

PROFESSIONAL PROFILE

Jarrad Clark is a co-founder and Managing Director of Phoenix Environmental Sciences. Jarrad has been working in the biological sciences field since 2001. He has gained significant experience in the taxonomy and biology of Western Australian vertebrate and invertebrate fauna, as well as wetland ecology through several government and private roles.

Jarrad has designed, implemented and managed a large number and diverse range of biological survey projects throughout Western Australia across the mining, infrastructure, planning and government sectors. He has undertaken surveys in all regions of Western Australia and a majority of its bioregions. Project management experience includes large-scale, multi-disciplinary and linear infrastructure projects. He is a competent planner and executor of field surveys in remote locations.

One of Jarrad's specialties is technical innovation to overcome the environmental complexities of biological surveys. His innovative survey techniques and impact assessment methods for the *Idiosoma nigrum* project at Crossland's Jack Hills won the prestigious Golden Gecko Award in 2010.



QUALIFICATIONS

Bachelor of Science (Environmental Management), Edith Cowan University

EMPLOYMENT HISTORY

2008 – present	Principal Zoologist, Managing Director, Phoenix Environmental Sciences
2005 – 2008	Senior Invertebrate Biologist, Ecologia Environment
2001 – 2005	Manager: Gnangara Mound macro-invertebrate monitoring program, Centre for Ecosystem Management, Edith Cowan University
2001 – 2005	Technical Officer for the Pilbara Biological Survey, Department of Conservation and Land Management (now DPaW)

TECHNICAL EXPERTISE

- Level 1 and 2 vertebrate terrestrial fauna surveys
- Short-range endemic (SRE) invertebrate and subterranean fauna surveys
- Targeted species surveys, experience includes Northern Quoll, Mulgara, Pilbara Olive Python, *Idiosoma nigrum*, Southern Brown Bandicoot, Pilbara Leaf-nosed Bat
- Design and implementation of fauna monitoring programs
- Wetland ecology and assessment, aquatic macro-invertebrate survey and monitoring

SELECTED PROJECT EXPERIENCE

- Level 1, Level 2 and targeted (Northern Quoll, Pilbara Olive Python, Pilbara Leaf-nosed Bat, Black-flanked Rock Wallaby, Lined Soil-crevice Skink, Ghost Bat) vertebrate fauna surveys for Buckland Project mine and haul road for Iron Ore Holdings, 2012–2014 (Pilbara)
- Development of the Northern Quoll Monitoring and Review Program for the Buckland Project, Iron Ore Holdings, 2013–2014 (Pilbara)
- Level 1 fauna, targeted Northern Quoll and troglifauna surveys for the Pannawonica Tenements Project, Red Hill Iron Ltd, 2013–2014, (western Pilbara)
- Lloyd Street underpass ecological assessment, McConnell Dowell, 2014 (Perth Metropolitan Area)

- Level 2 vertebrate fauna and SRE survey for Balla Balla Magnetite Project, Forge Resources, 2012 (Pilbara)
- Migratory shorebird survey for Balla Balla Magnetite Project, Forge Resources, 2012 (Pilbara)
- SRE survey of East Pilbara Independent Rail Line for Aurizon Operations, 2012 (Pilbara)
- Terrestrial fauna survey of Butcherbird Manganese Project for Montezuma Mining, 2012 (Pilbara)
- Targeted fauna survey for Wonmunna Project, Rico Resources, 2012 (Pilbara)
- Level 2 vertebrate fauna survey for Wonmunna Project Rico Resources, 2011 (Pilbara)
- Level 2 vertebrate fauna survey for Rocklea Project for Dragon Energy, 2011 (Pilbara)
- Level 2 and targeted vertebrate fauna survey of the Roy Hill rail alignment, Roy Hill Infrastructure, 2011 (Pilbara)
- Level 2 vertebrate fauna survey for Fitzgerald River proposed walk trail for Department of Environment and Conservation, 2011 (Great Southern)
- SRE survey of Fitzgerald River proposed walk trail for Department of Environment and Conservation, 2011 (Great Southern)
- Several surveys, *Idiosoma nigrum* targeted searches and burrow mapping at Jack Hills for Crosslands Resources, 2009–10 (Midwest)
- Several surveys, *Idiosoma nigrum* targeted searches and burrow mapping at Weld Range for Sinosteel Midwest Corporation, 2009–10 (Midwest)
- Targeted SRE survey at Anketell Point for Australian Premium Iron, 2010 (Pilbara)
- SRE and targeted invertebrate surveys for Roe Highway Extension Project for South Metro Connect, 2009–10 (Perth Metropolitan Area)
- SRE survey for Solomon Project (Valley of the Kings, Valley of the Queens and Zion deposits) for Fortescue Metals Group, 2010 (Pilbara)
- SRE survey for FerrAus Pilbara Project, FerrAus, 2010 (Pilbara)
- Aquatic macro–invertebrate survey of Beeliar wetlands for South Metro Connect, 2009 (PMA)
- Subterranean fauna survey for Redcliffe Gold Project for Pacrim Energy, 2009 (Goldfields)
- SRE survey for Redcliffe Gold Project for Pacrim Energy, 2009 (Goldfields)
- SRE survey at Murray’s Hill for Hancock Prospecting, 2009 (Pilbara)
- *Idiosoma nigrum* research project at Jack Hills for Crosslands Resources, 2009 (Midwest)
- *Idiosoma nigrum* research project at Weld Range for Sinosteel Midwest Corporation, 2009 (Midwest)
- SRE survey at Anketell Point for Australian Premium Iron, 2009 (Pilbara)
- Subterranean fauna survey for FerrAus Pilbara Project, FerrAus, 2008–09 (Pilbara)
- SRE survey for FerrAus Pilbara Project, FerrAus, 2008 (Pilbara)
- SRE survey at Cape Preston for Maunsell AECOM / Mineralogy, 2008 (Pilbara)
- SRE survey for Quantum Goldsworthy Project for ENV / BHP Billiton, 2008 (Pilbara)
- Stygofauna sample training for Kimberley Diamond Corporation, 2007 (Kimberley)
- SRE surveys for the Tropicana Gold Project, AngloGold Ashanti Australia, 2007–08 (Great Victorian Desert)
- Subterranean fauna surveys for the Tropicana Gold Project, AngloGold Ashanti Australia, 2007–08 (Great Victorian Desert)

- SRE survey for United Minerals Corporation, 2007 (Pilbara)
- Stygofauna sample training for Straits Resources, Whim Creek Copper Project, 2007 (Pilbara)
- Subterranean fauna survey for Gindalbie Metals, 2007 (Midwest)
- Wetland assessment and SRE surveys for the Southdowns Magnetite Project, Grange Resources, 2006 (Great Southern)
- SRE surveys for Jack Hills Project, Stage 1, Murchison Metals Corporation, 2006 (Midwest)
- SRE surveys for Weld Range Iron Ore Project, Midwest Corporation Ltd, 2006 (Midwest)
- SRE surveys for Koolan Island Iron Ore Project, Aztec Resources, 2006 (Kimberley)
- SRE surveys for the reinjection project, Water Corporation, 2006 (PMA)
- Aquatic macro-invertebrate programs as Technical Officer for the Pilbara Biological Survey, Department of Conservation and Land Management (now DPaW), 2004–2005 (Perth Metropolitan Area)
- Wetlands assessments of several wetlands as Wetland Assessment Officer Edith Cowan University for Bush Heritage Australia, 2004–2005 (Perth Metropolitan Area and Wheatbelt)
- Management of the Gnangara Mound Macro-invertebrate Monitoring Program, Edith Cowan University for Water Corporation, 2001–2005 (Perth Metropolitan Area)