

## **INQUIRY INTO INTEGRITY OF THE NSW BIODIVERSITY OFFSETS SCHEME**

**Organisation:** NSW Minerals Council

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**INQUIRY IN THE INTEGRITY  
OF THE BIODIVERSITY  
OFFSETS SCHEME**  
NSW MINERALS COUNCIL  
SUBMISSION

31 August 2021

**NSW MINERALS COUNCIL**



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# Contents

|   |           |
|---|-----------|
| <b>Introduction .....</b>   | <b>4</b>  |
| <b>Mining's economic contribution to NSW .....</b>  | <b>5</b>  |
| <b>The role of offsets .....</b>  | <b>6</b>  |
| Environmental gain from offset sites .....  | 6         |
| Opportunities provided by offsets .....   | 7         |
| Mining industry offsets .....   | 7         |
| <b>Inquiry Terms of Reference.....</b>  | <b>8</b>  |
| Effectiveness of the Biodiversity Offsets Scheme (BOS) .....  | 8         |
| Role of the Biodiversity Conservation Trust.....  | 8         |
| The use of offsets by the NSW Government for major projects and strategic approvals .....   | 10        |
| The impact of non-additional offsetting practices on biodiversity outcomes.....   | 10        |
| Offset prices .....   | 10        |
| Opportunities for private landowners to engage in the Scheme .....  | 11        |
| <b>Conclusion.....</b>  | <b>14</b> |
| <b>Case studies .....</b>   | <b>15</b> |
| Case Study 1 - Glencore's Mt Owen Mine.....   | 15        |
| Case Study 2 - Whitehaven Coal's Yarrari and Belah biodiversity offset properties established<br>under Biobanking Agreement ..... | 20        |
| Case Study 3 – Yancoal's Goulburn River Biodiversity Offset Area.....   | 24        |

# Introduction

The NSW Minerals Council (NSWMC) welcomes this inquiry into the Integrity of the Biodiversity Offsets Scheme (BOS). NSWMC represents the State's mining, exploration, mineral processing, and mining services industries.

Environmental offsets provide a vital tool for decision makers when considering the impacts of development. Mines in NSW have been providing biodiversity offsets as a means of compensating for the unavoidable impacts of projects for over a decade. During this time there has been almost constant regulatory policy change in the way impacts and offsets are assessed, the way offsets are managed and secured. The increasing sophistication in biodiversity regulation and policy has resulted in much higher ratios of offset to impact, a change in the requirement of security from a defined period to in perpetuity, increasingly onerous management, monitoring and reporting requirements and the requirement to ensure that land management costs are attached to offset lands.

These changes have significantly increased the costs of all development in NSW.

While the Government's intention to provide an income stream for landholders and farmers by making private conservation land the central source of offset supply is admirable, it has not been able to deliver supply required by the market. Likewise, the Government's intention to set up a thriving and liquid biodiversity offsets market has not materialised and has significant barriers to success that are not being addressed.

Improving the Scheme for both developer and supplier participants is vital for mining and other development to continue to contribute to growth and jobs in NSW. This can be achieved while still protecting the environment. In fact, there is significant scope for the NSW Government to take greater advantage of the opportunities offered by offsetting to contribute to strategic conservation in NSW.

## Mining's economic contribution to NSW

In 2019-2020 NSW mining companies directly spent an estimated \$14.9 billion<sup>1</sup> in the NSW economy. This included:

- \$2.7 billion in wages and salaries.
- \$10.3 billion in purchases of goods and services from approximately 7,862 local businesses, community contributions and payments to local government (including rates, developer contributions and other payments).
- \$1.9 billion in state government payments (including royalties, stamp duty, payroll tax and land tax).

The industry employs 28,780 full-time equivalent workers (including direct resident employees and contract workers). While most of these direct jobs are in our regional communities, there is also an impact in Sydney where the industry purchases goods and services from 2,500 businesses.

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<sup>1</sup> NSW Minerals Council, NSW Mining Industry Expenditure Impact Survey 2019/20, <https://www.nswmining.com.au/>

# The role of offsets

Offsets provide environmental benefits to compensate for residual impacts that remain after avoidance and mitigation measures have been accounted for. Importantly offsets do not make unacceptable impacts acceptable.

Offsets can provide improved environmental outcomes in the following ways:

- Restoration and regeneration, which entail restoring, enhancing or establishing biodiversity.
- Protection and security involving protecting biodiversity from further threats such as grazing, and deforestation.
- Contribution to strategic conservation goals by providing connectivity or focus on threatened communities and species.
- Indirectly through programs that enhance conservation.

Offsets are particularly important to the types of development where opportunities to avoid impacts are limited, such as mining and infrastructure development. Mining is limited by the location of the resource, while infrastructure developments can also have limited opportunities to avoid impacts because of restriction on location.

## Environmental gain from offset sites

Fundamental to offsetting is that an offset can provide an environmental gain to compensate for the residual impacts of a development.

Significant improvements to biodiversity can be achieved through the process of both passive and active management of land for conservation. Existing offsets illustrate that the effective management of degraded and highly modified environments can result in the regeneration of high conservation value vegetation communities (endangered and critically endangered ecological communities) and threatened species habitats.

**Case Study 1** illustrates how management of offsets for the Mt Owen mine have successfully regenerated woodland. In 2004 the successful re-establishment of vegetation communities and habitats in the mine's New Forest area meant it was able to be transferred to the Forestry Corporation NSW and incorporated into the Ravensworth State Forest where it is designated for conservation.

Offsets can contribute to regional connectivity. All three case studies presented in this submission provide examples of mining companies securing offsets which have regional significance. Mt Owen Mine's offsets are located in the heart of the Hunter Valley. Their significant size compared to other remnants, means that together with mine rehabilitation and proximity to existing areas in the conservation estate, they will provide an important link for the north-south movement of species through the Hunter Valley.

**Case Study 2** involves the purchase by Whitehaven of two grazing properties that border the Boonalla Aboriginal Area (which is managed by the NSW National Parks and Wildlife Service (NPWS)) and two other Whitehaven offsets. Together the Whitehaven offsets and the Boonalla Aboriginal Area provide a total of 5,000 hectares of conservation land is now protected in a highly cleared region.

Yancoal's Goulburn River Biodiversity Area (see **Case Study 3**) is situated among three conservation areas. Protection and enhancement of this former grazing property adds significantly to the habitat of threatened fauna species and facilitates movement across of the landscape.

Active management programs can enhance vegetation communities, such as at Mt Owen, and make habitat more attractive to threatened species. At their Goulburn River Biodiversity Area, Yancoal has

partnered with ANU and NPWS to implement Australia's most successful noisy miner eradication program, largely eliminating a very significant threat to the Regent Honeyeater from this important breeding ground (see [Case Study 3](#)).

## Opportunities provided by offsets

While offsetting should be the final option, where it occurs it provides the opportunity to secure vital resources for conservation from private business. These resources can be in the form of land for conservation, improvement and ongoing management of that land, security for the land, recovery action plans as well as research and other forms of indirect offsets.

## Mining industry offsets

The NSW mining industry is a very significant owner and manager of offset sites. In 2019, mining companies operating in the Upper Hunter Valley were managing more than 41,000 hectares of offsets.<sup>2</sup>

Although there has existed a market for biodiversity offsets in NSW since the creation of the BioBanking Scheme, it has never matured, and offset credits of the type and quantity required for mining and other large-scale projects are not available on the market.

NSWMC mining members have largely continued to purchase, secure and manage land-based offsets directly for their projects. NSWMC members with non-mine projects have also found that there is no market for the type and scale of credits for their projects and have been required to act as a broker to encourage development of credits by private landholders. This process is slow and difficult and is not providing the supply that is necessary within appropriate timeframes.

Prior to the introduction of the *NSW Biodiversity Offsets Policy for Major Projects*<sup>3</sup> in 2014, mining offsets were secured by way of a Conservation Agreements (CAs). While there are still some legacy projects where CAs are being completed, largely the industry is now required to use Biodiversity Stewardship Agreements (BSAs) to secure offsets.

The barriers to entry to the market for private landholders are significant (see below *Opportunities for private landowners to engage in the scheme*). A situation where developers are supporting landholders to create credits is not ideal for either party.

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<sup>2</sup> Upper Hunter Mining Dialogue, Rehabilitation Principles and Commitments, 2019 Annual Reporting, <https://miningdialogue.com.au/>

<sup>3</sup> NSW Office of Environment and Heritage, *NSW Biodiversity Offsets Policy for Major Projects*, 2014 <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Biodiversity/nsw-biodiversity-offsets-policy-major-projects-140672.pdf>

# Inquiry Terms of Reference

## Effectiveness of the Biodiversity Offsets Scheme (BOS)

The Terms of Reference seek views on the “effectiveness of the scheme to halt or reverse the loss of biodiversity values, including threatened species and threatened habitat in New South Wales”. This is a question best addressed by the NSW Government.

The NSW mining industry has noted a significant increase in offsetting obligations since the introduction of the BOS.

Mining projects in NSW which have been assessed using the Biodiversity Assessment Method (BAM) show a considerable increase in the offset ratios compared to assessments undertaken under the Major Projects Biodiversity Offset Policy, which used the Framework for Biodiversity Assessment (FBA) and the Biobanking Assessment Methodology (BBAM) to assess offsets and impacts. Offset ratios under the NSW Biodiversity Offsets Policy for Major Projects, also increased from the previous policy whereby offsets were largely negotiated.

Our members who had experience under the BioBanking Scheme report that the BOS is more complex, more expensive and leads to higher ratio of land being offset compared to area impacted. Members report that the process of developing, securing, and managing offsets through the BSA process is much more onerous than prior to the introduction of the BOS. The complexities of setting up a BSA are set out in some detail later in this submission. Management actions for BSA's are more onerous.

In the experience of our members each set of reforms in the last ten years has led to a significant increase in the offsetting obligations for projects.

## Role of the Biodiversity Conservation Trust

The Biodiversity Conservation Trust (BCT) plays a role in the administration of the Scheme, but it is important to note that primary responsibility for the BOS is with the Department of Planning, Infrastructure and Environment (DPIE). The BCT has four key responsibilities under the BOS<sup>4</sup>:

1. The BCT facilitates the supply of biodiversity credits. Landholders wishing to generate and sell biodiversity credits can apply to the BCT to enter a biodiversity stewardship agreement (BSA). Once signed, the BCT manages the agreement by making annual biodiversity stewardship payments to the landholder for carrying out conservation management actions on the site. The BCT ensures compliance through review of annual reports and site inspections.
2. The BCT is the Fund Manager for the Biodiversity Stewardship Payments Fund. When biodiversity credits are sold the management costs for the land is deposited into the Fund to be distributed annually to landholders.
3. The BCT's Biodiversity Offsets Program is responsible for securing biodiversity offsets on behalf of development proponents who opt to pay into the Biodiversity Conservation Fund to acquit their offset obligation.
4. The BCT is funded by government to procure offsets under various place-specific biodiversity offsets schemes.

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<sup>4</sup> BCT Website, accessed 27 July 2021, <https://www.bct.nsw.gov.au/biodiversity-offsets-program>

NSWMC does not have material concerns about transparency or oversight in relation to the BCT. NSWMC concerns, which are detailed below, are in relation to gaps that exist between the BCT and the Department, resourcing and the increasing the costs of offset management.

### **Remit and resources of the BCT**

NSMWC is concerned about whether the BCT has adequate remit and resourcing to undertake the role it needs to play both as an assessing and compliance agency, and one with a role to play in strategic conservation.

Resourcing and experience of the BCT is a significant concern and being reflected in the time that it takes to negotiate and finalise a Biodiversity Stewardship Agreement (BSA), which can be up to three years<sup>5</sup>.

If NSW is to have an adequate supply of credits, the very immature and weak credit market will need much greater support from Government. NSWMC's view is that the BCT, or another agency needs to take a much more proactive approach to identifying potential offsets as well as supporting landholders through the process and possibly underwriting the costs of assessments.

Since the introduction of the BOS there appears to be a gap in Government focus on strategic conservation and the opportunities that can be accessed through offsetting. Large entities such as mining companies which are securing offsets for projects do and will continue to focus on building larger connected offset areas including adjoining mine rehabilitation, reserves or other large privately owned remnant areas wherever possible. **Case Study 1** illustrates how for Glencore has taken this strategic approach to offsets and rehabilitation in the Hunter Valley.

Where offsets are sourced in the market or by the BCT, the current approach may leave a patchwork of conservation lands in some areas, which are not well connected and have not been sourced for specific strategic reasons such as joining up remnant and conservation areas, and creating biodiversity corridors. BCT activities currently lag development. The BCT as an independent body is well placed to work with stakeholders to identify future demand within regions and begin working with landholders to develop required credits ahead of demand.

### **Increase extent and costs of management**

Since the introduction of the BOS requirements relating to offset management, monitoring and reporting have become very onerous, with limited additional environmental gain. The BCT has implemented policies that require a significant increase in the cost of land management actions compared with earlier methods of managing offsets. As discussed below, this will create a barrier to private landholders entering BSAs.

#### **Recommendations**

1. The BCT or another agency be given a strong remit to act as a market intermediary to support the creation of offset supply.
2. The BCT be given greater support by DPIE to manage the process of assessing offsets, and more significant funding to undertake this process.

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<sup>5</sup> EY Port Jackson Partners, Biodiversity Offset Payment Calculator Technical Review, 30 September 2020, p3

3. The BCT should be provided with a greater level of support from Government to process BSAs.
4. The BCT measure performance and set KPIs and targets for completion of BSAs to drive efficiency.
5. The BCT be given a greater remit in strategic conservation. DPIE should investigate ways for the BOS to encourage strategic conservation, and where there might be programs that work outside the BOS because on balance, they deliver a better long-term outcome.
6. DPIE should consider whether the land management regimes and costs being imposed by the BCT are appropriate.

### **The use of offsets by the NSW Government for major projects and strategic approvals**

The NSW Minerals Council does not have a view on the use of offsets by NSW Government projects.

With regard to the application of offsets to State significant development mining projects, as explained above offsets should only be applied when avenues for avoidance and mitigation have been exhausted. Given the fixed nature of resources, mining projects will generally have limited options for avoidance and will need access to the offset scheme to proceed.

### **The impact of non-additional offsetting practices on biodiversity outcomes**

NSWMC is not aware that there are non-additional offset practices available for mining projects under the BOS.

### **Offset prices**

The market for offsets in NSW is extremely immature. The active market for credits is limited to a few development hotspots. Prices for credits which have been traded in these areas are not a good proxy for credit prices in other regional or rural areas of the State. This is because:

- In these areas parcels of land used for offsets are likely to be significantly smaller, meaning that each agreement generates a small number of credits.
- They are in areas with high land prices.
- In urban or peri-urban areas land is likely to be highly degraded and require much more significant and costly management.

The NSW Government has expressed concerns that where credits are sold on market, prices are also being influenced by the Biodiversity Offsets Payment Calculator (the BOPC). The BOPC is the tool used to price credits where a developer chooses to acquit an offset obligation by making a payment to the Biodiversity Conservation Fund (BCF).

Both developers and suppliers in NSW have very little confidence in the pricing of offset credits in NSW at this time.

## **A developer charge for biodiversity**

NSWMC has welcomed the Department of Planning Infrastructure and Environment (DPIE) and BCT's initiative to develop a new system to establish the charge for development proponents who choose to pay into the Biodiversity Conservation Fund.

While there has been a market-based biodiversity offset scheme operating in NSW since the introduction of BioBanking in 2006, there has never been a market for the type and quantity of credits sought by mining projects. As a result, the industry continues to purchase and manage land for conservation to meet the offsetting requirements of project approvals.

The BOPC uses an econometric model to determine prices for all 1342 credits in NSW, using the data for credits which have been traded. Importantly 1262 of the credits have never been traded<sup>6</sup>. As identified above, the pool of market trades is very small, and most credits have never been traded. Extrapolating this small pool of data has led to the BOPC providing prices that are not reflective of the costs of offsetting, and which vary significantly as the BOPC is updated each quarter.

Prices quoted by the BOPC have proven to be many times more expensive than the costs of buying and managing offset lands and the industry has not been able to participate in any meaningful way. The private market likewise remains extremely immature and does not provide the type or number of credits required for large projects in mining regions.

There have not been a significant number of trades in regions where mining occurs. Whilst some private brokers have emerged, there is no dedicated intermediary in NSW to broker the creation of credits required by the industry.

NSWMC and our members are engaged in the DPIE-BCT consultation on the design of the new system to set a developer charge for biodiversity in NSW. This is the Government's third attempt to find an appropriate mechanism to price biodiversity credits for payment by developers to the fund. While the price needs to cover the BCT's risk, any pricing model also needs to have certainty and stability and be comparable to the price of securing offsets directly, with the addition of a margin for risk and administration. It is important that models developed by the BCT are thoroughly tested before they are implemented.

Until an appropriate funding model is operational there will continue to be limited opportunities for coordination and strategic investment in conservation lands across development projects. NSWMC members will continue to aim for these outcomes in their offsets. However, the BCT, well-funded through a developer charge, would be able to make a significant difference.

## **Opportunities for private landowners to engage in the Scheme**

While private conservation is the Government's key response to concerns about offset supply, there are currently significant barriers to private landholders engaging in the BOS. NSWMC members have an interest in reducing those barriers both to increase supply of offsets, but also as offset site owners and managers.

The Government and the BCT appear to see price as the key barrier to landholders participating in the BOS. NSWMC believes that the barriers are many and complex and that there needs to be a rigorous piece of work done to understand these issues before they can be properly addressed.

NSW mining companies managing offsets are large companies with access to expert technical advice both inhouse and through consultants. Despite these advantages, our members advise that the process

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<sup>6</sup> EY Port Jackson Partners - Biodiversity Offset Payment Calculator Technical Review, 30 September 2020, p1

of undertaking an assessment and securing a BSA is complex, costly and requires significant external expertise. Land management actions required under BSAs are over and above the level of management that would be generally undertaken by private landholders. NSWMC members engage contractors to undertake specialist land management, including fire and weed management.

NSWMC members who have worked with private landholders to assist them to generate credits for purchase advise that landholders are reluctant to enter into BSAs. They report that the process is difficult for landholders and the lack of good information about price leaves both suppliers and purchasers with little confidence about the value of the transaction.

### **Complexity and upfront costs**

Creating a BSA is a very significant and complex commitment. It requires assessment conducted by expert ecologists, legal, financial and tax advice and expert land management advice. The extensive cost, time and expertise required for the preparation of the BSA application documents is a barrier for smaller landholders.

Guidelines published by the BCT are very detailed and extensive in their requirements. Smaller landholders (with limited financial backing) may not be able to meet all requirements. Banks, solicitors, and others who traditionally act as advisors to small landholders are not well versed in the process and will struggle to assist clients.

While the BCT aims to assist landholders with advice, practical expert and financial assistance with upfront costs are needed to support landholders.

### **Complexity of managing a BSA site**

Landholders are likely to require input from multiple specialists (weed contractors, fire specialists, etc) to support the management plan, adding very significant cost and complexity to the ongoing management of the BSA site.

The management plan is a complex document, and experience to date indicates that BCT has high expectations for land management commitments. It may be difficult for smaller landholders to interpret the requirements of the plan and to manage contractors to implement it. A stewardship site project manager may need to be engaged to oversee the implementation of the plan, requiring additional cost to be added to the Total Fund Deposit.

It is common for management requirements not to consider historical farm practices and limit any ability for future innovation. This is a significant disincentive for farmers who want to continue to farm alongside a BSA.

### **Uncertainty about price and value of the BSA and how government agencies will act in the future**

Uncertainty is a significant barrier for private landholders. Establishing a BSA is outside of their experience and banks, solicitors and others who traditionally act as advisors to small landholders are not well versed in the process and will struggle to assist clients.

Given the thinness of the credit market, there is no certainty about credit pricing and what is fair value for biodiversity credits. In addition, landholders without the backing of a developer cannot know whether the credits once created will be purchased. While there is an opportunity to reassess sites after 20 years, landholders are not confident about the process and consider that there is only one chance to gain a profit from the land.

The emotional barriers of losing agency over land which is subject to a BSA should not be underestimated and will be difficult to overcome. Landholders are uncertain about whether the BSA will detract from the future sale price of the land, and whether potential future owners including legatees will consider the management commitments a burden.

Most private landholders will be unused to a government agency monitoring and having a such a significant compliance role in their land management. How the BCT will enforce compliance, including what approach will be taken to any failure to achieve biodiversity gain through no fault of the landowner, is a concern for private landholders.

### **Recommendations**

7. Any new developer charge for biodiversity needs to be thoroughly tested before it is implemented, and needs to have certainty, stability and to be comparable to the costs of developer's securing offsets directly with the addition of a margin for risk and administration. NSWMC and our members have provided case studies in the past to assist with the assessment of previous calculators and are willing to assist.
8. Any new developer charge model(s) needs to be transparent and repeatable. Developers need to be able to accurately predict prices to pay into the Fund without a formal quote.
9. There needs to be a rigorous investigation of the barriers to landholder's participation in the BOS and policy, process and guidelines developed to resolve those barriers. Where the system is too complex, significant changes need to be considered
10. The BCT should set up a rapid offset assessment method that would allow landholders to make a simple and inexpensive assessment of their property before deciding to start an assessment.
11. The BCT should consider setting up a Fund to assist landholders with unsalable credits to meet their TFD requirements.
12. The Government needs to empower the BCT or another appropriate agency to take a more proactive approach to offset supply through private landholding including:
  - a. Actively investigating potential offset land and approaching landholders.
  - b. Offering greater support to landholders including – underwriting the cost of assessments, providing incentives through rate and tax relief.
  - c. Other measures that would reduce barriers identified by the investigation suggested in Recommendation 9.

## Conclusion

Offsets are a vital tool to enable NSW to continue to grow. The BOS is a very complex system, and that complexity has made its application difficult for proponents and private landholders.

The acknowledgement by the Government that NSW needs a new developer charge model for biodiversity has been welcomed by NSWMC members. NSWMC and our members are participating in the consultation, and it is hoped that this process will provide more realistic and stable prices. This will enable industry to contribute to a central fund which can provide coordination of offsetting to meet strategic conservation objectives.

The issues of lack of supply and landholder participation in the offsets scheme are being discussed as part of the BCT's developer charge consultation. However, the NSW Government needs to ensure that these issues are given a specific focus. It is important that the Government acknowledges that private conservation alone, even if optimised, is unlikely to resolve the issue of supply of biodiversity credits. The Government needs to identify and fix issues in the private supply market. But to ensure adequate offset supply will require additional initiatives.

Consideration of how strategic conservation can be incentivised through the offsetting scheme, will also be vital to the success of the BOS.

While there are several Government initiatives being undertaken in relation to the BOS, a more systematic review of the operation of the Scheme would be appropriate.

# Case studies

## Case Study 1 - Glencore's Mt Owen Mine

*Glencore's Mt Owen Mine near Singleton is committed to protecting and improving over 2000 hectares of woodland in the heart of the Hunter Valley, providing habitat of threatened fauna and flora and vital regional connectivity.*

### Mt Owen's biodiversity offset strategy

Open cut mining commenced at Mt Owen near Singleton in the Hunter Valley in 1993. Regeneration and revegetation efforts across Mt Owen's local offsets and rehabilitation areas are primarily targeted towards the re-establishment of the Central Hunter Ironbark-Spotted Gum-Grey Box Forest endangered ecological community (EEC).

Subsequent approvals and modifications in 2004 and 2016 added a number of Biodiversity Offset Areas (BOAs) and conservation areas that occur in the locality of the New Forest or Ravensworth State Forest. **Table 1** shows the size of the current offset areas and **Figure 1** their location in the Hunter Valley.

Post mining, the offset areas will be joined by the rehabilitation woodland, including 518 hectares of ecological mine site rehabilitation (EEC). In addition, the offset strategy includes the Esparanga Offset (303 hectares) and the Mitchell Hills Offset (143.7 hectares). These offsets sites do not adjoin the Mt Owen mine, but are situated in strategic locations that enhance the Great Eastern Ranges Strategy.

The Biodiversity Offsets Strategy for the Mt Owen mine includes conservation of existing vegetation (approximately 15 – 30 years old), active planting of existing pasture areas to return them to their original woodland state and managing remaining pasture to enhance natural regeneration.

Augmentation of fauna habitat, including constructing nest boxes and installing spotted-tailed quoll denning sites is also included. An extensive program of active and passive revegetation will be managed at the Cross Creek, Stringybark, Esparanga and Mitchell Hills offset sites as part of the in-perpetuity conservation secured under a Biodiversity Stewardship Agreement.

**Table 1** Mt Owen Mines Biodiversity Offset Areas

| Offset                               | ha     | Offset                                    | ha   |
|--------------------------------------|--------|---|------|
| Cross Creek Offset                   | 367    | Southern Remnant Offset Conservation Area | 4.12 |
| Stringybark Offset                   | 97.5   | North West Offset Conservation Area       | 70.4 |
| Bettys Creek Offset Area             | 174.14 | East-west Corridor Offset                 | 28.3 |
| Mount Owen Offsets Conservation Area | 356.5  |   |      |

### Regional significance

The central location of the Mt Owen Mine and the adjoining offsets increases its importance due to its functionality as a fauna refuge and 'steppingstone' in an otherwise highly fragmented and primarily agricultural landscape.

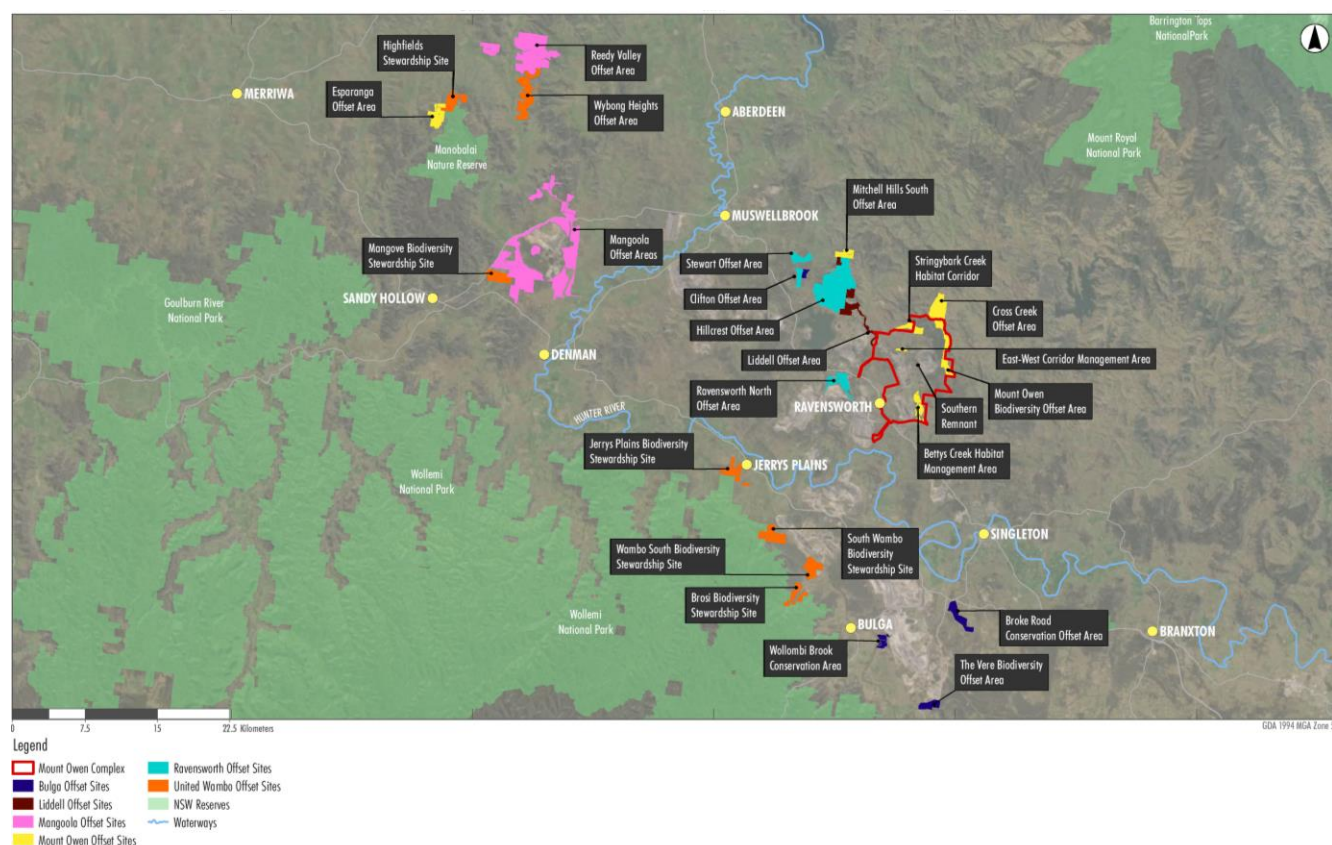
The Mt Owen BOAs are strategically positioned in the landscape near to a number of existing conservation reserves including Manobalai Nature Reserve and other Glencore offset sites (**Figure 1**).

This remnant provides an important link for the north/south movement of highly mobile species, from other sizeable remnants in the locality. The significant size of the collective offset areas provides an important area of habitat for a wide range of flora and fauna species.

Of particular importance is the ability of the remnant to support a range of species whose occurrence is limited by the need for a large area of contiguous habitat, such as woodland dependent bird species. Due to the widespread historic clearing and fragmentation of the valley floor vegetation, there are few large remnants greater than 100 hectares remaining in the central Hunter Valley increasing the significance of those remaining large remnants.

At the end of the mine's life, it is expected that rehabilitation of mined areas, and active plantings and management of vegetation across Mt Owen's offsets will result in an area of native woodland approximately five times larger than the woodland community that existed prior to mining. This total area of woodland (over 2000 hectares) will be comparable with the largest areas of existing remnant vegetation on the Hunter Valley floor.

**Figure 1 Map of the Mt Owen Mine Biodiversity Offset Areas**



## Performance of the offsets

### Fauna

Annual fauna monitoring has taken place at Mt Owen since 1996. As documented in the most recent monitoring report from 2020, to date the monitoring has recorded 165 native bird species, 45 native mammal species, 32 native reptile species and 19 native frog species. Of these, 30 species are listed as threatened under the NSW and/or Commonwealth legislation.

The critically endangered swift parrot has also been recorded over multiple years foraging in winter flowering resources in the offset areas east of Ravensworth State Forest. Furthermore, targeted nest box

installation programs have supported a range of threatened woodland birds, micro-bats and arboreal mammals that have been found to utilise these augmented habitats. Over 600 nest boxes have been installed throughout the area to date.

### Box 2 – The Spotted-tailed Quoll

The 2020 monitoring included the successful radio tracking of the Commonwealth listed Spotted-tailed Quoll. Quolls been found to occur across the Mt Owen site, including confirmed denning locations.

The species was found to be concentrated in the New Forest and Ravensworth State Forest areas, but has also been recorded in the offsets to the southeast and northwest of the Mt Owen pits as well as woodland rehabilitation areas. The movement of this species across the habitats of the site indicates that the strategic location of the offsets and regeneration of woodland habitats are providing connecting habitats for threatened fauna species in the locality.



**Photo: Spotted-tailed quoll recorded near installed habitat structure, Stringybark offset site, January 2020 (Glencore)**

### Vegetation communities

The 1994 approval of the mine included conditions to establish the 430 hectare New Forest in compensation for the loss of 240 hectares of the Ravensworth State Forest. The New Forest was established in an area that was generally devoid of native woodland and forest vegetation.

The successful re-establishment of vegetation communities and habitats in this area enabled transfer of the New Forest to Forestry Corporation NSW in December 2003, and incorporation into the Ravensworth State Forest where it is designated for conservation.

In 2013 Glencore commissioned an assessment of the ecological value of offset restoration works and mine rehabilitation to determine how these areas are trending towards completion/performance criteria.

Comparisons were made against the NSW Scientific Committee's Final Determination for the *Central Hunter Ironbark – Spotted Gum – Grey Box Forest in the NSW North Coast and Sydney Basin Bioregions Endangered Ecological Community (EEC)* for each of the rehabilitation, revegetation, regeneration, and remnant vegetation areas sampled as part of the assessment:

- All areas show reasonable evidence of self-sustainability (through species recruitment), or at least early signs of self-sustainability.

- All areas support a canopy dominated by spotted gum (which is a characteristic species of the EEC), and in some cases other characteristic canopy species.
- All areas support a reasonable to moderate proportion of species that are listed as being characteristic of the EEC (assessed both as the proportion of the community that is represented on the EEC listing, and as the proportion of the EEC listing that is represented in the community).



**Photo: Mt Owen North Pit woodland mine rehabilitation, July 2021 (Glencore)**

Areas of the New Forest and the BOAs were found to meet the completion criteria and are now regarded to support vegetation communities consistent with the Central Hunter Ironbark-Spotted Gum-Grey Box Forest EEC. The extensive revegetation program across these sites is expected to substantially increase this community in the landscape.



**Photo: Regenerated Central Hunter Ironbark - Spotted Gum – Grey Box Forest EEC found in the Mount Owen BOAs (Glencore)**



**Photo: Natural Regeneration of Central Hunter Ironbark - Spotted Gum – Grey Box Forest EEC in grasslands in the Mount Owen BOAs (Glencore)**

The Mt Owen offsetting strategy has demonstrated the successful re-establishment of the Central Hunter Ironbark-Spotted Gum-Grey Box Forest EEC in the locality, as well as providing connectivity for fauna species between remnant vegetation. The long-term final landform outcomes for this area are intended to enhance the existing offsetting landscape with woodland rehabilitation, providing additional connectivity with a mosaic of mature and emerging woodland and grassland habitats.

## Case Study 2 - Whitehaven Coal's Yarrari and Belah biodiversity offset properties established under Biobanking Agreement

*Whitehaven Coal's BioBanking Agreement offset site is a significant commitment to the protection and enhancement of biodiversity of the Gunnedah region and NSW. By removing grazing from these former farming properties and actively managing biodiversity, Whitehaven has secured the conservation value of the properties in perpetuity and made a significant contribution to the conservation in the region.*

### Background

In 2008 Whitehaven purchased two former grazing properties, Yarrari and Belah, in the Gunnedah region establishing them as a Biobanking site in June 2012. Despite the properties being used for grazing in the past, the properties contained a range of flora and fauna species, including two endangered ecological communities.

The sites were secured using a BioBanking Agreement, under the NSW Government's former BioBanking Scheme. BioBanking Agreements require protection and management of the land in perpetuity and require that the costs of management are paid to a NSW Government fund.



**Photo:**      **Remnant of White Box grassy Woodland Endangered Ecological Community (Whitehaven)**

## The BioBanking site

Whitehaven's Biobanking site is situated about 20 kilometres north of Gunnedah and borders the Boonalla Aboriginal Area (formerly Kelvin State Forest) to the east and another Whitehaven owned/managed biodiversity offset property to the north. The property covers an area of 1,500 hectares and includes four vegetation types. Two of these are listed as endangered ecological communities:

- The Semi-evergreen vine thicket of basalt hills of NSW north west - This community consists of 176 hectares and is largely intact and free of weeds.
- The White Box grassy woodland of the Nandewar and Brigalow Belt South Bioregions - This community consists of 350 hectares as predominantly low diversity grassland.

In cleared areas, the ground vegetation ranged from poor to good condition. In the good condition areas, the grassland is largely native species associated with the original ecological community. The poor condition grassland indicates that the pasture was historically improved and will require revegetation to convert back to a native dominated groundcover.

### Box 1 – Protected habitat for threatened fauna

More than 30 threatened flora and fauna species are predicted to eventually live on the site, this includes Koalas, owls, bats and lizards and threatened species including the Grey Crowned Babbler and square-tailed kite.

Amongst these, the Grey-Crowned Babbler has already been recorded on site. A number of others have been recorded on the adjoining Boonalla Aboriginal Area, including the Koala, Grey-crowned Babbler, Masked Owl and the Eastern Bentwing Bat.



Photo: Grey-crowned Babblers have been recorded on the offset (NSW DPIE)

## Threats

The main threats to the site are overgrazing by feral animals and the poor condition of previously improved pastures. Whitehaven has prioritised the management of these key threats to minimise their impacts onsite.

### Regional significance of the offset

The Yarrari and Belah Biobanking Agreement properties combined with the adjoining Whitehaven owned biodiversity offset properties to the north, Roseglass and Bimbooria, secure in perpetuity over 3500 hectares for future biodiversity management and conservation.

Collectively with the bordering Boonalla Aboriginal Area (managed by NSW National Parks and Wildlife Service), the offsets protect and conserve over 5000ha (see figure 1 below) of a regionally important biodiversity corridor along the Nandewar range within a predominately agricultural landscape.



Figure 1 Yarrari and Belah properties

### Whitehaven's management commitments

In securing the properties as a BioBanking site Whitehaven has committed to actively manage the site and restrict the future uses of the site. Over \$1.8 million has also been paid to the NSW Biodiversity Conservation Trust to ensure that the cost of managing of the land is secured in perpetuity.

Whitehaven has also committed that grazing will not take place on the property.

The most significant management actions are:

- *Revegetation of over 270ha of native vegetation communities onsite* - Native canopy species such as the White Box have been planted as tubestock with protection from tree guards and a watering regime achieving over 70% survival since 2017.
- *Control of feral herbivores and vertebrates* - Whitehaven coordinates formal feral animal monitoring across the site adopting a "monitor, measure and manage" approach allowing contractors to implement adaptive and targeted feral animal management in response to changes in feral animal abundance. Since 2008, Whitehaven's feral animal control programs have removed over 1700 goats, 580 pigs and nearly 200 foxes from the site.
- *Heritage management* – Aboriginal heritage surveys have identified 32 sites that have been protected within 6km of fencing and signage which complement the values of the adjoining Boonalla Aboriginal Area.
- *Weed control* - Whitehaven coordinates routine weed monitoring/inspections that ensure timely and prioritised weed control is undertaken on a seasonal basis targeting key priority and invasive species such as Prickly Pear, African Box Thorn, African/Consul Lovegrass, Buffel Grass and Broadleaf weed species as required.



**Photo: Fencing and signage of Aboriginal Heritage Sites (Whitehaven)**



**Photo: Revegetation of Yarrari paddocks with White Box tree seedlings into formerly grazed grasslands (Whitehaven)**

### **Impact of management actions**

Ecological monitoring shows that the management actions are having a positive impact on the site.

Since the first flora monitoring program in 2009; all except one monitoring site, have increased their diversity (native plant species richness) between 8 percent and 450 percent under Whitehaven's biodiversity management.

The ecological monitoring program of the site includes winter bird surveys and annual spring flora monitoring of 34 sites across the Yarrari and Belah properties. The results of 2020 flora monitoring found that:

- Native plant species richness increased from 10 sites to 20 out of 34 meeting or exceeding the completion criteria (80% native species richness benchmark for relevant biometric vegetation communities).
- Native overstorey cover increased from 6 sites to 7 out of the 34 sites meeting or exceeding the completion criteria (minimum overstorey cover benchmark for relevant biometric vegetation communities).
- Native midstorey cover was consistent with the previous year with 27 out of the 34 sites meeting or exceeding the completion criteria (minimum midstorey cover benchmark for relevant biometric vegetation communities).
- Native ground cover grass increased from 1 site to 15 out of the 34 sites meeting or exceeding the completion criteria.

Winter bird survey's found threatened birds such as Turquoise Parrot, Diamond Firetail and Brown Treecreeper.

## Case Study 3 – Yancoal’s Goulburn River Biodiversity Offset Area

*Yancoal’s Goulburn River Biodiversity Area provides protection and enhancement of vital habitat for the Regent Honeyeater and Swift Parrot, as well as woodland communities and important regional connectivity. While only young in terms of offsets, the site has already seen very significant progress with a program to eradicate noisy miner birds enhancing the breeding habitat of Regent honeyeaters.*

### Background

A former grazing and cropping property the Goulburn River Biodiversity Area (Goulburn River BA) provides a regional offset for Yancoal’s Mount Thorley Warkworth (MTW) and, to a lesser extent, Hunter Valley Operations. The Goulburn River BA is 1,539 hectares, including 1,206 hectares of offsets.

Prior to purchase, the land along the valley floors had been cleared for grazing and, in some parts, cropping for many years. The lower foothills and upper sandstone escarpments however are relatively untouched and contain important biodiversity, including habitat for the Regent Honeyeater and Swift Parrot.

The offset contains seven different vegetation communities including the Commonwealth and NSW listed threatened ecological communities, White Box grassy woodland and Yellow Box - Grey Box – Red Gum grassy woodland. The property contained threatened vegetation communities in good condition that will be protected and managed, and others in poor condition that will be actively enhanced to significantly improve the biodiversity values of the property.

Threatened mammals, migratory or migratory marine birds and other birds were recorded at the site – 16 birds and nine mammals. Although the Regent honeyeater and Swift parrot were not amongst those recorded, expert assessment found suitable habitat for these highly threatened birds.



**Photo:**      **Goulburn River Biodiversity Offset (Yancoal)**

## Regional Significance

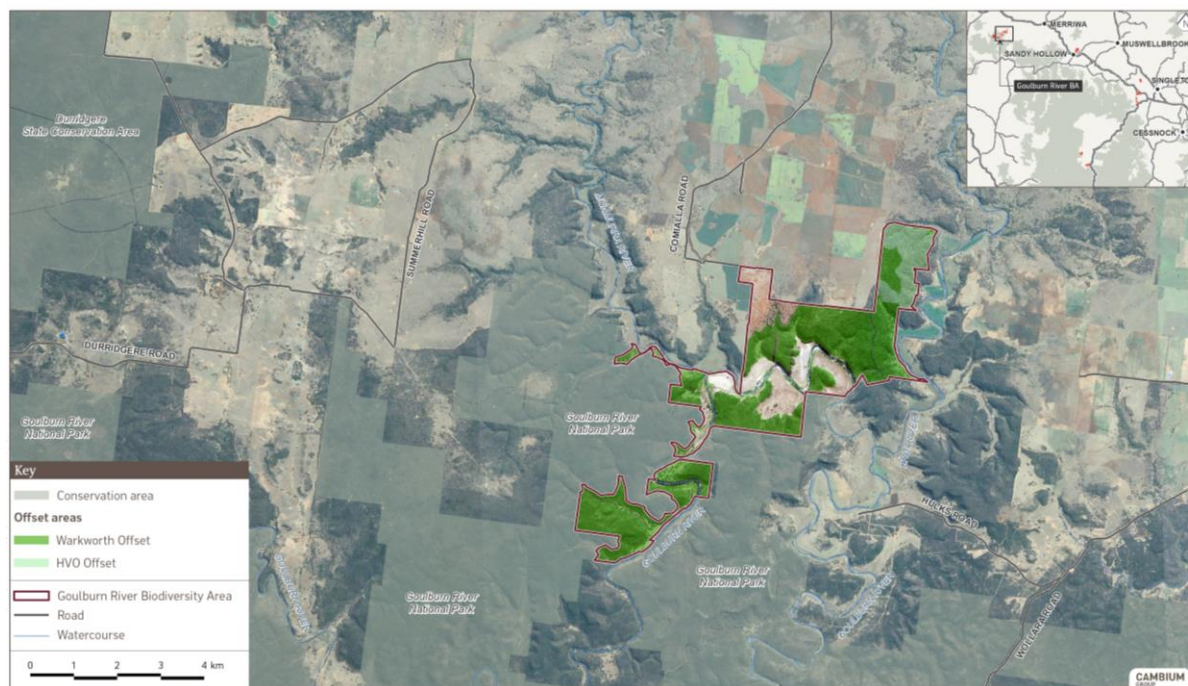
The property is situated strategically amongst two important conservation areas:

- The Goulburn River National Park directly adjacent to the south and west.
- The Durrigere State Conservation Area approximately 12 km to the north-west.

**Figure 3** shows the Goulburn River BA and adjoining reserves.

Protection and enhancement of the Biodiversity Area will help facilitate the movement of fauna across the landscape and increase areas of suitable habitat for threatened fauna species. Without this protection, areas in poor condition could have degraded further and the site subject to further disturbance.

**Figure 2** Goulburn River Biodiversity Offset and surrounding conservation areas



## Performance of the offset

Most significantly in December 2016 and January 2017, Regent Honeyeaters were sighted for the first time on the Goulburn River BA. At least 10 adults and 4 juveniles were identified. Birds were noticed nesting on the site, a rare find as the Regent Honeyeater has few breeding grounds and is estimated to have a population of only 350 individuals. Yancoal in collaboration with ANU and NSW National Parks and Wildlife Service has implemented a highly successful noisy miner management program to protect this important breeding ground (see **Box 1**).

From 2017 to 2019 eight pairs of Regent Honeyeaters have been recorded in the Goulburn River Biodiversity Area, highly significant when considering the total population of the species. Due to the lagged effects of drought, namely a lack of eucalypt blossom, no Regent Honeyeaters were observed nesting on the property in 2020 however this is expected to reverse with better seasons.

In 2019, planting to increase suitability of habitat of the Regent Honeyeater commenced on the biodiversity area. 17,000 tube stock were planted in cleared areas of Yellow Box – Grey Box- Red Gum

grassy woodland and riparian woodland areas. 2020 saw a further 12,000 tube stock planted as infill. Drought conditions have meant that the areas have needed additional water, but active management continues with plans for further planting in 2021.

#### **Box 1 – Protecting the Regent Honeyeater breeding ground**

Noisy miners chase Regent Honeyeaters away from nests and destroy their nests. The expansion of noisy miners into Regent Honeyeater breeding grounds is one of the most significant threats to the species.

Yancoal along with the Difficult Bird Group at ANU, and liaising with NSW National Parks and Wildlife, which own the neighbouring National Park, have designed and implemented a successful noisy miner culling program. Noisy miner culling programs generally have short lived success, with the birds quickly returning to the cleared area. Yancoal recognised that the breeding ground for Regent Honeyeaters on the Goulburn River BA provided an ideal site for culling the noisy miner; with the surrounding areas heavily forested and unsuitable for noisy miners.

Culling commenced in 2017, with treatment of 350 hectares. Noisy miners were culled as close to the start of the breeding season as possible. Relative to the control area noisy miners did not return in any significant numbers for at least the breeding season. The first Regent Honeyeaters returned within two days of the cull, with six pairs nesting in the treatment area.

Since the start of the project, a total of eight regent honeyeater pairs (potentially representing 10% of the global breeding population) have nested in the treatment area, along with multiple other threatened bird species such as painted honeyeaters, brown treecreepers and speckled warblers.

The success of the program has meant the treatment area has been expanded to twice the size. It is the most successful noisy miner management program in Australia, and the results of the project are feeding into a Commonwealth review of noisy miner management.



**Photo: Regent Honeyeater (Murray Chambers)**