Variety is the spice of life:

Rehabilitation for non-industry stakeholders

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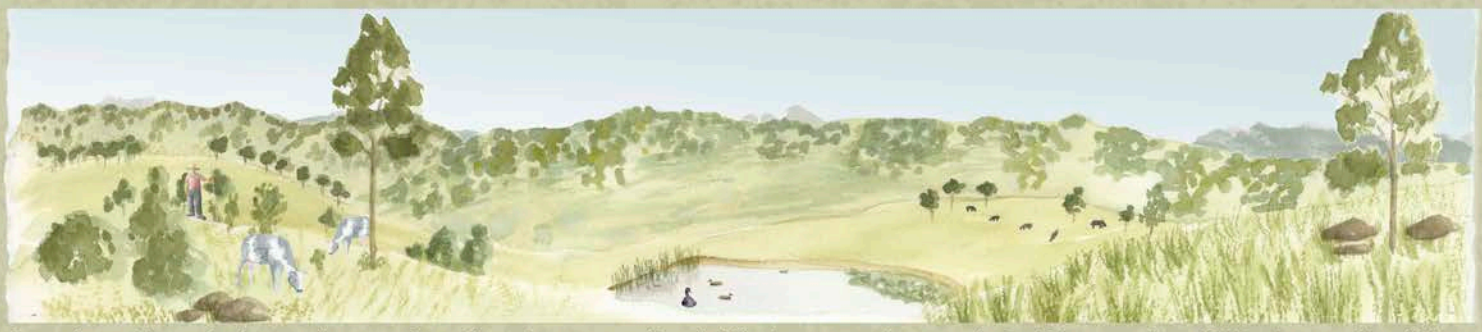
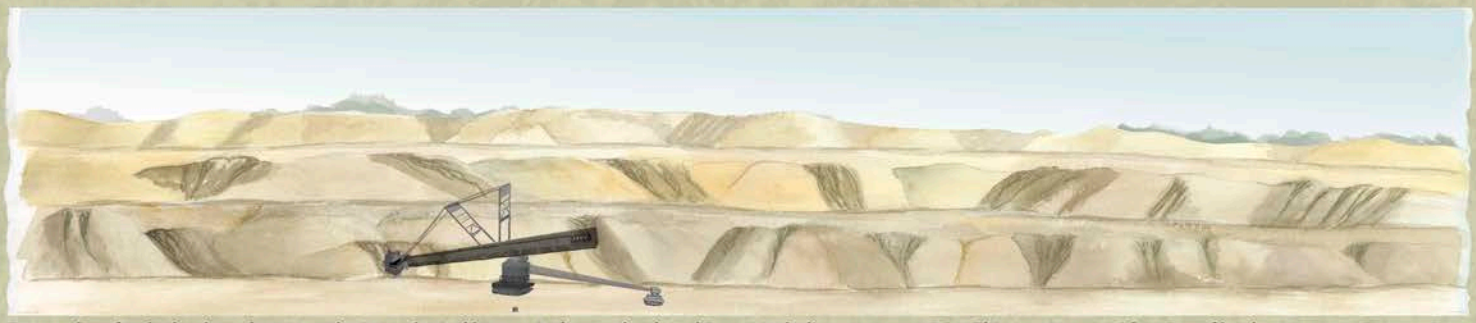
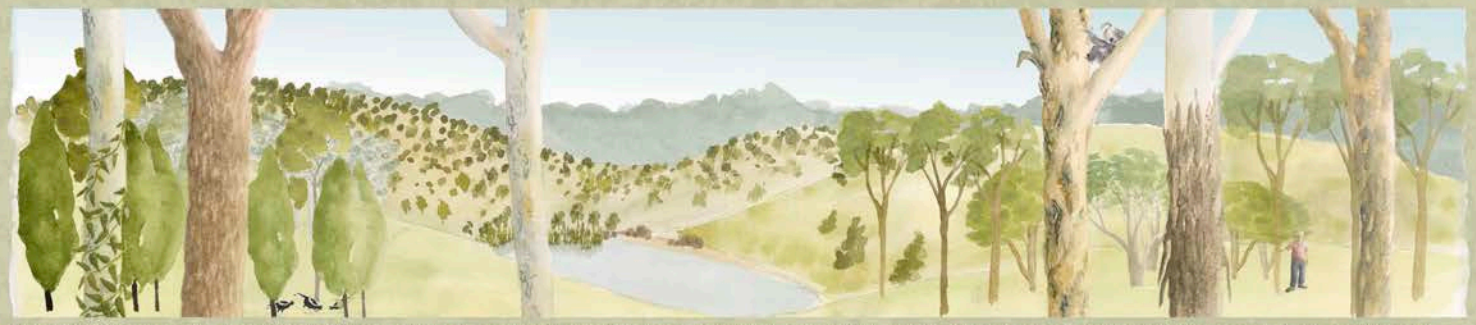


Across the world untouched protected areas are few, while environments needing rehabilitation or restoration are on the rise (Cristescu et al 2013). Mining is one activity which affects all the environment, from the substrata through the layers to the atmosphere, with an impact across the landscape including all water below and above the ground (Zapico et al, 2018). Planning rehabilitation for after mine completion starts early, even before mining begins and can carry on long after mining is finished (Boshoff, 2017). As mining is a temporary land-use, planning the life of the mine needs to consider post-mining land use (Neri & Sánchez 2010).



Future plans for the land needs to consider its ecological history, its human land use history, including current activity. This requires consideration of landscape memories ranging from geographical, regional and geological aspects, while recognising it is part of the evolving ecological and land use future (Balaguer et al 2014). As impacts of land transformations are not limited to the biota or the physical and visual environments, but also has a great impact on people, (McManus, Albrecht & Graham 2014) community consultations and involvement is important throughout, whether legislated or not. It also makes good business sense, contributing to the Social License to Operate and possible financial returns (Commonwealth of Australia 2016).

Leading practice involves revising, adjusting and learning, while applying the best scientific knowledge(Commonwealth of Australia 2016a).Geomorphic rehabilitation has been acknowledged in both the USA and the European Union as the best available technology to reform the land for sustainable ecological and human benefits in post mining use (Zapico et al, 2018). Reforestation through drone planting is a new application of a recent technology, which is being developed to speed up the rate of re-vegetation. (Stone 2017) Companies willing to listen, adapt and apply new learning increase the chances of good quality rehabilitation.



Rehabilitation covers: the design from mines to stable and sustainable landforms; construction of landforms and habitats for biodiversity, including people; both creation and repair of ecosystems for positive land use (Dept Industry Skills and Regional Development, 2016 & C'wealth Australia 2016b). Good rehabilitation creates a variety of high quality habitats reflecting natural environments, drawing flora and fauna with healthy survival rates equal to those in undisturbed areas, thus avoiding ecological sinks and traps. To measure rehabilitation, assessment of the re-establishment of a species includes comparison of enduring survival with an untouched species sample (Cristescu et al 2013).

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