

# 3D Environmental

Specialist Ecological Services

Capability Statement 2016



## Overview

3d Environmental specialises in the floristic assessment of tropical and sub-tropical ecosystems. The team has worked extensively throughout south-east Queensland, Cape York Peninsula and the Wet Tropics World Heritage area of Queensland with projects extending into the states of Western Australia and Northern Territory and northwards through the Torres Strait Islands into Papua New Guinea. The 3d Environmental team combines extensive experience in floristic and landscape ecology with the strong skills in management and analysis of spatial data with the directors David Stanton and David Gooding possessing strong technical skills which are complementary in nature. The 3d Environmental team has consulted to a broad range of clients including private companies, government agencies and research institutions. All projects are undertaken to the highest level of safety and efficiency and all necessary insurance policies are current.

## Specialist Services

- Floristic survey including:
  - ◊ Surveys for threatened / protected flora species.
  - ◊ Regional Ecosystem and vegetation community mapping
  - ◊ Assessment and mapping of Threatened Ecological Communities under the EPBC Act.
- Minesite rehabilitation monitoring.
- Groundwater Dependent Ecosystems (GDEs) assessment and monitoring.
- Biocondition assessments for ecological offsets.
- Conservation and biodiversity management plans.
- Environmental impact assessment.
- Ecological constraints analysis and mapping.
- Land zone, geomorphic and geological mapping and assessment.
- Ecological fire management including implementation of burning plans and ecological monitoring.
- Weed management and mapping.
- Riparian condition and management assessments.
- Ecological restoration plans.
- Fauna survey and assessment (sub-contractual basis).
- Aquatic ecological services (sub-contractual basis).

## Personnel

### David Stanton – Principal Landscape Ecologist

With a professional career spanning 22 years, including 3 years working as regional exploration geologist in the Louisiade Archipelago of PNG, David has extensive experience in the disciplines of resource mapping, floristic assessment, conservation planning and impact and ecological risk assessment. He has worked across a range of industry sectors including mining, infrastructure and as a consultant to government and indigenous organisations throughout Queensland, the Northern Territory, north-western Australia and Papua New Guinea. His particular expertise lies in tropical forest ecology including floristic and structural classification, specialising in the mapping of these features. During a consultancy period to the Wet Tropics Management Authority spanning 14 years, in accompaniment with Peter Stanton, David's comprehensive mapping of flora associations within the world heritage area greatly increased the understanding of ecological function in one of the world's most botanically diverse regions. The culmination of this work, a series of 38 1:50 000 scale vegetation community maps and descriptive reports form the basis for regional ecosystem classification in Queensland's Wet Tropical Bioregion and have been used extensively by land managers and scientific organisations for conservation management purposes. Furthermore, David has published vegetation mapping for the Torres Strait Islands in the far north of Australia on behalf of the Australian Government and has worked extensively on the management of terrestrial biodiversity in northern Australia, co-authoring a number of technical papers on issues relating to landscape scale fire management.

## David Gooding - Principal GIS Analyst

David Gooding offers 25 years' experience in cartographic presentation and resource, demographic and business based GIS applications. Consultancy roles in a wide range of Government Agencies, the Mining Industry and private companies have provided experience and knowledge in the versatility of GIS applications. Practical experience developing and implementing systems with a background in survey and cartography, provides a unique blend that affords the best possibilities for geographical / spatial representation. David has worked on many and varied projects, either in a project management role or sub-consulting as part of a larger and more varied team of professionals.

## Selection of Major Projects

### Environmental Impact Assessment

#### *Papua New Guinea*

- Wafi-Golpu Gold-Copper Mine Project Terrestrial Flora and Fauna Assessment: Contracted to BAAM Pty Ltd for Morobe Mining JV (February 2015 ongoing).
- Marengo PNG – Yandera Prospect Floristic Environmental Impact Assessment: Contracted to Coffey Environments, 2012.
- Kantobo to Mubi River Road Project: Survey of virgin lowland rainforest in the Southern Highlands/ Gulf Province, Papua New Guinea for the PNG LNG project . Subcontracted to Coffey Environments, 2010.
- Solwara Port Development, East New Britain. Ecological impact assessment report prepared for Nautilus Minerals and Coffey Environments, 2008

#### *Surat / Bowen Basins*

- Arrow Bowen Basin Advanced Development Project – Ecological Surveys: Contracted to Aecom Pty Ltd and GHD Pty Ltd for Arrow Energy (November 2014 to June 2015).
- Arrow Energy – Daandine Lease (PL230) Assessment of Floristic Values under the EPBC Act: Sub-contracted to Ecosmart Ecology 2014.
- Arrow –Surat Gas Project Supplementary EIS Study: Ecological Impact Assessment prepared for Coffey Environments, June 2013.
- Supplementary EIS Assessment of Arrow Energy's LNG Facility Site, Curtis Island (SEO): Supplementary Ecological Impact Assessment prepared for Coffey Environments, June 2013.
- Arrow Bowen Gas Project Ecological Impact Assessment: Ecological Impact Assessment prepared for Arrow Energy, 2012.
- Surat Gas Project EIS - Arrow Energy: Ecological Impact Assessment prepared for Coffey Environments / Arrow Energy , 2009 -2013.

#### *Central Queensland Coast*

- McFarlane Oil Shale Project-Central Queensland: Baseline floristic assessment prepared for Queensland Energy Resources / URS Australia (2008 – 2010).
- Supplementary EIS Assessment of Arrow Energy's LNG Facility Site, Curtis Island (SEO): Prepared for Coffey Environments, June 2013.
- Stuart Oil Shale Floristic Impact Assessment: Baseline floristic assessment prepared for Queensland Energy Resources (QER), 2012.
- Connors River Dam and Pipelines Environmental Impact Assessment: Baseline floristic assessment and environmental impact assessment of the proposed Connors River Dam inundation area and proposed pipelines. Brigalow Belt North Bioregion. Contracted to Sunwater, 2009-2012.

## Biodiversity Offset Planning and Assessment

- MMG Century – Lawn Hill Station Biodiversity Offsets Project: Riparian biocondition and offset assessment prepared for MMG, 2014.
- Exco Resources – Lawn Hill Station Biodiversity Offsets Project: Purple-necked rock wallaby habitat biocondition and ecological equivalence assessment prepared for Exco Resources, 2014.

## Minesite Rehabilitation Monitoring and Assessment

- MMG Century Rehabilitation Monitoring Project: Rehabilitation Monitoring reports prepared 2014, 2015, 2016 for MMG.
- Arrow Energy - Review of Environmental Authority Conditions for Rehabilitation, ATP 676: Extensive review of EA conditions for rehabilitation prepared for Arrow Energy, 2014.

## Conservation Planning

- Wet Tropics Management Authority Vegetation Mapping Project: Floristic and regional ecosystems mapping prepared for the Wet Tropics Bioregion and World Heritage Area for Wet Tropics Management Authority and Department of Environment and Resource Management 1998 – 2012.
- Mandingalbay Yidinji Lands Biodiversity Planning and Management Project: Biodiversity and land management profile for the Mandingalbay – Yidinji Lands, Wet Tropics World Heritage Area prepared for Djunbunji Aboriginal Corporation, 2014, 2015.
- Torres Strait Island Biodiversity Planning Project: Biodiversity and land management profiles prepared for 14 selected islands in the Torres Strait for Torres Strait Regional Authority, Australian Government, 2010 – 2013.
- Torres Strait Islands Regional Ecosystem and Vegetation Community Mapping: Vegetation and regional ecosystems mapping for the Torres Strait Islands prepared for Torres Strait Regional Authority, Australian Government and Department of Environment and Resource Management, 2008, 2009.

## Fire / Ecological Monitoring Projects

- Mandingalbay Yidinji / Djunbunji Aboriginal Corporation Fire Monitoring Project: Implementation of ecological fire monitoring program on Mandingalbay Yidinji Lands for Djunbunji Aboriginal Corporation, 2014.
- East Trinity Monitoring / Wetlands Rehabilitation Project: Monitoring assessment of reclaimed and rehabilitation estuarine wetlands prepared for Department of Environment and Resource Management, 2002 to 2009.

## Fire Planning Projects

- Mandingalbay Yidinji / Djunbunji Aboriginal Corporation Fire Management Planning: Fire management strategy prepared for Mandingalbay Yidinji Lands, Djunbunji Aboriginal Corporation, Yarrabah, 2014.
- Reedy Creek Conservation Reserve Fire Management: Review of fire plan for the Reedy Creek Conservation Reserve, Agnes Water prepared for. Bush Heritage Trust 2014.
- Torres Strait Island Fire Management Project: Fire management plans for 8 inhabited islands in the Torres Strait prepared for Torres Strait Regional Authority, Australian Government, 2012, 2013.

## Groundwater Dependent Ecosystems Assessment and Monitoring

- Banksia Beach Borefield – Groundwater Dependent Ecosystem (GDE) Monitoring: Annual vegetation monitoring report prepared for Seqwater (2016 ongoing).
- Groundwater Dependent Ecosystem (GDE) Assessment – Arrow Energy Bowen Gas Project Development Area: Assessment of the potential groundwater dependency of ecosystems and implementation of GDE monitoring plan prepared for Arrow Energy on behalf of Coffey Environments.
- Sunshine Coast Regional – Ecological Assessment: Assessment eco-hydrological dependency of the Endangered *Allocasuarina emuina* prepared for BMT – WBM, 2010.

### Protected Plant Surveys as per Queensland Guidelines

- Queensland Nitrates Pipeline Project: Floristic survey along the 18 km length of the proposed Queensland Nitrates Gas Pipeline , southern Bowen Basin supplemented with intensive searches for Protected Plants in accordance with the Protected Plants Survey Guidelines . Queensland Nitrates Pty Ltd ( 2014).
- Arrow Energy Advanced Exploration Project: Clearance surveys of protected plant 'High Risk' buffer areas over a 400km<sup>2</sup> survey area. Prepared for Arrow Energy on behalf of Aecom.

### Geology, Landform and Soil and Assessments

- Agnes Water Geomorphic and Land Zone analysis: Geomorphic and soil assessment for characterisation of land zones under the VM Act. Report prepared for Mariner Awaken/ Midell Joint Venture, 2009.
- Mt Zero Wildlife Sanctuary Landform and Geological Mapping Project: Geological mapping of the Mt Zero/Taravale Wildlife Sanctuary, North Queensland. Consultant report prepared for Australian Wildlife Conservancy.
- Mornington Wildlife Sanctuary Landform, Geology and Vegetation Community Mapping Project: Landform, soil and geology map of the Mornington Wildlife Sanctuary, Kimberley Region, North Western Australia. Consultant report prepared for Australian Wildlife Conservancy.

### Waterways Management Projects

- Redlands Waterways Reach Management and Riparian Condition Assessment: A reach and catchment characterisation including riparian habitat assessment report prepared for Redlands Shire Council on behalf of Hydrobiology Pty Ltd.
- Caboolture Waterways Management Project: Reach and catchment characterisation of waterways in the Caboolture Shire area (SEQ). Prepared for Caboolture Shire Council on behalf of Natural Solutions.

## Team Publications

### Peer Reviewed Journals

- Stanton J. P., Stanton D.J., Stott M. & Parsons M. (2014). Fire Exclusion and the Changing Landscape of Queensland's Wet Tropics Bioregion 1. The Extent and Pattern of Transition. *Australian Forestry* V77 No.1 51 – 57.
- Stanton J. P., Parsons M., Stanton D.J & Stott M. (2014). Fire Exclusion and the Changing Landscape of Queensland's Wet Tropics Bioregion 2. The Dynamics of Transition Forests and Implications for Management. *Australian Forestry* V77 No.1 58 – 68.
- Fell D.G., Stanton D. J (2015). Vegetation and Flora of Mabuyag Island, Torres Strait, Queensland. *Memoirs of the Queensland Museum*, Volume 8, Part 1.
- Stephenson PJ, Burch AT, Stanton DJ & Whitehead PW (1998). *Three long lava flows in north Queensland. Journal of Geophysical Research-Space Physics*, 103, 27359 – 27370.

### Published Vegetation Mapping

- Stanton J. P and Stanton D. J (2011) '*Vegetation of the Wet Tropical Bioregion of North Queensland*', published at 1:50 000 scale in co-operation with the Wet Tropics Management Authority, Cairns, Queensland.
- Stanton D.J, Fell D. F, Gooding D. O (2009). '*Vegetation of the Torres Strait and Kaurareg Islands*'. 1:25 000 scale vegetation mapping produced in co-operation with Torres Strait Regional Authority, Australian Government and Department of Environment and Resource Management.



## Business Details and Insurance

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3D Environmental Civil Liability Professional Indemnity insurance is \$5,000,000 and covers claims for Civil Liability including contractual liability arising from the conduct of Professional Business Practice. 3D Environmental Public Liability limit is \$20,000,000.