

Case study

Restoration and rehabilitation at Mount Thorley Warkworth

Turning degraded land into woodland is the aim of a rehabilitation project at Coal & Allied's Mount Thorley Warkworth operation.

The Hunter Valley mine site is planning to reintroduce local plant species to hundreds of hectares of land which over the years has been cleared and had animals grazing on it.

The land is home to the Warkworth Sands Woodland - a diverse ecological community featuring unique sand features and with some 48 flora species found in the area.

Teaming up with the University of New England (UNE), a multi-year project to rehabilitate former farm and quarry lands owned by the mine is now underway on the mine which is located 14 km west of Singleton.

UNE is conducting research to determine how best to recreate the Warkworth Sands Woodland vegetation that existed in the area prior to mining. The area is predominantly sand dunes, generally 1 to 6 metres high, resting on a river terrace.

It is thought that the current woodland community may be as little as 13 per cent of its pre-settlement extent, with the remnant near Warkworth thought to represent 80 per cent of the surviving vegetation.

The community supports a number of threatened fauna and avifauna species including squirrel glider (*Petaurus norfolcensis*), speckled warbler (*Pyrrholaemus saggitata*), brown treecreeper (*Climacteris picumnis* subsp. *Victoriae*) and grey-crowned babbler (*Pomatosomus temporalis* subsp. *Temporalis*).

UNE researchers are investigating if there are sufficient native seeds buried in the existing soil to allow areas to naturally revegetate, and where the seed bank is not adequate species which previously characterised the natural landscape, will be planted via direct seeding or tubestock.

To recreate the Warkworth Sands vegetation, UNE will use

- Intensive seed bank analyses
- Experiments to determine the best technique to reconstruct vegetation from the native seed bank
- Experiments to determine best practice for establishing plants in the field
- Stockpiling methodology specific to the Green Offsets, and
- Trialling of rehabilitation techniques at a landscape level in the Green Offsets area.

UNE Associate Professor Caroline Gross said the research was the first time such a project had been trialled in an area that featured the unique sand features of Warkworth.

"Previously many mining operations in the district have been rehabilitated back to pastures," Associate Professor Gross said.

"This research will provide best practice techniques to demonstrate how mines can also be rehabilitated back to native vegetation."

This programme is among a range of initiatives part of Rio Tinto Coal Australia's Hunter Valley Biodiversity Action Plan.