REHABILITATION AND MINE CLOSURE

Our track record

Iluka has been mining and rehabilitating land in Australia for 70 years. Safe and responsible environmental stewardship is fundamental to what we do.

For more than 50 years, Iluka has been working respectfully with local landowners to successfully restore land. During this time, the company has rehabilitated:

- 12,000 hectares of land across Australia to native vegetation and agricultural use
- 18,000 hectares of land across the company's global footprint, including in the United States
- 223 hectares across Australia in 2023

The continued achievement of positive environmental outcomes is central to Iluka's purpose - to deliver sustainable value.

Our rehabilitation approach

Iluka typically adopts a progressive rehabilitation approach, which means that rehabilitation starts as soon as possible after ore has been mined in a pit. Some parts of a mine pit may be backfilled and rehabilitated while other parts of the pit are still being excavated and mined. We seek to minimise the total disturbed area and reduce impacts such as surface water run-off and dust at any given time.

Pre-mining, Iluka conducts studies on the proposed mine site and surrounding region to understand the soil types and profile, agricultural productivity, native flora and fauna, and water characteristics. This information informs the preparation of mining and rehabilitation plans that seek to minimise the disturbed area at any one time.

Planning also includes confirming the post-mining land use, identifying and managing rehabilitation risks, determining relevant closure objectives and completion criteria, and developing rehabilitation management and engineering prescriptions.

Key to successfully restoring land is the management of soil resources; when earthworks commence, topsoil, subsoil and overburden (the deeper soils above the ore) are removed in layers, which are stockpiled separately so they can be replaced appropriately during rehabilitation.

Once the topsoil is replaced, the land is revegetated to establish pasture, crops or native vegetation. In the case where a mine is developed on agricultural land, post-mining assessments are undertaken to demonstrate that productivity has been restored to pre-mining levels.

Iluka manages and monitors rehabilitated land for several years to ensure agreed mine closure goals and completion criteria have been met. Where they have not, remedial work or further monitoring must take place to improve the affected land.

Mine closure

Upon completion of rehabilitation, the company prepares a completion report, supported by investigation reports from experts such as agronomists and engineers, to the landowner or leaseholder to show agreed rehabilitation objectives have been met. Regulatory authorities assess the rehabilitation work to ensure the closure objectives and completion criteria have been met.

It is common for rehabilitation plans to set targets for landform, groundwater, surface water, native vegetation and agricultural productivity, which have to be shown to be met for regulatory sign-off to occur.

Regulatory oversight

Australia has some of the strongest mining and environmental standards in the world. Iluka's rehabilitation activities are carried out in accordance with all relevant statutory requirements.

Beyond compliance with our statutory obligations, Iluka develops and maintains its own internal policies and standards to ensure a high level of environmental performance. For more information about our progress and performance on environmental management, refer to our latest Sustainability Data Book.

CASE STUDIES

Iluka's drone seeding trial at Jacinth-Ambrosia

With rehabilitation activities expected to increase significantly at Iluka's Jacinth-Ambrosia mine in the coming years, our team has been exploring innovative methods to enhance our approach.

Seeding machinery was initially tested, but many species at J-A have wings, burrs, and spines that interlock when seeds are mixed in bulk, causing machinery to clog. As a result, hand seeding had been necessary to date. To address his, Iluka's rehabilitation specialists investigated alternative solutions and decided to trial aerial seeding with drones.

Iluka's Senior Rehabilitation Specialist explains:

"We engaged a specialist drone seeding company and successfully rehabilitated 40 hectares using a drone specifically modified for spreading native seed.

Seed from all target plant species was mix together in bulk and placed in the drone's hopper, where it was carefully rolled, agitated, and then evenly spread using a spinning disc.

The drone was calibrated to distribute 2.63 kilograms of seed per hectare to achieve desired species densities, following a pre-determined flight path across the area.

This is the first method trialed at J-A where seed from all target species was successfully mixed in bulk and evenly spread across the rehabilitation area. With traditional hand seeding, it would have taken approximately two weeks to cover this area.

We were impressed with the technology and its potential for conducting large-scale rehabilitation, as well as its ability to access remote locations. We look forward to evaluating the diversity and abundance of native species in the rehabilitated areas over the coming months."

Iluka-owned land at North Capel to create carbon credits

One hundred hectares of land in Western Australia's South West will be converted to a biodiverse forest, generating carbon credits over the next 25 years, after Iluka Resources appointed Canopy (the environmental credits business of Greening Australia) to deliver the project.

This is the first time Iluka has planted to generate carbon credits, which will partially offset the company's carbon emissions as part of a broader climate change work program focused on decarbonising Iluka's operations.

The project site is close to Iluka's North Capel operations; it was fenced to prevent uncontrolled grazing and the soil prepared using Iluka's specialised rehabilitation machinery known as Flora Restorer. After rainfall during autumn 2024, Canopy began planting native trees and seeds produced from local nurseries into the freshly prepared soil. A large group of Iluka employees helped to plant the remaining trees during a working bee in June.

The project is an opportunity for Iluka to learn by doing and validate the technical and commercial processes to generate carbon credits. This will inform the potential of scaling up carbon credit generation in other locations where Iluka owns land.

Iluka's first site-wide relinquishment in Western Australia

In 2022, Iluka relinquished its Wagerup site upon successfully meeting the objectives and completion criteria of the approved closure plan. Iluka mined mineral sands at Wagerup from 2004 to 2009 and land rehabilitation activities were completed in 2015.

In 2019, the Wagerup mine closure plan was approved by the Western Australian Department of Energy, Mines, Industry Regulation and Safety. Prior to progressing the application to relinquish, Iluka was required to demonstrate effective management of any residual risks associated the burial of by-products. The completion report was approved by the Department in early 2022.

This was Iluka's first site-wide relinquishment and sign off and represents one of few mine sites closed under contemporary closure requirements in Western Australia.

Iluka receives Golden Gecko Award for Environmental Excellence

Iluka Resources received the prestigious Golden Gecko Award for Environmental Excellence in 2022 for its bespoke seeding machine Flora Restorer. Presented by the Western Australian Department of Energy, Mines, Industry Regulation and Safety, the award sets an example to industry of innovation and excellence.

The Flora Restorer tractor-drawn machine is Iluka's innovative rehabilitation equipment design that dramatically improves the revegetation of Eneabba's diverse kwongan ecosystem post-mining. Flora Restorer scarifies the sandy soil surface, air-seeds diverse seeds, buries them by land imprinting, and sprays a crust of dilute bitumen emulsion to prevent wind and water erosion.

Five years of field research trials demonstrated a unique process that increased seedling emergence 2–3 fold. Flora Restorer has more than doubled the annual area rehabilitated. Independent botanical monitoring has confirmed the revegetation from Flora is both more diverse with increased plant growth compared to previous rehabilitation practice.

Investment and commitment to field research trials proved the potential of the innovative combination of processes. Working with local companies to design, construct and commission the Flora Restorer equipment was critical to practical application, realising the excellent environmental outcomes. Iluka's investment in innovation is focused on strengthening operational, sustainability, processing and product outcomes; learnings from the project are shared through publications and speaking engagements.

Restoring ecological value of a former mine site at Iluka's Capel wetlands

Researchers from Murdoch University's Harry Butler Institute have begun monitoring the South Capel wetlands, a former Iluka mine site rehabilitated in the 1970s, to provide a baseline ecological survey of the site.

The South Capel wetlands comprise a chain of 17 wetland lakes over 319 hectares. The area was predominantly pine plantation prior to 1971 when mining commenced and continued for over ten years.

Planning for the post mining land use of the site focused on environmentally beneficial outcomes by restoring wetlands and native vegetation instead of returning the pre-mining pine plantation. This was considered desirable due to significant loss of wetland habitat on the Swan Coastal Plain as a result of agricultural and urban development. Subsequently the mine pits were rehabilitated to provide wetland and dryland habitat for native species.

Recent studies demonstrate that the site already has significant ecological value. Researchers have found that the wetlands support good populations of endemic fish, the threatened Carter's Freshwater Mussel, and the near-threatened Southwestern Snake-necked Turtle species.

The surrounding dryland vegetation harbours several species of conservation significance such as the critically endangered Western Ringtail Possum, threatened Quenda (or Southern Brown Bandicoot), the near-threatened Brush-tailed Phascogale, endangered Baudin's Black and Carnaby Black cockatoos, and the vulnerable Forest Red-tailed Black Cockatoo.

The base case for rehabilitation of the site is to return it to a State Forest land use. Iluka is currently supporting the evaluation of an alternative community-led land use proposal for the Capel wetlands site, which includes a biodiversity centre and wildlife hospital.