

## **Review of the environmental offsets strategy within the West Belconnen Project Strategic Assessment**

Dr Philip Gibbons  
March 2016

### **Summary**

This is an independent review of the offsets strategy contained within with the West Belconnen Project Strategic Assessment. This review was commissioned by the proponent of the West Belconnen Project (Riverview Projects Pty Ltd).

Offsets were proposed for three matters protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act): golden sun moth (*Synemon plana*) (Critically Endangered), pink-tailed worm-lizard (*Aprasia parapulchella*) (Vulnerable) and White Box-Yellow Box-Blakely's Red Gum Woodland and Derived Native Grassland (box gum woodland) (Critically Endangered).

### Avoidance and mitigation

Options for avoiding impacts to the golden sun moth have been comprehensively canvassed, despite the preferred alignment impacting an existing offset. Although 90% of (mapped) habitat for the pink-tailed worm-lizard has been avoided, there is scope for greater avoidance of impacts on this species through slight modification to the boundary of the West Belconnen Conservation Corridor. Avoidance of impacts on box gum woodland from the proposed widening of Drake Brockman Drive were not canvassed.

### Offset strategy generally

The strategy clearly addresses six of the seven principles upon which the Australian Government's environmental offset policy is based. The strategy does not provide sufficient information on existing commitments within the West Belconnen Conservation Corridor or land already purchased on Wallaroo Road to be confident that the proposed offset management actions are additional.

Although the methodology employed for this assessment is generally robust, I question the merit of including the "threats" score. I view the occurrence of threats as a consideration that influences how scores across each of site condition, site context and species stocking rate change under different management rather than a variable that is scored in its own right.

My capacity to review the offset strategy was hindered in parts by the lack of detail on the management actions upon which scores at offset sites are based. Proposed management actions within the offset sites were only provided in a general sense in the description of the proposed West Belconnen Conservation Corridor Management Plan.

### Offsets for golden sun moth

The assessment for golden sun moth is complicated by the fact that the proposal will impact an existing offset for this species. While the proponent's strategy reflects advice provided by the Department of the Environment, my interpretation of the Department's own policy is different. I believe that there should be clearer guidance by the Department on how their policy for these circumstances should be interpreted.

The strategy for this species is based on establishing an 86.8ha site to offset impacts on 1.8ha of habitat and potential fragmentation of a large, contiguous patch of habitat for this species. The proponent predicts that 182% of the impact has been offset. The offset strategy correctly focuses on connectivity rather than loss of area per se. The outcome is a very, large, new contiguous area of habitat for this species that appears to be sufficient to compensate for the potential impacts.

### Offsets for pink-tailed worm-lizard

The strategy for this species is based on establishing a gross area of 146ha of offset for 16ha of cleared habitat and the proponent predicts that this will offset 110% of the impact. Further justification is required for two scores given at offset sites for this species. Slight adjustments to the boundary of the West Belconnen Conservation Corridor or designation and management of urban green space where suitable habitat for this species currently exists within the urban footprint are options that could be used should a recalculation of the proposal indicate <100% of the impact is offset.

### Offsets for box gum woodland

The strategy for this protected matter is based on establishing a gross area of 68.2ha of offset for 3.8 ha of cleared habitat and the proponent predicts that this will offset 412% of the impact. It appears that no box gum woodland meeting the EPBC definition is directly impacted by the proposal and the overall impact on surrounding box gum woodland is likely to be small. The proposed offset appears to be sufficient for an improve or maintain outcome, subject to some clarification that is required regarding additionality.

### Management of offset sites

Employing a trust to manage the offset sites is a model that has worked elsewhere in the Australian Capital Territory and is strongly supported.

## Background

This review was commissioned by Riverview Projects Pty Ltd, who are also the proponent of the West Belconnen Project. The offsets package was prepared by Umwelt (Australia) Pty Ltd on behalf of the proponent (Riverview Projects Pty Ltd) as part of requirements under Part 10 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) because of significant impacts to the golden sun moth (*Synemon plana*) (Critically Endangered), pink-tailed worm-lizard (*Aprasia parapulchella*) (Vulnerable) and White Box-Yellow Box-Blakely's Red Gum Woodland and Derived Native Grassland (box gum woodland) (Critically Endangered).

## Avoidance and mitigation

The Environmental Offsets Policy (Australian Government 2012) indicates that “avoidance and mitigation measures are the primary strategies for managing the potential significant impact of a proposed action.”

### Golden sun moth

This protected matter is impacted by the proposed extension to Ginninderra Drive. The proponent has sought independent advice on 11 alignment options for the proposed extension (Brown Consulting 2014). Each alignment option is discussed in Table 2.1 of the West Belconnen Project Strategic Assessment. The preferred alignment (Option 5) avoids all impacts on natural temperate grassland and involves the shortest distance across the existing offsets for this species. The alignment with minimum impact on the golden sun moth (Option 3) was rejected on the basis of the need to construct major intersections, proximity to high voltage power poles and sound impacts for which I am not qualified to comment. Notwithstanding my lack of expertise on these matters, I am satisfied that all options have been adequately canvassed.

Mitigation of impacts from the proposed extension to Ginninderra Drive on golden sun moth include: planting the verges with suitable native grass species, constructing the bridge at the highest practicable height (not specified) to reduce shading, minimising the number of piles so moths have a relatively unimpeded view under the bridge, removal of planted trees adjacent to the road alignment to maximise habitat for the golden sun moth and fencing of suitable habitat during construction. The package also flags restoration of habitat for golden sun moth around the road which I support, as movements across the road are likely. The Offset Management Plan will contain details of restoration of habitat for the golden sun moth on road verges and median strips and this should include removing nutrient-enriched topsoil, seeding with plant species known to represent habitat for the golden sun moth (e.g., wallaby grasses *Rytidosperma* spp.) (Gibson-Roy et al. 2010). Minimising water or nutrient run-on into these sites to discourage establishment by exotic plants—and therefore degradation of these habitats over time—should be part of mitigation strategy.

### Pink-tailed worm-lizard

The strategy for this species is based on establishing a gross area of 146ha of offset for 16ha of cleared habitat and the proponent predicts that this will offset 110% of the impact. The proposed alignment of the West Belconnen Conservation Corridor adjacent to the proposed development will avoid 90% of mapped habitat for the pink-tailed worm-lizard within the study area, with a residual impact to 16.3ha. Minor adjustments of the boundary of the proposed Conservation Corridor (see Figure 3-5 of the West Belconnen Strategic Assessment) would reduce the perimeter of this reserve that abuts urban development thereby further mitigating impacts of adjacent urban development on protected matters within the Corridor and reduce the area of identified habitat for the pink-tailed worm-lizard that is impacted.

An alternative (or additional) option to further avoid or mitigate impacts on the pink-tailed worm-lizard would occur were habitat within the proposed development set-aside as urban green space and managed to maintain, enhance and link remnant habitat with the West Belconnen Conservation Corridor. Restoration of native tussock grass and introductions of rock has proven an effective restoration strategy for this species (R. Milner, ACT Government, pers. comm.) and can be managed so as not to constitute a fuel hazard within the urban area. This may be a novel way to manage urban green space within the development footprint, reduce the area of current habitat for this species that is impacted and/or add to the area of offset for this species.

### Box gum woodland

The proposed alignment of the West Belconnen Conservation Corridor adjacent to the proposed development will avoid 95% of box gum grassy woodland identified within the study area (although unprotected Box Gum Woodland along Drake Brockman Drive does not appear to meet the EPBC definition for this community so this figure could be 100% - see p. 190). No alternatives to the widening of Drake Brockman Drive were provided in the Strategic Assessment.

### Other protected matters

The proponent has aligned the boundary of the West Belconnen Conservation Corridor to protect all identified habitat within the main part of the proposal area of the Australian painted snipe (*Rostratula australis*), superb parrot (*Polytelis swainsonii*), regent honeyeater (*Anthochaera phrygia*), swift parrot (*Lathamus discolor*), painted honeyeater (*Grantiella picta*), Booroolong frog (*Litoria booroolongensis*), small purple pea (*Swainsona recta*), pale pomaderris (*Pomaderris pallida*), austral toadflax (*Thesium australe*), Tarengo leek orchid (*Prasophyllum petilum*) and hoary sunray (*Leucochrysum albicans* var. *tricolor*). The widening of Drake Brockman Drive will affect 0.7ha of potential habitat for the superb parrot, swift parrot and regent honeyeater, although this was not assessed as significant.

Arrangements put in place to manage the West Belconnen Conservation Corridor through a management plan and trust offer great potential to mitigate impacts of the development on adjacent threatened species and communities. However, recent research from the Australian Capital Territory (Rayner et al. 2014) indicates that woodland birds within

protected areas are negatively affected by adjacent urban development. Measures that seek to reduce numbers of hyper-aggressive honeyeaters (e.g. red wattlebird) and predators (e.g. pied currawong) within the urban area through discouraging the planting of nectar-producing plants may help mitigate the impacts of urbanisation on the adjacent Conservation Corridor. Thus, the trust established to manage the West Belconnen Conservation Corridor and the management plan prepared for this corridor would be more effective if integrated with management of threatening processes and potential habitat within the urban footprint of West Belconnen.

### **Principles of the EPBC environmental offset policy**

The offset strategy seeks to meet the principles for environmental offsets listed in the EPBC Act Offset Policy as follows:

1. Deliver an overall conservation outcome that improves the viability of the protected matter.

The offset strategy meets this principle through use of quantitative scoring to balance loss at impact sites and gain at offset sites using the offset assessment guide provided by the Department of the Environment.

2. The minimum conservation gain will be achieved with direct offsets, with the option to incorporate other measures as appropriate.

The offset strategy focuses on 100% direct offsets and does not seek to invoke the “90% rule”.

3. Consideration will be given to the level of statutory protection for each MNES.

Discount rates within the offset assessment guide reflect the predicted annual probability of extinction of species in different threat categories.

4. Offsets will be proportionate to the impact.

The offset assessment guide has been used to direct decision-making in this respect.

5. The Offset Strategy will account for and manage the risk of not succeeding.

This has been partly taken into account by entering risk and confidence in the offset assessment guide, however, effective implementation of adaptive management as part of the proposed management plan for the West Belconnen Conservation Corridor will be important for addressing this principle.

6. Offsets will be additional to what is required by law or other agreements.

The strategy does not provide a comprehensive analysis of existing or proposed commitments within the West Belconnen Conservation Corridor or land already purchased on Wallaroo Road. For example, box gum woodland designated as an offset is already protected in commitments set out in the Molonglo Strategic Assessment (p. 94).

Thus, further information is needed to confirm that any gain from the offset must be above and beyond commitments in that document.

7. Offsets will be delivered in an efficient, timely, transparent, scientifically robust, and reasonable manner and have transparent governance arrangements.

Suggestions for improvements in transparency of some parts of the assessment are noted in subsequent parts of my review.

### **Offset strategy for Golden Sun Moth**

The strategy for this species is based on establishing an 86.8ha site to offset impacts on 1.8ha of habitat and potential fragmentation of a large, contiguous patch of habitat for this species. The proponent predicts that 182% of the impact has been offset.

This offset strategy is complicated by the impact of the proposed extension to Ginninderra Drive on habitat within two existing offsets established previously under the EPBC Act: the Macgregor West offset and Jarramlee offset. In this situation the proponent must develop an offset package to *compensate for both the impact of the proposed action, as well as the original action for which the offset was a condition of approval* (Australian Government 2012). The Strategic Assessment outlines an interpretation of this policy as:

- Replacement of the habitat for golden sun moth within the existing offsets that is impacted by the proposal.
- Taking over the remainder of the sum set aside to establish the Jarramlee offset (originally \$972,000).
- Assuming responsibility for the habitat restoration project between the Jarramlee offset and Dunlop Grassland Reserve (which, in turn, links with the proposed offset).
- Assuming responsibility for management of the existing offset areas impacted by the proposal.

Although this strategy has been developed in consultation with the Department of the Environment and, on balance, appears to be a reasonable outcome in this instance, my interpretation of the policy is that the proposed offset package should demonstrate adequate compensation of: (1) the original impact for which the existing offset was established (in this case Macgregor West Stage 2 and Lawson South); and (2) the current proposed impact (Ginninderra Drive extension). Instead, the Department of the Environment have agreed to a precedent where the offset package: (1) compensates for that part of the existing offset that has been impacted; and (2) assumes responsibility for management of the original and new offsets. My interpretation is that the latter approach does not test whether the original impact has been adequately compensated. I believe that the Department of the Environment needs to provide greater clarity to this part of their policy as there will be increasing pressure to impact established offset sites.

Umwelt has assessed impacts using *area of habitat* as the assessment unit. This is logical given the assessment by Department of the Environment in documentation regarding the West Macgregor proposal (Australian Government 2010) that population density estimates were unreliable because of the period over which surveys were undertaken (the golden sun

moth has a restricted flying season and activity is affected by weather conditions) and reasonably consistent data on habitat quality across the majority of proposals under consideration. Umwelt have prepared a quality score broken into three sections consistent with the guidelines (Australian Government undated): site condition, site context and species stocking rate.

The approach that has been taken to construct the site condition score appears logical. Umwelt treat habitat dominated by Chilean needlegrass (*Nassella neesiana*) as low quality despite it supporting high densities of golden sun moth. I agree with this interpretation given impacts of Chilean needlegrass on other values in native grassland and designation of this exotic plant as a Weed of National Significance.

Although connectivity is generally a lesser issue to biodiversity than impacts on habitat area and quality (Turner 2005), an emphasis on connectivity in this proposal is appropriate as it is not the area directly impacted by the proposal (1.8ha) that is the main issue, but the potential impact of Ginninderra Drive on fragmenting a relatively large, remnant population for the species. Connectivity is difficult to measure because it encapsulates multiple patch areas, variable distances between patches, variable quality of patches and inter-patches and the variable distance that species (or in this case males and females) can move between patches which, in turn, is linked to the habitat quality of inter-patches. Connectivity is further complicated in that, for highly mobile species (e.g. birds in the ACT), isolated habitats can be more important than connected habitat (Le Roux et al. 2015). The Department of the Environment should develop guidelines for assessing connectivity so there is greater consistency within assessments in this respect and it would be good to see connectivity provided as a separate line within the offset calculator (so it is not confounded with other measures of habitat condition). That the assessment of connectivity in this proposal is based on the area of habitat, distance between patches and the ability of the species to move between these is appropriate. A source for the statement that substrates such as concrete, water and bare ground represent absolute barriers if >15m wide needs to be provided. Use of the known patch-size distribution of habitat for the golden sun moth is excellent and places the site in the regional context with considerable confidence, although detail on how the different levels of the score were defined would improve transparency.

Although it is likely to have limited influence on outcome in this instance, I question the merit of including the “threats” score. I view the occurrence of threats as a consideration that influences how scores across each of site condition, site context and species stocking rate change under the different management regimes rather than a variable that is scored in its own right. Notwithstanding this, it seems logical to me that a high-intensity threat should have the lowest score, rather than the highest score as indicated. Also, it is not clear why the threat score changes (declines) from a current score of 6 to a score of 5 without the offset. It is also unclear why impact sites do not have a very high threat score (given these sites will potentially be cleared).

The tables indicating scores used in the offsets calculator (for this species and the other species) are confusing because: (a) terminology used in these tables is inconsistent with that used in the text that describes how each component of the score is constructed; (b) raw scores do not always equal the levels for each score listed in the previous (methods) section; (c) the final component scores do not add up to the total final scores for each site

(transforming them into appropriate values would improve clarity); and (d) initial data for offset sites is provided with the data for impact sites, whereas it would be more logical to keep all data for offset sites in the same location.

Scores with offsets for this species (and the other protected matters) are provided without detailed descriptions of the management actions on offset sites that are proposed. It appears that this detail will be provided in offset management plans, but the absence of this information makes it difficult to judge whether the proposed changes on offset sites are reasonable.

Overall, the offset proposal for golden sun moth is likely to improve or maintain in my opinion. The offset ratio is extremely large in the context of typical offsets in the ACT, the offset proposes to establish a new, contiguous large area of habitat for the species to compensate for potential impacts on fragmentation of an existing large population and the management of offsets is vested in a dedicated trust which is a model that has been successful elsewhere in the ACT.

### **Offset strategy for Pink-tailed Worm-lizard**

The strategy for this species is based on establishing a gross area of 146ha of offset for 16ha of cleared habitat and the proponent predicts that this will offset 110% of the impact.

The assessment for this species employed a similar method as for the golden sun moth, but scores and their relative weights were informed by the PhD research undertaken for this species by David Wong at University of Canberra, thus placing greater confidence in the metric.

I have no additional comments on the assessment methodology applied to this species to those provided for the golden sun moth. Again, gains from the offset are scored without detailed information of the proposed management actions.

Notwithstanding my previous comments on the 'threats' score, I question the large change in this score (from 7 without offset to 2 with offset). My independent scoring of the proposal is for scores of 7 and 4 to 5 respectively. Greater justification for these scores is required. Similarly, a reduction of diversity from a current score of 0.7 to a without offset score of 0.4 requires further justification since much of the habitat for this species appears to be deep within the existing river corridor (not the upper slope where this threat is likely to be greatest as indicated on p. 183) and therefore the majority of existing habitat may not be vulnerable to weed invasion. Further, the diversity score for box gum woodland within the same conservation corridor (Table 5.21) does not appear to have been scored consistently (although Table 5.21 may contain an error – see comment in next section).

Overall, Umwelt predict that 110.1% of the impact is offset by the proposal, based primarily to predicted gains and averted losses associated with weed control and threats with the establishment of the proposed West Belconnen Conservation Corridor. Given my questioning of two key areas of gain in this score, this should be examined closely. Further averted losses may be required through slight modifications to the boundary of the

Conservation Corridor or by designating and managing urban open space within some of the habitat for this species impacted by the proposal.

### **Offset strategy for Box Gum Woodland**

The strategy for this protected matter is based on establishing a gross area of 68.2ha of offset for 3.8 ha of cleared habitat and the proponent predicts that this will offset 412% of the impact.

It appears that the proposal does not directly impact native vegetation that meets the EPBC definition for this community, so this offset appears to be provided because of potential impacts of the development on adjacent Box Gum Woodland and connectivity of the community in the area.

As indicated for the other protected matters, details of management actions upon which gains have been predicted are lacking. Further, the additionality of this offset needs to be justified given protection of box gum woodland with the West Belconnen Conservation Corridor is an existing commitment in the Molonglo Strategic Assessment (p. 94).

The scoring system for this protected matter appears to be appropriate, although the structure sub-score could be based on mature trees in keeping with the definition of this community. However, the current approach is more conservative or precautionary and does not need to be changed. Reference to “eight” threats on p. 188 should read “18”. Provision of ‘raw’ scores (as in assessments for the other species) would be helpful. Table 5.21 does not have “without offset” and “with offset” tables (are these incorrectly labelled “impact site” and “offset site” on p. 192?).

Notwithstanding the additionality of the proposed offset actions, the strategy for this protected matter appears to be appropriate.

### **Management of offset sites**

Employing a trust to manage the offset sites is a model that has worked elsewhere in the Australian Capital Territory and is strongly supported.

### **References**

- Australian Government. (2010) *Draft Recommendation Report. Macgregor West 2 Estate, Macgregor ACT EPBC 2010/5520*. Department of Environment, Water, Heritage and the Arts, Canberra, Australia.
- Australian Government. (2012) *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offset Policy*. Department of Sustainability, Environment, Water, Population and Communities, Canberra, Australia.
- Australian Government. (undated) *How to use the offsets assessment guide*. Australian Government, Canberra, Australia.
- Brown Consulting. (2014) *West Belconnen Structure Plan: Ginninderra Drive Extension Alignment Options Study*, prepared for The Riverview Group, Canberra.

- Gibson-Roy P., Moore G., Delpratt J. (2010) Testing methods for reducing weed loads in preparation for reconstructing species-rich native grassland by direct seeding. *Ecol Manage Restor* **11**, 135-139.
- Le Roux D.S., Ikin K., Lindenmayer D.B., Manning A.D., Gibbons P. (2015) Single large or several small? Applying biogeographic principles to tree-level conservation and biodiversity offsets. *Biol Conserv* **191**, 558-566.
- Rayner L., Lindenmayer D.B., Wood J.T., Gibbons P., Manning A.D. (2014) Are protected areas maintaining bird diversity? *Ecography* **37**, 43-53.
- Turner I.M. (2005) Landscape ecology: What is the state of the science? *Annual Reviews of Ecology, Evolution and Systematics* **36**, 319-344.