AUTOMATED AERIAL SEEDING FOR REHABILITATION

GLENCORE dendra SYSTEMS

THE CHALLENGE

Mining restoration activities are often conducted over challenging terrain to re-create a natural, rugged environment. These environments pose safety and erosional risks as well as limits to efficiency using ground-based methods.

THE SOLUTION

In January 2019, Glencore's Bulga Coal extended projects with Dendra Systems into aerial seeding. Bulga's environment team wanted to incorporate automated aerial seeding into its rehabilitation program to address 3 primary needs:

1) Enable access to challenging environments
2) Improved site safety, and
3) Reduced erosion risk

Dendra's aerial seeding platform was used to seed both native woodland seed mixes as well as pasture mixes to rehabilitate contoured slopes. Dendra's monitoring platform was used to map the land before seeding to assist in planning, with post-rain monitoring to assess initial germination.

THE CUSTOMER

Glencore is Australia's largest coal producer with 16 mining operations across New South Wales and Queensland. Glencore's environmental obligations cover returning disturbed land to a stable and biodiverse ecosystem. Bulga Coal had approximately 850 Ha land under active rehabilitation in 2018, with a key focus on establishing endangered ecological communities.

Australian coal production:
103 million tonnes (2018)

Australian Operations:
11 Open Cut mines,
4 Underground mines

Market Cap: $33bn

Australian Rehabilitation Investment: more than $48 million (2018)

Australian Rehabilitated Area: 1,530 Ha (2018)



THE IMPACT

BEFORE

- Tractor breakdowns causing delays to seeding efforts
- Safety risks due to operation on steep, rocky slopes
- Increased erosion risk due to tractors driving over rip lines

AFTER

- Aerial seeding overcoming terrain access issues
- Geo-tagged seeding operations
- Decreased soil compaction and disturbance due to aerial operations
- Seeding – data integration for before and after monitoring

BENEFITS

- Decreased downtime due to tractor repairs
- Decreased soil compaction and disturbance
- Decreased health and safety risk likelihood

"Dendra helps Glencore overcome these challenges by providing unprecedented insights into the condition of the land and ecosystems using ecology-driven data science and artificial intelligence."

- Lucy Roberts, Corporate Head HSEC and Human Rights