

CURRICULUM VITAE

(Energy-related projects)

KAREN JODAS

SAVANNAH ENVIRONMENTAL (PTY) LTD

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| Profession | : | Environmental Management and Compliance Consultant ; Environmental Assessment Practitioner |
| Specialisation | : | Strategic environmental assessment and advice; project management and co-ordination of environmental projects; environmental compliance advise and monitoring; Environmental Impact Assessment; environmental management; peer review; policy, strategy and guideline formulation; renewable energy projects; water resources management |
| Work experience | : | Nineteen (19) years in the environmental assessment and management field |

VOCATIONAL EXPERIENCE

Provide technical input for projects in the environmental management field, specialising in strategic evaluation, Environmental Impact Assessment studies, Environmental Management Plans, integrated environmental management, environmental compliance monitoring; peer review of EIA reports and processes, strategy and guideline development, and public participation. Key focus on overall Project Management, integration of environmental studies and environmental processes into larger engineering-based projects, strategic assessment, and the identification of environmental management solutions and mitigation/risk minimising measures.

Undertaking studies requiring all environmental-related disciplines has allowed for considerable experience to be gained in the environmental assessment and management fields. A specialist area of focus is on management and assessment of multi-faceted projects, including electricity generation and transmission projects (with a strong focus on the renewable energy sector), linear developments (roads and power lines), bulk infrastructure and supply (e.g. WTWs, pipelines, landfills), the mining industry, urban, rural and township developments, environmental aspects of IDPs, EMFs, SoERs, as well as environmental planning, development and management.

Working knowledge of environmental legislation, strategies, guidelines and policies. Compilation of the reports for environmental studies are in accordance with the all relevant environmental legislation under the National Environmental Management Act.

SKILLS BASE AND CORE COMPETENCIES

- Nineteen years of experience in the environmental management, impact assessment and compliance fields
- Seventeen years of experience in Project Management - Project management of large environmental assessment and management projects
- Strategic and compliance advise for all aspects of environmental assessment and management
- External and peer review of environmental assessment and compliance reporting as well as EIA processes
- Working knowledge of environmental planning policies, regulatory frameworks and legislation
- Identification and assessment of potential environmental impacts and benefits
- Development of practical and achievable mitigation measures and management plans and evaluation of risk to project execution

- Experienced in environmental compliance advise, monitoring and reporting for construction projects
- Compilation and review of the reports in accordance with all relevant environmental legislation
- Public participation/involvement and stakeholder consultation
- Environmental strategy, policy and guidelines development
- Experienced in assessments for both linear developments and nodal developments
- Key experience in the assessment of impacts associated with renewable energy projects
- Wide range of experience for public and private sector projects
- Completed projects in all nine Provinces of South Africa, as well as Zambia and Lesotho

EDUCATION AND PROFESSIONAL STATUS

Degrees:

- B.Sc Earth Sciences, majoring in Geography and Zoology, *Rhodes University, Grahamstown, 1993*
- B.Sc Honours in Geography (in Environmental Water Management), *Rhodes University, Grahamstown, 1994*. Major subjects included Water Resources Management, Streams Ecology, Fluvial Geomorphology and Geographic Information Systems.
- M.Sc in Geography (Geomorphology), *Rhodes University, Grahamstown, 1996*

Short Courses:

Water Quality Management, *Potchefstroom University, 1998*
 Environmental Law Course, *Aldo Leopold Institute, 2002*
 WindFarmer Wind Farm Design course, *Garrad Hassan, 2009*

Professional Society Affiliations:

Registered with the South African Council for Natural Scientific Professions as a Professional Natural Scientist: *Environmental Scientist (400106/99)*

Other Relevant Skills:

Xtrack Extreme – Advanced Off-Road Driving Course (2003)

EMPLOYMENT

2006 - Current: Director of Savannah Environmental (Pty) Ltd. Independent specialist environmental consultant, Environmental Assessment Practitioner (EAP) and advisor. Primary focus on energy-sector projects.

1997 –2005: Associate of Bohlweki Environmental (Pty) Ltd. Environmental Management Unit: Manager; Principle Environmental Scientist focussing on Environmental Management and Project Management.

PROJECT EXPERIENCE

Experience includes projects associated with electricity generation and transmission, wastewater treatment facilities, mining and prospecting activities, property development, and national roads, as well as strategy and guidelines development. Selected projects in the energy and renewable energy sector include:

Strategic and Regional Assessments

- *Regional Assessment for wind energy developments within an identified area on the West Coast of the Western Cape Province (for Eskom Holdings Limited)*
- *Five Regional Assessment for wind energy developments within five identified area across South Africa (for Eskom Holdings Limited)*
- *Part of the Strategic Task Team for the identification of Eskom's future wind farm sites (Wind 1000) (for Eskom Holdings Limited)*
- *Regional Assessment for wind energy developments within an identified area in the De Aar Area of the Northern Cape Province (for juwi Wind)*
- *Strategic Regional Assessment for the Environmental Suitability of Wind Energy Facilities for the entire Western Cape Province (for DEA&DP)*

- *Regional Assessments for wind energy developments within identified areas in the Northern and Eastern Cape, including mapping (for Networx)*

Renewable power generation projects: Wind Energy Facilities

Environmental Impact Assessments and Environmental Management Plans

- *ABs Wind Energy Facility near Indwe, Eastern Cape (for Rainmaker Energy)*
- *Amakhala Emoyeni Wind Energy Facility near Cookhouse, Eastern Cape (for Windlab Developments)*
- *Castle Wind Energy Facility, in De Aar (for Juwi Renewable Energies)*
- *Cookhouse II Wind Energy Facility (for ACED & Tertia Waters)*
- *Dorper Wind Energy Facility near Molteno, Eastern Cape (for Rainmaker Energy)*
- *Elliot Wind Energy Facility (for Rainmaker Energy)*
- *Garob Wind Energy Facility, in Copperton (for Juwi Renewable Energies)*
- *Gouda Wind Energy Facility near Gouda, Western Cape (for VentuSA)*
- *Gunstfontein Wind Energy Facility (for Networx)*
- *Happy Valley Wind Energy Facility, Eastern Cape (for REISA)*
- *Hidden Valley Wind Energy Facility (for ACED)*
- *Hopefield Wind Energy Facility (for Umoya Energy)*
- *Karoo Renewable Wind and PV Solar Energy Facility near Victoria West, Northern & Western Cape (for SARGE)*
- *Pofadder 3x 140MW Wind Energy Facilities, Northern Cape (for Mainstream Renewable)*
- *Riverbank Wind Energy Facility near Wesley, Eastern Cape (for Just Energy)*
- *Sere Wind Energy Facility on the West Coast in the Western Cape (for Eskom Generation)*
- *Springfontein Wind Energy Facility (for Mainstream Renewable)*
- *Stormberg Wind Energy Facility (for Networx)*
- *West Coast One Wind Energy Facility (for Moyeng Energy (Pty) Ltd)*
- *West Coast Wind Energy Facility (for Exxaro)*
- *Wind Energy Facility at Cookhouse, Eastern Cape (for African Clean Energy Developments)*
- *Wind Energy Facility near Britannia Bay, Western Cape (for TerraPower Solutions)*
- *Zen Wind Energy Facility, near Gouda (for VentuSA Energy)*

Basic Assessments for wind monitoring masts

- *Caledon, Worcester, Tulbach Wind Energy Facilities (for SAGIT)*
- *Dorper, ABs, Dobos Wind Energy Facilities (for Rainmaker Energy)*

Compliance Advice

- *Amakhala Emoyeni Wind Energy Facility (for Amakhala Emoyeni)*
- *Amakhala Emoyeni Wind Energy Facility, Environment and Social Action Plan (for Cennergi)*
- *Cookhouse Wind Energy Facility site (for ACED Cookhouse Renewables)*
- *Cookhouse II Wind Energy Facility (for ACED)*
- *Dorper Phase 1 Wind Energy Facility (for Rainmaker Energy)*
- *Gouda Wind Farm (for Aveng / Acciona)*
- *Happy Valley Wind Energy Facility (for VentuSA Energy / EDPR)*
- *Loperberg Wind Farm (for Rainmaker Energy)*
- *Nobelsfontein Wind Energy Facility (for Coria / SARGE)*
- *Nojoli Wind Energy Facility (for ACED)*
- *Oyster Bay Wind Energy Facility (for RES)*

Due Diligence Reporting

- *ESG DD for Loeriesfontein, Khobab and Noupoort Wind Energy Facilities (for Actis)*

Renewable power generation projects: Solar Energy Facilities

Environmental Impact Assessments and Environmental Management Plans

- *5x CSP and 2x PV Solar Energy Facilities, Kenhardt, Northern Cape (for Kotulo Tsatsi)*
- *Blackwood PV Solar Energy Facility, near Kimberley/Boshoff (for VentuSA Energy)*
- *Bosjesmansberg PV Solar Energy Facility, Copperton (for Networx)*
- *Boundary PV Solar Energy Facility (for VentuSA Energy)*
- *De Aar CSP Energy Facility at De Aar, Northern Cape (for African Clean Energy Developments)*
- *De Aar PV Solar Energy Plant (for Solar Capital)*
- *Gihon and Kison PV Solar Energy Facilities (for Networx)*

- Grootdrink (Albany) PV Solar Energy Facility (for Africoast Engineers)
- Gunstfontein PV Solar Energy Facility (for Networx)
- Kabi Kimberley PV facility at DeBeers, Kimberley (Kabi Solar)
- Karoo Renewables PV Solar Energy Facility (for SARGE)
- KaXu CSP Facility near Pofadder, Northern Cape (for Abengoa Solar)
- Kheis Phase 1, 2 & 3 PV Solar Energy Facility (for GeStamp Solar)
- Khi CSP Facility near Upington, Northern Cape (for Abengoa Solar)
- Klipgat PV Solar Energy Facility (for Terra Solar)
- Loeriesfontein/Helios PV Solar Energy Plant (for Solar Capital)
- Naauwpoort PV Solar Energy Facility (for Terra Solar)
- Pofadder 75MW Solar Energy Facility, Northern Cape (for Mainstream Renewable)
- Prieska PV Solar Energy Facility, Prieska (for VentuSA Energy)
- PV Solar Energy Facility near De Aar, Northern Cape (for Solar Capital)
- Ritchie PV Solar Energy Facility (for Solar Capital)
- San Solar PV Solar Energy Facility, Kathu (for VentuSA Energy)
- Sirius (Tungston Lodge) x2 - PV Solar Energy Plants (for Aurora Power Solutions)
- Solar Plant in the Northern Cape Solar at Kathu (Wincanton) (for REISA)
- Solar Plant in the Northern Cape Solar at Sishen (Wincanton) (for VentuSA Energy)
- Stormberg Solar PV Solar Energy Facility (for Networx / Prana Energy)
- Tiger Kloof PV Solar Energy Facility (for Kabi Energy)
- Tiger Solar PV Solar Energy Facility, Northern Cape (for Kabi Energy)
- Upington 2 and 3 CSP Facilities near Upington, Northern Cape (for Abengoa Solar)
- Vaalkop and Witkop PV Solar Energy Facilities, North West (for Kabi Solar)
- Wagnbietjiespan PV Solar Energy Facility near Boshoff, Free State (for VentuSA)
- Wolmaransstad Municipality Solar PV Solar Energy Facility (for BlueWave)
- Xina CSP facility near Pofadder, Northern Cape (for Abengoa Solar)
- Zuurwater PV Solar Energy Facilities (x4) (for Solafrica / BlueWave)

Basic Assessments

- Amandla Welanga and Dida PV Solar Energy Facilities (for Terra Solar)
- Carolusberg PV Solar Energy Facility (for Ilio Energy (SARGE))
- Gosforth Park and Kynoch Rooftop PV Solar Energy (for Building Energy)
- Hibernia 5MW PV Solar Energy Facility (for EA Energy)
- Inkulukelo PV Solar Energy Facility (for Terra Solar)
- Kokerboom and Boabab PV Solar Energy Plants (for Brax Energy)
- Nigramoep PV Solar Energy Plant, Nababeep (for SARGE)
- Noupoot (Kleinfontein and Toitdale) CPV (for Terra Power)
- O'Kiep 1 PV Solar Energy Plant, Springbok (for Ilio Energy (SARGE))
- O'Kiep 2 PV Solar Energy Plant, Springbok (for BluePort Trade 118 (SARGE))
- O'Kiep 3 PV Solar Energy Plant (for Ilio Energy (SARGE))
- PV Solar Energy Plant - Kimberley (for Kabi Energy)
- Slurry PV Solar Energy Facility (for PPC)
- Small projects for PV Solar Energy Facilities (for BlueWave)
- Son Citrus Rooftop PV Solar Energy (for Building Energy)
- Tollie PV Solar Energy Facility (for Terra Solar)
- x2 Southern Farms PV Solar Energy Plants, Augrabies (for Southern Farms)

Compliance

- Bokpoort PV Solar Energy Facility (for Solafrica)
- Kathu II Bid compliance (for Building Energy)
- Kathu PV Solar Energy Facility (for Building Energy / REISA)
- Pofadder and Upington CSP (for Abengoa Solar)
- Prieska PV Solar Energy Facility (for VentuSA)
- Sishen PV Solar Energy Facility phase 1, 75MW (for Aveng / Acciona)
- Xina compliance (for Abengoa Solar)

Screening Studies

- 75MW facilities criteria-based analysis screenings (for BlueWave)
- Allemans, Wonderheuwel, Damfontein, Dida PV Solar Energy Facilities (for Terra Solar)
- Bobididi 5MW PV Solar Energy Facility (for Root 60Four Energy)
- Bosjesmansberg PV Solar Energy Facility, Copperton (for Networx)
- Lephalale PV Solar Energy Facility (for Exxaro)
- Northern Cape 5MW PV Solar Energy Facility, 2nd Stage One (for EDIP)

- Senekal 1 & 2, Pongola and Newcastle PV Solar Energy Facilities (for Building Energy)
- Small projects - PV Solar Energy Facility (x15) (for Building Energy)
- Small projects PV Solar Energy Facility (x3) (for GeoSolar)
- Small scale PV Solar Energy Facility - 2nd Stage One (for BlueWave)
- Small scale PV Solar Energy Facility - 2nd Stage One (for Building Energy)
- Various PV Solar Energy Facilities (for INCA Energy)

Siting Study

- CSP siting study (for Exxaro)

Due Diligence Reporting

- Equator Principles Due Diligence reporting - Kabi Kimberley PV plant (for Enertis Solar)
- Equator Principles Due Diligence reporting - Vaal River Solar 1 PV plant (for Enertis Solar)

Power Generation Projects

Environmental Impact Assessments and Environmental Management Plans

- Ankerlig OCGT to CCGT Conversion project, and the associated 400 kV transmission power line between Ankerlig and the Omega Substation, Western Cape (for Eskom Generation)
- Gourikwa OCGT to CCGT Conversion project, and the associated 400 kV transmission power line between Gourikwa and the Proteus Substation, Mossel Bay (for Eskom Generation)

Basic Assessments

- New raw water reservoir and pipeline for the Medupi Power Station, Limpopo Province (for Eskom Generation)
- Substation for Aggeney's PV facility (for BioTherm Energy)

Screening

- Indwe Power Station (for IPISA)
- IPP Baseload screening (coal) (for Exxaro)

Siting Study

- Siting study for a coal fired power station in the Bethal area (for ISS Global)

Power line projects

Environmental Impact Assessments and Environmental Management Plans

- Steelpoort Integration Project, Limpopo Province (for Eskom Transmission)
- Kyalami/Midrand Substation and 3 Transmission lines, Gauteng (for Eskom Transmission)

Basic Assessments

- Amakhala Emoyeni Power Line and Kopleegte substation (for Cennergi)
- Cuprum-Burchell; Burchell-Mooidraai power line BAR (Prieska) (for Eskom)
- Garob-Kronos Power Line (for Juwi Renewable Energies)
- Golden Valley Dx-Poseidon line and substation & Golden Valley-Kopleegte power line (for BioTherm Energy)
- Ilanga Lethemba-Hydra 132kV (for Solar Capital)
- Iziduli Emoyeni Substation, Power Line & LA18 (for Windlab)
- Kathu 132kV Power Line (for VentuSA Energy)
- Loeries 2 Power Line (for Mainstream Renewable)
- Loeriesfontein substation and power lines (for Mainstream Renewable)
- Nobelsfontein Wind Substation and Power line (for Coria / SARGE)
- Realignment of Dx lines at Hopefield Wind Energy Facility (for Umoya Energy)
- Rhebokfontein Power Line (for Moyeng Energy (Pty) Ltd)
- Sishen Solar PV Energy Facility 132kV Power line (for Aveng/Vexicom)
- Springfontein Power Line (for Mainstream Renewable)
- Wesley-Peddie / Riverbank Phase 2 Power Line 132 kV (for Just Energy)

CURRICULUM VITAE

Michelle Moodley

Profession : Environmental Consultant - Savannah Environmental (Pty) Ltd
Specialisation : Environmental Assessment Practitioner
Years' experience : Four

KEY RESPONSIBILITIES

- Providing consulting services to clients for Environmental-related matters
- Conducting Environmental Impact Assessment (EIA) processes
- Preparation of EIA reports
- Environmental Compliance Auditing and Environmental Control Officer (ECO) Services

SKILLS BASE AND CORE COMPETENCIES

- Compilation of environmental reports in accordance with relevant environmental legislative requirements
- Undertaking public participation processes for a variety for projects
- Identification and assessment of potential negative environmental impacts and benefits through the review and manipulation of data
- Identification of achievable mitigation measures and the development of appropriate management plans

EDUCATION AND PROFESSIONAL STATUS

Degrees:

- B.Sc Natural & Environmental Sciences, University of Johannesburg, 2009
- B.Sc Honours in Biodiversity & Conservation, University of Johannesburg, 2010

Professional Society Affiliations:

- *The South African Council for Natural Scientific Professions: Professional Natural Scientist Pr.Sci.Nat: Registration Number: 114265*

EMPLOYMENT HISTORY

- May 2015 – Present: Savannah Environmental (Pty) Ltd (Environmental Consultant)
- May 2011 – April 2015: Wilbrink & Associates cc (Environmental Consultant)

PROJECT EXPERIENCE

Waste Management Licenses

- Basic Assessment Process for the Spent Catalyst Processing Plant in Canelands, Durban, KZN
- Scoping & EIA Process for Scott Bader Distillate in Hammarsdale, KZN
- Basic Assessment Process for Turbomeca Africa Effluent Treatment facility in Bonaero Park, Johannesburg, Gauteng
- Scoping & EIA Process for Drumpal cc Container Reconditioners in Phoenix, Durban, KZN
- Scoping & EIA Process for ChemerG Waste Treatment in Harrison, KZN
- Scoping & EIA Process for ChemerG Decommissioning for Plant Relocation in Hammarsdale

Atmospheric Emission Licenses

- Lubrizol South Africa (Pty) Ltd in Prospecton, Durban, KZN
- Scott Bader (Pty) Ltd

Environmental Authorisations

ChemerG Plant Relocation, Cato Manor, KZN 1

CURRICULUM VITAE

GABRIELE WOOD

Public Participation and Social Consultant: Savannah Environmental (Pty) Ltd

Gabriele Wood holds an Honours Degree in Anthropology, obtained from the University of Johannesburg. She has 8 years consulting experience in public participation and social research. Her experience includes the design and implementation of public participation programmes and stakeholder engagement strategies for numerous integrated development planning and infrastructure projects.

SKILLS BASE AND CORE COMPETENCIES

- Qualitative and Quantitative Social Research
- Social Assessment (Stakeholder and Social Analysis)
- Public participation process implementation, monitoring and evaluation
- Facilitation (Focus Groups, Community Meetings, Interest Group Meetings, Public Meetings, Public Open Days, Workshops, Forums, Committees, etc.)
- Stakeholder Management
- Community Needs Assessment
- Relocation Facilitation
- Project Administration
- Minute Taking
- Report Writing

TERTIARY EDUCATION

- B. Hons. Anthropology (Cum Laude): University of Johannesburg (2004 – 2005)
- B.A. Psychology: University of Johannesburg (2002 – 2004)

EMPLOYMENT HISTORY

May 2012 – Current:

Savannah Environmental (Pty) Ltd: Public Participation and Social Consultant

March 2007 – April 2012:

NMA Effective Social Strategists (Pty) Ltd: Assistant Project Manager – Public Participation and Social Research

January 2005 – March 2007 (Part-time):

University of Johannesburg: Department of Anthropology and Development Studies: Student Tutor and Research Assistant

RELEVANT PROJECT EXPERIENCE

- Blackwood 132kV Power Line and Substation – BA (for VentuSA Energy) – Free State Province
- Ankerlig-Koeberg 132kV Power Line and Substation (for Eskom Holdings SOC Ltd) – Western Cape Province
- Umbani Coal-fired Power Station – EIA (for ISS Global Mining) – Mpumalanga Province
- Thabametsi Coal-fired Power Station – EIA (for GDF SUEZ Energy Southern Africa) – Limpopo Province
- Pofadder Wind Energy Facilities – EIA (for Mainstream Renewable Power) – Northern Cape Province
- Karreebosch Wind Energy Facility – EIA (for G7 Energies) – Northern Cape Province & Western Cape Province
- SolarReserve Kotulo Tsatsi Energy CSP Facilities – EIA (for SolarReserve & Kotulo Tsatsi Energy) – Northern Cape Province
- Grootdrink Solar PV Energy Facility – EIA (for Africoast Engineering) – Northern Cape Province
- Byromate Biomass Power Generation Facility – EIA (for Energys) – KwaZulu-Natal Province

**CURRICULUM VITAE
DILONA SOMAI**

Environmental Consultant: Savannah Environmental (Pty) Ltd

Dilona Somai is an Environmental Consultant with approximately five years' experience in environmental compliance/ permitting and public consultation in mining, power lines, inter-basin transfer schemes and community projects. She holds a BSc. Hons. (Environmental Management) and is registered with the SACNASP. She has undertaken environmental compliance/ permitting (including basic assessments, water use license applications, social and environmental due diligence, social and environmental management systems and mining and prospecting right applications) and public participation /stakeholder engagement.

SKILLS BASE AND CORE COMPETENCIES

- Environmental Impact Assessments (EIA)
- Water Use License Applications
- Public participation process
- Environmental and Social Risk Assessments
- Social and Environmental Due Diligence (SEDD)
- Compiling of Environmental Management Plans (EMPs)

TERTIARY EDUCATION

- BSc. Hons. Environmental Management: University of South Africa (2013)
- BSc Geography: University of KZN (2010)

PROFESSIONAL MEMBERSHIPS

- South African Council for Natural Scientific Professions (SACNASP) – Candidate Natural Scientist for Environmental Science (2015/2016) (Registration number: 100235/14)
- Golden Key International Honour Society (2009)

COURSES

- SAVCA Master Class (Calculating Non-financial ROE) (August, 2014)
- Climate Change and Carbon Management Course (October, 2014)

EMPLOYMENT HISTORY

- *February 2016 – Current:* Savannah Environmental (Pty) Ltd: Environmental Consultant
- *June 2015 – January 2016:* DMT Kai Batla (Pty) Ltd: Environmental Consultant and Team Leader
- *October 2014 – May 2015:* EBS Advisory (Pty) Ltd: ESG Risk Consultant
- *January 2013 – September 2014:* Fourth Element Consulting (Pty) Ltd: Environmental Consultant
- *March 2012 – December 2012:* NMA Effective Social Strategists (Pty) Ltd: Project Coordinator
- *February 2011 – February 2012:* The KZN ScienCentre: Education Officer

RELEVANT PROJECT EXPERIENCE

- 2016: EAP for Basic Assessment and EMPr for the Acciona Nxuba Temporary Concrete Tower Plant and Associated Infrastructure, for the Authorised Nxuba Wind Farm
- 2016: EAP for Basic Assessment and EMPr for the 132kV Double Circuit Power Line and On-Site Substation for the Golden Valley II Wind Energy Facility
- 2016: EAP for Environmental Impact Assessment for the Gas to Power Plant on a Site within the Richards Bay Industrial Development Zone
- 2016: EAP for Environmental Site Screening Assessment for the proposed Region C – Office Space Optimisation Programme (OSOP) in Roodepoort
- 2015: EAP for OBP SOC Limited Basic Assessment and Water Use License Application
- 2015: EAP for Umgeni Water Basic Assessment and Water Use License Application
- 2015: Project Manager for the City of Johannesburg Alien and Invasive Control Plan
- 2015: Project Manager for the City of Johannesburg River Rehabilitation and Management Plan
- 2015: EAP for the West Rand Logistics Hub Environmental and Social Study
- 2015: Project Management Officer for the Department of Water and Sanitation Validation and Verification Project

CURRICULUM VITAE
Dr Brian Michael Colloty

Profession: Ecologist & Environmental Assessment Practitioner (Pr. Sci. Nat. 400268/07 & EAPSA certified)
Specialisation: Ecology and conservation importance rating of inland habitats, wetlands, rivers & estuaries
Years experience: 19 years

SKILLS BASE AND CORE COMPETENCIES

- 19 years experience in environmental sensitivity and conservation assessment of aquatic and terrestrial systems inclusive of Index of Habitat Integrity (IHI), WET Tools, Riparian Vegetation Response Assessment Index (VEGRAI), estuarine and wetland delineation throughout Africa. Experience also includes biodiversity and ecological assessments with regard sensitive fauna and flora, within the marine, coastal and inland environments. Countries include Mozambique, Kenya, Namibia, Central African Republic, Zambia, Eritrea, Mauritius, Madagascar, Angola, Ghana, Guinea-Bissau and Sierra Leone.
- 12 years experience in the coordination and management of multi-disciplinary teams, such as specialist teams for large scale EIAs and environmental monitoring programmes, throughout Africa and inclusive of marine, coastal and inland systems.
- GIS mapping and sensitivity analysis

TERTIARY EDUCATION

- 1994: B Sc Degree (Botany & Zoology) - NMMU
- 1995: B Sc Hon (Zoology) - NMMU
- 1996: M Sc (Botany) - NMMU
- 2000: Ph D (Botany) – NMMU

EMPLOYMENT HISTORY

- 1996 – 2000 Researcher at Nelson Mandela Metropolitan University – SAB institute for Coastal Research & Management.
- 2001 – January 2003 Training development officer AVK SA
- February 2003- June 2005 Project manager & Ecologist for Strategic Environmental Focus (Pretoria)
- July 2005 – June 2009 Principal Environmental Consultant Coastal & Environmental Services
- June 2009 – present Owner / Ecologist of Scherman Colloty & Associates cc

SELECTED RELEVANT PROJECT EXPERIENCE

- Various specialist aquatic and biodiversity assessments for Transnet, Ports Authorities and Eskom within the Coega IDZ 1996 & 2011-2014, which included the Dedisa Substation and lines upgrade, Tank Farm, Ports Authority head office, Mn terminal and rail lines and a proposed wind farm.
- Biodiversity and aquatic assessments for 52 renewable projects in the past three years in the Western, Eastern, Northern Cape, KwaZulu-Natal and Free State provinces. Clients included RES-SA, RedCap, ACED Renewables, Mainstream Renewable, GDF Suez, Globeleq, ENEL, Abengoa amongst others. Particular aquatic sensitivity assessment and Water Use License Applications on behalf of Mainstream Renewable Energy (8 wind farms and 3 PV facilities.), Cennergi / Exxaro (1 Wind farm), WKN Wind current (2 wind farms & 2 PV facilities), ACED (6 wind farms) and Windlab (3 Wind farms) were also conducted. Several of these projects also required the assessment of the proposed transmission lines and switching stations, which were conducted on behalf of Eskom.
- Vegetation assessments on the Great Brak rivers for Department of Water and Sanitation, 2006 and the Gouritz Water Management Area (2014)
- Farim phosphate mine and port development, Guinea Bissau – biodiversity and marine assessment on behalf of Knight Piesold Canada – current.
- Tema LNG offshore pipeline EIA – marine and estuarine assessment for Quantum Power (on-going).
- Colluli Potash South Boulder, Eritrea, SEIA marine baseline and hydrodynamic surveys co-ordinator and coastal vegetation specialist (coastal and marine) (on-going).
- Various wetland (85) and marine and biodiversity assessments for the Savannah Environmental, Gibb Consulting, AECOM, CSIR and EOH-CES, 1996, 2006, 2009, 2010, 2011, 2012, 2013 and 2014
- Proposed FibreCo fibre optic cable vegetation assessment along the N2, PE to Cape Town, 2012 on behalf of SRK (2013).
- Wetland, estuarine and riverine assessment for Addax Biofuels Sierra Leone, Makeni for Coastal & Environmental Services: 2009
- Wetland and riverine assessment for Grown Energy Biofuels Zambeze, Mozambique for Coastal & Environmental Services: 2008
- Terrestrial and aquatic sensitivity assessment for the Eskom Kriel Power Station new ash dam facility for Aurecon: 2011
- Jachtlakte Housing Precinct, NMBM baseline ecological assessment (February, 2012 and EIA specialist work 2013-2014)
- Project manager long-term, marine monitoring phase with regards the dredge works required in Luanda bay, Angola. Monitoring includes water quality and biological changes in the bay and offshore disposal, 2005-2009

Dr David Morris

Head of Archaeology, McGregor Museum

Highest qualification
PhD

Specialisation
Archaeology, Rock Art

Years in profession
1985-present

Memberships
Association of Professional
Archaeologists of Southern
Africa

Institution
McGregor Museum

David Morris is Head of Archaeology at the McGregor Museum in Kimberley. His PhD from the University of the Western Cape in Cape Town was awarded for a thesis on rock art of the Northern Cape, his prior Masters dissertation having focused on the site of Driekopseiland near Kimberley. He has done extensive fieldwork and contract archaeology in the Karoo and other regions of the Northern Cape. His interests include public archaeology, and he was closely involved in developing the Wildebeest Kuil Rock Art Centre outside Kimberley and in writing the SAHRA-approved Conservation Management Plan for Wonderwerk Cave near Kuruman. With John Parkington and photographer Neil Rusch, he has co-authored the book *Karoo rock engravings* (2008); and he is co-editor with Ben Smith and Knut Helskog of the book *Working with rock art*, the proceedings of an international SACRA conference held in South Africa in 2006. He has attended rock art meetings in France and Mexico and is a partner in the South Africa-Mexico rock art programme launched in 2008 and broadened to include Botswana and Mozambique (2009). He addressed colleagues in archaeology at the Russian Academy of Sciences in St Petersburg in 2004. Born in Kimberley, he has a general interest in the history of the Northern Cape; and in museums and their role in society. He was editor of the South African Archaeological Society newsletter *The Digging Stick* (1994-2001), Vice-President of the Society (2002-2004), and is a Council Member (2013-present). He is a member of the Association of Southern African Professional Archaeologists, and is an accredited Principal Investigator for Heritage Impact Assessments – archaeology (specialist in Rock Art and Stone Age, experience with historical archaeology and human remains). He has served as external examiner for post-graduate dissertation work for the University of the Witwatersrand (2011) and University of KwaZulu-Natal (2012), and external examiner for a doctoral thesis at UCT (2013). He was examination moderator for an indigenous art module at UKZN (2012). He was a member of two Ministerial Working Groups (Sites and Collections and Archaeo-Palaeo Tourism) commissioned (2010) by the NRF, Department of Science and Technology, to advise on policy with regard to the Palaeo-Sciences in South Africa, and part of a Department of Arts and Culture working group on human remains (2013).

PUBLICATIONS (see attached list):

- Three refereed articles (S.A. Journal of Plant and Soil)
- Nine Congress papers/posters
- S.A. Soil Classification (1991) (Member of working group)
- Seven 1:250 000 Land Type Maps
- Three Land Type Memoirs
- More than 200 soil survey reports and/or maps

COURSES COMPLETED:

- Course in Project Management (University of Stellenbosch)
- Course in Junior Personnel Management (Dept of Agriculture)
- Course in Handling of Grievances and Complaints (Dept of Agriculture)
- Course in Marketing (ARC-ISCW)
- Course in National Qualifications Framework Assessment, ARC-CO
- Training Course in Ground Penetrating Radar (GSSI, USA)
- Introduction to ArcGIS 8, GIMS, 2004

PROFESSIONAL STATUS:

- Registered Natural Scientist: Soil Science (SA National Council for Natural Scientific Professions) – registration number 400463/04
- Member of South African Soil Classification Working Group, 1990-present
- Convenor of South African Soil Classification Working Group, 2013-
- Member of Soil Science Society of South Africa (1982-present)
- President of Soil Science Society of South Africa (2005-2007)
- Member of South African Soil Survey Organisation (2000-present)
- Council Member of South African Soil Survey Organisation (2002-2003)
- Member of International Erosion Control Association
- Scientific Referee, S.A. Journal for Plant and Soil
- External Examiner, University of Pretoria, University of Witwatersrand, University of Venda

AWARDS:

Best article on Soil Science, South African Journal for Plant and Soil, 2011

MISCELLANEOUS:

- Editor, Soil Science Society newsletter, 1993-present
- Member, Clapham High School (Pretoria) Governing Body 1998-2002
- Member, Northern Gauteng Football Referee's Association
- Committee Member, Rosslyn Golf Club (Club Champion 2002 and 2007)

INTERESTS:

Sport, especially golf and soccer; wildlife; reading; music

REFEREES:

Mr T.E. Dohse, ARC-Institute for Soil, Climate and Water.
Tel: 082 324 5389

Prof Robin Barnard, ARC-Institute for Soil, Climate and Water
Tel: 012 310 2549

Prof M.C. Laker (retired), (012) 361-2900; 082 785 5295

PUBLICATIONS LIST:

Refereed Articles:

BÜHMANN, C., KIRSTEN, W.F.A., PATERSON, D.G. & SOBCZYK, M.E., 1993. Pedogenic differences between two adjacent basalt-derived profiles. 1. Textural and chemical characteristics. *S. Afr. J. Plant & Soil*, 10: 155-161

BÜHMANN, C., KIRSTEN, W.F.A., PATERSON, D.G. & SOBCZYK, M.E., 1994. Pedogenic differences between two adjacent basalt-derived profiles. 2. Mineralogical characteristics. *S. Afr. J. Plant & Soil*, 11: 5-11

PATERSON, D.G. & LAKER, M.C., 1999. Using ground penetrating radar to investigate spoil layers in rehabilitated mine soils. *S. Afr. J. Plant & Soil*, 16:131-134.

PATERSON, D.G., BÜHMANN, C., PIENAAR, G.M.E. & BARNARD, R.O., 2011. Beneficial effects of palm geotextiles on inter-rill erosion in South African soils and mine dam tailings: a rainfall simulator study. *S. Afr. J. Plant & Soil*, 28: 181-189.

PATERSON, D.G. & BARNARD, R.O., 2011. Beneficial effect of palm geotextiles on inter-rill erosion in South African soils. *S. Afr. J. Plant & Soil*, 28: 190-197.

BHATTACHARYA, R., FULLEN, M.A., BOOTH, C.A., KERTESZ, A., TOTH, A., SZALAI, Z., JAKAB, G., KOZMA, K., JANKAUSKAS, B., JANKAUSKIENE, G., BÜHMANN, C., PATERSON, D.G., MULIBANA, N.E., NELL, J.P., VAN DER MERWE, G.M.E., GUERRA, A.J.T., MENDONCA, J.K.S., GUERRA, T.T., SATHLER, R., BEZERRA, J.F.R., PERES, S.M., ZHENG YI, LI YONGMEI, TANG LI, PANOMTARANICHAGUL, M., PEUKRAI, S., THU, D.C., CUONG, T.H., TOAN, T.T., 2011. Effectiveness of biological geotextiles for soil and water conservation in different agro-environments. *Land Degradation and Development*, 22: 495-504.

FULLEN, M.A., SUBEDI, M., BOOTH, C.A., SARSBY, R.W., DAVIES, K., BHATTACHARYA, R., KUGAN, R., LUCKHURST, D.A., CHAN, K., BLACK, A.W., TOWNROW, D., JAMES, T., POESEN, J., SMETS, T., KERTESZ, A., TOTH, A., SZALAI, Z., JAKAB, G., JANKAUSKAS, B., JANKAUSKIENE, G., BÜHMANN, C., PATERSON, D.G., MULIBANA, N.E., NELL, J.P., VAN DER MERWE, G.M.E., GUERRA, A.J.T., MENDONCA, J.K.S., GUERRA, T.T., SATHLER, R., BEZERRA, J.F.R., PERES, S.M., ZHENG YI, LI YONGMEI, TANG LI, PANOMTARANICHAGUL, M., PEUKRAI, S., THU, D.C., CUONG, T.H., TOAN, T.T., JONSYN-ELLIS, F., SYLVA, J.T., COLE, A., MULHOLLAND, B., DERALOVE, M., CORKILL, C. & TOMLINSON, P., 2011. Utilising biological geotextiles: introduction to the Borassus Project and global perspectives. *Land Degradation and Development*, 22: 453-462.

SMETS, T., POESEN, J., BHATTACHARYA, R., FULLEN, M.A., SUBEDI, M., BOOTH, C.A., KERTESZ, A., SZALAI, Z., TOTH, A., JANKAUSKAS, B., JANKAUSKIENE, G., GUERRA, A.J.T., BEZERRA, J.F.R., ZHENG YI, PANOMTARANICHAGUL, M., BÜHMANN, C. & PATERSON, D.G., 2011. Evaluation of biological geotextiles for reducing runoff and soil loss under various environmental conditions using laboratory and field data. *Land Degradation and Development*, 22: 480-494.

NETHONONDA, L.O., ODHIAMBO, J.J.O. & PATERSON, D.G., 2012. Indigenous knowledge of climatic conditions for sustainable crop production under resource-poor farming conditions using participatory techniques. *Sustainable Agriculture Research*, 2 (1), 26-31.

NETHONONDA, L.O., ODHIAMBO, J.J.O. & PATERSON, D.G., 2012. Assessment of spatial variability of selected soil chemical properties in a communal irrigation scheme under resource-poor farming conditions in Vhembe District of Limpopo Province, South Africa. *African J. Agric. Res.* 7 (39), 5445-5492.

PATERSON, D.G., SMITH, H.J. & VAN GREUNEN, A., 2013. Evaluation of soil conservation measures on a highly erodible soil in the Free State province, South Africa. *S. Afr. J. Plant & Soil*, 30: 213-217.

PATERSON, D.G., TURNER, D.P., WIESE, L.D., VAN ZIJL, G.M., CLARKE, C.E. & VAN TOL, J., 2015. Spatial soil information in South Africa – situational analysis, limitations and challenges. *S. Afr. J. Science* 111 (5/6). Art. #2014-0178, 7 pages. <http://dx.doi.org/10.17159/sajs.2015/20140178>

Books:

PATERSON, D.G. & MUSHIA, N.M., 2012. Chapter 32. Soil databases in Africa. *In: Handbook of Soil Science: Resource Management and Environmental Impacts (2nd Edn)*. Eds. P.M. Huang, Y Li & M.E. Sumner. CRC Press, Boca Raton FL.

SOIL CLASSIFICATION WORKING GROUP*, 1991. Soil classification. A taxonomic system for South Africa. Institute for Soil, Climate & Water, Pretoria.

* Co-author as member of Working Group

Theses:

PATERSON, D.G., 1998. The use of ground penetrating radar to investigate subsurface features in selected South African soils. Unpublished MSc Thesis, University of Pretoria.

PATERSON, D.G., 2014. The use of palm leaf mats in soil erosion control. Unpublished PhD Thesis, University of Pretoria.

Congress Papers:

PATERSON, D.G., 1987. The relationship between geology and soil type in the northern Kruger National Park. 14th Congress of the Soil Science Society of S.A. Nelspruit, 14-17 July 1987.

PATERSON, D.G., 1990. A study of black and red clay soils on basalt in the northern Kruger National Park. 16th Congress of the Soil Science Society of S.A. Pretoria, 9-12 July 1990.

PATERSON, D.G., 1992. The potential of ground penetrating radar as an aid to soil investigation. 17th Congress of the Soil Science Society of S.A. Stellenbosch, 28-30 Jan. 1992.

PATERSON, D.G., 1995. The complex soil mantle of South Africa. ARC Wise Land Use Symposium, Pretoria, 26-27 Oct. 1995

PATERSON, D.G. & LAKER, M.C., 1998. Locating subsoil features with ground penetrating radar. 21st Congress of the Soil Science Society of S.A. Alpine Heath, 20-22 Jan. 1998.

PATERSON, D.G., 2000. Mapping rehabilitated coal mine soils in South Africa using ground penetrating radar. Eighth International Conference on Ground Penetrating Radar, Gold Coast, Australia, 23-26 May 2000.

PATERSON, D.G. & VAN DER WALT, M., 2003. The soils of South Africa from the Land Type Survey. 24th Congress of the Soil Science Society of S.A., Stellenbosch, 20-24 Jan. 2003.

Land Type Maps:

PATERSON, D.G., 1990. 1:250 000 scale land type map 2230 Messina. Dept. Agriculture, Pretoria.

PATERSON, D.G. & HAARHOFF, D., 1989. 1:250 000 scale land type map 2326 Ellisras. Dept. Agriculture, Pretoria.

PATERSON, D.G., PLATH, B.L. & SMITH, H.W., 1987. 1:250 000 scale land type map 2428 Nylstroom. Dept. Agriculture, Pretoria.

PATERSON, D.G. & ROSS, P.G., 1989. 1:250 000 scale land type map 2330 Tzaneen. Dept. Agriculture, Pretoria.

PLATH, B.L. & PATERSON, D.G., 1987. 1:250 000 scale land type map 2426 Thabazimbi. Dept. Agriculture, Pretoria.

Land Type Memoirs:

PATERSON, D.G., PLATH, B.L. & SMITH, H.W., 1988. Field Investigation. In: *Land types of the maps 2426 Thabazimbi & 2428 Nylstroom. Mem. Agric. Nat. Res. S. Afr.* No. 10. Dept. Agriculture, Pretoria.

PATERSON, D.G., SCHOEMAN, J.L., TURNER, D.P., GEERS, B.C. & ROSS, P.G., 1989. Field Investigation. In: *Land types of the maps 2330 Tzaneen & 2430 Pilgrim's Rest. Mem. Agric. Nat. Res. S. Afr.* No. 12. Dept. Agriculture, Pretoria.

PATERSON, D.G., 1999. 1:250 000 land type survey of the former Ciskei (Unpublished). ISCW Report GW/A/99/24.

Also:

PATERSON, D.G., 1992. Ground penetrating radar applications in USA and South Africa. Report on an official study tour to USA, 13-29 July, 1991. ISCW Report GW/A/92/8.

PATERSON, D.G., 2000. Report on official overseas visit to GPR2000 Conference, Broadbeach, Australia, 23-26 May, 2000. ISCW Report GW/A/2000/40.

Plus ARC-ISCW Reports on:

- Ground penetrating radar investigations in: Kruger National Park; Enseleni, Natal; Weatherly, Maclear; Kleinkopje Mine
- Soil survey investigations at: Roodeplaat, Kathu, Steelpoort River, Palala River, Zeekoegat (Roodeplaat), Limpopo River, Lydenburg, Kendal, Clewer Sand (Witbank), Botha Sand (Witbank), Balmoral Colliery, Bafokeng (Rustenburg), Towoomba (Warmbaths), Hoefeld Stene (Middelburg), Quality Bricks (Witbank), Visagie Sand (Middelburg), Rosslyn, Coalbrook (Sasolburg), Stewart Coal (Delmas), Forzando Coal

(Hendrina), Vaalgro (Vereeniging), Ratanda (Heidelberg), Elspark (Boksburg), Thorncliffe Mine (Steelpoort), Jan Smuts Quarry (Boksburg), Ennerdale (Phase I & II), Thokoza, North Riding, Natalspruit (Alberton), Arnot, Kroondal (Phase I & II), Ga-Rankuwa, Hartebeespoort Dam, Kosmos, Assen, Grasmere, Magalies Moot (Pretoria), Valpre (Paulpietersburg), Cargo Carriers (Sasolburg), Waterval (Rustenburg), Rayton, Bronkhorstspuit, Zwavelpoort (Pretoria), Pietersburg, Trojan Mine (Steelpoort), Platinum Highway (Rustenburg), Moutse, Centurion, Salique (Klaserie), Northam, Greenside Colliery (Witbank), South Deep Mine (Westonaria), Bank Colliery, Steelpoort Platinum, Gautrain Route (Pta/Jbg), Rietspruit Mine (Ogies), Potgietersrus Platinum, Atok Mine (Lebowa), Blue Ridge Mine (Groblersdal), Ngodwana, Estancia (Breyton), Twickenham Mine (Steelpoort), Marikana.

Date of Birth

6 February 1972

Nationality

South African

Marital Status

Married

Drivers Licence

Code 08 (EB)

Age 43

Education

Senior certificate with
University Exemption

Bachelor of Science
Degree (Majors: Zoology
and Physiology)

Master of Science Degree
(Environmental Science)

Currently PhD (Ecology
and Zoology)

Certifications

Senior certificate with
University Exemption

Languages

English – Fluent

Afrikaans – Fluent

Zulu – Fluent

Hudson Ecology (Pty.) Ltd. – Potchefstroom, South Africa

Position: Director/Senior Ecologist

Project conceptualisation

Skills growth and leadership

Develop and maintain linkages to universities and professional bodies

Development of new ecological products and methodologies

Project management

Ecology team growth and acquisition of new ecologists

Terrestrial ecological assessments

Biodiversity assessments

Biodiversity Action Plans

Development of intellectual capital

Employment History

Eques Trails Horse Safaris – Limpopo Province, South Africa

Position: Trail leader, Horse trainer (March 1993 to July 1993)

Leading horse trails with Big Five

Management of stables

Horse-training

Zabalaza Conservation Department – Kwazulu Natal, South Africa

Position: Head Ranger/Chief Instructor (July 1993 to July 1994)

Training in conservation and anti-poaching courses.

Evaluation and improvement of existing courses

Development of additional courses

Natal Parks Board – KwaZulu Natal, South Africa

Position: Anti-Poaching Consultant (Jul 1994 to Dec 1997)

Training of anti-poaching units.

Anti-poaching co-ordination

Training and co-ordination of anti poaching for Natal Parks Board



UNISA – Gauteng, South Africa

Position: Full-time student (BSc) (Jan 1998 to Dec 2001)

Majors: Zoology and Physiology

Other subjects: Chemistry, Physics, Botany

UNEP/GEF Desert Margins Program Potchefstroom – North West Province

Position: Researcher (Jan 2002 to Sept 2006)

Research in biodiversity and ecology in desert margins areas

Environmental awareness courses at local schools

Development of avian biological integrity index

ECOSUN cc. – Gauteng, South Africa

Position: Terrestrial and Wetland Ecologist (Sept 2006 to May 2007)

Wetland delineation

Terrestrial ecological assessments

Biodiversity assessments

Biodiversity Action Plans

Golder Associates Africa (Pty.) Ltd. – Midrand, South Africa

Position: Senior Ecologist and Terrestrial Group leader (May 2007 – August 2014)

Team leader

Project conceptualisation

Team skills growth and leadership

Develop and maintain linkages to universities and professional bodies

Development of new ecological products and methodologies

Project management

Ecology team growth and acquisition of new ecologists

Terrestrial ecological assessments

Biodiversity assessments

Biodiversity Action Plans

Development of intellectual capital



PROJECT EXPERIENCE

To date I have conducted ecological and biodiversity studies for over 90 projects in 20 countries in Africa, projects completed include, but are not limited to:

| | |
|--|---|
| Farim Phosphate Guinea-Bissau | Ecological Assessment of mine site and surrounds Impact assessment for expansion. |
| BHP Billiton, Newmont, SMFG Mt Nimba, Guinea | Small Mammal and Red Data species (Nimba Otter Shrew, <i>Micropotamogale lamottei</i>) Impact Assessment of mine site and surrounds |
| Hassai Gold Mine Sudan | Ecological Assessment of mine site and surrounds Impact assessment for expansion. |
| Lonmin Exploration Site Tanzania | Investigation of the effects of possible platinum mine on the migration routes of species, with special reference to elephants and chimpanzees. |
| New Liberty Gold mine Liberia | Terrestrial ecology assessment of the mine site and environs. Impact assessment and mitigations |
| UNEP/GEF Desert Margins Program North West Province, South Africa | Research in biodiversity and ecology in desert margins areas. Environmental awareness courses at local schools. Development of avian biological integrity index. |
| Rietvlei Dam Pretoria, South Africa | Investigating effects of persistent organic pollutants (PCB's Furins and other endocrine disrupting chemicals) on wildlife at Rietvlei Dam, Pretoria. |
| Areva Uranium Mine Centrl African Republic | Terrestrial ecology assessment of the mine site and environs. Impact assessment and mitigations |
| Riversdale Coal Tete, Mozambique | Terrestrial ecology assessment of the mine site and environs. Impact assessment and mitigations. |
| AngloGold Ashanti, Mponeng Mine North West Province, South Africa | Investigation of bird-cyanide contact patterns on Mponeng Mine tailings storage facility. Report led to a two year long extension of the project currently being conducted at Vaal Reefs Tailings storage facility by the North-West University (Potchefstroom Campus). |
| Vale Moatize Coal Moatize Mozambique | Development and implementation of a small mammal monitoring program and avian acoustics monitoring program. |



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| Debswana Diamond Mine Lethlakhane Diamond Mine, Botswana | Ecological assessment and ecological input into rehabilitation plans. |
| Kansanshi Copper Mine Kansanshi, Zambia | Terrestrial ecological and biodiversity assessment of proposed power station sites and environs. Wetland delineation of all wetlands within proposed possible sites. Ecological and biodiversity assessment of proposed wetlands within power station sites and environs. |
| Little Falls Gauteng, South Africa | Terrestrial ecological and biodiversity assessment of proposed development site and environs. |
| Tibane, Strydom and Associates President Park, Gauteng, South Africa | Terrestrial ecological and biodiversity assessment of proposed development site and environs. |
| Rietvallei, Roodepoort Gauteng, South Africa | Terrestrial ecological and biodiversity assessment of proposed development site and environs. |
| Konkola North Zambia | Terrestrial ecological and biodiversity assessment of proposed mining and tailings storage facility site and environs. |
| Fairleads, Benoni Gauteng, South Africa | Terrestrial ecological and biodiversity assessment of proposed development site and environs. Wetland delineation of surrounding wetlands. Avian diversity and impact assessment. |
| SASOL Dyno Nobel, Bronkhorstspuit Gauteng, South Africa | Terrestrial ecological and biodiversity assessment of proposed development site and environs. |
| Finsch Diamond Mine Northern Cape, South Africa | Terrestrial ecological and biodiversity assessment of proposed tailings storage facility site and environs. |
| Doornkuil Gauteng, South Africa | Terrestrial ecological and biodiversity assessment of proposed development site and environs. Wetland delineation of all wetlands within proposed development site. Ecological and biodiversity assessment of wetlands impacted by development site. |
| Xstrata Merafe, Boshhoek North West Province, South Africa | Terrestrial ecological and biodiversity assessment of proposed mining site and environs. Biodiversity action plan for Xstrata Merafe mining area |



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|--|---|
| Letseng Diamond Mine Lesotho | Terrestrial ecological and biodiversity assessment of proposed tailings storage facility sites and environs. Wetland delineation of all wetlands within proposed tailings storage facility sites. Ecological and biodiversity assessment of wetlands impacted by tailings storage facility sites. |
| Xstrata Maloma Swaziland | Terrestrial ecological and biodiversity assessment of proposed coal mining site and environs. Biodiversity action plan for Xstrata Maloma Colliery mining area. |
| Paardeplaats, Krugersdorp Gauteng, South Africa | Terrestrial ecological and biodiversity assessment of proposed development site and environs. |
| Olivedale Gauteng, South Africa | Terrestrial ecological and biodiversity assessment of proposed development site and environs. Study concentrated on Red listed small mammal species. |
| Xstrata Thornecliff Mpumalanga, South Africa | Terrestrial ecological and biodiversity assessment of reserve. Grazing capacity assessment, stocking plan and veld management plan for Xstrata reserve |
| Wesizwe Platinum Mine, Boshhoek North West Province, South Africa | Terrestrial ecological and biodiversity assessment of proposed mining site and environs. Biodiversity action plan for Wesizwe Platinum mining area. Veld management plan for Wesizwe Platinum mining area. |
| URAMIN, Bakouma Central African Republic | Terrestrial ecological and biodiversity assessment of proposed tailings storage facility site and environs. |
| Anglo Coal Mafube, Boshhoek Mpumalanga, South Africa | Terrestrial ecological and biodiversity assessment of proposed development site and environs. Wetland delineation of all wetlands within proposed development site. Ecological and biodiversity assessment of wetlands impacted by development site. |
| ASA Metals, Steelpoort Mpumalanga, South Africa | Terrestrial ecological and biodiversity assessment of proposed development site and environs. Wetland delineation of all wetlands within proposed development site. Ecological and biodiversity assessment of wetlands impacted by development site. |
| Bathlako Chromium Mine North West Province, South Africa | Terrestrial ecological and biodiversity assessment of proposed mining site and environs. |



PROFESSIONAL AFFILIATIONS

Sponsored Member of the International Association for Conservation Biology
Member of Department of Environment Agriculture and Tourism Roster of Experts as Ecology and Desertification specialist
Member of UNCCD panel of experts on ecology and desertification
2003-2006 Chairperson of the Postgraduate Students Forum of the School for Environmental Sciences and Development at the North West University (Potchefstroom Campus)
Presently co-supervisor for three Masters of Science Degree students (NWU)
Professional registered scientist at SACNASP (Pr.Sci.Nat. Reg. No: 400429/14)

PUBLICATIONS

Other

Publications in accredited, peer-reviewed journals:

Hudson, A & Bouwman, H. 2006. New records of 45 bird species in the desert margins areas of the North West Province, South Africa. *Koedoe*. 49(1): 91-98. Pretoria. ISSN 0075-6458

Hudson, A & Bouwman, H. 2007. Different land-use types affect bird communities in the Kalahari, South Africa – *African Journal of Ecology African Journal of Ecology* 45 (3): 423–430

Hudson, A., Bouwman, H. 2008. Birds associated with a tailings storage facility and surrounding areas from a South African gold mine. *African journal of ecology*. 46:276-281

Publications being peer-reviewed at present:

Hudson, A & Bouwman, H. The effects of a fire on birds in the Molopo Nature Reserve of the North West Province, South Africa – for review at *Journal of Arid Environments*

Conference Contributions:

2003: Arid Zone Ecology Forum – Effects of land use on birds

2004: South African Academy of Arts and Science – Effects of psigionomy on avian demography

2005: Zoological Society of South Africa – Effects of fire on avian populations

2007 Zoological Society of South Africa – Biodiversity in rehabilitated areas of New Vaal coal mine

2009: Wetlands Indaba – Fauna and Flora of Heuningmei Pan

2009: International mine water conference - Birds Associated with the Tailings Storage Facility and Surrounds of a South African Gold Mine





ENVIRONMENTAL PLANNING AND DESIGN

Name JONATHAN MARSHALL
Nationality British
Year of Birth 1956
Specialisation Landscape Architecture / Landscape & Visual Impact Assessment / Environmental Planning / Environmental Impact Assessment.

Qualifications

Education Diploma in Landscape Architecture, Gloucestershire College of Art and Design, UK (1979)
Environmental Law, University of KZN (1997)

Professional Registered Professional Landscape Architect (South Africa)
Chartered Member of the Landscape Institute (UK)
Certified Environmental Assessment Practitioner of South Africa.
Member of the International Association of Impact Assessment, South Africa

Languages

| | | | | |
|----------------|---|----------|---|-----------|
| <u>English</u> | - | Speaking | - | Excellent |
| | - | Reading | - | Excellent |
| | - | Writing | - | Excellent |

Contact Details

Post: PO Box 2122
Westville
3630
Republic of South Africa

Phone: +27 31 2668241, Cell: +27 83 7032995

Key Experience

Jon qualified as a Landscape Architect (Dip LA) at Cheltenham (UK) in 1979. He has also been a Certified Environmental Assessment Practitioner of South Africa since 2009.

During the early part of his career (1981 - 1990) He worked with Clouston (now RPS) in Hong Kong and Australia. During this period he was called on to undertake visual impact assessment (VIA) input to numerous environmental assessment processes for major infrastructure projects. This work was generally based on photography with line drawing superimposed to illustrate the extent of development visible.

He has worked in the United Kingdom (1990 - 1995) for a major supermarket chain and prepared CAD based visual impact assessments for public enquiries for new green field store development. He also prepared the VIA input to the environmental statement for the Cardiff Bay Barrage for consideration by the UK Parliament in the passing of the Barrage Bill.

His more recent VIA work (1995 to present) includes a combination of CAD and GIS based work for a new international airport to the north of Durban, new heavy industrial operations, overhead electrical transmission lines, mining operations in West Africa and numerous commercial and residential developments.

VIA work undertaken during the last eighteen months includes assessments for proposed new mine developments in Ghana and Guinea, numerous solar plant projects for Eskom and private clients, proposed wind farm development and a proposed tourism development within the Isimangaliso Wetland Park World Heritage Site.

Jon has also had direct experience of working with UNESCO representatives on a candidate World Heritage Site and has undertaken VIAs within and adjacent to other World Heritage Sites.

Relevant Visual Impact Assessment Projects

1. **Isundu Sub- Station Development** - Visual impact assessment for a new major sub – station in KwaZulu-Natal for Eskom.
2. **Bhangazi Lake Tourism Development** – Visual impact assessment for a proposed lodge development within the Isimangaliso Wetland Park World Heritage Site. This work is ongoing.
3. **Quarry Development for the Upgrade of Sani Pass** – Visual Impact Assessments for two proposed quarry developments on the edge of the uKhalamba-Drakensburg World Heritage Site.
4. **Mtubatuba to St Lucia Overhead Power Line** – Visual Impact Assessment for a proposed power line bordering on the Isimangaliso Wetland Park World Heritage Site for Eskom.
5. **St Faiths 400/132 kV Sub-Station and Associated Power Lines** - Visual Impact Assessment for a proposed new major sub-station and approximately 15 km of overhead power line for Eskom.
6. **Clocolan to Ficksburg Overhead Power Line** – Visual Impact Assessment for a proposed power line for Eskom.
7. **Solar Plant Projects including Photovoltaic and Concentrating Solar Power Plants** – Numerous projects for Eskom and private clients in the Northern Cape, Limpopo, Mpumalanga and the Free State.
8. **Moorreesburg Wind Farm.** Visual impact assessment for a proposed new wind farm in the Western Cape.
9. **AngloGold Ashanti, Dokyiwa (Ghana)** – Visual Impact Assessment for proposed new Tailings Storage Facility at a mine site working with SGS as part of their EIA team.
10. **Camperdown Industrial Development** - Visual Impact Assessment for proposed new light industrial area to the north o Camperdown for a private client.
11. **Wild Coast N2 Toll Highway** – Peer review of VIA undertaken by another consultant.
12. **Gamma to Grass Ridge 765kv transmission line** – Peer review of VIA undertaken by another consultant.
13. **Gateway Shopping Centre Extension (Durban)** – Visual Impact Assessment for a proposed shopping centre extension in Umhlanga, Durban.
14. **Kouroussa Gold Mine (Guinea)** – Visual impact assessment for a proposed new mine in Guinea working with SGS as part of their EIA team.
15. **Mampon Gold Mine (Ghana)** - Visual impact assessment for a proposed new mine in Ghana working with SGS as part of their EIA team.
16. **Telkom Towers** – Visual impact assessments for numerous Telkom masts in KwaZulu-Natal
17. **Dube Trade Port, Durban International Airport** – Visual Impact Assessment for a new international airport.
18. **Sibaya Precinct Plan** – Visual Impact Assessment as part of Environmental Impact Assessment for a major new development area to the north of Durban.
19. **Umdloti Housing** – Visual Impact Assessment as part of Environmental Impact Assessment for a

residential development beside the Umdloti Lagoon to the north of Durban.

20. **Tata Steel Ferrochrome Smelter** - Visual impact assessment of proposed new Ferrochrome Smelter in Richards Bay as part of EIA undertaken by the CSIR.
21. **Diamond Mine at Rooipoort Nature Reserve near Kimberley** – Visual impact assessment for a proposed diamond mine within an existing nature reserve for De Beers.
22. **Durban Solid Waste Large Landfill Sites** – Visual Impact Assessment of proposed development sites to the North and South of the Durban Metropolitan Area. The project utilised 3d computer visualisation techniques.
23. **Hillside Aluminium Smelter, Richards Bay** - Visual Impact Assessment of proposed extension of the existing smelter. The project utilised 3d computer visualisation techniques.
24. **Estuaries of KwaZulu Natal Phase 1 and Phase 2** – Visual character assessment and GIS mapping as part of a review of the condition and development capacity of eight estuary landscapes for the Town and Regional Planning Commission. The project was extended to include all estuaries in KwaZulu Natal.
25. **Signage Assessments** – Numerous impact assessments for proposed signage developments for Blast Media.
26. **Signage Strategy** – Preparation of an environmental strategy report for a national advertising campaign on National Roads for Visual Image Placements.
27. **Zeekoegatt, Durban** - Computer aided visual impact assessment. Acted as advisor to the Province of KwaZulu Natal in an appeal brought about by a developer to extend a light industrial development within a 60 metre building line from the National N3 Highway.
28. **La Lucia Mall Extension** - Visual impact assessment using three dimensional computer modelling / photo realistic rendering and montage techniques for proposed extension to shopping mall for public consultation exercise.
29. **Redhill Industrial Development** - Visual impact assessment using three dimensional computer modelling / photo realistic rendering and montage techniques for proposed new industrial area for public consultation exercise.
30. **Avondale Reservoir** - Visual impact assessment using three dimensional computer modelling / photo realistic rendering and montage techniques for proposed hilltop reservoir as part of Environmental Impact Assessment for Umgeni Water.
31. **Hammersdale Reservoir** - Visual impact assessment using three dimensional computer modelling / photo realistic rendering and montage techniques for proposed hilltop reservoir as part of Environmental Impact Assessment for Umgeni Water.
32. **Southgate Industrial Park, Durban** - Computer Aided Visual Impact Assessment and Landscape Design for AECL.
33. **Sainsbury's Bryn Rhos (UK)** - Computer Aided Visual Impact Assessment/ Planning Application for the development of a new store within the Green Wedge North of Swansea.
34. **Ynyston Farm Access (UK)** - Computer Aided Impact Assessment of visual intrusion of access road to proposed development in Cardiff for the Land Authority for Wales.
35. **Cardiff Bay Barrage (UK)** - Concept Design, Detail Design, Documentation, and Visual Input to

Environmental Statement for consideration by Parliament in the debate prior to the passing of the Cardiff Bay Barrage Bill. The work was undertaken for Cardiff Bay Development Corporation.

36. **A470, Cefn Coed to Pentrebach (UK)** - Preparation of frameworks for the assessment of the impact of the proposed alignment on the landscape for The Welsh Office.
37. **Sparkford to Ilchester Bye Pass (UK)** - The preparation of the landscape framework and the draft landscape plan for the Department of Transport.
38. **Green Island Reclamation Study (Hong Kong)** - Visual Impact Assessment of building massing, Urban Design Guidelines and Masterplanning for a New Town extension to Hong Kong Island.
39. **Route 3 (Hong Kong)** - Visual Impact Assessment for alternative road alignments between Hong Kong Island and the Chinese Border.
40. **China Border Link (Hong Kong)** - Visual Impact Assessment and initial Landscape Design for a new border crossing at Lok Ma Chau.
41. **Route 81, Aberdeen Tunnel to Stanley (Hong Kong)** - Visual Impact Assessment for alternative highway alignments on the South side of Hong Kong Island.

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Werner C. Marais

Summary of qualifications

Late 2009
Started PhD (Biodiversity and Conservation) – Still in progress *University of Johannesburg*

2008
MSc (Biodiversity and Conservation) *University of Johannesburg*

2006
Hons (Biodiversity and Conservation) *University of Johannesburg*

2005
BSc (Zoology and Botany) *University of Johannesburg*

Education

PhD (Biodiversity and Conservation)

- In-depth study of the subterranean and epiphoreal ecosystems of caves and their surrounding environments in the Gauteng province, and more specifically the Carletonville Dolomite Grassland vegetation unit.
- Special reference is paid to cave dwelling bats and their specific conservation needs inside as well as outside caves, where foraging takes place.
- A thorough understanding of grassland ecology as well as mammalian biology/behavior is essential for the study.
- The impacts of urbanisation on cave bat colonies are an essential focus of the research.
- Strong ecological focus.

MSc (Biodiversity and Conservation)

- The potential of using insectivorous bats (Microchiroptera) as a means of insect pest control in agricultural areas – Passed with distinction
- Involved a large scale in-depth survey of the bat diversity in the Tzaneen and Waterpoort areas, Limpopo.
- Understanding and observing the biology and behavior of local bat species.

- Designing and experimenting with artificial bat roosts.

Hons Biodiversity and Conservation

- Research project: Preliminary study of the terrestrial Arthropoda associated with caves of the Cradle of Humankind World Heritage Site – Passed with distinction
- Introduction to Environmental Management
- Herpetology
- Terrestrial and conservation ecology
- Resource management (incl. forestry, fire ecology, animal behavior)
- Practical fieldwork methodology (4X4, boat training and mapping)
- Mammology
- Population genetics and biosystematics
- Philosophy and research methodology: Zoology Nature conservation
- Parasitology
- Molecular evolution

BSc Zoology and Botany

- One-year course in animal diversity and identification
- Six month course in basic and marine ecology
- Limnology and terrestrial ecology
- Coastal diversity excursion (Marine ecology)
- Introduction to SASS Freshwater pollution monitoring methodology
- Applied freshwater ecotoxicology
- Waterborne diseases
- Integrated animal physiology and processes
- General parasitology
- Cytology
- Six-month course in the identification and diversity of South African flora
- Ethno and economical plants
- Biotechnology
- Plant physiology
- Plant pathology
- Cellular and molecular biology
- Introduction to organic and physical chemistry
- General chemistry
- Mineralogy and earth dynamics

Additional:

- **Experienced report writing skills, sufficient computer skills.**
- **Proficient in GIS, bioacoustics analysis.**
- **Snake Identification and Handling Course – Presented by MHB Enviro Developments.**
- **Multiple training courses in bat related topics - Gauteng and Northern Regions Bat Interest Group (GNoRBIG; 2005-2009).**
- **Soil Classification and Wetland Delineation Course – Presented by Terrasoil.**
- **Fall Arrest Level 2 qualification (for working at heights).**
- **Advanced driving course in 4x4 off-road driving.**

Affiliations to professional bodies and societies

- Pr.Sci.Nat.– SACNASP (Zoological Science; registration number 400169/10)
- Steering committee member of the SABAA (South African Bat Assessment Association).
- Bat Conservation International (BCI)
- Serving on the research committee of the Gauteng and Northern Regions Bat Interest Group (GNoRBIG).
- Serving on the steering committee of the Zoological Society of the University of Johannesburg.

Experience

- i. 2008 – Current Founder of Animalia Zoological & Ecological Consultation CC. Animalia has completed more than **300 specialist reports and numerous large scale projects** under the supervision and lead of Werner Marais:
- ii. 2008 University of Johannesburg Gauteng
 - Sensitivity and biodiversity surveys of five caves in the Cradle of Humankind World Heritage Site (COHWHS) and Pretoria areas.
 - Preliminary survey to investigate the correlation between insectivorous bats and prey insects in the Krugersdorp Game Reserve.
- iii. 2007, 2008 Limpopo
 1. Bertie van Zyl (Pty) Ltd.(ZZ2 Tomato Farms)
 2. University of Johannesburg Gauteng

Two year project to research the biological pest control method of utilizing insectivorous bats in agriculture. Required to conduct an in-depth study of bat (Microchiroptera) behavior and ecologically important factors.
- iv. 2006 University of Johannesburg Gauteng

Six month survey of cave dwelling arthropods in the Cradle of Humankind World Heritage Site.

Additional:

Invited by the EWT (Endangered Wildlife Trust) to deliver a presentation on current ecological issues regarding bats and wind energy.

Invited to present on current ecological issues regarding bats and wind energy for ESSA (Exploration Society of Southern Africa).

Contributing editor for the: “South African Good Practice Guidelines for Surveying Bats at Wind Energy Facility Developments – Pre-construction; 3rd Edition February 2014”

As a co-author, received the Dow Greeff price for best annual scientific publication: "Die karst-ekologie van die Bakwenagrot (Gauteng)" published in the Suid-Afrikaanse Tydskrif vir Natuurwetenskap en Tegnologie, Vol. 31(1), 2012.

Public and educational presentations related to bats, and presented a part of a Bat Training Course at Nylsvley Nature Reserve.

Presented the following papers at conferences:

- **The potential of using insectivorous bats (*Microchiroptera*) as a means of insect pest control in agricultural areas. The Zoological Society of Southern Africa's 50th Anniversary Conference. July 2009.**
- **Inseketende vlermuise (*Microchiroptera*) en vlermuishuise in landbougebiede. Suid Afrikaanse Akademie vir Wetenskap en Kuns se 100 jaar Eufees kongres. October 2009.**

Interviewed for two popular magazine articles on ecological aspects of biological pest control utilising bats; published in two consecutive issues of Farmers Weekly.

Languages Afrikaans / English – Full professional proficiency in both.

References **Dr Francois Durand – Karst ecologist and paleontologist. Pr.Sci.Nat. (Zoology and Earth Sciences).**

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Faculty of Natural and Agricultural Sciences,
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Pretoria
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Dr David Hoare (Pr.Sci.Nat.) – David Hoare Consulting CC

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***Stephan du Toit (MSc; Pr.Sci.Nat.) – Specialist: Environmental Protection;
Mogale City Municipality***

083 306 3441
stephant@mogalecity.gov.za

Julio Balona – Chairman of the GNoRBIG

082 359 1295
Julio.Balona@lurgi.com

Thank You

Profession

Traffic & Transportation Engineer

Current Position

Western Cape
Senior Transportation Engineer

Date and Place of Birth :

15 July 1961, Cape Town

Joined Techso:

2008

Nationality

South African

Academic Qualifications

NHD in Civil Engineering, Cape Technikon
1989

Professional Associations

The Engineering Council of South African
(ECSA)

Specialisation

Traffic Engineering and Transportation
Planning

Languages

Afrikaans, English

Appointments

- 1986– 1992: Principal Industrial and (1986 - 1991) Industrial Technician:
Geometric Design: Provincial Administration: Western Cape
- 1993– 1994: Chief Industrial Technician:
Mapping and Proclamations:
Provincial Government: Western Cape
- 1994 – 1995: Chief Industrial Technician
Regional Services: Provincial Government: Western Cape
- 1995 - 1996: Chief Industrial Technician,
Urban Transportation: Provincial Government: Western Cape
- 1997 – 1998: Senior Technician, Kantey and Templer
- 1998 - 2006: Principal Technician: Traffic Engineering, City of Cape Town
- 2006 – 2008: Regional Head, Traffic Impact Assessments and Development Control, City of Cape Town
- 2008 - Senior Transportation Engineer, Techso

Contact Details

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Key Experience

Stephen is a traffic engineering technologist with 27 years of experience in traffic and transportation engineering. He has completed the Transportation Planning and Study Methodology course and the Highway Capacity course at the University of Stellenbosch. Stephen has been involved with civil, traffic and transportation engineering for ten (10) years at Provincial Government of the Western Cape, 1,5 years with Kantey and Templer Consulting Engineers and 10 yrs at local authority/city level and joined Techso in August 2008.

Traffic & Transportation:

- Transportation Planning
- Traffic Engineering
- Road Safety Audits

Projects:

- Local Traffic Engineering and Transportation Plans, such as Traffic Signal Design, Traffic Calming, Parking, Road Safety Audits, Road Design, Road Signs and Lane Marking for City of Cape Town.
- Developed Structure Parking Ramp Design Guidelines for the City of Cape Town.
- Project Management: Blaauwberg Road and Diep River Bridge Design, Milnerton
- Transport Systems Management Project Design and Implementation (City of Tygerberg & City of Cape Town)
- Technical Input to the City of Cape Town Kerbside Adjudication Bid Evaluation Committee.
- Various Traffic Impact Studies: Mtubatuba Weigh Station Facility
- Project Management sub-consultant: City of Cape Town - Integrated Rapid Transport intersection and traffic signal design.
- Traffic Engineer sub-consultant: City of Cape Town - Conceptual design of Eastern Region non-motorised transport project
- Transport Impact Assessments – Various
- Transportation Modelling – TIA for Windhoek Prime Ministers Offices
- Rustenburg Municipality – Integrated Rapid Transport System – AFC
- Ekhurleni Municipality – Integrated Rapid Public Transport Network – AFC and APTMS
- Nelson Mandela Bay Municipality – Integrated Public Transport System – AFC and APTMS
- Road Safety Audits – City of Cape Town - Integrated Rapid Transit Phase 1B

CV for ENVIRONMENTAL ASSESSMENTS

Dr Rob Simmons



Synopsis: 59 year-old ecologist, ornithologist and environmental consultant, with 30 years' research experience in Namibia and South Africa. Permanent Resident in South Africa. Currently I am a Research Associate of the FitzPatrick Institute's Centre of Excellence, UCT, and Director of Birds and Bats Unlimited. Formerly employed in the Namibian Ministry of Environment and Tourism (MET) as the country's ornithologist, specializing in biodiversity issues. Schooled in England (Honours: Astrophysics), Canada (MSc: Biology) and South Africa (PhD: Zoology).

I have worked in many parts of southern Africa: In Namibia as Wetlands Biologist, then Ornithologist, specialising on raptorial birds, shorebirds, flamingos, terns, endemic species and inventories of Namibia's wetlands. Endemic species have been intensively studied in the escarpment and specialized collaborative studies have been undertaken with Cambridge, Oxford, Uppsala, Stanford, Edinburgh and Sheffield Universities. I have authored and co-authored 104 papers and 70 popular articles, contributed to 9 books or proceedings, and written two books: an Oxford-published book on raptors in 2000 and a recently completed Namibian Red Data book on birds published in May 2015.

I live and work in South Africa and have undertaken over 50 impact assessments in the last 20 years. I was part of the advisory board team for BAWESG of EWT and Birdlife SA Birds, and I was on the editorial boards of the journals *Ibis* (UK) and *Ostrich* (South Africa).

1. SPECIFIC SURVEY EXPERIENCE:

- **Ecological study of the Cunene River mouth** – As wetlands biologist, I headed a 1991 survey team comprising MET staff, that assessed the avifauna of the river's lagoon over 3 months during peak (March - May) and low flow (November) periods. We concurrently recorded all other fauna in the area and undertook simple mapping and river sampling. Results published *Madoqua* 18:163-180 (1993)
- **National surveys of Namibian wetland birds** - Coordinated avifaunal assessments of about 80 wetlands throughout Namibia twice a year, as part of an Africa-wide programme (1990-2003). Results published in *Conservation Biology* (2015)
- **Sandwich Harbour avifauna** - A project begun 25 years ago by ministry staff, and continuing to this day, assessing natural changes in wetland area (using GPS technology) and the resultant changes in wetland avifauna. Random survey plots used to count birds.

Major nationwide monitoring projects:

- **Population monitoring of Namibian endemics** - In conjunction with Edinburgh University determined densities and overall population numbers of all 16 Namibian endemic birds. Published *Biological Conservation* in 1996, Robertson and Jarvis; incorporated into the new Namibian Red Data book (Simmons et al. 2015)
- **Damara Tern status** –In 1992 I devised a stratified random survey of the entire 1450 km-long coast of Namibia, revolutionised our estimates of the species' status. Published *Ibis* 1998. Other papers on success of protection of breeding colonies on population size and success.
- **Black Harrier status** – From 2000 - present monitoring threatened Black Harriers throughout South Africa, using satellite tags to follow migration with MSc and PhD students.
- **Flamingo status and trends** - Re-assessment with Mark Anderson and Graham McCulloch of southern African populations and 50 years of breeding at Etosha (Simmons in *Essentials of Conservation Biology*. Primack R. ed). 5th ed, New York).

Environmental Impact Assessments undertaken

My consultancy work experience covers 22 years in Namibia and South Africa.

- birds impacted by a proposed Haib copper mine near the Orange River (1994)
- siting of proposed Lüderitz wind farm prior to formal assessments for NamPower (1997);
- coastal birds impacted by new “pocket-beach” diamond mines within the Diamond Area of the Sperrgebiet for Namdeb (Enviro-science (2002)
- impacts to birds along power lines across the Namib Desert (Windhoek-Walvis Bay) for Nampower (2000)
- assessment of water abstraction scheme from Karst System on wetlands and birds near Tsumeb (2003) (Jessica Hughes)
- impacts to birds from proposed power lines between Windhoek-Rehoboth (2005) for NamPower
- bird impacts on a proposed power line south-east of the Waterberg Plateau Park (assisted Chris van Rooyen with specialist knowledge -2006)
- impact of uranium mine at Valencia, Khan River, Namibia (Aug 2007, Feb 2008)
- Impact on birds of new airport in Caledon, Western Cape (2009)
- Wind farm (x5) bird assessments (with Andrew Jenkins) in Western Cape (2010-2011)
- Power lines-bird interactions Redlinghuys, West Cape (ERM- 2009)
- Coastal birds impacted by re-mining diamonds in Sperrgebiet, Namibia (Pisces- 2010)
- Impact of golf course development at the River Club, Observatory (2010)
- Wind farm assessments at Gansbaai/Walker Bay (Savannah-2011)
- Wind farm assessments on the west coast at Kleinsee and Koingnaas (Savannah – 2011)
- EIA report for Kleinsee 300 and Kleinsee Blue projects (Savannah-2011)
- EIA report and pre-construction monitoring of birds in Namaqualand and Springbok (Mulilo – 2012)
- EIA pre-construction avian impacts on a wind farm at Konstabel (Mainstream 2011).
- Pre-construction avian impacts at the Witteberg (Karoo) wind farm site – (Anchor Environmental 2011-2012) and Verreaux’s Eagles (G7 Renewables 2014-2015);
- Pre-construction avian impacts at a Richtersveld wind farm site (EnBW -2012-2013)
- Pre-construction avian impacts at Happy Valley (E Cape) wind farm site (EDP Renewables -2013-2014)
- Pre-construction avian monitoring Karoshoek CSP-trough CSP-tower Solar Park (Upington) (Savannah Environmental for Emvelo Eco Projects, 2015-2016)
- Pre-construction avian monitoring 6x Solar PV solar park (Northern Cape) (Subsolar Pty Ltd, 2016)
- Pre-construction avian impacts at a Tankwa Karoo wind farm (Genesis Eco-Energy 2016)

Recent papers and academic background can be found at:

<http://www.fitzpatrick.uct.ac.za/fitz/staff/research/simmons>

Red data book and conservation work at:

<https://www.researchgate.net/publication/289668855>

Consultancy work at:

<http://www.birds-and-bats-unlimited.com>



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