

PROFESSIONAL PROFILE

Dr Wells (nee Zawko) is an expert in the fields of plant ecology and environment. Her areas of expertise include conservation and rehabilitation of natural ecosystems, development of completion criteria for rehabilitation, restoration of rare plants on mine-sites, genetic structure of native plant populations, delineation of genetic provenances for mine-site rehabilitation, ecophysiology and demography of plant species, and vegetation health monitoring in relation to impacts from mine operations. She has a thorough understanding of all relevant Western Australian policy and legislation, and is proficient in data analysis, interpretation and subsequent implementation.

Grace has for many years worked directly in the resources sector but also previously worked in academia where she managed a number of research projects and supervised graduate and post-graduate students. This multi-faceted background has resulted in exceptional attention to detail, planning, budgeting, scientific and industry communication; all traits vital in the modern environmental sciences sector.

In 2008 Grace was part of the team that developed a framework for rehabilitation success which consequently secured Minara Resources the Golden Gecko Award for Environmental Excellence.

QUALIFICATIONS

PhD, Botany, University of Western Australia

Grad. Dip. Botany, University of Western Australia

BSc, Botany, University of Western Australia

EMPLOYMENT HISTORY

2013 – present	Senior Botanist at Phoenix Environmental Sciences
2005 – 2015	Director at G&G Environmental
2003 – 2005	Research Scientist at the University of Western Australia and Kings Park Science
2002 – 2003	Senior Scientist at Saturn Biotech Limited, Western Australian State Agricultural Biotechnology Centre (SABC), Murdoch University
2001 – 2002	Graduate Research Officer at the Western Australian State Agricultural Biotechnology Centre (SABC), Murdoch University
1995 – 2001	Various research positions at Kings Park and Botanic Garden Research Laboratory

TECHNICAL EXPERTISE

- Level 1 and 2 flora and vegetation surveys
- Targeted threatened and Priority flora searches
- Vegetation type and condition mapping
- Geographic Information Systems and map production
- Information Technology and Networking
- Computer systems maintenance
- Rehabilitation of natural ecosystems including assessment of progress towards completion criteria and development of key performance indicators (KPIs)
- Restoration of rare plants on mine-sites
- Vegetation health monitoring in relation to impacts from mine operations
- Delineation of genetic provenances for mine-site rehabilitation
- Ecophysiology and demography of plant species
- Taxonomic identification of vascular plant specimens
- Data analysis and interpretation, including statistical analysis

SELECTED PROJECT EXPERIENCE

- Level 2 flora and vegetation survey and rehabilitation plan for the Clampton Gold Project Flora, Clampton Mining, 2014, (Goldfields)
- Level 2 flora and vegetation survey of Extension Project, AAMC, 2014 (Pilbara)
- Level 2 flora and vegetation survey for Pannawonica Project, Red Hill Iron, 2014 (Pilbara)
- Targeted flora survey of pipeline, Extension Hill, 2014 (Midwest)
- Level 2 flora and vegetation survey of the Wonmunna Area. Ascot Resources, 2014 (Pilbara)
- Searches for threatened and priority flora, and vegetation of conservation significance in selected areas associated with the Wonmunna Area. Ascot Resources, 2014 (Pilbara)
- Assessment of flora rehabilitation at Murrin Murrin operations, Minara Resources, 2013 (Murchison)
- Vegetation Health Monitoring at the Roy-Valais, Charlie, Korong and Grey Mare Borefields. Minara Resources, 2013 (Murchison)
- Assessment of vegetation establishment on rehabilitated waste-dumps, Leonora operations, St Barbara Ltd, 2013 (Murchison)
- Assessment of vegetation establishment on rehabilitated waste-dumps Southern Cross operation, St Barbara Ltd, 2012 (Coolgardie)
- Flora and vegetation survey for environmental impact assessment, API, 2012 (Pilbara)
- Targeted priority flora and weed searches, API, 2012 (Pilbara)
- Targeted weed survey and monitoring at the Solomon mine, Fortescue Metals Group, 2012 (Pilbara)
- Vegetation health assessment of the borefields, Minara Resources, 2012 (Murchison)
- Flora and vegetation survey of a proposed mining area and associated haul road at Mount Lucky, Minara Resources Ltd, 2011 (Murchison)
- Flora and vegetation survey of the FerrAus Ltd King Brown deposit infrastructure area and FerrAus Pilbara Project to King Brown deposit services corridor, 2010 (Pilbara)
- Flora and vegetation survey of the FerrAus Ltd process and rail load out infrastructure area and Python and Gwardar deposits, 2010 (Pilbara)
- Development of completion criteria and key performance indicators for revegetation at Jack Hills operation, Crosslands Resources Ltd, 2009 (Midwest)
- Assessment of vegetation establishment in rehabilitated areas at the Indee Gold Project, Range River Gold, 2009 (Pilbara)
- Level 2 flora and vegetation survey of a proposed transport corridor at the Murray Hill Project, Hancock Prospecting Pty Ltd, 2009 (Pilbara)
- Level 2 flora and vegetation survey of a proposed borefield for the Roy Hill 1 Iron Ore Project, Roy Hill Pty Ltd, 2009 (Pilbara)
- Fauna, flora and vegetation survey of the proposed Barcon sand mines, 2009 (Coolgardie)
- Level 2 flora and vegetation survey of the Golden Terrace South tenement, Pacrim Energy Ltd, 2009 (Goldfields, Murchison)
- Survey for priority flora at GDP 2108 at Christmas Creek, Fortescue Metals Group, 2007 (Pilbara)
- Flora and vegetation survey of the proposed gas pipeline corridor from Port Hedland to the Spinifex Ridge Project, Moly Mines, 2008 (Pilbara)
- Level 2 flora and vegetation survey of the proposed Canning A borefield and an access corridor to the Spinifex Ridge Project, Moly Mines, 2008 (Pilbara)

- Preliminary flora and vegetation survey for phreatophytic flora at the proposed De Grey borefield for the Spinifex Ridge Project, Moly Mines, 2008, (Pilbara)
- Flora and vegetation survey of the Woodie Woodie borefield to Spinifex Ridge Project proposed pipeline corridor, Moly Mines, 2007 (Pilbara)
- Assessment of vegetation establishment on rehabilitated mesas at the Pannawonica operation, Pilbara Iron, 2006 (Pilbara)
- Survey for priority flora at GDP 1256 at Cloud Break, Fortescue Metals Group, 2006 (Pilbara)

SELECTED PUBLICATIONS

- Krauss SL, Hood P, **Zawko G**, Mattner J (2000). Recent advances and new genetic tools for the delineation of provenances. In Proceedings of the Third Australian Workshop on Native Seed Biology for Revegetation, 17-18 May 1999, Perth. (Ed. Asher CJ, Bell LC). pp. 13-23. Australian Centre for Mining Environmental Research: Brisbane.
- Krauss SL, **Zawko G**, Bussell J, Taylor R, Hood P (2005) Towards a genetic provenance atlas for bushland rehabilitation and minesite revegetation in south-west Western Australia.
- Krauss SL, **Zawko G**, Bussell, J, Alacs E, Hood P, Koch, J & Vlahos S (2005) Recent advances in the genetic delineation of provenance for bushland revegetation in south-west Australia. In: Proceedings of the 5th Australian Workshop on Native Seed Biology for Revegetation. ACMER.
- Krauss SL, **Zawko G**, Bussell JD, Taylor R, Hood P (2005) Towards a genetic provenance atlas for bushland rehabilitation and minesite revegetation in the south-west of Western Australia. In: Proceedings of the Fifth Australian Workshop on Native Seed Biology. Brisbane, Queensland. 21-23 June 2004. (Eds Adkins SW, Ainsley PJ, Bellairs SM, Coates DJ and Bell LC) pp. 25-36 (Australian Centre for Minerals Extension and Research: Brisbane).
- Krauss S & **Zawko G**. (2004) DNA fingerprinting of fig varieties using the AFLP technique. West Australian Nut and Tree Crop Association (Inc) WANATCA Yearbook 2004, Vol 27, p. 60 KWs: <http://www.wanatca.org.au/Q-Yearbook/Y27all.pdf>
- Wells GB, **Zawko G**, Rossetto M and Dixon KW (2003). A molecular approach to provenance delineation for the restoration of hummock grasslands (*Triodia* spp.) in arid-tropical Australia. *Ecological Management and Restoration* 4: S60-S68
- Mattner J, **Zawko G**, Rossetto M, Krauss SL, Dixon KW et al. (2002). Conservation genetics and implications for restoration of *Hemigenia exilis* (Lamiaceae), a serpentine endemic from Western Australia. *Biological Conservation*.
- **Zawko G**, Krauss SL, Dixon KW, Sivasithamparam K (2001). Conservation Genetics of the rare and endangered *Leucopogon obtectus* (Epacridaceae). *Molecular Ecology* 10:2389-2396.
- Rossetto M, **Jeziarski G**, Hopper SD, Dixon KW (1999). Conservation genetics and clonality in two critically endangered eucalypts from the highly endemic south-western Australian flora. *Biological Conservation* 88(3): 321-331.