

Nature Conservation Policy  
Your Say – ACT Government

## **PINK TAILED WORM LIZARD DRAFT ACTION PLAN**

Dear Nature Conservation Policy team,

Thank you for the opportunity to comment on the Pink Tailed Worm Lizard (PTWL) draft action plan, dated 20<sup>th</sup> October 2016. I am pleased to observe the ACT Government's efforts in the development of this draft action plan, and offer these comments in the hope that they may contribute to further strengthening conservation efforts for this unique species.

This submission will cover:

- Population considerations
- Use of rural leaseholds as habitat
- The special offset requirement
- Fire management
- Urban edge management

### **Population considerations**

#### *Minimum viable populations*

The draft action plan identifies populations of 500 or more breeding individuals as being afforded formal protection measures. The draft action plan should clearly state how this figure was calculated, given the significant discrepancy between the figure identified in the Plan and those found during desktop study of minimum viable populations (MVP) for conservation of vertebrate species. Several studies on minimum viable population indicate a significantly higher number for vertebrate species: one such study published in Biological Conservation found that, of a study of 102 vertebrate species, the 'mean and median estimates of MVP were 7316 and 5816 adults, respectively'. The study noted that these figures were:

'...slightly larger than, but in general agreement with, previous estimates of MVP. MVPs did not differ significantly among major taxa, or with latitude or trophic level, but were negatively

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correlated with population growth rate and positively correlated with the length of the study used to parameterize the model.<sup>1</sup>

A meta-study of 30 years of MVP studies also concluded that ‘the MVP for most species will exceed a few thousand individuals’.<sup>2</sup>

Determining a minimum viable population figure that is based on the best scientific evidence available is particularly important in this case, as a number of significant management decisions and actions within the draft action plan are based on the relative sizes of various populations of PTWL (i.e. what constitutes large, medium and small populations of PTWL and their associated management actions). For populations that are isolated from other habitat patches, a minimum population threshold of 500 may not be sufficient to ensure long term species persistence.

#### *Actions for medium and small areas*

Noting the intention to ‘conserve the species through appropriate mechanisms such as land management agreements or conservator’s directions’ for non-protected PTWL habitat, the draft action plan should also consider the following options for both medium and small habitat patches:

- *Incorporation of sites into existing reserve areas* – where feasible reserve areas may be expanded to include PTWL habitat sites that are not covered by other formal conservation measures
- *Conservation covenants*– where rural leaseholds are identified as ‘an important habitat connection where they are adjacent to discontinuous habitat in the river corridor nature reserves’, conservation covenants could be developed to provide an additional formal basis for conservation that would supplement any measures specified in land management agreements (the current action identified in the draft action plan)
- *Increasing awareness through education*– an education program for landholders should also be incorporated into the draft action plan, noting that ‘about a third of the likely habitat for the species appears to occur on leasehold farmland’. This education activity could include: the status of the species, identification of habitat and the importance of leaseholds as habitat corridors, known and potential threats, habitat conservation measures such as control of invasive plant and animal species.

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<sup>1</sup> Reed, David H et al. "Estimates Of Minimum Viable Population Sizes For Vertebrates And Factors Influencing Those Estimates". *Biological Conservation* 113.1 (2003): 23-34.

<sup>2</sup> TRAILL, L, C BRADSHAW, and B BROOK. "Minimum Viable Population Size: A Meta-Analysis Of 30 Years Of Published Estimates". *Biological Conservation* 139.1-2 (2007): 159-166.

### *Genetic diversity appears undervalued in the current draft action plan*

The plan articulates a process where populations have been categorised according to their size, site quality and associated viability. The plan acknowledges that the small populations are not afforded the same level of protection as medium and large populations. This triaging of small populations does not appear to adequately account for their importance as providers of genetic diversity to the overall population. Given that 'genetic diversity generally underpins population resilience and persistence'<sup>3</sup>, the loss of these small populations is likely to have an adverse impact on conservation efforts for this species and consequently should be avoided.

### ***Reliance on rural leaseholds as habitat***

The Plan notes that:

- 'It is likely that rural properties with suitable habitat comprise an important habitat connection where they are adjacent to discontinuous habitat in the river corridor nature reserves'
- 'About a third of the likely habitat for the species appears to occur on leasehold farmland, and this has not been surveyed.'
- 'Where connectivity within the existing reserve network is discontinuous (for example in areas within the river corridors that do not have suitable rocky terrain), connectivity may potentially continue through adjacent rural leased farmland (e.g. via areas with low rocky hills with native pasture).'

Taken together, the quotations above indicate a level of reliance on rural leaseholds to provide crucial habitat connectivity where habitat is not formally protected, and yet the presence, quantity and quality of PTWL habitat on rural leaseholds are unknown. The ACT Government should assess whether the leaseholds in question have sufficient habitat to fulfil the role of providing connectivity between reserve areas. If leaseholds are not able to provide this landscape function, the ACT Government should investigate other options to maintain habitat connectivity given its importance for the long term viability of the species. If certain leaseholds are identified as significant habitat areas, individual measures should be considered to engage and formalise conservation within the lease.

### **Special offset requirement for *A. parapulchella***

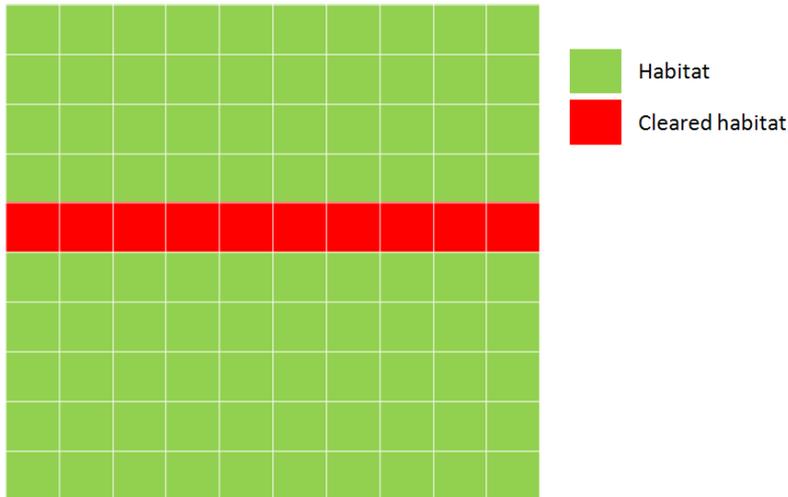
The special offset requirement for *A. parapulchella* is "Up to 10% of a habitat patch may be cleared [and offset] if the habitat patch is greater than 5 ha and clearance does not result in fragmentation of the existing patch."

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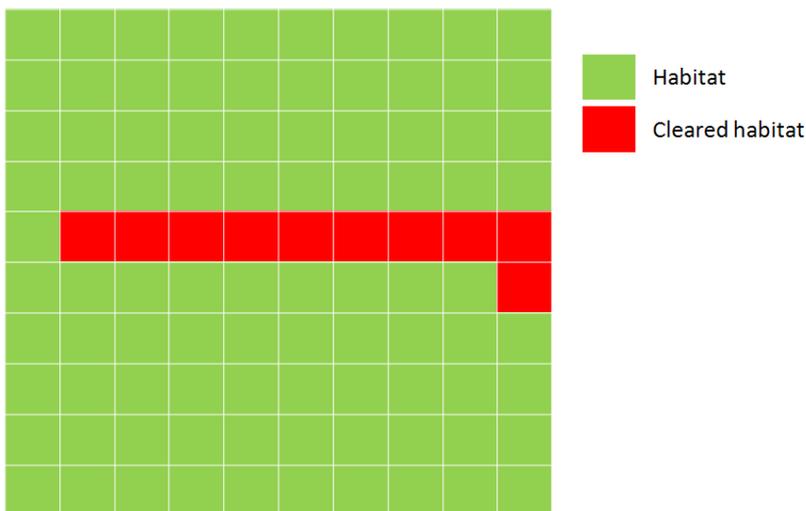
<sup>3</sup> Furlan, Elise et al. "Small Population Size And Extremely Low Levels Of Genetic Diversity In Island Populations Of The Platypus, *Ornithorhynchus Anatinus*". *Ecology and Evolution* 2.4 (2012): 844-857.

The ACT Government should clearly state the rationale for the special offset requirement, cited above, as it is not clear how this special offset requirement ensures or contributes towards appropriate protection for the species.

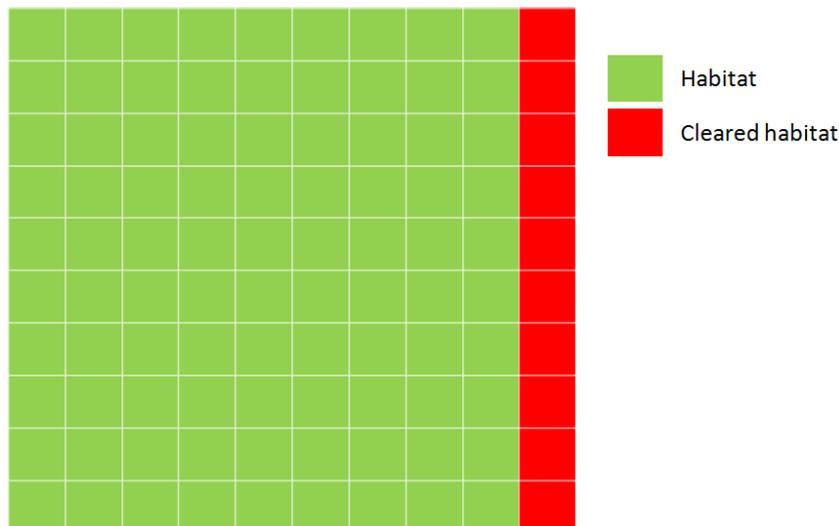
In addition, the ACT Government should specify in more precise terms what constitutes fragmentation in the context of habitat clearing under the offset requirement. Three hypothetical examples of clearing have been provided below which illustrate why a clear definition is important:



**Figure 1: 10% clearance causing clear habitat fragmentation of existing patch (disallowed under the current offset requirement)**



**Figure 2: 10% clearance that does not totally separate habitat patches on either side of clearing, but would still result in considerable habitat fragmentation (allowable under current offset requirement)**



**Figure 3: 10% clearance where the clearance has occurred at the perimeter of the habitat patch, limiting the impact of habitat clearance and minimising fragmentation (allowed under current offset requirement)**

### **Fire management**

Given that relatively little is known of PTWL movement characteristics (particularly over open exposed ground as might be found after a burn), fire management should employ a precautionary approach and burn the minimum patch size possible in a mosaic fashion. Noting the observations of Knopp et al that PTWL do not appear to disperse across ranges of over 1km, at a minimum it seems prudent to set patch burn sizes lower than this 1km figure.

Fire needs to be managed carefully taking into account the ecology and seasonal levels of activity of the species. PTWL have been observed entering a dormant state during winter, where they remain underground in relative safety from fires. This presents an opportunity to burn without posing a significant threat to the species, however winter may also present challenging conditions for fire managers (i.e. the difficulty of conducting effective burns in wet winter conditions).

### **Managing urban edge**

As noted in the Molonglo River Park Concept Plan, it is expected that ‘a significant component of the new residents’ recreation and social needs must be met within the less environmentally sensitive areas of the future park’. Given the expected high resident density of the new Molonglo development (roughly double the ACT average density), the impacts of resident use of the reserve areas will require careful monitoring and management to limit impacts on PTWL habitat. The ACT Government should ensure that the Molonglo River Park is sufficiently staffed with rangers to carry out the specific monitoring, public communication and management activities required to protect PTWL habitat, in addition to broader conservation efforts.

Monitoring of community access and associated impacts on the reserve may require frequent monitoring early in the establishment of the community (i.e. once residents are living in the area), particularly noting the potential for creation of informal access points.

Thank you once again for the opportunity to comment on the PTWL draft action plan.

Yours sincerely

A handwritten signature in blue ink that reads "Kate Auty". The signature is written in a cursive style with a large initial 'K'.

Dr Kate Auty  
Commissioner for Sustainability  
and the Environment

6 December 2016