

Draft SUB-REGIONAL SPECIES STRATEGY
for the GROWLING GRASS FROG

SUBMISSION TO GROWTH AREAS AUTHORITY

SUBMISSION BY THE MERRI CREEK MANAGEMENT
COMMITTEE



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1. INTRODUCTION

This submission on the Sub-regional Species Strategy for the Growling Grass Frog (GGF) is made by the Merri Creek Management Committee (the Committee). This is a supplementary submission to the Committee's more extensive submission on the Northern Growth Corridor Plan and Biodiversity Conservation Strategy (Dec 2011).

The Committee has reviewed the draft Sub-regional Species Strategy for the Growling Grass Frog (GGF Strategy) and underlying technical reports. In particular the Committee has considered the GGF Strategy as it applies to the Northern Growth Corridor, much which lies within the Merri catchment in the municipalities of Hume, Mitchell and Whittlesea.

The Committee's assessment of these documents takes as its reference point the commitment by the Victorian and Commonwealth Governments to the following outcomes for the Growling Grass Frog in the endorsed Program¹:

- *Functioning sustainable populations of ...Growling Grass Frogs within and adjacent to the new Urban Growth Boundary with connectivity between populations;*
- *Protection and enhancement of important populations of Growling Grass Frogs, including the Merri Creek population*

To this end, the Committee has assessed:

- the extent to which the GGF Strategy achieves the GGF Program commitment;
- the extent to which the draft Biodiversity Conservation Strategy (BCS) reflects the GGF Strategy; and
- the extent to which the draft Northern Growth Corridor Plan (GCP) reflects the requirements of the GGF Strategy.

The release of the draft Precinct Structure Plan for Lockerbie (PSPs) has provided an early opportunity to consider the translation of the GGF Strategy's objectives to the Merri Creek corridor at the precinct scale, the detail of which is contained in the Lockerbie Precinct GGF Conservation Management Plan (CMP)². The Committee has thus also reviewed this document.

The submission contains four main elements:

1. an overview of the Committee's role and functions;
2. a general discussion of the GGF Strategy;
3. a discussion of the GGF Strategy as applied to the Merri catchment;
4. a discussion of the extent to which the BCS and Northern GCP reflect the GGF Strategy;
5. a discussion of the Lockerbie Precinct GGF CMP

¹ DPCD (2009) *Delivering Melbourne's Newest Sustainable Communities* Program Report, p.58.

² *Working Draft* prepared by Ecology Australia for Stockland Pty Ltd, November 20022

2 MERRI CREEK MANAGEMENT COMMITTEE INC

2.1 Background

The Merri Creek Management Committee (MCMC/the Committee) is an environmental coordination and management agency formed in 1989 to achieve the shared vision for the Creek held by the stakeholders in the Merri Creek catchment.

The Committee is an incorporated association whose members include all of the municipalities in the catchment, namely: the Darebin, Hume, Moreland, Whittlesea and Yarra City Councils plus Mitchell Shire Council; the Friends of Merri Creek and the Wallan Environment Group. Representatives of these member groups form a Committee of Management which guides the Committee's activities.

The primary purpose of the Committee is:

"...to ensure the preservation of natural and cultural heritage, and the ecologically sensitive restoration, development and maintenance of the Merri Creek and tributaries, their corridors and associated ecological communities"

The key activities of the Committee include:

- Coordinating the policies, works and activities of member groups.
- Carrying out revegetation and remnant vegetation restoration works at more than 80 sites along the Creek and its tributaries between Wallan and the Yarra.
- Providing environmental planning advice to member Councils and developers.
- Involving the community in managing the Creek and its parklands.
- Educating the community about environmental issues.
- Seeking funds and grants to support Merri Creek programs.
- Negotiating with government on key issues.

The Committee has an annual budget of approximately \$1.3 million and employs 14 full time and 6 part time staff.

2.2 Familiarity with Growling Grass Frog

The Committee is familiar with the Merri Creek catchment, the Merri Creek and its tributaries, many of the surveys and much of the research conducted on GGFs in the Merri Creek, and with the significance of the Merri Creek GGF populations. The Committee's understanding includes specific knowledge of certain GGF habitat areas, and familiarity with impact assessment and strategic planning for GGF values associated with developments on Merri Creek including EPBC referrals³.

The Committee also has a comprehensive understanding of the impacts of urban development on water quality and hydrology, both theoretical and through its water quality monitoring of Merri Creek, and of the Victorian regulatory requirements for managing urban stormwater.

³ For example: the Craigieburn Bypass project, the Wholesale Fruit and Vegetable Market site in Epping, the operation of the Craigieburn Sewage Treatment Plant, the Donnybrook Interchange, and the Yarra Valley Water watermain crossing of Kalkallo Creek.

3 GGF STRATEGY

3.1 General Comments

It is critically important that the Program commitment to protect and enhance and ensure connectivity of the important Merri Creek Growling Grass Frog population is rigorously addressed in the GGF Strategy and equally, that it is rigorously reflected in the BCS, the GCP, and PSPs/CMPs.

The Committee welcomes the landscape-scale approach embraced by the GGF Strategy as a major step towards ensuring the Program commitments are met. It also commends much of the information in the Technical Background report⁴ and the three-stage approach of protection, enhancement and creation of habitats described in these two documents.

The Committee appreciates the basis on which a distinction has been made between Category 1 and Category 2 habitat and agrees that the Category 1 areas “..must be protected and enhanced to ensure the long-term viability of important populations of Growling Grass Frog within the growth areas.”⁵

3.2 Destruction of Category 2 Habitat

The Committee’s views the proposed destruction of widespread Category 2 habitat⁶ as acceptable only if the highest level of surety possible is achieved for the conservation performance/outcomes of the protected Category 1 habitat. It is thus essential that the GGF habitat areas/corridors are of an effective width and spatial configuration to ensure conservation of the population to a very high degree of probability. The Committee’s particular interest is the Merri Creek population, a matter discussed further in section 4.0 (p.10).

3.3 Further Review/Refinement of Category 1 Habitat

Both the GGF Strategy and the Biodiversity Conservation Strategy (BCS) describe the area of Category 1 habitat as being subject to further refinement and review.

The BCS describes the following further actions:

- *Finalise boundaries of Growling Grass Frog habitat corridors prior to finalisation of this Strategy (investigation process set out in Sub-regional Species Strategy for Growling Grass Frog)*
- *DSE to determine appropriate habitat corridor **reductions** in what locations, in consultation with DPCD and GAA. [emphasis added]*
- *If habitat corridor widths are required to be reduced, DSE to advise DPCD and GAA on the boundaries of the **reductions in accordance with the decision criteria**.⁷ [emphasis added]*

The decision criteria for these reductions include ecological/biodiversity parameters and non-biodiversity planning objectives such as state planning objectives for town centres.

⁴ Ecology & Heritage Partners (2011) Final Report: 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 DSE, November 2011.

⁵ GGF Strategy, p.17.

⁶ The GGF Strategy states that “..urbanisation of the growth areas will remove large areas of land that would have represented potential opportunities for dispersal and colonisation, particularly during favourable conditions.” (p.21)

⁷ BCS Western Growth Area p.77, Northern Growth Area p.100

It is of great concern to the Committee that the extent of Category 1 habitat is still to be determined and that the review process makes no commitment for an independent scientific review or for the use of best knowledge ecological modelling to determine the effect of reductions in habitat width on the probability of persistence of GGF⁸. This is of especial concern for the proposed narrowing of GGF habitat along Merri Creek in the Lockerbie/North Donnybrook area (see section 4.3, p.11).

Further, no provision has yet been made for public comment on the results of the investigations and review that are currently being undertaken by DSE consultants. It is essential that second drafts of the GGF Strategy and BCS be available for public comment before the final documents are approved by the Commonwealth.

Recommendation 1. In view of current DSE investigations to reduce the width of GGF habitat corridors, undertake a rigorous scientific assessment using probability of persistence modeling to determine impacts on GGF populations.

Recommendation 2. Provide an opportunity for public comment and independent scientific review of the final draft of the Growling Grass Frog Strategy and the Biodiversity Conservation Strategy prior to submission of the Strategies to the Commonwealth Minister for Environment.

3.4 Created Habitat in Category 1 Habitat Areas

The GGF Strategy describes the Category 1 areas as having extensive areas of habitat including a network of constructed wetlands. It is unclear whether these areas of constructed habitat are required in order to:

- protect the function of the Category 1 Areas, or
- whether they represent compensatory habitat required as the result of clearing Category 2 habitat.

In the Committee's view, both are required and the latter should not be regarded as a substitute for the former.

Protection and enhancement of Category 1 Habitat Areas Because the Category 1 habitat areas will exist within urbanised catchments, the risk of catastrophic events (e.g. pollution spills) adversely affecting in-stream GGF habitat must be mitigated. The best way to do so is to ensure that the habitat corridors contain secure well-connected off-stream habitat, with semi-permanent to permanent hydroperiod.

Compensatory Habitat from Category 2 Areas Whilst the 'offsets' generated through approved destruction of Category 2 GGF Habitat are a means by which complementary off-stream habitat can be funded, these should properly be regarded as offset or compensatory habitat, not as the primary mechanism for protection of the in-stream habitat in Category 1 areas.

Beyond listing 'threatening processes'⁹ and addressing some of these through management and design considerations, there is little to indicate that the GGF Strategy has been informed

⁸ For example, using the approach described in Heard G., Scroggie, M. & Clemann N. (2010) Guidelines for managing the endangered Growling Grass Frog in urbanising landscapes. ARI Technical Report Series No.208, DSE.

⁹ Ecology & Heritage Partners Technical Report pp.39-43

by a systematic risk assessment approach to the protection of Category 1 habitat. This is a major failing and highlights the need for planned 'redundancies' in the habitat areas.

Recommendation 3. Off-stream GGF Habitat needed to protect Category 1 habitat

In order to mitigate the risk of catastrophic events impacting on-stream GGF habitat in urban areas, off-stream habitat must be protected, enhanced and/or created. This off-stream habitat should be additional to any compensatory habitat created in Category 1 areas as a result of approved destruction of Category 2 habitat.

3.5 Need for Improved Stormwater Water Quality and Hydrology Objectives

In a number of its previous submissions on growth area planning the Committee has emphasised the inadequacy of the current stormwater treatment requirements of Clause 56 in protecting stream health and Growling Grass Frog habitat.

The Committee's key concern is that urbanisation leads to deterioration in water quality and to major changes in hydrology (pattern of stream flow), both of which can lead to degradation in stream health and which have specific implications for the condition of GGF habitat.

Water Quality Even full compliance with Clause 56 does not ensure that water quality in newly urbanised areas is as high as the pre-development rural condition. Both the *Better Bays and Waterways* water quality plan¹⁰ and Melbourne Water's *Waterways Water Quality Strategy*¹¹ identify the need to review the performance objectives of the Best Practice Stormwater Guidelines to better protect waterways. Furthermore, Clause 56 only applies to residential subdivisions. An equivalent clause is needed for industrial, business and mixed use zones.

In particular, increased nutrient levels have the ability to stimulate undesirable levels of aquatic plant growth and potentially, in low flow summer periods, to lead to depletion of oxygen levels.

Hydrology The only regulatory requirement for hydrological performance of new urban areas is that they not increase the downstream flood risk above the previous rural condition for a 1:100 flood event. However aside from major events, the increased amount and frequency of runoff from smaller rain events in urban areas can be just as degrading to GGF habitat as the decrease in water quality. There are no regulatory requirements for these smaller events. Melbourne Water's *Waterways Water Quality Strategy* identifies the need to update the best practice objectives with flow frequency and erosion potential objectives.¹²

The impacts of deterioration in water quality and changed hydrology (increased flashiness of flow) on GGFs is not known, other than by association – GGFs have disappeared from urban areas for multiple reasons - but the adverse effects of low level water quality and hydrology changes on macro-invertebrates are well known. It is reasonable to assume that in-stream GGF habitat would also be adversely affected, either through direct disturbance to eggs, tadpoles and adults, or through in-direct impacts via deterioration in conditions for in-stream vegetation and increased scour and erosion.

Rigorous application of water sensitive urban design (WSUD) principles can mitigate water quality and hydrological effects but it may be necessary to consider by-pass mechanisms for urban flows (above rural flows). This latter approach has been utilised for Edgars Creek in the new suburb of Aurora and has been proposed for a number of subdivisions in Wallan. The Committee is not aware as to the effectiveness of this approach.

¹⁰ *Better Bays and Waterways* – A Water Quality Improvement Plan for Port Phillip and Western, Melbourne Water and EPA Victoria, 2009.

¹¹ Melbourne Water (2008) *Waterways Water Quality Strategy*.

¹² *Ibid.* Appendix 1, p.21

Recommendation 4. Establish improved stormwater quality and hydrology objectives to ensure protection of Growling Grass Frog habitat. An improved level of stormwater management, beyond the requirements of Clause 56, should be required for catchments which support Category 1 GGF habitat to ensure water quality and hydrology of waterways is maintained at pre-development levels for protection of Growling Grass Frog habitat. This needs to include upstream urbanizing areas outside of the Program area.

3.6 Maintenance of hydroperiod in existing GGF habitat

The degree of permanency of water in a waterbody (the hydroperiod) critically influences the chance that a GGF population will persist at a given location. At least some of the permanent in-stream GGF pools in Merri Creek appear to be spring fed through ground-water, for example pools in Merri Creek near Bald Hill. Older GGF records also exist for the spring-fed Beveridge Recreation Reserve Swamp.

Urbanisation typically results in lower base-flow in waterways, the obverse effect to the increased 'flashiness' of flow, and both a result of the increased impermeability of urban areas. Objectives are needed to ensure that stormwater management, such as WSUD, maintains base flows in waterways at pre-urban levels and that the groundwater fed habitats are not compromised.

Recommendation 5. Protecting Hydroperiod – Groundwater and Baseflows for GGF Habitat In order to protect GGF habitats, groundwater recharge and discharge points for groundwater need to be identified and managed to ensure that urban development does not lead to a decline in permanency of the hydroperiod for groundwater dependent GGF habitat. In addition, appropriate stormwater management is needed to ensure waterway base flows are maintained.

3.7 Ensuring there are no barriers to dispersal

Habitat connectivity is crucial to the survival of the GGF population and construction of physical barriers to movement such as roads, fences and buildings can isolate and fragment populations. This applies as much to the upgrade of low-use rural roads which currently pose no more than a minor barrier, as it does to new infrastructure.

The Technical Report and GGF Strategy fail to specify the need for road, rail and pedestrian/bicycle crossings to be bridges or tunnels for Category 1 Habitat.

Recommendation 6. Mandatory Bridge Or Tunnel Crossings of Category 1 Habitat
The GGF Strategy should specify that any new and upgraded infrastructure should be constructed in such a way as to ensure effective GGF habitat connectivity is maintained (e.g. bridges or tunnels for road, rail and pedestrian/bicycle crossings over waterways).

3.8 Managing construction impacts

Current management of sediment impacts from construction site practice is poor and current enforcement of building sites by local government often lacks rigour. Melbourne Water does

not have the ability to enforce sediment controls and the EPA is rarely involved. Even the best current measures are not designed to protect local waterways in the event of intense rain events. An upgraded ability to enforce environmental controls at development sites is urgently needed.

Recommendation 7. Rigorous Management Of Sediment From Construction Sites

Recognition of the current inadequacies in management of sedimentation from construction sites is essential to assessing and managing risks to the GGF population in the urbanising landscape of Merri Creek. The Sub-Regional Species Strategy should not be finalized until the Victorian Government can demonstrate commitment to a rigorous regulatory and enforcement plan which specifically recognises the need to protect GGF habitat.

4 GGF STRATEGY IN MERRI CATCHMENT

4.1 Significance of the Merri Creek GGF Population

The Merri Creek population of Growling Grass Frogs (GGF) in the Program area, including nearby sites in the upper Darebin Creek catchment, has been more intensely studied than any other GGF population and this research has provided key guidelines for understanding and implementing landscape-scale conservation of meta-populations of this species in wider Melbourne¹³.

The Merri Creek population is wide-spread and viable, the latter criterion having been most rigorously confirmed by recent analysis of its healthy genetic diversity¹⁴. This is in contrast to genetically limited populations found at isolated off-stream sites in urbanised parts of the Merri where the frogs have been lost from adjacent in-stream sites.

The Merri Creek population is thus an important population (sensu DEWHA¹⁵) and arguably the most important GGF population in the Program area. It satisfies not only the 'viability' criterion, but also the 'well-studied' criterion.

The Committee notes that the targeted surveys for GGF undertaken for preparation of GGF Strategy generally did not include Merri Creek sites¹⁶, in recognition of the numerous records from previous surveys. Although an additional survey is/has been undertaken for that part of Merri Creek within the Lockerbie PSP the results are not yet available¹⁷.

4.2 Strategically Important Habitat Areas

The Technical Report identifies 'Habitat connectivity and priority retention areas' for Merri Creek as:

*Along the **entire** length of the creek within the study area and beyond, including a buffer **of at least 200m***¹⁸. (emphasis added)

and describes this corridor as '**Category 1 – Strategically Important Habitat areas and Linkages**'.

This is consistent with the DEWHA Guidelines for retention of at least a 200m buffer around known habitat¹⁹ and the Committee strongly supports the Technical Report's mapped Category 1 areas as strategically important and requiring protection.

The Committee is thus gravely concerned to see that the 200m requirement for Merri Creek is less comprehensively reflected in the GGF Strategy and is even more compromised in the BCS/GCS and CMP (see 4.3 and 4.4 below).

Furthermore, the description of the Merri Creek corridor as a 'Strategically Important Habitat Area' suffers a step by step emasculation as one proceeds through the Strategies and Plans. In the GGF Strategy the corridor is mapped as a 'Strategically Important Habitat Area (for

¹³ Heard G., Scroggie, M. & Clemann N. (2010) Guidelines for managing the endangered Growling Grass Frog in urbanising landscapes. ARI Technical Report Series No.208, DSE.

¹⁴ Metapopulations in the Donnybrook/Kalkallo/Bald Hill area have a comparable genetic diversity to GGF samples from the 1960s (Heard pers.com).

¹⁵ DEWHA (2009) Significant impact guidelines for the vulnerable growling grass frog (*Litoria raniformis*). Nationally threatened species and ecological communities Background paper to the EPBC Act policy statement 3.14

¹⁶ Map 2c in Ecology & Heritage Partners (2011) op.cit.

¹⁷ Ecology Australia (2011) Growling Grass Frog Conservation Management Plan: Lockerbie Precinct *Working Draft* November 2011, Appendix 2 (p.67) and note on map titled: 'Lockerbie Growling Grass Frog Strategy Plan'.

¹⁸ Table A1.3 p.146.

¹⁹ DEWHA (2009) op.cit.

protection) but is described as an 'Indicative Protection Area' and an 'interest' area. In the Biodiversity Conservation Strategy (BCS) it becomes variously a 'Potential Conservation Area' and a 'Proposed' Conservation Area' subject to review and refinement and in the Northern Growth Corridor Plan (GCP) it becomes a 'GGF Investigation Corridor' (see Appendix 1 for a detailed comparison of widths and terminologies used across the various GGF, Biodiversity and planning documents).

4.3 Proposed narrowing of GGF corridor: Lockerbie/Donnybrook North

The Committee regards as unacceptable the proposal to narrow the Merri Creek GGF corridor to 50m on both sides of the creek for a distance of ~ 0.8 km in the vicinity of the proposed Principal Town Centre (Lockerbie/ Donnybrook). The narrowing is described in the BCS as necessary to meet a significant state planning objective to locate a town centre in this vicinity²⁰.

This proposed narrowing of Category 1 habitat on both sides of the creek to 50m is incompatible with the Program commitment to the protection and enhancement of the Merri Creek GGF population. A preliminary analysis by G. Heard for the Committee concludes that this level of urbanisation of the terrestrial buffer will reduce the probability of occupancy by around 20% and thus reduce connectivity between the metapopulations around Donnybrook/Kalkallo and the Bald Hill area (see Appendix 2).

It is understood that GGF surveys have been/are being undertaken for this area though the results are not yet available (see footnote 17). Nevertheless, the Lockerbie Growling Grass Frog Strategy Plan shows 'Existing GGF Habitat' in the narrowed area immediately adjacent to the town centre (see Map 1, p.17).

It is the Committee's view that the proposed narrowing of the Category 1 GGF Habitat in the It has a high probability of:

- reducing the functionality of known on-stream habitat in the narrowed reach because of the greatly reduced terrestrial habitat width;
- reducing the functionality of any created off-stream habitat because of the limited terrestrial habitat - the Technical Report states that created wetlands "...should be adequately buffered from development (i.e. preferably at least 100m) .." (p.76);
- reducing the functionality of on and off-stream habitat because its close proximity to intensive urban uses (see section 5);
- severing genetic exchange between two key metapopulations of Donnybrook and Bald Hill.

Recommendation 8. Ensure a 200m wide Growling Grass Frog habitat corridor is retained either side of Merri Creek in the Lockerbie/Donnybrook North area.

4.4 Width of Merri Creek GGF corridor north of OMR

The width of the Merri Creek GGF corridor shown in the BCS and Northern GCP appears to be reduced from the 200m shown in the Technical Report and GGF Strategy to approximately 150m in the section of creek north of the OMR alignment. There is no discussion of this reduction in the text of these documents. It should be retained at 200m.

²⁰ BCS p.88

Recommendation 9. Ensure a minimum 200m wide Growling Grass Frog habitat corridor either side of Merri Creek for the entire Program area.

4.5 Improved management of upstream stormwater (Wallan)

Although the town of Wallan is outside the UGB, it is experiencing very significant urban growth and has recently been proposed for inclusion in the UGB through the Logical Inclusions Review process. As it is located in the upper catchment of the Merri, it is essential that development impacts are rigorously regulated to ensure maintenance of suitable water quality and hydrologic regime for downstream reaches of Merri Creek.

The following activities are currently putting downstream GGF habitat at risk:

- Major influxes of sediment from very poor construction management at new development sites associated with recent intense rain events;
- Lack of stormwater treatment for existing residential and commercial areas within Wallan;
- Lack of stormwater treatment for existing industrial zoned area in East Wallan (this area is subdivided but still developing and has no stormwater treatment);
- Discharge of treated effluent from Wallan Sewage Treatment Plant (STP). Although the STP originally discharged to Merri Creek, in recent years it has discharged solely to land, via the Hazelwynd facility. In 2010 the STP had a temporary EPA licence to again discharge to the Merri Creek system. This was in order to deal with excessive levels of treated effluent as a result of high rainfall.

5 LOCKERBIE PSP AND GGF CONSERVATION MANAGEMENT PLAN (CMP)

5.1 Extent of narrowed GGF habitat

The Committee is disturbed to see the extent of the narrowed area for Growling Grass Frog (GGF) habitat in the draft Lockerbie PSP and GGF CMP is much greater than is shown in the BCS. In the PSP/CMP the GGF corridor is narrowed for the entire length of Merri Creek; the narrowest reach, 50m wide either side, extends for approximately twice the distance indicated in the BCS (~1.6km vs 0.8km). As discussed in 4.3, the Committee considers it is critical to maintain the habitat function of this stretch of creek. The proposal to narrow the 200m width to 50m is incompatible with Growling Grass Frog conservation and threatens to sever the link between the GGF populations around Donnybrook township and that in the Bald Hill area.

The Committee opposes any narrowing of the GGF corridor from a minimum 200m either side of Merri Creek.

5.2 High intensity town centre uses adjacent to narrowed GGF habitat

The Lockerbie PSP indicates high intensity uses are planned for the land adjacent to the narrowed corridor – high density residential, rail station and car park, commercial/retail, regional active open space, and a 6-lane east-west arterial road. These uses will produce a range of impacts on the Growling Grass Frog from noise, light, and cat predation, to litter, rubbish dumping and the general effects of intense recreation use.

The Committee does not have an in-principle objection to a town centre located to the west of Merri Creek, providing a minimum 200m wide GGF corridor buffers the creek from the town centre. The width required is likely to need to be more than 200m in order to provide for the level of passive recreation use to be expected with a substantial town centre without impacting on GGF needs. The Committee strongly objects to a Town Centre which straddles Merri Creek and which leads to a narrowing of the GGF habitat area on both sides of the creek and an intensive urban interface to GGF habitat on both sides of the creek.

The Committee notes that the PSP and GGF CMP are both in draft form, but is nevertheless extremely concerned to see the principles encompassed in the GGF Technical Report, the GGF Strategy and even the BCS, being presented in such a diluted and inadequate form at the precinct level.

5.3 Breeding Ponds and Stepping Stone Ponds

The Lockerbie GGF CMP presents a concept of two types of created GGF habitat:

- Breeding Ponds which are large, permanent, off-stream waterbodies, 3,000 – 4,000 sq.m in area (three are proposed along ~ 5km stretch of creek); and
- Stepping Stone Ponds which are smaller, ephemeral, off-stream waterbodies, 500 – 1,500sq.m in area, located approximately 150-200m apart (n.b. hydroperiod not specified).

The Committee notes that the concept of two types of created GGF wetland is not one that is discussed in the Technical Report or in the GGF Strategy. The GGF Strategy states that wetlands with at least 100m buffer and generally at least 1,000 sq.m in area will be created approximately every 300m along GGF protection corridors and that their design will generally be based

on the Heard et.al. (2010) Guidelines²¹. These Guidelines specify that ephemeral wetlands are only able display a high equilibrium probability of occupancy in the exceptional scenario of optimum aquatic vegetation cover and connectivity.

The Committee feels clarification is needed as to the rationale for these created wetlands.

- Are one or both of these types of ponds 'compensatory habitat' for Category 2 habitat that will be destroyed;
- Are they 'compensatory habitat' for Category 1 habitat that is to be destroyed (and if so, what are the requirements; or
- Are they created habitat to better 'protect' the Category 1 habitat?

The CMP suggests the ponds are compensatory habitat but gives no explanation as to whether and how each of the types of wetlands corresponds to destroyed Category 2 habitat. Presumably creation of a permanent pond counts for more than an ephemeral pond.

Recommendation 10. It is essential that the proposed application of the concept of 'Breeding Ponds' and 'Stepping Stone Ponds' in the Lockerbie PSP area is subject to scientific review and analysis both as to its contribution to probability of occupancy and to clarify the basis on which the ponds are being created and the appropriateness of two categories of created GGF wetland. If it is agreed that the concept has value, then it should be incorporated into the GGF Strategy, with clear guidelines for application.

5.4 Destruction of high conservation value native vegetation for GGF ponds and stormwater wetlands

The Committee is disturbed to see the Lockerbie PSP proposes stormwater wetlands and Growling Grass Frog habitat ponds is likely to require the destruction high conservation value native vegetation located within the Merri Creek corridor.

Recommendation 11. Protect high conservation value vegetation within Category 1 GGF habitat As far as possible all high conservation value vegetation within the Merri Creek GGF corridor should be protected. The Native Vegetation Precinct Plan should be amended to show this vegetation as 'to be protected'. In particular stormwater and Growling Grass Frog wetlands should be located so as to avoid remnant native vegetation.

²¹ Heard G., Scroggie, M. & Clemann N. (2010) Guidelines for managing the endangered Growling Grass Frog in urbanising landscapes. ARI Technical Report Series No.208, DSE. p.22.

6 CONCLUSION

The Committee concludes that although the GGF Strategy defines a necessary basis for the key outcomes of the Program agreement to be achieved, it is not sufficient, especially when translated into the BCS, GCP and PSP/CMP.

The insufficiencies are of two key types, spatial and stormwater management

Spatially, the Committee has identified a critical failure to ensure connectivity between the Merri Creek population in the Lockerbie/Donnybrook North area with the proposed narrowing of the GGF corridor.

In terms of stormwater management, current best practice objectives for water quality and flow are not adequate to ensure the protection of Growling Grass Frog habitat.

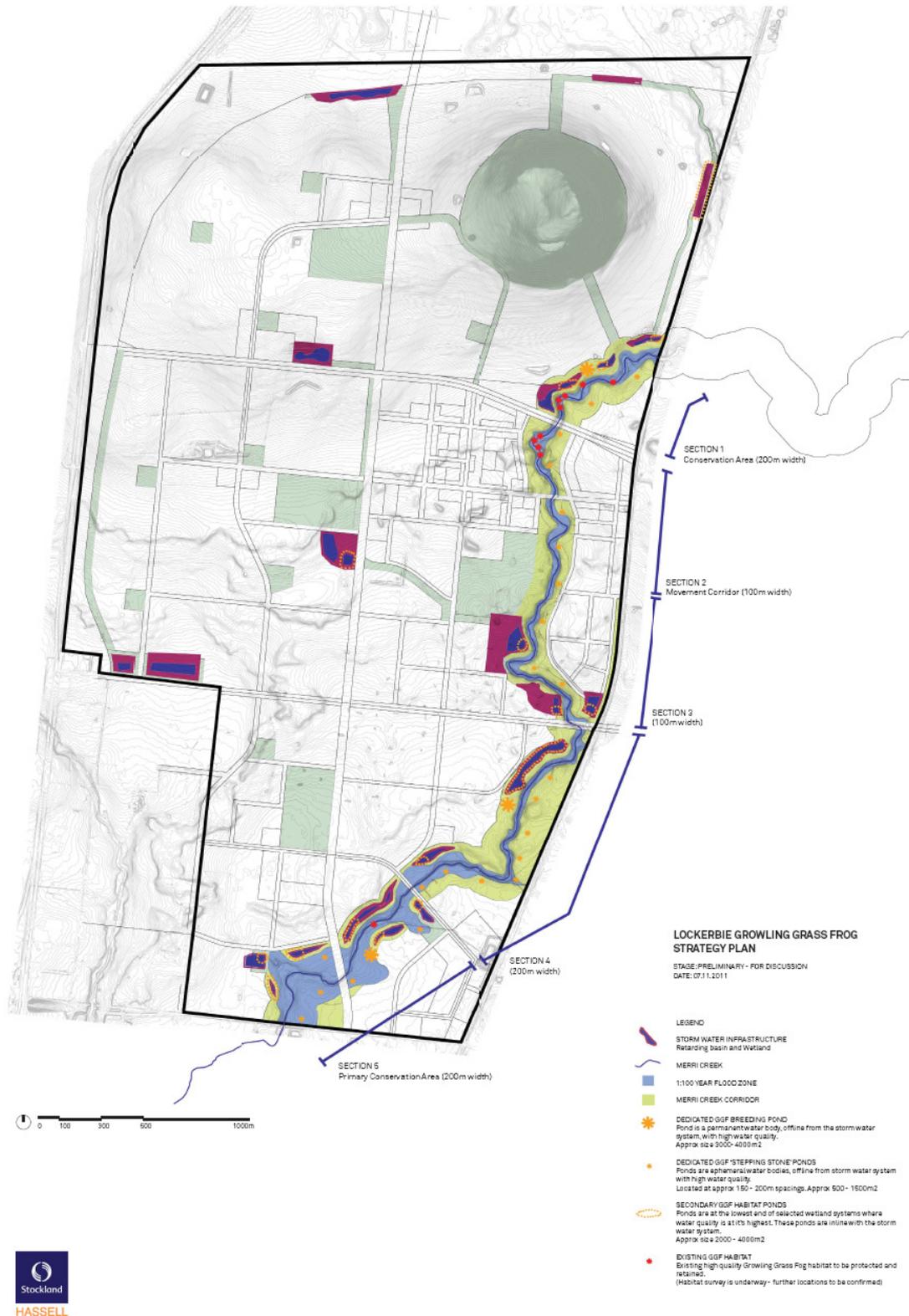
As a consequence, the Committee concludes that the draft Sub-regional Species Strategy for the Growling Grass Frog is inadequate to ensure the Program commitments of:

- Functioning sustainable populations of ...Growling Grass Frogs within and adjacent to the new Urban Growth Boundary with **connectivity** between populations (emphasis added);
- **Protection and enhancement** of important populations of Growling Grass Frogs, including the **Merri Creek** population(emphasis added)

The Committee looks forward to a redrafted GGF Strategy which more rigorously addresses these limitations.

MAP 1. LOCKERBIE PRECINCT GROWLING GRASS FROG STRATEGY PLAN

Existing GGF habitat shown as red dots.



Source: Ecology Australia (2011) Lockerbie Precinct: Growing Grass Frog Management Plan Working Draft, Prepared for Stockland Pty Ltd, 17 November 2011, p.82.

APPENDIX 1 COMPARISON OF GGF CONSERVATION REQUIREMENTS IN TECHNICAL REPORT, GGF STRATEGY, BCS, GCP AND LOCKERBIE GGF CMP

SOURCE DOCUMENT/ ISSUE	GGF TECHNICAL REPORT	GGF SUB-REGIONAL SPECIES STRATEGY	BIODIVERSITY CONSERVATION STRATEGY	GROWTH CORRIDOR PLAN	LOCKERBIE PSP	LOCKERBIE GGF CMP
Description of GGF waterway conservation area on Merri Creek	Category 1 – Strategically Important Habitat Areas and Linkages (Fig. 5c)	Fig. 1c: Category 1 – Strategically Important Habitat Areas (for protection); p.17: The indicative Category 1 protection areas shown on Figs 1a to 1d are ‘interest’ areas within which further refinements will be made during the public consultation process. (emphasis added)	Fig. 3: Proposed Conservation Area - Growling Grass Frog Category 1; p.100: Potential Conservation Areas – Growling Grass Frog Habitat Corridors	North Growth Corridor Plan (Map): Growling Grass Frog Investigation Corridor	Plan 2: Growling Grass Frog Investigation Area and a narrower area shown as ‘Encumbered Open Space’	Growling Grass Frog corridor - Mapped ‘strategy’ plan in CMP distinguishes between: (a) Primary Conservation Area; (b) Conservation Area; and (c) Movement Corridor
Merri Creek Width	200m (Fig 5c & p.64)	200m (Fig 1c); lesser widths shown on other waterways. Described as achieving the conservation outcomes for the GGF (p.1)	200m along much of Merri Creek south of OMR; 50m for northern part of Lockerbie PSP Principal Town Centre area (misleadingly represented on Fig 1c - narrowed corridor is evident but removal of adjacent RCZ land isn’t); Fig 29a in 5.8.2 (Conservation Area, Bald Hill, Donnybrook, p.89) shows pinch area and proposed removal of adjacent RCZ ; Section 5.8.3 (Potential Conservation Areas – Growling Grass Frog habitat corridors) gives cross reference to Fig 3. ~ 150m on Merri Creek north of OMR.	200m along much of Merri Creek south of OMR; 50m for Lockerbie/ Donnybrook Principal Town Centre (not clearly identified on Growth Corridor Plan map but described in text); ~ 150m m north of OMR.	100m or less along much of length of Merri Creek within PSP; 50m for 1.8 km length in vicinity of town centre	‘Strategy Plan’ distinguishes between width of : ~100m (200m TOTAL) in Primary and Other Conservation Areas; ~50m (100m TOTAL) in Movement Corridor. Final requirements to be determined as per DSE requirement (p.7).
Max/min width	200m minimum required area for long-term population viability (p.64)	200m is maximum shown (Fig. 1c)	200m is maximum shown	200m is maximum shown	100m is maximum shown	100m is maximum shown; Final requirements to be determined as per DSE requirement (p.7).
Length of ‘pinch points’	Not specifically discussed	Hypothetical example shown in Fig 2, no scale and explicitly states ‘not to scale’. Assuming corridor width in Fig 2 is ~200m either side of creek, suggestive size of pinch area is ~0.5 km one side of creek and <0.1km in two separate sections on other side.	Approx. 0.8 km	Approx. 0.8 km	Approx. 1.8km	Approx. 1.8km

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Criteria for varying habitat/buffer width	To be based on sound ecological information and “..decision will depend on the terrestrial matrix, and current and future land use intensity and must not undermine the overall purpose and the extent of habitat required within the habitat corridor area.” (p.64)	Fig 2 describes corridor pinch areas as representing ‘potential pedestrian crossing points within a town centre’. p.18 describes “ ..frontage to waterways and/or closer physical connection between users of commercial and community facilities on either side of a waterway..” p.18 “In exceptional circumstances, that is, where necessary for the provision of infrastructure of state significance or to balance biodiversity outcomes with state significant planning objectives (e.g. planning of town centres within the growth areas) there is potential to reduce the width of the corridor where this does not undermine the ability of the corridor overall to achieve its purpose. ” (emphasis added) Refers to decision criteria set out in BCS. Also refers to further refinements (of corridor widths) based on ‘..likely metapopulation usage and landform..’ (p.18)	Finalise boundaries of Growling Grass Frog habitat corridors prior according to investigation process set out in GGF Strategy. DSE to determine appropriate habitat corridor reductions in what locations, in consultation with DPCD and GAA. [emphasis added] If habitat corridor widths are required to be reduced, DSE to advise DPCD and GAA on the boundaries of the reductions in accordance with the decision criteria. Decision criteria (p.100) for these reductions include <u>biophysical parameters</u> : - metapopulation usage; - slope & landform; - likely impacts on persistence and movement of GGFs along Merri Creek; and <u>non-biodiversity planning matters</u> : - growth corridor plan requirements; - other state significant planning objectives (e.g. planning of town centres) p.88.			
PSP level actions – additional possible habitat required	Detailed targeted surveys have not been conducted across the entire Growth Area, additional sites supporting GGFs may be identified through PSP survey process and conservation needs of GGF will need to be considered.	States: “No additional land in the area covered by the Strategy will therefore be required to be protected for the Growling Grass Frog at the precinct planning stage.” (p.5)				
GGF specific created wetlands	Require at least 100m buffer	Approx every 300m along GGF protection corridors (p.22) with at least 100m buffer; generally at least 1,000 sq.m in area.				Three dedicated GGF ‘breeding ponds’ 1-2km apart; dedicated GGF ‘stepping stone ponds’ 150-200m apart.
Road crossings	Emphasises need to maintain habitat connectivity; does not discuss <u>bridge</u> crossings; frog underpasses of <u>unknown</u> effectiveness	Not specifically discussed	Not specifically discussed	Not discussed.		p.25. Proposed roads across Merri Creek will require bridges to be constructed so as not to impose a barrier to the movement of frogs (emphasis added)

Appendix 2. G. Heard letter to MCMC

This email letter outlines Dr Heard's significant concerns regarding the proposed reduction in the width of the Growling Grass Frog buffer in the vicinity of Lockerbie/Donnybrook North

Note: Geoff Heard, PhD, is a highly respected Growling Grass Frog researcher. Over the last decade he has intensively studied the Merri Creek GGF populations. He is currently a Research Fellow at the University of Melbourne and is co-author of the 2010 Guidelines for managing the endangered Growling Grass Frog in urbanising landscapes (ARI, DSE).

From: Geoff Heard [heardg@unimelb.edu.au]
Sent: Wednesday, 23 November 2011 10:46 AM
To: Luisa Macmillan
Subject: GGF conservation at Lockerbie

Dear Luisa

As per our discussion on Monday, I have some significant concerns regarding the proposed development of the Lockerbie estate, as described in the Biodiversity Conservation Strategy for the Growth Areas and within the Precinct Structure Plan for Lockerbie. Of course I am concerned about the broader biodiversity impacts of the proposals, which entail the loss of considerable areas of, what I consider, high quality grassland and stony knoll ecosystems. However, I restrict myself here to discussion of the ramifications of the proposal for the Growling Grass Frog (GGF) – my specific area of expertise.

The proposal for Lockerbie includes reducing the riparian buffer along the Merri Creek to around 50m either side of the creek in the vicinity of the proposed Lockerbie train station. The extent of the reduction (ie. length of the stream) appears to be uncertain, but could be in the order of 1km (or more). This proposal is incompatible with Growling Grass Frog conservation for several reasons.

1. Past research suggests the species requires terrestrial buffers in the order of 150-200 m, because these terrestrial areas are important for foraging and other activities, and also because they reduce 'edge effects' from adjacent urban areas. I have shown previously (Heard 2010) that the probability of wetland occupancy by GGF across northern Melbourne declines with increasing urbanisation of the terrestrial buffer. The proposals for Lockerbie entails around a 66% level of urbanisation of the terrestrial buffer as I defined it in that work (measured over a radius of 150m from the water's edge). My occupancy model suggests that this level of urbanisation of the buffer zone will, on its own, reduce the probability of occupancy by around 20%. This can be interpreted as a 20% decrease in the likelihood of persistence.
2. There can be little doubt that development of the Lockerbie estate will also influence the hydrology and water quality in the Merri in ways that are detrimental to GGF (increased stormwater flows, bringing pollutants and 'spikes' in flow rates). These effects should be offset by the creation of dedicated offstream wetlands for GGF. A buffer of only 50m either side of the creek leaves little room for such wetlands. Moreover, any wetlands that are created would have essentially no buffer.
3. The stretch of the Merri to be effected by these proposals may act as an important conduit for dispersal and interaction between metapopulations of GGF around the current Donnybrook township and Bald Hill area. Extinction of populations through this area, given constriction of the terrestrial buffer and declines in the suitability of the instream environment, could cut connectivity between these metapopulations.
4. The proposals are inconsistent with available guidelines for the conservation of the Growling Grass Frog in urbanising landscapes (DEWHA 2009, Heard et al. 2010), including those developed specifically for the Growling Grass Frog Species Strategy for the Growth Areas (Ecology Partners 2011).

As discussed, I realise that the proposed reduction in the riparian buffer along this stretch of the Merri may represent a compromise with developers for greater buffers and wetland management in adjacent areas identified as being of higher importance for GGF. However, if this is the case, I question the designation of the section as being of less importance for GGF. Presumably this designation is based on the density of records, and the sparse number of records in this area. However, the fact of the matter is that this area has never been surveyed for GGF to any satisfactory level (certainly not to the intensity of the areas to the south and north along the Merri). Any inferences drawn about the importance of this area for GGF based on the density of records are therefore dubious.

Please let me know if you require further information about this matter.

Regards

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