

Appendix 13 Environmental Offset Strategy



**ENVIRONMENTAL
OFFSET STRATEGY**

DRAFT

November 2024

| Version | Description of Changes | Date | Approved by |
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| REV 1 | First Draft. Offset strategy as per ESD. | January 2022 | J Zimmerman |
| REV 2 | Second Draft. Prepared for EPA Review. | November 2023 | A Bird |
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Declaration of accuracy

In making this declaration, I am aware that section 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the *Environment Protection and Biodiversity Conservation Regulations 2000* (Cth). The offence is punishable on conviction by imprisonment or a fine, or both. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed _____
Full name (please print) _____
Organisation (please print) _____
Date ____/____/____

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Executive Summary

Introduction and Background

Alcoa of Australia Limited (Alcoa) began operations in the south-west of Western Australia (WA) in 1963. A State Agreement, between Alcoa and the WA Government, permits Alcoa to mine bauxite within Mineral Lease 1SA (ML1SA).

Alcoa are modernising its approvals framework to a more contemporary process. This includes referring new mining regions to the Western Australian Environmental Protection Authority (EPA) under the Western Australian *Environmental Protection Act 1986* (EP Act) and the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

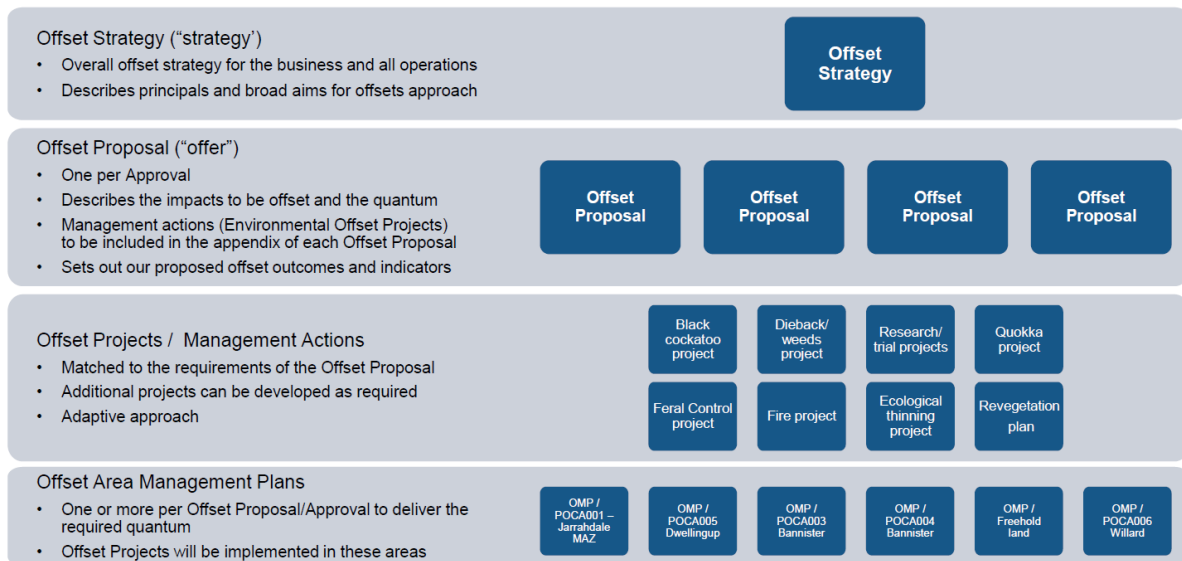
Even after strict adherence to the mitigation hierarchy (avoid, mitigate/minimise and rehabilitate), clearing vegetation may result in significant residual impacts to environmental values within State Forest. Environmental offsets will counterbalance any significant residual environmental impacts.

Delivering environmental offsets in the Northern Jarrah Forest is constrained by land tenure (most of ML1SA is Crown land) and that most of ML1SA contains intact native vegetation. The WA Environmental Offsets Guidelines expect that significant residual impacts on the public conservation estate (including State forests) will be offset by actions and activities that benefit the estate. Environmental offsets should also be additional to what is currently required, be as close to the impacts as possible and be able to be measured and quantified.

After considering the regional, conservational and regulatory context, Alcoa considered the most appropriate and cost-effective approach to its environmental offsets is establish an environmental offset program that funds and delivers on-ground conservation actions in State Forest that are additional to current or proposed management actions.

Offset Framework

This Environmental Offset Strategy is the overarching framework in which Alcoa will deliver the environmental offset program. Alcoa will prepare an Environmental Offset Proposal for each mining and/or mining related project that requires an environmental offset. The Environmental Offset Proposal will provide an overview of the significant residual impact, the proposed offset quantum, identify the environmental offset projects to be undertaken and the areas in which the environmental offset projects will be implemented. The Environmental Offset Proposal will clearly define the conservation outcomes to be attained to counterbalance the significant residual impact. Environmental Offset Project Plans will detail the conservation actions to be undertaken, the monitoring program and the timeframes. Offset area management plans will provide the specifics of the implementation of the projects in the offset conservation area. The environmental offset framework is in ES Figure 1-1.



ES Figure 1-1: Environmental Offset Strategy Framework

Environmental Outcomes

At a high-level, Alcoa’s Environmental Offset Program aims to attain the following environmental outcomes:

1. Deliver landscape scale conservation outcomes through environmental offset projects in the Northern Jarrah Forest bioregion of Western Australia.
2. Protect and enhance important habitat areas for threatened species.
3. Support the implementation of priority actions identified in species management or recovery plans.
4. Facilitate and/or undertake research to address knowledge gaps and improve management of habitat for and reduce threats to threatened and conservation significant species.
5. Work collaboratively with all relevant stakeholders, including Traditional Owners, conservation agencies, industry, government, academia and environmental organisations, to achieve positive environmental, conservation and social outcomes for communities and Aboriginal people.

Governance and Funding

Alcoa will fund and establish an Environmental Offset Delivery Team. The team will be responsible for delivering approved environmental offsets conditioned in Ministerial Statements, EPBC Act Approvals or other regulatory instruments; and developing environmental offsets during approvals and assessment processes.

Alcoa propose to fund the Environmental Offset Program through a dollar rate per hectare cleared deposited into a self-managed fund. Alcoa will make an initial payment into the fund prior to an approved Proposal or Controlled Action commencing, and following this, will make annual payments into the fund based on the anticipated clearing for the next twelve months.

Alcoa will be responsible for the delivery of the Environmental Offsets; however, delivery of conservation actions may be undertaken by delivery providers. Payments will be made from the fund to delivery partners in accordance with contracts, grants or other legal agreements.

Alignment with Offset Policies

Alcoa's offset approach embodies DCCEEW and EPA offset policies and principles, adopting key principles:

- Principle 6 in the WA offset guidelines state better outcomes can be achieved by considering offsets at a landscape rather than at a local scale.
- The EPA advice (EPA 2024) that offsets should contribute to holistic environmental protection and enhancement at a regional scale.
- Principle 1 in the Australian Government offset policy to deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environment law and affected by the proposed action.

Alcoa's Environmental Offset Program meets environmental objectives through consolidating environmental offset funding to allow for the delivery of landscape scale strategic programs and direct on-ground projects including:

- Protection of areas of habitat critical to the survival of species: where possible and following agreement with landowners or managers.
- On-ground management: revegetation and rehabilitation of degraded habitat, enhancements to habitat, implementation of recovery actions and/or threat abatement measures.
- Improving knowledge on how impacted species use the landscape and how they adapt to disturbances from mining, fire and climate change.

Appropriateness

The Environmental Offset Program provides for targeted and specific outcomes per species that result in landscape scale benefits for multiple species in the Northern Jarrah Forest. The conservation projects involve direct on-ground measures that will increase scientific knowledge and understanding of ecosystem recovery and resilience in the Northern Jarrah Forest. The framework adopts an adaptive management approach, which is included within the design of each project but also in the ability to include new projects as required. The program is cost-effective and supports sustainable development and cultural and social co-benefits in the Northern Jarrah Forest.

Alcoa consider this is an appropriate and suitable approach as it will deliver strategic, integrated, and holistic on-ground recovery and threat abatement actions to support the conservation, recovery and on-going viability of the Northern Jarrah Forest and the native species it supports.

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Acronyms

| Abbreviation | Definition |
|-------------------|---|
| BC Act | <i>Biodiversity Conservation Act 2016 (WA)</i> |
| Black cockatoo(s) | Carnaby's cockatoo (<i>Zanda latirostris</i>), Baudin's cockatoo (<i>Zanda baudinii</i>) and forest Red-tailed Black Cockatoo (<i>Calyptorhynchus banksii naso</i>) |
| DBCA | Department of Biodiversity, Conservation and Attractions |
| DCCEEW | Department of Climate Change, Energy, the Environment and Water |
| DEMIRS | Department of Energy, Mines, Industry Regulation and Safety |
| DPLH | Department of Planning, Lands and Heritage |
| DWER | Department of Water and Environmental Regulation |
| EIA | Environmental Impact Assessment |
| EPBC Act | <i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i> |
| EP Act | <i>Environmental Protection Act 1986 (WA)</i> |
| EPA (WA) | Environmental Protection Authority |
| ERD | Environmental Review Document |
| IBRA | Interim Biogeographic Regionalisation for Australia. |
| JTSI | Department of Jobs, Tourism, Science and Innovation |
| ha | hectares |
| km | kilometers |
| m | meters |
| ML1SA | Mineral Lease 1SA |
| MNES | Matters of National Environmental Significance |
| NJF | Northern Jarrah Forest |
| POCA | Proposed offset conservation area |
| SCP | Swan Coastal Plain |
| WA | Western Australia |

1. Introduction

Alcoa of Australia Limited (Alcoa) began operations in Western Australia (WA) in 1963 with the commissioning of the Kwinana Refinery in accordance with the *Alumina Refinery Agreement Act 1961*. This State Agreement, between Alcoa and the WA Government, permitted Alcoa to mine bauxite within Mineral Lease 1SA (ML1SA). The area extends from Mundaring to Collie, and the agreement initially supported development of the Kwinana Refinery.

Since then, Alcoa and the WA Government agreed two further State Agreements covering the development of the Pinjarra Alumina Refinery and the Wagerup Alumina Refinery:

- Alumina Refinery (Pinjarra) Agreement Act 1969.
- Alumina Refinery (Wagerup) Agreement and Acts Amendment Act 1978.

These three State Agreements support the entirety of Alcoa's operations in Western Australia and the approximately 4,300 associated direct jobs and 1,600 indirect jobs, predominantly in regional areas. Alcoa's Western Australian operations include the following facilities:

- Two bauxite mines (Huntly and Willowdale).
- Three alumina refineries (Kwinana, Pinjarra and Wagerup).
- Two dedicated port facilities (Kwinana and Bunbury).

Alcoa's operations are assessed through various Environmental Impact Assessment (EIA) processes by the WA Government and relevant agencies. To date, Alcoa's operations have been approved under these robust statutory processes with the inclusion of specified controls. Alcoa complies with, the processes under relevant State Agreements, legislation, and legislative instruments.

Alcoa are modernising its approvals framework to a more contemporary process. This includes referring new mining regions to the Western Australian Environmental Protection Authority (EPA) under the Western Australian *Environmental Protection Act 1986* (EP Act) and the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Alcoa commenced this process in 2020 when the Myara North and Holyoake mining regions were referred to the EPA and DCCEEW for an accredited assessment.

Alcoa acknowledge that even after strict adherence to the mitigation hierarchy (avoid, mitigate/minimise and rehabilitation), clearing vegetation within State Forest may result in significant residual impacts to environmental values.

Under the EP Act, environmental offsets are required to provide environmental benefits which counterbalance the significant residual environmental impacts of a proposal. In the context of the EPBC Act, environmental offsets are necessary when there are significant residual impacts on nationally significant fauna, flora, habitats or places.

Alcoa has developed this Environmental Offset Program to deliver environmental offsets that counterbalance the significant residual impacts from its mining activities. This Environmental Offset Strategy sets out how the guiding principles of the Program have been developed with reference to state and commonwealth government offset policy and guidance.

1.1 Purpose and Scope

This purpose and scope of this document is to provide context to Alcoa's operations in the Northern Jarrah Forest, and the process undertaken by Alcoa to identify appropriate and suitable environmental offsets to counterbalance the significant residual impacts from its operations.

This Environmental Offset Strategy outlines:

- The proposed Environmental Offset Program.
- The regional context in which environmental offsets will be located.
- The proposed aims and outcomes of the Environmental Offset Program.
- Alignment with the principles and policies in WA *Environmental Offsets Policy*, WA *Environmental Offset Guidelines* and EPBC Act *Environmental Offsets Policy*, including how the proposed offsets are additional to current management actions undertaken in the region.
- How delivery of the Offset Strategy will support the aims and objectives set out in regional management plans, species recovery plans, approved conservation advice documents and threat abatement plans.

1.2 Environmental Aims

Alcoa's Biodiversity Policy (Alcoa 2021) sets out how Alcoa aims to minimise our environmental impacts and promote sustainable land use. Alcoa have committed to not mining in old growth forest or gazetted national parks.

Alcoa will continue to apply a high level of rigour to avoiding and minimising potential impacts and will continue to implement the post-mining rehabilitation to a standard agreed with the Western Australian Department of Biodiversity Conservation and Attractions (DBCA).

The intention of the Environmental Offset Program is to develop environmental offset projects that provide outcomes on a regional, landscape and local level. The projects will be developed to ensure additionality, alignment and synergies with existing conservation projects or program. Outcomes at a local scale that address significant residual impacts specific to a referred mining project will, collectively, provide a net benefit at the landscape and regional scale. Environmental offset projects will be developed with a holistic approach that also enhance ecosystem function and habitat connectivity.

Offset conservation areas will be planned to be as close as possible to the impact areas, or in areas that will provide the best possible outcomes at that point in time for the species or ecological community being offset. Offset conservation areas will be monitored to ensure the offset is on a positive trajectory to meet conservation outcomes. The monitoring program will also be used to identify improvements in conservation management practices to be subsequently applied in future conservation efforts. Where appropriate, the aim is to work with government agencies to enhance the conservation tenure to support increasing land in Comprehensive, Adequate and Representative reserves in the Northern Jarrah Forest.

The environmental offset projects and offset conservation areas will be developed in conjunction with relevant government agencies, researchers, Traditional Owners, academia and community consultation groups. Alcoa's collaborative approach to its Environmental

Offset Program aims to deliver social co-benefits such as education, employment opportunities and nature-related recreational value.

The aims of Alcoa's Environmental Offset Program are in Figure 1-1.

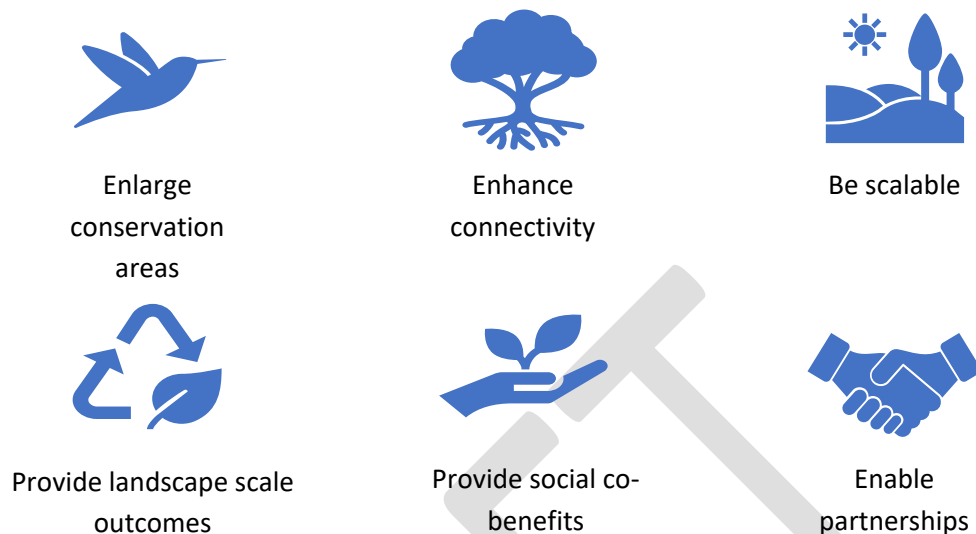


Figure 1-1: Aims of the Environmental Offset Program

1.3 Environmental Outcomes

Each Offset Proposal will document actions to be undertaken, outline proposed environmental outcomes with specific and measurable success criteria, a monitoring program and governance arrangements.

At a high-level, Alcoa's Environmental Offset Program aims to attain the following environmental outcomes:

1. Deliver landscape scale conservation outcomes through environmental offset projects in the Northern Jarrah Forest bioregion of Western Australia.
2. Protect and enhance important habitat areas for threatened species.
3. Support the implementation of priority actions identified in species management or recovery plans.
4. Facilitate and/or undertake research to address knowledge gaps and improve management of habitat for and reduce threats to threatened and conservation significant species.
5. Work collaboratively with all relevant stakeholders, including Traditional Owners, conservation agencies, industry, government, academia and environmental organisations, to achieve positive environmental, conservation and social outcomes for communities and Aboriginal people.

2. Background and Context

Environmental offsets should deliver conservation actions that are additional and provide landscape or regional scale outcomes for impacted species. Delivering environmental offsets in the Northern Jarrah Forest is constrained by the land tenure and vegetation as most of the area is intact native vegetation in Crown land tenure. However, this constraint also presents an opportunity to address past disturbance in the Northern Jarrah Forest through strategic, integrated and holistic on-ground recovery and threat abatement actions.

2.1 Regulatory Context

Environmental offsets should be consistent with the WA Environmental Offsets Policy and Guidelines (Government of Western Australia 2011, 2014) and the Environment Protection and Biodiversity Conservation Act 1999 – Environmental Offsets Policy (DSEWPaC 2012).

Principle 6 in the WA Environmental Offsets Guidelines acknowledges better outcomes can be achieved by considering offsets at a landscape rather than at a local scale. This also aligns with the EPA advice (EPA 2024) for offsets to contribute to holistic environmental protection and enhancement at a regional scale.

The WA Environmental Offsets Guidelines state offsets should be relevant to the significance of the environmental value being impacted, with the expectation that significant residual impacts on the public conservation estate (including State forests) will be offset by actions and activities that benefit the estate. Environmental offsets should also be additional to what is currently required, be as close to the impacts as possible and be able to be measured and quantified.

State and Commonwealth offset frameworks are under review with new reforms expected between 2024 and 2025. The Commonwealth is preparing new National Environmental Standards and State and Commonwealth regional plans are proposed or under development.

Alcoa has demonstrated how this proposed offset strategy aligns with offset policies and principles in Section 5 of this document.

2.1.1 Offset Types

The State and Commonwealth identify two types of environmental offsets: direct offsets and indirect offsets.

Direct offsets are actions designed to provide for on-ground improvement, rehabilitation and conservation of habitat and may include land acquisition, restoration, revegetation and rehabilitation of natural areas outside the project area. Direct offsets should provide a measurable conservation gain for the impacted environmental value through improving existing habitat, creating new habitat, reducing threats or averting loss of a protected matter or its habitat.

Indirect offsets (identified as other compensatory measures in the Commonwealth offset policy) are actions aimed at improving scientific or community understanding and awareness of environmental values that are impacted by a project. Indirect offsets do not directly offset the impacts but are anticipated to lead to benefits in the future, for example funding research that is directly linked to improving conservation outcomes for the impacted species.

2.2 Regional Context

The regional context is defined as the broader south-west WA region. This includes the Regional Forest Agreement area, Jarrah Forest Interim Biogeographic Regionalisation for Australia¹ (IRBA), the Swan Coastal Plain IBRA region, and the Forest Management Plan (FMP) planning area. Most of the Jarrah Forest bioregion contains largely intact native vegetation, although the vegetation is disturbed due to harvesting, development and mining, fire, dieback and feral or invasive species. The regional context is shown spatially in Figure 2-1.

The landscape context, while large in area, is more localised and formed of homogenous geomorphological units. This includes the Northern Jarrah Forest IBRA subregion, the Perth IBRA subregion and Alcoa's Mineral Lease (ML1SA). Most of the land tenure in ML1SA is Crown Land² with up to 75 per cent State Forest or Timber Reserve and around ten per cent conservation reserves. The landscape context is shown spatially in Figure 2-2.

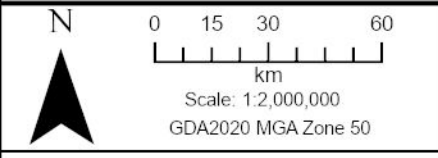
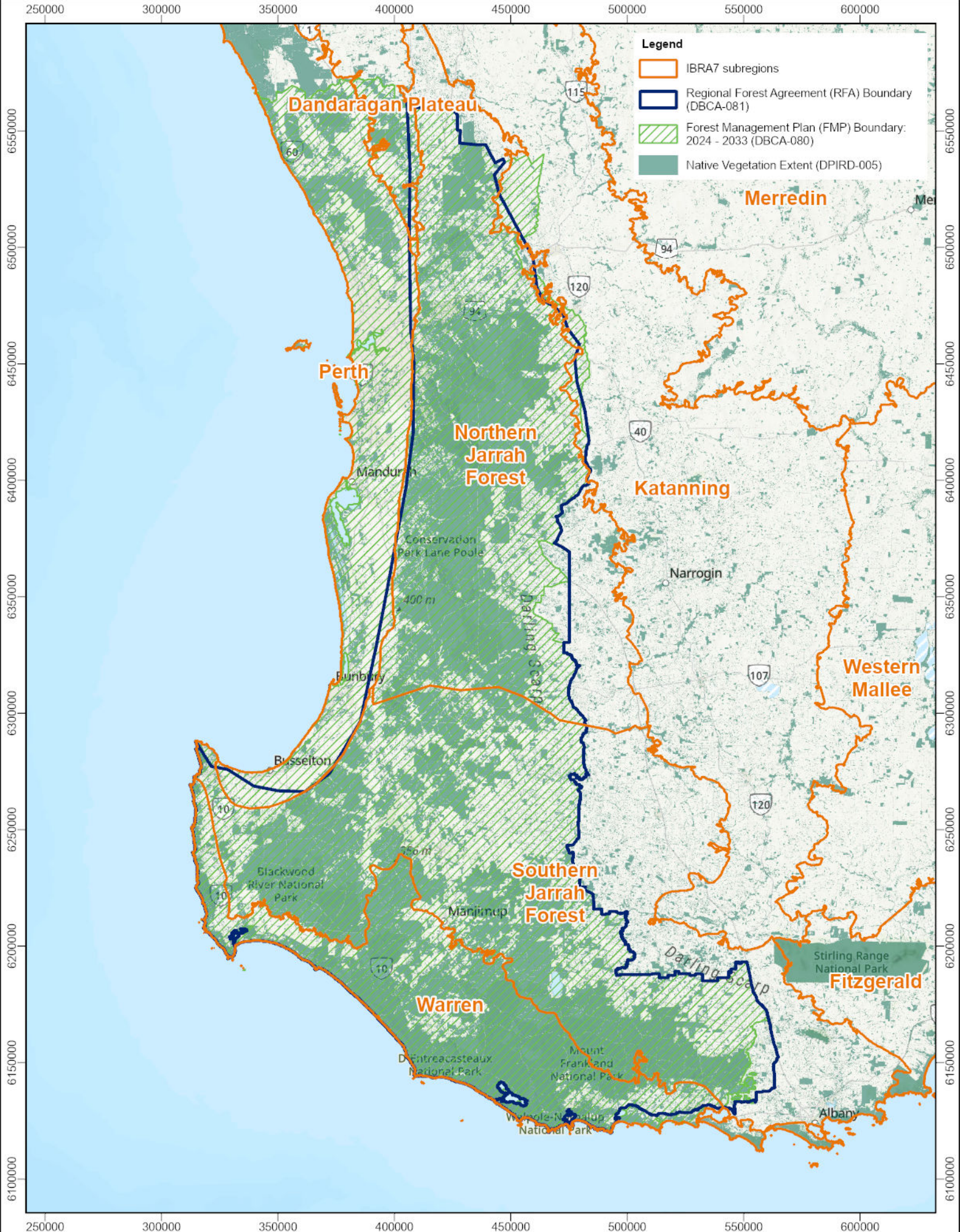
The State government³ has indicated they intend to improve the conservation tenure of around 700,000 hectares across the region. This includes 41,000 hectares proposed to be Forest Conservation Area; with the intent to provide a higher level of security of classification for areas that have some impediment to being considered for a formal conservation reserve category.

The local context is distinct areas within ML1SA, although still large in extent. This includes mine regions, refineries and proposed offset conservation areas. While each proposed offset conservation area may be seen as "local", collectively the proposed offset conservation areas will provide landscape scale outcomes.

¹ The Interim Biogeographic Regionalisation for Australia (IBRA) classifies Australian's landscapes into 89 geographically distinct bioregions based on common climate, geology, landform, native vegetation and species information. The bioregions are further refined to form 419 subregions.

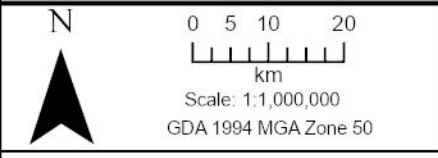
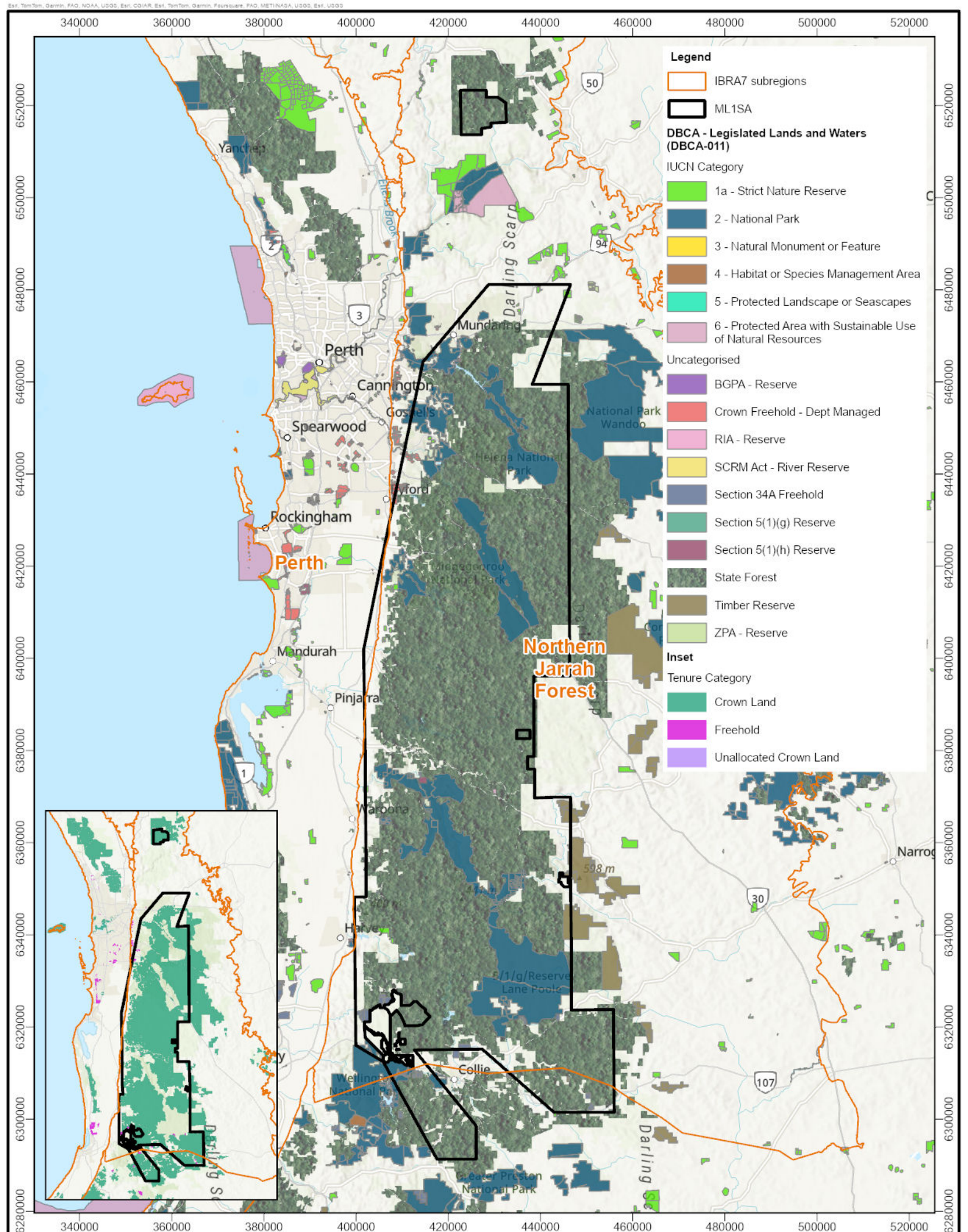
² DBCA - Legislated Lands and Waters (DBCA-011) accessed November 2024.

³ Conservation and Parks Commission 2023



Alcoa Offsets Strategy

Figure 2-1: Regional Context



Alcoa Offsets Strategy

Figure 2-2: Landscape Context

2.3 Forest Management

The Department of Biodiversity, Conservation and Attractions (DBCA) is responsible for the management of lands vested in the Conservation and Parks Commission, including State Forest. A management plan is prepared every ten years that outlines a statement of policies and/or guidelines proposed to be followed and a summary of the management activities proposed to be undertaken to protect and manage forests on public lands in the south-west.

The 2024-2033 Forest Management Plan (Conservation and Parks Commission 2023) lists pressures on the south-west forest including climate change, minerals and resource development, inappropriate fire regimes, weeds, pest animals, invertebrates and vertebrates, diseases, unauthorised activities, other native vegetation clearing and soil degradation. To help mitigate these pressures the DBCA lists management activities including:

- Ecological thinning
- Prescribed burning
- Control of pest animals and weeds
- Management of diseases such as Phytophthora dieback
- Research to investigate the impacts of fire management strategies on forest ecosystems and biodiversity
- Create additional areas of national parks, conservation parks and nature reserves.

The DBCA's Western Shield program implements fox and feral cat management across large areas of the State, including the jarrah forest. This program aims to protect native species, primarily small and medium-sized mammals and some ground-nesting birds and reptiles.

2.4 Species Recovery Plans

The forest provides habitat for threatened and priority flora, fauna and ecological communities. Common fauna in the forest includes black cockatoos, quenda, chuditch, woylie and brush-tailed phascogale. Mainland quokka and western ring-tailed possum inhabit riparian areas. Reptiles and frogs are commonly found in granite outcrops.

Flora, fauna or ecological communities listed as threatened under the *EPBC Act 1999* may have a conservation advice and/or recovery plan developed. These documents set out the research and management actions needed to stop the decline and support the recovery of the species. This includes reducing or mitigating against threatening processes including habitat loss and degradation, introduced species, feral predators, disease, inappropriate fire regimes and climate change.

Once a recovery plan is in place, Australian government agencies must act in accordance with that plan. Plans remain in force for ten years after the plan was made or adopted⁴, or if the species is removed from the threatened species list.

⁴ The legislated sunset date is 1 April or 1 October 10 years after the recovery plan was made or adopted and can be deferred. The Australian Government deferred the sunset date for Recovery Plans that were due to sunset on 1 April 2022 by 12 months to 1 April 2023.

Some recovery plans for threatened species are over ten years old, however the information on the species habitat requirements and recovery actions are still relevant and appropriate.

Information on the funding and implementation and/or progress towards the outcomes of recovery plans, is not generally made publicly available.

2.5 Threat Abatement Plans

Like recovery plans, threat abatement plans provide for research, management, and any other actions necessary to reduce the impact of a listed key threatening process on native species and ecological communities. Implementing the plan should assist the long term survival in the wild of affected native species or ecological communities.

2.6 Knowledge Gaps

Despite there being considerable research⁵ and scientific understanding of the Northern Jarrah Forest, its flora and vegetation and fauna assemblages, there are still significant knowledge gaps. The Forest Management Plan, recovery and threat abatement plans list survey, monitoring and research as necessary recovery actions. Research themes include:

- Forest ecosystem vulnerability to climate change.
- Identification of critical and supporting habitat and population estimates for flora, fauna and ecological communities.
- Understanding how fauna species use and move within or through the Northern Jarrah Forest.
- The unique geomorphology and complex hydrology of the bioregion.

⁵ Since 1975 Alcoa alone has delivered, contributed to and supported a broad range of research including 260 refereed journal articles and book chapters, 80 technical studies and 60 higher-degree research theses.

3. Environmental Offset Approach

After considering the regional, conservational and regulatory context, Alcoa considers the most appropriate and cost-effective approach to its environmental offsets is to develop an environmental offset program that funds and delivers on-ground recovery, threat abatement and management actions across the Northern Jarrah Forest, that are additional to any management actions already undertaken.

As the land tenure in and around Alcoa's mining operations is predominantly Crown land classified as State Forest and the vegetation is predominantly intact native Jarrah-Marri Forest vegetation, Alcoa proposes to implement conservation actions in State Forest. This is because the opportunity for revegetation/restoration style offsets is limited by land tenure and availability of suitable cleared areas for restoration (although some smaller scale revegetation projects may still be appropriate and included in the program).

And although the forest vegetation is generally intact, it is disturbed from activities including timber harvesting, fire and mining. Conservation actions in State Forest can enhance existing vegetation and improve habitat functionality. This aligns with the concept in recovery plans that it is better to protect and improve habitat most critical to survival to minimise the impacts of habitat loss. Recovery plans acknowledge that planting species that support habitat requirements is effective over the long-term, but protection and regeneration of existing habitat is significantly more efficient and effective.

Monitoring, surveys and research are required to understand how threatened species use the landscape. Alcoa's environmental offset program will include surveys and monitoring as well as research to add to the knowledge base and help close some of the knowledge gaps around species requirements within the Northern Jarrah Forest.

Alcoa propose to work with government agencies to enhance the conservation tenure of offset areas, particularly where an offset area adjoins conservation areas or overlaps areas proposed for higher conservation tenure in the Forest Management Plan. This also supports the Commonwealth target national target to protect and conserve 30% of Australia's landmass and 30% of Australia's marine areas by 2030 (the '30 by 30' target).

Resourcing (funding and people, both skilled and unskilled) is an on-going constraint to the implementation of conservation actions. Alcoa's investment in conservation actions through its Environmental Offset Program is likely to be significant and provide beneficial outcomes for species as well as social and cultural benefits.

Environmental offset projects can be delivered at regional, landscape and/or local scale. Collectively, the environmental offset projects will provide holistic, integrated strategic and landscape scale conservation outcomes for the Northern Jarrah Forest.

The State and Commonwealth offset framework is undergoing significant reforms however both agencies are seeking strategic and holistic conservation outcomes for threatened flora, vegetation, ecological communities and fauna. This Environmental Offset Program has been designed to adapt to changes in legislation and be sustainable and relevant for the longer-term.

4. Environmental Offset Program

Alcoa is modernising its approvals process and will refer future mining areas under Part IV of the EP Act and/or under the EPBC Act. Alcoa will continue to implement stringent avoidance and mitigation measures and will continue to rehabilitate areas no longer required once mining has finished. However, despite this, significant residual impacts to flora, vegetation, ecological communities and/or fauna may remain. Alcoa will therefore be likely to require environmental offsets for future mining and/or mining related projects.

4.1 Overview

Alcoa's environmental offset program is centred around the delivery of environmental offset projects.

Alcoa will prepare an Environmental Offset Proposal for each mining and/or mining related project that requires an environmental offset. The Environmental Offset Proposal will provide an overview of the significant residual impact, calculate the proposed offset quantum, identify the environmental offset projects to be undertaken and the areas in which the environmental offset projects will be implemented. The Environmental Offset Proposal will contain clearly defined conservation outcomes to be attained to counterbalance the significant residual impact.

The Environmental Offset Project Plans will detail the conservation actions to be undertaken, the monitoring program and the timeframes. Offset area management plans will provide the specifics of the implementation of the projects in the offset conservation area (for example the monitoring locations, habitat areas, etc.).

While the environmental offset projects will provide environmental offsets specific to the species or community impacted by the mining and/or mining related project, the Environmental Offset Program has been developed to provide alignment and synergetic benefits across the Northern Jarrah Forest bioregion.

4.2 Application

Alcoa's Environmental Offset Program is multi-tiered and can be considered at the regional, landscape and local level (as defined in Section 2.2).

Regional and landscape scale outcomes are appropriate for wide ranging or highly mobile fauna species, for example black cockatoos and chuditch. Regional and landscape scale outcomes consider connectivity over wide area, supporting the species across its range and movement patterns (seasonal, temporal or spatial), promoting genetic diversity and ecosystem resilience

Local scale outcomes may be appropriate where the species has a restricted range or habitat requirements, for example flora species with a limited area of distribution. Local scale outcomes support the species needs within their range or distribution, including connectivity to other areas of habitat and removal or reduction in threatening processes.

Alcoa propose to deliver conservation actions within proposed offset conservation areas. For some species, one proposed offset conservation area may provide an appropriate offset and deliver the best outcomes. Generally, Alcoa consider that each proposal will require multiple offset conservation areas, that will provide landscape scale outcomes, and when considered

collectively with other management and conservation projects may lead to regional scale outcomes for species.

4.3 Suitability

Alcoa consider its Environmental Offset Program to be suitable and appropriate because:

- **Projects are targeted and specific to the environmental value being offset:** Environmental offset projects can direct conservation actions to where they are most needed and may extend across different land tenures, habitat types or, if needs be, bioregions.
- **Projects allow for outcome based conditions:** Species-specific outcome-based objectives and conditions can be applied to Offset Proposals and within environmental offset projects.
- **Project extents can be aligned to the conservation action:** Conservation actions (for example feral predator control) can be implemented across large-scale areas while some projects may be confined to a smaller spatial area (for example flora translocations or very specific habitat requirements).
- **Projects will be relevant to the environmental value being offset:** The implementation of environmental offset projects provides certainty that offset activities will be directed at and directly benefit the relevant impacted species. For example, projects can align within recovery plans actions to provide direct species-specific recovery outcomes across a broader regional area.
- **Projects provide an adaptive framework:** The delivery of environmental offset projects can be adjusted so that conservation actions are responsive to ongoing monitoring, new scientific findings or emerging threats. As the scientific knowledge base around each species increases, species-specific conservation activities can be adapted to improve recovery outcomes. For example, if new populations are identified outside mining areas, an environmental offset project can be directed at maintaining or improving habitat at the new location.
- **Projects will be relevant to the impacts:** Alcoa propose to implement the environmental offset projects in a progressive manner, reconciled with the impacts from mining activities. This ensures that any environmental values that require offsetting can be captured in the program.
- **Projects will provide landscape scale benefits:** Environmental offset projects will be designed to deliver ecological benefits across a wide area. They can be designed to align with or be complementary and/or additional to established conservation actions, that cumulatively provide regional or landscape scale outcomes. They can include local programs, such as targeted baiting or improving protective mechanisms for important areas of habitat that ultimately support the landscape-scale outcomes. Local site-specific projects can have a more nuanced approach to rehabilitating areas with unique attributes or localised disturbance.
- **Projects increase scientific knowledge:** Implementing environmental offset projects will contribute to scientific understanding of the presence and habitat requirements for environmental values in the Northern Jarrah Forest. The environmental offset projects

are likely to include elements including research, monitoring, surveying, modelling, conservation, management and evaluation of outcomes.

- **Projects provide long-term benefits:** Environmental offset projects can deliver long-lasting benefits through increases in land under conservation tenure, funding for on-ground management, monitoring and surveys that inform species use of the forest and protection of key habitat areas. Undertaking predator control in discrete and disconnected land parcels over a short time frame would have limited benefit, as predators are likely to reinvade from surrounding areas. By undertaking landscape-scale, multi-year environmental offset projects, the benefits are likely to be long-term.
- **There is the potential to increase land in conservation tenure:** Environmental offset projects will include actions that aid in increasing land in conservation tenure and provide funding for the establishment and on-ground management of these areas. This can be delivered through working with the DBCA, Traditional Owners and landowners/managers and other government agencies and/or placing conservation covenants on areas with high environmental values. These projects will aim to support increasing land in Comprehensive, Adequate and Representative reserves in the Northern Jarrah Forest.
- **It is cost-effective:** Projects will be designed to be cost-effective through employing economies of scale, providing additional actions to existing or established conservation projects, co-locating offsets and using efficient and effective delivery and monitoring techniques.
- **It allows the co-ordination of multiple conservation actions to deliver strategic outcomes:** Species experts, recovery teams, DBCA, Traditional Owners and the wider scientific and conservation community will be consulted when planning and preparing environmental offsets projects so that priority conservation actions are implemented in a strategic and co-ordinated manner. Environmental offset projects can be developed to align with government conservation actions, such as actions in regional or species recovery plans. This can be achieved through partnerships, co-funding of projects and delivering actions already outlined in regional or recovery plans.
- **It provides economic benefits to the State and Commonwealth.** Offset conservation areas will carefully consider the needs of the environment to the broader development potential – i.e. consider sustainable development in the Northern Jarrah Forest. Delivery of environmental offset projects will increase economic activity related to rehabilitation in the region (Young et. al 2022).
- **It increases long-term investment in conservation actions in the region.** The level of investment towards conservation and species recovery in the Northern Jarrah Forest is known and defined over the life of the approval and is over and above that currently allocated. Funding contributions will be monitored through compliance reporting obligations.
- **Is achievable.** Delivering spatially defined offsets at the extent likely to be required for Alcoa's operations will be extremely challenging to deliver over the longer-term for the reasons outlined in Section 2. Delivery of environmental offsets through projects will address Alcoa's offset obligations in a sustainable manner across the life of its operations.

- **Provides social co-benefits.** The local community can be included in the planning and delivery of environmental offset projects. Local community or conservation groups can seek funding for conservation actions that are important to them and the community.
- **Delivery of the environmental offsets is transparent.** Projects will undergo a stringent selection process and Alcoa will report on project expenditure, progress and outcomes.
- **Is proportional.** The offset program provides certainty for Alcoa and the regulator that the offset conditioned at the commencement of the proposal is proportional.

4.4 Appropriateness

The delivery of environmental offsets through funding of conservation actions aligns with the *WA Offset Guidelines* (Government of Western Australia 2014) which state “*The use of a strategic approach, such as a fund, is a solution to overcome land use tenure issues by providing a coordination mechanism to implement offsets across a range of land tenures.*”. Further demonstration of the consistency of the offset proposal with the WA environmental offset policy principles and guidelines is presented in Section 5.2 and 5.3.

The delivery of environmental offsets through funding of conservation actions aligns with the Commonwealth environmental offset policy (DSEWPaC 2012) which require direct offsets that provide a measurable conservation gain for an impacted protected matter. The offset policy states that conservation gains can be achieved by:

- Improving existing habitat for the protected matter
- Creating new habitat for the protected matter
- Reducing threats to the protected matter
- Increasing the values of a heritage place
- Averting the loss of a protected matter or its habitat that is under threat

Alcoa considers that conservation gains can be delivered through environmental offset projects (see Section 1.3 and 4.1).

The Commonwealth Environmental Offset Policy (DSEWPaC 2012) also notes that offsets can be delivered by a range of mechanisms, including market-based mechanisms and contracting third party providers. Alcoa considers the delivery of offsets through funding of projects to be a suitable mechanism for the bioregion.

Further demonstration of the consistency of the offset proposal with the Commonwealth environmental offset policy is presented in Section 5.4.

4.5 Framework

This Environmental Offset Strategy is the overarching framework in which Alcoa will deliver the Environmental Offset Program. For each Proposal and/or Controlled Action that Alcoa refers under the EP Act and/or the EPBC Act for its mining or related operations, Alcoa will provide an Environmental Offset Proposal.

The Environmental Offset Proposal will include:

- Environmental Offset Project Plans that demonstrate how environmental outcomes specific to the significant residual impacts will be achieved through the management actions.
- Offset Area Management Plans that describe the spatial area in which environmental offset projects will be implemented.

The framework is shown in Figure 4-1.

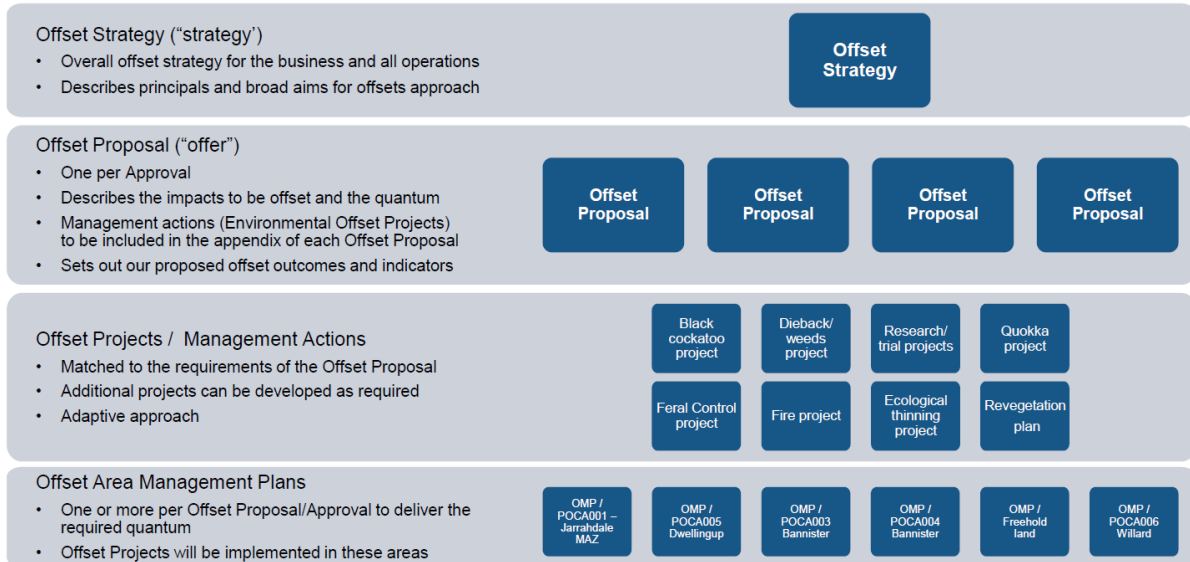


Figure 4-1: Environmental Offset Strategy Framework

Collectively the offset documents will:

- Show that the significant residual impacts can be offset, the offset can be implemented and that environmental outcomes can be demonstrated through the monitoring program.
- Outline risks to the success of the offset including risks specific to each project and/or offset area.
- Demonstrate appropriate governance, monitoring, reporting, compliance and evaluation relevant to each offset project and offset area.

4.5.1 Offset Proposal

The Offset Proposal will demonstrate that if the Proposal and/or Controlled Action is implemented, the significant residual impacts can be offset. The Offset Proposal prepared for each Proposal and/or Controlled Action assessment will provide the following information:

- A summary of the Proposal/Control Action.
- A summary of avoidance and mitigation (including post-mining rehabilitation) measures undertaken during the assessment process, or that are proposed to be undertaken if the Proposal/Action is implemented.
- The significant residual impacts identified during the assessment.
- Proposed objectives and outcomes from the implementation of the Environmental Offset Project(s).

- The Environmental Offset Project(s) that demonstrate how environmental outcomes specific to the significant residual impacts will be achieved through the management actions.
- The proposed offset quantum (in terms of hectares or funding of projects).
- The methodology applied to identify proposed offset conservation areas.
- The schedule and timelines for implementation, including the monitoring program, evaluation and reporting relevant to the outcomes in the Offset Proposal.
- A risk assessment relevant to achieving the outcomes in the Offset Proposal.
- Consistency of the Offset Proposal with State and/or Commonwealth offset policies and principles, recovery and threat abatement plans and/or other relevant plans.

The Offset Proposal will be provided to the regulatory body during the assessment of the relevant approval processes (e.g. environmental impact assessment of significant proposal, native vegetation clearing permits and/or proposed actions that are likely to have a significant impact on a matter protected by the EPBC Act).

4.5.2 Environmental Offset Project Plan

Environmental Offset Project Plans will provide a detailed description of the proposed conservation actions to be implemented to address specific species or impacts.

Environmental Offset Project Plans will be developed with the intent of implementing the conservation actions across a wide ranging area, that lead to landscape scale outcomes for the specified environmental values. At times, Environmental Offset Project Plans will be developed to provide specific and targeted conservation actions that may be implemented on a smaller scale or as a “once off” where the action is specific to an approval condition or environmental value. For example, an offset that proposed translocation of a species or is a research project.

Environmental Offset Project Plans will provide the following information:

- Proposed objectives and outcomes from the implementation of the Environmental Offset Project.
- Background and context to the environmental value being offset.
- Engagement with stakeholders in the development of the proposed conservation actions.
- Proposed conservation actions and how these actions provide environmental outcomes for the environmental value being offset.
- Proposed monitoring program (where appropriate) including performance measures for management actions, reporting, compliance and evaluation activities.
- Specific schedule and timelines for implementation, including the monitoring program, evaluation and reporting relevant to the Offset Project.
- A risk assessment relevant to achieving the outcomes in the Offset Project.
- Delivery agent (or agents).

- Consistency of the Offset Project with State and/or Commonwealth offset policies and principles, recovery and threat abatement plans and/or other relevant plans.

4.5.3 Offset Area Management Plan

An Offset Area Management Plan will be developed for each proposed offset conservation area. The Offset Area Management Plans will provide spatial mapping, and a detailed description of the offset conservation area based on desktop and field surveys.

The intent is that each proposed offset conservation area is “allocated” to an Offset Proposal. Alcoa does not intend that a proposed offset conservation area is “shared” across multiple Offset Proposals⁶. This is to provide transparency and ensure that Alcoa can demonstrate the environmental outcomes at the proposed offset conservation area have provided a conservation gain for the environmental value impacted by the Proposal or Controlled Action.

Multiple environmental offset projects may be implemented at each proposed offset conservation area. For example, If Proposal A has significant (overlapping) residual impacts for black cockatoos, chuditch and quokka, then environmental offset projects that offset the impacts to these environmental values may all be implemented in the same proposed offset conservation area.

Offset Area Management Plans will provide the following information:

- A detailed description of the offset conservation area based on desktop and field surveys.
- Spatial extent and mapping including clearly identified habitat areas and/or features.
- Monitoring locations/points relevant to the Environmental Offset Project requirements.
- A monitoring schedule based on the offsets’ commencement date
- A risk assessment relevant to the proposed offset conservation area.
- Engagement with stakeholders in the location and use of the proposed offset conservation area, including agreements to use the area as an environmental offset and/or to improve the conservation tenure of the area.
- Consistency of the proposed offset conservation area with State and/or Commonwealth offset policies and principles, recovery and threat abatement plans and/or other relevant plans.

4.6 Governance

Alcoa will establish and fund the resources required to deliver the Environmental Offset Program. Alcoa is proposing that compliance with offset approval conditions is delivered through an Environmental Offset Delivery Team. New environmental offset projects or conservation areas will be prepared by a team of technical and environmental specialists, with the entire delivery and compliance process overseen at the Senior Executive level within Alcoa.

⁶ There may be specific cases where this is appropriate, and in this case, it would be made clear in the offset documents how the outcomes relevant to projects or proposals will be demonstrated.

The governance model is in Figure 4-2 and described in this section.

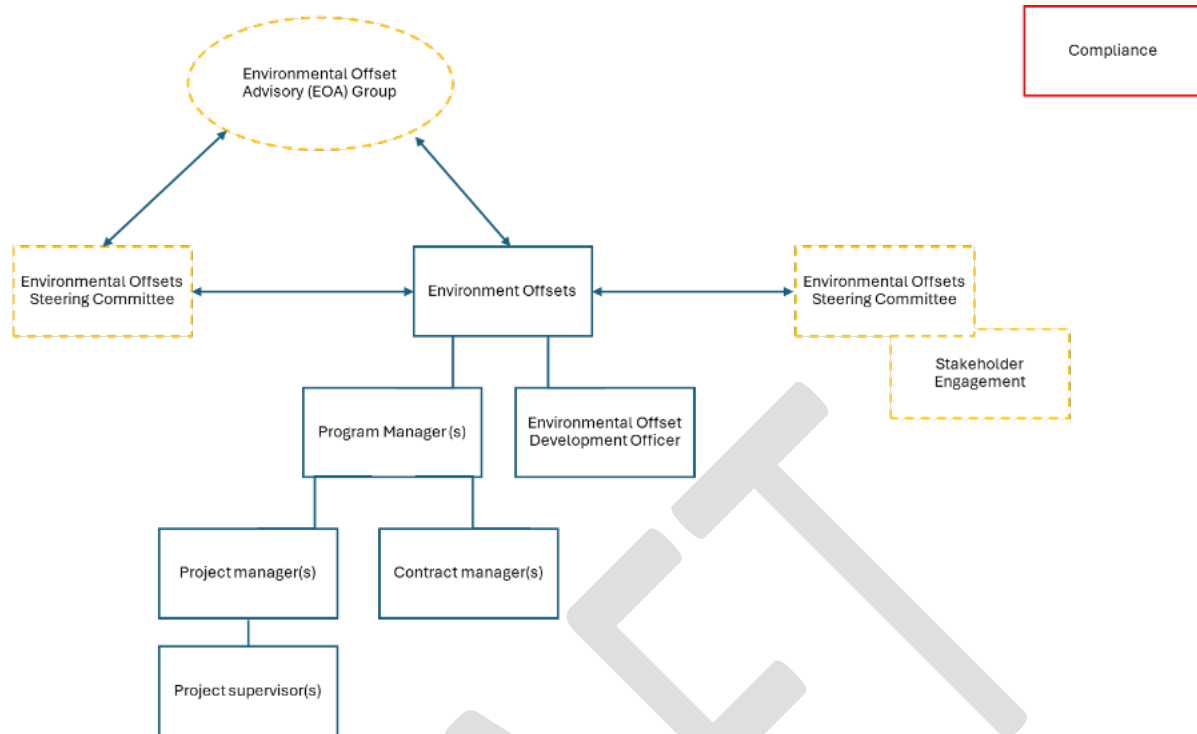


Figure 4-2: Alcoa Preliminary Offset Governance Model

4.6.1 Environmental Offset Team

Alcoa propose to form a dedicated Environmental Offset Team. The team will be responsible for:

1. Delivering approved environmental offsets conditioned in Ministerial Statements, EPBC Act Approvals or other regulatory instruments.
2. Developing environmental offsets during approvals and assessment processes.

The Environmental Offset Team will be led by a senior executive, who will be responsible for ensuring regulatory environmental offset conditions (under Ministerial Statements or EPBC Act Approvals) are met; managing the offset fund; and providing environmental offsets for future approvals.

One or more program managers will be responsible for a larger program of works, for example an Environmental Offset Proposal, multiple similar environmental offset projects or offset conservation areas. Project managers, project supervisors and/or contract managers will be responsible for the day-to-day implementation of a project or conservation action, coordinating access to sites, obtaining licences and other requirements, ensuring reports are provided as and when required and monitoring implementation of actions. The project managers will also be responsible for reviewing and evaluating reports (interim, ad-hoc, annual reports) and field survey data to assess the progress of the offset actions. Contract managers may be used where Alcoa has engaged a third party (consultant, contractor, NGO, etc) through a tender, contract, grant or other legal mechanism to deliver offset conservation actions.

The Environmental Offset Development Officer will be part of the Environment Offset Team but will work closely with the Regulatory Approvals team and the Offset Advisory Group. The

Environmental Offset Development Officer will be responsible for locating and proposing new offset conservation areas and/or offset projects to meet strategic, approval and assessment requirements. The Environment Offset Development Officer may consult with external ecologists, stakeholders (government agencies, independent conservation and research organisations and Traditional Owners) and offset specialists.

4.6.2 Environmental Offset Steering Committee

The Environment Offsets Team lead will chair the Environmental Offsets Steering Committee. The Steering Committee will include Alcoa Directors or Senior Executives, who meet at least every six months to review the delivery of approved offsets under approved Proposals / Controlled Actions and consider strategic approach or requirements for environmental offsets under any future Proposals or Controlled Actions. This includes endorsing proposed offset conservation areas.

4.6.3 Environmental Offset Advisory Group

The Environmental Offset Advisory Group will consist of Alcoa technical specialists from the offset, biodiversity, ecology, rehabilitation and research teams. The Environmental Offset Advisory Group will meet at least every six months and have the following functions:

1. Technically evaluate environmental offset reports and data.
2. Provide technical advice and support to business on environmental offset matters.

The Environmental Offset Advisory Group will support the Environmental Offset Team by providing feedback on its assessment of the offset including recommendations for improvements or adaptations to the projects and on an ad-hoc basis provide technical and environmental advice to support the Environmental Offset Team and the Steering Committee.

4.6.4 Relationship to other business functions

Environmental offsets will cross over multiple functional areas within Alcoa. The Environmental Offset Team will seek advice and support and work with many Alcoa functional areas including but not limited to government relations, stakeholder engagement, community team, the regulatory team, mine planning and strategy teams.

4.6.4.1 Compliance

Alcoa has a separate compliance function within the business. This functional group will be responsible for preparing annual compliance reports required under Ministerial Statements, EPBC Act Approvals or other environmental regulatory conditions. This function will not be represented in any of the above teams but will be provided with reports and assessments from the Environmental Offset Team. This will allow for an independent assessment and reporting of compliance with environmental offset conditions.

4.7 Funding

Alcoa propose to compensate for the significant residual impacts of clearing of habitat for threatened species by implementing environmental offset projects that provides positive outcomes for impacted species.

Alcoa propose to fund the Environmental Offset Projects through transferring a dollar rate per hectare cleared into a self-managed fund. The starting rate will be agreed prior to the commencement of actions under assessment and consider the expected costs to implement reasonable and cost-effective conservation projects.

Alcoa have benchmarked rates against comparable and contemporary environmental offset funds and/or conditions and suggest \$3,500 (excluding GST) per hectare of habitat cleared is an appropriate and reasonable rate.

Alcoa will make annual payments into the fund based on the actual clearing of habitat. Annual payments will be adjusted in accordance with the Perth Consumer Price Index⁷ (CPI).

The starting funding rate per hectare (adjusted for CPI) and payment schedule will be documented within the Proposal or Controlled Action Offset Proposal document.

4.8 Delivery Partners

Alcoa will be responsible for the delivery of the Environmental Offsets; however, delivery of conservation actions may be undertaken by delivery providers. Delivery providers may include Alcoa internal functional areas or dedicated environmental offset teams, state agencies (e.g. DBCA), Traditional Owners (e.g. ranger groups), environmental practitioners, consultants or specialists, environmental non-government organisations and/or community groups.

Delivery partners will be selected following expressions of interest and after a fair and equitable tender process that considers value for money and the delivery partners' experience, capability and capacity to deliver the project.

Payments will be made from the fund to delivery partners in accordance with contracts, grants or other legal agreements.

4.9 Consultation

Alcoa has consulted with its internal subject matter experts, external species specialists, regulators and government agencies to inform the development of this Offset Strategy.

⁷ CPI to be sourced from the Australian Bureau of Statistics website, based on the change for All Groups CPI over the June period, generally released at the end of July each year.

5. Consistency with Offset Policies and Plans

Environmental offsets should be consistent with the policies and principles in the WA Environmental Offsets Policy and Guidelines (Government of Western Australia 2011, 2014) and the Environment Protection and Biodiversity Conservation Act 1999 – Environmental Offsets Policy (DSEWPaC 2012).

Environmental offsets also need to be aligned with recovery plans for the species or environmental value being offset.

Alcoa considers the development, funding and implementation of environmental offset projects will:

- Directly meet the EPA's objective for the Terrestrial Flora and Terrestrial Fauna key environmental factors.
- Meet the principles of the WA Environmental Offset Policy and Guidelines.
- Meet the principles of the Commonwealth Environmental Offset Policy and Guidelines.
- Meet the EPA's Public advice on regional scale environmental offsets.
- Meet appropriate recovery plan objectives.

5.1 EPA Environmental Factors

Alcoa's Environmental Offset Program will meet the EPA's environmental factor objectives through consolidating environmental offset funding to allow for the delivery of landscape scale strategic programs and direct on-ground projects. This will include:

- Protection of areas of habitat critical to the survival of species: where possible and following agreement with landowners or managers.
- On-ground management: revegetation and rehabilitation of degraded habitat, enhancements to habitat, implementation of recovery actions and/or threat abatement measures.
- Improve knowledge on how impacted species use the landscape and how they adapt to disturbances from mining, fire and climate change.

Protection and management of areas of flora, vegetation and fauna habitat may also support the maintenance and integrity of significant landforms, hydrological processes and groundwater and surface water quality. It will also provide beneficial aesthetic, cultural, economic outcomes to local communities, tourists and visitors.

5.2 WA Environmental Offsets Policy

Table 5-1 demonstrates how the Environmental Offset Program is consistent with the six principles identified in the WA Environmental Offset Policy (Government of Western Australia 2011).

Table 5-1: Application of the principles in the WA Environmental Offset Policy

| Principle | Consideration |
|--|---|
| Environmental offsets will only be considered after avoidance and mitigation options have been pursued. | <p>Alcoa apply rigorous avoidance and mitigation measures during the mine planning process. This includes avoidance of National Parks, formal conservation reserves, old-growth forest, clusters of recorded black cockatoo known nesting trees and minimising impacts to mature forest and restricted range vegetation types (granite outcrops, swamp and stream zone vegetation). Additional avoidance and mitigation options will continue to be advanced as part of the mine planning process.</p> <p>Alcoa successfully rehabilitates cleared areas post-mining.</p> |
| Environmental offsets are not appropriate for all Proposals. | <p>Environmental offsets are appropriate for an operation of this scale. Alcoa has been operating as an integrated bauxite mining and alumina producing business in the south-west since 1963. The end product, alumina, is important to transition towards a decarbonised future and is essential to modern day living. Operations in Western Australia add considerable value to the national, state and local economies.</p> <p>Alcoa implements progressive clearing followed by progressive rehabilitation and has a proven track record in establishing and restoring a diverse, healthy and resilient eco-system in the Northern Jarrah Forest following mining.</p> <p>The significant residual impacts are the result of 1) time lags between clearing and benefits from rehabilitation of the mine pits and 2) areas unlikely to be rehabilitated in the short-term (for example haul roads, facilities).</p> |
| Environmental offsets will be cost-effective, as well as relevant and proportionate to the significance of the environmental value impacted. | <p>Funding environmental offset projects is a cost-effective and relevant offset for the scale of Alcoa's operations.</p> <p>Financial contributions toward environmental offset projects are likely to be significant. The funding will be targeted to conservation actions in important habitat areas.</p> <p>The Environmental Offset Program provides certainty to the Commonwealth and State that Alcoa is committing to ongoing long-term funding to implement conservation actions in the region.</p> <p>Environmental offset projects will deliver conservation outcomes for the impacted species and will be aligned to complement or support other conservation actions implemented in the region.</p> |

| Principle | Consideration |
|--|---|
| <p>Environmental offsets will be based on sound environmental information and knowledge.</p> | <p>Alcoa has a wealth of scientific knowledge of the Jarrah Forest. Alcoa has more than 50 years of research and knowledge, establishing and restoring a diverse, healthy and resilient ecosystem in the Northern Jarrah Forest.</p> <p>Since 1975, Alcoa has supported the publication of more than 260 refereed journal papers and book chapters, 80 technical studies, and 60 higher-degree research theses.</p> <p>Environmental offsets will be developed and/or reviewed by technical advisors including Alcoa environmental, biodiversity and research specialists, external subject matter experts and scientists, Traditional Owners and on-ground delivery partners.</p> <p>Environmental offsets will use advice from subject matter experts (qualified and/or experienced environmental practitioners) and the lessons learned from previous conservation actions along with the best available science to deliver the offsets project. Only offset projects where the anticipated outcomes, based on sound environmental and scientific understanding, are likely to be successful and risks have been appropriately identified and mitigated, will be selected for implementation.</p> <p>Environmental offsets will be reviewed against species recovery plans, threat abatement plans, the Forest Management Plan and peer-reviewed research findings to ensure they meet overall strategic outcomes.</p> |
| <p>Environmental offsets will be applied within a framework of adaptive management.</p> | <p>Contingency actions will be built into environmental offset projects to account for risks of unexpected events. The project plan will effectively account for and manage the risk of the project not succeeding.</p> |
| <p>Environmental offsets will be focused on longer-term strategic outcomes.</p> | <p>Environmental offsets can be implemented as a series of conservation actions, that over the long term provide a strategic outcome for impacted species and/or their habitat. For example, increasing the amount of the Northern Jarrah Forest that is being actively and intensively managed for conservation.</p> <p>Environmental offsets will be aligned to complement or support other conservation actions implemented in the region, which collectively will lead to long term strategic outcomes for impacted species, their habitat and the region.</p> |

5.3 WA Environmental Offsets Guidelines

Table 5-2 demonstrates how the Environmental Offset Program meets the key concepts and requirements of the WA Environmental Offsets Guidelines (Government of Western Australia 2014).

Table 5-2: Application of the principles in the WA Environmental Offset Guidelines

| Concept | Consideration |
|---|---|
| Type | <p>Direct: Most of the environmental offset projects will be direct offsets, delivered through implementation of on-ground management that has direct benefits or outcomes for impacted species.</p> <p>Indirect: The program will include research projects that support direct conservation actions and improve the understanding and scientific knowledge of species in the Northern Jarrah Forest.</p> |
| In proximity to area of impact | <p>The environmental offset projects allow benefits to be delivered closer to the area of impact than that of a direct land offset. For example, within mine avoidance zones or areas State Forest close to the mining activities.</p> <p>Environmental offset projects will aim to elevate the conservation tenure and implement recovery actions as close to the impacts as possible.,</p> <p>Alcoa will consider priority areas for protection for impacted species in other bioregions if that provides the best conservation outcomes.</p> <p>Areas for protection will be selected following consultation with State agencies, regulators and Traditional Owners.</p> |
| Similar or better vegetation condition than area impacted | <p>Implementing environmental offset projects in State Forest will result in vegetation that is in similar or better vegetation condition than areas impacted, or that, following revegetation or rehabilitation, will be in similar or better vegetation condition than the areas impacted.</p> |
| Similar habitat structure to undisturbed examples of impacted vegetation type | <p>Implementing environmental offset projects in State Forest will likely provide areas with a similar habitat structure to unmined vegetation, or that, following revegetation or rehabilitation, will be provide similar habitat structure to unmined vegetation type.</p> |
| Has a better area to perimeter ratio than the area impacted | <p>The area to perimeter ratio cannot be easily applied to bauxite mining due to the nature of its footprint (disturbance). Areas selected for environmental offset projects will generally be large areas of State Forest that join other conservation areas, which will ultimately provide a better area to perimeter ratio than the impacted area.</p> |
| Contains additional rare or otherwise significant species and threatened species or | <p>As the spatial location of the environmental offset projects have not yet been determined this cannot be addressed. However, within the Northern Jarrah Forest the habitat is used by many different species,</p> |

| Concept | Consideration |
|---|---|
| community compared with the impact site | so outcomes from environmental offset projects are likely to deliver benefits for a range of flora and fauna species. |
| Close to or contiguous with an existing conservation area | The spatial location for the environmental offset projects will be determined as the projects are developed. However, one of the aims of the Environmental Offset Program is to enlarge existing conservation areas. This is proposed to be done by locating environmental offset projects near to existing and/or proposed conservation areas. |
| Likely to enhance biological corridors or ecological linkages between conservation areas | One of the aims of the Environmental Offset Program is to enhance connectivity. This will be achieved through enlarged conservation areas or identifying and managing ecological or wildlife corridors. |
| It includes actions to address threatening processes | Environmental offset projects will address actions in recovery and threat abatement plans. |
| Allows for secure management arrangements [to be] in place that will provide for long term conservation | <p>Alcoa are consulting with landowner and managers and Traditional Owners to agree management arrangements in State Forest.</p> <p>Alcoa's mineral lease is not due to expire until 2045 and therefore actions within offset conservation areas are likely to be delivered over the life of each approval.</p> |
| Sound knowledge and adaptive management | <p>Alcoa has a wealth of scientific knowledge of the Jarrah Forest. Alcoa has more than 50 years of research and knowledge, establishing and restoring a diverse, healthy and resilient ecosystem in the Northern Jarrah Forest.</p> <p>Since 1975, Alcoa has supported the publication of more than 260 refereed journal papers and book chapters, 80 technical studies, and 60 higher-degree research theses.</p> <p>Environmental offsets will be developed and/or reviewed by technical advisors including Alcoa environmental, biodiversity and research specialists, species subject matter experts and scientists, Traditional Owners and on-ground delivery partners.</p> <p>Environmental offsets will use advice from subject matter experts (qualified and/or experienced environmental practitioners) and the lessons learnt from previous conservation actions along with the best available science to deliver the offset projects. Only offset projects where the anticipated outcomes, based on sound environmental and scientific understanding, are likely to be successful and risks have been appropriately identified and mitigated, will be selected for implementation.</p> <p>Environmental offsets will be reviewed against species recovery plans, threat abatement plans, regional plans and peer-reviewed research findings to ensure they meet overall strategic outcomes.</p> |

| Concept | Consideration |
|---|--|
| | <p>Environmental offset projects will be applied within a framework of adaptive management. Contingency actions will be built into the project plans to account for risks of unexpected events and will effectively account for and manage the risk of the project not succeeding.</p> |
| <p>Likely offset success.</p> <p>Can the values be defined and measured?</p> <p>What is the operator experience / evidence of previous success?</p> | <p>The Environmental Offset Program is likely to be a success.</p> <p>Alcoa has a long established history of operating in the in the Northern Jarrah Forest, including extensive research and experience in rehabilitation following mining.</p> <p>Environmental offset projects will only be undertaken where they have been developed and supported by qualified and/or experienced environmental practitioners, where adequate funding is available to implement the conservation actions, where the offset area has threats that can be managed and improved, where they are based on sound environmental information and knowledge, and only if they are achievable.</p> <p>Environmental offset projects will be based on outcomes that can be measured. The offset projects will outline performance indicators and a monitoring program with trigger and threshold criteria and contingency actions.</p> |
| <p>Time lag</p> | <p>Alcoa will establish a framework in which environmental offset projects will commence prior to the impacts occurring. Some projects will have short-term gains, other projects may take time for the benefits to be realised.</p> |
| <p>Long term strategic outcomes</p> | <p>Alcoa's Environmental Offset Program will implement environmental offset projects that provide long term strategic outcomes for impacted species. This may be delivered through a combination of elevated conservation tenure of important habitat areas, installation, management and maintenance of key habitat features, reduction in threats and increased knowledge.</p> |
| <p>Offset quantification</p> | <p>Environmental offset project areas will be quantified through an AUD rate per hectare cleared and the outcomes proposed in an Offset Proposal for each approval.</p> <p>The value of funding towards environmental offsets will be negotiated with the EPA and DCCEEW to ensure it is proportionate to the significance of the environmental values impacted.</p> |

5.4 WA EPA Guiding Principles

Table 5-3 demonstrates how the Environmental Offset Program considers the guiding principles set out in the EPA's Public Advice: Considering Environmental Offsets at a Regional Scale (EPA 2024).

Table 5-3: Consideration of the guiding principles in the EPA’s Public Advice on Regional Scale Environmental Offsets

| Guiding Principle | Consideration |
|---|---|
| <p>Prioritise restoration offsets</p> | <p>The area in which Alcoa operates in the south-west of WA is predominantly Crown land that consists of intact native vegetation classed as State Forest. This limits the opportunities for revegetation projects in cleared land parcels. Alcoa has some freehold land, most of which is highly valuable farmlands on the Swan Coastal Plain. Alcoa is assessing the appropriateness and suitability of its land parcels within the NJF for restoration, but most of the land parcels are small and scattered and therefore may not provide a strategic benefit.</p> <p>Alcoa has therefore identified that conservation projects that protect and enhance existing vegetation and habitat against current and emerging threats at a regional scale will provide better positive outcomes for species.</p> <p>Further information has been provided in Sections 2.2, 4.3 and 4.4.</p> |
| <p>Be consistent with new and emerging regional plans, reserve management plans, recovery plans, strategic programs and other regional level protection instruments</p> | <p>Alcoa has developed this Offset Strategy with consideration of the 2024-2033 Forest Management Plan. Environmental Offset Projects will be prepared to deliver conservation actions that are complementary and additional the high-level management measures outlined in the Forest Management Plan.</p> <p>Environmental Offset Projects will consider current species recovery plans, threat abatement plans, and any relevant peer-reviewed research or scientific findings. The Environmental Offset Program provides the flexibility to develop and adapt the Environmental Offset Projects based on any new or emerging recovery or threat abatement plans, regional plans or other programs.</p> <p>Further information has been provided in Sections 2.3, 2.4, 2.5 and 5.6 of this document.</p> |
| <p>Builds and maintain resilience in ecological functions and ecosystem services</p> | <p>Alcoa intends to locate offset conservations areas that are near to or adjoin existing or proposed conservation reserves. This will help to maintain ecological linkages and conservation areas and places of ecological significance.</p> <p>The Environmental Offset Projects will include actions to mitigate against current on-ground threats (for example invasive species), emerging on-ground threats (for example new invasive species or disease) and threats from climate change (for example reduced drinking water). The Environmental Offset Projects will carefully consider the overall ecosystem balance within the offset conservation areas.</p> |
| <p>Contribute to environmental knowledge of a region</p> | <p>The Environmental Offset Projects will contribute to environmental knowledge of a region. Implementation of on-ground conservation actions and adaptive management will lead to understanding of the effectiveness of and most appropriate conservation actions in certain</p> |

| Guiding Principle | Consideration |
|--|--|
| | <p>areas or habitat types. Environmental Offset Projects include a monitoring program that will lead to an accumulation of data on vegetation, habitat and species over the life of the offset period. Environmental Offset Projects may be research based or include trials.</p> <p>Further information has been provided in Sections 2.6, 4.3 and 4.5.</p> |
| <p>Provides outcomes that are like for like, or are similar to the impacted value</p> <p>Demonstrate connectedness of the physical or ecological function values with those being impacted</p> | <p>Alcoa has proposed the implementation of Environmental Offset Projects in the Northern Jarrah Forest, in as similar habitat as possible to the impacted area. Where possible, offset conservation areas will be located as close to the impacts as possible to support the persistence of the local population of the impacted species. However, Alcoa acknowledge that for some species, environmental offsets in other subregions or bioregions might provide significant beneficial outcomes for that species, and therefore like for similar offsets will be considered where like for like offsets are either not available or have been exhausted.</p> <p>As above, Alcoa intends to locate offset conservations areas that are near to or adjoin existing or proposed conservation reserves.</p> <p>Further information has been provided in Sections 4.3 and 5.3.</p> |
| <p>Provide greater co-benefits</p> | <p>Environmental Offset Projects that enhance vegetation and habitat in the NJ will provide positive outcomes for many environmental values including flora, vegetation, native fauna and waterways. This will also improve the environmental value for cultural, heritage and social values. In addition to providing positive outcomes to the environment, the Environmental Offset Program will provide cultural, heritage and social benefits through employment, training and recreational opportunities.</p> <p>Alcoa are consulting with relevant stakeholders including Traditional Owners, environmental groups, government agencies and the community to ensure the co-benefits are valuable.</p> <p>Further information has been provided in Sections 4.3 and 5.3.</p> |

5.5 Commonwealth Environmental Offsets Policy 2012

Table 5-3 demonstrates how the Environmental Offset Program is consistent with the principles identified in the Commonwealth’s Environmental Offset Policy (DSEWPaC 2012).

Table 5-4: Consistency with Commonwealth Environmental Offset Policy

| Principle | Consideration |
|---|---|
| <p>Suitable offsets must deliver an overall conservation outcome that improves or</p> | <p>The Environmental Offset Program will deliver environmental offset projects that align with species recovery plans and provide landscape scale conservation outcomes for impacted species.</p> |

| Principle | Consideration |
|---|---|
| maintains the viability of the protected matter. | |
| Suitable offsets must be built around direct offsets but may include other compensatory measures. | <p>The Environmental Offset Program will deliver environmental offset projects that align with regional and species recovery plans. Actions in current species recovery plans consist of direct actions (protect and conserve areas of habitat) and indirect actions (survey, monitoring, research).</p> <p>Most (~90 per cent) of the environmental offset projects will be direct offsets, delivered through implementation of on-ground management that has direct benefits or outcomes for impacted species. The Environmental Offset Program is likely to include some indirect offsets (research projects) that improve the understanding and scientific knowledge of species in the Northern Jarrah Forest.</p> |
| Suitable offsets must be in proportion to the level of statutory protection that applies to the protected matter. | <p>Environmental offset project areas will be quantified through an AUD rate per hectare cleared and the outcomes proposed in Offset Proposals for each approval.</p> <p>The value of funding towards environmental offsets will be negotiated with the EPA and DCCEEW to ensure it is proportionate to the significance of the environmental values impacted.</p> |
| Suitable offsets must be of a size and scale proportionate to the residual impacts on the protected matter. | |
| Suitable offsets must effectively account for and manage the risks of the offset not succeeding. | <p>Alcoa has a high level of confidence that the environmental offset projects will succeed in providing a positive environmental outcome for impacted species for the following reasons:</p> <ul style="list-style-type: none"> • Alcoa has a history of working successfully with the DBCA and other organisations on land management projects. • Alcoa has over 50 years' experience in rehabilitation and management within the Jarrah-Marri Forest. • Environmental offset projects will be developed through engagement with species-experts via an offset advisory panel. <p>The risk of any of the environmental offset projects not succeeding will be managed through:</p> <ul style="list-style-type: none"> • Performance indicators, completion criteria, triggers and contingency actions. • An adaptive management framework. • Research (increased knowledge of the species, habitat, use of the landscape and management measures that provide successful outcomes). • Implementation of management measures that align with species recovery and threat abatement plans. |

| Principle | Consideration |
|---|---|
| | <ul style="list-style-type: none"> • Implementation of offset measures by suitably qualified and skilled personnel or organisations. • Staged implementation of offsets (offsets will be implemented that align with the known impacts). • Consideration of alternate offset options, including on-ground management at a regional scale. |
| <p>Suitable offsets must be additional to what is already required, determined by law or planning regulations, or agreed to under other schemes or programs</p> | <p>The State Agreement requires that Alcoa pay:</p> <ul style="list-style-type: none"> • Compensation to the State for each hectare of forest cleared in relation to its mining activities; and • An annual payment to DBCA for services provided that enable safe and efficient performance of Alcoa’s mining operations. This includes maintenance of forest access tracks, infrastructure maintenance, prescribed burning, dieback forest rehabilitation, feral animal control and tree thinning; and • An allocation towards Northern Jarrah Forest enhancement projects. <p>Alcoa is also required under the State Agreement, to progressively restore and re-forest the areas cleared for mining.</p> <p>Environmental offset projects will provide conservation actions over and above the current requirements of the State Agreement or Ministerial Statements.</p> <p>Where environmental offset projects support existing conservation projects, the funding and actions undertaken as part of the offset will be additional to the actions in the existing conservation project.</p> <p>Conservation projects already required by law or planning regulations or agreed to under other schemes or programs will not be accepted as an environmental offset project unless it is demonstrated that the funding will be used to perform conservation or threat abatement actions over and above that defined by the appropriate legislation.</p> |
| <p>Suitable offsets must be efficient, effective, timely, transparent, scientifically robust and reasonable</p> | <p>The Environmental Offset Program is the most efficient and effective use of Alcoa’s investment in conservation in the Northern Jarrah Forest and can be delivered in a timely manner. It allows for the development of environmental offset projects that provide outcomes for impacted species in the Northern Jarrah Forest. Environmental offset projects can be implemented through short-term or small-scale projects that provide “quick wins” and longer-term landscape scale projects.</p> <p>The Environmental Offset Program provides transparency to the EPA, DCCEE and public through annual project progress reports and/or updates. The framework and process for selection of environmental offset projects will be publicly available. Project progress and outcomes will be communicated with State and</p> |

| Principle | Consideration |
|---|--|
| | <p>Commonwealth regulators, land managers and key stakeholders. Where the outcomes do not contain commercially sensitive information (or parts of the report can be redacted) the progress and findings will be communicated to the scientific and conservation community and the public.</p> <p>Environmental offset projects will be reviewed by an offset advisory group in consultation with landowners\managers, Traditional Owners and key stakeholders to ensure they are scientifically robust.</p> <p>The Environmental Offset Program is a reasonable approach for delivering environmental offsets for Alcoa’s approved mining operations as:</p> <ul style="list-style-type: none"> • Clearing (impacts) occurs in a progressive manner over the life of the mine. These supports delivering offsets in a progressive manner over the life of the mine to align with the impacts. • Rehabilitation of most of the impacted vegetation starts within three to five years of the clearing occurring. Where clearing has occurred for long-term haul roads or infrastructure, rehabilitation will commence once the roads or infrastructure is no longer required. Therefore, in most cases the loss of habitat for species is temporary. • The extent of offset required, land tenure and the presence of mineral resources can inhibit the delivery of land acquisition or protection offsets in the short term. • Allows delivery of conservation actions to be targeted to key species habitat areas, through cooperation with other conservation groups and agencies. • Further justification is provided in Section 4.3 and 4.4. |
| <p>Suitable offsets must have transparent governance arrangements including being able to be readily measured, monitored, audited, and enforced</p> | <p>Offset requirements will be published on the DWER and DCCEEW Offset Registers. These are open to the public and report milestones and delivery of environmental offsets.</p> <p>Alcoa will be required to provide annual compliance reports to DWER and DCCEEW. These reports will be publicly available.</p> <p>Governance arrangements include establishment of a steering committee, auditable offset project selection and outcomes, reporting protocols and financial provisions.</p> <p>Outcomes stated in Offset Proposals can be measured (and/or audited) through:</p> <ul style="list-style-type: none"> • Demonstration that conservation actions in Environmental Offset Project Plans are being implemented. • Progress towards outcomes, milestones and deliverables stated in Environmental Offset Project Plans. <p>Environmental offsets are also enforced through legal requirements of Ministerial Statements and/or EPBC Act approval conditions.</p> |

| Principle | Consideration |
|-----------|--|
| | <p>Delivery of environmental offsets through third parties on Alcoa's behalf will be enforced through contractual arrangements.</p> <p>Further justification is provided in Section 4.3 and 4.4.</p> |

5.6 Recovery Plans

Environmental offset projects will be informed by the objectives and strategies in species conservation advice documents, recovery plans and threat abatement plans. Alcoa will also consult with species subject matter experts to tailor the recovery requirements to the Northern Jarrah Forest or to those that are appropriate for the local habitat.

Alcoa will employ an adaptive management approach towards its Environmental Offset Program, whereby new research findings and updates to conservation advice documents and recovery plans will be incorporated into environmental offset projects.

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6. Conclusion

Alcoa has proposed a multifaceted Environmental Offset Program to be delivered at a local, landscape and regional scale. Through the program, Alcoa proposes to fund the development and implementation of environmental offset projects that support species recovery initiatives.

Alcoa has proposed this Environmental Offset Program as there are constraints to implementing environmental offsets in the Northern Jarrah Forest. Land tenure within the Northern Jarrah Forest is mostly vegetated Crown land (State Forest), limiting the opportunity to acquire land or locate cleared areas for revegetation projects.

However, there are significant opportunities that can provide beneficial outcomes. Implementation of recovery actions in the region is limited by financial and/or resourcing constraints. The State and Commonwealth governments have consideration of the role that environmental offsets can play in providing funding that supports conservation actions to address environmental impacts at a landscape scale. Therefore, funding environmental offset projects that support recovery actions and reduce threatening processes will provide a source of long-term investment in conservation in the region.

The Environmental Offset Program aims to improve areas of State Forest, near to the areas of impact, which provide the most cost-effective, appropriate and proportional conservation outcomes for the Northern Jarrah Forest.

Alcoa can deliver additional strategic conservation projects that support and complement the management of the Northern Jarrah Forest already undertaken by the DBCA. By working in partnership, Alcoa can provide targeted high intensity management in smaller areas within the Northern Jarrah Forest.

There is an opportunity to work with the State and where it aligns with State priorities, potentially elevate conservation tenure. This also supports the 30 by 30 aims of the Commonwealth government.

Implementing on-ground conservation actions can deliver environmental outcomes that support attaining aims, goals, objectives and targets in the Forest Management Plan, Recovery Plans and Threat Abatement Plans.

The Environmental Offset Program allows for adaptive management and flexibility in the conservation actions over long timeframes. This can include research projects to address gaps in knowledge prior to undertaking on-ground actions.

The Environmental Offset Program will deliver strategic, integrated, and holistic on-ground recovery and threat abatement actions to support the conservation, recovery and on-going viability of the Northern Jarrah Forest and the native species it supports.

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