

A review of Offsets Policy in the ACT – focussing on design and analysis

November 2019

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Executive Summary

- The ACT developed its own offsets policy in the context of a planned Commonwealth “One Stop Shop” to accredit state and territory governments to undertake Commonwealth compliant environmental assessments and approvals. However, that policy was not progressed and thus, in effect, the EPBC Offsets Policy replaces that developed by the ACT.
- Since the policy’s inception, academic studies have identified that offsets policy perversely allows inappropriately offsetting sites that themselves would be protected under the same policy, thus conferring no conservation benefit. It appears that many offsets within the ACT commit this error. The extent of this problem should be evaluated and rectified as far as possible.
- To provide biodiversity benefits offsets should rely principally on restoration. These should make up the majority of future offsets.
- To date there has been no overall evaluation of whether offsets are achieving, or on a trajectory to achieve, their principal goal of overall no net loss for each threatened species or ecological community.
- The documentation available on the [ACT Offsets Register](#) does not give sufficient information to conduct such an analysis. The lack of detail in data presentation and information about intended analysis are suggestive that the policy will not be able to be evaluated in a statistically rigorous scientific manner.
- The above statements are constrained by the lack of data availability and poor structure of the ACT Offsets register. The register should be revised to explicitly present the data used in the original calculations on the EPBC Offsets calculator and monitoring data should be formatted in a manner that facilitates comparison.
- ACT will increasingly rely on NSW to find offsets due to the limited available remaining land in the Territory. Under the new NSW offsets policy, it may be more feasible to achieve the necessary increase in the proportion of restoration-based offsets used.
- The conservation status of two key threatened species, Grassland Earless Dragon and Golden Sun Moth, are currently under assessment and both are likely to change in ways that have implications for ACT offsets. It would be prudent for the ACT Government to consider the likely outcomes and plan appropriate policy and operational responses in anticipation.
- The Commonwealth EPBC Act 10-year review has commenced at the time of writing this document. Given the dependence of ACT Offsets on EPBC Offsets policy, it is recommended that the ACT policy not be formally reviewed under the Planning and Development Act until the outcomes of the EPBC Act review are known.
- There is ample room to improve offsets practice to increase the likelihood that success can be achieved. These are not contrary to existing policy but rather, either seek to improve compliance with it, or extend beyond it.

Introduction

The principle of environmental offsets is that where a loss of some component of the environment is inevitable due to development, that loss can be offset by creating a gain in the environment elsewhere. In this context, the focus is on the loss of biodiversity components of the environment. More specifically, under consideration here is ACT Offsets Policy, designed to prevent the decline of listed threatened species or ecological communities. In effect, this is also a consideration of the effect of Offsets Policy under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Policy) because:

- a. the ACT Offsets Policy is based on EPBC Offsets Policy (<http://www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy>), and;
- b. in practice, the ACT Offsets Policy has never been implemented because it was prepared under an intended cross-governmental policy approach with the Commonwealth (the One Stop Shop for environmental approvals) that was not progressed.

Typically, the aim of offsets policies is to achieve no net loss of biodiversity. This is expressed in the ACT and EPBC Policies as an objective being "to ensure the impacts from the loss of ecological communities and habitat are balanced by commensurate gains in extent or quality elsewhere."

Thus the review of offsets policy boils down to a single question: Are the offsets provided leading to no net loss of biodiversity after developments have occurred?

If we cannot answer that question in the affirmative, then the policy is failing and must be revised. If we cannot answer that question at all, then the system of monitoring and data reporting needs to be changed so that it can be answered.

A caveat here is that it is clear that the ACT environment is better off with the offsets policy in place than without it. There has been substantial investment in the implementation of offsets, with many positive effects. The risk is that if the offsets policy is not fully effective, it locks in gradual decline in the environment.

Context

This review has been prepared in the context of a number of reviews either recently completed, or ongoing. These include:

- Independent Audit of the Molonglo Valley Strategic Assessment (Commissioner for Sustainability and the Environment 2018a)
- Independent Audit of the Gungahlin Strategic Assessment (Commissioner for Sustainability and the Environment 2018b)
- ACT Treasury review of Offsets funding (2019 *ongoing*)
- Issues paper (2019/1): Environmental Offsets in the ACT (Commissioner for Sustainability and the Environment 2019)
- State of the Environment 2015-2019 Biodiversity Policy Evaluation (Commissioner for Sustainability and the Environment 2019 *ongoing*)
- A review of biodiversity offsets implemented in the Australian Capital Territory under the Environment Protection and Biodiversity Conservation Act 1999 (Connors 2019). Honours Thesis Australian National University

While it should be noted that the two audits of strategic assessments are not strictly offset reviews, offsets are amongst the principal mechanisms used in each case to address environmental impacts and thus the audits act as *de facto* offset reviews. These two strategic assessments comprise 80% of

current ACT offsets (Commissioner for Sustainability and the Environment 2019). The audits do not, however, incorporate detailed analysis of the monitoring approach(es) or data (which, to date, is lacking). The Issues Paper by ACT Commissioner for Sustainability and the Environment is an offsets review and relies heavily on the audits. It tends to focus on the practical implementation of the Offsets Policy with relatively shallow examination of whether the design of the policy itself meets its specific intent. Similarly, State of the Environment reporting focusses on policy implementation and emerging difficulties, particularly with respect to diminishing land available for offsets within the ACT.

The Treasury review is specifically focussed on funding arrangements and is ongoing, so will not be referred to further here, except in so far as noting that issues around policy implementation arise because of funding insecurity (identified in the reviews described above).

Thus, the Directorate is well served with information on the practical application of this policy to date. That information is referred to herein as appropriate.

In contrast, there appears to have been relatively little examination of the principal aim of the policy, whether it meets that aim, or in fact, whether or how we can answer that fundamental question. In that regard, this review more closely aligns with the approach of the academic thesis above.

A final important note of context: the ACT developed a formal offsets policy in the context of the Commonwealth's intended "One Stop Shop" approach of accrediting state and territory government approvals processes. However, that accreditation has not eventuated and in effect the EPBC Offsets Policy overrides this. Therefore, relatively little opportunity exists for the ACT to directly influence offsets policy. However, the EPBC Act is to be reviewed, commencing October 2019. There will be opportunities to directly influence EPBC Offsets policies, and by extension, ACT Offsets Policy.

Nevertheless, there are clear deficiencies in the current EPBC Offsets Policy (identified below) and it is not beyond ACT to address these in practice as they would extend current policy, rather than detract from it.

Basic concepts/principles of offset policy

The overriding goal of offsets policy is the concept of No Net Loss. That is, that condition of the entity being impacted by the development or activity, in combination with the offset, should be at least as good as it would otherwise have been without the activity having taken place. The loss at the development site should be *offset* by the improvement at the offset site.

Importantly, while intuitively the condition of the development site at the time development commences provides the baseline against which to measure the biodiversity loss (and thus the required gain from the offset) the condition of either site is not usually static. The condition of both development and offset sites would be expected to change over time, and thus the value of the offset needs to be measured against that expected trend. In the academic literature on offsets this is referred to as a "counterfactual". This is formally recognised in the design of the EPBC Offsets Policy (Miller et al. 2015), although it is referred to in the policy itself (and associated offset calculator) as the "future quality without offset". This is illustrated in Figure 1.

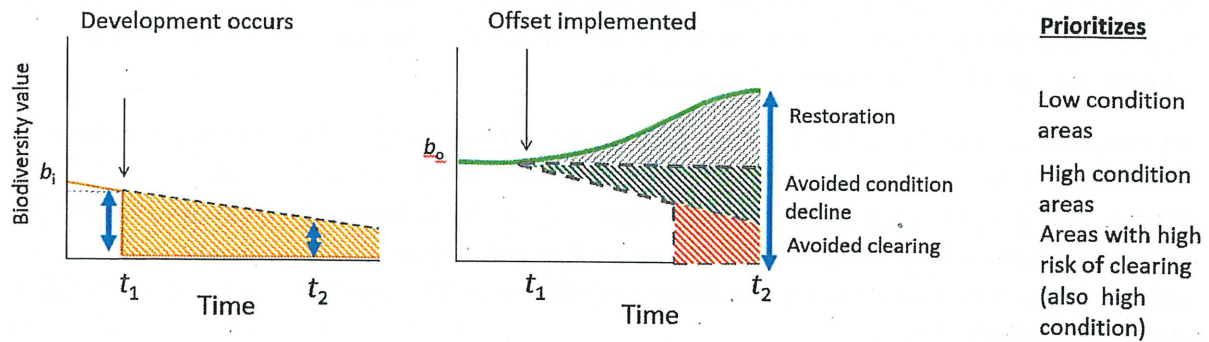


Figure 1. Illustration of the losses due to development (left) and potential gains at the offset site (right). t_1 is the time at which development occurs and t_2 is the time at which the benefits of the offsets accrue. The slope of the line in the graph at left shows ongoing gradual decline of habitat quality, which constitutes the “counterfactual” against which offset gains are measured. If the offset site was itself at risk of being cleared/developed then the area in red is the “averted loss”. If improved management (e.g. weed control) has enabled the ongoing decline in condition to be avoided that is represented by the area in green. If habitat quality has been increased by active management (e.g. active revegetation) that is a restoration gain. The text in the column at right described the types of offset sites where the type of gain is favoured.

While Figure 1 demonstrates the fundamental concepts of offsetting, it can also be used to identify some key issues with offsetting in practice.

Firstly, clearly and precisely articulating the counterfactual matters. The counterfactual essentially consists of the risk of loss at the offset site due to ongoing decline or loss of habitat combined with the risk of losing the habitat to clearing/development.

If the slope of the ongoing decline aspect of the counterfactual is overestimated (too steep) then avoided decline would be overestimated. This can have the effect of locking in that level of decline (Gordon et al. 2015, Maron et al. 2015). It follows that appropriately estimating the counterfactual requires survey and monitoring, ideally at the site level but at least at the level of the habitat type regionally.

This counterfactual annual rate of decline has been estimated for woody vegetation in the ACT. Maron et al. (2015) estimated a decline rate of 0.5% per annum, Connors (2019) estimated it to be 0.4% and Maseyk et al. (2017) estimated it at 0.03% with a caveat that they believed it to be an overestimate, but one that could not be avoided given the nature of the data available. Where there are not site-specific estimates available, the value of Maseyk et al. (2017), as the lower of the available estimates, should be used. Whether or not appropriate estimates of this key variable have been used is unable to be assessed here because they are not routinely published as a part of the ACT Offsets Register.

Recommendations:

1. Implement/continue monitoring of habitat types likely to be offset in order to accurately estimate the counterfactual against which offset success is measured.
2. If the above is not possible, use the estimate of 0.03% per annum from Maseyk et al. (2017) (which was provided directly to the Commonwealth as commissioned advice).

The other key part of the counterfactual is the averted loss (or “avoided clearing” in Figure 1). That is, where the offset site itself is at risk of future development or clearing, there is a potential conservation gain from its protection as an offset.

An important note of caution to be raised here is that there can only be a biodiversity gain from avoided loss if there is a genuine risk of clearing the offset site. The EPBC Offsets Assessment Guide requires that proponents provide “The risk of loss is a percentage figure that describes the chance that the habitat on the proposed offset site will be completely lost.” It is necessary to identify the range of impacts that may occur on the offset site within the stated timeframe (maximum 20 years under EPBC Offsets Policy).

It has recently been identified that there is an important distinction to be made between impacts that themselves are subject to the same regulations as the development for which the offset is sought and impacts that are not regulated (Maseyk et al. 2017; Maron et al. 2018). Maron et al. (2018) referred to these as Type 1 and Type 2 respectively.

A Type 1 impact incurs no averted loss. Because the clearing or development of the offset site would itself require its own offset there is no biodiversity benefit in its protection alone as an offset. In practical terms, that means that if a threatened species is found at the development site, necessitating an offset, then if the threatened species is present at the offset site it cannot be claimed as an averted loss. The benefit of the offset must come from avoided decline and/or habitat restoration activities that would facilitate the threatened species colonising the site (which may be undertaken at the site of a Type 1 impact).

The ACT and EPBC Offsets policies allow the offsetting of Type 1 impacts. In the ACT, in defining ‘Direct Offsets’, the policy says “For example, transferring an area of developable land which contains BGW (Box Gum Woodlands) into the reserve network and improving its condition would be considered a direct offset for an action that is significantly impacting on another area containing BGW (like-for-like).” The development of land containing BGW is a Type 1 impact because the BGW is a threatened ecological community and thus would require its own offset to be cleared. Nevertheless, the additional effort in improving the condition of the offset site would be an appropriate component of the offset.

There are examples on the [ACT Offsets Register](#) of sites where this kind of inappropriate offset appears to have been made. However, because the explicit offsets calculations made are not included in the register, it is not possible in most cases to see the contribution of averted loss to the overall value of the offset. That is, the published plans include not just the protection from clearing, but typically also a variety of maintenance and restoration activities. Without the detail from the calculator it is not possible to determine the contribution of each activity (Connors 2019).

For example, the November 2013 Jarramlee Offset Management Plan describes the site (p4, s2.1 “Conservation Significance”) thus:

“Jarramlee is of high conservation significance, supporting a large population of the critically endangered Golden Sun Moth and small patches of the endangered natural temperate grassland ecological community.”

In the context of being adjacent to areas now being developed (e.g. Ginninderry) there was an obvious case that the site could be cleared in future. But it is also very clear that such an activity would itself have had to be offset due to the presence of the Golden Sun Moth. That the site has now been incorporated into Canberra Nature Park implies the offsetting of a Type 1 impact has

occurred and the benefit of the offset has been overestimated. Such an overestimation is likely to lock in decline of the species (Gordon et al. 2015, Maron et al. 2015, Maron et al. 2019). Again, it must be noted that because of the lack of data available on the [ACT Offsets Register](#) on the initial offset calculations, it is not possible to determine the severity of this error.

A significant consequence of the consideration above is that it is highly likely that ACT offsets are too reliant on offsetting Type 1 impacts (inappropriate) and overstate the rate of background decline in estimating the value of avoided condition decline. The practical effect of this is that to make up the shortfall, the only alternative is to increase the application of restoration (Connors 2019, Maseyk et al. in press). This has its own inherent difficulties, chiefly that restoration offsets are resource intensive, the likelihood of success is uncertain and the benefits do not accrue until the future (Maron et al. 2012). Of particular concern is that some habitat features (e.g. tree hollows) take an exceptionally long time to develop (Gibbons et al. 2018).

Recommendations:

3. Quantify the contribution of offsetting Type 1 impacts to the overall benefits of existing offsets in ACT (separately for each protected species or community).
4. Revise ACT Offsets Policy to provide advice to avoid Type 1 impacts. Liaise with the Commonwealth Department of the Environment and Energy to encourage it to do the same (possibly via the EPBC Act 10-yearly Review).
5. Ensure the ACT Offsets Register explicitly and publicly details the data used to complete the EPBC Offsets calculator, including the estimated background rate of decline.

Statistical Analysis to Assess Condition Trends

Determining whether offsets work is inherently a question of comparison via statistical testing. That is, measuring some aspect of the site at the beginning of the offset period and again at the time benefits have been estimated to accrue (usually 20 years) and asking the question of whether it is unchanged, bigger or smaller. Typically, this is formalised using a statistical test.

Few of the offset documents available on the ACT Offsets Register describe formally how the data will be analysed to answer the central question of whether there has been no net loss. While simply comparing before and after values for, say, population numbers of Golden Sun Moth is conceptually simple, doing it in a rigorous manner is considerably more difficult. There is a substantial literature on the issues of detecting trends in threatened species. A general rule is that the smaller the population, the harder it is to demonstrate a trend or change with statistical confidence (Taylor and Gerrodette 1993). Most statistical advisors will say that a monitoring program should be designed with the key question and subsequent analysis at front of mind (e.g. Lindenmayer and Likens 2018). An optimal monitoring program to detect environmental change should clearly specify the size of the trend to be detected, the statistical method to be used in analysis, the statistical power of that test and the time period and number of surveys over which the data will be collected.

A review of the available documents on the ACT Offsets Register (https://www.planning.act.gov.au/tools_resources/plans-registers/registers/offsets-register) shows that few, if any, offset management plans include such detail. One plan that includes some clear statements of what the monitoring aims to detect, and includes performance measures, is the Kinlyside offset (ACT Government 2015a). It refers then for additional detail to Habitat Improvement Plans. The plan for Golden Sun Moth (ACT Government 2015b), for example, identifies an intent “to

provide data for long-term abundance trends at sites” but does not indicate the form of testing that will be used, nor the strength of trend intended to be detected.

Given the relatively young life of the offsets program, this has not yet been prominently raised as a significant issue. Several of the offset plans and reports note that it is too early to tell if the offsets are working. It is likely that the weakness of the monitoring programs to detect trends in the protected matters will emerge as a substantial issue in the near future as attempts are made to formally ask whether the offsets are working. It is possible that the efficacy of a significant proportion of the current ACT offsets will not be able to be properly evaluated.

The Independent Audit of the Molonglo Valley Strategic Assessment identified as a key risk “implementation monitoring and condition enhancement” (Commissioner for Sustainability and the Environment 2018a), noting uncertainty in the number of years of monitoring required to establish a baseline, suggesting the first five years of monitoring should be used. Here it must be noted that best practice is to establish the baseline before the impact occurs (see also next section).

The audit refers to the procedures manual for monitoring of vegetation (Sharp and Milner 2014). The procedures manual acknowledges the issue of data variability, but provides little detail of just how that will be addressed except to identify ordination analysis as the preferred approach. It does not, for example, state the size of change that the analysis should be able to detect. The audit recommended to “Clearly document analysis of the monitoring data to determine if the ecological condition of MNES has been maintained, and secondarily enhanced.” It is important to acknowledge here that the audit itself did not analyse data. That is, it is a necessary, but not sufficient, measure to ensure offsets are functioning appropriately. Formal analysis is a vital complement to the audits. As noted in a submission by experts to the Senate Inquiry into faunal extinction (Maron et al. 2019), to ensure that outcomes are achieved and that the application of outcome based conditions for offsetting is effective, monitoring for compliance with conditions would need to include not only monitoring of actions, but of outcomes.

The *Gooromon Grasslands Offset Management Plan 2018–23* is one of the few offset plans to explicitly identify the need for statistical analysis. In its section on Baseline Data (s6.6.1, p60) it states that “careful record keeping and data curation (protocols currently in development by ACT Government ecologists) will maximize the opportunity to apply rigorous statistical analysis of monitoring data to explore (statistically significant) temporal patterns and trends in MNES that account for variability in weather and other influences external to management”. While this is a positive step, it omits the details of how this will be done, and thus the only assurance that it will be sufficient is the explicit involvement of “Government ecologists”.

In that context, it is pertinent to note that the Conservation Research section of the ACT Government has recently designed its *Conservation Effectiveness Monitoring Program* (CEMP) (Brawata et al. 2017). The cited document is a self-described ‘overview’ so does not have fine detail, but considers similar issues to those cited above about detecting trends in ecological data. Given that the ‘Government ecologists’ cited as involved in the Gooromon Grasslands offsets plan are from the Conservation Research section, it is to be hoped that these issues will not arise for at least that offset. There may be value in considering a formal application of the CEMP approach to offsets monitoring in the ACT.

Recommendations:

6. Conduct expert evaluation of offsets monitoring to estimate the sizes of effects (e.g. changes in population size, or community extent) that are able to be formally determined statistically with the current monitoring designs.
7. Compare the above to legal requirements necessary to enforce offsets policy (impose penalties) under the ACT *Planning and Development Act (2007)* or Commonwealth *Environment Protection and Biodiversity Conservation Act (1999)*.
8. Use the CEMP to inform evaluation and/or (re)design of offsets monitoring program (e.g. it may provide baselines for counterfactuals)
9. Consider explicitly linking the CEMP to offsets monitoring
10. Recognise that such analysis is a fundamental part of implementing offsets and thus that the costs of doing so should be reflected in the costs incurred by the Developer.

Transparency

In her academic review of the ACT Offsets, Connors (2019) stated that “the single biggest limitation of my research, and fundamental topic for consideration, is the lack of data available on the developments and offsets examined here.”

This has been the case too in this review, and is contrary to the stated policy principles of both EPBC and ACT Offsets Policies (which, in this regard, are identical):

Suitable offsets must:

- be efficient, effective, timely, transparent, scientifically robust and reasonable
- have transparent governance arrangements, including being able to be readily measured, monitored, audited and enforced.

In assessing the suitability of an offset, government decision-making will be:

- conducted in a consistent and transparent manner

The ACT Offsets Register is the only means by which offsets practice addresses the requirement for transparency. While the ACT is considerably more advanced in this than the EPBC Offsets Policy administered by the Commonwealth (which has no register in place as at October 2019), the publicly available information is highly variable in both format and content. It is not sufficiently transparent to truly evaluate whether the policy is meeting its stated objective “to ensure the impacts from the loss of ecological communities and habitat are balanced by commensurate gains in extent or quality elsewhere.”

It would be a considerable task to reconfigure both the register and the attached documentation to achieve the necessary level of transparency. At the least this would mean developing some standard format or template for the required information, combing through the available documents to complete the template for each combination of protected matter (species or EC). It will very likely be necessary to also seek additional documentation or evidence to fill gaps. The minimum information required will be the parameters entered into the EPBC Offsets calculator at the time of the approval of the offset and the corresponding estimates of how those have changed. The data to estimate these parameters should be structured such that they are amenable to formal statistical analysis. This should be done in collaboration with an expert biological statistician.

Offsets should use an Adaptive Management approach, and this is reflected in the discussion of some of the monitoring reports available on the ACT Offsets Register. However, best practice adaptive management would utilise formal analysis of the trends in the matters of interest and thus when the data have been appropriately collated and formatted, they should be statistically analysed. As this will demonstrate the statistical power of the data collected to date, it would enable both the monitoring and the analytical approach to be adapted.

The approach advocated here is necessarily retrospective and thus will be difficult, but this will become increasingly so as offsets approach the age (typically 20 years) at which they are expected to deliver their biodiversity benefits. Already a significant proportion of ACT Offsets are several years into their terms without clear evidence of their efficacy. The audit of the Molonglo Strategic Assessment was undertaken after six years in effect but there was still uncertainty about number of years of monitoring required to establish a baseline (suggesting 3-7 years) (Commissioner for Sustainability and the Environment 2018a). A baseline, by its very nature should be established at or before the commencement of offset. Establishing the baseline six or more years after the commencement must surely constrain the ability to determine the efficacy of the offset at its completion.

Importantly, the success or otherwise of the Offsets Policy is not determined by the success of any one individual offset, but by the cumulative effect of all offsets for each individual species or ecological community subject to those offsets. Fluctuations in distribution and numbers of species are entirely natural and to be expected, particularly over smaller scales. If, for example, an offset for Golden Sun Moth fails, that is less than ideal, but if the extent of habitat and population size overall remain at or above the levels present when the Offsets Policy commenced then it has succeeded overall. The design of the Offsets Calculator recognises this through incorporating uncertainty about the outcome (and applying a correction such that offsets are greater when uncertainty is greater). By implication this is also recognition that some offsets will fail. Thus any consideration of data collation and analysis for a given threatened species or community should be directed to the ability to assess the overall policy across all relevant offsets. And it should include the capacity to incorporate new offsets into the analysis as necessary.

It is notable that the data and methods used in monitoring ACT Offsets to date vary between offsets and species and ecological communities. There are likely to be deficiencies in the data that constrain the analyses to be less than ideal and require some expert judgement to be made in, for example, inferring likely values/outcomes where gaps in the data are found. An appropriate way to identify a feasible approach to addressing the data problems may be, once the data have been cleaned up and standardised as far as can reasonably expected, to hold an expert workshop of biologists, statisticians and policy makers. Collectively they could determine what is possible or acceptable in terms of operational constraints on data collection, how it can be analysed and what compromises may be made in reaching policy decisions. Ultimately, the data needs to be stored in a central repository, such as the EPSDD Data Lake.

Finally, the inconsistency in approaches across Offsets is at least partly a function of the multiple organisations involved in their design and execution. Noting the Offsets Policy principle that they “have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced” it is recommended that ACT Government ensure that in future the responsibilities for Offsets resides entirely in a single directorate and ideally within a section or branch dedicated to offsets. That section should include, or have clear access to, people with sufficient technical expertise to understand the design principles behind offsets policy, the ecology of the matters being offset and the analysis of the data pertaining to them.

Recommendations:

11. Commission an expert biological statistician to work with ACT Government staff to extract and collate all the parameters entered into the EPBC Offsets Calculator in a format amenable to incorporation of monitoring data collected to date to facilitate statistical analysis.
12. Conduct preliminary analyses to inform adaptive management of offsets sites and potential redesign and standardisation of future offsets monitoring.
13. Hold an expert workshop, including policy makers, biologists and statisticians, to develop an analytical approach to examine the complete offsets dataset and assess its efficacy in achieving no net loss for each species or ecological community offset separately.
14. Once the appropriate format has been agreed and existing data retrospectively formatted, all future data should be formatted similarly and stored in a single central repository (such as the EPSDD Data Lake).
15. Ensure that the ongoing governance of Offsets Policy (for all offsets in ACT) is contained within a cohesive section of the ACT Government with sufficient expertise to ensure that data quality allows timely and regular analysis that facilitates adaptive management.

Future Considerations

Climate Change

Climate change is not addressed in either ACT or EPBC Offsets policy. EPBC policy is entirely silent, while ACT policy refers to climate change as one of a number of impacts that “require alternative approaches not specifically dealt with through this Policy, although they may be important considerations in deciding the appropriate management of offset sites.” At the time of writing the region is experiencing severe drought, potentially exacerbated by climate change, and the ACT Government has commenced a provenance trial for Blakely’s Red Gum (*Eucalyptus blakelyi*) to inform strategies for habitat management under climate change. Clearly, offsets policy should address climate change, even if only to provide an explicit justification as to why it is not referenced. The audit of the Molonglo Strategic Assessment (Commissioner for Sustainability and the Environment 2018a) cited climate change as a key risk and recommended that the ACT Government incorporates climate change resilience considerations in the management of MNES in the strategic assessment area.

The ACT Government has commissioned works to evaluate the effect of climate change on the Territory’s environment. For example, a recent study examined the likely change in suitable climatic conditions for a range of plant species in the ACT (MacKenzie et al. 2019). A scientific review should be undertaken to examine the available information to evaluate whether and how climate change is likely to affect matters being offset in the foreseeable future and how this could be addressed in offset delivery. As noted previously, ACT cannot directly change EPBC Offsets Policy, but it is not precluded from taking actions beyond the policy. Nevertheless, the current review of the EPBC Act (see below) provides an opportunity to seek to influence subsequent versions of the EPBC Offsets Policy.

Limited Land Availability in the ACT

ACT already has a substantial proportion of available land in reserve and is fast running out of options for offsets (Commissioner for Sustainability and the Environment 2019). ACT already has one offset in New South Wales (Lot 2 Wallaroo Rd, part of the Gooromon Grasslands) and will almost certainly need to have more.

As noted in the (draft) State of the Environment report (Commissioner for Sustainability and the Environment 2019) there are administrative and legislative matters that need to be resolved, and various interjurisdictional governance options to consider to ensure policy outcomes are optimally achieved. These are being progressed as a matter of priority. It will be important to determine who ultimately bears responsibility for the success of the offset, and the monitoring to determine that success.

New South Wales has recently implemented its own revised offsets policy, which intends to develop a market in the trading of advanced offsets. This may provide the ACT with the opportunity to rectify its inappropriate use of offsetting of Type 1 impacts and focus more on restoration-based offsets.

Future listings

The list of threatened species and ecological communities is not static. Staff responsible for Offsets policy and implementation should be mindful of recent changes in listing practice and their effects. The ACT has signed the MOU for the Common Assessment Method (CAM) which seeks to ensure that all jurisdictions use the same criteria and assess species and communities at the national scale. Large numbers of species are being assessed under the scheme and thus may lead to changes to the list. Two species of great significance to offsets in the ACT are currently under assessment.

The taxonomy of the Grassland Earless Dragon has recently been revised, such that the dragon found in the Australian Capital Territory and adjacent New South Wales at Jerrabomberra is considered only to be found there and has been (re)named as *Tympanocryptis lineata*. The restricted distribution and smaller population size is likely to lead to its threatened status being increased to Critically Endangered, and the responsibility for securing the species will rest almost entirely with the ACT. There are unlikely to be offset options beyond the ACT.

The Golden Sun Moth (*Synemon plana*) is also under assessment by the Commonwealth Department of the Environment and Energy. Its revised status under the EPBC Threatened Species List will be adopted by the ACT under the CAM. While the outcome can only be determined by the Commonwealth Threatened Species Scientific Committee and Minister, it can be expected that the moth's status will be downgraded, as follows.

At the time of its listing under the EPBC Act in 2002, the Golden Sun Moth was considered to have a very restricted distribution, occupying only 8.8 km², and to be a habitat specialist, dependent on wallaby grass in grasslands that themselves are very much reduced. However, since its listing it has been the subject of extensive research efforts and surveys, driven particularly by development assessments around Melbourne and Canberra. As a result, estimates of habitat occupied (Area of Occupancy *sensu* EPBC listing criteria) are well over 1,000km² and it has been demonstrated to occupy habitat consisting of widespread introduced grasses such as Chilean Needle Grass. The status of Golden Sun Moth is likely to be downgraded to Vulnerable and it may even be found to be ineligible for threatened listing. Given the large number of existing offsets for Golden Sun Moth, and likely need for future offsets, ACT Offsets Policy officers should liaise closely with the Commonwealth assessment officers in order to prepare an effective and timely policy response should the species' status be downgraded.

EPBC Act Review

The *Environment Protection and Biodiversity Conservation Act 1999* incorporates a requirement that it be reviewed every 10 years. At the time of writing, the second such review has just commenced. The previous review took approximately a year. Given that the current EPBC Offset Policy was implemented subsequent to the review, and has been the subject of considerable academic interest

(e.g. insights above re: Type 1 impacts) it is likely that some revision of offsets policy will result from the current review. As offsets in the ACT are almost entirely EPBC Offsets, this is a unique opportunity to influence the policy to be more effective in the ACT context. The ACT Government should plan, in anticipation, to prepare a submission for the review and seek whatever additional opportunities there may be to have input.

Planning and Development Act Review of Offsets Policy

Under Division 6A.2.3, section 111G of the *Planning and Development Act 2007* provides:

111G Offsets policy—monitoring and review

- (1) The Minister must monitor the effectiveness of the offsets policy.
- (2) The Minister must consider, at least once every 5 years, whether the offsets policy needs to be reviewed.
- (3) In deciding whether the offsets policy needs to be reviewed, the Minister must consult—
 - (a) the planning and land authority; and
 - (b) the conservator of flora and fauna.
- (4) If the Minister decides that the offsets policy needs to be reviewed, the Minister must review the offsets policy.
- (5) In reviewing the offsets policy, the Minister must consult—
 - (a) the planning and land authority; and
 - (b) the conservator of flora and fauna.

With respect to s111G(2), and as noted above, the ACT Offsets Policy has effectively not been implemented as a standalone policy, and offsets in the ACT are almost entirely determined by the EPBC Offsets Policy. Consequently, there is little value in a formal review of the policy (beyond this document and the related reviews cited above). Given the relationship between the EPBC and the ACT policies, and in light of the EPBC Act Review, a more effective approach is to delay a review until the outcome of the EPBC Act review is known.

Nevertheless, delaying a formal review of the policy should not be an impediment to reviewing and revising offsets implementation practice as per the several reviews completed and ongoing. At present, the totality of the findings of these reviews indicate that ACT Offsets Policy will not meet its primary objective or will be unable to demonstrate that it does. There is ample room to improve the practice to increase the likelihood that success can be achieved. These are not contrary to existing policy but rather seek to improve compliance with it, or extend beyond it.

Recommendations:

- 16.** Evaluate and implement policy modifications to incorporate consideration of climate change in the implementation of offsets.
- 17.** There is an urgent need to consider how ACT/EPBC Offsets can be implemented in NSW and compliant with their policy.
- 18.** Monitor changes to the threatened species list for any species found in the ACT. In particular, track and anticipate the likely changes to the listing status of the Grassland Earless Dragon and the Golden Sun Moth and what this may mean for offsets in the ACT.
- 19.** Seek to capitalise on opportunities as they arise to influence revision of EPBC Offsets Policy under the review of the EPBC Act
- 20.** Defer any review of ACT Offsets Policy under the *Planning and Development Act 2007* (s111G(2)) until the outcomes of the EPBC Act review are known.

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