Have your say on Alcoa's forest mining expansions

WA FOREST ALLIANCE SUBMISSION GUIDE

SHORT VERSION

CLOSES 21 AUG

Alcoa's Pinjarra Alumina Refinery Revised Proposal (Assessment 2253)
& Bauxite Mining on the Darling Range for 2023-2027 (Assessment 2385)

Deadline for public submissions: 21 August 2025

WAFA
WA FOREST ALLIANCE

Two proposals by Alcoa to clear nearly 11,500 ha of the Northern Jarrah Forest (NJF) for bauxite mining are now under assessment by the Environmental Protection Authority (EPA). It is critical that the EPA hears from people who are concerned, so that they reject these proposals and protect the NJF.

Submissions are due by 21 August 2025.

WA Forest Alliance (WAFA), the End Forest Mining campaign and independent experts summarised the Environmental Review Documents (ERDs) - a whopping 18,000 pages - into this short guide to assist people in making submissions. The more that you are able to include your own personal concerns, evidence, suggestions and additional information, the better.

A longer, more comprehensive, fully referenced guide is available at **wafa.org.au/alcoa**.

Please don't delay in getting your submission in. Pass this guide on to friends and family and encourage them to also make a submission.

THE NORTHERN JARRAH FOREST

The NJF is incredibly precious. It is home to an astounding number of plants and animals that exist nowhere else on Earth, as well as tens of thousands of years of Noongar heritage. The NJF provides critical habitat for endangered species, including mainland Quokkas and Black Cockatoos, and draws down huge volumes of carbon from the atmosphere. The NJF also regulates rainfall and temperature along the Darling Scarp and provides catchments for major rivers from Perth down to Collie, playing an important role in Perth's drinking water supply.

But, over the past 150 years the NJF has been subjected to extensive logging and clearing for timber, agriculture, housing, infrastructure and mining. Since the 1970s, rainfall in the region has declined by 20% and the UN has recognised the NJF as one of a handful of Australian ecosystems most at risk of climate collapse. (Lawrence et al. 2022, 1636). This risk can be mitigated by avoiding forest degradation, but to achieve this and give the NJF a chance of survival, we cannot allow Alcoa's forest mining to continue.

WHAT DOES ALCOA PROPOSE TO DO?

Alcoa is a US-owned mining company that has been operating in WA since 1961 under a State Agreement with the WA Government. This Agreement has meant that most of Alcoa's operations, including already clearing over 28,000 ha of forests, have been approved behind closed doors. **This is the first time in over 60 years that the public have the opportunity to have their say on the company's mining operations.**

The EPA is assessing Alcoa's Pinjarra Alumina Refinery Revised Proposal (Assessment 2253) and Bauxite Mining on the Darling Range for 2023-2027 (Assessment 2385). When referring to both, we will use the term 'the Proposals'.

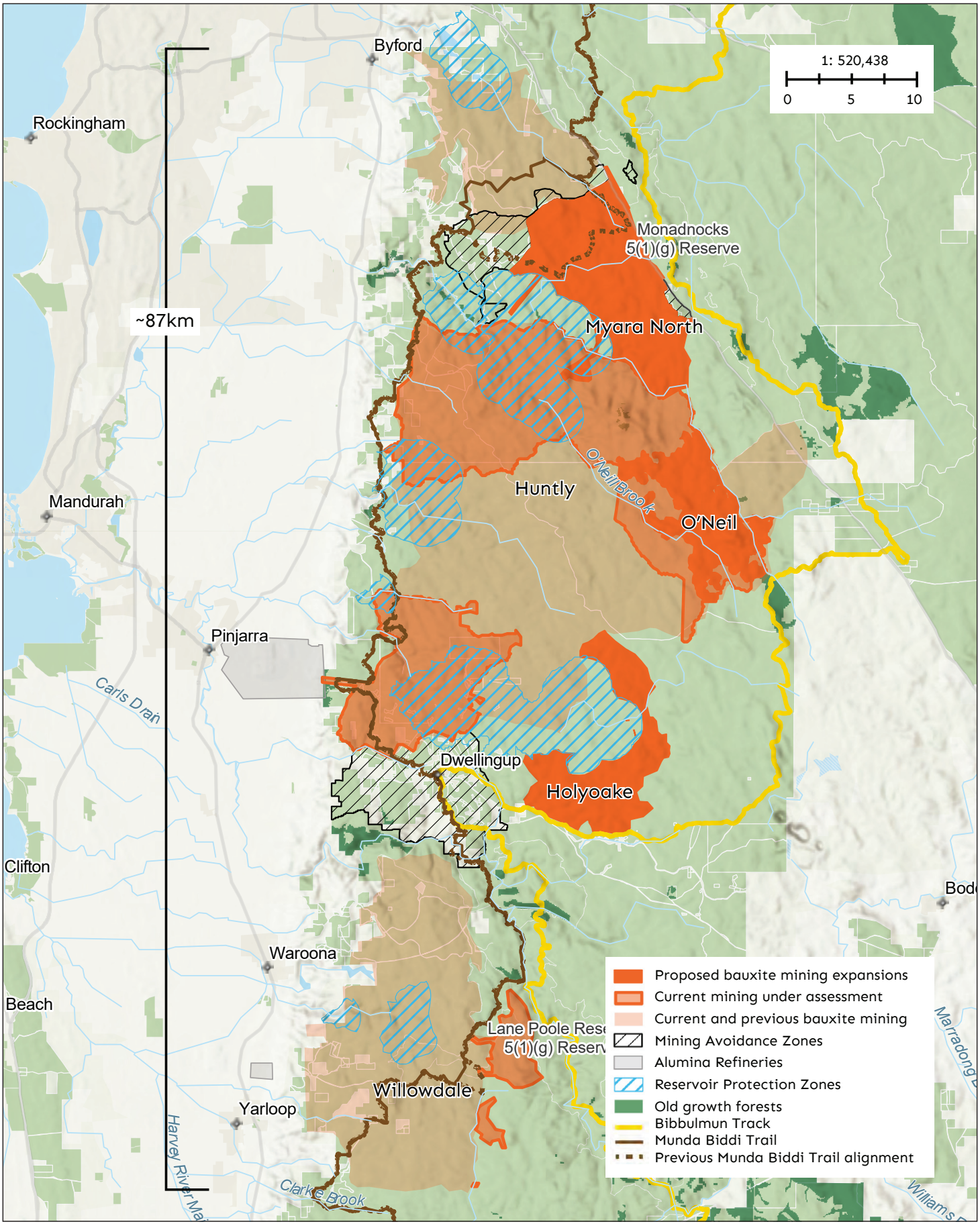
Assessment 2253 - what we call **the Expansion** - involves 7,500 ha across Myara North, O'Neil and Holyoake Mine Development Envelopes (DEs) over 20 years. The Expansion would also increase production at the Pinjarra Alumina Refinery by 5%. References to the Expansion ERDs are marked as (EX chapter number - page number).

Assessment 2385 - **the MMP** - involves 3,958 ha of clearing in Huntly and Willowdale Mine DEs. It assesses Alcoa's current mining as part of its 5-year rolling Mining Management Program 2023-2027. The Cook Labor Government allows Alcoa to continue clearing despite the assessment. The assessment also covers 178,340 ha of further exploration across the Darling Range from Mundaring to Collie. References to the MMPs ERDs are marked as (MMP 'page number').

Combined with existing clearing, by 2045 Alcoa alone could have cleared **more than 45,000 ha of NJF**. When combined with clearing by other companies like South32 and Newmont, this rises to **over 72,000 ha** - an area larger than Perth's entire metro footprint. And, if just a quarter of current exploration areas are mined, **up to 120,000 ha of NJF could ultimately be lost**. The total area impacted may **double or even quadruple** if considering the effects of fragmentation (Forestry Australia 2022).

Both assessments are under Public Environmental Review (PER), the highest level of assessment possible by the EPA. **Together, it is the largest amount of forest clearing ever before the EPA.**

Note: You can only make one submission to the EPA, on one or both Assessments. You cannot make separate submissions on the two Assessments.



Map 1. Overview of Alcoa's operations in the NJF, old growth forests, major trails, and reservoir protection zones.

The Expansion is shown as 'Proposed bauxite mining expansions', and the MMP areas under assessment as 'Current mining under assessment'. In addition, Alcoa's current mining, not under assessment, is shown as 'Current and previous bauxite mining'. As can be seen in Map 1, old growth forests are adjacent or within the Expansion and MMP. MMP mining and Expansion infrastructure overlap with Reservoir Protection Zones. The Expansion is also adjacent to the Bibbulmun Track, and the Munda Biddi Trail has been rerouted preemptively to avoid the Expansion.

MAKING YOUR SUBMISSION

There are three ways you can submit: online through the EPA portal, or hard copy or USB files delivered by post or in person. You can find the relevant addresses, the online survey, Alcoa's two ERDs and more resources at **wafa.org.au/alcoa.**

Formatting your submission

Your submission will be the most effective if you organise it into sections defined by the

environmental factors that the EPA assesses these proposals against: Flora and Vegetation; Terrestrial Fauna, Terrestrial Environmental Quality, Inland Waters, Social Surroundings, Air Quality and Greenhouse Gas (GHG) Emissions.

The online survey has different boxes for these factors, and for **additional responses to Rehabilitation, Holistic Impacts, Stakeholder Engagement and other matters** you want to raise. Fill in one or more of these boxes, or simply upload documents at the end. You are encouraged to expand on any sections and add your own personal experience and views, including why you value the NJF.

Submissions can be **text-based or oral**, by submitting video or audio files. Make sure to specify whether you want Alcoa to be able to view your video or not.

The EPA's key environmental principles for this assessment are;

- **the precautionary principle**, which means taking conservative action to prevent potential harm when there's no complete scientific certainty about the risk. Better safe than sorry.
- **intergenerational equity**, the principle of fairness and justice between different generations, ensuring that current actions do not negatively impact the well-being or opportunities of future generations, and
- **conservation of biological diversity and ecological integrity**.

For relevant resources visit wafa.org.au/alcoa

The EPA should recommend the Expansion not be approved, under any conditions, and that mining under the MMP be phased out under strict conditions that, in part, prevent Alcoa from extending its mining beyond that which is already planned.

Abbreviations

DBCA	Department of Biodiversity, Conservation & Attractions
EPA	Environmental Protection Authority
ERD	Environmental Review Document
EX	Expansion (used in citation shorthand, e.g., EX 7-26)
GHG	Greenhouse Gas
ha	Hectare

MAZ	Mining Avoidance Zone
MMP	Mining Management Program
NJF	Northern Jarrah Forest
PER	Public Environmental Review
RPZ	Reservoir Protection Zone
WA	Western Australia
WAFA	Western Australian Forest Alliance

HOLISTIC IMPACT ASSESSMENT

EPA question: Provide comment on the holistic impact assessment, having regard to the overall environmental effects of the proposal(s).

Mature Jarrah forest. *Photo: Donna Chapman*

A holistic environmental impact assessment looks at how different effects connect and build up over time, to see the bigger picture and long-term risks of a project. This helps to create more responsible decision making.

1. Holistic assessment is inadequate

Alcoa has not properly analysed the Proposals' impacts for the 'environment as a whole', missing critical connections across systems, scales, and time. The EPA should reject the holistic assessment for a proposal of this scale based on:

- Many interactions and critical connections are missing or not properly described/assessed.
- Many conclusions are based on assumptions. Effects should be quantified.
- Effects of climate change are largely ignored.
- No new insights or mitigation measures based on the holistic assessment are provided.
- Different possible scenarios for the NJF (such as ecological tipping points) are not presented: only best-case outcomes from mitigation and offsets.

Without a true holistic view, the combined effects of ongoing clearing, inadequate rehabilitation, greenhouse gas emissions, and climate change will cause long-term forest degradation and species loss. Human health impacts must also be considered.

2. Strategic Advice is needed for the entire NJF bioregion.

We recommend that the EPA undertake a Strategic Assessment under section 16(e) of the Environmental Protection Act for the NJF bioregion.

This process would:

- Fully assess cumulative impacts across the region
- Determine and address major knowledge gaps and
- Advise the WA Government on long-term forest management, beyond project-by-project approval.

FLORA & VEGETATION

EPA objective: To protect flora and vegetation so that biological diversity and ecological integrity are maintained.

1. Clearing cannot be justified

Alcoa proposes to clear predominantly Jarrah-Marri forest. It downplays the impacts on the high biodiversity and ecological value of this forest by stating it is abundant in the region. Alcoa does admit that local plant diversity and structure will be lost due to its mining. Destroying more of it ignores its ecological value and past, current and future clearing by Alcoa and other companies. Being relatively widespread doesn't make up for what's lost on-site, in the context of other threats.

2. Alcoa misrepresents residual impacts on flora and vegetation

Alcoa admits the Expansion will cause a loss of plant diversity and forest structure, but claims the impacts are only "partial" and "short-term" (30 years if rehabilitation is successful). This is misleading because:

- Mature and well-functioning Jarrah forest takes more than 100 years to recover, if at all.
- Large, tall Jarrah trees are unlikely to return after mining (Campbell et al. 2024, see Rehabilitation).
- Climate change is expected to alter forest structure, making recovery even harder (Matusick et al. 2016, Water Corporation 2022, 7).
- Rehabilitation cannot fully restore biodiversity or ecosystem integrity, particularly not within 30 years.
- Alcoa also ignores future mining that may result from planned exploration.

3. Clearing resets the process of forests maturing by over 100 years

Alcoa downplays the impacts of clearing forests that are mostly younger than 70 years, stating only 10–15% is mature (EX 5-27, MMP 190). Yet, these forests are still recovering from past logging and are essential for long-term ecological function. Mature forests are vital for biodiversity, bushfire resilience, and wildlife habitat. Clearing juvenile forest delays forest maturation by at least another century, but with cumulative climate effects, this may be forever.

4. Surveys for conservation significant flora are inadequate

Alcoa admits flora surveys were limited: for the MMP 10 Priority species were found, but only a mere 2% of Huntly was surveyed and no surveys were done at Willowdale. Twenty species are known or likely in the Expansion area, but Alcoa admits there might potentially be more (EX 5-88). As further threatened flora may be present, the EPA must apply the precautionary principle when assessing direct and indirect impacts of clearing on flora.

Isopogon. *Photo: PHCC*

Die-off. *Photo: Joe Fontaine*

5. Climate change adaptation and avoidance strategies must be required

Alcoa cites the Intergovernmental Panel on Climate Change (IPCC) findings that clearing reduces forest resilience in the NJF, but still claims the Proposals "will not contribute" to climate threats. No avoidance or adaptation measures are proposed, even though the NJF is already suffering major climate change impacts such as recent die-off events. Climate-ready planning must be required.

6. Fragmentation and edge effects are ignored or minimised.

Alcoa's mining fragments forests into isolated patches, affecting surrounding forests and thereby doubling or quadrupling the total area affected. Alcoa's claims that fragmentation won't impact conservation significant flora (EX 5-188) ignores this. Comprehensive assessment, monitoring and mitigation on fragmentation and edge effects must be required.

7. Precautionary and clearly defined buffers must be mandated.

Alcoa's proposed Mining Avoidance Zones (MAZs) and clearing minimization and disturbance limits aren't supported by solid survey data, clear mapping, or enforceable conditions. Buffer zones must be mandated for:

- Priority flora.
- Old growth forests, with a minimum 2 km buffer to safeguard them as critical habitats for the future.
- For theThreatened Ecological Community (TEC), Empodisma peatlands, a minimum 50–100 m buffer is needed to maintain their integrity. Further recommendations of the recent Auditor General's report Conservation of TECs should also be adopted.

Given Alcoa's poor compliance record, enforceable conditions, independent monitoring and clear remediation triggers are essential.

REHABILITATION

EPA question: Provide comment on the proposed rehabilitation program, including the completion criteria.

Alcoa rehabilitation in Jarrahdale.

Alcoa's rehabilitation cannot justify approval of the Proposals.

1. Alcoa's rehabilitation performance claims are false

Alcoa relies heavily on species richness as a measure of rehabilitation success, but this is misleading. Independent reviews (Stantec 2023; Campbell et al. 2024) show that:

- Species composition is very different from unmined forest and key species (such as Banksia grandis) are not included in rehabilitation targets.
- Even after 25 years, restored areas have much lower understorey cover, and fall short in functional diversity.
- Marri regeneration is failing, requiring large-scale replanting with no clear plan for success.
- Alcoa's proposed biodiversity indicators do not align with the ecological integrity of the NJF.

> After 60 years, none of Alcoa's rehab areas have been officially completed (Milne 2023).

This shows that rehabilitation is not a reliable way to fix the serious environmental damage from the Proposals and cannot be accepted as mitigation. After 60 years, none of Alcoa's rehab areas have been officially completed (Milne 2023). Mining permanently removes the bauxite layer that the Jarrah forest depends on, yet Alcoa continues to claim it can replace these complex ecosystems. The EPA must critically assess this claim in light of clear, independent evidence showing it doesn't work.

2. Draft revisions of completion criteria must be provided.

The current 2016 completion criteria for rehabilitation are under revision between Alcoa and the Department of Biodiversity, Conservation and Attractions (DBCA). Without seeing at least a draft of the new criteria, the public and the EPA cannot evaluate their suitability. Approval must not proceed until this critical information is available.

3. Completion criteria must include fauna-specific targets

There are currently no species-specific completion criteria or recovery targets for fauna. Monitoring only records whether individual animals are present, not whether viable populations are re-established. Fauna-specific targets must be included, along with improved evaluation of rehabilitation as a functioning habitat.

4. Climate change effects must be addressed.

We urge the EPA to reject Alcoa's assumption that climate change will not affect rehabilitation success. Yet there is no published evidence on how current rehabilitation completion criteria responds to drought or water stress (Stantec 2023). Hence, Alcoa's claims rely on best-case assumptions. Success also depends on effective site preparation, but failures have been documented repeatedly.

5. Known rehabilitation backlogs must be resolved first

Alcoa has not kept rehabilitation on pace with clearing, leading to a backlog worsened by seed shortages, inadequate pit preparation and lack of remedial action. This backlog must be addressed before any new clearing is approved.

6. Removal of bauxite is an irreversible barrier to full restoration.

Rehabilitation failures can be linked to mining having removed the bauxite on which the Jarrah forest ecosystem has evolved. No matter what Alcoa claims, even the best rehabilitation efforts do not - and cannot - restore the Jarrah forest, and this must be recognised in the EPA's assessment.

7. It is not acceptable for the Proposals to go ahead – under any conditions – until the above issues are addressed.

Erosion in a mine site. *Photo: Donna Chapman*

TERRESTRIAL ENVIRONMENTAL QUALITY

EPA objective: To maintain quality of land and soils so that environmental values are protected.

1. Alcoa significantly alters the soil structure.

Alcoa's mining removes 4-6 m of bauxite and then replaces the stored topsoil, sandy gravel overburden, and ripped substrate clay to form slopes and furrows (EX 7-26), significantly altering the landscape. Loss of soil water capacity may impact plant growth due to the removal of 'about 2m of loamy soils' (EX 7-27).

The company continues to claim the loss of bauxite 'has not been observed to result in impaired growth or health of rehabilitation' (EX 7-27), even though this has been disproven by scientists (see Rehabilitation).

2. Alcoa's pit preparation is inadequate.

To reduce erosion risks in rehabilitation, slopes must always be less than 18 degrees when soil is put back, according to Alcoa's own MMP commitments. For the expansion, Alcoa proposes to minimise erosion by doing what it says it already does - with reporting on self-certification failures, and occasional inspections by DBCA resulting in remediation (EX 7-37, MMP 429). Visual evidence shows that these slope conditions are not consistently being met, suggesting a concerning gap between planning and on-ground compliance. **Alcoa should be held immediately accountable for any breaches.**

Steep mine pits.

TERRESTRIAL FAUNA

EPA objective: To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.

1. The scale of habitat loss is substantial and long-term.

Across the two Proposals, 11,458 ha of fauna habitat will be cleared - a figure Alcoa downplays by stating the clearing is 'limited' relative to the broader NJF and that the vegetation is well represented elsewhere. But this figure includes large areas of 'contiguous intact forest' with high habitat quality - rated 'good' to 'excellent' for 75% of the Expansion and 'high' or 'medium' for 90% of the MMP area (EX 6-26, MMP 335-37). This forest is also ecologically connected to Lane Poole, Monadnocks and Serpentine conservation reserves. Such clearing constitutes a significant and lasting impact on threatened and other fauna.

2. The impact on fauna habitat is also much greater than direct clearing.

Alcoa acknowledges potential significant impacts for local populations from both Proposals, but considers these to be largely mitigated by: habitat clearing being 'limited' relative to their regional extents, clearing avoidances, fauna dispersals, and rehabilitation.

This ignores competition for habitat, fragmentation and long-term impacts of failing rehabilitation (see Rehabilitation) exacerbated by climate change, including changes in flowering times of critical food sources.

The only **long-term impacts Alcoa recognises are losses of coarse woody debris (CWD) and mature trees** (EX 6-207, EX 17-4, MMP 367). CWD and tree hollows provide shelter, breeding habitat, invertebrate microhabitats and are **key elements of fauna habitat quality and ecological integrity** (EX 6-177).

Species such as Chuditch require large, connected habitats. Alcoa admits fragmentation could disrupt breeding and foraging but calls it "temporary" (<10 years) before rehabilitation (EX 6-185).

Chuditch. *Photo: Clarissa Human*

Speaking more broadly about fragmentation impacts, 15–20 years duration is stated (EX 6-148). This overlooks population declines that can occur in the meantime and fails to account for the already threatened status of many species, and must be assessed accordingly in both Proposals.

No evidence is provided that rehabilitation provides equivalent food or foraging quality for Black Cockatoos: Alcoa admits that foraging within mine rehabilitation is lower compared to unmined forest.

3. Avoidance areas are insufficient.

Alcoa proposes to 'avoid or minimise clearing high value habitats' (EX 6-190) for several key species (e.g., Black Cockatoos, Woylie, Chuditch, short-range endemics). Any mining avoidance is welcome, and is first in the EPA's mitigation hierarchy, but it requires clear definition and regulatory oversight. The relatively small-scale avoidance measures do not compensate for the forever loss of 'contiguous intact' forest habitat in the Proposal areas.

4. Alcoa claims direct fauna deaths from clearing will be 'low', but provides no evidence.

Alcoa assumes animal deaths from clearing will be low because it is 'progressive and staged' and occurs near unmined forest. Yet no data is presented to support the idea that fauna can reliably flee or survive (EX 6-207). Alcoa also acknowledges that the fleeing of animals may cause competition for habitat in other areas, but downplays it as temporary (MMP 362).

5. Alcoa's rehabilitation claims for fauna habitat are inconsistent and not credible.

Alcoa places great weight on the mitigation of impacts on fauna through rehabilitation. Alcoa claims most terrestrial vertebrate species' populations will be restored in about 10 years, excluding Woylie and reptiles, while invertebrate biodiversity will be restored in 10-20 years. However, coarse woody debris and nesting hollows - critical habitat components - take 100-200 years to form.

Alcoa also relies on the assumption that fauna will disperse into adjacent unmined forest, find suitable habitat, and later recolonise rehabilitated areas. However, the Proposals contain no evidence that this process leads to successful repopulation or demographic stability. It is an assumption without evidence and cannot be treated as proven mitigation.

6. No Black Cockatoo nesting trees should be cleared.

Despite saying that clearing of high-value habitat will be avoided or minimised, Alcoa plans to clear over 7,000 ha of high-value Black Cockatoo breeding and feeding habitat for the Expansion, including up to 300 known and 650 suitable nesting trees, and 144,500 potential nesting trees (EX 6-151). For the MMP, approximately 3,900 ha of high-quality Black Cockatoo foraging habitat (MMP 26) will be cleared, but clearly defined figures on the clearing of nesting trees and habitat are not provided.

Nesting tree buffers are inconsistent and inadequate, listed contrarily between 10-50 m, far below DBCA's recommended 250 m for known nesting trees and 50 m for potential trees (Appeals Convenor 2024 p. 34-36). Alcoa also states that known breeding trees will be cleared if they cannot be avoided. No known and suitable Black Cockatoo nesting trees should be cleared, rerouting critical infrastructure if required.

Baudin's Black Cockatoo. *Photo: Keith Lightbody*

7. Baudin's Black Cockatoos must be assessed as Critically Endangered.

Alcoa lists Baudin's and Carnaby's Cockatoos as Endangered and Forest Red-Tailed Cockatoos as Vulnerable based on state listings. Yet Baudin's Black Cockatoos are Critically Endangered according to the International Union for Conservation of Nature (IUCN). An incorrect classification downplays the extinction risk for Baudin's Cockatoos and has consequences for offset calculations.

Baudin's Black Cockatoo. *Photo: Keith Lightbody*

OFFSETS

Offsets are critical to the assessment.
Please ensure you comment on offsets under Fauna or Other Matters.

> Offsets are meant to be a last resort - used only when significant environmental impacts cannot be avoided or mitigated.

For Alcoa, the only significant residual impact is the loss or degradation of habitat of six threatened fauna species, despite all the effects described in this guide. Alcoa's proposed offsets to compensate for this are conservation actions to protect and improve existing habitat that will not be mined. These actions include permanent drinking water for Black Cockatoos, remnant vegetation rehabilitation, riparian vegetation enhancement, predator and feral animal control, fire mitigation/rapid response technologies, and fauna surveys. Offset areas are to be in State Forest, as close to mined areas as possible and with high environmental values.

1. Offsets only target habitat loss for six threatened fauna species

The six species Alcoa recognises as impacted are the three Black Cockatoos, Woylie, Chuditch and Quokka. However, other species, including conservation-significant fauna like the Quenda, Western Brush Wallaby and Rakali, are not separately regarded.

Alcoa's proposed offsets are to protect and enhance these six species' habitats, which could also benefit other species. In their calculations, however, Alcoa does not account for fragmentation impacts, meaning the offset areas do not truly reflect the scale of ecological loss.

2. Offset areas need formal protection

Alcoa has a long history of blocking forest protection efforts in the NJF (Forestry Australia 2022). Its offer to now support conservation actions would be welcome if it weren't to secure the company's further forest destruction. Alcoa has not yet identified areas for all required offsets, and those that have been identified are in existing MAZs, but still within Alcoa's lease. If the State government does not agree to block all future mining and development in these areas, they will not be secure. Without independent expert assessment of offset suitability, it's simply a case of Dracula guarding the blood bank.

4. Funding for conservation actions must not cloud the government's judgement

Alcoa's offsets proposal would fund conservation actions at $3,500/ha for 20 years. Corporate funding for conservation actions should not blind decision-makers to the need to instead halt the proposed impacts on existing high-value habitat

3. Offsets do not justify the destruction of mature forest.

Alcoa presents offsets as a solution to the very impacts its own Proposals will create. Yet protecting and enhancing existing forest habitat, however important, cannot justify large-scale clearing of other intact, high-value habitat in the NJF, and is not an acceptable solution.

INLAND WATERS

EPA objective: To maintain the hydrological systems and quality of groundwater and surface water so that environmental values are protected.

> 'Bauxite mining operations represent the single most significant risk to water quality in Perth Metropolitan and Southwest drinking water catchments' (Water Corporation 2022).

Disturbance from the Expansion will predominately occur in Serpentine and South Dandalup Dam catchments (80% to 2044) (EX 8-74). For the MMP, 43% of Huntly Mine disturbance will be in the Serpentine Dam catchment while Willowdale is predominately in the Murray River catchment (MMP 485-86).

1. The risk of water contamination from Alcoa's operations is high and ongoing.

For the Water Corporation (2022, 7), the 'probability of contamination of reservoirs' by Alcoa is 'certain' and the cost of treatment for all dams if contaminated for the 2023-27 MMP would be 'in the order of $3.25 billion'. Sediment/turbid water from mining and rehabilitation can enter the reservoirs. While not hazardous in itself, turbidity reduces the efficacy of treatment processes in inactivating or removing pathogens. Alcoa's Huntly and Willowdale mines had an average of 45 drainage failures/year in 2017-2022 (EX 8-118).

2. Mining in RPZs and catchments puts drinking water at risk.

Reservoir Protection Zones (RPZs) are 2km buffers that are fully off-limits to the public to protect water quality, yet Alcoa plans continue to clear forest within them. The MMP includes mining within 1–2 km of the Serpentine Dam, and whilst the Expansion "defers" mining within the RPZ, clearing is still planned for infrastructure. Over 8,800 ha of exploration is also planned within RPZs. Allowing these activities, and on this scale, contradicts protection for public drinking water sources.

An immediate permanent ban must be placed on all mining and exploration activities in RPZs, and infrastructure must find alternative routes. In addition, all mining in drinking water catchments should be phased out by 2028.

3. Water Corporation's recommendations must be mandated.

Alcoa's plans do not consistently follow the Water Corporation's recommended limits designed to reduce sediment and turbidity risks to reservoirs. For the Expansion it allows clearing for infrastructure despite the recommended sub-catchment clearing limit. For the MMP, it also only applies recommended limits on clearing steep slopes within RPZs and not across the broader catchments, as in the Expansion. These exceptions increase the risk of water quality impacts and should not be permitted.

5. Alcoa's enormous water use is concerning in a drying climate.

Alcoa will use around 17 billion litres of surface and groundwater each year for mining and refining - about a third of the Kwinana Desalination Plant's maximum output (50 billion liters/year). This heavy use adds pressure to local water supplies, particularly in a drying climate. This must be carefully considered by the Water Corporation in supply negotiations and by the EPA when assessing the new pipeline through the RPZ to extract water from the Serpentine Dam.

6. Knowledge gaps must be addressed.

For both Proposals, but particularly the MMP, there are a large number of knowledge and or data gaps. These include: groundwater analysis, contaminant modelling, sedimentation assessments, and surface water quality monitoring. Without robust baseline data, key risks to drinking water safety and water-dependent ecosystems cannot be reliablyevaluated. The precautionary principle must be upheld.

AIR QUALITY

EPA objective: To maintain air quality and minimise emissions so that environmental values are protected.

1. Independent analysis of the air quality impact is needed.

Alcoa admits difficulty in determining the amount of dust in the area from its mining. Alcoa further states 'air quality within the Myara North and O'Neil mine regions is considered to be typical of a rural area' (EX 9-6), yet its own data shows the Huntly Mine can cause high dust levels in some weather conditions. Modelling also shows serious breaches of air quality limits, but Alcoa downplays these as minor - even though its own consultants call them "major exceedances" (B11-1, Executive Summary). These uncertainties undermine Alcoa's conclusions on the impact of mining on air quality and should be independently reviewed.

2. Dust mitigation relies too heavily on distance and water use.

Alcoa relies on distance and heavy water use to manage dust, rather than reducing emissions. This isn't sustainable and doesn't work well in dry and busy road conditions. Alcoa's statement that its Refinery *Air Quality Management Plan* is effective is not validated or supported by any evidence. Stronger, proven dust controls are needed.

3. Dust and suppression methods impact forest health.

Alcoa admits dust can damage plants by reducing photosynthesis and growth, but downplays the risk in dry seasons without solid evidence or research. It also recognises water used to suppress dust can harm vegetation, yet relies on it as the main control. The impact on animals isn't assessed, despite Alcoa acknowledging them as sensitive (EX 9-11). Proper assessment of these impacts is needed as well as investigation of alternative strategies or long-term controls.

GREENHOUSE GAS EMISSION

EPA objective: To minimise the risk of environmental harm associated with climate change by reducing greenhouse gas emissions as far as practicable.

1. The Proposals will result in massive emissions.

Alcoa expects both Proposals to result in more than 1.4 billion t of CO_2 equivalent (CO_2-e) GHG emissions to 2045 (EX i-x, MMP 68). This could be nearly **2.5 times Australia's total annual emissions**, and will surpass the emissions savings required to meet Australia's 2030 emissions reduction targets. The EPA has a clear mandate to either reject or significantly strengthen this proposal.

2. Net calculated GHG emissions rest on assumptions.

Alcoa says forest regrowth will cancel out emissions from clearing, but this depends on rehabilitation happening quickly and working well - despite a current backlog. Even by Alcoa's own estimates, it won't offset emissions until 2075–76, and this doesn't account for wildfire risks. The carbon neutrality claim is highly uncertain and should be independently assessed.

3. Approving this proposal would ignore Australia's international climate commitments.

WA's emissions are already too high to meet the Paris Agreement targets, so its government will need to make deeper cuts than other States. Approving this proposal would ignore climate science and Australia's international climate commitments, leading to serious environmental consequences.

SOCIAL SURROUNDINGS

EPA objective: To protect social surroundings from significant harm.

1. Proposed disturbance avoidance and limitation must be clarified.

Details of MAZs and Limited Disturbance Areas for both heritage, amenity and environmental values, must be provided and clarified to ensure they are aligned with recommendations from Noongar people and corporations, and relevant experts and Government departments.

2. The Bibbulmun Track must have further protections.

Alcoa admits mining will cause visible and audible disturbance along key parts of the Bibbulmun Track, including near Mount Cooke, Vincent, Wells, and Boonering Hill. These impacts could last up to 20 years. The proposed 200 m buffer is not enough; a minimum 1000 m buffer is needed to protect the walking experience.

3. The Balmoral Trail and POW Camp should all be placed in avoidance zones.

Parts of the Balmoral Trail and its extension will be closed for mining, and after reopening rehabilitation will be visible. Access to the heritage-listed Prisoner of War Camp will be restricted. It will be in a MAZ, but no clear buffer is proposed, despite its proximity to mining and likely dust impacts. These areas are important to the Jarrahdale community and should be fully protected with 1,000 m avoidance zones.

4. The Dwellingup Discovery Forest should be removed from the Expansion.

The proposed Holyoake Mine expansion will impact the Dwellingup Discovery Forest, proposed by the local community, especially Zone 5 – the Murray Basin Wilderness Zone. Alcoa acknowledges this area has "potential" ecological, water catchment, heritage, recreational, and scientific values (Alcoa 2025d, 13). To protect these values, the Dwellingup Discovery Forest should be excluded from the Expansion.

Sullivan Rock, Bibbilmun Track. *Photo: Donna Chapman*

STAKEHOLDER ENGAGEMENT

EPA question: Provide comment on the proponent's stakeholder engagement strategy, having regard to the identification of key issues and consultation outcomes.

If you are a relevant stakeholder, such as a member of an affected community or relevant organisation, you may want to comment here on the experience of your engagement with Alcoa, or lack thereof.Alcoa's stakeholder engagement strategy for the MMP is brief and insufficient. It doesn't even include a summary of key issues raised and the company's response, as in the Expansion strategy document. No engagement was recorded after the MMP was accepted for assessment by the EPA in late 2023.

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View to Mount Solus. *Photo: Donna Chapman*