

Curriculum Vitae of Madeleine Dyring

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Citizenship: Australian Citizen

Senior Ecologist / Plant Physiologist

PROFESSIONAL BACKGROUND

Maddy is an ecologist / plant physiologist with over four years consulting experience and is currently a PhD candidate at Queensland University. Maddy's PhD project focuses on coastal groundwater dependent ecosystems (GDEs), which are an integral part of the diverse landscape and ecology of highly valued coastal environs in Southeast Queensland and across the globe. Understanding the connection of GDEs with freshwater aquifers and the long-term availability of groundwater is critical to understanding the susceptibility of GDEs and the buffering capacity of these aquifers against reduced water availability.

EDUCATIONAL QUALIFICATIONS

- 2019 Australian Groundwater School, The National Centre for Groundwater Research and Training**
- Intensive training course focusing on hydrogeology, specifically; groundwater assessment methods, hydraulics, modelling, managed aquifer recharge, ecohydrology and governance.
- 2016 Bachelor of Science (BSc) (Honours Class I) in Biological Science, School of Biological Science, UQ**
- Developed core skills in statistical analysis, proposal writing, presentation of research and scientific writing.
- 2015 BSc (extended major ecology), School of Biological Science, UQ**
- Particular focus on plant physiology/ecology, aquatic ecosystems and coastal geomorphology.
 - Research design, statistical analysis, ecological theory and environmental management.
- 2015 Bachelor of Arts (extended major geography), School of Geography and Environmental Management, UQ**
- Broad-based degree covering both physical and human geography focusing on limnology, coastal processes, geology, hydrogeology and paleoecology. Interface between social and biophysical processes, including demography, policy development, globalisation, Native Title and Indigenous Cultural Heritage.

PRIZES AND AWARDS

- General Studies Scholarship (two years), German Academic Exchange Service (*Deutscher Akademischer Austauschdienst – DAAD*) (2019) (declined)
- Deans Award for Academic Excellence, UQ (2016)
- First Class Honours, UQ (2016)

PROFESSIONAL EXPERIENCE

- 2019 - Current Ecologist, 3d Environmental Pty Ltd, Brisbane, Australia**
- Specialist consultancy firm focused on floristic and structural classification of vegetation communities and landscape scale processes including Groundwater Dependent Ecosystems (GDEs) research and verification.
 - Core tasks include field investigation and data gathering with an emphasis on interpretation and analysis, researching scientific literature & regulatory requirements, and reporting.
 - Specialist training in stable isotope extraction and analysis with the Australian National University, Canberra.
 - Liaison with a range of clients including government bodies, academic organisations and private industry.
- 2016 - 2019 Project Environmental Scientist, Epic Environmental Pty Ltd, Brisbane, Australia**

- Three years with a specialist consultancy firm with environmental management focus.
- Role focused on flora and fauna baseline assessment (terrestrial and aquatic), land revegetation and rehabilitation, project impact and risk assessment, conservation management, planning and implementation, ecological offsetting, threatened species profiling and management, and groundwater impact assessment.
- Developed strong skills in project management, budgeting, proposal writing and client liaison.
- In depth understanding of environmental legislation, regulation and policy in Queensland and Australia.
- List of recent projects is available on page 5. See LinkedIn: <https://www.linkedin.com/in/maddy-dyring-b8665a158>

2016 University Tutor (Marine Ecosystems), UQ, Brisbane, Australia

- Tutor for third year marine science majors whilst completing honours thesis.
- Scope of teaching encompassed ecological theory, analytical methods, experimental design and field-based techniques for data collection.

INTERNATIONAL AND RESEARCH EXPERIENCE

2019 Research Assistant, Australian Rivers Institute, Griffith University, Brisbane

- Assisting in water quality analysis, data processing and benthic invertebrate analysis in wet lab environment in an effort to understand how development will impact on the health and productivity of floodplains and coastal areas.
- Working on projects assessing the productivity of estuarine and rivers systems in North Australia focusing on Gilbert, Flinders, and Mitchell Rivers.

2018 Research Assistant, Palau International Coral Reef Center, Koror, Palau

- Investigated post-settlement survival of coral recruits in field and wet lab environment.
- Field days involved minimum four scientific dives a day and boat handling.
- Lab work involved buoyant weighing of coral, microscope analysis of recruit fecundity and marine fish ID.

2015 Study Abroad, Can Tho University, Can Tho, Vietnam

- International field studies program in Vietnam as part of final undergraduate semester. Investigated grass-roots sustainability in aquaculture development in the southern Mekong Delta.

2015 Science Officer, Barefoot Conservation, Raja Ampat, West Papua, Indonesia

- Participated in underwater surveys, establishing permanent transect lines and collecting data on species richness and abundance for marine protected area creation.
- Assisted with community-based environmental education and outreach work.

2014 Study Abroad, The University of Leeds, Leeds, United Kingdom

- Semester overseas as part of bachelor degree. Courses included plant developmental biology, marine conservation biology, water resource management and socio-economic issues in conservation and management in the tropics.

2014 Undergraduate Research Assistant, School of Agriculture and Food Sciences, UQ, Brisbane, Australia

- Research assistant on a project that aimed to increase the cost efficiency of post-mine land revegetation by unlocking seed dormancy using germination stimulants.

2014 Undergraduate Research Project, Heron Island Research Station, UQ, Brisbane, Australia

- Investigated the resilience of the Heron Island reef flat under the latest IPCC predictions of climate change, considering phase shifts, reef resilience and anthropogenic threats.

TECHNICAL AND PROFESSIONAL SKILLS

General

- Queensland Drivers Licence & Recreational Marine Licence (June 2009).
- CPR and First Aid certified (March 2017).
- Venomous Snake Handling (August 2017).
- PMASUP236 – Operate Vehicles in the Field (FWD) (November 2017).
- HLTAID007 – Advanced Resuscitation (March 2018).
- AS2299 – Commercial Dive Medical (March 2018).
- CSG Industry Safety Training (August 2019).

Flora and Fauna Survey Skills (Terrestrial and Marine)

- Experience in Queensland AUSRIVAS Aquatic Sampling and Processing (including stygofauna).
- Experience in flora and fauna surveys in temperate and tropical contexts.
- Experienced in the use of AnaBat deployment, hair tubes, Elliot, pitfall, funnel and harp net trapping.
- Groundwater and surface water sampling.
- Animal Ethics Approval – trapping and handling.
- Queensland Herbarium certified BioCondition and Regional Ecosystem training.
- Certified PADI Rescue Diver with over 150+ scientific dives logged.
- Solid coral reef species ID skills including hard and soft corals, benthic invertebrates and fish.

GDE Assessment Specialist Skills

- Sampling of biological material, soils and water for analysis of stable isotopes.
- Use of specialist equipment to assess plant health and vigour such as Scholander pressure chambers and associated apparatus.

Technical Skills

- Highly proficient in standard Microsoft suite (Word, PowerPoint and Excel).
- Highly proficient in Microsoft Project (Gantt Chart creation for project scheduling).
- Solid working knowledge of R statistical program (v3.2.3) and GraphPad Prism (v6).
- Solid working knowledge of ArcGIS Desktop (Release 10.3.1.4959).
- Solid working knowledge of Coral Point Count Excel (CPCe).

OTHER PROFESSIONAL EXPERIENCE AND AFFILIATION

- 2015 – Ongoing** The Environment Institute of Australia and New Zealand (EIANZ), Member
- 2015 – Ongoing** ReefCheck Australia, Ambassador
- 2017 – Ongoing** National Parks Association of Queensland, Member
- 2017 – Ongoing** Wildlife Preservation Society of Queensland, Member
- 2017 – Ongoing** Professional Environmental Women’s Association, Member

PUBLICATIONS AND CONFERENCES

Jones, C., Stanton, D., Hamer, N., Denner, S., Singh, K., Flook, S., **Dyring, M.**, (2019). Field Investigations of Potential Terrestrial Groundwater Dependent Ecosystems within Australia’s Great Artesian Basin. *Hydrogeology Journal* (under review).

2019 – Australasian Groundwater Conference, Brisbane

2016 – EIANZ Students and Early Careers Conference, Brisbane.

Recent Projects

- **GDE Assessment, Wandoan, QLD.** Assisted with planning, implementation of data analysis of a project to determine the source water utilised by riparian vegetation including surface water, soil moisture, groundwater or a combination of these sources. Included measurement of leaf water potential, sampling of twig xylem for stable isotope analysis and soil sampling to gain an understanding of shallow surface geology and tree root / soil moisture interactions.
- **Ecological Fire and Habitat Monitoring Assessment, Mandingalbay Yidinji Lands, Wet Tropics World Heritage Area:** On ground fire management and preparation of monitoring reports to assess trends in long term habitat condition of unique grassy woodland habitats situated in the wet tropical coastal plain.
- **Monitoring of GDEs, Bribie Island Ramsar Wetland Area:** Baseline monitoring of the health of groundwater dependent wallum communities in the Bribie Island Ramsar Wetland Area. Assessment aimed to determine baseline ecological condition of groundwater dependent vegetation prior to water extraction from the Bribie Island Banksia Beach borefield. Included analysis and interpretation of NDVI based satellite imagery.

- **Baseline Ecological Assessment, Burdekin Falls Dam, QLD.** Project managed the ecological assessment of Burdekin Falls Dam wall raising project. Field program of 30 days, including four teams of two covering fauna, flora and aquatic surveys. Assessment focused on conservation significant species likely to be impact by new inundation area.
- **Macroinvertebrate Monitoring and Reporting, Willowbank, QLD.** Summarised macroinvertebrate community at various locations as bioindicators of potential environmental harm caused by stormwater discharge off site. Sampling in accordance with the site REMP and Queensland AUSRIVAS Sampling and Processing Manual.
- **Baseline Ecological Surveys, Wandoan, QLD.** Currently planning terrestrial and aquatic survey for CSG project in western Queensland. Scope involves trapping and habitat assessment for rare and threatened species, surface and groundwater sampling as well as aquatic surveys for fish, turtles, macroinvertebrates and stygofauna.
- **Ecological Constraints Assessment, Ipswich, QLD.** Suitability investigation of potential rock climbing sites within ICC Conservation Estates. Involved desktop and field assessment of conservation significant flora and fauna for constraints assessment. Included targeted habitat assessment for *Petrogale penicillata*, public forums and cultural heritage consultation with Native Title parties.
- **Bushland Rehabilitation, Brisbane, QLD.** Assisted in the botanical field survey and preparation of a Bushland Management Plan for a commercial / industrial development in Ipswich. The works required multiple site visits and ongoing liaison with the local Council. Prepared a Vegetation Management Plan for a similar Goodman site in Queensland, undertaking the field survey and preparing the reporting. Currently overseeing rehabilitation of area.
- **ASLAT Solar Farm Winter Survey, Chinchilla, QLD.** Planned and undertook baseline winter survey in accordance with State and Commonwealth guidelines, specifically for conservation significant mammals and invertebrates. Included spotlighting, active searching and box, funnel, hair tube and harp trapping.
- **Multicom Resources Saint Elmo Vanadium Project (SEVP) Winter Survey, Julia Creek, QLD.** Planned and undertook winter survey in accordance with State and Commonwealth guidelines. Included AnaBat deployment and funnel and Elliot trapping. Specifically trapping for Julia Creek Dunnart *Sminthopsis douglasi*.
- **Multicom Resources SEVP Targeted Species Survey, Julia Creek, QLD.** Planned and undertook targeted species survey in accordance with Commonwealth guidelines and approved conservation advice to investigate the likelihood of Star Finch (eastern) *Neochmia ruficauda ruficauda* within the project footprint.
- **Sibelco Limestone Mine Critical Habitat Assessment, Warwick, QLD.** Targeted field assessment using hair tubes and camera traps to investigate presence of Spotted-tail Quoll *Dasyurus maculatus*.
- **Fyfe Gas Pipeline BioCondition Assessment, Cooper Basin, SA.** Undertook flora assessment at various sites located north of Moomba Oil and Gas Processing Plant, South Australia. Established BioCondition plots across a range of regional ecosystems of two proposed pipeline alignments.

ENVIRONMENTAL MANAGEMENT AND PLANNING

- **Saint Elmo Vanadium Project, EIS, Julia Creek, QLD.** Assisted in preparing EPBC referral and Initial Advice Statement for SEVP. Prepared EIS in conjunction with technical expertise. Regularly deployed to site for gathering of baseline data (groundwater, surface water and air quality) and community consultation activities. Currently assessing potential offset requirements and management activities.
- **Oresome Australia Urquhart Point Bauxite Project (UBx), Weipa, QLD.** Assisted in preparing the EPBC referral, Environmental Authority and Mining Lease application for UBx. Developed UBx Mine Rehabilitation Plan, Species Management Plan, Receiving Environment Management Plan and Erosion and Sediment Control Plan. Assisted in the development of UBx Plan of Operations and Financial Assurance calculation.
- **Financial Assurance and Plan of Operations Review, Croydon, QLD.** Reviewed Financial Assurance amount for the project, substantially reducing amount held in escrow. Successfully worked with Government to achieve outcome. Involved review and update of existing Plan of Operations.
- **Cleanaway Resource Recycling Compliance Monitoring, Willawong, QLD.** Ongoing dust monitoring and reporting to assess potential for environmental nuisance at surrounding sensitive receptors. Planned and undertook rehabilitation of disturbed land on site for resumption by Council. Developed rehabilitation monitoring plan to assess seedling establishment and recruitment.
- **Aquila Resources Flora Survey and Permitting, Dingo, QLD.** Organised a rare and threatened flora survey to provide a description of the existing flora within the site and identify any EVNT species. Prepared flora survey report and a permit exemption (as no EVNT species were present) for DES. The permit exemption was successfully gained shortly after submission.
- **Offset Vegetation Condition Assessment, Moranbah, QLD.** Undertook vegetation condition assessment of remnant brigalow regional ecosystem across a proposed offset site.

REFEREES

Professional:

- **David Stanton**
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- **Terry Reis**
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Academic:

- **Professor John Pandolfi (principal honours supervisor)**
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