BAUXITE MINING IN THE NORTHERN JARRAH FORESTS

Frequently Asked Questions

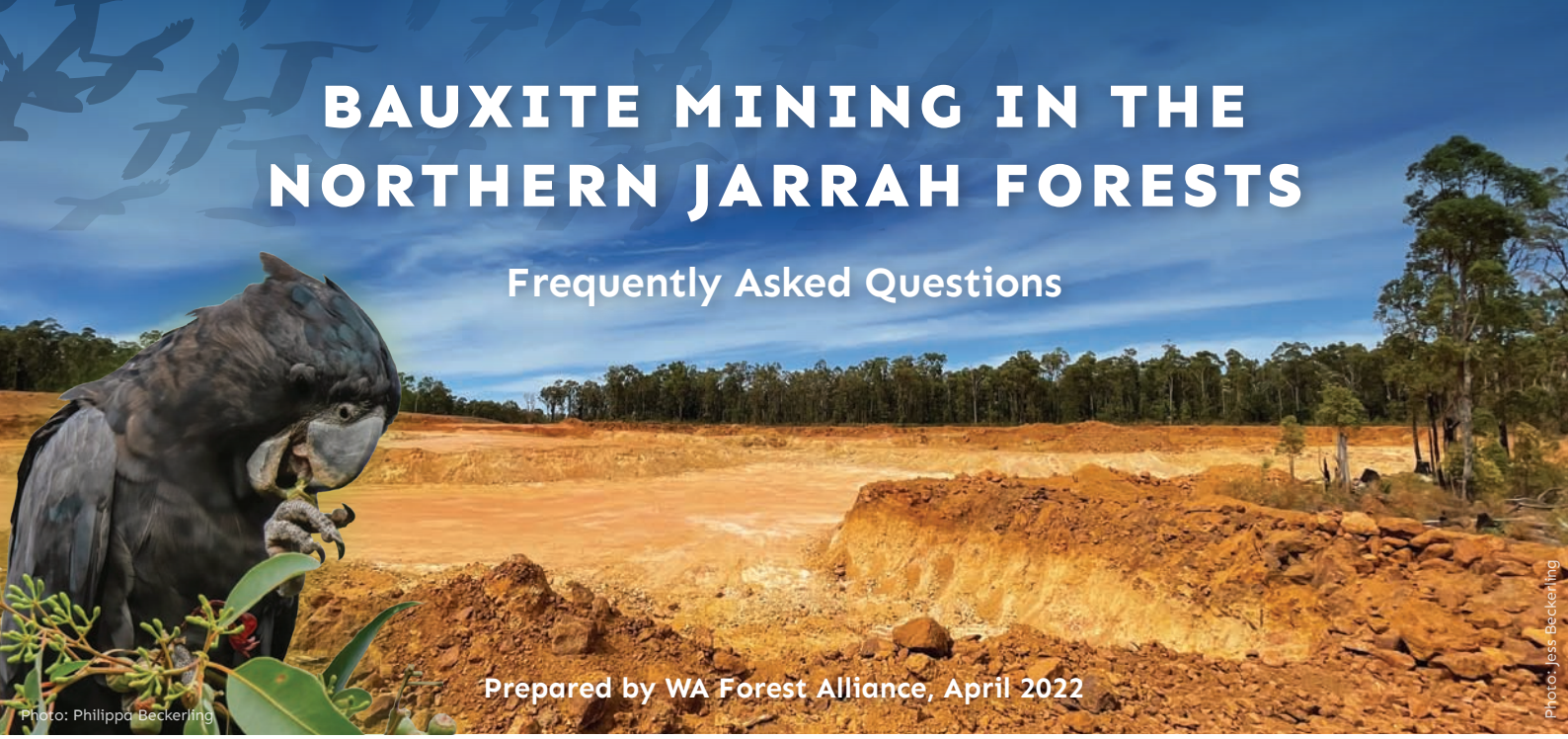

Photo: Philippa Beckerling

Photo: Jess Beckerling

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1. What is the bauxite used for?

Most of the bauxite mined in the Northern Jarrah Forest is refined into alumina, which is then further refined to make aluminium for a variety of products.

Alcoa sells most of its WA alumina to third parties worldwide. Since late 2016, Alcoa has also been permitted to export up to 2.5 million tonnes of raw bauxite per annum.

South32 ships about 60 percent of its WA alumina to its aluminium smelters in southern Africa.

2. Where is the bauxite processed?

The bauxite from the Northern Jarrah Forest is processed into alumina at four refineries in the South West. Alcoa has three alumina refineries, at Kwinana, Pinjarra and Wagerup. South32 has a refinery further south at Worsley, near Collie.

The extraction of alumina from bauxite through the Bayer process produces a highly toxic caustic residue – 'red mud' – which is stored in large dams or ponds.

Local communities in the South West have campaigned long and hard against the deleterious impacts on them from air and noise pollution from the alumina refineries.

3. Do the companies have to rehabilitate the mined land afterwards?

Yes, the companies rehabilitate the land they have cleared and mined for bauxite.

Originally, Alcoa planted exotic tree species – pine and eastern state eucalypts – on its mine sites. In the 1990s, after doing this for some 25 years, the rehabilitation goal changed to one of growing back a self-sustaining jarrah forest that matches (as close as possible) the structure and species composition of the forest before it was mined.

Only 1,500 ha – or less than 1 percent of the rehabilitated area to date – has successfully met this 'completion criteria.' This area, near Jarrahdale, was mined more than two decades ago.

Crucially, mine site rehabilitation in the future will occur under very different circumstances, brought on by climate change. Ecologists consider that 'historical compositional references' (ie attempting to grow back the forest as it was) may no longer be desirable as it 'could lead to ossification of [ecological] systems' (Perring et al. 2015). In other words, rehabilitation goals need to be more 'future-focused' to take more account of forest dynamics under climate change.

Wardell-Johnston et al. (2015) argue the rehabilitation goal of restoring a jarrah forest is more suited to a wetter climate, and to protect and restore the *remaining* jarrah forest surrounding the mine sites, there needs to be a changed 'focus on restoring understorey following mining ... [to] provide a more positive water balance in the wider forest matrix.' In other words, Jarrah regrowth is too thirsty: it deprives surrounding forest of water, threatening its survival.

Photo: Jeremy Perey

Rehabilitated site at Huntly mine, a few km east of Del Park Road, 2018. Area was burnt a year or so prior. High stem density of trees, not much diversity in understory vegetation. *Photo: Jeremy Perey*

4. What impact does the clearing and mining have on wildlife?

The Northern Jarrah Forest – including areas that Alcoa and South32 want to expand into – is habitat for rare, threatened and endangered species including the three black cockatoo species, Muir's corella, southern brown bandicoot, western quoll, dibbler, two species of phascogale, mainland quokka, numbat, woylie, Tammar wallaby, western ringtail possum and frog species. What a list!

For every one of those species, habitat loss and fragmentation is a major contributor to their decline. Further, the Recovery Plans for each species refer specifically to threat from mining. What remains of their existing habitat needs to be conserved if they are to survive. The Recovery Plans have not been effective in achieving this, not least because no funding is specifically allocated for implementing them.

5. Isn't the Northern Jarrah Forest already suffering from heat and drought stress? Is mining making that worse?

Yes, the Northern Jarrah Forest is suffering from heat stress and drought from climate change. This has caused structural changes in the Northern Jarrah Forest in that tall, mature trees have died. Matusick et al. (2016) argue 'climate change-type drought will drive replacement of large trees with short, multi-stemmed individuals, transforming ecosystem structure.'

Also, climate change is impacting the carbon sequestering potential of the NJF. Examining the impacts of the 2011 major drought/heatwave, Walden et al. (2019) 'found a significant loss of live standing carbon ... and subsequently a significant increase in the dead standing carbon pool' (dead standing trees replacing living ones). While this 'dead carbon' store 'may persist for centuries', fire will threaten this and live carbon stores. Regrowth can counter the carbon loss to the atmosphere, but Walden et al. (2019) maintain regrowth is unlikely the fully replace the individual trees that dies. They conclude: 'Resprouting forests are commonly regarded as resilient systems, however, a changing climate could see vulnerable portions of forests become carbon sources rather than carbon sinks.'

6. Alcoa and South32 have State Agreement Acts - aren't they impossible to stop?

Bauxite mining is governed by a number of State Agreement Acts. These are contracts negotiated and agreed between the WA government and the company, then ratified as a State Agreement Act by the Parliament. The WA Parliament cannot amend or end such agreements without the backing of the company.[1]

However, the Agreements cover the lease. Alcoa still has to obtain regular approval to clear and mine. This is a 'behind-closed-doors' process, with no public transparency or input. However, the current expansion proposals by both Alcoa and South32 are before the Environmental Protection Agency and, as a part of the approval process, the EPA is holding Public Environmental Reviews. The EPA will make its recommendations to the Minister for Environment and Climate Action. The Minister can say NO and impose limitations and conditions on the expansions. This will still leave already approved mining, until about 2025.

State Agreements developed in the 1960s do not include environmental approval processes and obligations that later mining and industrial development legislation requires. However, state governments have 'taken the amendment of an agreement as an opportunity to 'modernise' and 'standardise' it, or impose additional obligations, again with agreement of the Proponent.' (Reinmuth et al. 2020).[2]

The State Agreements are not available to the public, or even to Members of Parliament, in their up-to-date form. A request must be made to the Department of Jobs, Tourism, Science and Innovation; alternatively, Members of Parliament can request a copy of a State Agreement anonymously via the Parliamentary Library.

1 'Amendments are typically developed and agreed with the State Agreement proponent before being introduced into Parliament. As a consequence, amendments to those agreed terms are rarely made to the Bills as introduced.' (Reinmuth et al. 2020) https://www.allens.com.au/insights-news/insights/hubs/forging-ahead-legal-update-on-the-wa-mining-construction/a-decade-of-state-agreements-in-western-australia-trends/

2 https://www.allens.com.au/insights-news/insights/hubs/forging-ahead-legal-update-on-the-wa-mining-construction/a-decade-of-state-agreements-in-western-australia-trends/

7. Aren't Alcoa sponsoring a lot of good community work?

The Alcoa Foundation sponsors and partners with groups like the Bibbulmun Track Foundation, Greening Australia, BirdLife Australia (WA) and Perth NRM on environmental and community projects.

The Alcoa Foundation also partners with the WA Parks and Wildlife Service in the Western Shield program 'to protect vulnerable native species and restore biodiversity in the northern jarrah forest.'

Hence, Alcoa helps to sponsor is worthy environmental projects, however, **this can never compensate for the destruction bauxite mining is responsible for in the Northern Jarrah Forests.**

Sponsorship money helps to buy silence and compliance.

8. Are there any alternative sources of bauxite?

In WA, the Mitchell Plateau in the Kimberley has bauxite deposits. There were several attempts to mine this area from the 1960s. Most recently, in 2015, Alcoa and Rio Tinto handed back their 40-year-old mining rights to enable the formation of a 175,000ha national park.

Kaolin clay is a known alternative to bauxite in the production of alumina.

In 2021, Alcoa entered a preliminary agreement with FYI Resources (a WA company) to build a High-Purity Alumina (HPA) plant in Kwinana from 2024. HPA 'is proving important in the global energy transition, particularly for lithium-ion batteries used in electric vehicles.' The plant will use kaolin clay from the wheatbelt. FYI Resources holds the mining lease for this clay, not Alcoa.

What can we do to help?

- **Keep abreast of the campaign** by subscribing and following up on emails you receive from us and following the campaign and sharing posts on social media. Good pages to follow on Facebook, Instagram and Twitter include WA Forest Alliance, The Wilderness Society, Conservation Council of WA, Save our Jarrah Forest on the Darling Range, Save the Black Cockatoos and Save Dwellingup Discovery Forest
- **Make a submission to the EPA** when the Public Environmental Reviews call for submissions.
- **Tell your local Members of Parliament** – reach out to us for some support and materials at **forests@wafa.org.au**
- **Write to** the Minister for Environment and Climate Action, the Minister for Mines, the Minister for Water and the Premier.
- **Come to events**, meet other concerned people and get further involved.

WA FOREST ALLIANCE

FOR FURTHER INFORMATION VISIT **WWW.WAFA.ORG.AU**

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WAFA recognises Aboriginal and Torres Strait Islanders as the Traditional Owners and Custodians across Australia. We acknowledge that Sovereignty was never ceded, and that Australia always was and always will be, Aboriginal land.