

KRISTIN METCALFE

CURRICULUM VITAE

ACADEMIC QUALIFICATIONS

Bachelor of Science, Macquarie University NSW, 1981
 Master of Tropical Environmental Management, Northern Territory University, 1999
 Doctorate of Philosophy, Charles Darwin University, 2007
 University Fellow, Research Institute Environment and Livelihoods, Charles Darwin University, 2015, 2020

EMPLOYMENT HISTORY

2013- 2023 Director, Principal Environmental Scientist, *EcoScience NT Pty Ltd*
 1997 - 2013 Consultant Environmental Scientist, *EcoScience NT*
 1995 – 1997 Vegetation Ecologist, *EcOz Australia*
 1987 - 1994 Vegetation Ecologist, Director, *EcoSystems Pty Ltd*
 1982 - 1987 Research Assistant, North Australia Research Unit, Australian National University
 1981 - 1982 Field and Laboratory Assistant, CSIRO, Darwin.
 1980 - 1981 Technical Assistant, Australian Museum, Sydney.

PROFESSIONAL EXPERIENCE

1997 - 2023 Principal Environmental Scientist, *EcoScience NT*

Selected environmental projects include:

East Arm Rail Siding Project – Environmental Impact Assessment and MMP 2023 – SLR for Aurizon Ltd
 Sea Dragon Project, Mangrove Assessment and Monitoring Program, Bynoe Harbour 2022– Sea Farms Pty Ltd
 Annual Mangrove Surveillance Monitoring Program, 2018 to 2023 – CDM Smith for Santos (formerly ConocoPhillips)
 Channel Island Pipeline Mangrove Rehabilitation, 2021 – Spiecapag
 Anindilyakwa Ranger Training, Mangrove Monitoring Program – Groote Island 2021 - Anindilyakwa Land Council
 Ichthys Operations Environmental Monitoring Program, Annual Vegetation Surveillance, May 2020 – Jacobs
 Review of DLNG Mangrove Monitoring Program for Conoco Phillips, April 2020 – CDM Smith
 Ichthys Operations Environmental Monitoring Program, Annual Weed Mapping, April 2020 – Jacobs
 Ichthys Onshore Operations Mangrove Monitoring Program, Annual Survey, March 2020 – Jacobs
 Flora and Fauna Survey for Maud Creek Gold Mine EIS, Feb 2020 – KL Gold
 Monitoring of Mangrove Community Health, Ichthys Onshore Project, Nov '13 to Mar '19 – Greencap.
 Weed Management Plan, Charles Darwin University Casuarina Campus, June 2018 – CDU.
 Field survey of *Typhonium praetermissum*, Koolpinyah Station, February 2018 – VPS land assessment.
 Monitoring of Mangrove Rehabilitation, Gas Export Pipeline Project, Sept 2014 to Dec 2016– INPEX Browse.
 Wadeye High Voltage Connection to Peppimenarti, Terrestrial Biodiversity Survey, July 2016 – Coffee
 Data Collation and Integration, IMMRP, Apr 2016 - NTG Dept Land Resource Management
 Darwin Harbour Integrated Marine Monitoring and Research Program – Scientific Advisor – DLRM
 Mangrove Rehabilitation Project, Tiger Brennan Drive Darwin, November 2015 – Chief Group.
 Preliminary Environmental Assessment Channel Island to Wickham Pt Road Transmission Line, Oct 2015 – RLMS.
 Weed Survey for Holtze Correctional Facility, June 2015 – Greencap, AEC Environmental.
 Baseline Flora and Fauna Survey, East Arm Marine Industry Park, April 2015 – URS Australia.
 Terrestrial Weed Survey, INPEX Ichthys Onshore Project, Bladin Point, Feb 2015 – Greencap/AEC.
 Environmental Assessment & Report, Berrimah Farm Project, September 2014 – Greencap.
 Flora Survey and Field Report, Woodcutters Mine & Creek, September 2014 – Newmont Asia Pacific.
 Risk Assessment, Ponding at Flare Pad, Blaydin Point, May 2014 – AEC Environmental for JKC.
 Mud Wave Formation and Impacts to Mangroves, GEP, May 2014 – Boskalis Pty Ltd.
 Preliminary Terrestrial Flora & Fauna Survey, Remote Radar Station, Berrimah, April 2014 – AEC & JKC.
 Risk Assessment, Impacts on Mangroves of DSM Process, April 2014 – Coffey & MKT.
 Mangrove Rehabilitation Project, Ichthys INPEX Gas Export Pipeline, Dec 2013 – Boskalis.
 Bayview Expansion Project, Environmental Impact Assessment, March-April 2014 – GHD.
 Mangrove Monitoring Program, Ichthys INPEX Gas Export Pipeline Project – Feb '12 – Boskalis Pty Ltd.
 Mangrove Health Monitoring Program, Ichthys Nearshore EMP, Mar 2012–Mar '14 - Cardno & INPEX.
 Weed Survey and Mapping Blaydin Point, April 2012– John Holland Joint Venture & INPEX Browse.

Monitoring of Mangrove Flora & Fauna at WPIAF, Oct 2011 – Oct 2013, Wickham Point Development.

Selected EcoScience NT environmental projects 1997 – present (continued):

Terrestrial Flora Survey, McArthur River Mine Phase 3, May 2011 – MetServe, for XtrataZinc.
 Mangrove survey & impact assessment, Weddell EIA, April 2011 – DPI, NT Government.
 Conoco Phillips DLNG Plant, Monitoring of Mangrove Flora & Invertebrates, Nov 2010—URS, Perth
 Weed Survey and Assessment, Howard Springs & Blaydin Point, August 2010 - INPEX Browse Ltd
 Zuccoli Subdivision, Flora Survey & Environmental Report, July 2010 – Coffey Natural Systems
 Biodiversity Survey of Pond 8 Borrow Area -RioTinto Alcan Gove, July 2010– Horizon Environmental
 Flora & Fauna Survey, Excalibur Mining, Tennant Creek Project, Dec 2009– Coffey Natural Systems.
 Vegetation Assessment & Monitoring for RioTinto Alcan Gove, Sept 2009 –Booyong Forest Science.
 Weed Survey and Assessment, Blaydin Point, Darwin Harbour, May 2009– INPEX Browse Ltd.
 Sunrise LNG Project Terrestrial Flora Survey for Woodside Energy Limited, Nov 2008 – URS, Darwin
 Environmental Report -Marlow Lagoon Stage 3 Drainage Easement, November 2008 –SKM, Darwin
 Browns Oxide Project– Flora Impact Assessment, Tailing Storage Facility Oct 2008 – Coffee Nat. Systems
 Andranangoo Prospect – Flora & rehabilitation monitoring, 2008 Annual report– Matilda Minerals
 Weddell Interconnect Pipeline – Threatened Flora & Fauna Report, June 2008 – Coffee Natural Systems
 Rehabilitation of Mangroves, Inpex LNG Project, Blaydin Point, June 2008 – INPEX Corporation, Perth
 Environmental Report, Rural Subdivision, Elizabeth Valley Farm. May 2008 – Earl James & Associates
 Matilda Minerals Tiwi Island Project – Puwanapi Lease Flora Survey, February 2008 – Matilda Minerals
 Environmental Report, Rural Subdivision, 480 Kentish Rd. February 2008 – Earl James & Associates
 Conoco Phillips Darwin LNG Plant, Monitoring of Mangrove Flora & Invertebrates, 2008—URS, Perth
 Maud Creek Gold Prospect, Flora Survey for EIS, 2007—URS, Darwin
 Weddell Interconnect Pipeline Project, Threatened Flora & Fauna Report 2007 – Enesar, Darwin
 Matilda Minerals Andranangoo Lease, Flora & Rehabilitation Monitoring 2006-07—URS, Darwin
 Wild River Farmed Seafood – Mangrove monitoring program—2001-2005— Phelps/Panizza
 GEMCO Manganese Mine, Groote Eylandt – Vegetation Rehabilitation Monitoring 2004-07—BHP Billiton
 Mitchell Creek Weed Management Plan, 2005—Palmerston City Council
 Conoco Phillips Darwin LNG Plant, Monitoring of mangrove soils & flora 2004-08—URS Perth
 Matilda Minerals Tiwi Islands Project EIS—URS, Darwin
 APPL Aquaculture Project- PER and Mangrove Monitoring 2002-2007—KBR, Perth
 Marlow Lagoon Weed Management Plan, 2004—SKM, Darwin.
 Blacktip Development - Intertidal Survey for EIS—SKM Perth, for Woodside Energy Australia.
 Conoco Phillips Darwin LNG Plant, Monitoring Program – Mangrove Invertebrates, 2002-06—URS, Perth
 Darwin City Waterfront Redevelopment Project EIS– Flora Survey and Impact Assessment—URS
 PWC Transmission Line and Switchyard, Wickham Point – Fauna and Flora Survey—SKM, Darwin
 Mangrove monitoring program, Blackmore River Aquaculture Project—Phelps/Panizza partnership
 McArthur River Mine Expansion, Flora survey and environmental impact assessment—URS.
 Phillips LNG Plant EMP, Design of Mangrove Flora and Invertebrate Monitoring Program—URS Perth

RESEARCH EXPERIENCE

2017-2021 Collaborative research with CSIRO

Independent research on the long-term success of different mangrove rehabilitation strategies to monitor mangrove growth and survival. Collaborative project investigating the use of terrestrial LiDAR established with CSIRO during 2019-2021.

1999-2007 Doctorate studies, Charles Darwin University

PhD topic: *The Biological Diversity, Recovery from Disturbance and Rehabilitation of Mangroves, Darwin Harbour, NT*. Designed to provide baseline information on biodiversity and disturbance to assist in conservation, planning and management of the mangrove resources of Darwin Harbour. <http://espace.cdu.edu.au/view/cdu:6553> Sponsors: NT Parks & Wildlife Commission & ConocoPhillips Pty Ltd

1997 - 1999 Dissertation for Master of Tropical Environmental Management, NTU.

Masters topic: *The Productivity of Mangroves, Darwin Harbour*. Two year study of mangrove productivity and phenology. Sponsor: NT Department of Lands Planning and Environment. <http://espace.cdu.edu.au/view/cdu:38880>

1982 - 1987 Research Assistant, North Australia Research Unit, Australian National University

Hydrology, geomorphology, vegetation ecology and plant ecophysiology studies within the *Mangroves and Tidal Wetlands Research Program*. Involving extensive field experience in Darwin Harbour, the Daly & South Alligator Rivers, NT. Individual research on the impacts of Cyclone Kathy on the mangrove vegetation of the McArthur River delta, Gulf of Carpentaria.

PUBLICATIONS (nee Bardsley)

- Chappell, JMA and Bardsley, KN** (1985). Hydrology of the Lower Daly River, Northern Territory Australian National University North Australia Research Unit Monograph 41 pp.
- Bardsley, KN** (1985). 'The Effects of Cyclone Kathy on Mangrove Vegetation', Coasts and Tidal Wetlands of the Australian Monsoon Region. A collection of Papers presented at a Conference in Darwin, November 1984, Bardsley, KN, Davie, JDS and Woodroffe, CD (eds) Mangrove Monograph No 1. pp 167-185
- Bardsley, KN** (1987). Mangroves of the Darwin Region, poster featuring text and illustrations of the morphology of 23 mangrove species. North Australia Research Unit, ANU.
- Levick, SR, K Metcalfe and A Bourke** (2021) Monitoring mangrove rehabilitation with terrestrial laser scanning. CSIRO - EcoScience NT Kick-Start program collaboration. CSIRO, Australia. Final report. 27 August 2021
- Metcalfe, KN** (1989). 'The Mangroves - Where Land Meets Sea', World issue No. 30, London.
- Metcalfe, KN** (1999). Mangrove Litter Production in Darwin Harbour, NT. A study of litter fall as a measure of primary productivity in the mangrove communities of Darwin Harbour. Masters Thesis, Northern Territory University. <http://espace.cdu.edu.au/view/cdu:38880>
- Metcalfe KN**, (2007) The Biological Diversity, Recovery from Disturbance and Rehabilitation of Mangroves in Darwin Harbour, Northern Territory. PhD Thesis, Charles Darwin University, Darwin. <http://espace.cdu.edu.au/view/cdu:6553>
- Metcalfe, KN, Franklin D and McGuinness, K** (2011) Mangrove Litter Fall: Extrapolation from traps to a large tropical macrotidal harbour. *Journal of Estuarine, Coastal and Shelf Science* **95** (2011): 245-252.
- Metcalfe KN and Glasby CJ** (2008) Diversity of Polychaeta (Annelida) and other worm taxa in mangrove habitats of Darwin Harbour, northern Australia. *Journal of Sea Research* **59**, 70-82.
- Metcalfe KN, Gordon DP and Hayward E** (2007) A uniquely amphibious bryozoan from living mangrove leaves - *Amphibiobeania* new genus (Beaniidae). *Zoological Research*, **24**: 563-570.
- Munksgaard N, Hutley LB, Metcalfe KM, Padovan AC, Palmer C and Gibb, K** (2019) Environmental challenges in a near-pristine mangrove estuary facing rapid urban and industrial development: Darwin Harbour, Northern Australia. *Regional Studies in Marine Science Special Issue: World Harbours* **25**(2019) 100438. Published online Nov 2018.
- Neusser, TP, Bourke, A J, Metcalfe K and Willan, RC** (2015). First record of Aitengidae (Mollusca: Panpulmonata: Acochlidia) for Australia. *Northern Territory Naturalist*, **26**: 27-31.
- Woodroffe, CD and Bardsley, KN** (1988). The Distribution and Productivity of Mangroves in Creek H, Darwin Harbour, Darwin Harbour, Larson HK, Michie MG and Hanley JR (eds). Australian National University North Australia Research Unit Mangrove Monograph No.4.
- Woodroffe, CD, Bardsley, KN, Ward, PJ and Hanley, JR** (1988) Production of Litter in a Macrotidal Embayment, Darwin Harbour, NT, Australia. *Estuarine, Coastal and Shelf Science*, Volume 26, pp 581-598.