with state listed Arching Flax Lily and Slender Tick-trefoil	Rockbank Biodiversity Assessment Report
25	Rockbank south grasslands	B	residential	Natural Temperate Grassland, multiple populations of state listed flora	small high quality grassland patch of a few ha, immediately south of the railway reserve at Rockbank. This supports state listed Arching Flax Lily and Rye Beetle Grass.	Rockbank Biodiversity Assessment Report

Site No.	Location / Name	Priority Level	GCP Zones and Potential Conservation Areas	National & State Listed Values	Conservation Values and Proposed Reserve Description	Supporting Documentation
26	Ravenhall grassland link	B	industrial, Regional Rail Link	Natural Temperate Grassland	A high quality grassland block which provides a link between Boral Reserve and Boral quarry grassland, and the existing Ravenhall Grassland Reserve to the south. Whilst Regional Rail Link traverses this site, rail infrastructure can be traversed by many grassland species. A strip of land alongside the Women's Prison is required to complete the link to existing Ravenhall Grassland Reserve.	Timestamping mapping
27	Middle Rd grassland link - north of Middle Rd	B	industrial, freeway easement	Natural Temperate Grassland, likely SHW, potential Golden Sun Moth	Grassland remnants to the north and south of Middle Rd, are relatively high quality, and provide an important grassland link between Skeleton Ck headwaters and Dry Creek headwaters and the Western Grassland Reserves. Biosis describe the grassland remnants immediately to the north of Middle Rd as containing a good diversity of indigenous grass spp, and a "better" or scattered cover of a range of indigenous herbs. However weed levels are high, in parts at 20-30% with over 50% of these due to high threat weeds. This area also contains likely Seasonal Herbaceous Wetlands apparent from aerial photography. Whilst not surveyed for GSM, this grassland appears to be contiguous with mapped GSM habitat immediately west and south, and should be part of a habitat patch greater than the 100ha threshold.	Biosis Section F report 2010, Key Areas 4 and 5, DSE Herbaceous Wetlands report 2012, Golden Sun Moth SSS

Site No.	Location / Name	Priority Level	GCP Zones and Potential Conservation Areas	National & State Listed Values	Conservation Values and Proposed Reserve Description	Supporting Documentation
28	Middle Rd grassland link - south of Middle Rd	B	part temporary conservation area, part freeway easement, part industrial, **PCA M**	Natural Temperate Grassland, Golden Sun Moth prescription	Grassland remnants to the north and south of Middle Rd, are relatively high quality, and provide an important grassland link between Skeleton Ck headwaters and Dry Creek headwaters and the Western Grassland Reserves. Grassland remnants south of Middle Rd have been either modelled as high quality, but not surveyed on-site, or surveyed as containing a range of qualities immediately about Dry Ck headwaters. This area meets the prescription thresholds for GSM habitat, and whilst the species has not been recorded on site, the survey year was very poor for detecting the species. The report of the targeted surveys by Biosis has not been made available on DEPI's website. This habitat link should be protected as part of the growth corridor plan, and if detailed design and construction of the OMR and Middle Rd freeway is commenced in future, appropriate design measures (e.g. bridges) should be used to retain functional links - both to Dry Creek and the Western Grassland Reserves	Timestamping mapping, Golden Sun Moth SRSS
29	Dry Creek west tributary grasslands	B	residential	Natural Temperate Grassland, state listed flora	high quality grassland blocks have been surveyed alongside or close to the western tributary of Dry Creek. These should be included in the waterway reserve, especially the block to the south of the tributary which has an understorey score of 20 out of 25. Grassland remnants which have retained this level of the original plant diversity are now very rare.	Timestamping mapping, Biosis Section C and Skeleton Creek report

Site No.	Location / Name	Priority Level	GCP Zones and Potential Conservation Areas	National & State Listed Values	Conservation Values and Proposed Reserve Description	Supporting Documentation
30	Leakes Rd Plains Grassy Wetland	B	residential, part Regional Rail Link	likely SHW	A substantial 9ha remnant of Plains Grassy Wetland occurs just north of Leakes Rd, immediately east of Tarneit Rd. This was removed from DSE's report on Seasonal Herbaceous Wetlands, on the basis that TimeStamping surveys recorded it as non-native vegetation. However recent surveys by Biosis Research mapped the Plains Grassy Wetland patch and gave it a relatively high quality score of 42. It should be futher assessed and protected as far a possible though planning of the local drainage scheme - it provides the headwaters of the NE tributary of Davies Ck which is currently being excavated by Melbourne Water.	Biodiversity Assessment Report, Skeleton Ck, DSE Herbaceous Wetlands Report, pers. comm. Frances Overmars (local resident)
31	Davis Creek grassland patches	B	residential	Natural Temperate Grassland, likely state listed flora	Small high quality grassland patches occur close to Davis Creek and its crossing by Leakes Rd, and should be protected by widening the waterway reserve at this point. South of Leakes Rd small themeda dominated rocky rises have been mapped by Biosis as providing the best 50% of habitat for multiple species of state listed flora. **North of Leakes Rd on of the grassland patches has an understorey score of 20 out of 25.** Grassland remnants which have retained this level of the original plant diversity are now very rare.	Biodiversity Assessment Report, Greek Hill
32	Werribee Waterway grasslands	B	residential	Natural Temperate Grassland	Small strip of about 1ha of high quality grassland on the south side of tributary and dam, just to west of Werribee waterway corridor	Biodiversity Assessment Report, Greek Hill

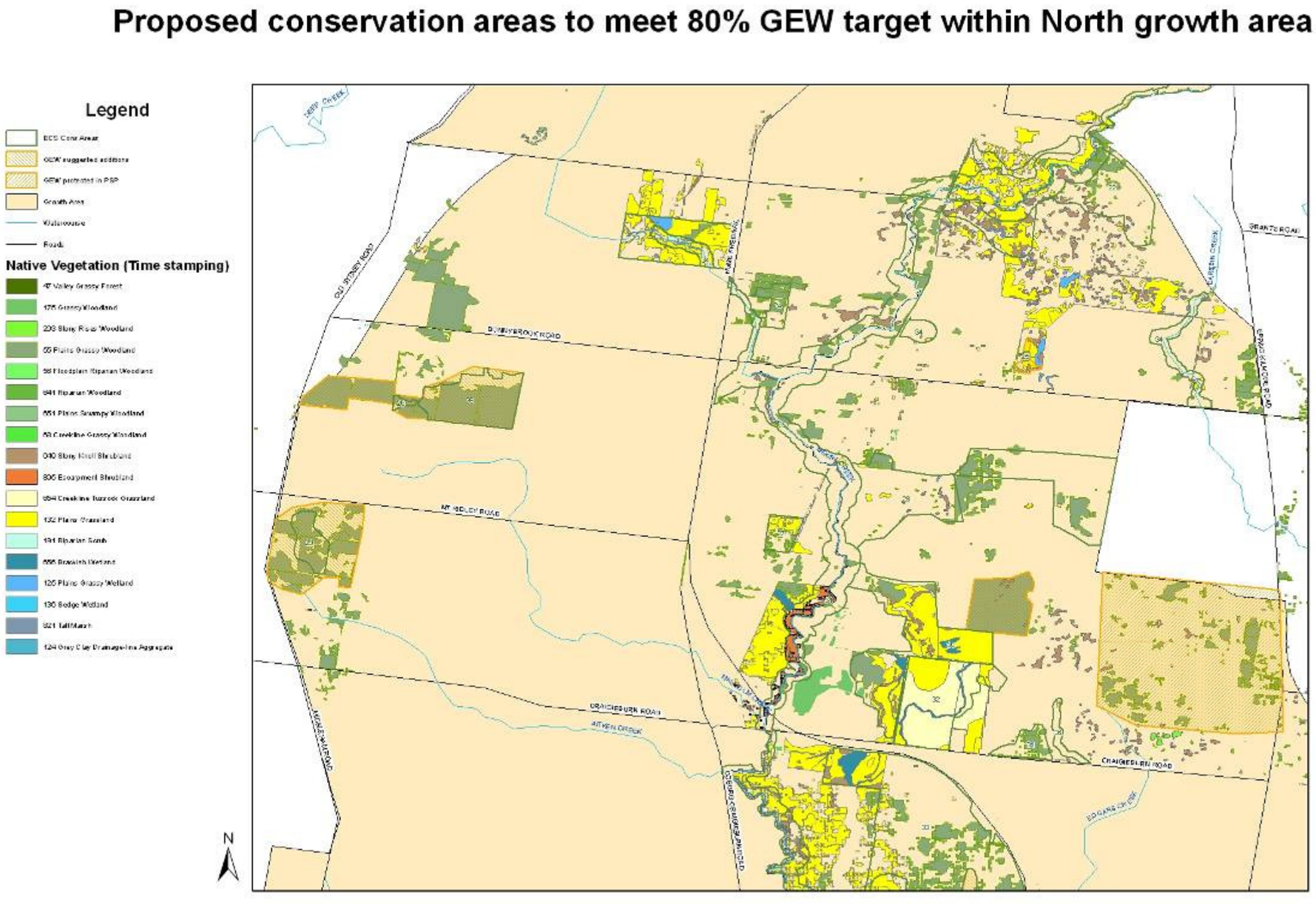
Site No.	Location / Name	Priority Level	GCP Zones and Potential Conservation Areas	National & State Listed Values	Conservation Values and Proposed Reserve Description	Supporting Documentation
33	Werribee Waterway grasslands	B	rail stabling	Natural Temperate Grassland, Spiny Rice-flower, state listed flora	This is a 10 ha block of high quality rocky grassland, connecting to nearby Werribee River by a tributary which supports Plains Grassy Wetland (likely SHW). It supports a small population of Spiny Rice-flower and several species of state listed flora. Biosis rate it as providing the best 50% of habitat for Striped Legless Lizard, Golden Sun Moth and Red-chested Button Quaill. Whilst the Regional Rail Link has impacted on the NW corner of this site, the majority remains. The majority of the grassland should be protected through sympathetic planning of the rail stabling area.	Biodiversity Assessment Report, Greek Hill, Biosis Section B report 2010, Key Area 3
34	Transmission easements grassland links	B	high voltage transmission easements	Natural Temperate Grasslands	Transmission easements in the western growth corridor often pass through and connnect grassland remnants, including some high quality sites. As such they provide an important opportunity to connect grasslands in an urban context, and can easily be managed to both maintain fuel loads and appropriate grassland structure (e.g. through pulsed grazing and slashing). Adjacent high quality grassland remnants should be retained. For example high quality themeda grassland occurs on private property adjacent to the transmission easement south of Doherty's Rd and W of Davis Rd, where we understand the owners wish to retain their grasslands.	pers. comm. Frances Overmars, local resident

Site No.	Location / Name	Priority Level	GCP Zones and Potential Conservation Areas	National & State Listed Values	Conservation Values and Proposed Reserve Description	Supporting Documentation
35	Boral quarry grasslands	other	mostly quarry zone, Conservation Area I	Natural Temperate Grassland	The largest contiguous block of primary native grassland adjacent to Melbourne, over 500ha, including substantial areas of themeda-stipa grassland, with basalt rocks in place. As such it provides a large viable habitat area for a range of grassland fauna including Kangaroos, reptiles, Fat-tailed Dunnart and a range of grassland birds and reptiles, and may be one of the largest blocks of Themeda grassland habitat on the Volcanic Plains. A substantial population of Striped Legless Lizard is known there, and Plains Wanderer was recently sited (Biosis Research, Biodiversity Assessment Report, Area 81). There are grassland habitat links to the north along the railway line, south along Skeleton ck and west to the Western Grassland reserves. Some parts are heavily weed invaded, especially around western periphery, and some degradation has occurred due to serrated tussock spraying and over grazing. Unfortunately 420 ha of this grassland has been approved for quarry expansion, and only 94 ha has been included in the Boral Reserve (Conservation Area I) adjacent to Ballarat rail line. It is a priority for State and Commonwealth Governments to negotiate with Boral to retain substantial connected parts of this grassland.	Biosis Section G report 2010, would have recommended as Key Area except for quarry licence. Ecology Australia, 2011, Important sites in the growth areas, Timestamping mapping

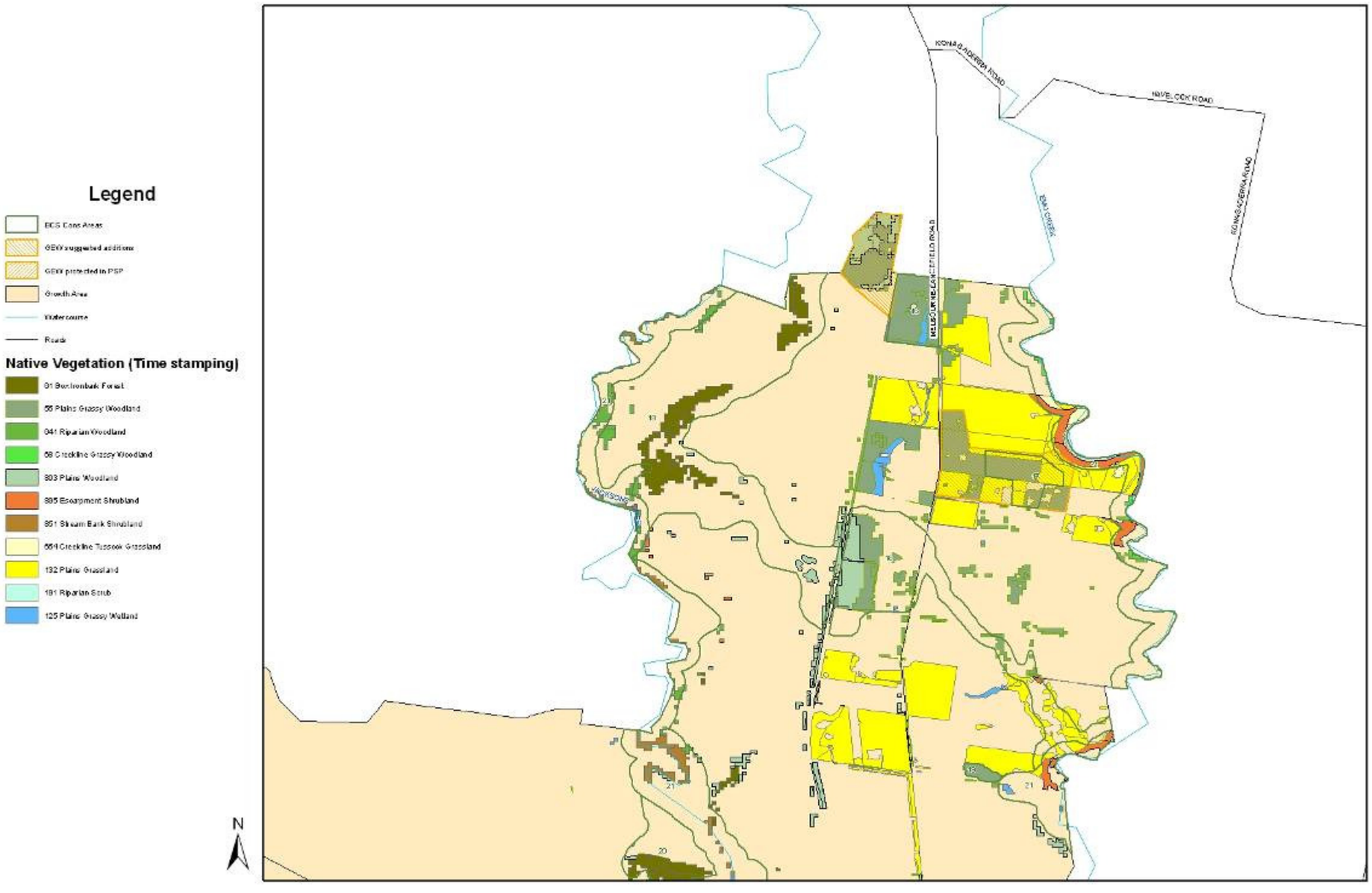
Site No.	Location / Name	Priority Level	GCP Zones and Potential Conservation Areas	National & State Listed Values	Conservation Values and Proposed Reserve Description	Supporting Documentation
Northern Growth Area						
36	Donnybrook Grasslands	A	Residential	Natural Temperate Grassland, SHW, GEW, MNES likely.	This site forms part of a Biosite of National Significance. The Biosite listing describes the area as: containing the most diverse assemblage of volcanic plains landforms in north-east Melbourne. It supports one of the most diverse and representative volcanic plains fauna and faunal habitat assemblages known (Beardsell, 1997). This site was surveyed as part of the second round of timestamping and found to contain high conservation values including grassland, grassy eucalypt woodland and seasonal herbaceous wetland.	Timestamping (Biosis 2011)
37	Amaroo Road Grasslands	A	Urban – land use to be determined	Natural Temperate Grassland, SHW, GEW, GSM	This site is part of a Biosite of State Significance. It has been mapped by Timestamping to comprise areas of high quality grassland. It has been observed by staff of the MCMC and VNPA to contain high quality grassland. Golden Sun Moth have also been observed flying at this site. It is likely that this site would meet the prescription for GSM.	Timestamping, personal observation - MCMC staff, VNPA staff
North-western Growth Area						
38	Calder north Grasslands	A	Urban? Shown as Landscape Values in GCP	Natural Temperate Grassland	This site has been mapped as one of the largest areas of grassland in the north-west. Although targetted species surveys have not yet been undertaken in the north-west, it is likely that this site provides habitat for MNES also.	Timestamping

Site No.	Location / Name	Priority Level	GCP Zones and Potential Conservation Areas	National & State Listed Values	Conservation Values and Proposed Reserve Description	Supporting Documentation
39	Jacksons Creek additions	A	Urban? Shown as Landscape Values in GCP	Natural Temperate Grassland, SHW, GEW and MNES likely	This is a natural extension of the Jacksons Creek Corridor. It contains high value vegetation and is likely to provide habitat for MNES. It is also located across from the Holden Flora and Fauna Reserve and would provide a natural extension to that site.	Timestamping

Appendix 3
Areas of Grassy Eucalypt Woodland that could be added to conservation areas to meet 80% target



Proposed conservation areas to meet 80% GEW target within North-west growth area



Appendix 4
Areas of Seasonal Herbaceous Wetlands not identified within DSE study

Merri Bend Swamp – "Camoola"

This area has been mapped as an important wetland area by the Merri Creek Management Committee (see below).

Following on-ground observation during Summer 2012-13 by VNPA and MCMC staff, this area was observed to support some dense patches of Tall Tussock *Poa labillardieri* swards (see photos below) that may be indicative of the Critically Endangered community Seasonal Herbaceous Wetlands. These areas were most substantial in the southern portion of this site.

The majority of the area of this site is indicated as being 'Industrial" or 'Waterway Corridor', neither of which will ensure that this important area is protected for conservation. This area should be investigated for its ecological values (including its status

as meeting the Seasonal Herbaceous Wetlands community thresholds). Regardless, this area has separate ecological value and should be added to the Conservation Reserve system to provide an adequate* buffer *for the Merri Creek from the substantial industrial area to the west.

Photo 1

Merri Bend Swamp (southern portion). Looking north north-west.

Photo 2

Merri Bend Swamp (southern portion). Looking west.

Camoola South-west Swamp

This wetland comprises an estimated area of 9ha. It was identified remotely by the MCMC and mapped as one of the historic wetlands of the Merri catchment (Map 16, Merri Creek & Environs Strategy 2009-2014 and Map 3 in MCMC's Upper Merri Biodiversity Network Plan (2009).

'Camoola Swamp' in Old Wetlands layer at MCMC.
Sourced from Google Earth and Biosites

In summer 2012-13 this site was observed by VNPA and MCMC staff on the ground from the railway line and dense swards of Large Tussock *Poa labillardieri* were clearly visible (see Photos 1 and 2 below). It is likely that this location would also provide important habitat for the Growling Grass Frog.

This area is currently slated for development and is shown in the Growth Corridor Plans as 'Industrial'. This area of approximately 9 hectares should firstly be investigated for its ecological values (including its status as meeting the Seasonal Herbaceous Wetlands community thresholds). Should it be found to be valid, it should be protected for conservation.

Photo 1

Camoola SW Swamp Looking east south-east from railway line.

Photo 2

Camoola SW Swamp Looking east south-east from railway line, further

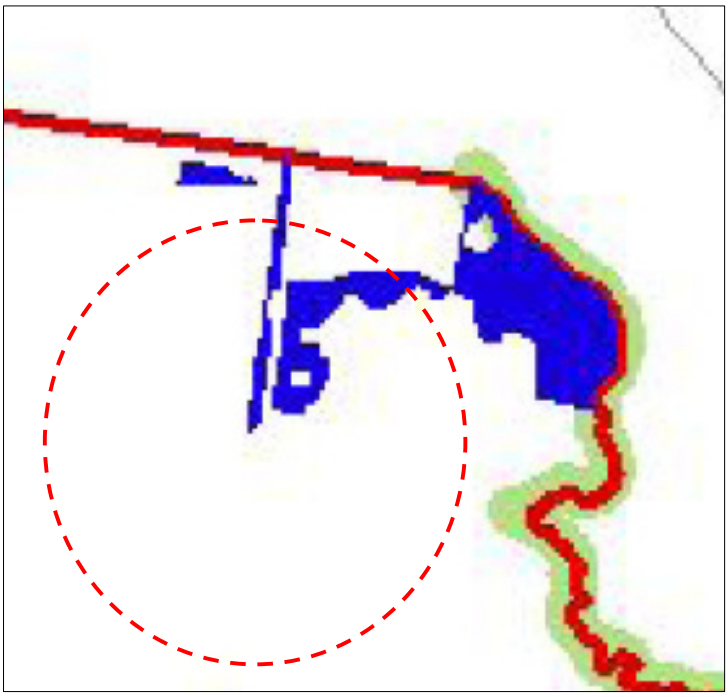
Appendix 5
Area of Seasonal Herbaceous Wetlands not identified by Timestamping

Camoola Swamp – Herne's Swamp South

Camoola Swamp or Herne's Swamp South is recognized as part of a Biosite of National significance (see below).

The Biosite listing states: *This site includes grassland along the railway line from Beveridge railway station to Hernes Swamp and areas of stony rises and swampland to the east of Camoola. Site covers approximately 200ha of volcanic plains. The site contains the last relatively extensive and intact area of native grassland remaining along the north-eastern (Melbourne to Sydney) railway, north-east of Melbourne (Beardsell, 1997). Elevation: 290-310m.*

It is likely that Camoola Swamp forms the southern portion of the larger Hernes Swamp that extends north to Wallan.



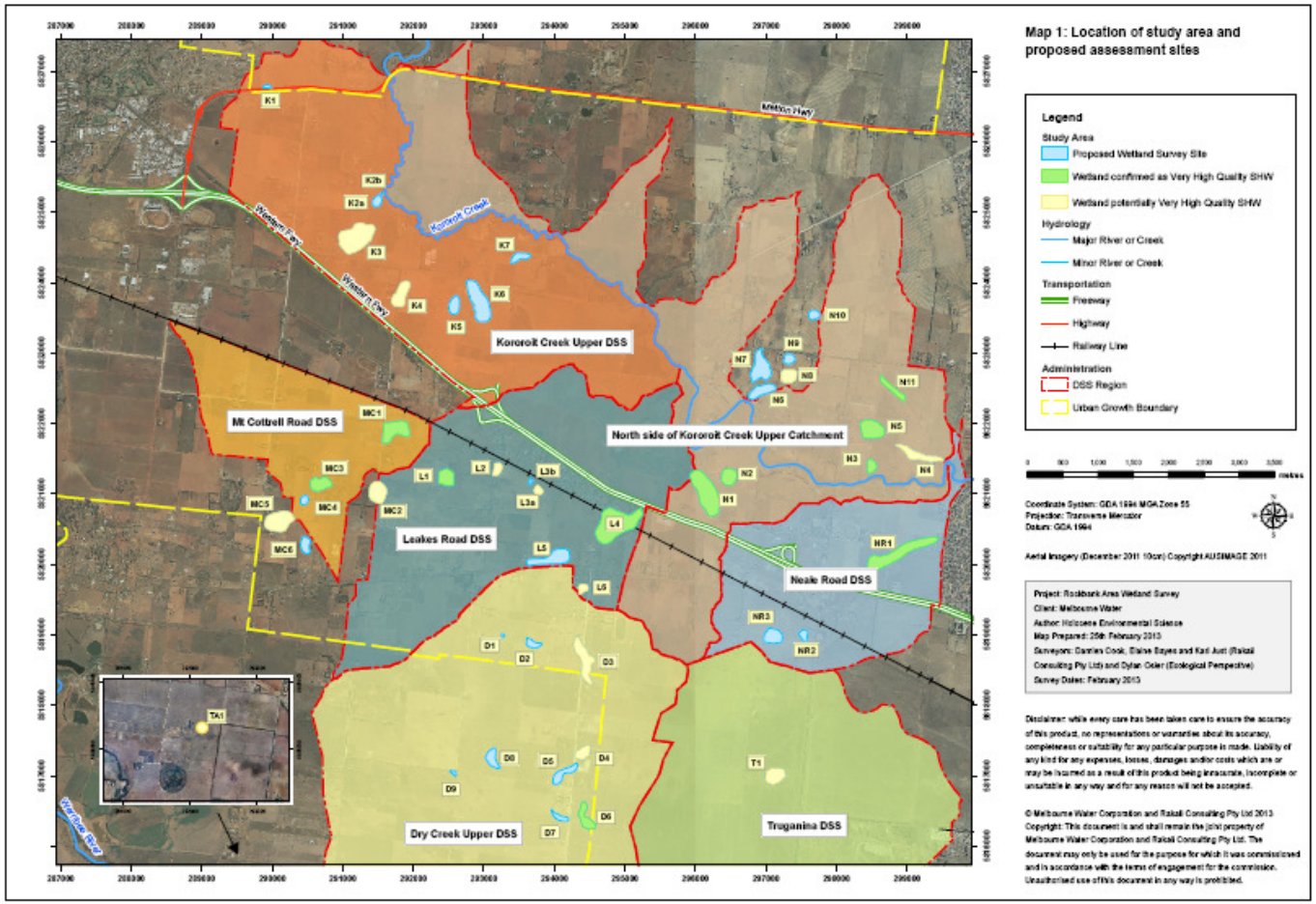
The area identified as Camoola Swamp for the purposes of this description aligns with the south-western portion area identified as Hernes Swamp East by the DSE within their investigation into *The impact of Melbourne's growth on 'Seasonal herbaceous wetlands (freshwater) of the temperate lowland plains'*, October 2012 (see map left).

Observation from the railway line by the DSE and later by staff of the Merri Creek Management Committee and VNPA of this wetland confirmed that it would meet the threshold criteria for Seasonal Herbaceous Wetland.

This site is currently identified as being within a 'Waterway Corridor' and/or slated for development within an 'Industrial' area.

This site (including the section of the Melbourne – Sydney Rail reserve and the whole area identified by the DSE in 2012) requires protection from development and ongoing management for conservation purposes.

Appendix 6
Areas of Seasonal Herbaceous Wetlands identified during a study commissioned by Melbourne Water



Appendix 7 - Species to be surveyed for as part of Precinct Planning

- Golden Sun Moth
- Grassland Earless Dragon (in proposed precincts)
- Adamsons Blown Grass
- Button Wrinklewort
- Clover Glycine
- Large-fruit Groundsel
- Matted Flax-lily
- Small Golden Moths
- Spiny Rice-flower
- Swamp Fireweed
- Australian Painted Snipe
- Dwarf Galaxias in the south-east (specific, targeted survey required)
- River Swamp Wallaby-grass
- Swamp Everlasting
- Cream Spider-orchid
- Green-striped Greenhood
- Metallic Sun-orchid
- Austral Toadflax
- Basalt Peppercress
- Swamp Fireweed

Appendix 8 – Excerpts from previous VNPA submissions pertaining to grassland conservation issues via the Melbourne Strategic Impact Assessment

VNPA Submission, Planning for Nature Conservation in Melborune Newest Sustainable Communities, July 2009

"Many of the prescriptions proposed for grassland in the proposed growth areas are designed to facilitate clearing rather than avoiding or retaining even the highest value areas"

"The proposed new reserves may make up a significant proportion of remaining ecosystems, if they can be effectively delivered, but it is not clear that this does equate to a 'net gain' or even 'no net loss' of vegetation, unless significant management gains can obtained in new reserves."

Victorian National Parks Association- Submission to Growth Areas Authority, Growth Corridors Plan, Draft Conservation Strategy and Sub Regional Species Strategies, December 2011

"Decisions about the protection of grassland sites need to be based on grassland community values (including quality, species richness, ecological function – values identified in VNPA's previous submission), as well as the presence of Golden Sun Moth and other EPBC listed species. There is no need, as DSE is doing, to apply the existing arbitrary GSM prescription, as neither this nor any of the other existing grassland prescriptions have been approved for the expanded growth areas. Sites which are important for Golden Sun Moth are best identified from known high density and well connected populations, otherwise in the absence of effective surveys, high quality, species rich and connected grassland sites which also provide GSM habitat should be a priority for this species. The arbitrary prescription thresholds are not well grounded in the species' ecology. Grassland sites which are ecologically significant on their own merits should be protected, regardless of the presence of listed species.

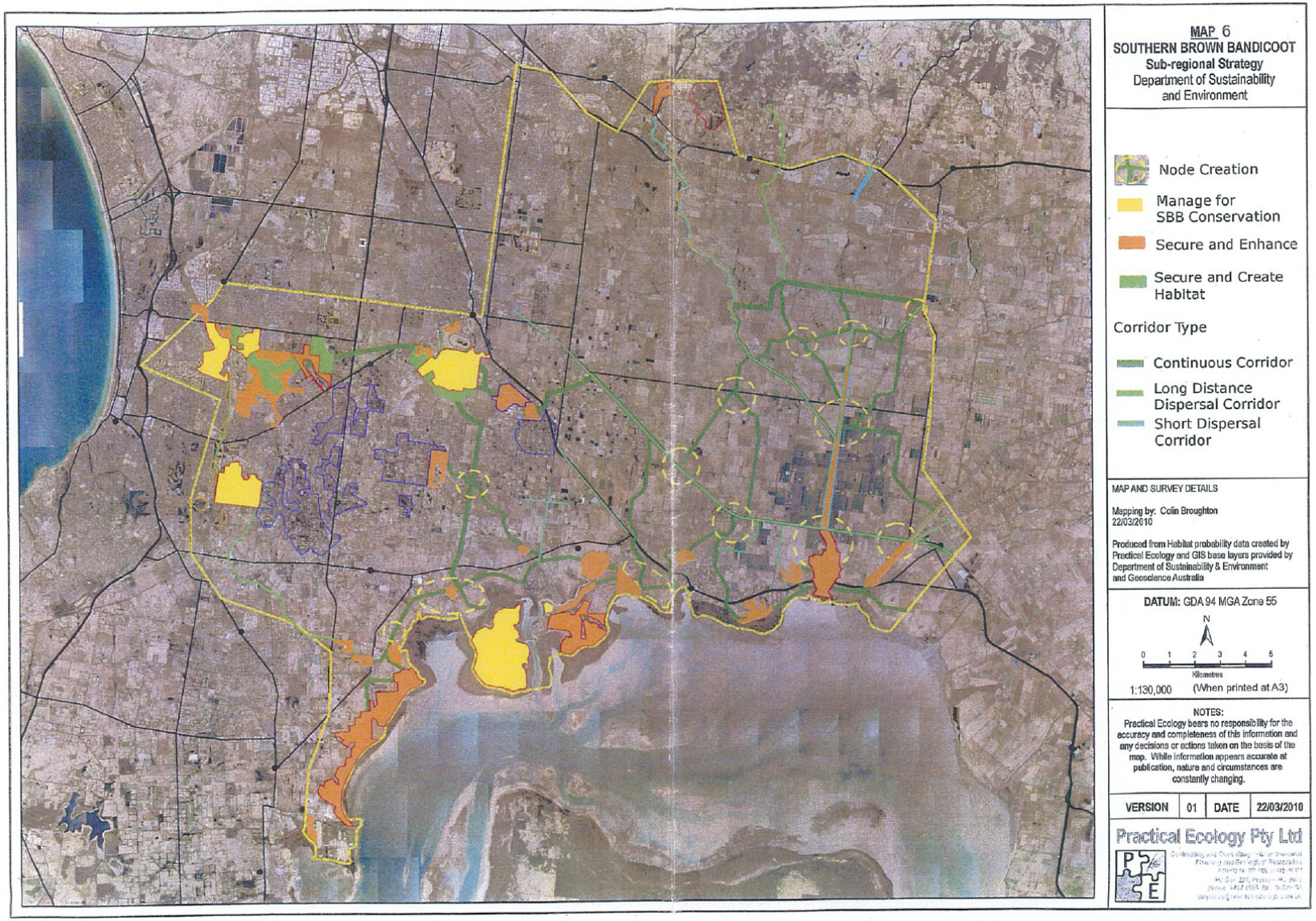
Only 20% of the proposed grassland reserves are of high conservation value and significant resources and a dedicated team and management plan should be put in place to restore the area over time.

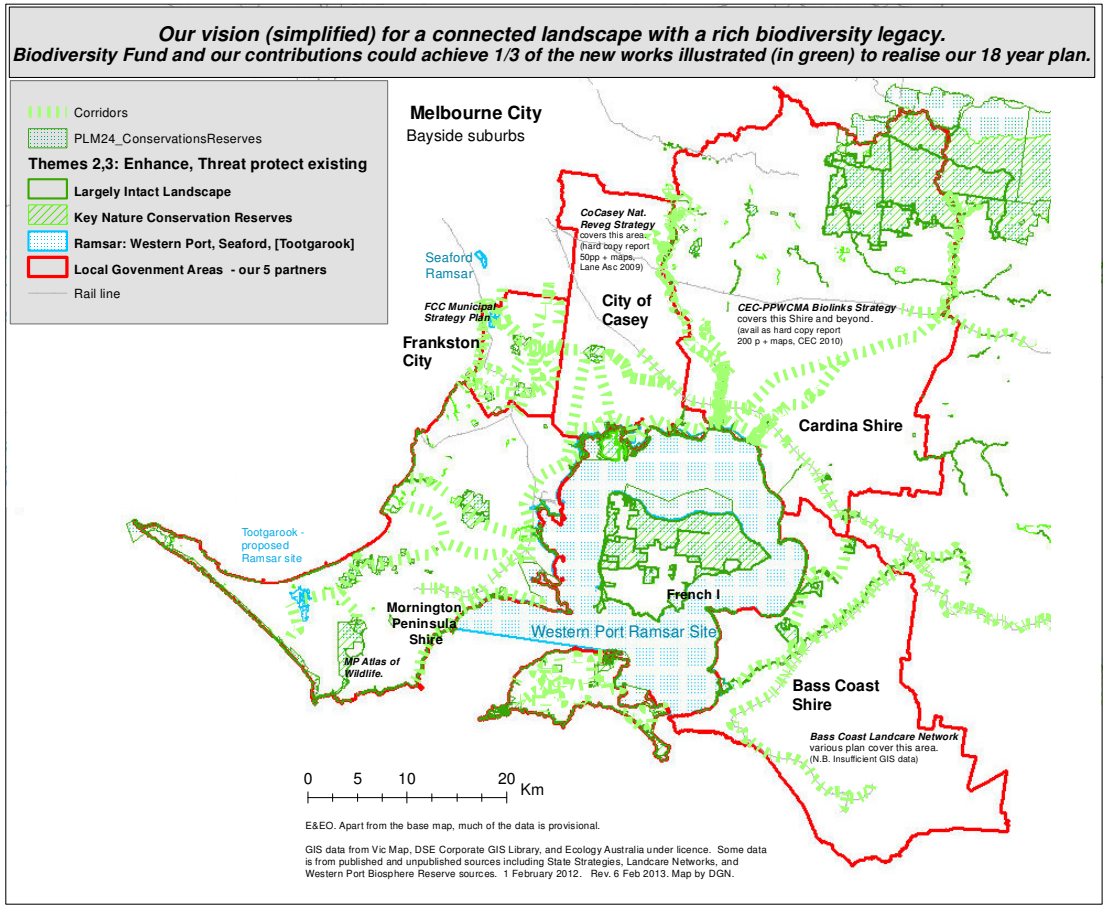
There is a need to identify and protect high conservation value and botanically rich remnants (including areas designated for further investigation) within the urban growth boundary as part of an urban conservation network, before the final plans."

VNPA Briefing Paper NATURE ON MELBOURNE'S DOORSTEP UNDER THREAT – OVERVIEW July 2012

"Large grassland reserves have been promised for the west of Melbourne, and are proposed to be purchased through payments from developers for clearing. This is akin to an ecological version of a 'ponzi' scheme, with money that developers pay in order to be allowed to clear land being held by the State government for the future purchase of reserves which many feel do not have the same conservation values as what was lost."

Appendix 9 - Maps illustrating habitat corridors and nodes required for the Southern Brown Bandicoot





Connecting and Improving Habitat Corridors Regionally to Create a Biodiverse and Resilient Western Port Biosphere Reserve

Consotium: Western Port Biosphere Reserve, Port Phillip & Westernport CMA, Bass Coast Shire, City of Casey, Cardinia Shire, Frankston City, Mornington Peninsula Shire, Department of Sustainability & Environment, Parks Victoria, Royal Botanic Gardens, Melbourne Water, Cardinia Environment Coalition, Bass Coast Landcare Network, land owners and managers, Trust for Nature, Vic NRCL, SECCCA, CRCSI, CIT Tafe and others.

File: WPupdate3

SOUTHERN BROWN BANDICOOT RECOVERY GROUP

This map combines seven plans, policies, strategies that directly relate to the southern brown bandicoot and other MNES. Plans included are Strategic Management Plan for Southern Brown Bandicoot for the Greater Koo Wee Rup Region, SB Bandicoot Subregional Species Strategy 2011, CEC Biolinks, PPW CMA Regional Catchment Strategy 2013, LMA The Pines FFR SBB Management Plan, Frankston City Council Municipal Strategy, Mornington Peninsula Shire Wildlife Atlas, Landcare Group plans, and others. It was prepared by the Western Port SBB Regional Recovery Group and the Western Port Biosphere Reserve. It is a minimal configuration that could lead to a sustained meta-population of SB Bandicoot.