Alcoa of Australia Limited

ENVIRONMENTAL OFFSET STRATEGY

February 2025

Version	Description of Changes	Date	Approved by
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
REV 3	Third Draft. Prepared for EPA Review.	November 2024	K. Moyle
REV 4	Final. Issued for release.	February 2025	K. Moyle

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, minimise[1] and rehabilitate[2]), clearing of vegetation may result in significant residual impacts[3] to environmental values within State Forest. Environmental offsets will counterbalance any significant residual environmental impacts.

Alcoa evaluated using land acquisition, revegetation, on-ground management and research as the primary approach to providing environmental offsets. The primary approach needed to be executable, reasonable and cost-effective; meet environmental offset policy and guidance and provide strategic environmental benefits for the species potentially impacted by Alcoa's operations.

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. Both State and Commonwealth offset policies require that environmental offsets should be additional to what is currently required, be as close to the impacts as possible and be able to be measured and quantified.

Delivering environmental offsets in the Northern Jarrah Forest is constrained by land tenure (most of ML1SA is Crown land) and vegetation extent (most of ML1SA contains intact native vegetation). Alcoa looked at the availability and suitability of land parcels that could be acquired or used for revegetation, but found unvegetated land parcels near its operations were small and widely dispersed, and therefore unlikely to be cost-effective, strategic or sustainable.

DCCEEW (DSEWPaC 2012) only consider research as the primary offset option when there is scientific uncertainty in the type of conservation actions that would benefit an impacted species.

After evaluating the regional, conservation and regulatory context, Alcoa determined the most appropriate and cost-effective approach for delivering environmental offsets that achieve desired outcomes is to develop an offset strategy that implements additional

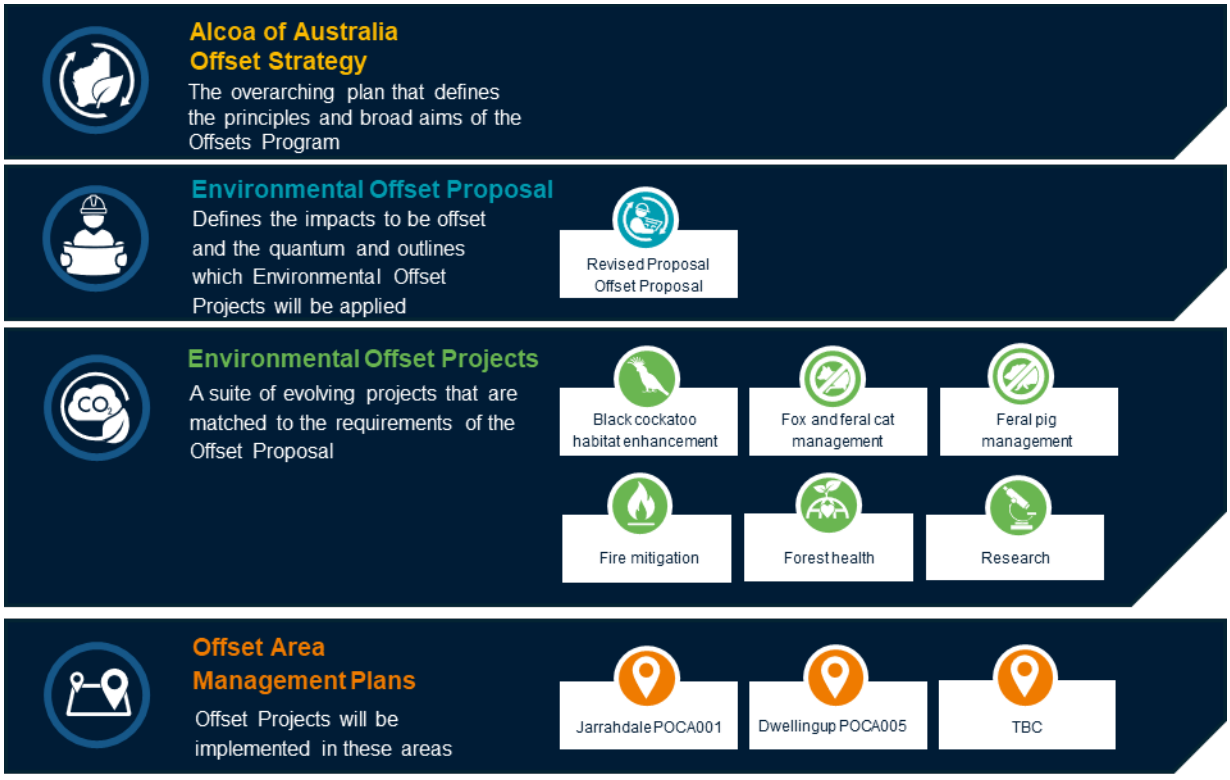
[1] The EPBC Act *Environmental Offsets Policy* (DSEWPaC 2012) terms this action as mitigation.
[2] Rehabilitation does not form part of the mitigation hierarchy under the EPBC Act.
[3] Under the EPBC Act *Environmental Offsets Policy* (DSEWPaC 2012) the term "residual significant impacts" (RSI) is used to identify significant impacts on a matter protected (MNES) under national environment law (the EPBC Act) that remain following avoidance and mitigation measures. The term significant residual significant impact (SRI) will be used in this document but is to be taken to have the same meaning as residual significant impact (RSI).

on-ground conservation actions in State Forests, beyond current or proposed management actions, financed through a self-managed fund. Alcoa's approach has evolved based on legislative changes, engagement with regulators (EPA and DCCEEW) and subject matter experts.

Environmental Offset Strategy

Alcoa's Environmental Offset Strategy provides a systematic approach for the provision of its environmental offsets. Alcoa will prepare an Environmental Offset Proposal for each future mining and/or mining related project that requires an environmental offset. An Environmental Offset Proposal will provide an overview of the significant residual impact, the environmental objectives and outcomes to be achieved and the proposed offset quantum. The Environmental Offset Proposal will provide information on the conservation actions proposed to be undertaken (environmental offset projects) and the areas in which the actions will be implemented (Offset Area Management Plans) to achieve the environmental objectives and outcomes.

The Environmental Offset document framework, provided in ES Figure 1-1, shows how the offset documents are organised.



ES Figure 1-1: Environmental Offset Document Framework

Environmental Outcomes

At a high-level, Alcoa's Environmental Offset Strategy 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.

Implementation, Governance and Funding

A team will be established within Alcoa to manage the delivery of environmental offsets conditioned in Ministerial Statements, EPBC Act Approvals or other regulatory instruments. An Offset Steering Committee will include Alcoa Senior Executives, who review the delivery of approved Environmental Offset Proposals and consider strategic approaches or requirements for environmental offsets under any future Proposals or Controlled Actions. An Offset Advisory Group will be formed and consist of Alcoa technical specialists from the offset, biodiversity, ecology, rehabilitation and research teams.

Alcoa proposes to establish a Stakeholder Reference Group to provide stakeholder and community inputs into our Environmental Offset Proposals, Environmental Offset Project Plans and the development of Proposed Offset Conservation Areas. In addition to this Reference Group, Alcoa will continue to engage through its established forums and channels for community engagement. The membership of the group may be adjusted depending on the project or proposal area to meet local community expectations.

Alcoa has a separate compliance function within the business. This functional group will be provided with reports and assessments from the Offset Team. This will allow for an independent assessment and reporting of compliance with environmental offset conditions.

Alcoa proposes to fund environmental offset projects through transferring an AUD rate per approved hectare cleared each year into a self-managed fund on a prospective basis. The 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 will make annual payments into the fund based on the actual approved hectares cleared each year on a prospective basis after the Proposal or Controlled Action has been approved. The rate per hectare and payment schedule will be documented within the Environmental Offset Proposal document.

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

Alignment with Offset Policies

Alcoa's Environmental Offset Strategy embodies DCCEEW, Department of Water and Environmental Regulation (DWER) and EPA offset policies and principles, adopting key principles:

- Principle 1 in the EPBC Act *Environmental Offsets Policy* (DSEWPaC 2012) states that an overall conservation outcome should improve or maintain the viability of the aspect of the environment that is protected by national environment law and affected by the proposed action.
- Principle 6 in the WA *Environmental Offsets Guidelines* (Government of Western Australia 2014) that states a better outcome can be achieved by considering offsets at a landscape rather than at a local scale.
- The EPA advice (EPA 2024a) states that offsets should contribute to holistic environmental protection and enhancement at a regional scale.

Alcoa's Environmental Offset Program will result in additional funding to deliver landscape scale strategic programs and direct on-ground projects including:

- Prioritise protection of areas of habitat critical to the survival of threatened species[4] .
- 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

Alcoa consider this Environmental Offset Strategy 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.

The Environmental Offset Strategy provides for targeted and specific outcomes per species that result in landscape scale benefits for multiple species in the Northern Jarrah Forest. The conservation actions involve direct on-ground measures that will increase scientific knowledge and understanding of ecosystem recovery and resilience in the Northern Jarrah Forest.

Alcoa had adopted an adaptive management approach, which is included within the design of each environmental offset project but also in the ability to develop new environmental offset projects in response to new scientific findings, best management practices and changing environmental conditions.

Alcoa's Offset Strategy is cost-effective, aligns with offset guidance and policy and supports sustainable development and cultural and social co-benefits in the Northern Jarrah Forest.

[4] Following agreement with landowners or managers.

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Acronyms

Abbreviation	Definition
BC Act	*Biodiversity Conservation Act 2016* (WA)
Black cockatoo(s)	Includes the three species of south-west black cockatoos: Carnaby's cockatoo (*Zanda latirostris*[5]), Baudin's cockatoo (*Zanda baudinii*[5]) and forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*)
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
DPIRD	Department of Primary Industries and Regional Development
DWER	Department of Water and Environmental Regulation
EIA	Environmental Impact Assessment
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
EP Act	*Environmental Protection Act 1986* (WA)
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 1 State Agreement
MNES	Matters of National Environmental Significance
NJF	Northern Jarrah Forest
POCA	Proposed offset conservation area
SCP	Swan Coastal Plain
WA	Western Australia

[5] The scientific name of the Carnaby's cockatoo has changed from *Calyptorhynchus latirostris* to *Zanda latirostris* and the Baudin's cockatoo from *Calyptorhynchus baudinii* to *Zanda baudinii*.

Glossary

Term	Definition
Environmental Offset Strategy	Alcoa's overarching approach to delivering environmental offsets. It demonstrates that Alcoa can offset the environmental impacts from its operations with a high degree of confidence in a positive outcome.
Environmental Offset Program	Alcoa's suite of offset activities and measures to be developed, managed and implemented to offset environmental impacts from its operations.
Environmental Offset Proposal	States the environmental outcomes to be achieved through conservation actions to offset environmental impacts.
Environmental Offset Project Plan	Provide a detailed description of the conservation actions, the indicators and monitoring program to be used to measure the performance of the conservation actions towards the project targets.
Offset Area Management Plans	Provide a detailed description of the proposed offset conservation area; the area in which the environmental offset projects (conservation actions) will be implemented.
Conservation actions	As used in Alcoa's environmental offset documents, includes any activities, actions or offset measures that contribute to environmental outcomes or the ongoing viability or recovery of a species or ecosystem.

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). ML1SA 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[6], 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.

Alcoa acknowledge that even after strict adherence to the mitigation hierarchy (avoid, minimise[7] and rehabilitate[8]), clearing vegetation within ML1SA 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.

[6] Currently in curtailment.
[7] The EPBC Act Environmental Offsets Policy (DSEWPaC 2012) refers to this stage as "mitigation ".
[8] Rehabilitation does not form part of the mitigation hierarchy in the EPBC Act Environmental Offsets Policy (DSEWPaC 2012).

1.1 Purpose and Scope

The 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 approach.
- The proposed aims and outcomes of the Environmental Offset Strategy.
- The regional context in which environmental offsets will be located.
- Alignment with the principles and polices in WA *Environmental Offsets Policy* (Government of Western Australia 2011), WA *Environmental Offset Guidelines* (Government of Western Australia 2014) and EPBC Act *Environmental Offsets Policy* (DSEWPaC 2012), including how the proposed offsets are additional to current management actions undertaken in the region.
- How delivery of the Environmental 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 Corporation 2021) sets out how Alcoa aims to minimise its 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 implement post-mining rehabilitation to a standard agreed with the Western Australian Department of Biodiversity Conservation and Attractions (DBCA).

The Environmental Offset Strategy proposes Alcoa develop environmental offset projects that provide outcomes on a regional, landscape and local scale. The environmental offset projects will be developed to ensure additionality, alignment and synergies with existing conservation projects or programs. Outcomes at a local scale that address significant residual impacts 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. Alcoa aim to work with government agencies to support additions to the conservation reserve system, increasing land in Comprehensive, Adequate and Representative (CAR) reserves in the Northern Jarrah Forest.

The environmental offset projects and offset conservation areas will be developed in conjunction with stakeholders including government agencies, researchers, Traditional Owners, academia and community groups. Alcoa's collaborative approach to delivering its Environmental Offset Strategy aims to provide social co-benefits such as education, employment opportunities and nature-related recreational value.

These aims lead to the development of a set of high-level environmental outcomes.

1.3 Environmental Outcomes

Alcoa intends to provide broader scale net benefits at landscape and regional scale, aligning with the EPA's Public Advice: Considering Environmental Offsets at a Regional Scale (EPA 2024a). At a high-level, Alcoa's Environmental Offset Strategy 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 Traditional Owners.

To develop an Environmental Offset Strategy that would meet these environmental outcomes, Alcoa reviewed the regulatory and regional context in which potential impacts may occur, and environmental offsets delivered.

2. Regulatory and Regional 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 WA *Environmental Offsets Guidelines* (Government of Western Australia 2011, 2014) and the *EPBC Environmental Offsets Policy* (DSEWPaC 2012).

Principle 6 in the WA *Environmental Offsets Guidelines* (Government of Western Australia 2014) 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 2024a) for offsets to contribute to holistic environmental protection and enhancement at a regional scale.

The WA *Environmental Offsets Guidelines* (Government of Western Australia 2014) 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.

The EPBC Act *Environmental Offsets Policy* (DSEWPaC 2012) states that an overall conservation outcome should improve or maintain the viability of the aspect of the environment that is protected by national environment law and affected by the proposed action.

The WA and Commonwealth offset policy and guidance advise proponents environmental offsets should be like for like, as close to the impacts as possible, additional to what is currently required, and be able to be measured and quantified.

The WA and Commonwealth governments 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 EPBC Act *Environmental Offsets 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. DCCEEW (DSEWPaC 2012) only consider research as the primary offset option

when there is scientific uncertainty in the type of conservation actions that would benefit an impacted species.

A complete assessment showing how this Environmental Offset Strategy aligns with the policies and principles in the WA and Commonwealth offset policy and guidelines is in Section 4.

Given environmental offsets should be like for like and as close to the impacts as possible, Alcoa considered how the environmental offsets should be considered in a regional context.

2.2 Regional Context

The regional context defines the physical area where environmental offsets are delivered. The WA *Environmental Offsets Guidelines* (Government of Western Australia 2014) guidance suggests that to be like for like, environmental offsets should be in the same bioregion. 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.

For this Environmental Offset Strategy, regional scale is defined as the broader south-west WA region. The includes the 4.5 million hectare Jarrah Forest, the 1.5 million hectare Swan Coastal Plain and the 845,000 hectare Warren IBRA bioregions. The region is also included in the 30 million hectare South-West Regional Forest Agreement area and the 2.5 million hectare Forest Management Plan (FMP) planning area. The regional scale is shown spatially in Figure 2-1. 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 (Conservation and Parks Commission 2023).

Given the size of region, Alcoa's environmental offsets will predominantly be considered at the landscape and local scale. The IBRA refines the bioregions into 419 subregions. These are more localised areas formed of homogenous geomorphological units. The most appropriate scale for Alcoa's environmental offsets includes the 1.9 million hectare Northern Jarrah Forest IBRA subregion and Alcoa's 710,000 hectare Mineral Lease (ML1SA). The landscape scale is shown spatially in Figure 2-2.

The local scale refers to distinct areas within ML1SA, although still large in extent. This includes mine regions, refineries and proposed offset conservation areas[9]. While each proposed offset conservation area, may be seen as "local", collectively the proposed offset conservation areas will achieve positive landscape scale outcomes.

[9] Proposed offset conservation areas are the areas subject to conservation actions and specific to an Environmental Offset Proposal. Proposed offset conservation areas are discussed further in Section 3.5.3.

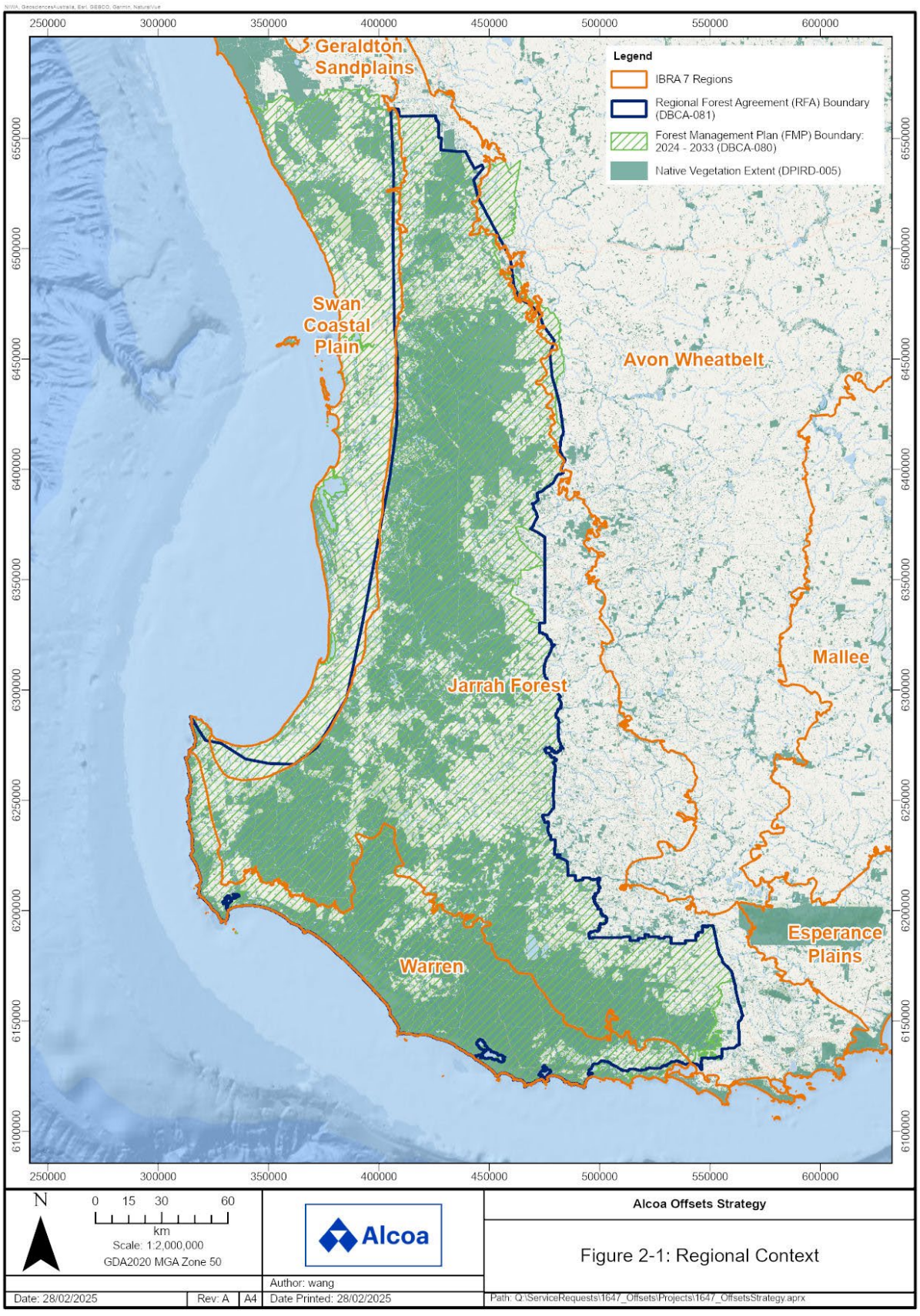

Figure 2-1: Regional Context

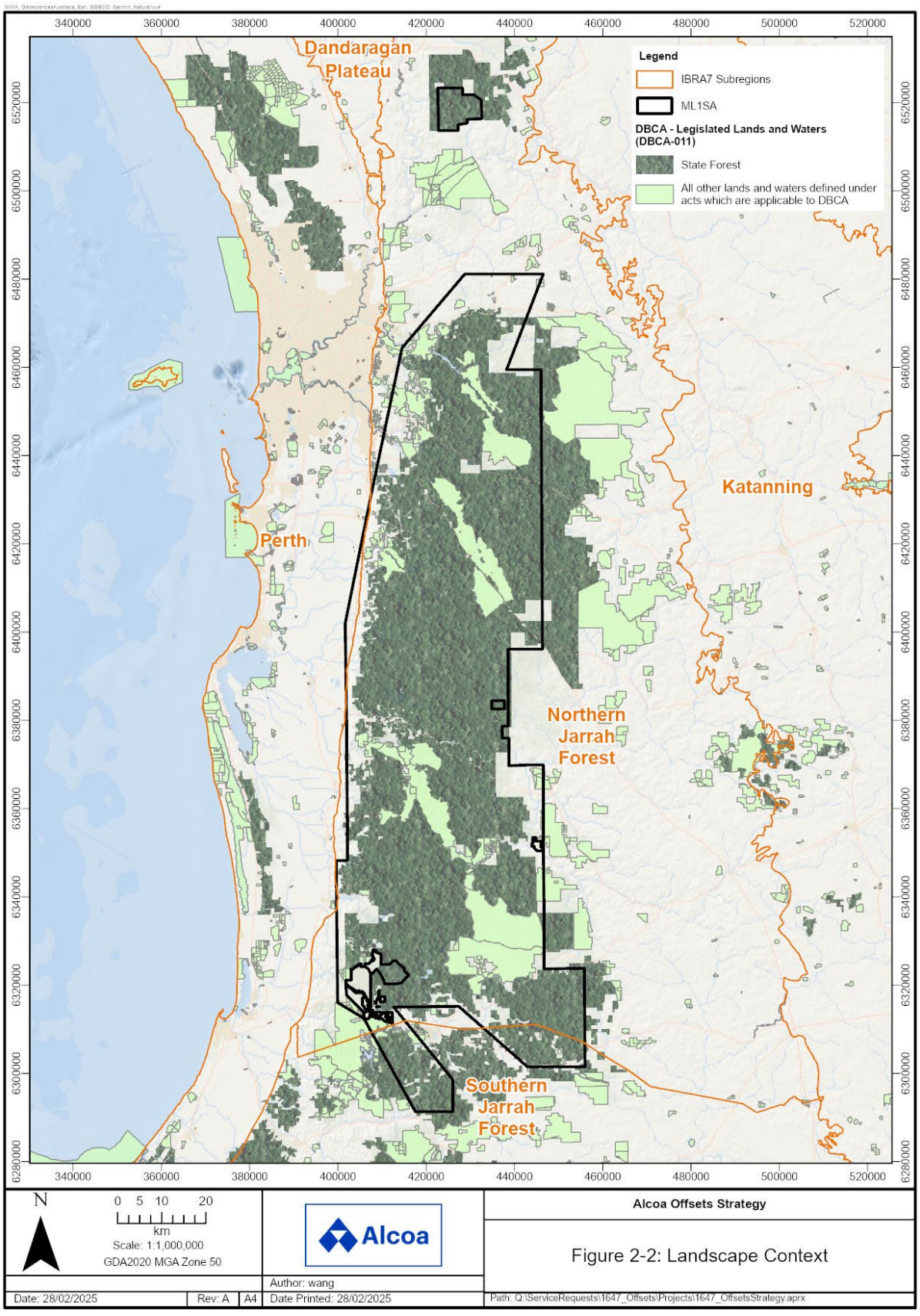

Figure 2-2: Landscape Context

2.3 Forest Management

Principles in the WA *Environmental Offsets Guidelines* (Government of Western Australia 2014) and the EPBC *Environmental Offsets Policy* (DSEWPaC 2012) state environmental offsets should be additional to what is already required, determined by law or planning regulations or agreed to under other schemes or programs.

The DBCA is responsible for the management of lands vested in the Conservation and Parks Commission, including State Forest (Conservation and Parks Commission 2023). 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.

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

To meet these offset principles, Alcoa's Environmental Offset Program will need to deliver conservation actions that support and are aligned with, but additional to those outlined at a high-level in the 2024-2033 Forest Management Plan (Conservation and Parks Commission 2023).

Alcoa also needs to consider how its Environmental Offset Strategy will improve outcomes for threatened species as set out in species recovery plans and threat abatement plans.

2.4 Recovery and Threat Abatement Plans

The jarrah forest provides habitat for threatened and priority flora, fauna and ecological communities. Common fauna in the jarrah 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 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 adopted, or if the species is removed from the threatened species list. Some recovery plans for threatened species are over ten years old[10], however the information on the species habitat requirements and recovery actions are still relevant and appropriate.

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.

Given this, Alcoa has needed to consider how conservation actions that align with recovery or threat abatement actions can be incorporated into the Environmental Offset Strategy. This includes the need to address the data gaps on species and/or their habitat presence/absence, abundance and distribution in the Northern Jarrah Forest.

2.5 Knowledge Gaps

Despite there being considerable research[11] 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.

2.6 Offset Approach Assessment

Alcoa considered the suitability of potential offset approaches, including land acquisition, restoration, revegetation and rehabilitation of natural areas outside the project area and research, in the context of the regional and regulatory environment.

Land acquisition and revegetation provide a strategic solution where many continuous large land parcels with limited to no vegetation can be revegetated to provide connectivity to other vegetated areas. Alcoa considered land acquisition and revegetation as a primary offset approach; however, this was considered cost-prohibitive, and not strategic or sustainable.

[10] The legislated sunsetting 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.
[11] 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.

Therefore, to deliver direct offsets, Alcoa considers the most appropriate and feasible approach is an Environmental Offset Strategy that funds and delivers on-ground conservation actions in the Northern Jarrah Forest that are additional to actions already undertaken. This provides an opportunity to support current forest management and close knowledge gaps while addressing the challenges around land tenure and vegetation extent in the region. This approach also aligns with WA and Commonwealth government offset policy and guidance (Government of Western Australia 2011, 2014, DSEWPaC 2012).

2.6.1 Land Acquisition and Revegetation Offset

The EPA (2024b) assessed land use in the NJF IBRA subregion into State Forest and timber reserves, conservation and other government areas. Using the EPA report, around 47 per cent of the NJF IBRA subregion is Crown or other Government land; around 48 per cent is private land holdings and around 5 per cent is other land uses. To put the 48 per cent private land holdings into context, Department of Primary Industries and Regional Development (DPIRD) shows around 34 per cent of the NJF IBRA subregion as potentially arable land[12] mapped within the Wheatbelt region, an area used for cropping of wheat and rural land uses.

Within ML1SA, most of the land tenure in is Crown Land[13] with up to 75 per cent State Forest or Timber Reserve and around ten per cent conservation reserves. The land tenure close to Alcoa's mining operations is also predominantly Crown Land classified as State Forest. The vegetation within ML1SA is predominantly intact native Jarrah-Marri Forest.

Alcoa has a modest property portfolio, however most of its freehold landholdings is within the Swan Coastal Plain bioregion. Alcoa's landholdings in the Northern Jarrah Forest are generally small (<50 hectares) and widely distributed.

Revegetating an isolated land parcel in a largely cleared area may provide some benefits for highly mobile species but may not support recolonisation if species need to cross large expanses of cleared areas. Thus, there is very little area available close to Alcoa's operations for environmental offsets that contain no or minimal native vegetation, limiting the opportunity for revegetation/restoration style offsets. For land acquisition and revegetation to be viable; Alcoa would need to acquire Wheatbelt (farming) land in the far north or south-eastern parts of the NJF IBRA subregion, or land on the low-lying Swan Coastal Plain – outside of the NJF IBRA subregion.

Given the area in and around Alcoa's operations is predominantly in-tact but disturbed jarrah forest vegetation, Alcoa looked at the opportunity to implement direct on-ground conservation actions that would enhance habitat and ecosystems within the jarrah forest.

2.6.2 On-ground Management

On-ground management includes improvement, conservation and rehabilitation of habitat areas that provide a measurable conservation gain for the impacted environmental value. Although the forest vegetation is generally intact, it is disturbed from activities including timber harvesting, fire and mining. Implementing conservation actions in State Forest would enhance existing vegetation and improve habitat functionality.

[12] Potentially arable land is land used or suitable for growing crops. For this report, potentially arable land is used as a proxy for land that does not contain native vegetation.
[13] DBCA - Legislated Lands and Waters (DBCA-011) accessed November 2024.

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.

This also aligns with the WA government expectation that significant residual impacts on the public conservation estate (including State forests) will be offset by actions and activities that benefit the estate (Government of Western Australia 2014).

2.6.3 Evaluation

In proposing to implement conservation actions in State Forest, Alcoa acknowledges the opportunities this offset approach provides.

The WA government intends to improve the conservation tenure of around 700,000 hectares within the FMP Planning area (Conservation and Parks Commission 2023). 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. Alcoa propose to work with government agencies to support additions to the conservation reserve system, particularly where a proposed offset conservation area is near to an existing conservation reserve or area proposed for addition into the conservation reserve system under the Forest Management Plan (Conservation and Parks Commission 2023). This also supports the Commonwealth target to protect and conserve 30% of Australia's landmass and 30% of Australia's marine areas by 2030 (the '30 by 30' target) (Commonwealth of Australia 2024).

Monitoring, surveys and research are required to understand how threatened species use the landscape (Conservation and Parks Commission 2023). Alcoa's Environmental Offset Program will provide data and information through 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.

Resourcing (funding and people, both skilled and unskilled) is an on-going constraint to the implementation of conservation actions (Conservation and Parks Commission 2022). 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. Noting that environmental offset projects may include land revegetation projects, where the land is available and suitable, and the action will contribute to the strategic environmental outcomes.

An Environmental Offset Strategy that implements environmental offset projects allows Alcoa to adapt the environmental offsets to changes in legislation or environmental conditions. The WA and Commonwealth offset frameworks call for strategic and holistic conservation outcomes for threatened flora, vegetation, ecological communities and fauna. Environmental offset projects can be revised or new projects included to respond to scientific findings, environmental changes or from learnings through implementing the projects in the

Northern Jarrah Forest. This allows Alcoa's Environmental Offset Program to be sustainable and relevant for the longer-term.

3. Environmental Offset Strategy

Alcoa is committed to conducting effective closure planning and rehabilitation at its operations to reduce any adverse impacts on affected communities, the environment and identified stakeholders. However, despite this, significant residual impacts to flora, vegetation, ecological communities and/or fauna may remain. This Environmental Offset Strategy outlines how Alcoa intend to offset future mining and/or mining related projects that require an environmental offset.

3.1 Overview

Alcoa will prepare an Environmental Offset Proposal for each future 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.

Alcoa's environmental offset projects are central to the Environmental Offset Strategy. The projects provide a systematic management approach to identified key issues and enable clearly defined conservation outcomes to be achieved. Environmental Offset Project Plans will detail conservation actions to be undertaken, the monitoring program and the timeframes

Offset Area Management Plans associated with each Environmental Offset Proposal will provide the specifics of the implementation of the environmental offset 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 Strategy has been developed to provide alignment and synergetic benefits across the Northern Jarrah Forest IBRA subregion.

3.2 Application

Alcoa's Environmental Offset Strategy 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 or fauna 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.

3.3 Suitability

Alcoa consider its Environmental Offset Strategy to be suitable as:

- **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 conditions can be applied to Environmental Offset Proposals, aligned to targets set 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 where a species has 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 plan 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.
- **Projects will provide landscape scale benefits:** Environmental offset projects will be designed to deliver ecological benefits across a large 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.
- **It has the potential to support additions to the conservation reserve system:** The 2024-2033 Forest Management Plan (Conservation and Parks Commission 2023) includes adding areas of State Forest, including in State Agreement Act areas, to the conservation reserve system. Alcoa can support increasing land in Comprehensive, Adequate and Representative reserves in the Northern Jarrah Forest through working with the DBCA, Traditional Owners, landowners/managers and government agencies.
- **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 and/or co-funding of projects.
- **It provides economic benefits to the WA and Commonwealth Governments.** Offset conservation areas will 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.** Delivery of environmental offsets through environmental offset 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.** Environmental offset project development will undergo a stringent selection process and Alcoa will report on project expenditure, progress and outcomes.
- **Is proportional.** The Environmental Offset Proposal will provide certainty for Alcoa and the regulator that the offset conditioned at the commencement of the proposal is proportional to the impacted environmental factor or matter.

3.4 Appropriateness

The delivery of environmental offsets through funding of conservation actions aligns with the WA *Environmental 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 Environmental Offset Proposal with the WA environmental offset policy principles and guidelines is presented in Section 4.2 and 4.3.

The delivery of environmental offsets through funding of conservation actions aligns with the EPBC Act *Environmental Offsets 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 the environmental offset projects will deliver direct conservation gains for protected matters.

The EPBC Act *Environmental Offsets 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 NJF IBRA subregion.

Further demonstration of the consistency of the Environmental Offset Proposal with the Commonwealth environmental offset policy is presented in Section 4.5.

3.5 Document Framework

This Environmental Offset Strategy is the overarching document in which Alcoa describes how it will systematically deliver the Environmental Offset Program. Alcoa will prepare an Environmental Offset Proposal for each future mining and/or mining related project that requires an environmental offset. 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 implementation of conservation actions. Offset Area Management Plans that describe the spatial area in which environmental offset projects will be implemented.

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 environmental offset project and/or proposed offset conservation area.
- Demonstrate appropriate governance, monitoring, reporting, compliance and evaluation relevant to each environmental offset project and proposed offset conservation area.

Figure 3-1 shows how the documents are organised.

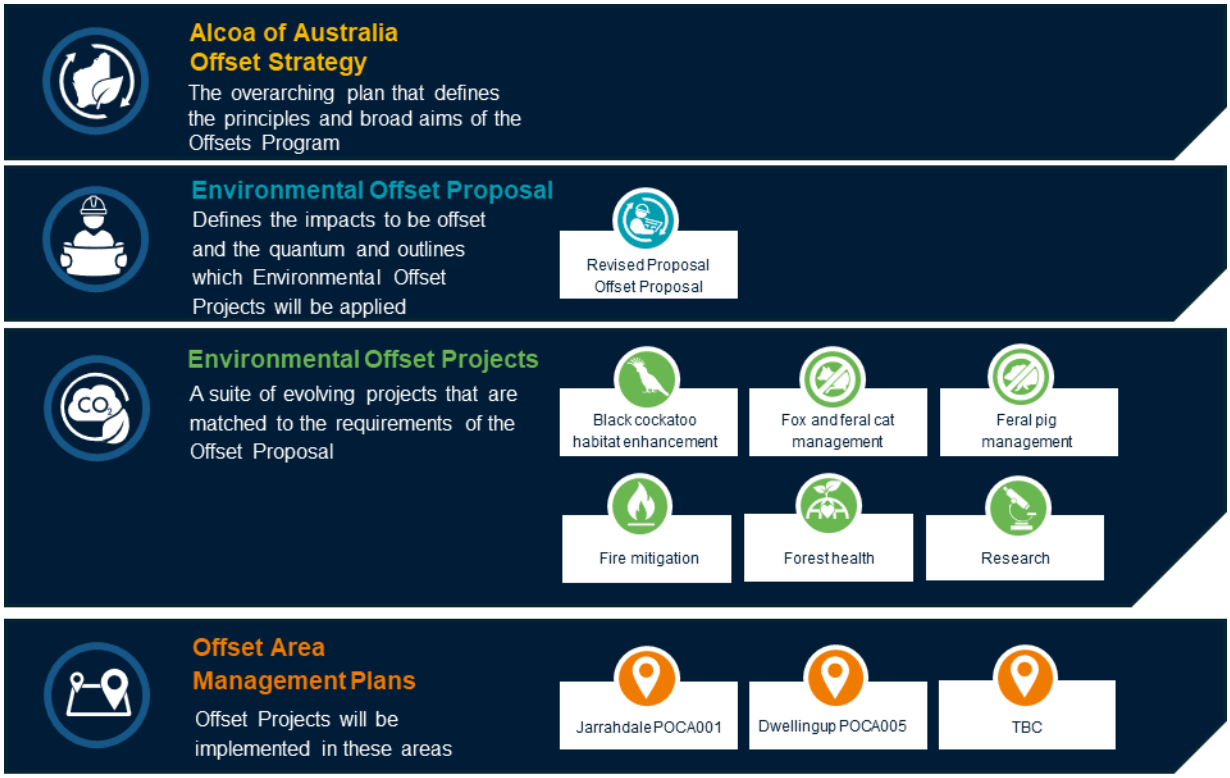

Figure 3-1: Environmental Offset Document Framework

3.5.1 Environmental Offset Proposal

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

- A summary of the Proposal/Controlled 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/Controlled Action is implemented.
- The significant residual impacts identified during the environmental impact assessment.

- Proposed objectives and outcomes from the implementation of the environmental offset project(s).
- The Environmental Offset Project Plan(s) that demonstrate how environmental outcomes specific to the significant residual impacts will be achieved through the conservation actions.
- The proposed offset quantum (in terms of hectares or funding of environmental offset 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 Environmental Offset Proposal.
- A risk assessment relevant to achieving the outcomes in the Environmental Offset Proposal.
- Consistency of the Environmental Offset Proposal with WA and/or Commonwealth offset polices and principles, recovery and threat abatement plans and/or other relevant plans.

The Environmental Offset Proposal will be provided to the regulatory body during the assessment of the relevant future 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).

Proposed Environmental Offset Project Plans and Offset Area Management Plans will be provided with the Environmental Offset Proposal.

3.5.2 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 detailed in the Environmental Offset Proposal.

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 targets 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 environmental offset project.
- A risk assessment relevant to achieving the outcomes in the environmental offset project.
- Delivery agent (or agents).
- Consistency of the environmental offset project with WA and/or Commonwealth offset polices and principles, recovery and threat abatement plans and/or other relevant plans.

Environmental offset projects will be implemented in proposed offset conservation areas, relevant to the project. Proposed offset conservation areas are described in Offset Area Management Plans.

3.5.3 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 Environmental Offset Proposal. Alcoa does not intend that a proposed offset conservation area is “shared” across multiple Environmental Offset Proposals[14]. 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 proposed 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 environmental offsets implementation commencement date.

[14] 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.

- 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 proposed protection mechanisms.
- Consistency of the proposed offset conservation area with WA and/or Commonwealth offset polices and principles, recovery and threat abatement plans and/or other relevant plans.

3.6 Governance

A team will be established within Alcoa to manage the delivery of environmental offsets conditioned in Ministerial Statements, EPBC Act Approvals or other regulatory instruments.

3.6.1 Offset Team

An Offset Team will be established. This team will call on existing and additional capability within Alcoa including relevant specialists and will be responsible for undertaking the day-to-day planning, administration and management of the Environmental Offset Program. The team will be responsible for ensuring the environmental offsets are implemented as conditioned or otherwise agreed with the Chief Executive Officer (CEO) of DWER and DCCEEW. This includes co-ordinating with delivery partners, arranging access to sites, obtaining licences and other requirements, and undertaking monitoring and reporting.

3.6.2 Offset Steering Committee

An Offset Steering Committee will be established and include Alcoa Senior Executives, who meet quarterly to review the delivery of approved Environmental Offset Proposals under approved Proposals and/or Controlled Actions and consider strategic approaches or requirements for environmental offsets under any future Proposals and/or Controlled Actions. This includes endorsing Environmental Offset Proposals and proposed offset conservation areas. The Offset Steering Committee will be responsible for oversight of the Offset Fund.

3.6.3 Offset Advisory Group

Environmental offsets will cross over multiple functional areas within Alcoa. The Offset Team will be supported and work closely with the key operational and functional teams, including mine planning, environment, sustainability and external affairs.

An Offset Advisory Group will consist of Alcoa technical specialists from the offset, biodiversity, ecology, rehabilitation and research teams. The 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 the business on environmental offset matters.
3. Work with key specialist agencies and research institutions to support the evaluation, monitoring and assurance programs, including providing advice on adaptive management where required.

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

3.6.4 Compliance

Alcoa has a separate compliance function within the business. This functional group will be provided with reports and assessments from the Offset Team. This will allow for an independent assessment and reporting of compliance with environmental offset conditions.

3.6.5 Stakeholder Reference Group

Alcoa proposes to establish a Stakeholder Reference Group to provide stakeholder and community inputs into our Environmental Offset Proposals, Environmental Offset Project Plans and the development of Proposed Offset Conservation Areas.

In addition to this Reference Group, Alcoa will continue to engage through its established forums and channels for community engagement. The membership of the group may be adjusted depending on the project or proposal area to meet community of interest expectations.

3.7 Funding

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

Alcoa proposes to fund environmental offset projects through transferring an AUD rate per approved hectare cleared each year into a self-managed fund on a prospective basis. The 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 will make annual payments into the fund based on the actual approved hectares cleared each year on a prospective basis after the Proposal or Controlled Action has been approved. The rate per hectare and payment schedule will be documented within the Environmental Offset Proposal document.

Note that governance and funding arrangements may be subject to change should offsets be adapted to incorporate support of broader regional offset initiatives, for example if a government or private fund akin to the Pilbara Environmental Offsets Fund is developed for the South-west.

3.8 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, WA Government 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.

3.9 Consultation

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

4. Consistency with Offset Policies and Plans

Environmental offsets should be consistent with the policies and principles in the WA *Environmental Offsets Policy* and *Environmental Offsets Guidelines* (Government of Western Australia 2011, 2014) and the EPBC Act *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 Flora and Vegetation and Terrestrial Fauna key environmental factors.
- Meet the principles of the WA Environmental Offset Policy and Guidelines.
- Meet the principles of the EPBC Act Environmental Offsets Policy.
- Meet the EPA's Public advice on regional scale environmental offsets.
- Meet appropriate recovery plan objectives.

4.1 EPA Environmental Factors

Alcoa's Environmental Offset Strategy meets 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.

4.2 WA Environmental Offsets Policy

Table 4-1 demonstrates how the Environmental Offset Strategy is consistent with the six principles identified in the WA *Environmental Offset Policy* (Government of Western Australia 2011).

Table 4-1: 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.	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. Alcoa successfully rehabilitates cleared areas post-mining.
Environmental offsets are not appropriate for all Proposals.	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, WA and local economies. 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. 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).
Environmental offsets will be cost-effective, as well as relevant and proportionate to the significance of the environmental value impacted.	Funding environmental offset projects is a cost-effective and relevant offset for the scale of Alcoa's operations. Financial contributions toward environmental offset projects are additional to current conservation actions. The funding will be targeted to conservation actions in important habitat areas. The Environmental Offset Strategy provides certainty to the Commonwealth and WA Governments that Alcoa is committed to ongoing and long-term funding to implement conservation actions in the region. Environmental offset projects will deliver conservation benefits for the impacted species and will be aligned to complement or support other conservation actions implemented in the region.

Principle	Consideration
Environmental offsets will be based on sound environmental information and knowledge.	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 eco-system in the Northern Jarrah Forest. 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. 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. 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 environmental offset projects. Only environmental offset projects where the anticipated targets, 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. 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.
Environmental offsets will be applied within a framework of adaptive management.	Contingency actions will be built into environmental offset projects to account for risks of unexpected events. The Environmental Offset Project Plan will effectively account for and manage the risk of the project not succeeding.
Environmental offsets will be focused on longer-term strategic outcomes.	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. 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.

4.3 WA Environmental Offsets Guidelines

Table 4-2 demonstrates how the Environmental Offset Strategy meets the key concepts and requirements of the WA *Environmental Offsets Guidelines* (Government of Western Australia 2014).

Table 4-2: Application of the principles in the WA Environmental Offset Guidelines

Concept	Consideration
Type	**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. **Indirect**: The Environmental Offset Program will include research projects that support direct conservation actions and improve the understanding and scientific knowledge of species in the Northern Jarrah Forest.
In proximity to area of impact	The environmental offset projects allow benefits to be delivered closer to the area of impact. For example, within mine avoidance zones or areas of State Forest close to the mining activities. Environmental offset projects will aim to support additions to the conservation reserve system and implement recovery actions as close to the impacts as possible. Alcoa will consider priority areas for protection for impacted species in other bioregions if that provides the best conservation outcomes. Areas for addition to the conservation reserve system will be agreed following consultation with WA Government agencies, regulators and Traditional Owners.
Similar or better vegetation condition than area impacted	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.
Similar habitat structure to undisturbed examples of impacted vegetation type	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.
Has a better area to perimeter ratio than the area impacted	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.
Contains additional rare or otherwise significant species	As the spatial location of the environmental offset projects have not yet been determined this cannot be addressed. However, within the

Concept	Consideration
and threatened species or community compared with the impact site	Northern Jarrah Forest the habitat is used by many different species, 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 environmental offset projects are developed. However, one of the aims of the Environmental Offset Strategy is to incorporate additional areas into the conservation reserve system. 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 Strategy is to enhance connectivity. This will be achieved through 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	Alcoa are consulting with landowner and managers and Traditional Owners to agree management arrangements in State Forest. 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.
Sound knowledge and adaptive management	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 eco-system in the Northern Jarrah Forest. 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. 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. 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 environmental offset projects. Only environmental offset projects where the anticipated targets, 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. 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.

Concept	Consideration
	Environmental offset projects will be applied within a framework of adaptive management. Contingency actions will be built into the Environmental Offset Project Plans to account for risks of unexpected events and will effectively account for and manage the risk of the environmental offset project not succeeding.
Likely offset success. Can the values be defined and measured? What is the operator experience / evidence of previous success?	The Environmental Offset Program is likely to be a success. Alcoa has a long established history of operating in the in the Northern Jarrah Forest, including extensive research and experience in rehabilitation following mining. 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. 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.
Time lag	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.
Long term strategic outcomes	Alcoa's Environmental Offset Strategy will implement environmental offset projects that provide long term strategic outcomes for impacted species. This may be delivered through a combination of adding important habitat areas into the conservation reserve system, installation, management and maintenance of key habitat features, reduction in threats and increased knowledge.
Offset quantification	Environmental offset project areas will be quantified through an AUD rate per approved hectare cleared each year transferred into a self-managed fund on a prospective basis and the outcomes proposed in an Environmental Offset Proposal for each approval. The value of funding towards environmental offsets will be agreed with the EPA and DCCEEW to ensure it is proportionate to the significance of the environmental values impacted.

4.4 WA EPA Guiding Principles

Table 4-3 demonstrates how the Environmental Offset Strategy considers the guiding principles set out in the EPA's Public Advice: Considering Environmental Offsets at a Regional Scale (EPA 2024a).

Table 4-3: Consideration of the guiding principles in the EPA's Public Advice

Guiding Principle	Consideration
Prioritise restoration offsets	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 has assessed the appropriateness and suitability of its land parcels within the Northern Jarrah Forest for restoration, but most of the land parcels are small and scattered and therefore may not provide a strategic benefit. Alcoa has therefore identified that environmental offset projects that protect and enhance existing vegetation and habitat against current and emerging threats at a regional scale will provide better positive outcomes for impacted species. Further information has been provided in Sections 2.2, 3.3 and 3.4.
Be consistent with new and emerging regional plans, reserve management plans, recovery plans, strategic programs and other regional level protection instruments	Alcoa has developed this Environmental 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. Environmental offset projects will consider current species recovery plans, threat abatement plans, and any relevant peer-reviewed research or scientific findings. The Environmental Offset Strategy 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. Further information has been provided in Sections 2.3, 2.4 and 4.6 of this document.
Builds and maintain resilience in ecological functions and ecosystem services	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. 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

Guiding Principle	Consideration
	consider the overall ecosystem balance within the offset conservation areas.
Contribute to environmental knowledge of a region	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 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. Further information has been provided in Section 3.3.
Provides outcomes that are like for like, or are similar to the impacted value Demonstrate connectedness of the physical or ecological function values with those being impacted	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. As above, Alcoa intends to locate offset conservations areas that are near to or adjoin existing or proposed conservation reserves. Further information has been provided in Section 3.3.
Provide greater co-benefits	Environmental offset projects that enhance vegetation and habitat in the Northern Jarrah Forest 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 Strategy will provide cultural, heritage and social benefits through employment, training and recreational opportunities. Alcoa are consulting with relevant stakeholders including Traditional Owners, environmental groups, government agencies and the community to ensure the co-benefits are valuable. Further information has been provided in Section 3.3.

4.5 Commonwealth Environmental Offsets Policy 2012

Table 4-4 demonstrates how the Environmental Offset Strategy is consistent with the principles identified in the EPBC Act *Environmental Offsets Policy* (DSEWPaC 2012).

Table 4-4: Consistency with Commonwealth Environmental Offset Policy

Principle	Consideration
Suitable offsets should 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	The Environmental Offset Strategy will deliver environmental offset projects that align with species recovery plans and provide landscape scale conservation outcomes for impacted species.
Suitable offsets must be built around direct offsets but may include other compensatory measures.	The Environmental Offset Strategy 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). A minimum of 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.
Suitable offsets must be in proportion to the level of statutory protection that applies to the protected matter. Suitable offsets must be of a size and scale proportionate to the residual impacts on the protected matter.	Environmental offset project areas will be quantified through an AUD rate per approved hectare cleared each year transferred into a self-managed fund on a prospective basis and the outcomes proposed in an Environmental Offset Proposal for each approval. The value of funding towards environmental offsets will be agreed with the EPA and DCCEEW to ensure it is proportionate to the level of statutory protection that applies to the protected matter, and the residual impacts to the protected matter.
Suitable offsets must effectively account for and manage the risks of the offset not succeeding.	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: • 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. The risk of any of the environmental offset projects not succeeding will be managed through:

Principle	Consideration
	• 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. • Implementation of conservation actions by suitably qualified and skilled personnel or organisations. • Staged implementation of offsets (offsets will be implemented that align with the impacts). • Consideration of alternate offset options, including on-ground management at a regional scale.
Suitable offsets must be additional to what is already required, determined by law or planning regulations, or agreed to under other schemes or programs	The State Agreement requires that Alcoa pay: • Compensation to the WA Government for each hectare of forest cleared in relation to its mining activities; • An annual payment to DBCA for services provided that enable safe and efficient performance of Alcoa's mining operations; and • An allocation towards Northern Jarrah Forest enhancement projects. Alcoa is also required under the State Agreement, to progressively restore and re-afforest the areas cleared for mining. Environmental offset projects will provide conservation actions over and above the current requirements of the State Agreement or Ministerial Statements. 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. 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.
Suitable offsets must be efficient, effective, timely, transparent, scientifically robust and reasonable	The Environmental Offset Strategy 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-

Principle	Consideration
	term or small-scale projects that provide “quick wins” and longer-term landscape scale projects. The Environmental Offset Strategy provides transparency to the EPA, DCCEEW and public through annual project progress reports and/or updates. Environmental offset project progress and outcomes will be communicated with WA and 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. 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. The Environmental Offset Strategy is a reasonable approach for delivering environmental offsets for Alcoa’s approved mining operations as: • 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 3.3 and 3.4.
Suitable offsets must have transparent governance arrangements including being able to be readily measured, monitored, audited, and enforced	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. Alcoa will be required to provide annual compliance reports to DWER and DCCEEW. These reports will be publicly available. Governance arrangements include establishment of a steering committee, auditable offset project selection and outcomes, reporting protocols and financial provisions. Outcomes stated in Environmental Offset Proposals can be measured (and/or audited) through:

Principle	Consideration
	• Demonstration that conservation actions in Environmental Offset Project Plans are being implemented. • Progress towards outcomes, milestones and deliverables stated in Environmental Offset Project Plans. Environmental offsets are also enforced through legal requirements of Ministerial Statements and/or EPBC Act approval conditions. Delivery of environmental offsets through third parties on Alcoa's behalf will be enforced through contractual arrangements. Further justification is provided in Section 3.3 and 3.4.

4.6 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 Strategy, whereby new research findings and updates to conservation advice documents and recovery plans will be incorporated into environmental offset projects.

5. Conclusion

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

Alcoa has proposed this Environmental Offset Strategy 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 WA 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 Strategy 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 WA Government to support additions of State Forest into the conservation reserve system. 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 can be adaptive and flexible in the delivery of conservation actions over long timeframes. This can include research projects to address gaps in knowledge prior to undertaking on-ground actions.

The Environmental Offset Strategy 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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