Newmont Corporation is the world's largest gold company and a producer of copper, silver, zinc, lead and molybdenum, with a diverse portfolio of assets spanning Australia, Africa, Latin America and the Caribbean, North America and Papua New Guinea.

The Telfer mine in the Great Sandy Desert region of Western Australia – which was recently sold to Greatland Gold – produces gold and copper, with 661ha of the mine project area currently under rehabilitation.
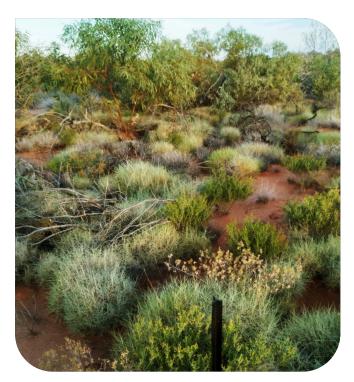
While still under Newmont Corporation ownership, Tyton was engaged to support the development of rehabilitation completion criteria for Telfer – a set of ecological targets that rehabilitation is compared against to determine success.

> "Using the TytonAI tool to put data at our fingertips, understand what's happening with rehab areas then build a feedback loop at landscape level is very useful.
>
> "This tool gives us the power to focus investment on our on-ground monitoring and rehabilitation activity based on accurate and comprehensive data.
>
> "It also empowers our stakeholder engagement by clearly showing how we meet completion criteria with a couple of clicks, a vast improvement over static, lengthy and isolated reports."
>
> **Brad Stokes**
> Newmont Corporation
> Environment Manager

The challenge

Landscape Function Analysis (LFA) monitoring had long been used to evaluate Telfer's rehabilitation status.

This conventional on-ground method only assessed small sample areas, meaning data collected wasn't representative of the entire project area and didn't reflect rehabilitation progress at landscape scale.

LFA was also heavily reliant on large 3looolon-ground teams spending extended periods in the field to obtain data.

Newmont wanted to adopt an integrated rehabilitation method at Telfer to increase efficiencies, reduce error, obtain more accurate data and identify rehabilitation trends and trajectories.

The solution

Aerial data was captured across the Telfer tenement and fed into the TytonAI machine learning model to analyse flora, vegetation, and landscape elements across the entire Telfer site.

Using TytonAI for monitoring resulted in the elimination of observer and sampling error, allowed managers to visualise trends and trajectories, reduced on-ground survey requirements, and enabled data-driven decision making.

As appreciation of Tyton's capabilities evolved, the same technology was applied to conduct weed analysis across the entire Telfer tenement area.

Implementation of the complementary TytonEIS centralised data storage and analytics platform to house monitoring results along with related environmental datasets, powered by a suite of custom tools for rehabilitation management.
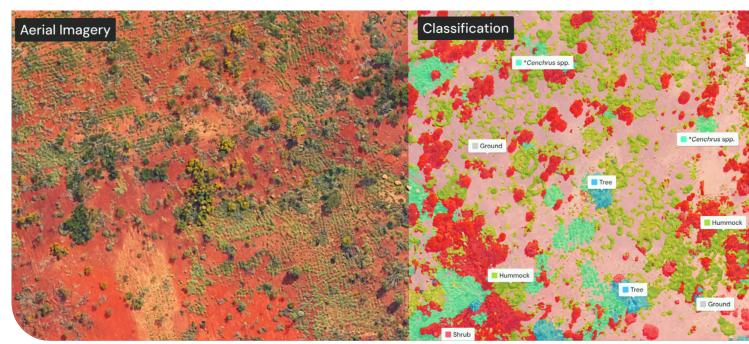
The results

Using the integrated monitoring approach at Telfer allowed environmental and closure teams to:

- Identify individual plants and erosion features at landscape scale including trees, shrubs and grasses and herbs.
- Identify areas where vegetation had not successfully established.
- Identify weeds across the entire site, including new populations to facilitate early intervention activity.
- Measure and track erosion features on rehabilitated landforms.

Newmont's adoption of the Tyton seed module at Telfer enhanced the way the site team built seed mixes to apply to rehabilitation areas.

For the first time, Newmont had a more accurate view of what rehabilitation performance looked like across the entire Telfer site.

Newmont is now able to assess and monitor large-scale rehabilitation sites with the highest level of accuracy, ensuring sites meet established rehabilitation completion criteria. at its mine site.