
CURRICULUM VITAE**BARRY PATRICK**

Proposed position: Vegetation and Wetland Specialist

Name of Firm: ACER (Africa) Environmental Management Consultants

Name of Staff: Barry Gordon Patrick

Profession: Environmental Consultant

Date of Birth: 11 July 1970

Years with Firm: 2003 – 2007 and 2008 to 2016

Nationality: South African

Membership in Professional societies:

Professional Natural Scientist, Ecological Science (South African Council for Natural Scientific Professions), Reg. No. 400063/05.

International Association for Impact Assessment (South African Chapter)

KEY QUALIFICATIONS AND RELEVANT PROJECT EXPERIENCE**2015: Proposed Isundu 765/400 kV Sub-Station and Turn-In Transmission Lines, KwaZulu-Natal.**

Client: Eskom Holdings SOC Limited. Vegetation and wetland specialist study including identification of Red Data and protected species and Threatened Terrestrial Ecosystems. Included wetland delineation, functional and health assessments.

2015: Baseline Ecological Assessment for Proposed Lease Sites at South Dunes, Port of Richards Bay, Kwazulu-Natal (Phases 1-4). Client: Transnet National Ports Authority. Work included project management, vegetation and wetland assessments and management of fauna specialist.

2014: Proposed Sodwana Bay Car Parking Expansion, iSimangaliso Wetland Park Kwazulu-Natal. Vegetation assessment of a coastal forest area as part of the proposed redevelopment of the Sodwana Bay Beach Node. Identification of Red Data and protected species and conservation status of ecosystems and assessment of impacts.

2014: Spring Grove Dam terrestrial biodiversity offsets, KwaZulu-Natal. Client: Institute of Natural Resources. Terrestrial ecologist for the identification and prioritization of offsets for Spring Grove Dam.

2014: Survey and permit applications for removal of protected trees and specially protected plants along the Jozini-Ingwavuma Water Supply Project pipeline route, KwaZulu-Natal. Client: Mott Macdonald PDNA.

2014: Survey and permit applications for removal of protected trees and specially protected plants along Tronox's Faibreeze Pipeline, KwaZulu-Natal. Client: Tronox Fairbreeze Mine.

2014: Futululu Veld Assessment. Client: iSimangaliso Wetland Park Authority. Rangeland condition and grazing capacity assessment within the iSimangaliso Wetland Park conservation area, KwaZulu-Natal.

2014: Proposed St. Faiths 400/132 kV sub-station and associated power lines, Port Shepstone, Kwazulu-Natal. Client: Eskom Holdings SOC Limited. Vegetation impact assessment and an investigation of wetland characteristics.

2014: Proposed Greater Mthonjaneni SSA 2 Bulk Water Supply Project, KwaZulu-Natal. Client: Uthungulu District Municipality. Vegetation and Wetland Specialist Study.

2013: Identification of flora for rescue at Tronox's Valley Return Dam inundation area, KwaZulu-Natal. Client: Tronox KZN Sands.

2013: Proposed Rehabilitation and Upgrading of the N3 between EB Cloete interchange and Cedara.

Client: Goba. Flora specialist for assessment of impacts of proposed highway upgrade in KwaZulu-Natal.

2013: Spring Grove Dam terrestrial biodiversity offsets, KwaZulu-Natal. Client: Institute of Natural Resources. Provision of specialist input for quantification of the loss of terrestrial ecosystems and residual impact at Spring Grove Dam.

2012: Spring Grove Dam flora and fauna search and rescue, KwaZulu-Natal. Client: TCTA and Group Five/Pandev Spring Grove JV. Project manager and flora specialist for the search and rescue of flora and fauna for Spring Grove Dam in the KZN midlands, prior to dam inundation in March 2013.

2011: The Construction of Lewensaar Substation and Turn-in Power Lines, Northern Cape Province. Client: Eskom Holdings Ltd. Position held: Environmental manager supervising junior staff for monitoring of compliance of Contractors with the Environmental Management Plan during project implementation, near Olifantshoek in the Northern Cape Province.

2011: Erf 1284A, Ngwelezane, KwaZulu-Natal. Client: PSE Development Initiatives. Ecologist for assessment of ecology and wetland delineation for a proposed low cost housing development in Ngwelezane, KwaZulu-Natal.

2011: Proposed Richmond Pipeline, Kwazulu-Natal.

Client: Umgeni Water. Position held: Vegetation, Wetland and Surface Water Resources Specialist providing input on the potential impacts of the construction and operation of Umgeni Water's proposed 36 km bulk potable water pipeline from Pietermaritzburg to Richmond. The ecological status of natural vegetation and no-go areas of sensitive vegetation were identified, including Red Data/Protected plants and trees. Wetlands and riparian zones were identified and condition assessed. Mitigation measures were proposed.

2011: Middelrus Valley Farms, Kwazulu-Natal, Wetland Delineations on Thembanani and Ngwazini Farms. Client: Agribusiness Development Agency. Position held: Ecologist for the wetland delineation and brief assessment of vegetation ecology for proposed planting areas adjacent to the Mooi River, KwaZulu-Natal.

2011: Thukela Hydro Electric Power Scheme Thukela River, KwaZulu-Natal.

Client: Mulilo Renewable Energy. Position held: Vegetation ecology and wetland specialist providing input on the potential impacts of the construction and operation of two hydroelectric plants and associated infrastructure along the Thukela River. This included access requirements and recommendation of a preferred alignment for the provision of electrical distribution lines within a 500 m wide corridor. Red

Data/Protected plants and trees potentially affected by construction were identified and mitigation measures were proposed.

2010: Electrical Distribution Infrastructure to Service NMPP Inland Terminal 2.

Client: Transnet. Position held: Wetland and flora specialist. As part of Transnet's New Multi-Products Pipeline (NMPP) Project, accurate wetland delineations were performed along the final preferred alignment for the construction of electrical infrastructure to supply Inland Terminal 2 near Jameson Park (Gauteng). Red Data/Protected plants potentially affected by construction were mapped and mitigation measures were identified.

2010: Gingindlovu Housing Development, Wetland Functional Assessment.

Client: PD Naidoo & Associates Consulting Engineers. Position held: Wetland specialist providing a level 2 wetland functional assessment for a wetland becoming increasingly constrained by housing development in KwaZulu-Natal.

2010: Eskom Venus–Sigma 765 Kv Transmission Line (EIA: 12/12/20/1397/1) Sigma–Hector 2 X 400 Kv Transmission Lines (EIA: 12/12/20/1397/3), KwaZulu-Natal. Client: Eskom Transmission. Position held: Flora, Wetland and Surface Water specialist providing input on the potential impacts of the construction and operation of Eskom's proposed transmission lines from the Venus Sub-station (situated near Estcourt) to the new Sigma Sub-station (location to be determined), and two 400 kV transmission lines from the Sigma Sub-station to the Hector Sub-station (near Cato Ridge).

2010: Proposed Construction of the Sigma 765 Kv Sub-Station (EIA: 12/12/20/1397/2), KwaZulu-Natal. Client: Eskom Transmission. Position held: Flora, Wetland and Surface Water specialist providing input on the potential impacts of the construction and operation of Eskom's proposed Sigma Sub-station in the KwaZulu-Natal hinterland.

2010: Proposed Car City Development, Cato Ridge.

Client: Alfallah Pty Ltd. Position held: Ecologist for assessment of ecology and wetland delineation for a proposed vehicle storage facility in Cato Ridge, KwaZulu-Natal.

2010: Proposed Rehabilitation and Upgrading of the N3 Between Lynnfield Park and Cedara.

Client: Goba/SSI Joint Venture. Ecologist for assessment of impacts of proposed highway upgrade in KwaZulu-Natal

2010: Proposed Greater Mbonambi Industrial Development Node, KwaZulu-Natal.

Client: Uthungulu District Municipality. Position held: Wetland specialist.

2010: Assessment of ecology and wetland delineation for Erf 16177, Richards Bay.

Client: Inhloso Planning cc. Position held: Ecologist for assessment of ecology and wetland delineation for a proposed development on the Nsezi River floodplain, Richards Bay, KwaZulu-Natal.

2009: Ariadne-Eros 400 Kv/132 Kv Multi-Circuit Transmission Power Line.

Client: Eskom Transmission. Position held: Flora specialist providing input on the potential impacts of the construction and operation of Eskom's proposed 400 kV/132 multi-circuit transmission power line from the Ariadne (Pietermaritzburg) Substation to the Eros (Harding) Substation, and the expansion and upgrade of the Ariadne and Eros substations in KwaZulu-Natal.

2009: Proposed Geotechnical Studies to be conducted in the Port of Richards Bay, KwaZulu-Natal.

Assessment of impacts on vegetation ecology, including terrestrial, intertidal, mangrove and wetland areas. Botanical survey, mapping of plant communities, assessment of ecological impacts, recommendations for management and monitoring of impacts, recommendations for rehabilitation.

2009: The Construction of Woodmead Estate, Shakaskraal. Client: Standard Bank. Position held: Environmental manager for monitoring of compliance of Contractors with the Environmental Management Plan during project implementation.

2008-present: Investment site evaluations. Client: iSimangaliso Wetland Park Authority. Position held: Ecologist providing assessments on behalf of iSimangaliso Wetland Park Authority of proposed construction/upgrade of tourism investment sites in the Park, including Wilderness Safari's Manzengwenya Dive Centre and Rocktail Bay Beach Lodge, and Isibindi Africa's Thonga Beach Lodge and Mabibi Campsite.

2008: Umgeni "Green Precinct" Framework Plan, Durban, Umgeni Estuary and surrounds KwaZulu-Natal.

Input from a terrestrial ecology and urban biogeography perspective on a situation analysis and urban design framework for the development of a nature based recreation and tourist precinct to support the adjacent 2010 football stadium in Durban. Input from a terrestrial ecology and urban biogeography perspective on ecosystems rehabilitation and management plan

2008: Proposed Obhukwini Pedestrian Bridge, Eshowe, KwaZulu-Natal

Assessment of vegetation ecology and wetland delineation and mapping, identification of buffer zone, botanical survey, mapping of plant communities, assessment of ecological impacts, recommendations for management and monitoring of impacts, recommendations for rehabilitation.

2007: Mngcweni River Ecosystem Health Assessment, Cato Ridge, KwaZulu-Natal

Assessment of baseline river ecosystem health conditions using the SASS5 assessment technique, based on the composition of benthic macroinvertebrates. Establishment of current conditions and identification of appropriate monitoring locations. Sampling and identification of macroinvertebrates to family level, adherence to standardised SASS5 sampling procedure, assessment of habitat quality, data analysis, interpretation of results.

2007: Proposed Parlock Switching Station: Mitigation and Rehabilitation Measures, Durban, KwaZulu-Natal

Identification of a suitable wetland for off-site mitigation, rehabilitation plan for the off-site wetland and for an on site wetland. An environmental management and rehabilitation plan for stringing of power lines, construction of pylons and access routes. Botanical survey, mapping of plant communities, rehabilitation and management plans.

2007: Sheffield Manor Project Extension, Sheffield Beach, KwaZulu-Natal

Plant community ecology, assessment of layout plan, optimising natural attributes. Botanical survey, mapping of plant communities, identification of ecologically sensitive sites, recommendations for management of impacts, recommendations for rehabilitation.

2007: Proposed Rocky Ridge Township Development, Shakaskraal, KwaZulu-Natal

Plant community ecology, assessment of layout plan, optimising natural attributes. Botanical survey, mapping of plant communities, identification of ecologically sensitive sites, recommendations for management of impacts, recommendations for rehabilitation

2007: Avoca Wetland Rehabilitation Plan in Compensation for the Wetland Loss Associated with the Bhejane Road Extension, KwaMashu and Durban.

Development of a comprehensive off-site wetland ecological compensation plan as mitigation for the loss of wetland area and functional values associated with the construction of the Bhejane Road Extension. Familiarisation with characteristics of the impacted wetland, identification of a suitable off-site wetland with similar characteristics, site investigation to determine the status of the selected wetland's health including identification of ecological and hydrological impacts, compilation of an action-orientated wetland ecological compensation plan.

2007: Rehabilitation and Management Plans, Blue Bay Mall and Surrounds, Kingsburgh, KwaZulu-Natal.

Hightower Properties (Pty) Ltd Rehabilitation and management plans for natural forest systems and wetlands within the site; a rehabilitation and landscape plan for the shopping centre site; an environmental management plan detailing rehabilitation and management for Illovo Lagoon Nature Reserve as off-site mitigation for development of Blue Bay Mall. Botanical survey, mapping of plant communities, rehabilitation and management plans.

2007: Sheffield Manor Wetland Rehabilitation Plan, Sheffield Beach, KwaZulu-Natal

Rehabilitation plan for restoration of hydrology and ecology of wetlands, which were historically drained to allow for sugarcane farming. Base-line survey of drained wetlands, identification of suitable methods to plug drains and restore wetland hydrology, identification of suitable methods to aid wetland re-vegetation, and development of an alien plant control plan.

2006: Mission Rocks Picnic Site, Kwazulu-Natal.

Ecological Specialist for the plant community ecology, assessment of footprint impact, management recommendations. Activities performed: Botanical survey, recommendations for management of impacts.

2006: Proposed Gate and Parking at Sodwana Bay, Kwazulu-Natal.

Ecological Specialist for the plant community ecology, assessment of footprint impact, management recommendations. Activities performed: Botanical input into Basic Assessment Report, recommendations for management of impacts.

2006: Proposed Realignment of Western Shores Access Road, Kwazulu-Natal.

Ecological Specialist for the plant community ecology, assessment of alternative alignments, management recommendations. Activities performed: Botanical input into Basic Assessment Report, road alignment assessment and recommendations for minimising impacts.

2006: Proposed Telecommunication Towers and Associated Infrastructure, Nottingham Road and Midlands, Kwazulu-Natal

Ecological Specialist for the plant community ecology, assessment of footprint impact, management recommendations. Activities performed: Botanical survey, recommendations for management of impacts.

2006: Westbrook Beach Club Phase 2. Westbrook, KwaZulu-Natal.

South Africa Ecological Specialist for the Plant community ecology, biophysical assessment, integration with Durban Metropolitan Open Space System. Activities performed: Botanical survey, mapping of plant communities, design to minimise impact on Durban Metropolitan Open Space System, recommendations for management of impacts, recommendations for rehabilitation.

2006: Upgrade of Sani Pass (P318), Phase 1, Underberg, KwaZulu-Natal.

Ecological Specialist for the Plant community ecology, assessment of road drainage impacts, assessment of faunal impact, management recommendations. Activities performed: Botanical and biophysical survey, faunal impacts research, recommendations for management of impacts.

2006: Proposed Telecommunication Towers and Associated Infrastructure, Hlobane, KwaZulu-Natal.

Ecological Specialist for the Plant community ecology, assessment of footprint impact, management recommendations. Activities performed: Botanical survey, recommendations for management of impacts.

2006: Proposed Sunnysdale Low Cost Housing Project, Eshowe, KwaZulu-Natal.

Ecological Specialist for the delineation of adjacent natural forest and management recommendations. Activities performed: Botanical survey, mapping of plant communities, identification of ecologically sensitive sites, recommendations for management of impacts.

2006: Proposed Woodmead Estate, Shakaskraal, KwaZulu-Natal.

Ecological Specialist for Plant community ecology, assessment of layout plan, optimising natural attributes. Activities performed: Botanical survey, mapping of plant communities, identification of ecologically sensitive sites, recommendations for management of impacts, recommendations for rehabilitation.

2005 to present: The Upgrading of the John Ross Highway (P496): Empangeni to Richards Bay, KwaZulu-Natal.

Environmental Control Officer and Rehabilitation Ecologist for Environmental compliance monitoring for the upgrading of a highway. Activities performed: Environmental compliance monitoring, audit reporting, assistance with on-site nursery, off-site mitigation and rehabilitation. Liaison with Engineer, Government, EKZNW.

2005: Ecological specialist providing additional input on vegetation ecology and mitigation as part of the environmental impact assessment process for Main Road P577, Phase 3 and 4, Durban, KwaZulu-Natal.

2005: Ecological specialist providing input on impacts associated with the Mozana River Weir for Zululand District Municipality, Pongola, KwaZulu-Natal.

2005: Ecological specialist providing input on impacts associated with a proposed bulk water pipeline for raw water supply to Fairbreeze Mining Operations (Northern Mhlathuze Option), KwaZulu-Natal.

2005: Ecological specialist providing input on an environmental feasibility study for Villas Do Mar, proposed residential development, Umdloti, KwaZulu-Natal.

2005: Ecological specialist providing input on a rehabilitation plan for a coastal sand dune at Alkantstrand Beach, Richards Bay, KwaZulu-Natal.

2004 – 2005: Environmental Control Officer for the Environmental Management Plan (EMP) compliance monitoring for the construction of a bulk water pipeline at the Richards Bay Industrial Development Zone Phase 1a, KwaZulu-Natal.

2004: Ecological specialist providing input on impacts associated with Welcome Cotton Development Project: proposed development of an irrigation project, Makhathini Flats, KwaZulu-Natal.

2004: Ecological specialist providing input on impacts associated with a proposed residential development at Sheffield Estate, KwaZulu-Natal.

2004: Botanical specialist identifying and mapping grassland sites of sandstone plateau sourveld of high conservation value in the Durban hinterland, for the Environment Branch of eThekweni Municipality.

2004: Ecological specialist developing a rehabilitation plan for a previously cleared area of indigenous bush at St Lucia Farms, Hluhluwe.

2004: Ecological specialist providing input on impacts associated with a housing feasibility study at the proposed Thornbury Park, Westville.

2004: Ecological specialist providing input on impacts associated with a proposed housing development at Mdloti Triangle, Mdloti.

2003: Ongoing Environmental Control Officer for the Environmental Management Plan (EMP) compliance monitoring for the construction, upgrade and rehabilitation of infrastructure in the Greater St Lucia Wetland Park, KwaZulu-Natal.

2003: Ongoing Ecological specialist providing input into internal scoping and detailed applications for construction, upgrade and rehabilitation of infrastructure in the Greater St Lucia Wetland Park, KwaZulu-Natal. This work includes identifying ecologically sensitive sites, recommending mitigation where appropriate and recommending measures for management of environmental impacts during design, construction and operational phases of development.

2003: Ecological specialist providing input on impacts associated with a proposed cemetery, landfill site and other development at Snyman's Farm, Umshwathi Municipality, KwaZulu-Natal.

2003: Ecological specialist providing input on impacts associated with the proposed Durban Solid Waste Shongweni South Landfill Site.

2003: Ecological specialist providing input on impacts associated with the proposed N2 Interchange and N2-M4 Link Road for Sibaya Casino and Entertainment Kingdom.

2003: Ecological specialist providing input on the conservation and management of a wetland site at Cherry Hills, Mount Edgecombe Country Club Estate 2.

2001 – 2003: Ecologist for Waitakere City Council (Auckland, New Zealand) assessing the impacts of development proposals on the biophysical environment, developing environmental management specifications, monitoring environmental impacts, and identifying opportunities for mitigation. Also administering and enforcing provisions of the district plan, educating the community on environmental issues, investigating and enforcing breaches of district plan rules under the Resource Management Act, providing input into policy, interacting with other government departments and consultants.

2000: Ecological specialist providing input on the proposed Environmental Education Centre at Bayhead Natural Heritage Site, Portnet, Durban.

2000: Ecological specialist providing input on proposed engineering services for Ohlanga White City Housing Project.

1999: Ecological specialist developing an environmental rehabilitation plan for the riparian zone at Waterfield Hydroponics Farm, Assagay.

1999: Ecological specialist auditing the status of the vegetation at LTA's Sterkspruit Aggregates Quarry, KwaZulu-Natal.

1998 – 1999: Ecological specialist monitoring the biological health of rivers using the SASS4 technique in the upper Mlazi River catchment, Shongweni, KwaZulu-Natal.

1996: Ecological specialist providing input on a management plan for the Wekeweke sub-catchment and its wetlands, Summerveld, KwaZulu-Natal.

1996: Ecological specialist developing an inventory of wetlands in the Mlazi River catchment including their extent, functioning and status.

1995 – 1999: Programme ecologist for the Shongweni Catchment Management Programme, Farmer Support Group, University of Natal. Providing environmental management expertise in catchment management including management of natural vegetation, riparian zones, wetlands, open space systems, alien plant control and soil erosion control. Experience in developing environmental rehabilitation plans and biological health monitoring of rivers and reporting on the status of ecosystems.

1989 – 1995: Short-term work while studying. During my studies gained experience in training through tutoring and supervising undergraduate students. Also involved in short-term work while completing

studies, including ecological surveys, assisting with environmental impact assessments, surveys of antelope, turtle hatchlings, whale sharks and dolphins.

TERTIARY EDUCATION

University of Natal, Durban.

- 1989-1991:** BSc Majoring in Biology and Environmental Science.
1992: BSc Honours in Environmental Science, undertaken in the Department of Geographical & Environmental Sciences.
- 1993-1997:** MSc in Environmental Science undertaken in the Department of Geographical & Environmental Sciences, specialising in plant community ecology.

Special courses taken

- 2014:** Use of the wetland buffer tool for determining appropriate buffer widths during the EIA process. Training presented by the KwaZulu-Natal Wetland Forum at the Wildlife and Environment Society of South Africa, Howick, 26 September 2014.
- 2011:** Tools for Wetland Assessment. Course presented by Prof W. Ellery of the Environmental Science Department and Institute for Water Research, Rhodes University, Grahamstown, 12-16 September 2011.
- 2009:** Veld Management Course, Ukulinga Research Farm, Pietermaritzburg. Presented by Frits van Oudtshoorn, Bushveld Eco Services.
- 2007:** SASS 5: A rapid method for water quality assessment. Accredited course presented by Dr R. Palmer (Nepid Consultants) at Sabie, Mpumalanga, 16-18 April 2007.
- 2002:** Auckland Regional Council: Erosion and Sediment Control, Plan Prepares Industry Education Certificate (New Zealand).
- 2002:** Riparian Zone Management. Auckland Regional Council (New Zealand).
- 2000:** Use of Riparian Vegetation Index for National Biomonitoring Programme for Aquatic Ecosystems. Field-based training on the Kaap River (tributary of the Crocodile River), Mpumalanga, South Africa.
- 1996:** Alien plant control for land managers. Plant Protection Research Institute, South Africa
- 1995:** Wetland-use: a wetland management decision support system for the KwaZulu-Natal Midlands, University of Natal, Pietermaritzburg.
- 1993:** Introduction to Geographical Information Systems

LANGUAGE SKILLS

Language	Reading	Speaking	Writing
English	Excellent	Excellent	Excellent
Afrikaans	Good	Good	Satisfactory
Zulu	No	Adequate	No