

SUBMISSION TO THE ENVIRONMENT PROTECTION AUTHORITY
WESTERN AUSTRALIA

WORSLEY MINE EXPANSION – REVISED PROPOSAL
PUBLIC ENVIRONMENTAL REVIEW



(Forest cleared for bauxite mining on state forest, September 2021)



Forestry
Australia

Website: www.forestry.org.au

Email: ifawadivision@gmail.com

INTRODUCING FORESTRY AUSTRALIA

Forestry Australia is an independent professional association of forest scientists, managers and growers who work in native forests, plantations and the environmental services sector. Its members are committed to the principles of sustainable forest management and applying these principles to generate environmental, economic and social outcomes for all types of forests and tenures. Current membership of Forestry Australia exceeds 1000 and is growing steadily. This submission is based on contributions from members with extensive experience in the management and protection of forests in the south-west of Western Australia

A FOREST MANAGEMENT PERSPECTIVE ON BAUXITE MINING IN THE JARRAH FOREST

Forestry professionals in Western Australia have had a longstanding involvement in seeking to minimise the extent and to manage the impacts of mining operations on state forest and timber reserves. A report on bauxite mining in the Darling Range prepared by the Western Australian Division of the Institute of Foresters of Australia in 1980 provided a detailed critique of the industry at that time and foreshadowed a variety of impacts that since become entrenched with the expansion of the bauxite mining operations in the jarrah forest (Attachment 1). Forestry Australia has also developed a contemporary position statement on management issues arising from bauxite mining in the jarrah forest, first issued in 2018 and updated in 2022 (Attachment 2). Briefly, this statement:

- quantifies the current and likely extent of mining and the associated fragmentation of the forest estate,
- identifies the inadequate level of reservation of high quality forest in areas covered by existing bauxite mining leases,
- argues that rehabilitated forest should be thinned and subject to prescribed burning prior to being handed back to management by the State,
- draws attention to the legacy issues and both direct and indirect costs that the State will inherit resulting from large scale bauxite mining operations in the northern jarrah forest.

The Forest Management Plan prepared by the Conservation and Parks Commission is largely silent on matters relating to mining in state forest and timber reserves. Statements and actions relating to mining made in the Forest Management Plan 2014-23 are general in nature and non-binding, encouraging mining proponents to act in a manner that is consistent with the plan (9.1), minimise the impact of operations on important areas (9.2), provide advice on measures to reduce impacts and undertake rehabilitation (9.3), and explore means to recover costs incurred by the State (9.4).

Assessment of the Worsley bauxite mine expansion proposal (the proposal) should also have regard to the announcement by the Premier of Western Australia in September 2021 that given the importance of retaining native forests for their intrinsic value, their role as a carbon sink in the fight against climate change, and other commercial uses, the McGowan Government has decided to end logging of native forests after 2024, so they can be preserved for future generations (McGowan 2021). In justifying this decision the Premier's announcement drew attention to the observed 20% decrease in winter rainfall in the south-west since the 1970s stating that climate change continues to have an impact on the natural environment through reduced timber yields, pressure on biodiversity and the need for carbon sinks. The announcement also stated that approximately 160 million tonnes of carbon is stored across the native forests managed under the FMP, equating to 600 million tonnes of CO₂-e (carbon dioxide equivalent), or roughly 116 years' worth of annual emissions for every car in Western Australia.

Forestry Australia considers that in assessing the impacts of the Worsley bauxite mine expansion proposal the Environmental Protection Authority (EPA) should recommend actions that give effect to the intent of the Premier's announcement placing primacy on biodiversity conservation and carbon storage as values guiding future management of Western Australia's public forests.

COMMENTS ON THE WORSLEY MINE EXPANSION PROPOSAL

Flora and vegetation

The proponent seeks approval to clear an additional 4399 ha of native vegetation bringing the total area of clearing for Worsley bauxite mining operations to 9622 ha within three development envelopes. Most clearing will take place within the Worsley Mining Development Envelope (WMDE). In the northern part of the WMDE mining operations will predominantly be on private forest land and pine plantation in proximity to the Boddington Gold Mine. In the southern part of the WMDE mining operations will predominantly impact on public forest land with further clearing of vegetation on the already extensively mined Marradong and Saddleback timber reserves and proposed extension of mining into the Quindanning timber reserve.

The proposal will lead to significant cumulative impacts on forest vegetation in a landscape where native vegetation is already heavily fragmented as a result of agricultural clearing and past mining. The WMDE overlays two of the Landscape Management Units recognised in the Forest Management Plan 2014-23:

- Monadnocks Upland Valleys unit. More than 80% of pre-European vegetation in this unit is in conservation reserve and state forest (Chapman and McCaw 2015), although significant bauxite mining activity and rehabilitation has taken place already within the Saddleback timber reserve.
- Eastern Murray unit. Less than 40% of pre-European vegetation remains; 35% on lands vested in the Conservation and Parks Commission, mostly as state forest and timber reserve (Chapman and McCaw 2015). Longstanding proposals to increase reservation through transfer of state forest to conservation park made have been made in successive Forest Management Plans since 1994 but not actioned by government. Of the public forest land within the Eastern Murray, the Marradong timber reserve has already been heavily disturbed by bauxite mining (Batini 2021, Attachment 3), and further mining is proposed. Much of the Quindanning timber reserve also falls within the indicative disturbance footprint of the Worsley mine expansion.

Clearing will lead to the loss of mature forest structure and associated habitat elements including ground logs and stumps. Mining will also result in simplification of the floristic composition and structure of the understorey layer, particularly the absence or reduced abundance of so-called recalcitrant plant species. These include grass trees (*Xanthorrhoea* sp.), cycads (*Macrozamia* sp.), *Personia* and a number of orchids, amongst others. The South 32 Worsley Biodiversity and Forest Management Plan (page 30) recognises that there are currently 60 recalcitrant species within the WMDE comprising:

- Twenty-nine (29) highly recalcitrant species which were not recorded in rehabilitation or occurred at frequencies of less than 1% of the forest vegetation;

- Twenty-two (22) mildly recalcitrant species that occurred at frequencies of more than 1% but less than 10% of the forest vegetation; and
- Nine (9) slightly recalcitrant species that occurred at frequencies of more than 10% but less than 30% of the forest vegetation

In the longer term, the viability of forest rehabilitated following bauxite mining in the northern part of the WMDE is open to question on the basis that land already rehabilitated by Worsley Alumina may potentially be disturbed by Boddington Gold Mining for mining in future (Worsley Mine Expansion Environmental Review Document page 115). Depending on the nature of the gold mining operations this could lead to complete loss of rehabilitated area or to consecutive major disturbances that may lead to further simplification of floristic composition and vegetation structure.

Forestry Australia recommends that the EPA seek modification of the Worsley mine expansion proposal to exclude future mining from the Quindanning timber reserve based on its significance as an intact remnant of mature native forest in the Eastern Murray landscape and more broadly representative of the eastern margin of the northern jarrah forest. This action would give effect to Premier's intent to give primacy to biodiversity conservation and carbon storage as values guiding future management of Western Australia's public forests.

Terrestrial fauna

The Environmental Review Document recognises that the proposal will have significant residual impacts on a number of conservation significant fauna species including: Forest Red-tailed, Baudin's and Carnaby's cockatoos; Woylie; Chuditch; Red-tailed Phascogale; Western Ringtail Possum and Quokka. These impacts are proposed to be addressed by a combination of direct and indirect offsets.

The South 32 Worsley Biodiversity Offsets Plan (page 24) notes that the objective of habitat protection is to secure land parcels with a primary focus to enhance ecological linkages or retain habitat connectivity within the landscape of the central jarrah forest, thereby supporting conservation significant species and biodiversity values. As an offset, habitat protection, also referred to as 'averted loss', involves the protection and enhancement of habitat that is *otherwise under threat of clearing or disturbance*. In order to demonstrate averted loss and additionality through habitat protection it is therefore essential to establish that a genuine threat exists.

Examination of proposed habitat protection offsets presented in Table 12 of the Biodiversity Offsets Plan (page 39) reveals that two parcels of land (Lots 100 & 102 ex Worsley Timber Company land adjoining the Worsley refinery) comprise a total area of 3588 ha and represent 86% of the notional offset value. Table 12 also suggests that without protection and management this land would remain unmanaged and therefore more highly susceptible to continued weed invasion and senescence, decline expected from too frequent fire, weeds, *Phytophthora dieback*, *potential logging*, and recreational use, and management not compatible with conservation.

It is open to question whether the proposed habitat protection offsets meet the definition of being under genuine threat of clearing or disturbance, and therefore meet the additionality test. Land clearing is strictly controlled through legislation and regulation administered by the Department of Water and Environmental Regulation. Timber harvesting and silvicultural activities in privately owned forestland are also administered by these processes and in the experience of Forestry Australia members significant impediments are encountered by landowners seeking to undertake any form of timber harvesting on private land. This has been the case even when silvicultural prescriptions have been designed specifically to enhance the resilience and condition of the forest. Given this background it seems highly unlikely that the land parcels offered as habitat offsets are

under threat of clearing or disturbance by logging and are therefore unlikely to satisfy the additionality requirement. Simply placing land under some form of conservation covenant or reservation tenure does not satisfy the test of providing a genuine habitat offset protection.

Forestry Australia recommends that the EPA undertake a thorough review of the direct offsets identified in the Worsley mine expansion proposal to ensure that these offer genuine additionality and comply with the intent of relevant state and Commonwealth legislation and policy.

Greenhouse gas emissions

Greenhouse gas emissions arising from the clearance of native vegetation have not been quantified in the Worsley Mine Expansion Environmental Review Document. This is inconsistent with the Premier's announcement of September 2021 recognising the importance of forests as a carbon sink in the fight against climate change.

The proponent seeks approval to clear an additional 4399 ha of native vegetation for mine expansion. Estimates of above-ground carbon density for jarrah forest given in the draft Forest Management Plan 2014-23 (page 93) range from 30 to 143 tonnes per ha. Significant additional carbon is held in coarse woody debris (Whitford and McCaw 2019) and in below ground woody material including roots and tree stumps. Based on this information a realistic estimate of average carbon density for jarrah-marri forest in the WMDE would be 100 tonnes per ha. Emissions of carbon arising from clearing of native vegetation over the life of the development proposal are therefore likely to be of the order of 440 000 tonnes of carbon, assuming that most of this material will be either burnt or used in products that offer only short-term carbon storage. These emissions are large in relation to other aspects of the Worsley expansion proposal and so should therefore also be assessed. Carbon released from native vegetation clearing is likely to have a long residence period in the atmosphere due to the time elapsed between clearing, mining and subsequent rehabilitation, and the relatively slow accumulation of carbon in vegetation on rehabilitated mine pits.

Forestry Australia recommends that the EPA assess greenhouse gas emissions arising from clearing of native vegetation associated with the Worsley mine expansion proposal, consistent with the Premier's intent to give primacy to carbon storage as a value guiding future management of Western Australia's public forests.

South 32 holds significant areas of private property in the project proposal area. In the light of the Western Australian Government's intention to base future timber production on pine and establish a further 30 000 ha of plantation to meet this objective serious consideration should be given to establishing pine plantations on former farmland once mining and associated disturbance operations are complete. This action would also provide some offset towards greenhouse gas emissions resulting from other aspects of the project including clearing of native vegetation.

Forestry Australia recommends that the EPA require the proponent to examine opportunities for establishing commercial pine plantations on former farmland as a rehabilitation action once mining and associated disturbance activities are complete.

Governance of mining operations

Forestry Australia recommends that the EPA should place a limit on the area of public land that can be approved for future mining activities pending satisfactory achievement of completion criteria and the return of previously mined land in a condition acceptable to the State.

SUMMARY OF RECOMMENDATIONS RELATING TO THE WORSLEY MINE EXPANSION PROPOSAL

Forestry Australia recommends that the EPA:

- 1. seek modification of the Worsley mine expansion proposal to exclude future mining from the Quindanning timber reserve based on its significance as an intact remnant of mature native forest in the Eastern Murray landscape and more broadly representative of the eastern margin of the northern jarrah forest. This action would give effect to Premier's intent to give primacy to biodiversity conservation and carbon storage as values guiding future management of Western Australia's public forests;***
- 2. undertake a thorough review of the direct offsets identified in the Worsley mine expansion proposal to ensure that these offer genuine additionality and comply with the intent of relevant state and Commonwealth legislation and policy;***
- 3. assess greenhouse gas emissions arising from clearing of native vegetation associated with the Worsley mine expansion proposal, consistent with the Premier's intent to give primacy to carbon storage as a value guiding future management of Western Australia's public forests;***
- 4. require the proponent to examine opportunities for establishing commercial pine plantations on former farmland as a rehabilitation action once mining and associated disturbance activities are complete;***
- 5. place a limit on the area of public land that can be approved for future mining activities pending satisfactory achievement of completion criteria and the return of previously mined land in a condition acceptable to the State.***

REFERENCES

- Batini F (2021) Destruction of the Marradong timber reserve. *The Forester*, October 2021 issue, pp 20-21.
- Chapman TF, McCaw WL (2015) South-west Forest Biodiversity Survey Gap Analysis. Department of Parks and Wildlife report. <https://library.dbca.wa.gov.au/FullTextFiles/071997.pdf>. Accessed 16/08/2022
- Conservation Commission of Western Australia (2012) Draft forest management plan 2014-2023.
- Conservation Commission of Western Australia (2013) Forest management plan 2014-2023.
- Institute of Foresters of Australia (1980) Bauxite mining in the Darling Range. WA Division Institute of Foresters of Australia. 20 p.
- Forestry Australia (2022) Statement on Bauxite Mining and Revegetation in the Northern Jarrah Forest. https://www.forestry.org.au/wp-content/uploads/2022/03/FA-statement-on-bauxite-mining-2022_02_25-Final.pdf. Accessed 16/08/2022
- McGowan M (2021) Protecting Western Australia's native forests. <https://www.mediastatements.wa.gov.au/Pages/McGowan/2021/09/McGowan-Governments-historic-move-to-protect-native-forests.aspx>
- South 32 (2022) Worsley Alumina Mine Expansion Environmental Review document. 815 p.
- South 32 (2022) Worsley Alumina Biodiversity and Forest Management Plan. 51 p.
- South 32 (2022) Worsley Alumina Biodiversity Offsets Plan. 110 p.
- Whitford K, McCaw L (2019) Coarse woody debris is affected by the frequency and intensity of historical harvesting and fire in an open eucalypt forest. *Australian Forestry* **82**, 1-14.