Government of **Western Australia**
Department of **Water and Environmental Regulation**

Review of the Western Australian environmental offsets framework

Final report

Department of Water and Environmental Regulation
October 2019

Department of Water and Environmental Regulation
Prime House, 8 Davidson Terrace
Joondalup Western Australia 6027
Locked Bag 10 Joondalup DC WA 6919

Phone: 08 6364 7000
Fax: 08 6364 7001
National Relay Service 13 36 77

dwer.wa.gov.au

October 2019 (Published October 2021)

FIRST 115947

Disclaimer

This publication is available at our website www.dwer.wa.gov.au or for those with special needs it can be made available in alternative formats such as audio, large print, or Braille.

Contents

Figures

Tables

Summary

Environmental offsets are actions that provide environmental benefits which counterbalance the significant residual environmental impacts or risks of a project or activity. The Department of Water and Environmental Regulation (DWER) undertook a review of the Western Australian (WA) environmental offsets framework, which comprises the environmental offsets policy (2011), guidelines (2014) and register (2013).

The purpose of the review was to assess the effectiveness of the framework and its implementation in delivering its objectives, and to make recommendations for improvement. The review focused on environmental assessment and compliance processes as they relate to environmental offsets, and the implementation of offset conditions.

The review examined information gathered through stakeholder consultation, experiences in other Australian jurisdictions, available data and published information, and the performance of offsets approved in WA since the release of the policy.

A total of 175 000 hectares of environmental offsets was approved since the release of the offsets policy in 2011. This includes acquisition of land for conservation, revegetation and rehabilitation of ecosystems. The progressive introduction of the offsets framework has improved transparency of offset arrangements and provides clear policy to guide agencies and proponents.

The review found that environmental offsets approved since the release of the offsets policy have not fully counterbalanced the significant residual impacts of approvals. Of the completed offsets that met their approval conditions (see Table 1), to date 72 per cent of the required land acquisition area had been delivered. Completed on-ground management offsets delivered environmental benefits (e.g. revegetation); however, reporting was insufficient to determine if all intended results were achieved.

The review has identified opportunities to improve the effectiveness of offsets. Detailed recommendations to improve the framework and its implementation are set out in the body of this report. The recommendations totalling 25 in all, are consolidated into 12 summary recommendations (SR) below.

An implementation plan will be developed following consideration of this report by the Minister for Environment. The plan will outline the work required to progress these recommendations, including further consultation with key stakeholders, taking into consideration the roles of the Minister, EPA and relevant departments.

SR1. The policy should be revised to:

- be consistent with the offsets guidelines, to reflect that offsets are not appropriate for impacts which are environmentally unacceptable or where no offset can be applied to reduce the impact
- more clearly state that an offset should achieve results above and beyond what would have been achieved in the absence of the offset
- ensure the definition of environmental offsets in the policy and guidelines is consistent
- update references to other legislation, including consideration of the *Biodiversity Conservation Act 2016*
- include a process for regular review of the framework and its implementation in achieving environmental outcomes.

SR2. The guidelines should be revised to reflect the changes made to the policy, include more worked examples, and provide further guidance on:

- avoidance and mitigation of impacts during project implementation
- assessment of cost-effectiveness that ensures achievement of environmental benefits
- consideration of relevance and proportionality in offset design
- application of strategic approaches to offset design.

SR3. The design and content of the offsets register should be revised to ensure information on offset implementation is complete, up to date, collated and clearly presented.

SR4. The draft WA environmental offsets metric, including the calculator and associated guideline, should be finalised as a priority having regard to the findings of this review, particularly in relation to relevance, proportionality and biodiversity values.

SR5. The operational procedures and methods for calculating offset fund contributions, including the Part V fund and the Pilbara Environmental Offsets Fund should be regularly reviewed and updated.

SR6. Work should be undertaken to improve governance and operational arrangements of the Part V Division 2 fund, with particular consideration to:

- improved reporting on fund performance
- improved mechanisms for interagency coordination
- options to assist in the identification of land with relevant values for acquisition in consultation with the future land manager
- review and update of operational procedures.

SR7. Arrangements for inter- and intra-agency coordination and communication on offsets should be improved during:

- assessment of offset proposals
- development of offset conditions
- addition of land acquisition offsets to the conservation reserve, or other measures in extensive land use areas.

SR8. Options to facilitate voluntary landowner participation in offsets should be investigated in consultation with landowner groups, proponents and government.

SR9. Offset conditions should be strengthened to improve enforceability, allow monitoring of implementation through the use of tools such as satellite imagery, and require approval holders to provide adequate information on progress of offset implementation.

SR10. DWER's annual compliance program should include reporting of offset compliance.

SR11. Further work should be undertaken to explore incentives for approval holders to reduce their impact during project planning and implementation, and address circumstances where projects do not proceed.

SR12. Bioregional plans should be developed to support development and implementation of offsets that align with regionally significant and/or landscape-scale environmental objectives.

1 Introduction

An environmental offset is 'an offsite action or actions to address significant residual environmental impacts of a development or activity' (*WA Environmental Offsets Policy 2011*). Under Parts IV and V of the *Environmental Protection Act 1986* (EP Act) offsets may be required by conditions for approvals that have a significant residual impact.

The Western Australian (WA) environmental offsets framework comprises:

- *WA Environmental Offsets Policy 2011* (offsets policy) – outlines principles for the use of offsets; developed to provide certainty, predictability and transparency to government, businesses and developers
- *WA Environmental Offsets Guidelines 2014* (offsets guidelines) – complement the policy by clarifying how environmental offsets will be determined and applied
- *WA Environmental Offsets Register 2013* (offsets register) – a central public record of all offset agreements in WA, providing transparency and accountability.

The Department of Water and Environmental Regulation (DWER) has reviewed the effectiveness of the framework and its implementation in delivering its objectives and made recommendations for improvement.

The terms of reference for the review can be found in Appendix A.

2 Review of available information

The review considered the following sources of information:

- previous studies, including published technical reports and scientific research
- documented experience from other Australian jurisdictions
- stakeholder input from agencies with a key role in offsets, and government, industry and conservation stakeholders
- advice from subject matter experts within DWER and the Department of Mines, Industry Regulation and Safety (DMIRS)
- a sample of EP Act Part IV and Part V approvals between the release of the policy in 2011 and 2018, including data stored by DMIRS and DWER
- lessons learnt from offsets which were out of scope of the review
- Appeals Convenor reports and Ministerial determinations
- matters raised in correspondence to the Minister for Environment

As part of the sample, this review considered offsets under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) where there was also an approval under the EP Act. Evidence from these sources of information was synthesised to determine findings for each element of the framework and develop recommendations for improvements.

2.1 Previous studies

Environmental offsets have been in use worldwide since the 1970s. Early on, this took the form of biodiversity trading and banking for wetland and threatened species mitigation, but over time it diversified to include over 100 offset schemes around the world (Bennett, Gallant & ten Kate 2017; Burgin 2008; IUCN, TBC & DICE 2019; McKenny and Kiesecker 2010).

Offset policy, principles and best practice information have since been developed by international organisations to address the need for guidance and improved implementation (for example, BBOP 2009, 2012; IUCN 2016; OECD 2016).

The outcomes and effectiveness of offset policies remain uncertain (Bull et al. 2013; Gibbons & Lindenmayer 2007; Gordon et al. 2011; Maron et al. 2012, 2016; May, Hobbs & Valentine 2017; Tischew et al. 2010). Of the few evaluations conducted, the issues identified include:

- not producing the anticipated biodiversity conservation outcomes (e.g. Brown & Veneman 2001; Quigley & Harper 2006; Gibbons & Lindenmayer 2007; Matthews & Endress 2008; Teal 2011; Maron et al. 2012; May, Hobbs & Valentine 2017)
- infrequent successful examples, e.g. Pickett et al. 2013 (May, Hobbs & Valentine 2017)

- difficulty translating desired outcomes into measurable and enforceable conditions (Maron et al. 2012; May, Hobbs & Valentine 2017)
- compliance with approval conditions not demonstrating replacement of ecological function (May, Hobbs & Valentine 2017; Sudol & Ambrose 2002)
- inadequate monitoring and reporting of offset implementation to regulators and the public (Bekessy et al. 2010; Lindenmayer et al. 2017; Maron et al. 2015, 2016; May, Hobbs & Valentine 2017; Richards 2016; Smokorowski et al. 2015; Walker et al. 2009)
- complex considerations in determining offset appropriateness, type, location, size, time periods, environmental values, cost-effectiveness and implementation requirements (e.g. Gelcich 2016).

Previous studies have considered the implementation of offsets policies in WA and elsewhere, and have identified a need for greater emphasis on avoidance and mitigation, risk assessment (including determining the likelihood of success), adaptive management and contingency planning, and consideration of socio-economic and local governance aspects (Bidaud et al. 2016; Bull, Lloyd & Strange 2017; Burton, Rogers & Richert 2016; Gelcich et al. 2017; Lindenmayer et al. 2017; Pilgrim et al. 2013; Smokorowski et al. 2015).

Studies have also found that offset plans should identify baselines and quantitative targets, which should then direct a monitoring program to establish the offset's effectiveness (Maron et al. 2015). Pilgrim et al. (2003) provide a decision framework to assess whether an impact can be offset by considering the key issues of biodiversity conservation concern, residual impact magnitude, theoretical offset opportunity and practical offset feasibility.

Of the various types of offset, land acquisition offsets have been found to most reliably deliver offset outcomes, and are easier to demonstrate compliance (May, Hobbs & Valentine 2017). As land acquisition changes the tenure of existing vegetation, such offsets result in net loss of native vegetation and do not necessarily include ongoing management and monitoring (Darbi et al. 2009; Gibbons & Lindenmayer 2007; Maron et al. 2010; Richards 2016; ten Kate, Bishop & Bayon 2004). There are also implementation issues with revegetation or rehabilitation offsets relating to time lags and achievement of completion criteria (Maron et al. 2012; May, Hobbs & Valentine 2017; DER 2014b).

Offset planning should recognise the importance and potentially high ecological value of rehabilitating small, isolated habitat patches (Wintle et al. 2019).

There is a general view that offset ratios need to be much higher to address risk (Bull, Lloyd & Strange 2017; Lindenmayer et al. 2017). Studies have also identified the need for offsets to account for the full costs over the life of an offset, including establishment, ongoing management, monitoring and auditing (Maron et al. 2016).

2.2 Jurisdictional review

In Australia, offsets are generally imposed and administered under state and federal environmental legislation that requires impact assessment and are implemented via approvals that include conditions.

All Australian jurisdictions allow for environmental offsets; however, approaches to their use vary. An overview of Australian jurisdictions is provided in Appendix B (Table 2). Key observations are that:

- more prescriptive frameworks and assessment processes have been introduced over time to address inconsistencies and subjectivity issues in assessing and determining offset requirements
- offsets policies have been revised to provide clarity on the principle of additionality
- more strategic approaches to offsets, such as directing offset types or locations through regional plans, are being adopted
- improved approaches to biobanking have been adopted to manage issues relating to high costs, inflexibility and uncertainty for landholders
- there has been greater focus on achievement of offset outcomes, including through outcomes-based conditions and measurement of outcomes (further discussed at *Outcomes-based conditions*)
- there is a need for improved reporting on management of offsets funds.

2.3 Stakeholder input

To inform this review, an Intra-government Steering Group and a Stakeholder Working Group were established. The membership of these groups are in Appendix C. Members were asked to provide information based on their experience in implementing the framework. Members provided input at the information gathering stage of the review, on the preliminary findings, and on the draft review recommendations. The input provided by stakeholders falls into the following categories:

- consideration of avoidance and mitigation measures
- application of offsets to deliver a net environmental benefit
- need for the offsets framework to be more flexible in its application and enable a more strategic approach
- relevance of offsets to the environmental value being impacted
- transparency of decision-making and communication with proponents
- calculation of offset requirements, including the need to provide clarity and certainty
- duplication and consistency of EP Act assessment with other assessment processes

- the use of offsets under other legislation
- land identification process and interagency consultation for land acquisition offsets
- prioritisation of revegetation offsets to create additional habitat
- security of tenure
- funding and governance for implementation and ongoing management of offsets.

Stakeholder comments are discussed in Section 3 and summarised in Appendix C (Table 3).

2.4 Analysis of offsets data

The review analysed a representative sample of 67 approvals (24% of all approvals, comprising 105 offsets) to provide data on implementation of the framework (Figure 1).

The review examined the available information for each sample approval to determine the offset implementation and performance for each element of the policy and other factors that influence effectiveness, such as:

- significant residual impacts (total and for each biodiversity value)
- how avoidance and mitigation options were pursued
- evidence of evaluation of costs and benefits in decision-making processes
- proportionality of offset conditions (compared to impacts)
- measures to manage and mitigate risks
- offset longevity, security and management
- relevant EPBC Act conditions
- reporting on offset outcomes and areas.

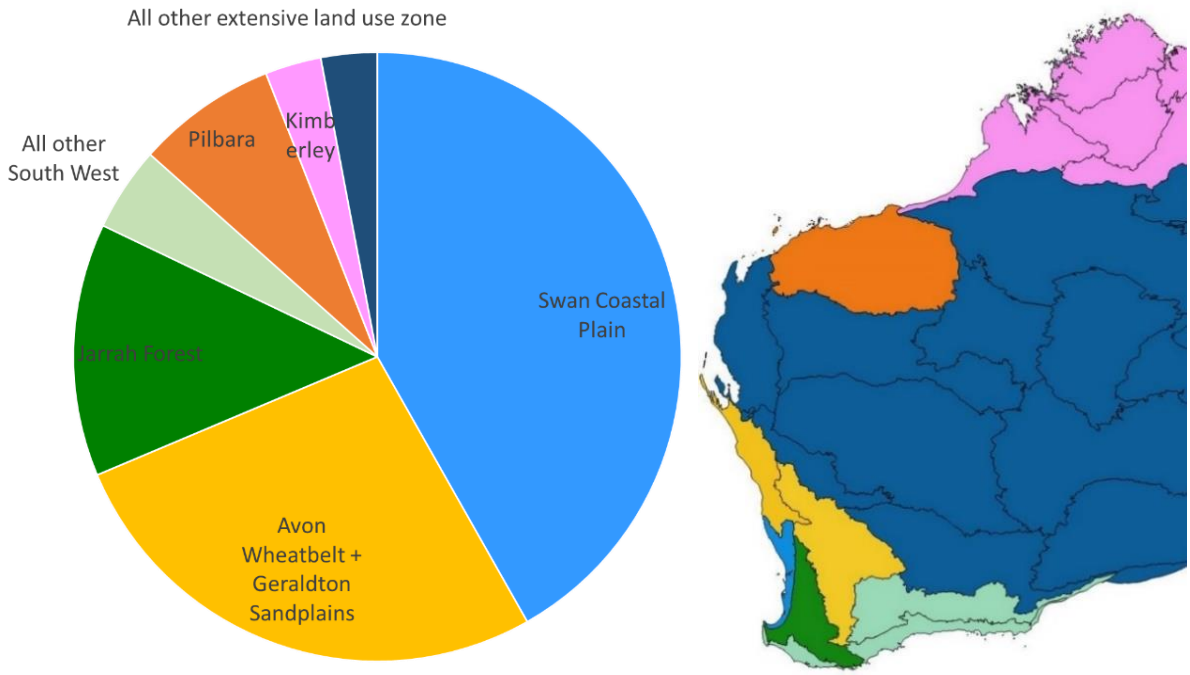

Figure 1 Distribution of sample approvals by IBRA bioregion

Outside of the sample, the review also considered approvals suggested by stakeholders that were out of scope. For example, those approvals granted prior to the offsets policy that offered lessons for this review.

All relevant appeal decisions were analysed to determine the number and nature of appeals that considered offsets issues.

Appendix D provides further information on the methods used in this review.

3 Review findings and recommendations

Between September 2011 (introduction of the policy) and October 2018, 281 approvals were granted with a total of 175 000 hectares of environmental offsets under Parts IV and V of the EP Act. The percentage of approvals granted with offsets ranged from 6 per cent to 15 per cent of total approvals over this period (Figure 2).

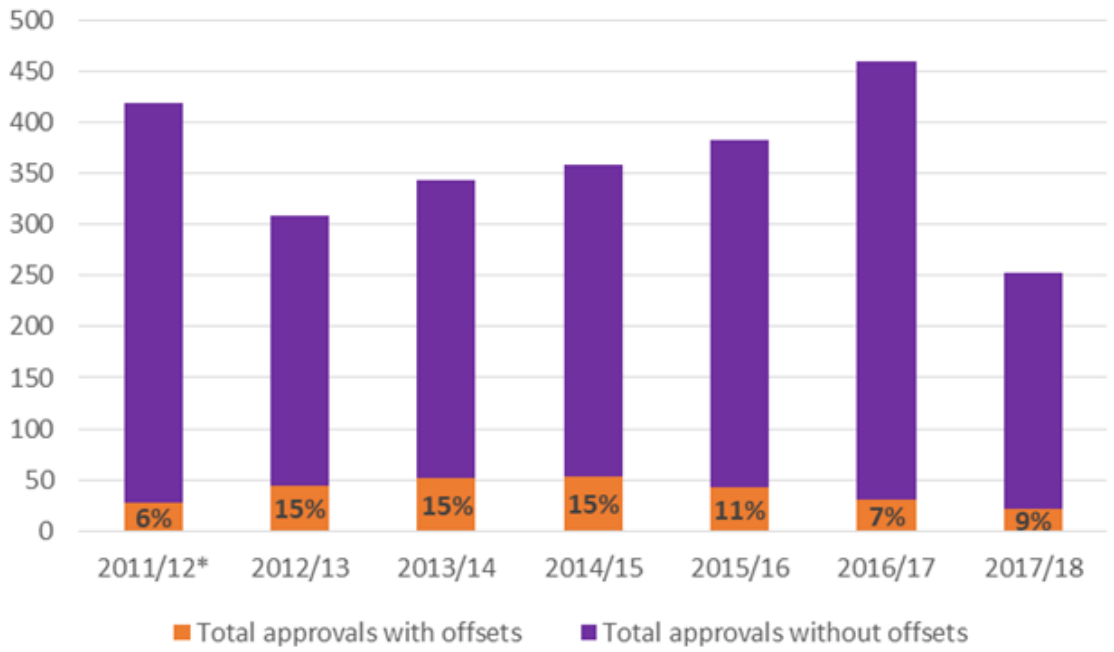

Figure 2 Environmental offsets issued under the Environmental Protection Act 1986

The review examined readily available information, such as approval documentation and annual reporting, to determine the implementation status of sample offsets. This is summarised in Table 1.

Table 1 Implementation status of sample Part IV and V approvals

Status of offset implementation*	Number of offsets	Percentage of required offsets
Completed	37	49%
In progress	21	28%
Insufficient information	17	23%
Subtotal required offsets	*75*	*100%*
Future	30	
Total offsets	***105***	

* 'Completed' offsets met their approval conditions; 'In progress' offsets have commenced and reporting on implementation has been received; 'Insufficient information' offsets should have commenced implementation but there was no reporting to determine the extent of progress; 'Future' offsets have been approved but their implementation was not yet required (e.g.. project has not commenced).

3.1 Achievement of policy objectives

Offsets contribute to the higher-level objective of the offsets policy 'to protect and conserve environmental and biodiversity values for present and future generations'.

Overall, the review found that implementation of the framework has not fully counterbalanced the significant residual impacts of approvals. Of the completed offsets that met their approval conditions (see Table 1), 72 per cent of the required land acquisition area has been delivered to date. Environmental benefits were delivered from on-ground management offsets, such as improved vegetation condition; however, reporting was insufficient to determine if all intended results were achieved.

Improvements are needed to ensure approved offsets counterbalance significant residual impacts both in scale and the impacted environmental values.

The progressive introduction of the offsets framework has addressed the issues raised by the Auditor General (OAG 2011) on transparency of offset arrangements and the requirement for clear policy to guide agencies and proponents. Since its establishment, the offsets framework has improved the consistency, transparency and accountability in offset decision-making.

Efforts to strengthen the implementation of the offsets framework since the release of the policy in 2011 continue to be made and are outlined below against each offsets policy element.

3.2 Principle 1: Avoidance and mitigation

All Australian jurisdictions maintain that offsets will only be considered once avoidance and mitigation measures have been taken. In WA, measures have also been taken to ensure proponents address avoidance and mitigation in applications under Parts IV and V of the EP Act:

- Clearing permit application forms have been updated to require proponents to provide evidence that avoidance and mitigation options have been pursued.
- *A guide to the assessment of applications to clear native vegetation* (DER 2014a) states that native vegetation clearing should only be considered after all reasonable attempts to mitigate adverse impacts have been exhausted.
- The Part IV guidelines on environmental factors and administrative procedures provide information on the impact assessment process, including the application of the mitigation hierarchy to avoid and minimise impacts.

Analysis of Part IV and V approvals and examination of appeals found that avoidance and mitigation were consistently considered in assessment processes, and decisions were generally sound. Recording of avoidance and mitigation has improved over time (Appendix E, Table 7). Over the period 2017 to 2018, this information was included in approximately 80 per cent of approval documentation. Analysis of appeals made on the basis of inadequate avoidance and/or mitigation measures found that the majority were dismissed.

Accurately quantifying avoidance and mitigation efforts was challenging because, for example:

- Proponents may not provide sufficient detail on the avoidance and mitigation effort undertaken prior to submission of the applications.
- Proponents may overstate impact avoided by comparing the proposed impacts to unrealistic alternatives.
- The environmental benefits of preferred options may be difficult to measure using indicators such as area to be cleared. An option may offer greater environmental benefits but not change the area (hectares) to be cleared.

Improved information from approval holders on the specific avoidance and mitigation measures undertaken would assist in assessing performance against this principle.

Approval holders should be encouraged to avoid and mitigate impacts during project implementation by building on current mechanisms, which include:

- Offsets that require contributions to the Pilbara Environmental Offsets Fund (PEOF) are based on a cost per hectare, which is calculated after clearing has occurred. This creates an incentive for proponents to reduce their impact.
- Part V approvals include a standard condition to encourage further avoidance and mitigation of impact where possible.
- Approval holders can request amendments to conditions, including where impacts have been less than anticipated.

The review found that options are unclear for approval holders who have reduced their impact or do not implement their project. Including further information in the guidelines may help to address this issue.

It is recommended that:

1 Further work be undertaken on incentives for approval holders to reduce their impact during project planning and implementation, and address circumstances where projects do not proceed.

2 The offsets guidelines provide clearer guidance on avoidance and mitigation of impacts during project implementation.

3.3 Principle 2: Appropriateness

The review considered the appropriateness of offsets – specifically, whether offsets had been assessed on a project-by-project basis and not applied where environmental impacts were minor. All examined approvals included a statement specifying significant residual impacts and the rationale for an offset to address those impacts.

Stakeholders provided examples of where offsets had been required for small impact areas, or where offsets were allowed for clearing assessed as being at variance with the clearing principles. Investigation of the sample approvals and appeal determinations found that offsets were only applied to significant residual impacts.

The introductory text in the offsets policy acknowledges that some environmental values are not readily replaceable. Principle 2 of the policy states that offsets are not appropriate for all projects. The policy further clarifies that environmental offsets are not appropriate in all circumstances. The applicability of offsets will be determined on a project-by-project basis. While environment offsets may be appropriate for significant residual environmental impacts, they will not be applied to minor environmental impacts.

The offsets guidelines are consistent with the policy and provide further information on how principle 2 should be applied through the residual impact significance model. The model refers to unacceptable impacts as impacts which are environmentally unacceptable or where no offset can be applied to reduce the impact.

The policy does not include similar detail about unacceptable impacts or where no offset can be applied to reduce the impact. The review noted that policies in other Australian jurisdictions explicitly state that unacceptable impacts cannot be offset. One stakeholder suggested this detail should be included in the policy and that offsets should not be used to make a project environmentally acceptable. Two stakeholders noted the requirement for flexibility to allow for government's decision making.

The offsets policy and guidelines provide guidance for decision-making but will not determine the outcome or limit the discretion of decision-makers under the EP Act. The intent is to provide clear principles to be considered by decision-makers in determining whether an offset should be applied to create a more consistent approach to the determination and application of offsets.

The review examined 51 appeals to decisions or assessments made under Parts IV and Part V of the EP Act. This included appeals made on the grounds of adverse impacts, suitability of offset and/or adequacy of assessment.

The review found one case where an appeal led to the reversal of a decision under Part V or assessment under Part IV. This related to a refusal of a clearing permit, where the original impact was reduced and an offset was imposed. This suggests that decisions and assessments were consistent with principle 2.

As outlined in the offsets guidelines, the context for residual impacts influences the requirement for, and quantity of, an offset. Although a project's impact may not be significant when considered in isolation, the cumulative impacts alongside other projects, activities and threats in the region may be significant.

The review notes the offsets guidelines commit to the development of policy and guidance on the determination and application of environmental offsets for cumulative impacts and the review confirmed that this would be useful. The selection of offset types should be considered in this context.

It is recommended that:

3 The offsets policy be amended to be consistent with the offsets guidelines, to reflect that offsets are not appropriate for impacts which are environmentally unacceptable or where no offset can be applied to reduce the impact.

3.4 Principle 3: Cost-effectiveness, relevance and proportionality

Cost-effectiveness

The offsets policy indicates that environmental offsets should be proportionate to the significance of the environmental value being impacted with a preference for cost-effective solutions. However, this review was limited in being able to examine the effectiveness of this principle as cost-effectiveness is assessed by proponents in proposing an offset. The consideration of cost-effectiveness should ensure the required environmental benefit is achieved .

Stakeholders provided examples of approvals with similar impacts but disparate offset costs. Analysis of these examples indicated that differences in offset costs resulted from improvements to the Part V fund calculation methods over time. Part V fund calculation methods are further discussed in *Offset types*.

It is recommended that:

4 The offsets guidelines be revised to clarify that assessment of cost-effectiveness should ensure the required environmental benefit is achieved.

Relevance and proportionality

Under principle 3, offsets should relate to the significance of the environmental value that is being impacted. All sample approvals included a statement of significant residual impacts and how offset conditions addressed these impacts. In almost all cases environmental offsets related to the value being impacted (like-for-like), or a similar value (like-for-similar). Examples were found where approved offsets varied from the significant residual impact, in terms of both magnitude and values. These variations were negotiated on a case-by-case basis.

In sample approvals, almost all offset conditions required a larger area than the significant residual impact, with wide variation in the ratio of significant residual impact to offset area. This was due to factors such as risk of offset failure, offset type, and conservation significance of the impacts. This is generally consistent with published literature that found a 1:1 offset ratio was inadequate to address the risk of offset failure (e.g. Lindenmayer et al. 2017).

Stakeholders reported a lack of clarity in how significant residual impacts and offset requirements are calculated. Most Australian jurisdictions have published offsets metrics, including calculators and guidance, to assist in quantifying offsets (see Appendix B). WA currently uses the Commonwealth Assessment Guideline (DotEE 2012), commonly referred to as the Commonwealth metric.

A draft offsets metric for WA was developed in consultation with stakeholders in 2016 for offset quantification under Parts IV and V. The draft WA metric has similar functionality to the existing Commonwealth metric with modifications to account for matters of both national and state environmental significance and the value of on-site

rehabilitation. The draft metric also addresses the risk of future loss. The draft WA metric allows for overlapping state and national environmental approvals to minimise the overall required offset.

A small number of cases were identified where the required offsets would not have counterbalanced the significant residual impact. These resulted from issues such as:

- planning and other relevant matters considered in the decision-making process
- anomalies in the offsets calculation process.

Finalisation of the draft WA metric as a priority would improve the consistency and transparency of offset calculations. The offsets guidelines should also provide further information and worked examples demonstrating the application of like-for-like and like-for-similar in the intensive and extensive land use zones.

Stakeholders suggested the offsets framework should be more flexible in its application of principle 3 to allow for offsets that offer other environmental benefits, but which are unrelated to the values impacted. Approval conditions for Parts IV and V of the EP must reasonably relate to mitigating the impacts on the environment, and therefore, such an approach is inconsistent with the EP Act.

The offsets guidelines state that research offsets are only applicable under Part IV of the EP Act. Stakeholders indicated interest in the application of research as an offset under Part V of the EP Act. However, research is not a valid offset under Part V of the EP Act as it is not directly related to the establishment and maintenance of vegetation (section 51I(2)(b).

It is recommended that:

5 The draft WA environmental offsets metric, including the calculator and associated guideline, be finalised having regard to the findings of this review, particularly recommendations regarding relevance, proportionality and biodiversity values.

6 Additional information and worked examples should be provided in the offsets guidelines demonstrating the application of like-for-like and like-for-similar in the intensive and extensive land use zones.

3.5 Principle 4: Sound information and knowledge

Principle 4 states that environmental offsets will be based on sound environmental information and knowledge. As part of the environmental impact assessment process, offset decision-making uses the best available scientific information referenced in approval documentation. This information includes surveys provided by proponents, advice from other state government departments and available scientific and technical literature.

All Australian jurisdictions require assessments to be informed by scientifically robust information and follow the precautionary principle in the absence of scientific certainty.

Stakeholder feedback on this matter was mixed, with some citing cases where information used was not sufficiently rigorous in their view. Stakeholders also thought regulators were often too conservative when dealing with uncertainty. Stakeholders may appeal decisions and conditions, including offsets. This provides opportunities for input and consideration of new information that may not have been available at the time of the original decision.

The review notes the progress that is continuing in the consolidation and access to sound environmental information and knowledge since the introduction of the framework, such as through:

- the Index of Biodiversity Surveys for Assessments, which captures and consolidates data contained in biodiversity survey reports to support assessments and compliance under the EP Act and makes this information publicly available (https://biocollect.ala.org.au/ibsa)
- the addition of datasets to NatureMap over time, which provides the most comprehensive and authoritative source of information on the distribution of WA's biodiversity (https://naturemap.dbca.wa.gov.au).

3.6 Principle 5: Adaptive management

The offsets policy states that environmental offsets will be applied within a framework of adaptive management to take account of the potential risks.

Risk mitigation was included in about 40 per cent of offset plans or approval documentation in sample approvals. This included measures to address uncertainty of outcomes, such as threat management and contingency plans. However, the effectiveness of these measures is unknown as there is no requirement to report on implementation of adaptive management.

In response to poor outcomes of revegetation offsets (DER 2014b), DWER has developed guidance (DWER 2018) on how to prepare revegetation plans to ensure appropriate planning and improved implementation of revegetation projects.

It is recommended that:

7 Reporting conditions be improved to require approval holders to provide information on actions taken to address risks or unforeseen events that impact on offset implementation.

3.7 Principle 6: Longer-term strategic outcomes

All Australian jurisdictions require that offsets secure outcomes for at least the duration of the impact. Principle 6 of the offsets policy provides that environmental offsets will be focused on longer-term strategic outcomes. Environmental offsets will be designed to be enduring, enforceable and deliver long-term strategic outcomes.

The review found that security of offsets has been delivered by measures such as conservation covenants on private land, purchase or ceding to the Department of

Biodiversity, Conservation and Attractions (DBCA), or changing vesting of existing reserves to a conservation purpose. However, the review also found offsets that may not be enduring because of tenure; for example, land in the extensive land use zone.

May, Hobbs & Valentine 2017 found that land acquisition offsets most reliably delivered long-term outcomes in WA, with reservation more effective than conservation covenants and funds used for land purchase.

Stakeholders raised concerns about the need for ongoing funding for management of land acquisition offsets. The Auditor General (OAG 2017) has also highlighted the significant increase in area managed by DBCA, mainly as a result of large areas of EPBC Act offsets and the lack of progress in reserving these lands.

The offsets guidelines state that the offset must sustain the increase in environmental value. In practice, this means approval holders are responsible for the completion of offsets, but not their ongoing management. The ongoing management of offsets is the responsibility of either government, where land is vested in the Crown, or private landowners, to ensure the biodiversity values of the offset are retained and improved.

Offset funds enable strategic approaches by pooling funds to implement offsets at a landscape-scale, rather than relying on individual proponents to implement offsets locally. For example, the Part V fund allows for monetary contributions for the purpose of establishing or maintaining vegetation (to offset the vegetation cleared under the permit) and the PEOF is being established to fund environmental initiatives in the extensive land use zone.

Improved processes are also required for seeking whole-of-government agreement on offset delivery, for example:

- for reservation of land acquisition offsets
- for implementation of other measures in extensive land use zone (such as offsets on pastoral leases).

Other Australian jurisdictions have adopted strategic approaches to offsets such as identifying the best sites in the landscape for offsets, directing offsets to high priority areas, delivering offsets across multiple properties, the use of regional plans and by providing guidance to local governments to undertake strategic planning for biodiversity. There may be cases where offsets can restore the ecological value of small, isolated or degraded habitat patches (Wintle et al. 2019), especially in highly cleared landscapes.

Approximately 55 per cent of the approval documentation for sample offsets considered strategic outcomes. Sixty per cent of approvals with a significant residual impact at the landscape-scale did not indicate how the offset addressed the regional significance. This could mean that the final offset approved did not address, for example, habitat connectivity, genetic isolation or edge effects of the significant residual impact. The development of bioregional plans could support the implementation of offsets to address these issues.

Stakeholders expressed an interest in more on-ground management offsets, particularly in areas where there is a strategic benefit. The need for offset security has limited the consideration of more strategic outcomes, as some types of tenure are not secure.

In a number of sample approvals, multiple permits were granted to the same permit holder within a relatively short time, each with separate offset conditions for highly cleared bioregions of the South West. DWER is currently encouraging proponents to consolidate future applications through a purpose permit to enable more strategic approaches to the design of offsets and to reduce administration costs.

It is recommended that:

8 Improved processes be developed for whole-of-government agreement on land acquisition for the conservation estate, or measures in the extensive land use zone.

9 The offsets guidelines be revised to include additional information on strategic approaches, including considering:

- selective offsets (e.g. acquisition of land that connects or builds scale to existing vegetation)
- different tenures and levels of security
- inclusion of worked examples to demonstrate how to apply this principle
- how to measure success of strategic offsets versus standalone offsets.

10 Bioregional plans be developed to support development and implementation of offsets that align with regionally significant and/or landscape-scale environmental objectives.

3.8 Other elements of the policy

Transparency, certainty and predictability

The offsets register is a central public record of all offset agreements in WA, including approval details, offset conditions and spatial information. Other information on decisions made is published in approval documentation (including Ministerial statements, clearing permits and decision reports, EPA reports, information provided by proponents where required, and appeal determinations). Spatial data from the offsets register is available on the WA government data website to enable public access (see https://data.wa.gov.au).

The *WA Environmental Offsets Guidelines* were published in 2014 to clarify the determination and application of environmental offsets, and provide certainty and predictability. The guidelines expand on the offsets policy to ensure that the basis for making decisions on offsets is understood and consistently applied by decision-makers, government officers, industry and the community.

Since the introduction of the framework, offset approval documentation has included a statement about the significant residual impacts. This has improved offset transparency as it enables relevance and proportionality to be evaluated. Previous studies reported many cases where the significant residual impacts were not stated and/or it was not clear which implementation conditions were offsets.

One stakeholder commented that transparency of decision-making and communication with proponents, particularly early in the Part V process, could be improved. This may be addressed by adding more worked examples to the guidelines and finalising the draft WA offsets metric (discussed in *Relevance and proportionality*).

A quarter of sample approvals under Parts IV and V, for which the offset details were not known at the time of decision-making, required submission of an offset proposal for approval by the CEO. Improvements to processes are needed to ensure appropriate offsets are available before an approval is granted and the offset requirements are clear in the approval documentation. This work should consider the following constraints:

- potential distortion of markets (e.g. inflation of prices for suitable land acquisition offsets)
- confidentiality of proponent information
- processes to appeal proposed offsets
- requiring proponents to present alternative offset options may impact on approval timeframes and resources required to assess proposals
- approval of offset proposals prior to granting a decision, noting there may be an impact on approval timeframes.

It is recommended that:

11 Mechanisms and processes to ensure appropriate offsets are available should be developed and improved, particularly for cases where offset design will be finalised after approval has been granted or contributions made to the Part V fund.

Offsets under other legislation

Offsets have only been applied under the EP Act under the current policy framework. However, the state government uses mechanisms to counterbalance environmental impacts, notably *State Planning Policy 2.8 Bushland Policy for the Perth Metropolitan Region* (Bush Forever sites).

Sections 41 and 46 of the *Biodiversity Conservation Act 2016* enable the Minister for Environment to apply conditions requiring an offset. DBCA is preparing a fact sheet outlining interactions between the *Biodiversity Conservation Act 2016* and the EP Act.

The offsets policy includes references to the *Planning and Development Act 2005* and *Mining Act 1978*. However, environmental offsets are not currently applied under these Acts.

It is recommended that:

12 The offsets policy and guidelines be updated to:

- reference the *Biodiversity Conservation Act 2016*
- remove references to the *Planning and Development Act 2005* and *Mining Act 1978*.

Minimal duplication between state and Commonwealth requirements for environmental offsets

Where projects impact on matters of national environmental significance (MNES), the Commonwealth may assess these as controlled actions and offsets may be required. MNES may also be significant at a state level and be considered under EP Act assessment processes. A bilateral assessment agreement enables the state to undertake assessments on behalf of the Commonwealth to minimise duplication of offset requirements.

Stakeholders commented on the inconsistency between state and Commonwealth assessment processes and requirements for environmental offsets. Use of the Commonwealth metric to calculate impacts on state values has assisted with consistency of approved offsets. Overall, examination of sample approvals found good alignment between assessment processes. The finalisation of the draft WA offsets metric will further improve consistency. The metric is discussed further at *Relevance and proportionality*. The review found examples where there were different offset requirements; resulting from environmental values at state and Commonwealth level. For example, the EPBC Act considers impacts on Ramsar wetlands of international significance but a wider range of wetlands are assessed by state processes. The review identified examples where impacts on the same species were not controlled actions under the EPBC Act but were significant residual impacts under the EP Act. The review found that the offsets were appropriately applied for significant residual impacts on state values. Detailed information on EPBC Act proposals that are not controlled actions is not publicly available.

For land acquisition offsets, the Commonwealth includes an additional requirement to provide the location of the offset site within a specified timeframe, typically managed by approval holders. Where a land acquisition offset cannot be identified within the timeframe, approval holders then request amendments to conditions. This includes offsets that require contributions to the Part V fund. DWER is working with approval holders to address this issue.

Efforts to improve consistency between state and Commonwealth processes continue through engagement between state government agencies and the Department of the Environment and Energy (DotEE) on specific projects and, at the higher level, through forums such as Senior Officials Group meetings and Meetings

of Environment Ministers. In particular, an independent review of the EPBC Act is due to commence in October 2019.

Offsets guidelines and register

The definitions of offsets outlined in the offsets policy and guidelines are inconsistent. The offsets policy indicates that an environmental offset is 'an offsite action or actions to address significant residual environmental impacts of a development or activity'. The guidelines define environmental offsets as 'actions that provide environmental benefits which counterbalance the significant residual environmental impacts or risks of a project or activity'. These definitions should be revised to ensure consistency between the documents.

Most of the reviewed offset proposals and approved plans were found to comply with the guidelines. Stakeholders made suggestions to improve clarity of the guidelines, such as inclusion of additional worked examples. The guidelines state that they apply to all biodiversity offsets required as a condition of WA environmental approval processes. This does not include carbon offsets.

Offsets register usage data was available for 2017–18, recording 600 to 1100 visitors per month. Users made about 20 submissions between July 2013 and September 2018 providing feedback on the offsets register:

- 60 per cent of respondents found some or all of the information they were searching for
- 50 per cent of respondents were 'neither satisfied or dissatisfied', 'moderately satisfied' or 'extremely satisfied' with their overall search experience
- comments submitted through the register related to display issues such as maps, text and background colour, and allowing searches by impact type.

For those Australian jurisdictions that publish information on approved offsets, the information provided is not as detailed as WA's offsets register. The offsets register in WA is a searchable database and provides spatial information, which provides greater transparency than available in other jurisdictions.

The review confirmed that the approval and offset information listed in the offsets register is current and regularly updated. Information on status and milestones is displayed in a complex way and has not been reliably updated. The offsets register provides a centralised public record facilitating transparency. There are opportunities to amend its design to improve reporting on offset implementation and outcomes, enable response to user feedback and address display issues outlined above.

It is recommended that:

13 The offsets policy and guidelines be revised to ensure the definition of environmental offsets is consistent.

14 The offsets guidelines be revised as recommended in this review. This includes the addition of more worked examples.

15 The display, function and content of the offsets register be reviewed, taking into consideration user feedback.

3.9 Other factors influencing offset outcomes

Offset types

There are three main offset types:

- On-ground management, including revegetation and rehabilitation.
- Land acquisition (limited use in the extensive land use zone due to land tenure).
- Research under Part IV.

This review has further categorised offset types into ‘agreed site’ offsets, where the offset site is known prior to approval, and ‘fund contribution’ offsets, where the approval holder contributes to a fund managed by DWER for implementation of the offset.

The detailed breakdown by offset type is included in Figure 3 and Appendix E (Table 5 and Table 6).

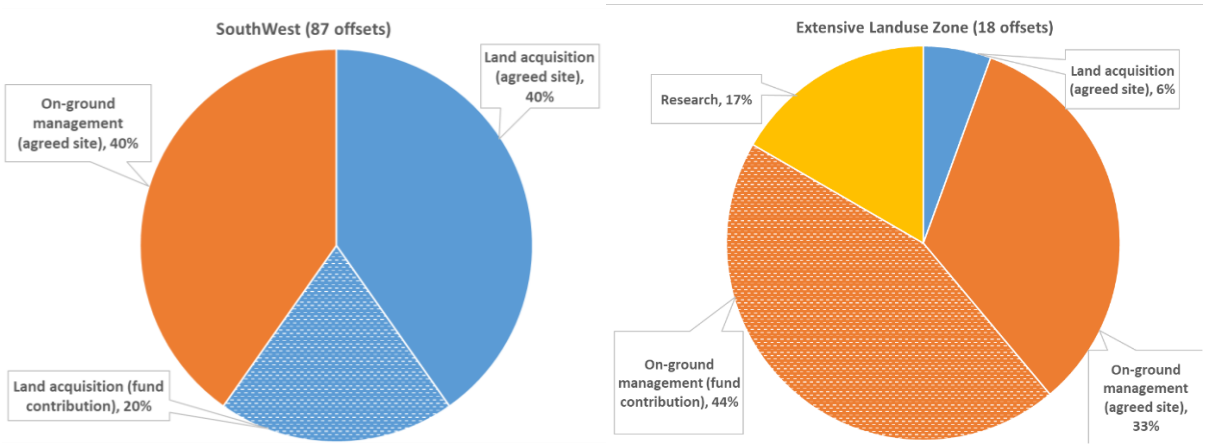

Figure 3 Differences in offset types in the South West and extensive land use zone

The primary factor determining offset type selection is geographical location. Land acquisition (agreed site and fund contributions) is the most common offset type in the South West (when measured by number of offsets or area), totalling approximately 60 per cent of both approvals and land area. In the extensive land use zone, contributions to funds for on-ground management are most common.

Land acquisition improves the level of protection for existing vegetation. Consistent with previous evaluations of offset effectiveness (May, Hobbs & Valentine 2017), the review found that land acquisition most reliably delivered offset requirements. Where the offset site was identified at the time of approval, 100 per cent of the offset area was acquired. Despite land acquisition offsets, there has been an overall reduction in the area of native vegetation.

Contributions to the Part V fund have been less effective than other land acquisition offsets. This review found that contributions to the Part V fund delivered 42 per cent of the required offset area to date, due to partial acquisitions and unspent funds (Table 5 of Appendix E).

The method of calculating contributions for land acquisition to the Part V fund originally used an estimate of purchase price provided by DBCA and now uses unimproved (vegetated) values set by the Valuer-General.

One stakeholder noted that using Valuer-General rates to calculate contributions to the Part V fund might discourage applicants from reducing the proposed clearing area, as larger land areas are cheaper per hectare than smaller land areas.

There is also risk that use of unimproved (vegetated) land values may not provide sufficient funds to purchase the required land acquisition offset. The review identified one example where a landowner increased the purchase price due to the presence of a priority ecological community.

The values set by the Valuer-General are evidence-based and considered appropriate; however, the methods for calculation and departmental operational procedures should be annually reviewed and updated to ensure sufficient funds are available to meet offset requirements and provide appropriate incentives to proponents. The Part V fund is discussed further in *Part V fund*.

By area, offsets which contributed to the PEOF under Part IV are significant – approximately 60 per cent of the approved offset area of the sample. As the fund is currently being established and reconciliation procedures have not yet been finalised, these were considered future offsets in this review and implementation could not be evaluated.

On-ground management offsets under Parts IV and V delivered less than the approved offset area (i.e. area required in approval documentation to counterbalance the significant residual impacts). The review found only a small number had been completed (Table 6 of Appendix E) and it is unknown if the offset adequately addressed the significant residual impacts. The reporting for completed and in progress on-ground management offsets (substantially larger land area than the completed offsets) details activities undertaken, but not the achievement of offset benefits.

Some stakeholders have suggested that on-ground management (including revegetation) should be encouraged as this may improve environmental benefits being achieved.

A previous study found most implemented offsets have made some improvement in the offset site's biodiversity through revegetation efforts (DER 2014b). However, about half of the implemented revegetation offsets did not meet the completion criteria set by the offset proposal or clearing permit condition. These offsets were approved prior to the introduction of the framework, and were implemented post framework. The study found there was a time lag between establishment of on-ground management offsets and meeting the completion criteria.

This review found evidence of an improvement over time in on-ground management conditions for clearing permits, such as the move to embed completion criteria and actions to address the risk of failure into the conditions.

DWER released *A Guide to Preparing Revegetation Plans for Clearing Permits* in 2018, which provides guidance to approval holders on the information requirements of a revegetation plan. The use of this guide is expected to improve planning and implementation of on-ground management offsets.

Stakeholders identified cost as a disincentive to propose on-ground management offsets. The review found that the cost per hectare for land acquisition is significantly less than for revegetation to good or better condition and high species diversity. Costs for on-ground management vary depending on the type of actions required, scale and time period.

Development of bioregional plans may assist selection of offsets including identifying areas where on-ground offsets are preferred. Bioregional planning is discussed further in *Longer-term strategic outcomes*.

The sample of research offsets examined have yet to be implemented and the review was unable to draw conclusions on the effectiveness of this offset type. The review considered conditions relating to research which were out of scope and which have contributed to the available scientific knowledge, notably dredging science and banksia woodland restoration techniques.

It is recommended that:

16 The operational procedures and methods for calculating offset fund contributions, including the Part V fund and the Pilbara Environmental Offsets Fund, are regularly reviewed and updated.

Biodiversity values

The most frequently impacted biodiversity value was fauna habitat, followed by vegetation that is significant at the landscape-scale (this includes native vegetation which is significant as a remnant in area which is extensively cleared, is regionally significant or forms an ecological linkage; see Table 8 in Appendix E). The review analysed each fauna species and their different habitat requirements. Black cockatoo habitat (which collectively refers to Carnaby's cockatoo, Baudin's cockatoo and forest red-tailed black cockatoo breeding, roosting and foraging habitat) was impacted by 49 per cent of the sample approvals.

Analysis of values showed selection of offset type can impact environmental outcomes. For example, 73 per cent of offsets for black cockatoo habitat are land acquisitions. This is consistent with EPA analysis, which found that land acquisition is the option most frequently adopted as an offset for Carnaby's cockatoo (EPA 2015; EPA 2019). The EPA found that the high proportion of land acquisition offsets for this species has contributed to the overall reduction in the area of its habitat.

Sixty per cent of sample approvals with a significant residual impact on vegetation which is significant at the landscape-scale, did not indicate how the offset addressed

the regional significance. This mostly relates to Part V offsets. For example, an offsets package may have counterbalanced the area of clearing, or site-specific environmental values for species or ecosystems (e.g. wetlands, black cockatoo habitat), but not counterbalanced the significance of the vegetation in the landscape (e.g. ecological linkages). Further discussion on the bioregional approach is discussed in *Longer-term strategic outcomes.*

Examples of approved offsets for threatened species were identified which were unlikely to be feasible, notably for translocation or propagation of threatened species.

The review found cases where impacts had been counterbalanced through the use of similar but not identical values. For example, impacts on a threatened ecological community were approved, and as the same community was not available for acquisition, the land purchased as an offset contained a similar but not identical community.

The review found an example where impacts on a vulnerable declared rare flora species and priority ecological community were counterbalanced with acquisition of habitat for a different threatened flora species. In this case, attempts to purchase land with the impacted values were unsuccessful and an alternative land acquisition was approved.

This is further discussed at *Relevance and proportionality.*

It is recommended that:

17 The assessment process should ensure that offsets adequately address landscape-scale impacts where they are part of the significant residual impacts.

Reporting and enforceability

Offsets register information, such as project status and milestone information, was not updated for all projects and, therefore, could not inform the review. Approximately 30 per cent of sample offsets had insufficient reporting to assess progress towards meeting the objective of the offsets policy (see Table 5 of Appendix E).

While this review identified significant issues with offset reporting, it is important to note that approval holders are not required to provide information on outcomes. For example, an approval holder may be required to report on completion criteria, weed density or management activities undertaken but not on the area of revegetation achieved over time. The review found several approvals that did not include reporting conditions.

Adequate reporting is vital to ensure that approval holders are complying with offset conditions. Failure to monitor compliance increases the risk that proponents will act outside the regulatory framework. This may also lead to a perception that offsets are a means to buy project approval or extract money from proponents (OAG 2011).

DWER undertakes compliance and enforcement based on risk. The Native Vegetation Compliance review program has consistently included annual targets to review clearing permits with offsets published in the offsets register.

Previous reviews found that offset conditions are often too general and difficult to enforce (DER 2014b). Discussions undertaken as part of this review indicate that condition-setting has improved over time, for example through the inclusion of the offset rationale and through the use of offset conditions which quantify completion criteria and actions to be taken if the offset is not successful. Further improvement is required to address this challenge. DWER officers indicated that mechanisms to improve coordination and collaboration on offsets would be useful. Conditions should allow monitoring of implementation using technology such as satellite imagery.

The offsets register provides information on a project-by-project basis but there is no reporting on performance of offsets overall. In addition, the offsets framework does not specify arrangements for regular review of its effectiveness. A regular broader review of the effectiveness of the offsets framework and its implementation would improve transparency and accountability, and assist in monitoring offsets performance.

It is recommended that:

18 Offset conditions be strengthened to improve enforceability and allow monitoring of implementation through the use of tools such as satellite imagery.

19 Coordination and collaboration between officers with a role in offsets should be improved to ensure offset conditions are written in a manner which enables efficient and effective implementation and monitoring.

20 Conditions for approval holders to report on offset implementation and completion should be included in all approvals. This may include scientific evidence of outcome delivery.

21 DWER's annual compliance program should include reporting of offset compliance.

22 A regular broad review of the offsets framework and its implementation in achieving environmental outcomes should be undertaken and published.

Counterbalancing impacts

The offsets guidelines indicate that offsets are applied to counterbalance the significant residual environmental impacts or risks of a project or activity. Most Australian jurisdictions are similarly consistent, with the exception of South Australia, which seeks to provide benefits that are 'over and above the negative impact of the clearance'.

Stakeholders suggested that WA offsets deliver a net environmental benefit. Valid approval conditions for Parts IV and V of the EP Act must reasonably relate to the environmental impacts. The application of offsets that seek to provide benefits over and above significant residual impacts is not consistent with the EP Act.

Biobanking

Biobanking enables offset credits to be generated and traded by landowners who commit to enhance or protect environmental values on their properties. In Australia, New South Wales, Victoria and South Australia have biobanking schemes in place.

There are cases where Part V approval holders provided a larger offset than required to counterbalance the impact of their clearing. In these cases, approval holders were able to bank the remainder offsets for use under future approvals.

A discussion paper on establishment of a biobanking scheme in WA (DER 2014c) found that:

- Native vegetation can be perceived as a liability by landowners, as they cannot clear vegetation to pursue an economic benefit without authorisation, vegetation can interfere with the use of automated farming machinery, may shelter pests and land taxes still apply. Allowing landowners greater access to the provision of offsets places an economic value on native vegetation.
- There was interest from private landowners in being able to provide offsets. While a landowner may currently negotiate a deal with a proponent directly, it is difficult for landowners and proponents to match their needs.
- Demand in WA for environmental offsets does not support implementation of a large-scale, complex biobanking scheme. A prospective scheme in WA would likely be voluntary and apply only within the intensive land use zone due to land tenure issues.
- An expression of interest (EOI) function, which would facilitate communication between proponents and landowners regarding potential offsets, could be developed and integrated with the current offsets register. Such a mechanism would be a useful means of testing the demand for a biobanking scheme.

More work is needed to determine the scope and viability of a voluntary mechanism to facilitate landowner participation in offsets. This should include:

- consultation with landowner groups and proponents on operation of such a mechanism, including on matters such as likely utilisation and preferred operation arrangements
- scoping of the requirements of an application to facilitate voluntary arrangements including governance arrangements, and IT requirements
- consideration of costs for administering such an arrangement.

The biobanking discussion paper (DER 2014c) noted concern about the time lag between when the clearing occurs and when the offset is able to achieve its intended biodiversity values. Biobanking can help to address this issue as it provides an opportunity for offsets to occur in advance of impacts.

There have been cases where approval holders have implemented their offset but the approved impact has not occurred. Approval holders requested that these offsets be used to meet offset conditions of other approvals. A biobanking scheme may offer a mechanism to facilitate use of offsets for other projects.

It is recommended that:

23 Options to facilitate voluntary landowner participation in offsets be investigated in consultation with landowner groups, proponents and government.

Outcomes-based conditions

Examination of sample approvals indicated that a variety of conditions are used based on the circumstances of the approval. These range from prescriptive (such as defining the land on which offsets will be located or the contribution amount to the Part V fund) to outcome-focused (the use of completion criteria and statements about what the offset is intended to achieve).

Outcomes-based conditions define the environmental outcome to be achieved by the approval holder rather than the process to be followed. This approach offers benefits such as:

- flexibility in the methods used to deliver environmental outcomes
- shorter assessment timeframes as proponents would need to provide less detail about processes, methods or management actions
- focusing the efforts of approval holders on achieving outcomes rather than complying with administrative requirements
- enhanced transparency of outcomes being sought.

Outcomes-based conditions may create ambiguity or uncertainty for the approval holder and be more difficult to enforce. In addition, risks vary widely and conditions need to be sufficiently flexible to encompass the variety of offset conditions.

DWER's *Guidance Statement on Regulatory Principles* (DER 2015) provides guidance on the department's application of good regulatory principles to its regulatory functions. It states that outcomes-based conditions are preferred where practical and appropriate. A hybrid approach may be most appropriate for offsets, where both the desired offset outcome and required actions are defined. The guidance statement allows for process and management-based conditions to be imposed where it is not reasonable or practical to set outcomes-based conditions. Conditions are further discussed in *Reporting and enforceability.*

Part V fund

At time of preparation, the Part V fund balance was approximately $8.6 million, for the purpose of purchasing over 2 000 ha to offset the loss of vegetation. Examination of sample approvals indicated that 454 ha of land has not yet been acquired, some of which are for approvals granted in 2013.

The expenditure of offsets funds must be approved in the state budget and annual expenditure is constrained to the limit set through that process. The annual expenditure of the fund, its balance and number of properties acquired is reported in the department's annual report.

Stakeholders have indicated that the environmental values of the properties should also be published. Information on the environmental values of an offset is provided in the offsets register on a project-by-project basis.

Delayed expenditure of contributions to the Part V fund combined with rising land costs resulted in acquisition of smaller areas than required under offset conditions, and land with appropriate values has not been identified.

Currently, interest earned on contributions to the Part V fund is transferred to consolidated revenue. Consideration is being given to amending the EP Act to allow interest to be retained in the fund.

The fund is managed by DWER and the purchase of land for conservation purposes is typically undertaken through DBCA. There may also be options to engage other organisations to assist in the identification of land with relevant values for acquisition and implementation of on-ground management offsets, in consultation with the future land manager.

Improved interagency coordination is required to ensure timely identification of land suitable to meet offsets requirements. This should include consideration of the need for more formal arrangements for consultation and agreement prior to granting approval, and the impact of any new arrangements on approval timeframes (see *Transparency, certainty and predictability*). DWER and DBCA have been working collaboratively to improve identification of suitable offset sites.

Three other Australian jurisdictions – New South Wales, Queensland and South Australia – also allow payments into a fund for land acquisition offsets. Lessons from other jurisdictions may inform this work. For example, New South Wales requires regular, audited public reporting on the administration of offset funds.

It is recommended that:

24 Work be undertaken to improve governance and operational arrangements of the Part V fund including consideration of:

- improved reporting on fund performance
- improved mechanisms for interagency coordination
- use of interest earned on fund contributions
- options to assist in the identification of land with relevant values for acquisition, in consultation with the future land manager
- review and update of operational procedures.

Additionality

The offsets policy indicates that offsets build upon existing conservation programs and initiatives. The guidelines provide further information, indicating that actions undertaken offsite which are required by other legislation generally cannot be considered an offset. The guidelines provide examples of actions that would be considered an offset under this principle, and where it would be necessary to

demonstrate the additionality of actions to the regulator. The policy does not adequately capture the need to demonstrate additionality.

Stakeholders supported clarifying the policy to more clearly state that an offset should achieve results above and beyond those that would have been achieved in the absence of the offset.

Other jurisdictions manage this issue by including a specific policy principle on additionality, which provides greater clarity and consistency on how this should be addressed in offsets proposals.

It is recommended that:

25 The offsets policy more clearly states that an offset should achieve results above and beyond those that would have been achieved in the absence of the offset. This may include adding a new principle on additionality. The offsets guidelines should be updated to ensure consistency with revisions to the policy.

Appendices

Appendix A – Review terms of reference

The Department of Water and Environmental Regulation (DWER) is undertaking a review of the Western Australian (WA) Environmental Offsets Framework on behalf of the Minister for Environment.

The purpose of the review is to assess the effectiveness of the framework and its implementation in delivering its environmental objectives, and to make recommendations for improvement.

The framework for environmental offsets comprises the following:

WA Environmental Offsets Policy 2011

The policy seeks to protect and conserve environmental and biodiversity values for present and future generations, and ensure that economic and social development may occur while supporting long-term environmental and conservation values.

The policy outlines key objectives – to provide certainty, predictability and transparency – to government, businesses and developers in the application environmental offsets, and sets out a number of principles for their use.

WA Environmental Offsets Register 2013

The register is a publicly accessible record of offsets information, including the status of implementation.

WA Environmental Offsets Guidelines 2014

Supports the *WA Environmental Offsets Policy 2011* with more detailed information about the application and use of offsets. The guidelines outline the respective roles and responsibilities of agencies, proponents and statutory bodies; legislative requirements; assessment and decision-making processes, auditing, monitoring and review.

Scope

1 The review will examine the policy elements of the framework and its implementation to determine to what extent offsets are used appropriately to achieve its objectives.

   a. The review will focus on key stakeholder issues raised taking into account the principles for the use of environmental offsets as follows:

      - environmental offsets will only be considered after avoidance and mitigation options have been pursued
      - environmental offsets are not appropriate for all projects
      - environmental offsets will be cost-effective, as well as relevant and proportionate to the significance of the environmental value being impacted

- environmental offsets will be based on sound environmental information and knowledge
- environmental offsets will be applied within a framework of adaptive management
- environmental offsets will be focused on longer-term strategic outcomes.

2 A report will be provided to the Minister for Environment on the findings of the review, including stakeholder consultation, and recommendations for improvements to the framework.

3 Revised guidelines and policy will be prepared for approval by government.

Timing

The review report will be provided to the Minister for Environment in the second quarter of 2019.

Consultation

The review will be undertaken in consultation with and informed by an Intra-government Steering Group and Stakeholder Working Group.

Appendix B — Jurisdictional review of offsets in Australia

Table 2 Summary of environmental offsets frameworks in Australia

	WA	Commonwealth	New South Wales	Queensland	South Australia	Victoria	Australian Capital Territory	Tasmania	Northern Territory
Related legislation	*Environmental Protection Act 1986*	*Environment Protection and Biodiversity Conservation Act 1999*	*Biodiversity Conservation Act 2016*	Various, e.g. *Environmental Offsets Act 2014*, *Nature Conservation Act 1992*, *Marine Parks Act 2004*, *Sustainable Planning Act 2009*, *Planning Regulation 2017*	*Native Vegetation Act 1991*	Vic. Planning Scheme	*Planning and Development Act 2007*	Resource Management and Planning System	*Mining Management Act 2001*
Activities where offsets may be required	Proposals subject to environmental impact assessment and clearing of native vegetation	Activities impacting EPBC Act matters of national environmental significance	Clearing of native vegetation, activities prescribed in *Biodiversity Conservation Regulation 2017*	Various, e.g. activities in a protected area, activities impacting marine parks, clearing of native vegetation	Clearing of native vegetation	Removal, destruction or lopping of native vegetation	Activities impacting protected matters (Cwlth or declared in ACT)	Activities impacting protected biodiversity values	Mining activities
Purpose of offsets	Address significant residual environmental impacts of a development or activity	Compensate for the residual adverse impacts on the environment	Offset value equivalent to any impacts	Counterbalance unavoidable impact on significant environmental values	Provide an environmental gain over and above the damage being done	Compensate for the biodiversity impact	Compensate for the likely significant adverse environmental impact	Contribute to the conservation of natural values outside of the development footprint	Protect general or specific aspects of the environment, or address specific outcomes of an environmental assessment
Document/s outlining approach to offsets	Policy: *WA Environmental Offsets Policy* (2011) Guidelines: *WA Environmental Offsets Guidelines* (2014)	Policy: *EPBC Act Environmental Offsets Policy* (2012)	Legislation: *Biodiversity Conservation Regulation 2017* Policy: *NSW Biodiversity Offsets Policy for Major Projects* (2014) – to be incorporated into legislation following a trial period	Legislation: *Environmental Offsets Act 2014* and *Qld Environmental Offsets Policy* (2017) (statutory instrument under the *Environmental Offsets Act 2014*)	Policy: *Policy for a Significant Environmental Benefit* (2016)	Legislation: *Guidelines for the removal, destruction or lopping of native vegetation* (2017) – incorporated into the Vic. Planning Provisions and all planning schemes	Legislation: *ACT Environmental Offsets Policy* (2015) (statutory policy under the *Planning and Development Act 2007*)	Guidelines: *Guidelines for Natural Values Surveys – Terrestrial Development Proposals* (2015)	–
Option to pay into offsets fund	Yes – Part IV PEOF & Part V fund	No	Yes – Biodiversity Conservation Fund	Yes	Yes – Native Vegetation Fund	No	No	No	Not specified
Option to outsource offsets to third party	No system to allow this, though some approvals use third parties to implement offsets (e.g. conservation covenants, rehabilitation projects)	Possible – if done as advanced offsets	Yes – biodiversity offset credits	Yes – advanced offsets, offset credits	Yes – Significant Environmental Benefit Credit system; Biodiversity Credit Exchange	Yes – offset credits	Possible – if done as advanced offsets	No	Not specified
Offsets calculator	In draft form	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Publicly available information on offset agreements and implementation	Yes – offsets register includes conditions of approvals, significant residual impacts, offset implementation, spatial data	No – but published EPBC Act approvals may include offset conditions	Yes – register of accredited assessors, registers of interest under development, registers from former BioBanking scheme are available online	Yes – offsets register provides information on conditioned authorities, offsets and financial offset payments received	Native Vegetation Clearance Application Register (Jul 2010 to Oct 2018) includes nature and value/area of Significant Environmental Benefits	No – Native Vegetation Offset Register contains information on existing offsets but is not publicly accessible	Yes – Offsets Register provides access to offsets management plans and other reports	No	No

	WA	Commonwealth	New South Wales	Queensland	South Australia	Victoria	Australian Capital Territory	Tasmania	Northern Territory
Reviews and amendments	The guidelines were amended to reflect case studies for the draft offset metric. The register has been amended in 2013 and 2014 to update definitions and in response to changes to the Clearing Permit System	2014 – Senate Inquiry into Environmental Offsets and government response, which agreed to implement some of the recommendations	2014 – BioBanking Review; 2014 – Review of Biodiversity Legislation	2018 – underway	2010 – review; 2015 – amendments to legislation and formula for calculating a payment to the Native Vegetation Fund	2016 – review of native vegetation clearing regulations and subsequent changes to regulations and Vic. Planning Scheme	2014 – incorporated into legislation	–	2015 – Hawke II review of NT environmental assessment and approval processes; Environment Protection Bill 2019

Appendix C – Summary of stakeholder input into this review

Two stakeholder groups were established to inform the review – an Intra-government Steering Group and a Stakeholder Working Group.

Membership of the Intra-government Steering Group:

- Department of Water and Environmental Regulation – Chair
- Department of Biodiversity, Conservation and Attractions
- Department of Planning, Lands and Heritage
- Department of Mines, Industry Regulation and Safety
- Department of the Premier and Cabinet
- Department of Primary Industries and Regional Development (Commissioner of Soil and Land Conservation).

Membership of the Stakeholder Working Group:

- Department of Water and Environmental Regulation – Chair
- Environmental Defender's Office WA
- Environmental Consultants Association (WA)
- WWF-Australia
- Wildflower Society of Western Australia
- Natural Resource Management WA
- Chamber of Minerals and Energy of Western Australia
- Association of Mining and Exploration Companies
- Conservation Council of Western Australia
- Main Roads Western Australia
- Water Corporation
- Western Power
- ATCO Gas
- Civil Contractors Federation: Western Australia
- Pastoralists and Graziers Association of Western Australia
- Urban Development Institute of Australia
- Western Australian Farmers Federation
- WA Local Government Association.

The Department of Jobs, Tourism, Science and Innovation and the Office of the Appeals Convenor were also consulted on the final report. A summary of input is provided in Table 3.

Table 3 Summary of stakeholder input into the review of the WA environmental offsets framework

Issue	Stakeholder comment	DWER response
Review process		
Ability to comment	Most stakeholders noted that they were unable to adequately consider or consult with their sectors on the review information. Requested adequate time to conduct a full consultation with stakeholders, including on the draft review report.	Additional opportunities for comment were provided in response to stakeholder feedback. The review process has included opportunities to comment and provide input at key points in the review – on the review methodology, sample approvals, preliminary findings, draft recommendations and the full report.
	Some stakeholders noted they were unable to comment on some aspects of the review due to lack of knowledge or experience of these areas, e.g.: • on-ground management or unspent contributions • cost-benefit analysis made by regulators • matters beyond offsets under non-EP-Act legislation • whether the offsets framework is being applied consistently.	Noted
Independence	Review should have been independently facilitated.	Noted
Review follow-up	Not clear what the next steps are in reviewing and investigating options and what level of involvement the steering group should have. Describe next steps for this review and the plan for rolling out the recommendations.	Discussed in Introduction (section 1).
Review is premature	It is too early to determine whether the framework is meeting its intended objective, or whether it is 'fit for purpose'.	The offsets policy was released in 2011 and it is timely to evaluate the effectiveness of the framework.
Additional stakeholders for consultation	Involve in the review: • DotEE, to ensure consistency with Commonwealth offsets • Appeals Convenor, where offsets were grounds for appeal or a relevant consideration for environmental appeals.	The review addresses duplication with EPBC Act approvals as per the offsets policy (*Minimal duplication between state and Commonwealth requirements for environmental offsets*). Communication with the DotEE is also included in this section. Appeals Convenor reports and Minister's determinations have been included in the review and the Office of the Appeals Convenor was consulted on the draft review report.
Ongoing consultation	Stakeholders noted they would like to remain involved in further work arising from this review, particularly where this relates to their activities and responsibilities.	Noted. The process for implementation of review recommendations, including consultation arrangements, will be determined after the Minister has considered the review report.
Scope of the review	Amenity is being lost as natural bushland and public open space is being lost in favour of development.	The objective of an environmental offset is to counterbalance the impact of development projects and improvements are discussed in *Principle 2: Appropriateness*. Wider issues to do with protection of native vegetation may also be addressed during development of the Native Vegetation Policy.
	The state government should establish a broader strategic framework and vision for the protection of native vegetation in WA. Support for the development of an appropriately funded Native Vegetation Policy.	
	Consider whether the 2016 'intensive land use zone' offsets metric should be included in the review.	Discussed in *Relevance and proportionality* and recommendation 5 addresses finalisation of the metric.
	Consider the relationship between biodiversity offsets and carbon pollution offsets.	Discussed in *Offsets guidelines and register*. DWER is developing climate change policy separate to this review. The scope of the review of the framework includes biodiversity.
	Evaluate against best contemporary practice and policy, including the IUCN Policy on Biodiversity Offsets and the Global Inventory of Biodiversity Offset Policies.	The framework was evaluated against its own objectives. The IUCN document is included in previous studies (section 2.1).
	Consider the effectiveness of the Part V offset fund and lessons learned.	Included in the review and findings discussed in *Part V fund*.
	Consider both Commonwealth and state offsets to reduce duplication.	Included in the review and findings discussed in *Relevance and proportionality* and *Offsets guidelines and register* and recommendation 5.
	Also review when offsets should be applied.	Included in the review and addressed through improved guidance (recommendations 6 and 9).
Representative sample		
Contentious projects do not necessarily warrant special focus	Non-contentious projects which have been implemented and/or where positive outcomes have been achieved should also be reviewed.	Noted. Through consultation, feedback was initially requested on contentious projects as these may provide some insight into issues with the offsets framework. DWER recognised the need for the sample to be representative of all approvals and, therefore, additional approvals were included in the sample from nominations made by the Stakeholder Working Group, Intra-government Steering Group and Project Teams. More information is included in the analysis of sample (section 2.4) and Appendix D.

Issue	Stakeholder comment	DWER response
Composition of the sample	Examples or aspects that should be reviewed to allow for sufficient breadth and depth of analysis: • environmental values most often being impacted, and evaluation of whether these values are being effectively protected through the offsets regime • main purposes for which offsets have been required, e.g. mining, infrastructure, roads, quarries • local government case studies in proportion to the composition in the offsets register, i.e. different purposes in regional vs metropolitan • proponents or proponent types • PEOF should be viewed as one sample • extensive land use zone vs intensive land use zone • offsets that seek to achieve both state and Commonwealth outcomes • status of offsets – complete, underway, not implemented • offset types – land acquisition, rehabilitation, research • clearing permits – project specific permits, bilateral assessments, strategic purpose permits • for Ministerial approvals, research offsets should be included.	The sample was selected to be representative for proportion of Ministerial statements and clearing permits, time period of approval, offset type and the land area, biogeographic region of the approval, and industry sector. This is discussed further in section 2.4 and Appendix D. The review included evaluation of most frequently impacted environmental values, industry sector of the approval (i.e. purpose of the clearing), local governments in metropolitan and regional areas, a range of proponent types, statewide purpose permits, spread of biogeographic regions and all offset types. EPBC Act approvals were included where they are also state approvals.
	Example projects were recommended for inclusion in the review. •	Where the nominated offsets were within scope of the review they were included in the sample to inform the review's findings and recommendations. Where they out of scope of the review, they were investigated and lessons learnt were included in the review findings. Analysis of data is discussed in section 2.4 and Appendix D.
Policy objective		
Achievement of objective	Support the policy objective and believes the offset processes they have been involved in have addressed significant residual impacts from their activities.	Noted
	Support recommendations that improve the effectiveness of the framework in ensuring that the intended environmental outcomes of offsets are realised, without increasing the regulatory burden on proponents and local government ratepayers. In considering measures to achieve improvements, priority must be given to ensuring there is no increased regulatory burden or costs for proponents, administrators, regulators or land managers.	Noted
	Offsets as cost shifting/subsidy to industry.	Offsets are used to address significant residual impacts. Discussion of offset cost-effectiveness is in *Cost-effectiveness* and addressed at recommendation 4.
Low number of completed and successful offsets	Concern over effectiveness and outcomes. Need further discussion and consideration of the reasons, lessons learned and required improvements. How many have been approved to be cleared or commenced without completion or successful offset outcome?	Comment was relevant to the preliminary findings report, which was based on analysis of approximately one-third of the sample. Further analysis has been completed and the outcomes discussed extensively in the report and incorporated into recommendations.
Significant residual impacts not fully counterbalanced	Given the overall finding, is a recommendation needed here?	Recommendations are made for improvement within the specific elements of the policy framework. All recommendations will contribute to improving outcomes against the overall policy objective.
	This statement could be misleading when presented without accompanying explanation.	The report needs this overall statement of policy performance and the rest of the report provides this detail and includes recommendations to improve the framework. The sentences have been amalgamated into one paragraph to avoid reading this finding in isolation and consistent with the summary.
Principle 1: Avoidance and mitigation		
Implementation of the mitigation hierarchy has been highly variable	The policy and guidelines should provide more detail to ensure that avoidance and mitigation options have been fully explored and exhausted before offsets are considered.	Discussed in section 3.2 and is addressed by recommendations 1 and 2.
	Economic factors (e.g. cost of mitigation and avoidance) should not be accepted as a reason for not implementing these measures prior to the consideration of offsets.	
	Regulators often do not adequately assess or consider avoidance and mitigation strategies by proponents. In particular, staged and sequential land use, and temporary disturbance and rehabilitation are rarely considered by regulators in determining residual impacts.	
	Conditions have been revised following an appeal which have required additional or stronger conditions, demonstration of avoidance and minimisation or reduction of clearing.	Discussed in section 3.2.

Issue	Stakeholder comment	DWER response
	Stakeholder's project and environmental management strategies adequately review and develop potential alternatives to clearing native vegetation of significance. The potential for developing offsets is considered late in the planning process after other options have been discounted.	Noted
Little recognition or incentive for proponents to reduce impacts during project implementation	Explore further opportunities or incentives to encourage avoidance and mitigation post-approval, e.g. allow for refunds from the state offset fund if clearing is reduced. Noting that refunds may be difficult if funds have been used to acquire land before the project proceeds. Providing proponent with a clear financial incentive to reduce their environmental impact by reducing their offset requirement will significantly benefit the environment as the project's significant residual impact would be reduced. Support offset conditions that link offset provision to impact (such as in Part IV approvals).	DWER's operational procedures for administration/governance of offsets fund provide that offsets fund contributions are non-refundable. However, if the clearing authorised by the permit does not take place, the permit is surrendered, and CEO approval is received, the repayment of a contribution may be made in accordance with Treasurer's instruction 803 – shortages and surpluses of money. Recommendations 1 & 2 address how avoidance and minimisation can be further encouraged and guidance improved. Recommendation 24 refers to the review and update of calculation method for the Part V fund.
Proposals with unacceptable impacts	The offset policy means that a proposal can proceed despite unacceptable impacts, providing that an area of land with comparable biodiversity values is added to the conservation estate and managed for its conservation values in perpetuity.	Clarification of Principle 2 is discussed in section 3.3 and recommendation 3.
Principle 2: Appropriateness		
Offsets will not be applied to minor environmental impacts	Stakeholder provided an example of a permit which is inconsistent with the policy as it requires offsets for clearing which is at variance with clearing principles (i.e. not significant residual impacts). Section 3.3 does not discuss appropriateness of variance being the trigger for an offset. Clarification is required as to whether it is appropriate for variance to be the trigger for offset, rather than whether there is a significant residual impact - noting that variance does not take into account the significance of the impact, nor mitigation measures.	Issue is discussed in section 3.3. Determination of 'at variance' clearing and significant residual impacts are separate but related evaluations within the impact assessment process. Variance from the clearing principles does not result in the requirement for an offset. The review found that offsets were only applied to significant residual impacts. Offsets were not required for minor impacts.
	DWER and DMIRS appear to have a different approach to determination of offsets – less than 6% of projects listed on the clearing permit offsets register related to mining.	The sample included Part V permits granted for mining and extractive industry and found that DWER and DMIRS decision-making is in accordance with framework.
	Stakeholder advised their member projects are often small (<5 ha) and/or involve minor environmental impacts. In the majority of these instances, regulators have required offsets to be provided.	Small impact areas may have significant residual impacts and offsets are appropriate in these cases. The review found that offsets were only applied to significant residual impacts.
	Related inconsistencies between Commonwealth and state regulatory agencies in applying offsets have not been addressed.	Addressed in *Minimal duplication between state and Commonwealth requirements for environmental offsets*.
	Offset processes did not deal with minor environmental impacts.	Noted
Availability of like-for-like offsets	There have been lengthy delays in implementation of offsets. It is often difficult to identify parcels of land that share the same environmental values as the land being unavoidably impacted, particularly on the Swan Coastal Plain and in the Wheatbelt. The complexity for proponents in identifying and securing offsets, particularly land acquisitions, has increased over time and will continue to do so.	Discussed in *Relevance and proportionality* and addressed in recommendations 6, 9, 10, 11 and 24.
Interpretation of appeals and EP Act decisions/assessments consistency with Principle 2	The draft review includes discussion of appeal outcomes, and the conclusion may be interpreted as appeal decisions supporting the effectiveness of the offsets framework. Stakeholder expressed some caution about interpreting appeal outcomes in this way. Appeal decisions should not be interpreted as supporting the effectiveness of the offsets framework nor as an endorsement of the policy, but rather that a policy is in place, and the outcome achieved is consistent with that policy.	Amended text in section 3.3 to address this issue.
Recommendation 3 - Text under principle 2 be amended to clarify that offsets are not appropriate in cases where the residual impacts are environmentally unacceptable or where no offset can be applied to counterbalance the impact	Include a principle that offsets cannot be used to make a project environmentally acceptable.	Offsets are only considered after a project is found to have significant residual impact after the mitigation hierarchy has been applied. Discussed in section 3.3 and recommendation 3.
	Recommendation 3 risks restricting decision-making authority if too specific. Recommendations should take into consideration the roles of the Minister and the EPA and that, once adopted there remains sufficient room/flexibility for decisions to be made by both the Minister and the EPA which allow for context to be taken into consideration. Clarification of the policy may not be required - noting that guidelines are generally more specific than the policy, being more specific in the policy could potentially raise other questions. The findings regarding appeals imply there are no problems with the current principles (ie. no recommendation required).	Recommendations made in this report do not restrict a decision-making authority and to reflect consistency with guidelines. Information has been added to section 3.3 to explain why clarification is needed and decision-making. In addition, a sentence has been added to the Summary and Introduction (section 1) to ensure that the roles of the Minister, EPA and relevant departments are considered.

Issue	Stakeholder comment	DWER response
Principle 3: Cost-effective, relevant and proportionate		
Offset benefits	Note difficulty in valuing the benefits of offsets.	The impact assessment process evaluates the proposed impacts and proposed offsets.
Valuer-General's rates	Using the WA Valuer-General's land rates per LGA and area, offsets are valued based on the cost per hectare of purchased land, applied on a sliding scale. This makes it proportionally 'cheaper' for proponents to clear larger areas than to minimise clearing.	This issue is discussed in *Offset types* and recommendations 16 and 24. The values set by the Valuer-General are evidence-based and considered appropriate; however, the methods for calculation and departmental operational procedures should be annually reviewed and updated to ensure sufficient funds are available to meet offset requirements and provide appropriate incentives to proponents.
	Offsets should reflect the actual value of land paid by the Western Australian Government.	
Offset costs	Increasing offset amounts and rates will increasingly cause proposals to be unviable; the amount of offsets required by regulators must at some point exceed the residual impacts.	The review found that implementation of the framework has not fully counterbalanced the significant residual impacts of approvals. The issues of offset cost-effectiveness is discussed in *Cost-effectiveness* and comparison of the effectiveness of different offset types in *Offset types*. These issues have been addressed through recommendations on provision of additional information on cost-effectiveness in the guidelines (recommendation 4), and selection of offset type (recommendation 9).
	Land acquisition with a contribution to management costs is often more cost-effective and delivers a higher degree of certainty of an outcome than revegetation.	
Offsets for approvals in urban areas	Question the environmental effectiveness of offsets in peri-urban areas for projects in urban areas; highlight the impact on the development potential of an LGA.	Discussed in *Relevance and proportionality* and *Offset types*. The review recommends additional guidance be provided (recommendation 6), finalisation of the WA metric (recommendation 5) and the use of bioregional planning for a more strategic approach (recommendation 10) to address these issues.
Offsets should focus on outcomes, not cost-effectiveness	Cost-effectiveness is included in the principle to provide some ability to apply a "reasonableness" clause to proposals; however, efforts to defining it may shift the focus in the wrong direction away from outcomes and the priority of rehabilitation where possible (even if other options are more "cost-effective").	Text added to section 3.4 and Recommendation 4 to clarify.
Proportionality of offset requirements	Consideration of whether an offset is proportionate to the significance of the environmental value being impacted is subjective. Regulators typically take a simplistic approach to determining the proportion of offsets required (using default ratios).	The impact assessment process evaluates the proposed impacts and proposed offsets. The review recommends finalisation of the draft WA metric (recommendation 5) and additional guidance be provided (recommendation 6) to improve consistency and transparency.
Flexibility in outcomes and interpretation of like-for-like/similar in offset implementation	Need greater consideration of outcomes other than acquisition of like-for-like/similar land, e.g.: • Like-for-better and strategic outcomes where like-for-like/similar cannot be achieved or where a better strategic outcome can be achieved. Criteria setting using specific examples about what constitutes a like-for-better/strategic outcome would be useful. • Non-terrestrial offsets (without necessarily locking them into a rigid formula that has legal effect, at least initially). • Widening and revegetating road reserves, particularly narrow reserves in the Wheatbelt. • Offset, with potential ratio increase based on the variance between the clearing values impacted and the offset negotiated, similar to the metrics based on risk. • Recognise rehabilitation following project implementation, i.e. temporary clearing. • Recognise cockatube® nesting boxes as a suitable replacement for hollows for black cockatoos. • Royalty payment of offsets for quarries and extractive industries on a per-tonne basis; likely to require changes to legislation. • Proximity-free offsets that are restricted to habitat ranges rather than administrative boundaries or distance to impact area. • Offset conditions are too prescriptive. • Offset conditions should be worded more broadly (similar to Part IV conditions or Part 9 EPBC Act conditions) that provide more discretion/flexibility in the selection of offsets.	The flexibility requested by stakeholders is inconsistent with the EP Act. The issue is discussed in *Relevance and proportionality* and *Outcomes-based conditions*. Recommendations to address this include improvements to the guidelines on how to address cost-effectiveness (recommendation 4) and application and worked examples of like-for-like/similar (recommendation 6).
	Widening and revegetating road reserves should be considered a viable offset option. More weight should be given to similarity of environmental values between the impact and offset, rather than on the proximity to the impact when considering offset options. These matters do not appear to be inconsistent with the EP Act.	Additional text on revegetation has been added to *Offset types*. An offset should also be consistent with other principles, such as Principle 6. Relevance is considered in offset decision-making. The review recommends improvements to the guidelines to address selective offsets and different tenures and levels of security (recommendation 9) and the development of bioregional plans (recommendation 10).
	Offset property is rarely like-for-like.	This issue was examined by the review and discussed in *Relevance and proportionality* and *Biodiversity values* The review found that almost all cases were like-for-like or like-for-similar level but improvements were recommended to the guidelines (recommendation 6).
Clarity of Principle 3	Draft recommendation risks restricting decision-making authority if too specific.	The recommendation has been amended to avoid restricting a decision-making authority.

Issue	Stakeholder comment	DWER response
	Offsets need to focus on the environmental outcome, not the cost-effectiveness. There is a view that cost-effectiveness is included to provide some ability to apply a 'reasonableness' clause to proposals; however, efforts to defining it may shift the focus in the wrong direction away from outcomes and the priority of rehabilitation where possible (even if another options are more 'cost-effective').	Amendments to text made in section 3.4 *Cost-effectiveness.*
	Recognising that cost-effectiveness is assessed by proponents in proposing an offset (rather than the regulator), reference to cost-effectiveness should be removed from the offsets policy and consideration be given to a principle that offsets be achieved at least cost.	
Principle 4: Based on sound environmental information and knowledge		
Industry concern about science-based decision-making	While some stakeholders agreed that all or most decisions are based on sound science and knowledge, some did not believe regulators adequately considered information or questioned the credibility of information sources.	Discussed in section 3.5. The review found offset decision-making uses the best available scientific information referenced in approval documentation.
Costs of obtaining sound knowledge	Proposed impact areas typically have a higher survey effort than proposed offset areas. This may have significant financial considerations for proponents if required to undertake intensive surveys for offset areas.	A proposed offset needs to include sufficient information to ensure the impacted biodiversity values can be offset. The review has recommended improvements in the guidelines regarding application of Principle 3 (recommendation 6).
Principle 5: Adaptive management		
Management of offsets	Stakeholder has processes to ensure the offset objective is maintained and will review the status of offsets it manages.	Noted
Risk assessment	Environmental risk assessments are a standard requirement for proponents. The Commonwealth offsets calculator contains a risk assessment, but it is overly simplistic.	Discussed in section 3.6 and addressed through improved reporting on actions taken to address risks or unforeseen events or corrective actions if the offset was not successful (recommendation 7). The finalisation of a draft WA metric will also improve risk assessment (recommendation 5).
	There is little information on how regulators assess risk and proposals. Stakeholder experience is that regulators have a conservative approach to risk assessment.	DWER has published guidance on the assessment of applications to clear native vegetation and Part IV factors. In response to poor outcomes of revegetation offsets, DWER has developed guidance (*A Guide to Preparing Revegetation Plans for Clearing Permits*, 2018) on how to prepare revegetation plans to ensure appropriate planning and implementation for successful revegetation projects. These issues are addressed through improvement of reporting information on risks and monitoring of implementation in recommendations 7 and 20.
	Consider success rates and lessons learnt for rehabilitation and translocation work; consider ways to improve chances of success and set adequate timeframes and funding for implementation and monitoring. Include completion criteria in conditions, and consider reporting on the area of successful revegetation over time.	
How uncertainty is considered in assessment	Concern that uncertainty is used as a mechanism to dismiss avoidance and mitigation measures, residual impacts for sequential land use, temporary disturbance and rehabilitation.	Discussed in section 3.6. The impact assessment process evaluates the impacts, mitigation and proposed offsets.
Contingency for failure of offsets	Principle 5 and the guidelines require contingencies in the case of failure of offsets, particularly rehabilitation and translocation work.	Discussed in section 3.6. These issues are addressed through improvement of reporting information on risks and monitoring of implementation in recommendations 7 and 20. It is expected that an offset proposal would contain information about contingency planning.
	Member experience that regulators have a conservative approach to contingency.	
	Adaptive management principle is supported, but contingency may be more practical for short timeframes (~5 years).	
	Do not support reopening an offset decision if the offset is not, or is only partially successful, unless the lack of success was a direct result of the entity benefiting from an offset not undertaking the required activities to the agreed standard. DWER should consult widely about the circumstances under which an existing regulatory approval could effectively be reopened.	
Recommendation 7	Suggest wording change from "if the offset was not successful" to "if offsets are not achieving desired outcomes". This is based on our understanding that this can only be done if the process is still underway and if the actual offsets are not successful then those responsible would have to go back for a decision?	Recommendation 7 clarified to address the comment, noting that outcomes-based conditions are not proposed.
Principle 6: Focus on longer-term strategic approaches		
Support a focus on delivering long-term strategic outcomes	Security of tenure into conservation estate/covenants is a great outcome but does not replace vegetation cleared. Conversely, revegetation to replace cleared areas is a sound principle but high quality revegetation in Western Australia is rarely achieved and costed appropriately. Consideration to strategic land based revegetation offsets, which seek to link areas of ecological function and conservation estate might also be suitable from a government approach rather than continuing approvals of land clearing and offsetting through protecting areas by change of tenure only.	Differences between security of tenure and offset types are discussed in section 3.7 and *Offset types* and addressed through recommendations 8, 9, 10 and 17. Consideration of cumulative impacts is discussed in section 3.3 and *Biodiversity values*.

Issue	Stakeholder comment	DWER response
	Consider the effectiveness of proponent identified/driven offsets vs a strategic approach. Suggest the use of strategic offset plans.	
	Improve the consideration of cumulative and regional/landscape-scale impacts by proponents and assessment officers.	
	Supports the development of regional plans to guide offset investment, aligning with conservation advices and recovery plans, and with an emphasis on creating functional ecological linkages/connected networks of protected areas	
	Stakeholder is working through identifying strategic priorities for land acquisition. Strategic offsets are likely more effective at achieving a viable and no-net-loss outcome, but are unlikely to meet the constraints of 'like-for-like'.	
	Question the need for Recommendation 8 (to improve processes for reaching whole-of-government agreement) in the framework for industry, given this is a government consultation issue and not part of the approval process.	Noted. The recommendation includes changes to government processes to improve due diligence and cross-agency co-ordination.
DBCA undertakes a significant amount of unfunded work to support proponents to satisfy offset conditions	Investigate options to provide for funding for reserve establishment and management, for example by requiring funding provisions in offset conditions.	Discussed in section 3.7 and *Part V fund* and addressed in recommendations 8, 10 and 11.
	There is support for work between agencies to improve the identification of land.	
Challenges to reserving land following acquisition	Barriers to timely implementation of land acquisition offsets include: • lack of support for reserve establishment by all agencies • lengthy negotiations of conditions or requirements • lack of funding for subdivision, survey and conveyancing (costs borne by government). Need for processes that ensure whole-of-government support for reservation land purchase and acquisition and agreement on offset delivery.	Discussed in section 3.7 and addressed in recommendations 8 and 11.
	Acquired lands lack of protection if not reserved.	
Inadequate consultation with stakeholders who have an interest in land being set aside for conservation	Land acquisitions from offsets are often purchased prior to consulting other agencies or affected tenement holders. This can result in subsequent issues relating to high-level conservation reserve creation. The resource potential of crown land should also be considered.	
	Strongly support summary recommendation 7 (improve coordination and communication on offsets), with the inclusion of consultation with relevant stakeholders.	Noted. Addressed in recommendation 24 (future land manager).
Investigate options to ensure security of tenure	Consider mechanisms to ensure the intent of government decisions in respect to offsets are implemented in perpetuity by whole of government. Land proposed for acquisition as well as the mechanism and funding for acquisition should be identified upfront in conditions before approval.	Discussed in section 3.7 and *Part V fund* and addressed in recommendations 8, 11, 24 and 25.
	There are examples of existing crown reserve being used as land acquisition offsets for clearing activities, some of which may already be under the "care, control and management" of the Crown. The necessary outcome is a change in crown reserve purpose to include conservation and allow for long-term protection and maintenance of the environmental values.	
Long-term on-ground management	Funds could be expended by partnering with alternative organisations and/or community groups.	Discussed in section 3.7 and *Part V fund* and addressed in recommendation 23.
	Funds are required for long-term management of acquired lands. Offset policy and related future conditions to should require proponents to resolve a long-term management entity and the related financial arrangements.	
	Consider and make recommendations regarding the need for funding for ongoing offset management to ensure that environmental values are sustained.	
Regular review	Government may need to monitor and audit offsets periodically to ensure they are effective, and report to the public and proponent.	Discussed in *Reporting and enforceability* and addressed in recommendation 22.
Offsets guidelines		
The guidelines need to provide more clarity and detail	The guidelines appear to generally be followed. However, the guidelines provide only an overview of the process and there are issues with interpretation and application of the framework by the regulator.	Discussed in *Offsets guidelines and register* (and throughout the report) and addressed in recommendations 12, 13, 14 and 25.

Issue	Stakeholder comment	DWER response
	Improve clarity in the guidelines, including more worked examples and scenarios, to help determine when offsets are appropriate and whether a proposal will have a significant residual impact after applying the mitigation hierarchy.	
	Improving clarity and worked examples seems good, but will not necessarily lead to improved compliance. It could be seen to increase the onus (and resource burden) on the department to be clear in the guidelines rather than industry to prove compliance. Enhanced reporting requirements could shift the balance of the burden.	
Offsets register		
Design and functionality	Have changes been made on the basis of user feedback?	Discussed in *Offsets guidelines and register* and addressed through recommendation 15. Improvements to reporting of outcomes are specifically addressed in section 3.6 and recommendation 7. Reporting on performance of offsets is addressed in *Reporting and enforceability* and recommendations 18, 19, 20, 21 and 22.
	Register provides a platform to access offset information but the content, function and design could be improved.	
	Support redesign of offsets register to include implementation status and reporting against outcomes.	
Transparency around implementation of offsets	Lack of community involvement in the offsets process.	Environmental impact assessments under Parts IV and V of the EP Act are publicly advertised to allow community comment and approvals may be appealed. Proposed changes to the offset register are discussed in *Offsets guidelines and register* and addressed through recommendation 15.
	The register does not provide details on how the offsets were determined, what rate was applied, mitigation measures, etc. Therefore, it cannot be used to evaluate consistency of assessment between proposals. The register does not capture all offset decisions, e.g. offsets provided as part of land exchange processes.	The offset register contains a summary of the assessment information. Full approval details publicly available at DWER's clearing permit system site for Part V (www.der.wa.gov.au/our-work/clearing-permits/27-clearing-permits) and EPA's website for Part IV (www.epa.wa.gov.au). Other decisions are discussed in *Offsets under other legislation*. Offset decisions are only made under the EP Act.
	Consider annual reports on what offsets areas are purchased, offsets reported on, and non-conformance. DWER has been responsive in assistance when developing offset proposals and input metrics.	Discussed in *Transparency, certainty and predictability*, *Reporting and enforceability* and *Part V fund* and addressed in recommendation 24.
Availability of offsets data	Spatial data would assist with identifying land that should be protected for offset purposes.	Discussed in *Transparency, certainty and predictability* and spatial data on offset locations is now publicly available at the Data WA website (https://data.wa.gov.au).
Offsets metric		
Lack of clarity and certainty in the calculation methodology for offsets	The guidelines provide no detail on offset rates, and minimal detail on how they are determined or applied.	Discussed in *Relevance and proportionality* and addressed in recommendation 5. Alignment between calculators can be addressed during implementation.
Potential duplication between state and Commonwealth offsets	Provide a unified quantitative tool for developing offsets that is applied by both state and Commonwealth. The offsets calculator should align with the Commonwealth offsets calculator to avoid duplication for projects requiring EPBC Act approval.	
There is no specific offset calculator for WA; EPBC Offset Calculator is used	A specific methodology for offset calculations in relation to EP Act requirements would better address broader environmental values and Part V clearing principles such as low vegetation representation.	
Metric considerations	The size of the offset area, which by ratio is a proportionally greater area, considers that the quality of revegetation is significantly poorer than any cleared remnant area. Revegetation is still a developing science in WA and the resilience and biodiversity in a natural system, even a degraded one, is still valuable as a remnant and has better certainty of persistence than a rehabilitated or revegetated area.	
Include more information on the metric in the report	The metric should be more prominent and finalisation should be a high priority as it will provide a useful tool to improve transparency.	
Other elements – transparency, certainty and predictability		
Inconsistent decision-making and application of the framework	The values entered into the offsets calculator are subjective, often do not look at the site, and may vary depending on the consultant to the proponent.	The impact assessment process evaluates the proposed impacts and proposed offsets. The review recommends finalisation of the draft WA metric (recommendation 5) and additional guidance be provided (recommendation 6) to improve consistency and transparency. Methods for setting offset rates are discussed in *Offset types* and addressed in recommendation 16.
	Vastly differing offset rates have been applied to neighbouring properties with similar environmental values and impacts.	

Issue	Stakeholder comment	DWER response
	Consideration of the relevance of offsets to the environmental values being impacted is subjective.	
Inadequate communication with applicants regarding offset requirements	There has been no consultation or apparent oversight with respect to setting offset rates and criteria, and application of offsets to proposals.	
Not enough clarity in how significant environmental impact is determined	Offsets assessments should be consist with clearing exemptions (<5 ha). It does not seem appropriate to require offsets for clearing that is otherwise exempt if it was cleared for another purpose while having the same environmental impact.	Exempt clearing does not require a permit and, therefore, is out of scope of the review. Principle 2 requires that offsets are not applied where environmental impacts are minor and this is discussed under section 3.3.
Inequalities arising from the purpose for clearing	The same offset calculations are made for different land uses and end uses, despite differences in cost of acquisition of vegetation land versus rehabilitation. For fairness and equity, rehabilitation and ecological value of land should be considered in setting offset ratios.	Discussed in section 3.7 and *Offset types* and addressed through recommendations to finalise the WA offsets metric (recommendation 5), provide additional guidance on offset selection for more strategic approaches (recommendation 9) and bioregional planning (recommendation 10).
Not enough certainty in offsets	Amendments to Part V approvals require a full re-assessment, which includes a re-calculation of offsets against current criteria.	
Appeals processes	There are no third-party rights of appeal (all parts of the process fall under the Minister for Environment, as any appeal goes through the Office of Appeals Convenor), contributing to a lack of transparency.	Appeals are discussed in *Transparency, certainty and predictability* and section 3.2. The appeals process is out of scope of the review. Further information about appeals is available on the Appeals Convenor website (www.appealsconvenor.wa.gov.au).
Availability of offsets	Clearing is being approved with no guarantee that the promised offsets can be found. No certainty that the land to meet the prescriptive requirements actually exists or is available at a price commensurate with the funds provided by the proponent; no offsetting action. There should be a requirement for proponent to identify and secure offset prior to implementation of the approval.	Discussed in *Biodiversity values* and *Part V fund* and addressed in recommendation 11.
Other elements – offsets under legislation other than EP Act		
Interaction between offset capabilities in the *Biodiversity Conservation Act* and the EP Act	The offset capability in the BC Act has not yet been used (proclaimed January 2019). The review should determine how the BC Act will interact with the EP Act and state policy to ensure complementary processes and avoidance of duplication. Incorporate a new principle about 'Avoidance of duplication' with approvals. This may also help with state-Commonwealth interactions.	Discussed in *Offsets under other legislation* and addressed in recommendation 12. Additional principle on avoidance of duplication is not necessary as this can be addressed in updating the policy to include the *Biodiversity Conservation Act 2016*.
Offsets applied under the *Planning and Development Act 2005*	There is limited scope to apply the offset policy in the planning process, as the conditions of approval can only relate to land that is the subject of the application being considered. When the offset is located on land that does not form part of the application, conditions to protect it as an offset cannot be applied.	Removal of references to the *Planning and Development Act 2005* will address any potential misunderstanding – offsets under SPP 2.8 do not fall within the scope of the policy.
Other elements – cooperation with Commonwealth to avoid duplication		
Duplication of processes	To the extent possible, ensure that significant residual impacts to environmental values protected under state and Commonwealth legislation can be addressed with the same offset, and that the offset requirements during assessment, approval and implementation are consistent.	Discussed in *Minimal duplication between state and Commonwealth requirements for environmental offsets.*
	There appears to be minimal cooperation between the state and Commonwealth with respect to proposals, with some processes duplicated.	
Inconsistencies in determining significant impact between state and Commonwealth assessments	Offsets should not be required for clearing that impacts threatened species and communities that are also considered to be a Matter of National Environmental Significance if DotEE has determined that the clearing is not a controlled action and will not have a significant impact.	Discussed in *Minimal duplication between state and Commonwealth requirements for environmental offsets.* Revisions have been made to text to better address the issue of inconsistency (rather than duplication).
	A section could be added to the report addressing inconsistency where the Commonwealth has not considered the clearing to be a controlled action and DWER has advised an offset is required due to impacts on the Commonwealth and State threatened fauna.	
	State and Commonwealth approvals use a different method of funding land purchases.	
Timeframes for land acquisition	Commonwealth typically requires offsets to be acquired within 12 months of clearing. The Commonwealth will not consider amending a standard condition, but the condition may be extended a further 12 months if progress in acquisition of a suitable offset is demonstrated. Coordination with DotEE is important in order to avoid misalignment of state and Commonwealth requirements around timeframes to complete acquisition offsets.	Discussed in *Minimal duplication between state and Commonwealth requirements for environmental offsets.*

Issue	Stakeholder comment	DWER response
Offset types		
No specific monitoring or reporting over time	The WA Government has has management responsibility over conservation estate and reports on its activities as a land manager at a broad level. It could be assumed that native vegetation added to the formal conservation reserve system managed under the CALM Act will persist given these management responsibilities..	Noted. Discussed in Section 3.7
	Concern regarding the issues identified with the operation of the Part V and Pilbara environmental offsets funds. A stakeholder considers that further use of these funds should be suspended until these issues are resolved. Support ongoing review of operation of funds.	Noted. Improvements to (recommendation 24) and ongoing review (recommendation 16) of the operation of offsets funds aim to address the identified issues.
On-ground management/rehabilitation offsets should play a greater role in improving biodiversity conservation	Revegetation and rehabilitation of degraded land as an offset option should be promoted, incentivised and encouraged, especially in areas where there is limited remnant vegetation remaining. Recognise that revegetation (even partial) is the only way to increase habitat and feeding resources of threatened species. The offsets framework should encourage the creation of habitat more than it currently does.	Offset selection is discussed in section 3.7 and *Offset types* and addressed in recommendations 9 and 10. Amendments were made to *Offset types* to better address this issue. Cumulative impacts are discussed in section 3.3. DWER released *A Guide to Preparing Revegetation Plans for Clearing Permits* in 2018, which may improve planning and implementation of on-ground offsets.
	The following issues and disincentives for revegetation need to be addressed: • limited guidance on how rehabilitation offsets could be successfully included • finding suitable sites for rehabilitation can be difficult and time-consuming • the cost of purchasing vegetated land compared to cleared land • security of tenure of revegetated road reserves • revegetation is costly and time-consuming, especially for threatened ecological communities • ongoing reporting obligations • ongoing monitoring maintenance and requirements • higher risk of failure.	
	Consider requiring offsets for urban and built developments to contain a rehabilitation or restoration component as compensation for completely removing habitat.	
	Further review of on-ground management offsets (particularly in the extensive zone) should be undertaken, noting that this review has not been able to determine the benefits of such measures with any confidence, and therefore whether significant residual impacts of projects are being counterbalanced by these type of offsets.	Discussed in *Offset types*, *Biodiversity values* and *Reporting and enforceability*.
	33,000 hectares is not a significant area in the context of the Pilbara	Text amended in *Offset types* to address.
Comparison of offset types	Clarification required on performance of land acquisition and on-ground management offset types.	Discussed in *Offset types*, text amended for clarity.
	Note that the review finding that "land acquisition most reliable offset requirements" does not mean that the environmental outcomes were actually achieved.	Noted. Discussed in section 3.7 and Outcomes-based conditions. The report evaluated whether the requirements of the offset condition were met. Improved processes for whole-of-government agreement on land acquisition are addressed in Recommendation 8.
Consideration of research and knowledge offsets	The guidelines should not give preference to direct offsets over research and knowledge offsets, provided they are assessed independently on their own merits as truly addressing information gains that will result in gains in overall conservation value to the state.	The review found examples of research offsets that have contributed to the available scientific knowledge; however, the review is not able to draw conclusions on their effectiveness (*Offset types*).
	Support the continued limitation of approval of ‘research offsets’ and only where there is clear tangible benefit from such research.	
Counterbalancing impacts		
Inclusion of a principle that offsets should deliver a net environmental benefit	Supported, but need further information on what this means, how it may apply in WA, and how it will be considered.	Discussed in *Counterbalancing impacts*.

Issue	Stakeholder comment	DWER response
Biobanking		
Appropriateness of biobanking for WA	Support facilitation of private landholder participation in offsets where appropriate provided that: • no special values are being impacted and do not need to be offset, or done in conjunction with value-specific offsets • works being funded are new and would not have otherwise occurred, or are associated with an increased security of tenure for the land • biobanking occurs with independent or government oversight • funding is delivered through the bank rather than direct credit transfer.	Discussed in *Biobanking* and addressed in recommendation 23. Recommendation 23, amended to remove the word 'private', which expands the potential landowners who could participate.
	May rely on an offsets metric, which would require improved vegetation data throughout WA.	
	Given the challenges of biobanking schemes in other jurisdictions (e.g. due to direct trading between landowners) and potential difficulties in establishing a scheme in WA (e.g. tenure arrangements), a possible alternative is to improve or expand different options. This has been considered in the past, with WA tenure arrangements making it less suitable that it possibly is for other jurisdictions. Possible alternative is to look at improving/expanding different options.	
	Suggest that before an EOI function is prepared that a scope and cost-benefit analysis of such a scheme be prepared.	
Outcomes-based conditions		
Offset conditions should focus on the conservation outcome	Provide further information on what the options are so that agencies can comment on any risks and opportunities associated with outcomes-based conditions.	Additional information was provided to stakeholders during the review, which addressed this request. Discussed in *Reporting and enforceability* and *Outcomes-based conditions*.
Part V offset fund		
Benefits of fund	A fund for strategic acquisition of land provides greater compliance certainty for proponents, allows for environmentally significant properties to be acquired when they become available, and for larger parcels of land to be purchased.	Noted
Offset fund is not being expended in a timely manner	Need to examine reasons for this and whether offsets continue to be appropriate.	Discussed in *Part V fund* and addressed in recommendations 24 and 11. Improved guidance of principle 3 (*Relevance and proportionality*; recommendation 6) may assist with timely identification of land. DWER and DBCA have been working collaboratively to improve identification of suitable offset sites.
	Further payments into the Part V Fund should be suspended until these issues have been resolved and the necessary measures implemented to ensure it can deliver the offsets as intended.	
	A timeframe to expend funds should be considered as this is an important factor for proponents and the community; it would likely be better achieved through better resourcing of the offset fund.	
	Land suitable for offsets is not always available, is difficult to identify or may not be considered viable for management. Proponent obligations are often discharged when there is no certainty that land suitable to meet a like-for-like or like-for-better outcome for the offset exists, is available at a price commensurate with the funds provided by the proponent or that the owner of the land is willing to sell. Land suitable for acquisition should be identified prior to granting development approval and offsets conditions should allow greater flexibility to identify suitable land. Evidence is the high balance of DWER offset fund.	
	A strategy is required for dealing with backlog of offset funds.	
	Require improved governance arrangements and adequate resourcing to ensure effective administration of the fund.	
	Agreement should be reached that a commensurate increase in agency expenditure limit be permitted to allow Part V funds to be spent.	
	The accumulation of unspent offset funds can lead to criticisms of whole-of-government implementation of the offsets framework.	
	Part V funds should be diverting for other conservation purposes.	

Issue	Stakeholder comment	DWER response
Purpose of Part V fund expenditure	Use of offset funds to revegetate and rehabilitate land acquired as offsets would be an effective use of funds to ensure improved maintenance of vegetation on secure tenure, particularly where there are limited options for further acquisition. Approval would be required for any work conducted on formal conservation estate. External contractors undertaking ongoing management on conservation estate would likely be more costly and less effective than funding government management of that land.	
	The Part V fund should allow cost recovery for government officers' time in identification of land.	Part V funds cannot be used for the salary of government staff.
	The Part V fund should allow cost recovery for land assembly.	Cost recovery for land assembly is already possible.
Interest on the offset fund is not returned to the fund	Ensure any interest accrued is also used to support environmental offset provisions. Consider setting up the fund as a special purpose account under the *Financial Management Act 2006*. Interest earned on contributions can then be used to fund the administration of the fund.	Discussed in *Part V fund* and addressed by recommendation 24.
Transparency	Unclear how the fund is managed or how much is in the fund. Annual reporting should be undertaken on the fund's balance, expenditure, properties acquired and their environmental values. Consider the DMIRS Mining Rehabilitation Fund.	
Additional considerations for the policy framework		
Additionality	Support a principle of additionality, noting that: • guidance on additionality should include examples of additionality related to land tenure and protection already afforded threatened species, communities and areas • the purchase and revegetation of some Bush Forever sites should be considered to meet this principle.	. Discussed in *Additionality* and addressed in recommendation 25. Bush Forever sites will remain an option for offsets.
	Supported	Noted
	Additionality is not identified as an issue in the paper so question the justification for inclusion.	Text added to *Additionality* to address this issue.
Defining offsets	'Environmental offset' is considered an appropriate term. Definitions in the policy and guidelines will distinguish between carbon offsets. It may be appropriate to use "biodiversity offsets" as a term for offsets applied under the *Biodiversity Conservation Act* and to keep the term "environment" offsets for those applied under the EP Act.	Discussed in *Offsets guidelines and register*.
	Suggested change in terminology from environmental offsets to biodiversity offsets may be restrictive as offsets may be considered for other environmental matters such as for heritage, visual amenity, hydrological processes, or other factors in future assessments (Part IV).	
	The term 'counterbalance' should be replaced with 'no net loss', consistent with the IUCN Offset Policy Biodiversity Guidelines (2016).	The framework was evaluated against its own objectives, which are to counterbalance significant residual impacts.
Reporting and enforceability	Stakeholders are supportive of a system where the requirements for offsets are clear and transparent, and that once approved, there is continued focus from regulators to ensure that the offset requirements are implemented successfully. DWER should be adequately resourced to undertake this work.	Discussed in *Reporting and enforceability* and addressed through recommendations on adaptive management (recommendation 7) and reporting (recommendations 18, 19, 20 and 21).
Recommendation 17	Change the wording to "Offset conditions be amended to improve enforceability and allow monitoring... etc" - the current wording implies to the audience that it is not currently enforceable.	Change made to Recommendation 7 to address this comment.
Regular review of the framework	Inclusion of a regular review process in the revised policy may be unnecessarily onerous.	Evaluation is part of the ongoing, cyclic and iterative approach to developing and improving policy over time.
	Regular review of the offset framework is supported with the underlined additions of 'include a process for regular review of the effectiveness of the framework and its implementation in achieving environmental outcomes'.	Suggested change to recommendation 22 broadens the scope of future reviews.
Coordination in offsets processes	Consider a designated role overseeing the coordination of offsets across agencies to ensure visibility, effectiveness and consistency of offsets that also support overarching strategic government priorities. Establishing an interagency (DBCA and DWER) team to identify, assess and acquire offset properties would help address the current lack of resourcing to support land acquisition.	Discussed in section 3.7 and *Part V fund* and addressed in recommendations 8, 11 and 24.

Issue	Stakeholder comment	DWER response
	Internal guidance on the administration of the guidelines is very important to ensure there is consistency in the process. Has any work been on this?	
Departmental resourcing	Given the assessment delegation, DMIRS collects the same fees and will also be investing this money in staffing.	Noted
	Administration of offsets by the relevant agencies should be adequately funded, resourced and managed.	Noted
General		
Content of review report	Overall, stakeholders were satisfied with the final report and recommendations.	Noted; the report was developed and finalised with consideration to consultation and stakeholder input.
	The review in the final version needs to be a very practical document with on-ground examples from industry.	Discussed in *Offsets guidelines and register* and addressed in recommendations 6 and 14.
Analysed data	Queried the accuracy of area for completed land acquisitions.	Numbers checked and confirmed; Table 5 amended for clarity.
	The report analysis should differentiate between Parts IV and V where issues apply to one and not the other.	Text amended where relevant throughout text.

Changes in terminology, grammar and structure	Changes/clarification requested, including:
	• Clarify what offsets 'in progress' and 'implemented' means; terminology in offsets register is 'current'.
	• Mention the use offset metrics when referring to frameworks and assessment processes.
	• State the headline policy objective from 2011 policy.
	• Clarify 'Flexibility of conditions with reference to enabling a more strategic approach'.
	• Clarify what makes a project 'unique' and how this relates to appealed projects.
	• Define 'fit for purpose' in the review objectives and indicators.
	• Specify that the review includes the 'operation and effectiveness' of the framework.
	• Clearly distinguish between achieving environmental outcomes, meeting offset requirements and the correct application of the offsets framework.
	• Specify that establishing and maintaining vegetation includes revegetation and rehabilitation of vegetation.
	• Clarify wording around interagency coordination.
	• Be consistent in how stakeholder comments are referred to.
	• Add mention of stakeholder input provided to include:
	  ○ proximity of offsets to location of impact and how this affects effectiveness
	  ○ security of tenure of offset land
	  ○ effectiveness and/or lack of monitoring, reporting and enforcement
	  ○ operation of Part IV (Pilbara) and Part V Environmental Offsets Fund.
	• Other minor changes to wording and clarifications.
		Changes made as appropriate, except in cases where text was consistent with policies and legislation.
		
		Some suggested changes to wording or structure were not made if the issues were already covered elsewhere in the document or would be covered addressed through recommendations.
		
		Further information on methods and terminology has been provided in the final report (e.g. in the appendices).

	Avoid language which identifies stakeholders	Noted, done throughout stakeholder comment table.
Improvements over time	The report should address improvements in policy and implementation over time (e.g. the issues with earlier approvals which have now been addressed).	Amendments were made to the summary, sections 3.1, 3.5 and *Cost-effectiveness*.
Association between findings and recommendations	Findings which don't have associated recommendations should include recommendations for improvement or say why recommendations aren't necessary.	Amendments were made to sections 3.3, 3.7, *Offset types* and *Biodiversity values*.
Recommendations	Differentiate between recommendations which can be progressed through internal departmental processes and those which need further consultation.	To be considered in implementation plan development.

Appendix D — Method for analysis of approvals

Determining the number of approvals with offsets

The review considered approvals granted under Parts IV and V of the EP Act between 1 September 2011 (release of the policy) and 31 October 2018 which included offset conditions. Statewide purpose permits were sorted by project and approval dates. These were considered separate approvals for the purposes of this review. For example, 818/8 was counted as four approvals because it comprises:

- PROJECT 1 – Northam–Cranbrook Road – SLK 104 to 215 – widening (Brookton to Cuballing, Cuballing to Narrogin, Narrogin to Highbury and Buchanan River to Wagin Sections) (decision date of 30 May 2013)
- PROJECT 2 – Great Northern Highway – SLK 165.6 to 176.4 – Bindi Bindi to Lyons East Road realignment (decision date of 9 July 2013)
- PROJECT 3 – Northam–Cranbrook Road – SLK 170.22 to 204.21 – Narrogin to Buchanan River widening (decision date of 12 December 2013)
- PROJECT 4 – Bussell Highway – SLK 90.62 to 93.77 – Bramley Section upgrade (decision date of 20 December 2013).

Determining the number and type of offsets

Generally, offsets were counted as they were displayed in the offsets register (as in Figure 4).

Decision(s):

DECISION 1 — Date of decision: 01 Aug 2012

Offset	Offset Type	Offset Area	Offset Status	Condition Milestones
OFFSET 1	Land acquisition	10.4	Current	1
OFFSET 2	Rehabilitation	4.76	Current	1
OFFSET 3	Land acquisition	22.0	Current	1 2

Figure 4 Example of counting number of offsets as per offsets register = 3 offsets

To ensure consistent analysis, data was adjusted if additional information made it clear that offsets should be counted differently, as in the following cases:

- Where approval conditions required more than one offset type for the same land (such as acquisition and on-ground management of the same land), these were counted as two offsets.
- Where approval conditions required actions on different land, these were counted separately.
- Where the approval included interrelated on-ground management conditions that required a) preparation of a plan, b) implementation of the plan,

c) revegetation, d) fence construction and e) weed management on the same land, these were counted as one on-ground management offset.

- Where the approval required preparation of an offset proposal or other plan, this was not counted as an offset as it is a means to achieve the offset.

Where the offset conditions required the transfer of funds to third-party organisations, these were recorded as the purpose of the funds. That is, land acquisition (agreed site), on-ground management (agreed site) or research.

Where land was purchased using contributions to the Part V fund, the offset type was recorded as land acquisition (fund contribution) to enable evaluation of this offset type.

Selection of sample approvals

The project team, project board, Intra-government Steering Group and Stakeholder Working Group were asked to nominate approvals with the following characteristics:

- contentious projects
- projects with unique characteristics (e.g. projects that were subject to appeal)
- projects that allow for sufficient depth and breadth of analysis.

Sixty within-scope approvals were nominated and another seven approvals were added to the sample to improve representativeness. The final sample was representative for proportion of Ministerial statements and clearing permits (Parts IV and V), date of approval, offset type, size of the significant residual impact, biogeographic region and industry sector of the approval (Table 4).

Determining the offset implementation and performance

Public information and government records were searched for each approval in the sample to obtain:

- approval documentation (decision reports, clearing permits, Ministerial statements and EPA reports)
- annual reporting on implementation and/or offset conditions
- other relevant information such as correspondence with proponents, offset proposals/plans, compliance information.

The offsets register categories for project status (‘complete’ and ‘current’) were found to be out of date and/or not sufficiently detailed for many of the ‘current’ offsets. Therefore, the review considered all available information to classify offsets into the following implementation status descriptions:

- ‘completed’ means offsets which met their approval conditions
- ‘in progress’ means offsets have been commenced and reporting on implementation has been received
- ‘insufficient information’ means offsets for which implementation should have commenced but there was no reporting to determine the extent of progress

- 'future' means those offsets that are included in approvals but the requirement to implement the offset conditions has not yet been triggered (e.g. project has not commenced).

Lessons learned approvals

Stakeholders nominated some approvals that were out of scope (e.g. those approved prior to the policy or not yet finalised at the time of the review) or which would have skewed the representativeness of the sample. Although these approvals were not included in the sample for analysis, they were investigated and lessons learned were incorporated into the final report and recommendations.

Appeals and refusals

The Office of the Appeals Convenor database (www.appealsconvenor.wa.gov.au/most-recent-decisions) was searched for relevant appeals from 2011 to 2018, including EPA reports, grants of clearing permits, conditions of clearing permits and refused clearing permit applications. Fifty-one appeals decisions were examined in detail (including the Appeals Convenor report and Minister's Determination) to:

- determine the type of decision (i.e. approval or refusal)
- determine whether the appeal related to high impacts of the proposal, adequacy of the assessment process, adequacy of avoidance and mitigation, adequacy of the proposed offset or other issues
- determine if the appeal resulted in a change of the type of decision.

Table 4 Composition of the final representative sample

Criteria	Total	% total approvals with offsets	Number in sample	% of sample
Type of approval	**281 approvals**	**24%**	**67 approvals**	**-**
Part IV	63	22%	15	22%
Part V (includes permits granted by DWER and DMIRS under delegation)	218	78%	52	78%
Year of approval (calendar years)	**281 approvals**	**100%**	**67 approvals**	**100%**
2011* & 2012	42	15%	6	9%
2013 & 2014	93	33%	21	31%
2015 & 2016	97	35%	24	36%
2017 & 2018*	49	17%	16	24%
IBRA bioregion (see Figure 1)	**281 approvals**	**100%**	**67 approvals**	**100%**
Swan Coastal Plain	113	40%	28	42%
Avon Wheatbelt & Geraldton Sandplains	67	24%	18	27%
Jarrah Forest	38	14%	9	13%
All other South West	16	6%	3	4%
Pilbara	30	11%	5	7%

Criteria	Total	% total approvals with offsets	Number in sample	% of sample
Kimberley	3	1%	2	3%
All other extensive land use zone	11	4%	2	3%
Marine	2	1%	0	0%
Not stated	1	0%	0	0%
Offset type	**389 offsets**	**100%**	**105 offsets**	**100%**
Land acquisition	113	29%	36	34%
On-ground management	144	37%	41	39%
Research	19	5%	3	3%
Funds	107	28%	25	24%
Other or not stated	6	2%	0	0%
Approval significant residual impact area	**281 approvals**	**100%**	**67**	**100%**
Less than 1 ha	39	14%	12	18%
1 to 9.9 ha	104	37%	27	40%
10 to 99.9 ha	75	27%	11	16%
100 to 999 ha	26	9%	11	16%
1 000 to 9 999 ha	27	10%	4	6%
Over 10 000 ha	5	2%	2	3%
Not stated	5	2%	0	0%
Purpose of the clearing (industry sector)	**281 approvals**	**100%**	**67**	**100%**
Infrastructure	155	55%	37	55%
Mining & extractive industry	83	30%	21	31%
Urban (industrial & residential development)	26	9%	7	10%
Agriculture & pastoral	16	6%	2	3%
Other	1	0%	0	0%

* As the scope of the review is from the release of the *WA Environmental Offset Policy* in September 2011 until October 2018, 2011 and 2018 are not full calendar years.

Appendix E – Summary of analysis of Part IV and V approvals

Table 5 Offsets in the review sample, by completion status

Offset type	No. offsets	Approved offset area (ha)	Area delivered (ha)
Completed	**37**	**1665**	**1 197**
Land acquisition (agreed site)	17	872	872
Land acquisition (fund contribution)	16	780	325
On-ground management (agreed site)	4	13	Insufficient information in reporting
In progress	**21**	**2348**	
Land acquisition (agreed site)	9	1096	In progress
On-ground management (agreed site)	12	1253	Insufficient information in reporting
Insufficient information	**17**	**106**	**Insufficient information**
Land acquisition (agreed site)	2	43	Insufficient information
On-ground management (agreed site)	15	63	Insufficient information
Future	**30**	**36 353**	**Not yet required**
Land acquisition (agreed site)	8	More than 11 791	Not yet required
On-ground management (agreed site)	10	More than 550	Not yet required
On-ground management (fund contribution)	9	24 012	Not yet required
Research	3	N/A	Not yet required
Total currently required	**75**	**4119**	
Total all	**105**	**More than 40 472**	

Table 6 Offsets in the review sample, by type

Offset completion status	No. offsets	Approved offset area (ha)	Area delivered (ha)
Land acquisition (agreed site)	**36**	**More than 13 802**	
Completed	17	872	872
In progress	9	1096	In progress
Insufficient information	2	43	Insufficient information
Future	8	More than 11 791	Not yet required
Fund contributions	**25**	**24 792**	
Completed (Part V only, land acquisition)	16	780	325
Future (on-ground management, fund contributions)	9	24 012	Not yet required
On-ground management (agreed site)	**41**	**More than 1879**	

Offset completion status	No. offsets	Approved offset area (ha)	Area delivered (ha)
Completed	4	13	Insufficient information in reporting
In progress	12	1253	Insufficient information in reporting
Insufficient information	15	63	Insufficient information
Future	10	More than 550	Not yet required
Research	**3**	**N/A**	
Future	3	N/A	Not yet required
Total all	**105**	**More than 40 473**	

Table 7 Proportion of approvals that included statements about avoidance and mitigation in approval documentation

Year	No. approvals	No. approvals stating avoidance and mitigation	Percentage
Approved 2011* & 2012	6	4	67%
Approved 2013 & 2014	21	7	33%
Approved 2015 & 2016	24	12	50%
Approved 2017 & 2018*	16	13	81%

* As the scope of the review is from the release of the WA Environmental Offset Policy in September 2011 until October 2018, 2011 and 2018 are not full calendar years.

Table 8 Environmental values of sample approvals

Environmental value	Number of approvals	Significant residual impact	Number and status of offsets & outcome area *While offsets are listed by environmental value in this table, an offset may address more than one environmental value.*
Contains high biodiversity	**12**	232 ha	5 x completed land acquisition (agreed site) offsets totalling 446 ha.
			3 x Part V fund contribution for land acquisition submitted awaiting land purchase of 334 ha.
			1 x completed on-ground management – annual reporting does not report outcomes.
			1 x in progress land acquisition (agreed site) offset totalling 13 ha. 1 x in progress on-ground management offsets – insufficient information as annual reporting does not report outcomes.
			1 x insufficient information on land acquisition (agreed site) on 31 ha change of vesting. 3 x insufficient information on-ground management offset – no reporting.
			1 x future offset land acquisition (agreed site) of 31 ha not yet required. 1 x future on-ground management offset (same site as for acquisition). 1 x future fund contribution for acquisition of 150 ha but reporting indicates offset is not yet required.
Fauna habitat	**51 (all fauna)**	Listed under individual species below	Listed under individual species below.
Habitat for conservation significant fauna/significant linkage for indigenous fauna in the local area	9	8420 ha	3 x completed land acquisition (agreed site) offsets totalling 154 ha. 3 x Part V fund contribution for land acquisition submitted awaiting land purchase of totalling 126 ha.
			3 x insufficient information on-ground management offset – no reporting.
			3 x future PEOF contribution not yet required.
Black cockatoo habitat – includes Carnaby's cockatoo, Baudin's cockatoo and forest red-tailed black cockatoo breeding, roosting and foraging habitat	33	2573 ha	16 x completed land acquisition (agreed site) offsets totalling 871 ha. 1 x completed on-ground management offsets – insufficient information as annual reporting does not report outcomes.
			7 x Part V fund contributions for land acquisition purchased 312 ha. 4 x Part V fund contribution for land acquisition submitted awaiting land purchase of 369 ha.
			2 x in progress land acquisition (agreed site) offsets totalling 687 ha. 5 x in progress on-ground management – insufficient information as annual reporting does not report outcomes.
			2 x insufficient information land acquisition (agreed site) offsets totalling 43 ha. 3 x insufficient information on-ground management offset – no reporting.
			5 x future land acquisition (agreed site) offsets totalling 2513 ha and implementation of a land acquisition plan (area not specified) not yet required. 1 x future on-ground management offset (3 x same sites as future land acquisition (agreed site) totalling 501 ha + land acquired under the land acquisition plan above). 1 x future fund contribution for acquisition of 150 ha but reporting indicates offset is not yet required.
Western ringtail possum habitat	9	32.5 ha + 38 *Agonis flexuosa* trees	2 x completed land acquisition (agreed site) offsets totalling 49 ha. 1 x land acquisition fund contributions purchased 9 ha.
			1 x Part V fund contribution land acquisition submitted awaiting land purchase of 20 ha.
			2 x in progress on-ground management offsets – 0.9 ha revegetation (towards a total of 10.8 ha required) and one threat management offset (no reporting).
			6 x insufficient information on-ground management offsets – no reporting.
Greater bilby habitat	3	5367 ha	1 x in progress on-ground management offset to identify suitable habitat. 1 x future offsets where Part V fund contribution will be used for threat management (location of which depends on habitat identification currently in progress). 1 x future PEOF contribution. 2 x future offsets which require contributions to a Part IV fund on-ground management in the Kimberley and research.
Red-tailed phascogale habitat	1	38.2 ha	1 x Part V fund contribution for land acquisition purchased 261 ha.
Night parrot habitat	1	993 ha	1 x future PEOF contribution not yet required.
Mulgara habitat	1	771.5 ha	1 x future PEOF contribution not yet required.

Environmental value	Number of approvals	Significant residual impact	Number and status of offsets & outcome area *While offsets are listed by environmental value in this table, an offset may address more than one environmental value.*
Idiosoma nigrum (trapdoor spider)	1	3899 burrows (18.57%)	1 x future land acquisition (agreed site) offset totalling 9278 ha not yet required.
Woylie habitat fragmentation	1	Fragmentation of habitat (area not quantified)	1 x future land acquisition (agreed site) offset totalling 2000 ha not yet required.
Chuditch habitat fragmentation	1	Fragmentation of habitat (area not quantified)	1 x future land acquisition (agreed site) offset totalling 2000 ha not yet required. 1 x future on-ground management offset (same sites as future land acquisition above).
Ghost bat foraging habitat	1	9307 ha of foraging habitat + loss of 5 high value and 12 low value caves	1 x future PEOF contribution not yet required.
Pilbara olive python	1	6635 ha	1 x future PEOF contribution not yet required.
Pilbara leaf-nosed bat	1	6635 ha	1 x future PEOF contribution not yet required.
Northern quoll	1	6635 ha	1 x future PEOF contribution not yet required.
Western spiny-tailed skink habitat	1	3.9 ha	2 x insufficient information on-ground management offset – no reporting.
Woma python habitat	1	3.9 ha	2 x insufficient information on-ground management – offsets – no reporting.
Major Mitchell's cockatoo habitat	1	3.9 ha	2 x insufficient information on-ground management – offsets – no reporting.
Quenda habitat	1	50 ha	1 x completed land acquisition (agreed site) offsets totalling 154 ha which may support quenda habitat.
Flora	**10 (all flora)**		Listed under individual species below.
Kennedia lateritia habitat (DRF)	1	3.82 ha	1 x completed on-ground management – annual reporting does not report revegetation area, condition or outcomes for this species. Permit expired in 2016 but requires ongoing monitoring until the population is self-sustaining.
Conospermum undulatum, habitat (DRF)	2	87 plants	1 x in progress on-ground management – annual reporting indicates reduced impacts on this species but not on project outcomes (propagation and rehabilitation).
			1 x future land acquisition (agreed site) offset not yet required. 1 x future on-ground management offset (same sites as future land acquisition above).
Daviesia elongata elongata habitat (DRF)	1	8.9 ha	1 x completed land acquisition (agreed site) offset totalling 19 ha but **did not include this species**.
Caladenia huegelii (DRF)	1	31.9 ha	1 x in progress on-ground management offset, area not stated.
Acacia woodmaniorum (DRF)	1	1739 plants (cumulative impact of 18.43% of the known populations of the species)	1 x future on-ground management offset. 1 x future on-ground management offset (same sites as future land acquisition above).
Darwinia masonii (DRF)	1	1327 plants (6% of the known distribution)	1 x future on-ground management offset (subject to approval of a plan).
Lepidosperma gibsonii (DRF)	1	863 plants (2% of the known distribution)	1 x future on-ground management offset (subject to approval of a plan).
Bossiaea disticha (P3)	1	3.82 ha	1 x in progress on-ground management – annual reporting does not report revegetation area, condition or outcomes for this species.
Grevillea minutiflora (P1)	1	2 ha of native vegetation in good to completely degraded condition that contains a significant proportion of a population	1 x insufficient information on-ground management offset – no reporting.
Lepidosperma sp. Blue Hills (P1)	1	350 plants	1 x future on-ground management offset.
Drummondita fulva (P3)	1	508 plants	1 x future on-ground management offset.
Micromyrtus trudgenii (P3)	1	2011 plants	1 x future on-ground management offset.
Nine priority flora species in the Jack Hills Project area	1	9278 ha	1 x future land acquisition (agreed site) not yet required. 1 x future research offset for *Triodia melvillei* Priority Ecological Community and/or priority flora species. 1 x future on-ground management offset.
Impacts on priority flora (species not listed)	1	985 ha	1 x future PEOF contribution not yet required.

Environmental value	Number of approvals	Significant residual impact	Number and status of offsets & outcome area *While offsets are listed by environmental value in this table, an offset may address more than one environmental value.*
Threatened and priority ecological communities (TECs and PECs)	14 (all TECs and PECs)	Listed under individual communities below	Listed under individual communities below.
SCP20a *Banksia attenuata* woodland over species rich dense shrublands	3	10.5 ha + 0.16 ha of a possible transitional area + 2.7 ha indirect impacts	1 x Part V fund contribution for land acquisition resulting in acquisition of 13.1 ha of SCP20b, SCP20c, SCP3a and SCP3c.
			2 x Part V fund contribution for land acquisition submitted awaiting land purchase of 15 ha of FCT20a, FCT20b and FCT3a.
			2 x future land acquisition (agreed site) offsets, unknown area as the offset strategies are not yet approved. 2 x future on-ground management offset (sites for acquisition above).
SCP20b – *Banksia attenuata* and/or *Eucalyptus marginata* woodlands of the eastern side of the Swan Coastal Plain	1	0.3 ha	Offsets requirements for Part V fund contribution for land acquisition counted under SCP20a.
SCP02 Southern wet shrublands, Swan Coastal Plain	1	3.8 ha + 2.7 ha of indirect impacts	1 x completed land acquisition (agreed site) totalling 1 ha predominantly contains SCP02 but also includes a small transitional area of TEC FCT20a. Additional offsets requirements counted under SCP20a.
SCP3a *Corymbia calophylla – Kingia australis* woodlands on heavy soils	2	3.39 ha + 0.16 ha of a possible transitional area + 2.7 ha of indirect impacts + 0.13 ha of native vegetation considered necessary for the maintenance of the TEC	Offsets requirements for Part V fund contribution for land acquisition counted under SCP20a.
			1 x land acquisition funds submitted awaiting land purchase of 0.71 ha.
Sedgelands in Holocene Dune Swales SCP19a/SCP19b	1	14 ha	1 x completed on-ground management offset where the fence was built but outcomes not reported.
			1 x in progress land acquisition (agreed site) totalling 90.5 ha. 3 x in progress on-ground management offset which require 9 ha of revegetation but outcomes not reported.
Eucalypt Woodlands of the Western Australian Wheatbelt (EPBC)	3	30.76 ha	1 x completed land acquisition (agreed site) totalling 159 ha.
			1 x Part V fund contribution for land acquisition purchased 261 ha.
			1 x in progress land acquisition (agreed site) offset totalling 2.6 ha.
Banksia Woodlands of the Swan Coastal Plain (EPBC)	1	16.41 ha	1 x completed land acquisition (agreed site) offset totalling 211 ha.
Whicher Scarp Floristic Community Type C1 PEC	1	8.9 ha	1 x completed land acquisition (agreed site) offset totalling 19 ha but **did not include this ecological community**.
Jack Hills Vegetation Complexes PEC	1	9 278 ha	1 x future land acquisition (agreed site) offset not yet required. 1 x future research offset for *Triodia melvillei* Priority Ecological Community and/or priority flora species. 1 x future on-ground management offset.
Blue Hills (Mount Karara/Mungada Ridge/Blue Hills) PEC	1	20.68 ha	1 x future on-ground management offset not yet required.
Low lying *Banksia attenuata* woodlands or shrublands PEC	1	6.37 ha	1 x future land acquisition (agreed site) not yet required (subject to plan). 1 x future on-ground management offset not yet required (same sites as future land acquisition above).
Wetlands, riparian vegetation, hydrological function	10 (all wetland types)	Listed under individual wetland types below	Listed under individual wetland types below.
Conservation category wetlands	4	30 ha + 17 conservation category wetlands (damplands and sumplands), mostly less than 1 ha in size + 0.36 ha of a palusplain wetland commensurate with a conservation category wetland	1 x completed land acquisition (agreed site) totalling 114 ha of conservation category wetland.
			1 x completed on-ground management offset of 0.56 ha – activities reported but not outcomes or wetland type.
			2 x in progress land acquisition (agreed site): one is 90.5 ha; one does not state the area in the approved offsets strategy. 3 x in progress on-ground management offset which require 9 ha of revegetation but outcomes not reported.
			1 x land acquisition funds submitted awaiting land purchase of 0.56 ha of wetland.
Resource enhancement wetland	1	19.3 ha	1 x completed land acquisition (agreed site) offsets totalling 18.5 ha of resource enhancement wetland.
Multiple use wetland	1	15.5 ha	1 x completed land acquisition (agreed site) offsets totalling 38.5 ha.
Riparian or wetland vegetation	3	1005 ha	1 x completed land acquisition (agreed site) offsets totalling 14 ha.
			2 x future PEOF contribution not yet required.

Environmental value	Number of approvals	Significant residual impact	Number and status of offsets & outcome area *While offsets are listed by environmental value in this table, an offset may address more than one environmental value.*
Groundwater dependent wetlands	1	14 ha of groundwater dependent	1 x in progress land acquisition (agreed site) totalling 90.5 ha. 1 x in progress on-ground management offset (same site as above).
Impacts from groundwater drawdown and surface water discharge	4	650 ha	1 x completed land acquisition (agreed site) offsets totalling 38.5 ha.
			1 x completed on-ground management offset where the fence was built but outcomes not reported. 1 x in progress land acquisition (agreed site) totalling 90.5 ha. 3 x in progress on-ground management offset which require 9 ha of revegetation but outcomes not reported.
			1 x future PEOF contribution not yet required.
High salinity risk	1	5 ha	1 x future on-ground management offset, not yet required.
Regionally significant vegetation / Significant as a remnant in a highly cleared landscape	**41**	6579 ha + one approval where the area of regionally significant vegetation was not quantified	9 x completed land acquisitions (agreed site) offsets totalling 4364 ha.
			4 x Part V fund contributions for land acquisition submitted resulting in acquisition of 278 ha. 6 x Part V fund contributions for land acquisition submitted awaiting land purchase of 373 ha.
			1 x completed on-ground management offset which reported activities undertaken but not outcomes.
			7 x in progress land acquisition (agreed site) offsets totalling 694 ha.
			4 x in progress on-ground management offsets – 0.9 ha revegetation (towards 10.8 ha required) and three offsets which did not report outcomes.
			2 x insufficient information land acquisitions (agreed site) offsets totalling 62.5 ha + two offsets where the agreed offset was 2:1 ratio of trees planted.
			12 x insufficient information on-ground management offsets totalling 61 ha.
			1 x future land acquisition (agreed site) offset totalling 31 ha not yet required.
			3 x future on-ground management offsets where the offset area has not yet been defined.
			1 x future Part V fund contribution for land acquisition not yet required. 1 x future PEOF contribution not yet required.
Bush Forever sites	**3**	152 ha	1 x completed land acquisition (agreed site) offset totalling 135 ha of Bush Forever sites.
			1 x in progress land acquisition (agreed site) offset of unknown area (not a Bush Forever site).
			1 x insufficient information on-ground management offset – most recent reporting (2016) indicates the revegetation is not meeting completion criteria but area is not reported.
Conservation reserves / State forest	**6**	635 ha + 67 ha prospective conservation reserve	1 x completed land acquisition (agreed site) offset totalling 19 ha of land which will be managed under the CALM Act.
			1 x completed on-ground management offset within an existing nature reserve – reported activities but not outcomes.
			1 x in progress land acquisition (agreed site) offset totalling 673.5 ha to be vested in the Conservation and Parks Commission as a Conservation Reserve and managed by the DBCA for conservation purposes.
			1 x insufficient information on-ground management offset – most recent reporting (2016) indicates the revegetation is not meeting completion criteria but area is not reported.
			1 x future land acquisition offset totalling 2 000 ha of land to be managed for conservation.
			1 x future PEOF contributions not yet required.
Good or excellent condition vegetation	**4**	15 403 ha	4 x future PEOF contributions not yet required.

Shortened forms

AMEC	Association of Mining and Exploration Companies
BC Act	*Biodiversity Conservation Act 2016*
CALM Act	*Conservation and Land Management Act 1984*
CCF WA	Civil Contractors Federation: Western Australia
CCWA	Conservation Council of Western Australia
CME	Chamber of Minerals and Energy of Western Australia
DBCA	Department of Biodiversity, Conservation and Attractions
DMIRS	Department of Mines, Industry Regulation and Safety
DotEE	Department of the Environment and Energy
DPC	Department of the Premier and Cabinet
DPLH	Department of Planning, Lands and Heritage
DWER	Department of Water and Environmental Regulation
ECA	Environmental Consultants Association (WA)
EOI	Expression of interest
EP Act	*Environmental Protection Act 1986*
EPA	Environmental Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for Conservation of Nature
LGA	Local government authority
Main Roads	Main Roads Western Australia
MNES	Matters of national environmental significance
NRM WA	Natural Resource Management Western Australia
Offsets guidelines	*WA Environmental Offsets Guidelines 2014*

Offsets policy	*WA Environmental Offsets Policy 2011*
Offsets register	*WA Environmental Offsets Register 2013* (https://offsetsregister.wa.gov.au)
PEOF	Pilbara Environmental Offsets Fund
PEC	Priority ecological community
SR	Summary recommendation
TEC	Threatened ecological community
WALGA	Western Australian Local Government Association

Glossary

Additionality	Whether an offset has had a positive benefit against an established baseline, compared to what would have occurred in the absence of the offset
Agreed site offsets	Offsets where the offset site is known prior to approval
Approved offset area	The area which is required as a condition of approval to counterbalance the significant residual impacts of a project or activity
Completed offsets	Offsets which have met their approval conditions (i.e. have been implemented)
Fund contribution offsets	Offsets where the approval holder contributes to a fund managed by DWER for implementation of the offset
Future offsets	Offsets that are included in approvals but the requirement to implement the offset conditions has not yet been triggered (e.g. project has not commenced)
In progress offsets	Offsets have been commenced and reporting on implementation has been received
Insufficient information (offsets)	Offsets for which implementation should have commenced but there was no reporting to determine the extent of progress
Land acquisition	Includes land purchase, conservation covenant, change of purpose of an existing reserve and ceding
Like-for-like	Impacts to an environmental value are required to be offset by actions that benefit the same environmental value being impacted (WA Government 2014)
Offset funds	This review has defined ‘fund contributions’ to mean only funds administered by DWER under Parts V and IV. Note that the offsets register uses the term ‘offset funds’ to mean both contributions the Part V and IV funds administered by DWER and the transfer of funds to third-party organisations.
On-ground management	Includes revegetation, rehabilitation, threat management and recovery plans

References

BBOP 2009, *Biodiversity Offset Implementation Handbook*, Business and Biodiversity Offsets Programme, Washington.

BBOP 2012, *Standard on biodiversity offsets: A tool to assess adherence to the BBOP Principles on Biodiversity Offset Design and Implementation,* Business and Biodiversity Offsets Programme, Washington.

Bekessy SA, Wintle BA, Lindenmayer DB, McCarthy MA, Colyvana M, Burgman MA & Possingham HP 2010, 'The biodiversity bank cannot be a lending bank', *Conservation Letters* 3(3): 151–158.

Bennett G, Gallant M & ten Kate, K 2017, *State of Biodiversity Mitigation 2017, Markets and Compensation for Global Infrastructure Development*, Forest Trends' Ecosystem Marketplace, Washington.

Bidaud C, Schreckenberg K, Rabeharison M, Ranjatson P, Gibbons J & Jones JPG 2017, 'The Sweet and the Bitter: Intertwined positive and negative social impacts of a biodiversity offset', *Conservation and Society* 15(1): 1–13.

Brown SC & Veneman PLM 2001, 'Effectiveness of compensatory wetland mitigation in Massachusetts', USA, *Wetlands* 21(4): 508–518.

Bull JW, Lloyd SP & Strange N 2017, 'Implementation gap between the theory and practice of biodiversity offset multipliers', *Conservation Letters* 10(6): 656–669.

Bull JW, Suttle KB, Gordon A, Singh NJ & Milner-Gulland EJ 2013, 'Biodiversity offsets in theory and practice', *Oryx* 47(3): 369–380.

Burgin S 2008, 'BioBanking: an environmental scientist's view of the role of biodiversity banking offsets in conservation', *Biodiversity and Conservation* 17(4): 807–816.

Burton M, Rogers A & Richert C 2016, 'Community acceptance of biodiversity offsets: evidence from a choice experiment', *Australian Journal of Agricultural and Resource Economics* 61: 95–114.

Darbi M, Ohlenburg H, Herberg A, Wende W, Skambracks D & Herbert M 2009, *International Approaches to Compensation for Impacts on Biological Diversity – Final report*, Leibniz Institute of Ecological and Regional Development and Berlin University of Technology, Germany.

DER 2014a, *A guide to the assessment of applications to clear native vegetation*, Department of Environment Regulation, Perth.

DER 2014b, *Assessing the outcomes of revegetation environmental offsets in Western Australia – Draft report* (unpublished), Department of Environment Regulation, Perth.

DER 2014c, *Biobanking Discussion Paper: An analysis of the elements required to establish a biodiversity banking scheme in Western Australia*, Department of Environment Regulation, Perth.

DER 2015, *Guidance Statement: Regulatory principles* – Environmental Protection Act 1986*, Part V; Effective and efficient regulation*, Department of Environment Regulation, Perth.

DotEE 2012, *Offsets assessment guide for use in determining offsets under the* Environment Protection and Biodiversity Conservation Act 1999, Department of the Environment and Energy, Canberra.

DWER 2018, *A Guide to Preparing Revegetation Plans for Clearing Permits under Part V of the* Environmental Protection Act 1986, Department of Water and Environmental Regulation, Perth.

EPA 2015, *Perth and Peel @ 3.5 Million: Environmental impacts, risks and remedies*, Office of the Environmental Protection Authority, Perth.

EPA 2019, *EPA Technical Report – Carnaby's Cockatoo in Environmental Impact Assessment in the Perth and Peel Region*, Office of the Environmental Protection Authority, Perth.

Gelcich S, Vargas C, Carreras MJ, Castilla JC & Donlan CJ 2017, 'Achieving biodiversity benefits with offsets: Research gaps, challenges, and needs', *Ambio* 46(2): 184–189.

Gibbons P & Lindenmayer DB 2007, 'Offsets for land clearing: no net loss or the tail wagging the dog?', *Ecological Management & Restoration* 8(1): 26–31.

Gordon A, Langford WT, Todd JA, White MD & Mullerworth D 2011, 'Assessing the impacts of biodiversity offset policies', *Environmental Modelling & Software* 26(12): 1481–1488.

IUCN 2016, *IUCN Policy on Biodiversity Offsets*, IUCN World Conservation Congress, Hawai'i.

IUCN, TBC & DICE 2019, *Global inventory of biodiversity offset policies*, International Union for Conservation of Nature, The Biodiversity Consultancy and Durrell institute of Conservation & Ecology, Gland.

Lindenmayer, DB, Crane M, Evans MC, Maron M, Gibbons P, Bekessy S & Blanchard W 2017, 'The anatomy of a failed offset', *Biological Conservation* 210: 286–292.

Maron M, Bull JW, Evans MC & Gordon A 2015, 'Locking in loss: Baselines of decline in Australian biodiversity offset policies', *Biological Conservation* 192: 504–512.

Maron M, Dunn PK, McAlpine CA & Apan, A 2010, 'Can offsets really compensate for habitat removal? The case of the endangered red-tailed black-cockatoo', *Journal of Applied Ecology* 47: 348–355.

Maron M, Hobbs RJ, Moilanen A, Matthews JW, Christie K, Gardner TA, Keith D, Lindenmayer DB & McAlpine CA 2012, 'Faustian bargains? Restoration realities in the context of biodiversity offset policies', *Biological Conservation* 155: 141–148.

Maron M, Ives CD, Kujala H, Bull JW, Maseyk FJF, Bekessy S, Gordon A, Watson JEM, Lentini PE, Gibbons P, Possingham HP, Hobbs RJ, Keith DA, Wintle BA & Evans MC 2016, 'Taming a wicked problem: Resolving controversies in biodiversity offsetting', *BioScience* 66(6): 489–498.

Matthews JW & Endress AG 2008, 'Performance criteria, compliance success, and vegetation development in compensatory mitigation wetlands', *Environmental Management* 41(1): 130–141.

May J, Hobbs RJ & Valentine LE 2017, 'Are offsets effective? An evaluation of recent environmental offsets in Western Australia', *Biological Conservation* 206: 249–257.

McKenny BA & Kiesecker JM 2010, 'Policy development for biodiversity offsets: a review of offset frameworks', *Environmental Management* 45(1): 165–176.

Miller KI, Trezise JA, Kraus S, Dripps K, Evans MC, Gibbons P, Possingham HP & Maron M 2015, 'The development of the Australian environmental offsets policy: from theory to practice', *Environmental Conservation* 42(4): 306–314.

OAG 2011, *Ensuring compliance with conditions on mining,* Western Australian Auditor General's Report 8, Office of the Auditor General Western Australia, Perth.

OAG 2017, *Rich and Rare: Conservation of threatened species follow-up audit*, Office of the Auditor General Western Australia, Perth.

OECD 2016, *Biodiversity Offsets: Effective design and implementation*, OECD Publishing, Paris.

Pickett EJ, Stockwell MP, Bower DS, Garnham JI, Pollard CJ, Clulow J & Mahony MJ 2013, 'Achieving no net loss in habitat offset of a threatened frog required high offset ratio and intensive monitoring', *Biological Conservation* 157: 156–162.

Pilgrim JD, Brownlie S, Ekstrom JMM, Gardner TA, von Hase A, ten Kate K, Savy CE, Stephens RTT, Temple HJ, Treweek J, Ussher GT & Ward G 2013, 'A process for assessing the offsetability of biodiversity impacts', *Conservation Letters* 6(5): 376–384.

Quigley JT & Harper DJ 2006, Effectiveness of fish habitat compensation in Canada in achieving no net loss, *Environmental Management* 37(3): 351–366.

Richards B 2016, *Do Environmental Offsets Deliver for Carnaby's Cockatoo?* Honours Thesis, The University of Western Australia.

Smokorowski KE, Bradford MJ, Clarke KD, Clément M, Gregory RS & Randall RG 2015, 'Assessing the effectiveness of habitat offset activities in Canada: Monitoring design and metrics', *Canadian Technical Report of Fisheries and Aquatic Sciences*, 3132.

Sudol MF & Ambrose RF 2002, 'The US clean water act and habitat replacement: evaluation of mitigation sites in Orange County, California, USA', *Environmental Management* 30(5): 727–734.

Teal JM 2011, 'US wetland protection and restoration: have we made a difference?', *Ecological Restoration* 29: 22–24.

ten Kate K, Bishop J & Bayon R 2004, *Biodiversity Offsets: Views, experience, and the business case,* IUCN, Gland, Switzerland and Cambridge, UK and Insight Investment, London.

Tischew S, Baasch A, Conrad MK & Kirmer A 2010, 'Evaluating restoration success of frequently implemented compensation measures: results and demands for control procedures', *Restoration Ecology* 18(4): 467–480.

WA Government 2011, *WA Environmental Offsets Policy*, The Government of Western Australia, Perth.

WA Government 2014, *WA Environmental Offsets Guidelines*, The Government of Western Australia, Perth.

Walker S, Brower AL, Stephens RTT & Lee WG 2009, 'Why bartering biodiversity fails', *Conservation Letters* 2: 149–157.

Wintle BA, Kujala H, Whitehead A, Cameron A, Veloz S, Kukkala A, Moilanen A, Gordon A, Lentini PE, Cadenhead NCR & Bekessy SA 2019, 'Global synthesis of conservation studies reveals the importance of small habitat patches for biodiversity', *Proceedings of the National Academy of Sciences* 116(3): 909–914.