



COMPANY PROFILE 2018

INTRODUCTION

Eco-Pulse Environmental Consulting Services (Eco-Pulse) offers selected services in the fields of natural sciences and water resource management. The name of the business reflects the focus of the company. "Eco" stands for ecology - the scientific study of the distributions, abundance and relations of organisms and their interactions with the environment. We seek to apply the science of ecology to real-world questions in order to inform sustainable management of our natural resources. A strong "Pulse" is an indicator of vitality and reflects our vision to see ecosystems appropriately managed so as to secure critical biodiversity and key ecosystem goods and services.

Since it's established in 2010 Eco-Pulse has grown to become a leader in the specialist fields in which we operate. We are based in KwaZulu-Natal but have undertaken work across the length and breadth of South Africa. We have Christian values and aim to do our work with professionalism and integrity and through this to contribute to the management of our natural environment on which we all depend. We work closely with a range of other consultancy companies and aim to grow and develop long-lasting and mutually beneficial relationships with our clients and partners.

MEET THE TEAM

The Eco-Pulse team is made up of a group of dedicated natural scientists who have various fields of specialised expertise which enables us to provide our clients a wide range of services.



DOUGLAS MACFARLANE Director/Principal Scientist

Douglas has a BSc in Wildlife science and an MSc in Environment & Development. He is a registered Professional Natural Scientist in the field of Ecological Science with experience in the corporate sector and consulting environment. He is amongst the leading wetland ecologists in South Africa and has been involved in developing a wide range of tools and best-practice guidelines. Doug is also at the forefront of offset policy formulation, having led the development of wetland offset guidelines for South Africa. He has gained sound experience in the design and implementation of offset projects while he also has extensive experience in rehabilitation planning, gained principally through his long-term involvement with the Working for Wetlands Programme. Douglas also has a keen interest in biodiversity with experience in strategic biodiversity assessments and landscape-level planning. He has also worked in the forestry industry, and maintains a keen interest in sustainable forest management with a particular interest best-practice guidelines and certification.

Cell: 084 368 4527 **Email:** dmacfarlane@eco-pulse.co.za



ADAM TEIXEIRA-LEITE Senior Scientist: Wetland & Terrestrial Ecology

Adam has experience in the fields of aquatic and terrestrial ecology, wetland science and environmental management. He has a BSc Honours degree in Environmental and Earth Science. Adam has >10 years' experience as an environmental consultant and has obtained various skills in scientific research and development, environmental assessment, environmental auditing, terrestrial and aquatic biodiversity assessments, conservation planning and vegetation surveys as well as compiling water use license applications. Adam has extensive experience in the delineation and functional assessment of wetlands, the development of wetland management and rehabilitation plans and biodiversity offset mitigation strategies. Adam also has experience in wetland and river bio-monitoring, water quality sampling and analysis as well river health assessments (in-stream and riparian vegetation and fluvial geomorphology).

Cell: 082 310 6769 **Email:** ateixeira@eco-pulse.co.za



RYAN EDWARDS Senior Scientist: Wetland Ecology

Ryan's core field of focus and specialisation is wetland ecology, a field in which he has been practicing for the past 10 years. Ryan holds a Bachelor of Science (BSc) in Geography and Environmental Management, a Bachelor of Science Honours (BSc Hons) in Geography and Environmental Management and a Master of Science (MSc) in Environmental Science (Research Masters). Ryan is passionate about wetlands and has extensive experience in compiling wetland assessment reports in support of applications for environmental authorization and water use licenses. He also has experience in wetland rehabilitation, having developed rehabilitation plans for a broad suite of projects. He has also gained substantial experience in wetland offset planning through a range of ongoing projects. Ryan also has a keen interest in botany and assists with vegetation and riparian zone assessments.

Cell: 073 121 3392 **Email:** redwards@eco-pulse.co.za



BRAD GRAVES Senior Scientist: Wetland Ecology

Brad's core field of focus and specialisation is wetland ecology, a field in which he has been practicing for the past 13 years. Brad holds a Bachelor of Science (BSc) in Geography and Environmental Management, and a Bachelor of Science Honours (BSc Hons) in Geography and Environmental Management. Brad is passionate about wetlands, particularly in the context of rehabilitation towards more effective water resource and catchment management strategies. He has extensive experience in freshwater ecosystems delineation, and compiling wetland assessment reports in support of applications for environmental authorization. He also has extensive experience in wetland rehabilitation, having developed numerous rehabilitation plans throughout South Africa. Brad has gained substantial experience in the interpretation, facilitation and application of the National Water Act, and its associated licensing processes.

Cell: 083 232 3833 **Email:** bgraves@eco-pulse.co.za



ROSS VAN DEVENTER Scientist: Aquatic & Wetland Ecology

Ross has an MSc (Environmental Science) with training in integrated environmental management along with specialist training in the field of water resource management and aquatic science. His specialised training is further complemented by experience gained at Eco-Pulse Environmental Consulting Services in a number of wetland and riparian assessments. This includes wetland and riparian delineation, Present Ecological State and Ecological Importance and Sensitivity assessments. He is competent in the application of current best practise guidelines and assessments tools and is accredited in the application of the SASS5 bio-monitoring technique.

Cell: 072 570 4012 **Email:** rvandeventer@eco-pulse.co.za



RYAN KOK Junior Scientist: Ecology

Ryan holds a BSc degree in Environmental Science; BSc Honours and MSc degree in Biological Sciences. His MSc thesis focused primarily on the impacts of climate change and human land use on the species distribution of Malagasy bats (past-present-future). Ryan has a passion for the environment and enjoys the thought of being thrown new challenges. Ryan has 5 years' experience in GIS and environmental modelling, with extensive field experience in monitoring and analysing data. Ryan also has a strong interest in botany, wildlife and freshwater ecosystems. Since being part of Eco-Pulse, he has been gaining valuable practical experience in a range of aquatic and ecological projects.

Cell: 072 507 7868 **Email:** rkok@eco-pulse.co.za



SHAUN MCNAMARA Junior Scientist: Wetland Ecology

Shaun has an Honours degree in Environmental Water Management, with a strong focus on integrated catchment management and wetland ecology. He also holds an MSc in Geography with his dissertation focussing on fluvial geomorphology and processes of wetland formation and evolution. Shaun has experience in the collection and analysis of data relating to geomorphology and wetland assessments.

Cell: 084 596 6078 **Email:** smcnamara@eco-pulse.co.za



JULIETTE LAGESSE Junior Scientist – Intern: Wetland & Terrestrial Ecology

Juliette is an Intern at Eco-Pulse with an MSc in Geography from Rhodes University. She completed her studies in early 2017 and joined the Eco-Pulse team in August 2018. Juliette's MSc focused on wetland geomorphology, which was well aligned with the core wetland focus of the Eco-Pulse team. She has been gaining valuable practical experience in a range of aquatic and ecological projects.

Cell: 060 980 7076 **Email:** jlagesse@eco-pulse.co.za



ANDREA GIBSON Environmental Scientist: Environmental Management

Andrea has a Masters in Environment and Development and 6 years' experience in the environmental consulting field, including environmental impact assessments, environmental reporting and environmental management. Andrea has experience in managing projects, preparing and submitting project proposals, interacting with specialists, collating specialist reports and liaising with government departments. She has been involved in leading and managing EIAs and undertaking public participation processes. She is currently involved in managing water use licence applications and has a particular interest in best practice in environmental management, cooperative governance and aligning environmental assessment processes.

Cell: 082 495 0095 **Email:** agibson@eco-pulse.co.za



Vanessa Kahts Finance / Project Support

Vanessa has been in the employ of Eco-Pulse for the past four years. Her key role is to provide financial management and project support to the consulting team. Her responsibilities encompass maintaining a tracking system for all project proposals, consolidation of all project deliverables, a project management system to track project costs against expenses and the submission of regular monthly project management reports to the project managers concerned. Vanessa's financial responsibilities also constitute the generation of periodical statements and the provision of an invoicing schedule to track invoicing and associated payments.

Cell: 072 3864927 **Email:** finance@eco-pulse.co.za

SERVICES

We offer a range of specialist services across 6 focal areas.



WETLANDS



WATER RESOURCES



TERRESTRIAL BIODIVERSITY



BIODIVERSITY OFFSETS



FORESTS & PLANTATIONS



ENVIRONMENTAL MANAGEMENT

WETLANDS

We offer a wide range of wetland-related skills ranging from desktop mapping and catchment-based wetland studies through to detailed wetland delineation and site-based PES and functional assessments. We also have excellent experience in wetland rehabilitation planning and can assist in designing efficient wetland offsets in line with best-practice. Given our active involvement in developing best-practice guidelines, we are able to apply best available science in the work we undertake.

Services offered

- ❖ Delineation of wetlands and riparian areas.
- ❖ Assessment of Present Ecological State (PES) of wetlands.
- ❖ Assessing goods and services provided by wetland systems.
- ❖ Evaluating impacts to wetlands from proposed developments.
- ❖ Identifying mitigation measures to limit impacts.
- ❖ Setting Resource Quality Objectives (RQOs).
- ❖ Defining buffer zones for wetland and biodiversity protection.
- ❖ Developing detailed rehabilitation plans for wetlands.
- ❖ Design of wetland offsets and wetland mitigation banking (*Biodiversity Offsets*).
- ❖ Developing management plans & assessing management effectiveness.

Selected Project Involvement

- ❖ Wetland mapping & prioritization at a Municipal Scale – Amathole & Mbombela Municipalities
- ❖ Development of wetland management guidelines for South African Municipalities – ICLEI Africa
- ❖ Development of a strategic wetland management framework, eThekweni North – eThekweni Municipality
- ❖ Developing guidelines for wetland rehabilitation in the mining landscape – SANBI / WRC
- ❖ Development of Wetland Offset Guidelines for South Africa – SANBI
- ❖ Development buffer zone guidelines for developments associated with wetlands, rivers and estuaries – WRC
- ❖ Leading the development of WET-Health - A technique for rapidly assessing wetland health. - WRC
- ❖ Development of management plans for 9 Ramsar sites – Department of Environmental Affairs
- ❖ Development of wetland rehabilitation plans for offset sites linked with the Fairbreeze Mine – Tronox KZN Sands
- ❖ Setting Resource Quality Objectives (RQOs) for wetlands in the Olifants catchment – DWA / INR
- ❖ An assessment of the 24 priority wetlands in KZN – Ezemvelo KZN Wildlife
- ❖ Rehabilitation planning to address water quality impacts on the Zaaklap Wetland – SANBI
- ❖ Rehabilitation Planning for the Working for Wetlands Programme – SANBI



WATER RESOURCES

We are able to offer a range of water resource management related services. This ranges from site-based assessments of rivers and streams to inform development applications through to strategic catchment-level evaluations.

Services offered

- ❖ Riparian zone delineation.
- ❖ Setting buffers for rivers, wetlands and estuaries.
- ❖ Vegetation and fluvial geomorphological assessments.
- ❖ Aquatic Invertebrate Assessments (SASS5).
- ❖ Evaluating impacts of proposed developments on water resources.
- ❖ Integrating Sustainable Urban Drainage into development planning
- ❖ Identifying site-based mitigation measures to reduce impacts on water resources.
- ❖ Water Use License Applications.
- ❖ Specialist input into reserve determination studies.
- ❖ Classification of water resources & setting resource quality objectives (RQOs) for water resources.
- ❖ Evaluating compliance against the Alliance for Water Stewardship (AWS) standard

Selected Project Involvement

- ❖ Specialist Aquatic Assessment for the N2 Wild coast toll highway – SANRAL / CCA Environmental.
- ❖ Pilot study to assess the feasibility of implementing the AWS standard on Mondi's Zululand FMU – WWF / Mondi
- ❖ Pilot study as part of the development of a Green Infrastructure Strategy – City of JoBurg
- ❖ Development of procedures to determine and implement Resource Quality Objectives in order to implement the National Water Act – DWA.
- ❖ Specialist ecological screening of proposed dams in the Tina River and Kinaria River catchments – MBB Consulting Engineers.
- ❖ Mzimkhulu River Catchment Water Resource Study – IHI and wetland assessments – Aurecon (Pty) Ltd / INR.
- ❖ Specialist Aquatic Assessment for the proposed Somkhele Mine Expansion – Tendele Coal Mining / GCS
- ❖ Baseline Aquatic Assessment and biomonitoring for the Dube Trade Port Site – INR / ACSA
- ❖ Specialist Aquatic Assessment for the Zululand Anthracite Coillery - GCS
- ❖ Setting Resource Quality Objectives (RQOs) for wetlands in the Olifants catchment – DWA / INR
- ❖ Guideline for accreditation of IHI Practitioners: National Ecosystem Health Monitoring Programme – DWAF.
- ❖ State of the rivers reports for Sappi Forests Plantations – Sappi Forests (Pty)



TERRESTRIAL BIODIVERSITY

Biodiversity encompasses different ecosystems, landscapes, communities, populations and genes as well as the ecological and evolutionary processes that allow these elements of biodiversity to persist over time. Careful planning is required to ensure that these elements are considered in decision making both at a strategic and site-specific level. While our primary focus is on strategic-level assessments, we also partner with a range of specialists to inform site-specific development planning.

Services offered

- ❖ Plant surveys and vegetation mapping.
- ❖ Desktop biodiversity assessments and sensitivity mapping.
- ❖ Assessing impacts to biodiversity from planned developments / activities.
- ❖ Developing biodiversity offset plans to address significant residual impacts from planned developments (Biodiversity Offsets).
- ❖ Development of biodiversity sector plans.
- ❖ Interpreting conservation plans to inform local and regional planning.
- ❖ Identifying high conservation value areas based on international guidelines.
- ❖ Development of management plans for important species and habitats.
- ❖ Undertaking audits to review and report on management effectiveness.
- ❖ Mapping and assessing invasive alien plant infestations.

Selected Project Involvement

- ❖ Biodiversity Assessment for the proposed Somkhele Mine expansion – Tendele Coal Mining / GCS
- ❖ Desktop mapping and environmental sensitivity assessment for the Richards Bay Industrial Development Zone – Thorn-Ex / RBIDZ
- ❖ Development of Biodiversity Sector Plans (BSPs) for the Ugu, Amajuba & Umzinyathi District Municipalities – Developed in association with Ezemvelo KZN Wildlife
- ❖ Development of an Environmental Frameworks (EMFs): Specialist biodiversity assessments for the Msunduzi, uMshwathi and Ugu District Municipalities
- ❖ Specialist biodiversity assessment for the Richards Bay Industrial Development Zone: Phase 2A - RBIDZ
- ❖ Development of a draft Metropolitan Open Space System for the Msunduzi Municipality – SRK Consulting
- ❖ Exploring the opportunity to pilot a conservation banking scheme in the eThekweni Municipality – CEPF / eThekweni Municipality
- ❖ Invasive alien plant survey and prioritization of reserves and open spaces for alien plant control operations – eThekweni Municipality



BIODIVERSITY OFFSETS

Where significant impacts to biodiversity are identified, offset planning becomes a key component during the final stages of the EIA process. Eco-Pulse is well placed to offer sound technical support to address the full spectrum of offset planning requirements from calculating offset requirements through to site identification, detailed rehabilitation planning and formalizing protection through stewardship or other formal protection mechanisms. We also have sound experience in developing management plans and undertaking monitoring and auditing necessary to ensure that biodiversity offsets deliver tangible benefits to society.

Services offered

- ❖ Specialist wetland and biodiversity assessments to assess residual impacts associated with planned developments.
- ❖ Liaising with regulating authorities to discuss and finalise offset requirements.
- ❖ Landscape – level planning to identify and screen candidate sites.
- ❖ Estimating financial requirements & recommending financial instruments necessary to ensure that offsets are appropriately implemented and maintained.
- ❖ Undertaking baseline ecological assessments of offset sites.
- ❖ Developing rehabilitation and management plans to meet offset requirements.
- ❖ Implementing ecological monitoring programmes and auditing project outcomes.

Selected Project Involvement

- ❖ Drafting of Wetland Offset Guidelines for South Africa - SANBI
- ❖ Participating in the drafting of South Africa's National Offset Policy - DEA
- ❖ Exploring the opportunity to pilot a conservation banking scheme in the eThekweni Municipality – CEPF
- ❖ Development of a strategic offset plan for the eThekweni North Project Area – DTPC / THD
- ❖ Piesang River Floodplain Rehabilitation and Offset Project - eThekweni Architects
- ❖ Offset planning for the Fairbeeze Mine - Tronox KZN Sands.
- ❖ Offset planning for the TradeZone 2 & AgriZone 2 Developments – Dube TradePort Corporation.
- ❖ Offset planning for the uShukela & Inyaninga Developments – Tongaat Hulett Developments (THD)
- ❖ Offset planning for the Clairwood Racecourse Development – Fortress / KSEMS
- ❖ Wetland Mitigation Pilot Project - SANBI
- ❖ Development of a conceptual wetland and riparian area rehabilitation and onsite mitigation plan for the proposed Rohill Business Estate in Red Hill, eThekweni, KZN – GCS
- ❖ Development of a wetland rehabilitation plan to mitigate impacts associated with the proposed Edendale business & industrial site - Jeffares & Green



FORESTS & PLANTATIONS

With extensive experience in the forestry industry, we are able to provide pragmatic advice on sustainable forest management issues. Our involvement in the development and testing of a range of standards for sustainable forest management makes us well placed to assist forest companies in meeting certification requirements.

Given our sound understanding of forestry related impacts, we are also able to assist in strategic planning for new plantation establishment. This includes designing plantation layouts to cater for aspects such as fire risk and accessibility whilst still maintaining viable natural corridors and priority habitats. With a growing interest in the Green Economy, we have also been involved in initiatives aimed at identifying and prioritizing sites for indigenous afforestation programmes.

Services offered

- ❖ Developing best-practice guidelines for sustainable management of natural forests and plantations
- ❖ Developing forest management plans in compliance with international certification standards
- ❖ Undertaking assessments to identify areas of high conservation value in line with international best-practice
- ❖ Plantation estate planning to comply with environmental best practice
- ❖ Environmental auditing of plantation and forest management activities in line with government and international standards
- ❖ Development of integrated weed control plans and strategies to reduce infestation levels
- ❖ Assessing the current state and impacts to natural forest ecosystems
- ❖ Designing and planning carbon-offset projects

Selected Project Involvement

- ❖ Environmental assessment of afforestation potential in KwaZulu-Natal and Mpumalanga - DWAF
- ❖ Development of a locally appropriate certification standard for the assessment and verification of levels of sustainable forest management in plantations and natural forests in South Africa – DAFF
- ❖ Conducting Criteria Indicators and Standards (CI&S) audits for sustainable forest management in three provinces, namely; Eastern Cape, KwaZulu-Natal & Limpopo– DAFF
- ❖ Feasibility study of afforestation opportunities to stimulate local economic development – Ntabankulu Municipality
- ❖ Technical review of an HCVF assessment of Kubaan-Puak Forest Management Unit, Sarawak, Malaysia
- ❖ eThekweni Reforestation Programme – Wildlands Conservation Trust



ENVIRONMENTAL MANAGEMENT

While we do not undertake EIAs, we do prepare Water Use Licence Applications and are able to provide environmental inputs into a range of project activities where specialist environmental input is required. This includes undertaking environmental audits and specialist ECO work to ensure that developments are implemented in line with requirements. We are also well placed to provide input into strategic-level environmental assessment such as SEAs and EMFs and have good experience assessing, auditing and undertaking planning to inform the control of alien invasive plants. With a growing experience in management planning, we are also available to assist management authorities in assessing management effectiveness and in developing rehabilitation plans where required.

Services offered

- ❖ Water Use Licencing.
- ❖ Sensitivity mapping to inform development planning.
- ❖ Specialist ecological screening for new developments.
- ❖ Specialist oversight for development projects and rehabilitation activities.
- ❖ Auditing compliance with authorizations for new development during construction and operational phases.
- ❖ Undertaking strategic-level environmental assessments to inform planning at a project and regional level.
- ❖ Assessing effectiveness of management in line with management plans or best-practice procedures.

Selected Project Involvement

- ❖ Environmental Sensitivity Assessments (Biodiversity & wetlands) for planned mining projects - Various
- ❖ Undertaking Environmental Audits for Dube Trade Port - Airports Company South Africa / INR.
- ❖ Undertaking Environmental Audits for the SANRAL Interchange, King Shaka International Airport - INR
- ❖ Specialist oversight for construction of the Mandlazini sewer network – E&D Consulting
- ❖ Environmental assessment of afforestation potential in KwaZulu-Natal and Mpumalanga - DWAF
- ❖ Environmental input into the revision of the Environmental Master Plan for the Richards Bay 50-year Master Plan – Thorn-Ex.
- ❖ Development of an Environmental Frameworks: Specialist biodiversity & wetland assessments –Msunduzi, uMshwathi and Ugu Municipalities.
- ❖ Development of a draft Metropolitan Open Space System for the Msunduzi Municipality – SRK Consulting
- ❖ Invasive Alien Plant Audit of eThekweni's Municipal Nurseries – eThekweni Municipality.



PHYSICAL ADDRESS

No. 2 Primula Lane
Hilton, South Africa, 3245

POSTAL ADDRESS

26 Mallory Road
Hilton, South Africa, 3245

Tel: 033 343 3651

www.eco-pulse.co.za

