

## Coal Mine Rehabilitation

2020 Update



It's great to  
be able to give  
something back  
after we've  
finished mining.

- Tim Haig  
Mine Manager  
Mangoola Open Cut

In 2019, our Australian coal operations:

Completed

**1,343ha** of rehabilitation

Invested more than

**\$44 million**  
in rehabilitation work

Used more than

**2 million** of topsoil  
cubic metres

Planted  
almost

**70,000 tubestock  
& seedlings**

Sowed  
more than

**29 tonnes**  
of seed

In total, we have now  
rehabilitated

**18,500ha**  
of mined land

2010

Our rehabilitation planning ensures programs are **resourced, budgeted and delivered**.

April 2013

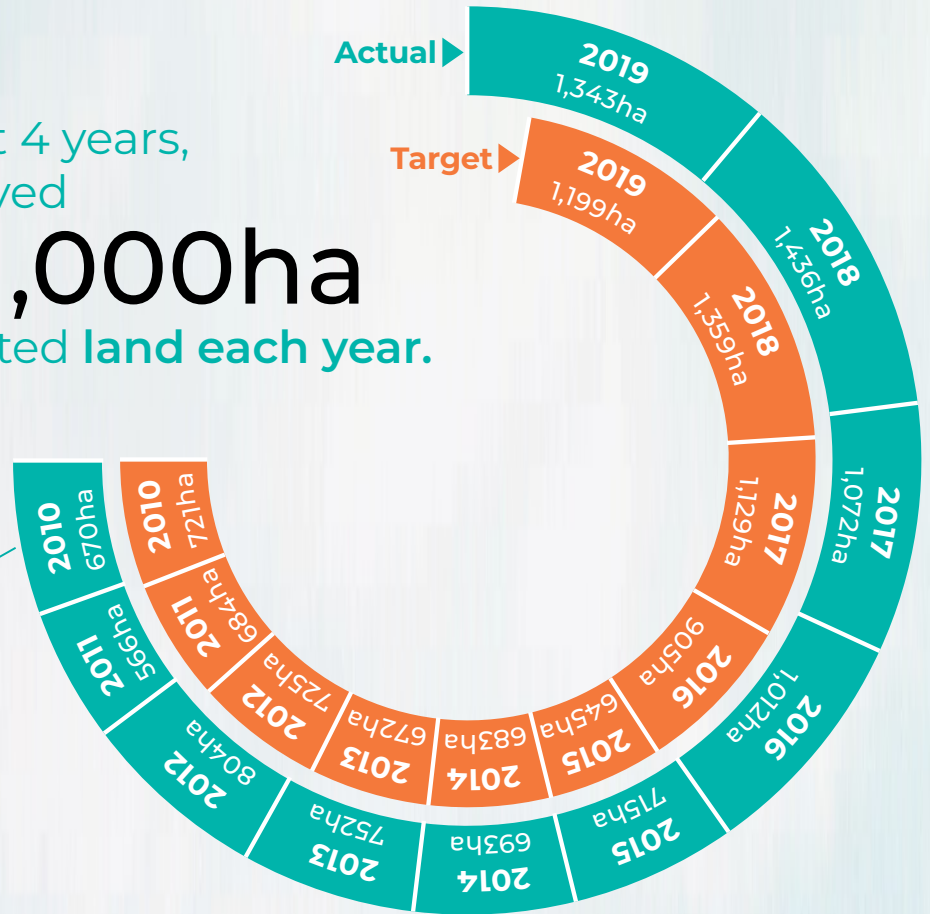
July 2017

March 2020

Progression of rehabilitation on Bootes West mining area at our Rolleston Open Cut operation.



Over the last 4 years,  
we've achieved  
**over 1,000ha**  
of rehabilitated land each year.



A more systematic approach to rehabilitation has seen our **sites meet and exceed** more challenging targets.



A mine void backfill and revegetation project at Oaky Creek.

# Rehabilitation

In 2019, our Australian coal operations **rehabilitated more than 1,300 hectares of mined land**, the fourth successive year that we have achieved more than 1,000ha in a year.

This outcome reflects the strong focus we place on returning mined land to either self-sustaining native ecosystems, agricultural use or other suitable purposes that **meet requirements** set down by Government and the expectations of the communities that host our operations.

Planning for rehabilitation at all Glencore open cut operations starts as **early in the mine life as possible**. In fact, with our contemporary mines this takes place before first coal is mined.

Rehabilitation is then incorporated into daily mine plans and annual plans to ensure the work is adequately **resourced, budgeted and delivered**.

These annual plans include **targeted areas for disturbance, shaping and seeding** for the budget year ahead, as well as forecasts for rehabilitation across the life of mine to minimise the area of rehabilitation required at the end of mining.

Our rehabilitation is not just about quantity. The **final outcome has to be quality** as well, capable of meeting an agreed end land use.

To help facilitate this, we have introduced a **Rehabilitation Report Card** that is used by our Queensland operations to assess the status of any rehabilitation area against set success criteria.

Developed with the assistance of the University of Queensland's Centre for Mined Land Rehabilitation (SMI-CMLR), the Report Card **shows how well rehabilitation areas are performing**, removes measurement bias, and includes scientific rigour that stands up to future scrutiny. The Report Card is currently being adapted for use by our NSW operations and is expected to be operational by the end of 2020.

This systematic approach has enabled a number of our sites to achieve **industry firsts for rehabilitation**.

Our Newlands Open Cut operation in central Queensland was the **first in Bowen Basin coal mining history** to have mine spoil certified by regulators as being successfully rehabilitated while operations continue.

Our Rolleston Open Cut operation, also in central Queensland, has now achieved certification for almost **400ha of its rehabilitation**, which represents almost 40% of the total amount of mined land that has been rehabilitated at the site.

Our Westside Open Cut site in the NSW Lower Hunter has received Government certification for 38ha of its rehabilitated mined land, **a first for the State's coal industry** under contemporary mine rehabilitation criteria.

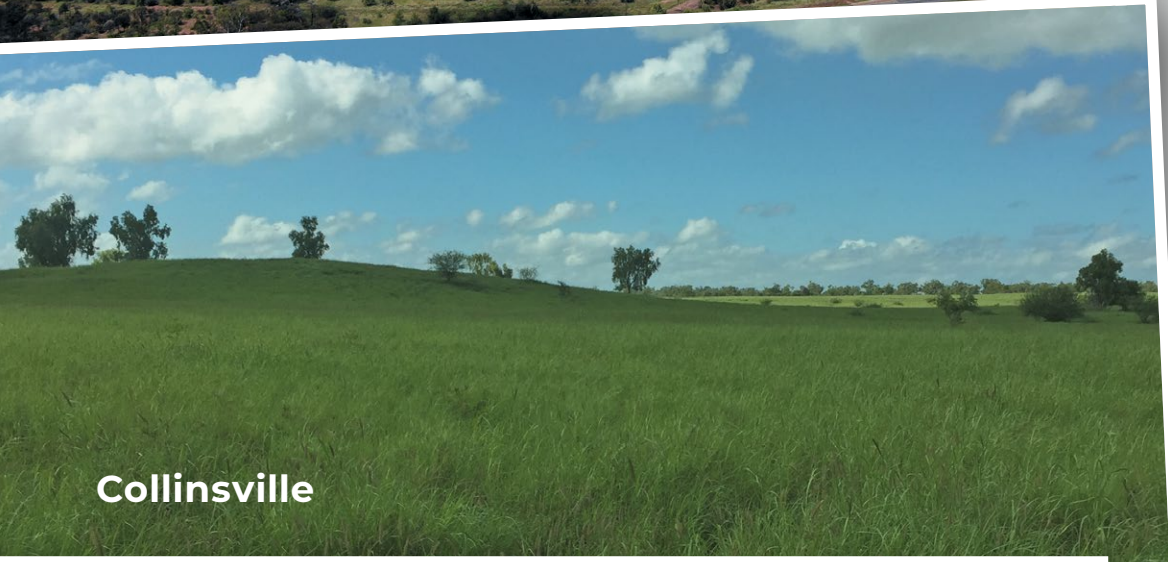
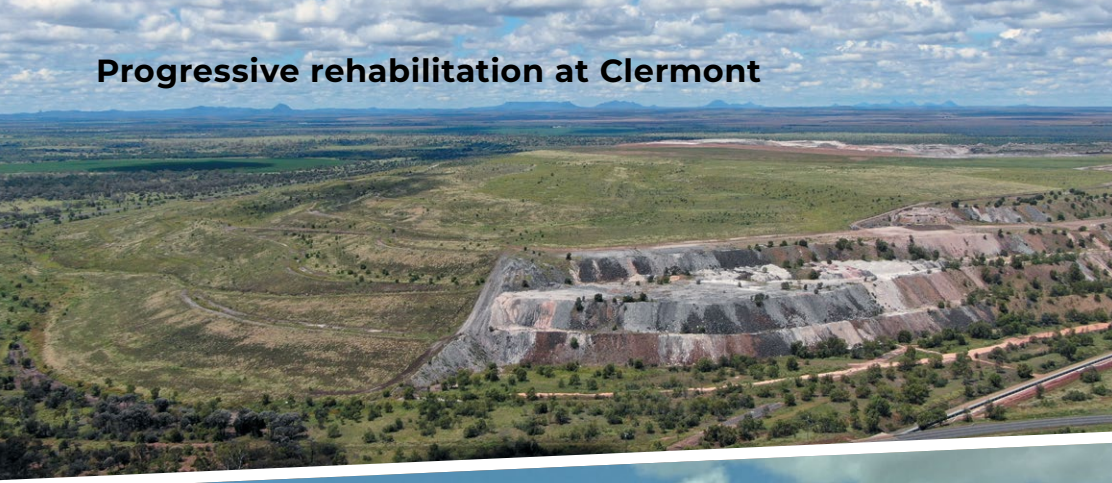
And most recently in March 2020 our Ulan Coal operation in the NSW Mid-Western region has also achieved Government **sign-off on 50ha of its rehabilitation**.



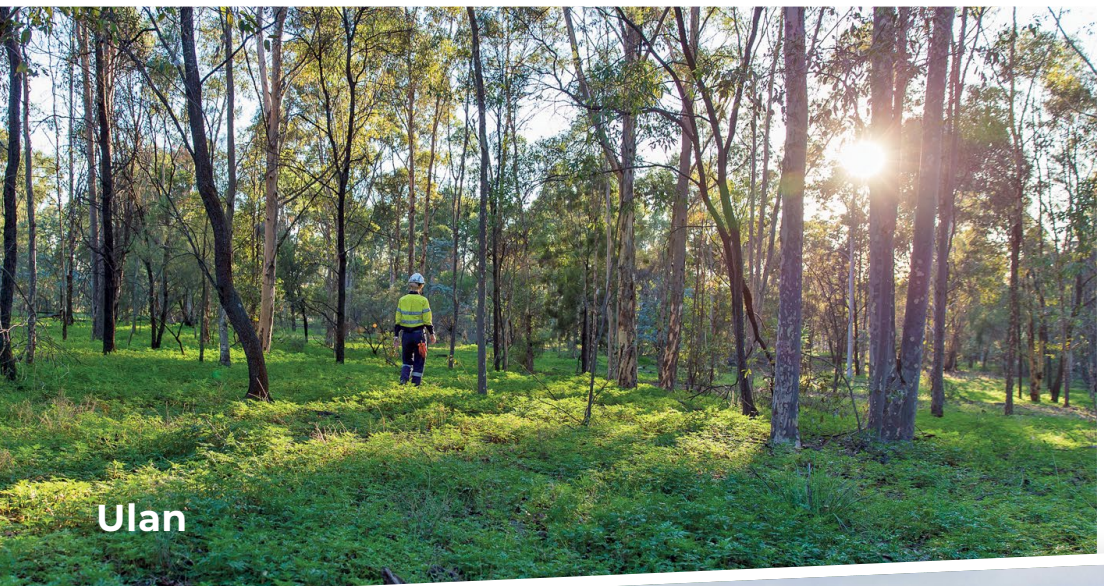
**Our focus on resourcing and planning is reflected in the quality of our rehabilitation.**

- Pieter Swart  
*Queensland E&C Manager  
Glencore Coal*

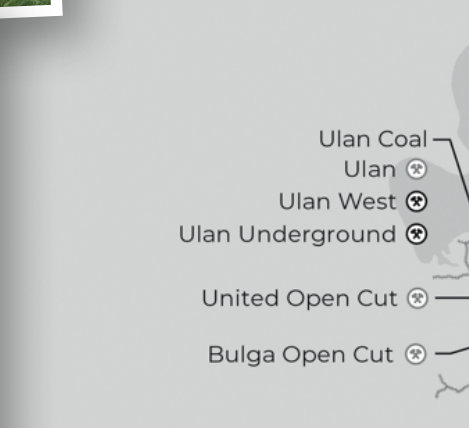
# Progressive rehabilitation at Clermont



Collinsville



Ulan



Ravensworth



Point Coal Terminal (T1)  
n  
ackay  
Dalrymple Bay Coal Terminal



- ⊕ Mangoola Open Cut
- ⊕ Hunter Valley Operations
- ⊕ Liddell Open Cut
- Mount Owen Coal
- ⊕ Mount Owen
- ⊕ Glendell
- ⊕ Ravensworth Coal
- ⊕ Integra Underground
- ⊕ Port Waratah Coal Services Newcastle
- ⊕ Sydney (Regional headquarters)
- ⊕ Port Kembla Coal Terminal Wollongong



Mangoola

We're seeing sites set more challenging targets; we're seeing more innovative practices; and we're seeing some excellent outcomes.

- Nigel Charnock  
Land & Property Manager  
Glencore Coal



Hunter Valley Operations



Ongoing monitoring has shown that natural ecosystem functions were returning, with recent surveys identifying 69 native fauna species in the rehabilitation, including 11 threatened species.



## Westside Case Study

Our Westside open cut coal site in the NSW Lower Hunter has received Government certification for a section of its rehabilitated mined land, a first for the State's coal industry under contemporary mine rehabilitation criteria.

The Government sign-off on 38 hectares of the rehabilitation – equivalent to more than 60 football fields – means the rehabilitation of these former mining areas has met all rehabilitation objectives and closure criteria set out by the Department of Planning and Environment, the Resources Regulator, and the Division of Resources and Geoscience.

The Westside open cut mine, near Wakefield on the north-western shores of Lake Macquarie, produced coal for domestic power generators between 1992 and 2012.

The mine maintained a very strong focus on progressive rehabilitation during its operations and set a high standard under rigorous criteria being applied to mine closure.

It meant final rehabilitation of the mine was completed in April 2012, just two months after mining finished.

The site has been returned to bushland consisting of native vegetation communities that are characteristic of the local environment and landform type.

Ongoing monitoring has shown that natural ecosystem functions were returning, with recent surveys identifying 69 native fauna species in the rehabilitation, including 11 threatened species.

The certification for Westside follows a similar first for coal mine rehabilitation at Glencore's Newlands operations in Queensland's Bowen Basin.

38ha

rehabilitated mined  
land received  
**Government  
certification**





## Collinsville Case Study

Our Collinsville Open Cut operation in the Bowen Basin, which has been operating for 100 years, continues to apply a strong focus on integrating annual life-of-mine and closure planning processes that is driving significant outcomes in rehabilitation.

The oldest operating mine in Queensland, Collinsville is in the process of applying for Government sign-off on progressive rehabilitation over a previous mining area known as Belmore.

Two other mine voids have now also been completely back-filled in recent years while the site has rehabilitated more land between 2012 and 2019 than it disturbed for mining.

The Belmore site at the operation was mined by open cut methods between 2000 and 2003 and the working pit was completely backfilled following the end of mining.


The area being nominated for progressive rehabilitation sign-off is approximately 100ha in size. Rehabilitation of the area was completed in 2003/4.

Since 2007, Belmore has been used for grazing cattle by a private landholder from a neighbouring property and rehabilitation monitoring shows that the area meets the Environmental Authority rehabilitation success criteria for grazing land use.

Glencore engaged a third party environmental consultant to prepare the progressive rehabilitation report for submission to the Department of Environment and Science for sign-off assessment.

the site  
rehabilitated  
**more land**  
between 2012-2019  
than it disturbed  
for mining.





“ Mining the coal  
isn't the end of it.  
It's putting it all back  
together again.

- Ken Dixon  
*Environment &  
Community Manager  
Rolleston Open Cut*

GLENCORE

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