

SHORT CV/SUMMARY OF EXPERTISE – SIMON TODD

 <p>3Foxes Biodiversity Solutions ECOLOGICAL SPECIALIST SERVICES Assessment/Management/Research</p>	<p>Simon Todd Pr.Sci.Nat Director & Principle Scientist C: 082 3326502 Simon.Todd@3foxes.co.za</p> <p>23 De Villiers Road Kommetjie 7975</p>	<p>Ecological Solutions for People & the Environment</p>
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Simon Todd is Director and principal scientist at 3Foxes Biodiversity Solutions and has over 20 years of experience in biodiversity measurement, management and assessment. He has provided specialist ecological input on more than 200 different developments distributed widely across the country, but with a focus on the three Cape provinces. This includes input on the Wind and Solar SEA (REDZ) as well as the Eskom Grid Infrastructure (EGI) SEA and Karoo Shale Gas SEA. He is on the National Vegetation Map Committee as representative of the Nama and Succulent Karoo Biomes. Simon Todd is a recognised ecological expert and is a past chairman and current deputy chair of the Arid-Zone Ecology Forum. He is registered with the South African Council for Natural Scientific Professions (No. 400425/11).

Skills & Primary Competencies

- Research & description of ecological patterns & processes in Nama Karoo, Succulent Karoo, Thicket, Arid Grassland, Fynbos and Savannah Ecosystems.
- Ecological Impacts of land use on biodiversity
- Vegetation surveys & degradation assessment & mapping
- Long-term vegetation monitoring
- Faunal surveys & assessment.
- GIS & remote sensing

Tertiary Education:

- 1992-1994 – BSc (Botany & Zoology), University of Cape Town
- 1995 – BSc Hons, Cum Laude (Zoology) University of Natal
- 1996-1997- MSc, Cum Laude (Conservation Biology) University of Cape Town

Employment History

- 2016-2021 -Director and principal scientist at 3Foxes Biodiversity Solutions (Pty) Ltd. Providing specialist ecological studies for EIA's, Ecological Monitoring, Management Plans etc.
- 2009 – 2016 – Sole Proprietor of Simon Todd Consulting, providing specialist ecological services for development and research.

- 2007 Present – Senior Scientist (Associate) – Plant Conservation Unit, Department of Botany, University of Cape Town.
- 2004-2007 – Senior Scientist (Contract) – Plant Conservation Unit, Department of Botany, University of Cape Town
- 2000-2004 – Specialist Scientist (Contract) - South African National Biodiversity Institute
- 1997 – 1999 – Research Scientist (Contract) – South African National Biodiversity Institute

A selection of recent work is as follows:

Strategic Environmental Assessments

Co-Author. Chapter 7 - Biodiversity & Ecosystems - Shale Gas SEA. CSIR 2016.

Co-Author. Chapter 1 Scenarios and Activities – Shale Gas SEA. CSIR 2016.

Co-Author – Ecological Chapter – Wind and Solar SEA. CSIR 2014.

Co-Author – Ecological Chapter – Eskom Grid Infrastructure SEA. CSIR 2015.

Contributor – Ecological & Conservation components to SKA SEA. CSIR 2017.

Power Lines & Associated Infrastructure

- Beaufort West Wind Farm Substation and Associated Infrastructure Project. Fauna & Flora Specialist Study. SLR, 2021.
- Grid Connection Infrastructure for the Proposed Sadawa & Kolkies Series of PV Projects. Fauna and Flora Specialist Studies. Savannah Environmental 2021.
- Grid Connection Infrastructure for the Namas Wind Farm, Northern Cape. Fauna and Flora Specialist Study. Savannah Environmental 2019.
- Grid Connection Infrastructure for the Zonnequa Wind Farm, Northern Cape. Fauna and Flora Specialist Study. Savannah Environmental 2019.
- Wind Relic MTS Substation near Cookhouse. Fauna and Flora Specialist Study. Savannah Environmental 2021.
- Impofu 132kV Grid Connection from Oyster Bay to Port Elizabeth. Fauna and Flora Specialist Study. Zutari 2019.
- Nuweveld Grid Connection and Associated Infrastructure. Fauna and Flora Specialist Study. Zutari 2021.
- Grid Connection Infrastructure for the Mainstream Sutherland Wind Energy Facilities. Fauna and Flora Specialist Study. CSIR 2019.
- Proposed Letsoai and Enamandla 400kv Grid Connection, Aggeneys, Northern Cape. Fauna & Flora Specialist Study, Biotherm Energy 2016.
- Juno-Aurora 765kV Power Line in the Western Cape: Fauna & Flora Specialist Report. Nzumbulolo Heritage Solutions 2015.
- Mookodi Integration Phase 2 132kV Power Lines and Ganyesa Substation near Vryburg, North West Province: Fauna & Flora Specialist Report. Sivest 2014.

- Transnet 7km 50 kV Power Line from Eskom Juno Substation to the proposed new Transnet Juno Traction Feeder Substation. Nsovo Environmental Consulting. 2014.
- Transnet 5km 50 kV Power Line from Eskom Aries Substation to the proposed new Transnet Aries Traction Feeder Substation. Nsovo Environmental Consulting. 2014.
- Transnet 15km 50 kV Power Line from Eskom Helios Substation to the proposed new Transnet Helios Traction Feeder Substation. Nsovo Environmental Consulting. 2014.
- Burchell-Caprum-Mooidraai 132kV Power Line - Fauna & Flora Specialist Report. Savannah Environmental 2014.
- Proposed Re-Alignment of The Koeberg – Ankerlig Power Line: Fauna & Flora Specialist Report. Savannah Environmental 2014.
- Grid Connection for Redstone Solar Thermal Energy Plant- Redstone Solar Thermal to Olien Mts: Fauna & Flora Specialist Report. SiVest 2014.
- Grid Connection for Mainstream South Africa Perdekraal Wind Energy Facility. Fauna & Flora Specialist Report. ERM 2014.
- Karoshoek Grid Integration Infrastructure. Fauna & Flora Specialist Report. Savannah Environmental. 2012.
- Garob to Kronos Power Line - Fauna & Flora Specialist Report. Savannah Environmental. 2012.
- Loeriesfontein Wind Energy Facility – Substation & Grid Connection. Fauna & Flora Specialist Report. Savannah Environmental. 2012.
- Gouda Wind Energy Facility – Grid Connection. Walk-Through of Overhead Power Line - Gouda WEF to Eskom Windmill Substation. Savannah Environmental. 2012.
- Kappa-Omega 765 kV Transmission Line. Fauna, Flora & Ecology Walk-Through Report. Specialist Report for ACER Africa. 2013.

Wind Farms and Associated Infrastructure

- Ishwati Emoyeni WEF near Murraysburg. Fauna and Flora Specialist Study. CSIR 2014.
- Mainstream Victoria West WEF. Fauna and Flora specialist study. ERM 2011.
- Noblesfontein Wind Energy Facility, Victoria West. Ecological Walk-Through Report. Savannah Environmental 2012.
- Wind Garden Wind Energy Facility near Makhanda, Eastern Cape. Fauna and flora specialist study. Savannah Environmental 2021.
- Fronteer Wind Energy Facility near Makhanda, Eastern Cape. Fauna and flora specialist study. Savannah Environmental 2021.
- Highlands Wind Energy Facilities near Somerset East, Eastern Cape. Fauna and Flora species studies. Arcus, 2017.
- Wind Energy Facility near Paternoster, Western Cape. Fauna and Flora Impact Assessment. Savannah Environmental 2019.
- Elandsbay Wind and Aquaculture Facility, Western Cape. Faunal Impact Assessment. Anchor Environmental. 2019.

- Nuweveld East, West and North Wind Farms, Western and Northern Cape. Fauna & Flora Specialist Assessment. Aurecon 2020.
 - Namas Wind Energy Facility, Northern Cape. Fauna and Flora Specialist Study. Savannah Environmental 2018.
 - Zonnekwa Wind Energy Facility, Northern Cape. Fauna and Flora Specialist Study. Savannah Environmental 2018.
 - Kap Vley Wind Energy Facility, Northern Cape - Fauna and Flora Specialist Study. CSIR 2018.
 - Tooverberg Wind Energy Facility, Tankwa Karoo, Western Cape. Fauna and Flora Specialist Study. SiVest 2018.
 - Kuruman Wind Energy Facility, Northern Cape. Fauna & Flora Scoping & EIA assessment. CSIR 2019.
 - Phezekomoya and San Kraal Wind Energy Facilities and associated grid connection, Northern Cape. Fauna and Flora specialist studies. Arcus Consulting 2018.
 - Kokerboom Wind Energy Facilities (1-4) and associated grid connections, Northern Cape. Fauna and Flora specialist studies. Aurecon 2017.
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herewith certifies that

Simon Wallace Todd

Registration Number: 400425/11

is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following field(s) of practice (Schedule 1 of the Act)

Ecological Science (Professional Natural Scientist)

Effective **2 November 2011**

Expires **31 March 2023**



A handwritten signature in black ink, appearing to read 'Botha', is written over a horizontal line.

Chairperson

A handwritten signature in black ink, appearing to read 'M. ...', is written over a horizontal line.

Chief Executive Officer



Curriculum Vitae – Marius Burger – 2022

Trading as *Sungazer Faunal Surveys*, 6 Putter Street, Lakeside 7945, South Africa

PERSONAL DETAILS

Date of birth:	16/10/1966	Age:	56
Identity number:	661016 5125 089	Gender:	Male
Nationality:	South African	Languages:	English and Afrikaans
Mobile phone:	+27 (0)83 231 7452	Email:	sungazer@iafrica.com

South African Council for Natural Scientific Professions (SACNASP)

Registered with SACNASP as a Professional Natural Scientist for the fields of Ecological Science and Zoological Science (Reg. no. 130600).

EMPLOYMENT EXPERIENCE

1997 – present **SUNGAZER FAUNAL SURVEYS:** A sole-proprietorship that provides faunal specialist services for Environmental Impact Assessment projects.

2014 – 2016 **HOME BREW FILMS:** Episode Director for Wildlife Odyssey series.

2010 part-time **NCC ENVIRONMENTAL SERVICES:** Faunal specialist.

2005 – 2009 **ANIMAL DEMOGRAPHY UNIT (UNIVERSITY OF CAPE TOWN):** Project Herpetologist for Southern African Reptile Conservation Assessment (SARCA).

1997 – 2003 **ANIMAL DEMOGRAPHY UNIT (UNIVERSITY OF CAPE TOWN):** National Coordinator of Southern African Frog Atlas Project (SAFAP).

1990 – 1997 **CAPE DEPARTMENT OF NATURE AND ENVIRONMENTAL CONSERVATION (CDNEC):** Research Technician, Scientific Support Services.

1987 – 1989 **CHIEF DIRECTORATE NATURE AND ENVIRONMENTAL CONSERVATION:** Reserve Management and District Services.

EDUCATION

1990 **CAPE TECHNICON (aka CAPE PENINSULA UNIVERSITY OF TECHNOLOGY):** National Diploma Nature Conservation.

1984 **DURBANVILLE HIGH SCHOOL:** Senior Certificate.

EXPERTISE AND EXPERIENCE

HERPETOLOGIST and faunal specialist: Sub-Saharan Africa and Madagascar.

- Compiled about 150 faunal specialist reports for various environmental consultancies and biodiversity projects (Appendix 1).
- Published 45 scientific peer-reviewed papers (Appendix 2), 75 semi-scientific and popular articles (Appendix 3), authored/edited three books (Appendix 4), 35 chapters/accounts in books (Appendix 5), and presented 50 papers/posters at national/international symposia (Appendix 6). See also: <https://www.researchgate.net/profile/Marius-Burger-2/research>
- Extraordinary Lecturer with the African Amphibian Conservation Research Group, Unit for Environmental Sciences and Management, North-West University (2015 – present).
- Member of IUCN SSC Amphibian Specialist Group: Sub-Saharan Africa (2009 – present).
- Member of IUCN SSC Snake and Lizard Red List Authority (2017 – present).
- Member of Herpetological Association of Africa: 1988 – present.
- Associate Consultant with FLORA FAUNA & MAN, Ecological Services Ltd. (2011 – present).
- Associate Consultant with DELTA ECOLOGY (2021 – present).
- Research Collaborator with the Smithsonian Institute (2002 – 2004).
- Research Collaborator with the South African Museum (2000 – 2002).
- Chairman of the Port Elizabeth Herpetological Club (1992 – 1996).

- Presented biodiversity courses for the Tropical Biological Association (TBA) in Madagascar and the Organisation for Tropical Studies (OTS) in Kruger National Park.
- Participated in about 100 natural history television documentaries (incl. as director, presenter, advisor and/or logistics manager) for *National Geographic*, *BBC World*, *OnePlanet*, *SABC*, *Kyknet*, *Homebrew Films*, *Wildlife Odyssey* and others.

WORK EXPERIENCE IN AFRICAN COUNTRIES

Biodiversity surveys & environmental assessments: Central African Republic, Ethiopia, Gabon, Kenya, Liberia, Mozambique, Republic of the Congo, South Africa, South Sudan, Zambia.

Eco-tourism & wildlife television productions: Angola, Benin, Botswana, Cameroon, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Lesotho, Madagascar, Morocco, Namibia, São Tomé and Príncipe, Senegal, Seychelles, Sierra Leone, South Africa, Tanzania, Togo, Zambia, Zimbabwe.

REFERENCES

Herpetology/Biodiversity surveys/Environmental Impact Assessments

Prof Graham Alexander: School of Animal, Plant and Environmental Sciences, University of the Witwatersrand, Johannesburg, Gauteng 2050, South Africa. Email: Graham.Alexander@wits.ac.za

Dr Francisco Dallmeier: Center for Conservation Education and Sustainability, Smithsonian Conservation Biology Institute, Box 37012, MRC 0705, Washington, DC 20013–7012, USA. Email: fdallmeier@ic.si.edu

Prof Louis du Preez: African Amphibian Conservation Research Group, Unit for Environmental Sciences and Management, North-West University, Potchefstroom 2520, South Africa. Tel: +27 (0)18 299 2372; Email: Louis.duPreez@nwu.ac.za

Prof Christo Fabricius: Sustainability Research Unit, Nelson Mandela Metropolitan University, Private Bag X6531, George 6530, South Africa. Tel: +27 (0)44 801 5111; Email: christo.fabricius@nmmu.ac.za

Dr Jerome Y. Gaugris: Flora Fauna & Man, Ecological Services, PO Box 146, Road Town, Tortola, British Virgin Islands. Tel: +27 (0)72 266 9902; Email: jeromegaugris@florafaanaman.com

Mr Doug Jeffery: Doug Jeffery Environmental Consultants, PO Box 44, Klappmuts 7625, South Africa. Tel: +27 (0)21 875 5272; E-mail: doug@dougjeff.co.za

Dr Stefan Lötters: Biogeography Department, Faculty of Geography/Geosciences, Trier University, 54286 Trier, Germany. Tel: +49 (0)651 201 4174; loetters@uni-trier.de

Dr Krystal A. Tolley: South African National Biodiversity Institute, Kirstenbosch Research Centre, Private Bag X7, Newlands, Cape Town 7945, South Africa. Tel: +27 (0)21 799 8658; Email: K.Tolley@sanbi.org.za

Prof Les Underhill: Director (retired) of Animal Demography Unit, Statistical Sciences Department, University of Cape Town, Rondebosch 7701, South Africa. Tel: +27 (0)21 650 3227, E-mail: les.underhill@uct.ac.za

Wildlife television productions

Mr Jaco Loubser: CEO and Executive Producer, Homebrew Films, 7 Montague Drive, Milnerton, Cape Town 7435, South Africa. Tel: +27 (0)21 422 3452; Email: jaco@homebrewfilms.tv

Appendix 1. Environmental consultancy and biodiversity assessment reports

- 164 Van Huyssteen R. and Burger M. 2022. Ashashire September 2022 Herpetology Survey Overview. *Flora Fauna & Man Ecological Services Ltd.* report compiled for *SRK Consulting (UK) Ltd.* – October 2022.
- 163 Jackson A., Burger M. and Reljic E. 2022. Faunal Impact Assessment for the proposed mining of the Nataka deposit, Nampula Province, Mozambique. *Biodiversity Africa* and *CES CES – Environmental and Social Advisory Services* report compiled for *Kenmare Moma Mining (Mauritius) Ltd. (Mozambique Branch)* – August 2022.
- 162 Niemand L. and Burger M. 2022. Evaluation Report – Protocol No: BP05 Fauna Monitoring. *Eco Info and Associates Environmental Services* report compiled for *Black Mountain Mining* – August 2022.
- 161 Burger M. 2022. Beaufort West wind farm 33/132 KV substation and associated infrastructure (14/12/16/3/3/1/2464) and Eskom 132KV switching substation and 132KV powerline (14/12/16/3/3/1/2465), near Beaufort West in the Prince-Albert local municipality, within the Central Karoo District Municipality in the Western Cape Province. *Sungazer Faunal Surveys* letter of comment compiled for *SLR Consulting South Africa* – July 2022.
- 160 Van Huyssteen R. and Burger M. 2022. Interim Herpetology Report: Baniaka Iron Ore Project, Gabonese Republic (June 2022). *Flora Fauna & Man Ecological Services Ltd.* report compiled for *SRK Consulting (UK) Ltd.* – July 2022.
- 159 Burger M. 2022. HOOGLAND SOUTHERN GRID CONNECTION: Site Sensitivity Verification and Terrestrial Animal Species Specialist Assessment for the Karoo Dwarf Tortoise. *Sungazer Faunal Surveys* report compiled for *SLR Consulting South Africa* – July 2022.
- 158 Burger M. 2022. HOOGLAND SOUTHERN CLUSTER WIND FARM: Site Sensitivity Verification and Terrestrial Animal Species Specialist Assessment for the Karoo Dwarf Tortoise. *Sungazer Faunal Surveys* report compiled for *SLR Consulting South Africa* – July 2022.
- 157 Burger M. 2022. HOOGLAND NORTHERN GRID CONNECTION: Site Sensitivity Verification and Terrestrial Animal Species Specialist Assessment for the Karoo Dwarf Tortoise. *Sungazer Faunal Surveys* report compiled for *SLR Consulting South Africa* – July 2022.
- 156 Burger M. 2022. HOOGLAND NORTHERN CLUSTER WIND FARM: Site Sensitivity Verification and Terrestrial Animal Species Specialist Assessment for the Karoo Dwarf Tortoise. *Sungazer Faunal Surveys* report compiled for *SLR Consulting South Africa* – July 2022.
- 155 Burger M. 2022. HAGA HAGA WEF | Proposed Amendment. *Sungazer Faunal Surveys* letter of comment compiled for *CES – Environmental and Social Advisory Services* – June 2022.
- 154 Burger M. and van Huyssteen R. 2022. DUGBE PROJECT, Republic of Liberia: Herpetofauna baseline. *Flora Fauna & Man Ecological Services Ltd.* report compiled for *SRK Consulting (UK) Ltd.* – March 2022.
- 153 Burger M. 2022. ZANDVLIET MACASSAR PIPELINE: Amphibian Compliance Statement. *Sungazer Faunal Surveys* report compiled for *Guillaume Nel Environmental Consultants* – February 2022.
- 152 Belcher T. and Grobler D. (eds; with contributions by Barbour T., Burger M., Conrad J., Dobinson L., Impson D., Ollis D., Rossouw L., Rossouw N., Smit L., Taljaard S., Watson A. and van Niekerk L.). 2022. GAP ANALYSIS REPORT RDM/WMA09/00/CON/0122: Reserve Determination Study for Selected Surface Water, Groundwater, Estuaries and Wetlands in the F60 and G30 Catchments within the Berg-Olifants WMA. *Department of Water and Sanitation* report – February 2022.
- 151 Harrison J.A., Burger M. and Jackson A. 2022. Heartland property, the Strand: An update on a baseline survey of faunal ecology for Precinct 2. *JAH Consultancy* report compiled for *Gibb Environmental* – February 2022.
- 150 Burger M. and van Huyssteen R. 2022. Biodiversity studies for the Road N3811 R1252 between Mueda and Negomano, Cabo Delgado Province, Republic of Mozambique: Herpetofauna baseline. *Flora Fauna & Man Ecological Services Ltd.* report compiled for *SRK Consulting (UK) Ltd.* – January 2022.

- 149 Burger M. 2022. LAKE MICHELLE PHASE 8 (ERF 3823): An addendum to the faunal impact assessment for amphibians, reptiles and mammals. *Sungazer Faunal Surveys* report compiled for *Doug Jeffery Environmental Consultants* – January 2022.
- 148 Belcher T. and Grobler D. (eds; with contributions by Barbour T., Burger M., Conrad J., Dobinson L., Impson D., Ollis D., Rossouw L., Rossouw N., Smit L., Taljaard S., Watson A. and van Niekerk L.). 2021. INCEPTION REPORT RDM/WMA09/00/CON/0121: Reserve Determination Study for Selected Surface Water, Groundwater, Estuaries and Wetlands in the F60 and G30 Catchments within the Berg-Olifants WMA. *Department of Water and Sanitation* report – December 2021.
- 147 Burger M., van Huyssteen R. and Petford M. 2021. Site Sensitivity Verification and Compliance Statement for the Western Leopard Toad: Proposed Construction of Kunjani Mall Farm 1/597 Philippi, Cape Town. *Delta Ecology* report – December 2021.
- 146 Burger M. 2021. BEAUFORT WEST WIND FARM 33/132KV SUBSTATION, 132KV POWERLINE & ASSOCIATED INFRASTRUCTURE PROJECTS: Site Sensitivity Verification and Compliance Statement for the Karoo Dwarf Tortoise. *Sungazer Faunal Surveys* report compiled for *SLR Consulting* – November 2021.
- 145 Burger M. 2021. SHARK BAY: Compliance statement of clear-view fence. *Sungazer Faunal Surveys* compliance statement compiled for *Guillaume Nell Environmental Consultants* – November 2021.
- 144 Burger M. and Miller J. 2021. Faunal statement in respect of the Haga Haga Wind Energy Facility Access Road Upgrades in the Great Kei Local Municipality, Eastern Cape October 2021. *NCC Environmental Services* report compiled for *CES – Environmental and Social Advisory Services* – October 2021.
- 143 Burger M. 2021. PORTION 15 OF VERGENOEGD 653: Faunal baseline and impact assessment, with supplementary sections on species triggered in the Screening Tool Report. *Sungazer Faunal Surveys* report compiled for *KHULA Environmental Consultants* – September 2021.
- 142 Burger M. 2021. HOUMOED AVENUE: Study approach in respect of Western Leopard Toad considerations. *Sungazer Faunal Surveys* letter of comment compiled for *Chand Environmental Consultants* – July 2021.
- 141 Burger M. 2021. DUGBE GOLD PROJECT: Republic of Liberia. May 2021 reconnaissance field visit – Group 1 Scoping Report – Herpetofauna. *Flora Fauna & Man Ecological Services Ltd.* report compiled for *SRK Consulting (UK) Ltd.* – September 2021.
- 140 Burger M. and van Huyssteen R. 2021. Nairobi-Nakuru-Mau Summit Highway Project. Biodiversity baseline studies for the ESIA. Republic of Kenya. BIODIVERSITY BASELINE INVESTIGATION - HERPETOLOGY. *Flora Fauna & Man Ecological Services Ltd.* report compiled for *WSP Canada* – July 2021.
- 139 Burger M. 2021. Results of the dry season herpetofaunal survey for the Kenya Rironi/Mau road upgrading project. Interim report compiled for *Flora Fauna & Man Ecological Services Ltd.* – March 2021.
- 138 Burger M. 2021. CAPE POINT VINEYARDS ESTATE: Western Leopard Toad study and impact assessment. *Sungazer Faunal Surveys* report (Version 2; updated to include the assessment of an extra alternative) compiled for *Doug Jeffery Environmental Consultants* – January 2021.
- 137 Burger M. 2021. Search-and-Rescue protocol for Western Leopard Toads in the context of the River Club development project. *Sungazer Faunal Surveys* S&R protocol compiled for *Liesbeek Leisure Properties Trust* – January 2021.
- 136 Burger M. – independent reviewer for: South African National Biodiversity Institute (SANBI). 2020. Species Environmental Assessment Guideline. Guidelines for the implementation of the Terrestrial Fauna and Terrestrial Flora Species Protocols for environmental impact assessments in South Africa. South African National Biodiversity Institute, Pretoria. Version 1.2020.
- 135 Burger M. 2020. Herpetofaunal scoping of Ashashire, Benishangul-Gumuz Regional State, western Ethiopia. *Flora Fauna & Man Ecological Services Ltd.* report compiled for *SRK Consulting (UK) Ltd.* – December 2020.

- 134 Burger M. 2020. Herpetofaunal observations made during a biodiversity study (October 2020) of the Ashashire study area, Benishangul-Gumuz Regional State, western Ethiopia. *Flora Fauna & Man Ecological Services Ltd.* report compiled for *Ethiopian Biodiversity Institute* – November 2020.
- 133 Burger M. 2020. OUDE MOLEN ECO VILLAGE: Western Leopard Toad assessment. *Sungazer Faunal Surveys* report compiled for *Chand Environmental Consultants* – November 2020.
- 132 Burger M. 2020. RETREAT HOUSING DEVELOPMENT: Western Leopard Toad assessment. *Sungazer Faunal Surveys* report compiled for *Lukhozi Consulting Engineers (Pty) Ltd.* – November 2020.
- 131 Martin T., Jackson A., Massingue A. and Burger M. 2020. Kenmare Pilivili Mine Site and Associated Infrastructure: Terrestrial Ecological Monitoring Plan. *CES - Environmental and Social Advisory Services* report compiled for *Kenmare Moma Mining (Mauritius) Ltd. (Mozambique Branch)* – September 2020.
- 130 Burger M. 2020. CAPE TOWN FILM STUDIOS: Frog survey (August 2020). *Sungazer Faunal Surveys* report compiled for *Cape Town Filming Studios* – September 2020.
- 129 Burger M. 2020. NUWEVELD WIND FARMS: A herpetofaunal synopsis. *Sungazer Faunal Surveys* report compiled for *Zutari South Africa* – September 2020.
- 128 Burger M. 2020. GOLDEN GROVE DEVELOPMENT APPLICATION FOR ERF 4327, OTTERY: Western Leopard Toad assessment. *Sungazer Faunal Surveys* report compiled for *Golden Grove Estate (Pty) Ltd.* – September 2020.
- 127 Burger M. 2020. VRYGROND HOUSING DEVELOPMENT: Western Leopard Toad assessment. *Sungazer Faunal Surveys* report compiled for *Lukhozi Consulting Engineers (Pty) Ltd.* – August 2020.
- 126 Burger M. and Bell J.J.A. 2020. Faunal statement in respect of an amendment to the Haga Haga Wind Farm Environmental Authorisation. *NCC Environmental Services* report compiled for *CES - Environmental and Social Advisory Services* – July 2020.
- 125 Harrison J.A. and Burger M. 2020. An audit of vertebrate fauna on the Welbeloond conservation areas, Atlantic Hills, Western Cape. *JAH & Son Consultancy* report compiled for *Khula Environmental Consultants* – July 2020.
- 124 Burger M. 2020. DISH MOUNTAIN GOLD PROJECT, REPUBLIC OF ETHIOPIA: An updated baseline assessment of the reptiles and amphibians of Dish Mountain, Benishangul-Gumuz Regional State, western Ethiopia. *Flora Fauna & Man Ecological Services Ltd.* report compiled for *SRK Consulting (UK) Ltd.* – April 2020.
- 123 Burger M. 2020. PORTION 15 OF VERGENOEGD 653: Faunal baseline and impact assessment. *Sungazer Faunal Surveys* report compiled for *KHULA Environmental Consultants* – March 2020 (updated in August 2020 with the results of an additional frog survey integrated into the original report).
- 122 Burger M. 2020. SUBDIVISION AND DEPARTURE OF ERF 4745, NOORDHOEK: Faunal considerations, with special emphasis on the Western Leopard Toad. *Sungazer Faunal Surveys* report compiled for *Plan Africa Consulting* – February 2020.
- 121 Burger M. 2020. CAPE TOWN FILMING STUDIOS: Review and update of faunal recommendations. *Sungazer Faunal Surveys* report compiled for *Chand Environmental Consultants* – February 2020.
- 120 Burger M. 2020. LAKE MICHELLE PHASE 8 (ERF 3823): Amphibian baseline and impact assessment, with special focus on Western Leopard Toad and Cape Platanna. *Sungazer Faunal Surveys* report compiled for *Doug Jeffery Environmental Consultants* – February 2020.
- 119 Burger M. 2019. CAPE INFANTA: Revised faunal Environmental Impact Assessment of the north-eastern portion of Erf 134. *Sungazer Faunal Surveys* report compiled for *Doug Jeffery Environmental Consultants* – November 2019.
- 118 Burger M. 2019. Preliminary results of a herpetofaunal survey conducted during September 2019 at the Dish Mountain study area, Benishangul-Gumuz Regional State, western Ethiopia. *Flora Fauna & Man Ecological Services Ltd.* report compiled for *Ethiopian Biodiversity Institute* –

November 2019.

- 117 Burger M. 2019. BIODIVERSITY BENCHMARK SURVEYS FOR THE PROPOSED WATERBERG JOINT VENTURE PLATINUM MINING PROJECT, CENTRAL LIMPOPO PROVINCE, REPUBLIC OF SOUTH AFRICA: REPTILES AND AMPHIBIANS: Pre-mining benchmark surveys to determine the occurrence of reptile and amphibian species within the proposed Waterberg Mining Project study area, Limpopo Province, South Africa. *Sungazer Faunal Surveys* report compiled for *Nyengere Environmental Solutions* – June 2019. [updated from the July 2018 report to incorporate results of a follow-up wet season survey]
- 116 Burger M. 2019. Preliminary comments on the potential presence of Cape Platanna at Lake Michelle. *Sungazer Faunal Surveys* letter of comment compiled for *Doug Jeffery Environmental Consultants* – May 2019.
- 115 Bok A., Burger M. and Bills R. 2019. First Quantum Minerals, North Western Province, Zambia. Munsangezhi River Fish Survey Specialist Report. Report compiled on behalf of *EOH - Coastal & Environmental Services* – May 2019.
- 114 Burger M. 2019. LAKE MICHELLE PHASE 8 (ERF 3823): Mammals and reptiles baseline assessment. *Sungazer Faunal Surveys* report compiled for *Doug Jeffery Environmental Consultants* – April 2019.
- 113 Burger M. 2019. CAPE POINT VINEYARDS ESTATE: Western Leopard Toad study and impact assessment. *Sungazer Faunal Surveys* report compiled for *Doug Jeffery Environmental Consultants* – February 2019.
- 112 Burger M. 2019. NOORDHOEK GENERATION SCHOOL: Faunal baseline and impact assessments of farm 931 (portions 1 & 18), with specific attention to the local Western Leopard Toad population. *Sungazer* report compiled for *KHULA Environmental Consultants* – January 2019. [updated from the May 2017 report to incorporate feedback from I&APs]
- 111 Burger M. 2018. A pre-mining benchmark survey to determine the occurrence of reptile and amphibian species within the proposed Waterberg Mining Project study area, Limpopo Province, South Africa. *Sungazer Faunal Surveys* report compiled for *Nyengere Environmental Solutions* – July 2018.
- 110 Burger M. 2018. HOUMOED AVENUE EXTENSION PHASE 1: Comments on faunal impact assessment report in respect of Western Leopard Toad considerations. *Sungazer Faunal Surveys* letter of comment prepared for *Chand Environmental Consultants* – July 2018.
- 109 Burger M. 2018. DISH MOUNTAIN GOLD PROJECT, REPUBLIC OF ETHIOPIA: A baseline assessment of the reptiles and amphibians of Dish Mountain, Benishangul-Gumuz Regional State, western Ethiopia. *Flora Fauna & Man Ecological Services Ltd.* report compiled for *SRK Consulting (UK) Ltd.* – July 2018.
- 108 Burger M. 2018. LAKE MICHELLE PHASE 8 (ERF 3823): Western Leopard Toad study and impact assessment. *Sungazer Faunal Surveys* report compiled for *Doug Jeffery Environmental Consultants* – June 2018.
- 107 Burger M. 2018. IRIS PARK (BLUE DOWNS): Faunal search-and-rescue. *Sungazer Faunal Surveys* report compiled for *Doug Jeffery Environmental Consultants* – January 2018.
- 106 Burger M. 2017. KOLA POTASH PROJECT, Republic of Congo: Revised potential impact highlights report: Herpetofauna. *Flora Fauna & Man Ecological Services Ltd.* report compiled for *SRK Consulting (UK) Ltd.* – November 2017.
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Appendix 3. Unrefereed papers, popular articles, book reviews and published abstracts

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Appendix 4a. Books

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Appendix 4b. Books (contributor only)

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- 1 WWF 2006. *A Vision for Biodiversity Conservation in Central Africa: Biological Priorities for Conservation in the Guinean-Congolian Forest and Freshwater Region*. WWF-US/Central African Regional Program Office, Washington, DC.

Appendix 5. Chapters and taxon accounts in books

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 - 27 Branch W.R., Harvey J., Maritz B., Marais J., Burger M., Masterson, G. and Bates M.F. 2014. Family Lamprophiidae. Pp. 342–392. In: Bates M.F., Branch W.R., Bauer A.M., Burger M., Marais J., Alexander G.J. and De Villiers M.S. (eds). *Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland*. Suricata 1. South African National Biodiversity Institute, Pretoria.
 - 26 Burger M. 2014. *Amblyodipsas concolor* (A. Smith 1849). Pp. 343–344. In: Bates M.F., Branch W.R., Bauer A.M., Burger M., Marais J., Alexander G.J. and De Villiers M.S. (eds). *Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland*. Suricata 1. South African National Biodiversity Institute, Pretoria.
 - 25 Burger M. 2014. *Amblyodipsas microphthalma microphthalma* (Bianconi, 1850). Pp. 344. In: Bates M.F., Branch W.R., Bauer A.M., Burger M., Marais J., Alexander G.J. and De Villiers M.S. (eds). *Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland*. Suricata 1. South African National Biodiversity Institute, Pretoria.
 - 24 Burger M. 2014. *Amblyodipsas microphthalma nigra* Jacobsen, 1986. Pp. 345. In: Bates M.F., Branch W.R., Bauer A.M., Burger M., Marais J., Alexander G.J. and De Villiers M.S. (eds). *Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland*. Suricata 1. South African National Biodiversity Institute, Pretoria.
 - 23 Burger M. 2014. *Amblyodipsas polylepis polylepis* (Bocage, 1873). Pp. 345–346. In: Bates M.F., Branch W.R., Bauer A.M., Burger M., Marais J., Alexander G.J. and De Villiers M.S. (eds). *Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland*. Suricata 1. South African National Biodiversity Institute, Pretoria.
 - 22 Burger M. 2014. *Aparallactus capensis* (A. Smith 1849). Pp. 347. In: Bates M.F., Branch W.R., Bauer A.M., Burger M., Marais J., Alexander G.J. and De Villiers M.S. (eds). *Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland*. Suricata 1. South African National Biodiversity Institute, Pretoria.
 - 21 Burger M. 2014. *Aparallactus lunulatus lunulatus* (Peters, 1854). Pp. 348. In: Bates M.F., Branch W.R., Bauer A.M., Burger M., Marais J., Alexander G.J. and De Villiers M.S. (eds). *Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland*. Suricata 1. South African National Biodiversity Institute, Pretoria.
 - 20 Burger M. 2014. *Atractaspis bibronii* A. Smith 1849. Pp. 349. In: Bates M.F., Branch W.R., Bauer A.M., Burger M., Marais J., Alexander G.J. and De Villiers M.S. (eds). *Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland*. Suricata 1. South African National Biodiversity Institute, Pretoria.
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- 18 Burger M. 2014. *Homoroselaps dorsalis* (A. Smith 1849). Pp. 351. In: Bates M.F., Branch W.R., Bauer A.M., Burger M., Marais J., Alexander G.J. and De Villiers M.S. (eds). *Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland*. Suricata 1. South African National Biodiversity Institute, Pretoria.
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- 16 Burger M. 2014. *Macrelaps microlepidotus* (Günther, 1860). Pp. 353. In: Bates M.F., Branch W.R., Bauer A.M., Burger M., Marais J., Alexander G.J. and De Villiers M.S. (eds). *Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland*. Suricata 1. South African National Biodiversity Institute, Pretoria.
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- 3 Burger M., Pickersgill M., Braack H.H. and Minter L.R. 2004. *Afrixalus knysnae*. Pp. 128–131. In: Minter L.R., Burger M., Harrison J.A., Braack H.H., Bishop P.J. and Kloepfer D., (eds). *Atlas and Red Data Book of the Frogs of South Africa, Lesotho and Swaziland*. SI/MAB Series #9. Smithsonian Institution, Washington, DC.
 - 2 Minter L.R., Harrison J.A. and Burger M., Braack H.H. 2004. Introduction. Pp. 1–10. In: Minter L.R., Burger M., Harrison J.A., Braack H.H., Bishop P.J. and Kloepfer D., (eds). *Atlas and Red Data Book of the Frogs of South Africa, Lesotho and Swaziland*. SI/MAB Series #9. Smithsonian Institution, Washington, DC.
 - 1 Pickersgill M., Burger M. and Bishop P.J. 2004. *Afrixalus spinifrons*. Pp. 131–133. In: Minter L.R., Burger M., Harrison J.A., Braack H.H., Bishop P.J. and Kloepfer D., (eds). *Atlas and Red Data Book of the Frogs of South Africa, Lesotho and Swaziland*. SI/MAB Series #9. Smithsonian Institution, Washington, DC.

Appendix 6. Papers/posters presented at national and international symposia (* = presenter)

- 50 Burger M.* 2019. Searching for *Mertensophryne* in Ethiopia. Presentation at the 18th Meeting of the African Amphibian Working Group, George, South Africa.
- 49 Le Grange A.*, Burger M., da Silva J. and Tolley K.A. 2019. Sticky fingers: *Lygodactylus capensis* gets around South Africa. Presentation at the 14th Conference of the Herpetological Association of Africa, Cape St. Francis, South Africa.
- 48 Engelbrecht H.M.*, Branch W.R., Greenbaum E., Burger M., Conradie W. and Tolley K.A. 2019. Heralding a new systematic account of the snake genus *Crotaphopeltis*, with a special focus on the wide-ranging *C. hotamboeia* (Serpentes: Colubridae). Presentation at the 14th Conference of the Herpetological Association of Africa, Cape St. Francis, South Africa.
- 47 Burger M.* 2019. Herping in western Ethiopia. Presentation at the Stockholms Herpetologiska Förening 2019 Symposium, Stockholm, Sweden.
- 46 Burger M.* 2019. Herping in Gabon and Central African Republic. Presentation at the Stockholms Herpetologiska Förening 2019 Symposium, Stockholm, Sweden.
- 45 Burger M.* 2019. Herpetological surveys in the Republic of Congo. Presentation at the Stockholms Herpetologiska Förening 2019 Symposium, Stockholm, Sweden.
- 44 Burger M.* 2019. Southern African Reptile Conservation Assessment. Presentation at the Stockholms Herpetologiska Förening 2019 Symposium, Stockholm, Sweden.
- 43 Burger M.* 2019. Cape Platanna Project. Presentation at the Stockholms Herpetologiska Förening 2019 Symposium, Stockholm, Sweden.
- 42 Burger M.*, Zassi-Boulou A.G., Boukaka V., Kabafouako G., Mamonekene V., Miabangana E.S., Ngoulou C., Nsongola G., Jonker M., Niemand L., Orban B., Walsh G., Gaugris J., Channing A. and Rödel M.-O. 2017. The value of “standards” driven Environmental Impact Assessments for the advancement of biodiversity knowledge in the Republic of Congo. Presentation at the 17th Meeting of the African Amphibian Working Group, Kumasi, Ghana.
- 41 Bell R.C.*, Badjedjea G., Barej M.F., Blackburn D.C., Burger M., Channing A., Dehling J.M., Drewes R.C., Greenbaum E., Gvoždík V., Jongsma G., Kielgast J., Kusamba C., Lötters S., McLaughlin P.J., Nagy Z.T., Parra J.L., Rödel M.-O., Portik D.M., Stuart B.L., Van Der Wal J., Zassi-Boulou A.G. and Zamudio K.R. 2017. Amphibian diversification in the Gulf of Guinea archipelago. Presentation at the 17th Meeting of the African Amphibian Working Group, Kumasi, Ghana.
- 40 Snitily F.*, Gvozdik V., Modry D., Jirku M., Burger M. and Rödel M.-O. 2017. Amphibian diversity of Dzanga-Sangha, Central African Republic. Poster at the 17th Meeting of the African Amphibian Working Group, Kumasi, Ghana.
- 39 Broadley D.G., Tolley K.A., Conradie W., Wishart S., Trape J.-F., Burger M.*, Kusamba C., Greenbaum E. and Zassi-Boulou A.G. 2017. A phylogeny and genus-level revision of the African file snakes *Gonionotophis* Boulenger (Squamata: Lamprophiidae). Presentation at the 13th

Conference of the Herpetological Association of Africa, Bonamanzi, South Africa.

- 38 Engelbrecht H.*, Greenbaum E., Alexander G.J., Jackson K., Burger M., Conradie W., Branch W.R. and Tolley K.A. 2017. Species boundaries in African green and bush snakes (*Philothamnus*: Serpentes). Poster at the 13th Conference of the Herpetological Association of Africa, Bonamanzi, South Africa.
- 37 Rössler D.*, Kielgast J., Bell R., Greenbaum E., Dehling M., Gvozdik V., Nagy Z.T., Conradie W., McLaughlin P.J., Müller S., Burger M. and Lötters S. 2013. Frog Biogeography and Evolution in the Congo Basin: Some Preliminary Insight. Poster at the 17th European Congress of Herpetology and SEH Ordinary General Meeting, Veszprém, Hungary.
- 36 Channing A.*, Hillers A., Lötters S., Rödel M.-O., Schick S., Conradie W., Roedder D., Mercurio V., Wagner P., Dehling M., Du Preez L., Kielgast J. and Burger M. 2012. Taxonomy of the super-cryptic *Hyperolius nasutus* group of long reed frogs of Africa (Anura: Hyperoliidae), with descriptions of six new species. Presentation at the 7th World Congress of Herpetology, Vancouver, Canada.
- 35 Channing A.*, Schmitz A. and Burger M. 2011. Genetic history and advertisement call variation in Dainty frogs (*Cacosternum*). Presentation at the 16th European Congress of herpetology and 47 Deutscher Herpetologentag (DGHT), Luxembourg and Trier, Germany.
- 34 Burger M.*, Channing A. and Schmitz A. 2010. Configuring the dainty frogs (*Cacosternum*). Presentation at the 14th Meeting of the African Amphibian Working Group. Noordhoek, South Africa.
- 33 Burger M.* 2010. Who gives a hoot about the herps? Presentation at the 21st Conference and Annual General Meeting of the African Association of Zoos and Aquaria (PAAZAB), Gordons Bay, South Africa.
- 32 Burger M.*, De Villiers M. and Harrison J.A. 2008. Southern African Reptile Conservation Assessment: Taking Stock of a Rich Reptile Fauna. Presentation at the 6th World Conference of Herpetology, Manaus, Brazil.
- 31 De Villiers M.*, Burger M., Harrison J.A. and Navarro R.A. 2008. Virtually First: An Online Museum of Reptiles of South Africa, Lesotho and Swaziland. Poster at the 6th World Conference of Herpetology, Manaus, Brazil.
- 30 De Villiers M.*, Burger M., Alexander G., Bates M., Bauer A., Branch W. and Marais J. 2008. SARCA: The final countdown. Presentation at the 9th Conference of the Herpetological Association of Africa, Sterkfontein, South Africa.
- 29 Henderson* A., Lee M., Angehr G., Boddicker M., Burger M., Campbell P., Lahm S., McShea W., O'Brien C., Pauwels O.S.G., Dallmeier F., Alonso A., Comiskey J., Icochea J. and Solari S. 2007. Correlation patterns and species richness and local rarity at a regional scale: implications for protected area designation. Presentation at the 21st Annual Meeting of the Society for Conservation Biology, Port Elizabeth, South Africa.
- 28 Burger M.*, Alexander G., Branch W.R., Cunningham M., Erasmus B., Harrison J.A., Maritz B. and Tolley K.A. 2006. Southern African Reptile Conservation Assessment (SARCA). Presentation at the 8th Conference of the Herpetological Association of Africa, Potchefstroom, South Africa.
- 27 Harrison J.A.*, Burger M., Dorse C., Rothwell E., and Navarro R.A. 2006. Breeding and dispersal of Western Leopard Toads *Bufo pantherinus* in a suburban area: Implications for conservation of an endangered species. Poster at the 8th Conference of the Herpetological Association of Africa, Potchefstroom, South Africa.
- 26 Lot J.*, Kriel G.* and Burger M. 2006. Southern African Reptile Conservation Assessment (SARCA): An exciting way to learn more about South African Reptiles. Presentation at the Arid Zone Ecology Forum Conference, Kammieskroon, South Africa.
- 25 Burger M.* 2006. Southern African Frog Atlas Project. Presentation at the Sasol SciFest 2006, Grahamstown, South Africa.
- 24 Veith M.*, Burger M., Kosuch J., Lötters S., Rödel M.-O., Schmitz A. and Vences M. 2005. Beauty and the beast: The evolution of sexual colour polymorphism in Afrotropical tree frogs. Presentation at the 5th World Conference of Herpetology, Stellenbosch, South Africa.

- 23 Burger M.*, Pauwels O.S.G., Branch W.R., Lötters S. and Rödel M.-O. 2005. The Amphibia of Gabon: still a time for great discoveries. Poster at the 5th World Conference of Herpetology, Stellenbosch, South Africa.
- 22 Harrison J.A.* and Burger M. 2005. Conservation Assessment of the Reptiles in South Africa, Lesotho and Swaziland. Poster at the 5th World Conference of Herpetology, Stellenbosch, South Africa.
- 21 Tolley K.A.*, Burger M., Turner A.A. and Matthee C.A. 2005. Biogeographic history shows support for a radiation of dwarf chameleons in the Cape Fold Mountains, South Africa. Presentation at the South African Society for Systematic Biology, Goudini Spa, South Africa.
- 20 Tolley K.A.*, Burger M., Turner A.A. and Matthee C.A. 2004. Biogeographic history shows support for a radiation of dwarf chameleons in the Cape Fold Mountains, South Africa. Presentation at the 7th Conference of the Herpetological Association of Africa, Port Elizabeth, South Africa.
- 19 Tolley K.A.* and Burger M. 2004. Mitochondrial DNA sequencing as a tool for unravelling the taxonomic and distributional complexities of dwarf chameleons in the eastern Cape Floristic Region. Poster at the 7th Conference of the Herpetological Association of Africa, Port Elizabeth, South Africa.
- 18 Tolley K.A.* and Burger M. 2004. Mitochondrial DNA sequencing as a tool for unravelling the taxonomic and distributional complexities of dwarf chameleons in the eastern Cape Floristic Region. Poster at the Fynbos Forum, South Africa.
- 17 Burger M., Navarro R.A. and Harrison J.A. 2003. Southern African Frog Atlas Project. Poster at the Zoological Society of South Africa Conference, University of Cape Town, South Africa.
- 16 Burger M.*, Channing A. and Underhill L.G. 2002. The use of call analyses to identify cryptic species of dainty frogs within the *Cacosternum nanum* and *C. boettgeri* complexes in the Eastern Cape and KwaZulu-Natal. Presentation at the 11th Meeting of the African Amphibian Working Group, Watamu, Kenya.
- 15 Burger M.* and Harrison J.A. 2001. The state of southern Africa's Amphibia. Presentation at The state of South Africa's species – an Endangered Wildlife Trust conference, Johannesburg, South Africa.
- 14 Channing A.* and Burger M. 2001. The declining amphibian problem: Africa and Madagascar. Presentation at the Meeting of the combined meeting of the Society for the Study of Amphibians and Reptiles and the Herpetologists League, Indianapolis, USA.
- 13 Burger M., Navarro R.A. and Harrison J.A. 2001. Southern African Frog Atlas Project. Poster at the 6th Conference of the Herpetological Association of Africa, Stellenbosch, South Africa.
- 12 Minter L.*, Burger M.* and Harrison J.A. 1999. Progress and interim results of the Southern African Frog Atlas Project. Presentation at the 10th Meeting of the African Amphibian Working Group, Stellenbosch, South Africa.
- 11 Harrison J.A.* and Burger M.* 1998. The Southern African Frog Atlas Project: Progress to date. Presentation at the 5th Conference of the Herpetological Association of Africa, Stellenbosch, South Africa.
- 10 Fabricius C.* and Burger M. 1996. The participation of local communities in conservation research projects in the Eastern Cape – Two case studies. Presentation at the Royal Society of South Africa, Cape Town, South Africa.
- 9 Fabricius C.*, Burger M., Allsopp N., La Cock G. and Gerber G. 1996. Towards an understanding of the degradation of Xeric Succulent Thicket. Presentation at the Grassland Society of Southern Africa, Nelspruit, South Africa.
- 8 Fabricius C., Ainslie A. and Burger M. 1995. A provisional model for sustainable natural resource in developing countries. Poster at the International Rangelands Conference, Salt Lake City, USA.
- 7 Burger M.* 1995. Amphibians and reptiles in the exotic pet trade. Presentation at the 4th Conference of the Herpetological Association of Africa, St. Lucia, South Africa.

- 6 Fabricius C.*, Ainslie A. and Burger M. 1995. A state and transitional model for sustainable development in Valley Bushveld. Presentation at the Symposium on sustainable utilization of Valley Bushveld, Thomas Baines Nature Reserve, South Africa.
- 5 Fabricius C.* and Burger M. 1995. Faunal biodiversity in arid savannas: Are we asking the right questions? Presentation at the Arid Zone Ecology Forum, Kimberley, South Africa.
- 4 Fabricius C.* and Burger M. 1994: Cultural complexity can contribute to ecological and socio-economic resilience in Africa. Presentation at the Grassland Society of Zimbabwe, Harare, Zimbabwe.
- 3 Burger M. *, Boycott R.C. and Smith R.B.T. 1993: The herpetofauna of the Formosa Conservation Area. Presentation at the 3rd Conference of the Herpetological Association of Africa, Pretoria, South Africa.
- 2 Fabricius C.* and Burger M. 1993. The effect of land management styles on landscape patchiness in savannas. Presentation at the Biodiversity in Practice Symposium, Port Elizabeth, South Africa.
- 1 Burger M.* and Branch W.R. 1991. Tortoise mortality along an electrified fence in the Thomas Baines Nature Reserve, Eastern Cape. Presentation at the 2nd Conference of the Herpetological Association of Africa, Bloemfontein, South Africa.

herewith certifies that

Marius Burger

Registration Number: 130600

is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following field(s) of practice (Schedule 1 of the Act)

Zoological Science (Professional Natural Scientist)
Ecological Science (Professional Natural Scientist)

Effective **5 May 2021**

Expires **31 March 2023**



Chairperson

Chief Executive Officer



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Profession: Ecologist & Environmental Assessment Practitioner (Pr. Sci. Nat. 400268/07)

Member of the South African Wetland Society

Specialisation: Ecology and conservation importance rating of inland habitats, wetlands, rivers & estuaries

Years experience: 25 years

SKILLS BASE AND CORE COMPETENCIES

- 25 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) for Reserve Determinations, 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. Current projects also span all nine provinces in South Africa.
- 15 years experience in the coordination and management of multi-disciplinary teams, such as specialist teams for small to large scale EIAs and environmental monitoring programmes, throughout Africa and inclusive of marine, coastal and inland systems. This includes project and budget management, specialist team management, client and stakeholder engagement and project reporting.
- GIS mapping and sensitivity analysis

TERTIARY EDUCATION

- 1994: B Sc Degree (Botany & Zoology) - NMU
- 1995: B Sc Hon (Zoology) - NMU
- 1996: M Sc (Botany - Rivers) - NMU
- 2000: Ph D (Botany – Estuaries & Mangroves) – NMU

EMPLOYMENT HISTORY

- 1996 – 2000 Researcher at Nelson Mandela University – SAB institute for Coastal Research & Management. Funded by the WRC to develop estuarine importance rating methods for South African Estuaries
- 2001 – January 2003 Training development officer AVK SA (reason for leaving – sought work back in the environmental field rather than engineering sector)
- February 2003- June 2005 Project manager & Ecologist for Strategic Environmental Focus (Pretoria) – (reason for leaving – sought work related more to experience in the coastal environment)
- July 2005 – June 2009 Principal Environmental Consultant Coastal & Environmental Services (reason for leaving – company restructuring)
- June 2009 – August 2018 Owner / Ecologist of Scherman Colloty & Associates cc
- August 2018 Owner / Ecologist - EnviroSci (Pty) Ltd

SELECTED RELEVANT PROJECT EXPERIENCE

World Bank IFC Standards

- Kenmare Mining Piliivilli, Mozambique - wetland (mangroves, peatlands and estuarine) assessment and biodiversity offset analysis - current
- Botswana South Africa 400kv transmission line (400km) biodiversity assessment on behalf of Aurecon - current
- Farim phosphate mine and port development, Guinea Bissau – biodiversity and estuarine assessment on behalf of Knight Piesold Canada – 2016.
- Tema LNG offshore pipeline EIA – marine and estuarine assessment for Quantum Power (2015).
- Colluli Potash South Boulder, Eritrea, SEIA marine baseline and hydrodynamic surveys co-ordinator and coastal vegetation specialist (coastal lagoon and marine) (on-going).
- Wetland, estuarine and riverine assessment for Addax Biofuels Sierra Leone, Makeni for Coastal & Environmental Services: 2009
- ESHIA Project manager and long-term marine monitoring phase coordinator with regards the dredge works required in Luanda bay, Angola. Monitoring included water quality and biological changes in the bay and at the offshore disposal outfall site, 2005-2011

South African

- Plant and animal search and rescue for the Karusa and Soetwater Wind Farms on behalf of Enel Green Power, Current
- Plant and animal search and rescue for the Nxuba, Oyster Bay and Garob Wind Farms on behalf of Enel Green Power, 2018 - 2019
- Plant and Animal Search and Rescue for the Port of Ngqura, Transnet Landside infrastructure Project, with development and management of on site nursery, Current
- Plant and Animal Search and Rescue for the Port of Ngqura, OTGC Tank Farm Project (2019)
- Plant search and rescue, for NMBM (Driftsands sewer, Glen Hurd Drive), Department of Social Development (Military veterans housing, Despatch) and Nxuba Wind Farm, - current
- Wetland specialist appointed to update the Eastern Cape Biodiversity Conservation Plan, for the Province on behalf of EOH CES appointment by SANBI – current. This includes updating the National Wetland Inventory for the province, submitting the new data to CSIR/SANBI.
- CDC IDZ Alien eradication plans for three renewable projects Coega Wind Farm, Sonop Wind Farm and Coega PV, on behalf of JG Afrika (2016 – 2017).
- Nelson Mandela Bay Municipality Baakens River Integrated Wetland Assessment (Inclusive of Rehabilitation and Monitoring Plans) for CEN IEM Unit - Current
- Rangers Biomass Gasification Project (Uitenhage), biodiversity and wetland assessment and wetland rehabilitation / monitoring plans for CEM IEM Unit – 2017
- Gibson Bay Wind Farm implementation of the wetland management plan during the construction and operation of the wind farm (includes surface / groundwater as well wetland rehabilitation & monitoring plan) on behalf of Enel Green Power - 2018
- Gibson Bay Wind Farm 133kV Transmission Line wetland management plan during the construction of the transmission line (includes wetland rehabilitation & monitoring plan) on behalf of Eskom – 2016.
- Tsitsikamma Community Wind Farm implementation of the wetland management plan during the construction of the wind farm (includes surface / biomonitoring, as well wetland rehabilitation & monitoring plan) on behalf of Cennergi – completed May 2016.
- Alicedale bulk sewer pipeline for Cacadu District, wetland and water quality assessment, 2016
- Mogalakwena 33kv transmission line in the Limpopo Province, on behalf of Aurecon, 2016
- Cape St Francis WWTW expansion wetland and passive treatment system for the Kouga Municipality, 2015
- Macindane bulk water and sewer pipelines wetland and wetland rehabilitation plan 2015
- Eskom Prieska to Copperton 132kV transmission line aquatic assessment, Northern Cape on behalf of Savannah Environmental 2015.
- Joe Slovo sewer pipeline upgrade wetland assessment for Nelson Mandela Bay Municipality 2014
- Cape Recife Waste Water Treatment Works expansion and pipeline aquatic assessment for Nelson Mandela Bay Municipality 2013
- Pola park bulk sewer line upgrade aquatic assessment for Nelson Mandela Bay Municipality 2013
- Transnet Freight Rail – Swazi Rail Link (Current) wetland and ecological assessment on behalf of Aurecon for the proposed rail upgrade from Ermelo to Richards Bay
- Eskom Transmission wetland and ecological assessment for the proposed transmission line between Pietermaritzburg and Richards Bay on behalf of Aurecon (2012).
- Port Durnford Exxaro Sands biodiversity assessment for the proposed mineral sands mine on behalf of Exxaro (2009)
- Fairbreeze Mine Exxaro (Mtunzini) wetland assessment on behalf of Strategic Environmental Services (2007).
- Wetland assessment for Richards Bay Minerals (2013) – Zulti North haul road on behalf of RBM.
- Biodiversity and aquatic assessments for 118 renewable projects in the past 9 years in the Western, Eastern, Northern Cape, KwaZulu-Natal and Free State provinces. Clients included RES-SA, Red Cap, 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, Cennergi / Exxaro, WKN Wind current, ACED, 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)
- Proposed FibreCo fibre optic cable vegetation assessment along the PE to George, George to Graaf Reinet, PE to Colesburg, and East London to Bloemfontein on behalf of SRK (2013-2015).



herewith certifies that

Brian Michael Colloty

Registration Number: 400268/07

is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following field(s) of practice (Schedule 1 of the Act)

Ecological Science (Professional Natural Scientist)

Effective **7 November 2007**

Expires **31 March 2023**



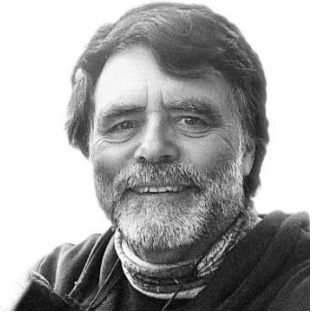
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Chairperson

A handwritten signature in black ink, appearing to read 'M. J. ...', is written over a horizontal line.

Chief Executive Officer





PO Box 331, Groenkloof, 0027
Cell: 27 82 462 1491
grahamyounlandarch@gmail.com

VISUAL IMPACT ASSESSMENTS

Graham Young is a professionally registered (SACLAP) landscape architect with an interest and experience in landscape architecture, urban design, and environmental planning. He holds degrees in landscape architecture from the Universities of Toronto (BL) and Pretoria (ML). Graham has carried out visual impact assessments in Canada and Africa. He has served as President of the Institute of Landscape Architects of South Africa (ILASA) and as Vice President of the Board of Control for Landscape Architects.

He runs his practice, Graham A Young Landscape Architect (GYLA), which is a Level Four (4) contributor with 100% B-BBEE procurement recognition. The firm focuses on visual impact assessments, for which Graham was awarded an ILASA Merit Award in 1999. This work includes landscape characterization/sensitivity studies, computer modelling and visualization. He has completed over 350 visual impact specialist reports for projects in South Africa, Canada and other African countries and conducted several specialist reports reviews. Graham has been a specialist witness in legal cases involving visual impact issues. He helped develop the *Guideline for Involving Visual and Aesthetic Specialists in EIA Processes* (with Oberholzer 2005) and produced a research document for Eskom, *The Visual Impacts of Power Lines* (2009). In 2011 he wrote the 'Guidelines for involving visual and aesthetic specialists' for the Aapravasi Ghat Trust Fund Technical Committee, which manages a World Heritage Site in Mauritius, along with the *Visual Impact Assessment Training Module Guideline Document* for the same client.

During his 40+ year career, he has received many ILASA and other international design awards. Graham has written widely and presented on landscape architectural and visual impact issues and has had projects published locally and internationally in design journals and books. He recently retired as a Senior Lecturer from the University of Pretoria, Department of Architecture, where he taught landscape architecture and urban design at post and undergraduate levels.

Graham is a Fellow of ILASA, and in 2022 he was awarded its Lifetime Achievement Award. He is the managing editor of the online journal, the African Journal of Landscape Architecture and the President of the International Federation of Landscape Architects, Africa Region (IFLA Africa).

*** GYLA ***



REGISTRATION CERTIFICATE

THIS IS TO CERTIFY THAT

Graham Albert Young

IS REGISTERED AS A

Professional Landscape Architect

in terms of the regulations of Section 19(2)(a) of the Landscape Architectural Profession Act, 2000 (Act No.45 of 2000)

REGISTER PARTICULARS

REGISTRATION NUMBER: 87001
ID NUMBER: 5302235681082
REGISTRATION RENEWAL DATE: 2025-08-01
CERTIFICATE SERIAL NUMBER: PRCL 2008077
CERTIFICATE DATE OF ISSUE: 2020-08-24

CONTACT DETAILS

EMAIL ADDRESS: gra*amy*ung*and*hch@*mal*.com
MOBILE: 082 *62 1*91

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Mr T. M. Munyai
PRESIDENT

Mrs C. E. Chinga
REGISTRAR



SACLAP has confirmed the above information, for digital certification and sharing by PrivySeal Limited, at 13:52 PM (Africa/Johannesburg) on 02 Sep 2020



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Johann Lanz
Curriculum Vitae

Education

M.Sc. (Environmental Geochemistry)	University of Cape Town	1996 - 1997
B.Sc. Agriculture (Soil Science, Chemistry)	University of Stellenbosch	1992 - 1995
BA (English, Environmental & Geographical Science)	University of Cape Town	1989 - 1991
Matric Exemption	Wynberg Boy's High School	1983

Professional work experience

I have been registered as a Professional Natural Scientist (Pri.Sci.Nat.) in the field of soil science since 2012 (registration number 400268/12) and am a member of the Soil Science Society of South Africa.

Soil & Agricultural Consulting Self employed 2002 - present

Within the past 5 years of running my soil and agricultural consulting business, I have completed more than 170 agricultural assessments (EIAs, SEAs, EMPRs) in all 9 provinces for renewable energy, mining, electrical grid infrastructure, urban, and agricultural developments. I was the appointed agricultural specialist for the nation-wide SEAs for wind and solar PV developments, electrical grid infrastructure, and gas pipelines. My regular clients include: Zutari; CSIR; SiVEST; SLR; WSP; Arcus; SRK; Environamics; Royal Haskoning DHV; ABO; Enertrag; WKN-Windcurrent; JG Afrika; Mainstream; Redcap; G7; Mulilo; and Tiptrans. Recent agricultural clients for soil resource evaluations and mapping include Cederberg Wines; Western Cape Department of Agriculture; Vogelfontein Citrus; De Grendel Estate; Zewenwacht Wine Estate; and Goedgedacht Olives.

In 2018 I completed a ground-breaking case study that measured the agricultural impact of existing wind farms in the Eastern Cape.

Soil Science Consultant Agricultural Consultors International (Tinie du Preez) 1998 - 2001

Responsible for providing all aspects of a soil science technical consulting service directly to clients in the wine, fruit and environmental industries all over South Africa, and in Chile, South America.

Contracting Soil Scientist De Beers Namaqualand Mines July 1997 - Jan 1998

Completed a contract to advise soil rehabilitation and re-vegetation of mined areas.

Publications

- Lanz, J. 2012. Soil health: sustaining Stellenbosch's roots. In: M Swilling, B Sebitosi & R Loots (eds). *Sustainable Stellenbosch: opening dialogues*. Stellenbosch: SunMedia.
- Lanz, J. 2010. Soil health indicators: physical and chemical. *South African Fruit Journal*,

April / May 2010 issue.

- Lanz, J. 2009. Soil health constraints. *South African Fruit Journal*, August / September 2009 issue.
- Lanz, J. 2009. Soil carbon research. *AgriProbe*, Department of Agriculture.
- Lanz, J. 2005. Special Report: Soils and wine quality. *Wineland Magazine*.

I am a reviewing scientist for the *South African Journal of Plant and Soil*.



herewith certifies that

Johan Lanz

Registration Number: 400268/12

is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following field(s) of practice (Schedule 1 of the Act)

Soil Science (Professional Natural Scientist)

Effective **15 August 2012**

Expires **31 March 2023**



A handwritten signature in black ink, appearing to read 'Botha', is written over a horizontal line.

Chairperson

A handwritten signature in black ink, appearing to read 'M. ...', is written over a horizontal line.

Chief Executive Officer





Curriculum Vitae

Jayson David John Orton

ARCHAEOLOGIST AND HERITAGE CONSULTANT

Contact Details and personal information:

Address: 23 Dover Road, Muizenberg, 7945
Telephone: (021) 788 1025
Cell Phone: 083 272 3225
Email: jayson@asha-consulting.co.za

Birth date and place: 22 June 1976, Cape Town, South Africa
Citizenship: South African
ID no: 760622 522 4085
Driver's License: Code 08
Marital Status: Married to Carol Orton
Languages spoken: English, Afrikaans, basic French

Education:

SA College High School	Matric	1994
University of Cape Town	B.A. (Archaeology, Environmental & Geographical Science)	1997
University of Cape Town	B.A. (Honours) (Archaeology) [First Class]	1998
University of Cape Town	M.A. (Archaeology)	2004
University of Oxford	D.Phil. (Archaeology)	2013

Employment History:

Spatial Archaeology Research Unit, UCT	Research assistant	Jan 1996 – Dec 1998
Department of Archaeology, UCT	Field archaeologist	Jan 1998 – Dec 1998
UCT Archaeology Contracts Office	Field archaeologist	Jan 1999 – May 2004
UCT Archaeology Contracts Office	Heritage & archaeological consultant	Jun 2004 – May 2012
School of Archaeology, University of Oxford	Undergraduate Tutor	Oct 2008 – Dec 2008
ACO Associates cc	Associate, Heritage & archaeological consultant	Jan 2011 – Dec 2013
ASHA Consulting (Pty) Ltd	Director, Heritage & archaeological consultant	Jan 2014 –

Professional Accreditation:

- Association of Southern African Professional Archaeologists (ASAPA) membership number: 233
- ASAPA CRM Section member with the following accreditation:
 - Principal Investigator: Coastal shell middens (awarded 2007)
Stone Age archaeology (awarded 2007)
Grave relocation (awarded 2014)
 - Field Director: Rock art (awarded 2007)
Colonial period archaeology (awarded 2007)
- Association of Professional Heritage Practitioners (APHP) membership number: 43
 - Accredited Professional Heritage Practitioner

Memberships and affiliations:

- South African Archaeological Society Council member 2004 – 2016
- Assoc. Southern African Professional Archaeologists (ASAPA) member 2006 –
- UCT Department of Archaeology Research Associate 2013 – 2017
- Heritage Western Cape APM Committee member 2013 –
- UNISA Department of Archaeology and Anthropology Research Fellow 2014 –
- Fish Hoek Valley Historical Association 2014 –
- Kalk Bay Historical Association 2016 –
- Association of Professional Heritage Practitioners member 2016 –

Fieldwork and project experience:

Extensive fieldwork and experience as both Field Director and Principle Investigator throughout the Western and Northern Cape, and also in the western parts of the Free State and Eastern Cape as follows:

Feasibility studies:

Heritage feasibility studies examining all aspects of heritage from the desktop

Phase 1 surveys and impact assessments:

- Project types
 - Notification of Intent to Develop applications
 - Heritage Impact Assessments
 - Self-standing assessments under Section 38(1) of the NHRA
 - Assessments under NEMA and Section 38(8) of the NHRA
 - Archaeological specialist studies
 - Strategic assessments
 - Phase 1 archaeological test excavations in historical and prehistoric sites
 - Archaeological research projects
- Development types
 - Mining and borrow pits
 - Roads (new and upgrades)
 - Residential, commercial and industrial development
 - Agricultural developments
 - Dams and pipe lines
 - Power lines and substations
 - Renewable energy facilities (wind, solar and hydro-electric)

Phase 2 mitigation and research excavations:

- ESA open sites
 - Duinefontein, Gouda, Namaqualand
- MSA rock shelters
 - Fish Hoek, Yzerfontein, Cederberg, Namaqualand
- MSA open sites
 - Swartland, Bushmanland, Namaqualand
- LSA rock shelters
 - Cederberg, Namaqualand, Bushmanland
- LSA open sites (inland)
 - Swartland, Franschoek, Namaqualand, Bushmanland
- LSA coastal shell middens
 - Melkbosstrand, Yzerfontein, Saldanha Bay, Paternoster, Dwarskersbos, Infanta, Knysna, Namaqualand
- LSA burials
 - Melkbosstrand, Saldanha Bay, Namaqualand, Knysna
- Historical sites
 - Franschoek (farmstead and well), Waterfront (fort, dump and well), Noordhoek (cottage), variety of small excavations in central Cape Town and surrounding suburbs
- Historic burial grounds
 - Green Point (Prestwich Street), V&A Waterfront (Marina Residential), Paarl

Awards:

1998: Frank Schweitzer memorial book prize for an outstanding student.

2015/2016: Western Cape Government Cultural Affairs Awards: Best Heritage Project.

SHORT CV OF AUTHOR

Dr John Almond has an Honours Degree in Natural Sciences (Zoology) as well as a PhD in Palaeontology from the University of Cambridge, UK. He has been awarded post-doctoral research fellowships at Cambridge University and the University of Tübingen in Germany, and has carried out palaeontological research in Europe, North America, the Middle East as well as North and South Africa and Madagascar. For eight years he was a scientific officer (palaeontologist) for the Geological Survey / Council for Geoscience in the RSA. His current palaeontological research focuses on fossil record of the Precambrian - Cambrian boundary and the Cape Supergroup of South Africa. He has recently written palaeontological reviews for several 1: 250 000 geological maps published by the Council for Geoscience and has contributed educational material on fossils and evolution for new school textbooks in the RSA.

Since 2002 Dr Almond has also carried out numerous palaeontological impact assessments for developments and conservation areas in the Western, Eastern and Northern Cape, Limpopo, Northwest Province, Mpumalanga, Gauteng, KwaZulu-Natal and the Free State under the aegis of his Cape Town-based company *Natura Viva* cc. He has served as a member of the Archaeology, Palaeontology and Meteorites Committee for Heritage Western Cape (HWC) and an advisor on palaeontological conservation and management issues for the Palaeontological Society of South Africa (PSSA), HWC and SAHRA. He is currently compiling technical reports on the provincial palaeontological heritage of Western, Northern and Eastern Cape for SAHRA and HWC. Dr Almond is an accredited member of PSSA and APHP (Association of Professional Heritage Practitioners – Western Cape).

Declaration of Independence

I, John E. Almond, declare that I am an independent consultant and have no business, financial, personal or other interest in the proposed development project, application or appeal in respect of which I was appointed other than fair remuneration for work performed in connection with the activity, application or appeal. There are no circumstances that compromise the objectivity of my performing such work.



Dr John E. Almond
Palaeontologist
***Natura Viva* cc**

CURRICULUM VITAE



STUART HEATHER-CLARK

TECHNICAL DIRECTOR
AFRICA POWER SECTOR LEAD

Environmental Management Planning & Approvals,
Africa

QUALIFICATIONS

Masters	1996	Environmental Science
BSc (Hons)	1992	Civil Engineering
EAPASA	2019	Registered Environmental Assessment Practitioner SA # 2019/613

EXPERTISE

- Environmental and Social Impact Assessment
- Environmental Management Plans/Programmes
- Public Participation & Facilitation
- Environmental & Social Due Diligence
- Environmental & Social Screening & Site Selection
- Training and Capacity Building
- Strategic Environmental Assessment

Stuart has over 24 years of environmental and social consulting experience in Africa. Having worked on over 130 development projects in Africa, his key strength is identifying and managing ESG risks for major capital projects from the concept phase through to the pre-feasibility, feasibility and implementation phases.

Through leading Environmental & Social Screening Studies, Environmental & Social Impact Assessments and Environmental & Social Due Diligences for major capital project in over 13 African countries; Stuart has developed a deep appreciation of key sustainability challenges facing development in Africa. He has excellent project management skills with the ability to manage projects from the concept phase through to project completion.

Stuart has worked for and with a number of IFI's, DFI's and PE firms to identify and managing ESG risks of their investments in Africa. He has an integral knowledge of the Equator Principles and IFC Performance Standards and understands the expectations of lenders and financial institutions when it comes to managing ESG risks.

Stuart has worked across various sectors including O&G, mining, infrastructure and power. Over the past ten years he has focussed on the power sector leading projects for wind farms, solar PV plants, hydropower plants and gas to power plants. More recently he has advised various clients on the regulatory challenges for green hydrogen projects in Southern Africa.

PROJECTS

All Sectors

ESIA for a 2GW solar PV plant and associated Green Hydrogen Project, South Africa, Confidential Client (2021-22)

Project Director for an ESIA for a Green Hydrogen project including 2GW solar PV generation, transmission, desalination plant, water pipeline, electrolysis and hydrogen storage, ammonia production and storage and associated port facilities.

ESIA for full scale Hydrogen Production Facility on the Mogalakwena Platinum Mine in South Africa (2022)

Project Director for an ESIA for the Anglo American's Full Scale Hydrogen Production Plant at Mogalakwena Platinum Mine in South Africa. The project forms part of Anglo American's NuGen™ programme as part of their FutureSmart Mining™ programme in order to develop a hydrogen-powered mining truck fleet in collaboration with leading fuel cell, electrolyser, battery and engineering firms.

<p>ESIA for a Hybrid Solar PV-BESS-Green Hydrogen Fuel Cell Power Plant in Swakopmund, Namibia (2022)</p>	<p>Project Director for an ESIA for the establishment of the Renewstable® Swakopmund project, that will generate consistent, reliable, and clean renewable power from an intermittent source of energy. The Hybrid Power Plant consists of a 85 MW solar PV plant, Battery Energy Storage System, a desalination plant, electrolysis plant, hydrogen storage, a 6MW hydrogen fuel cell, substations and transmission lines.</p>
<p>Environmental and Social Alternatives Assessment for a 5GW Green Hydrogen Project, Namibia, Confidential Client (2022)</p>	<p>Project Director for an Environmental and Social Alternatives Assessment for a 5GW Green Hydrogen Project, Namibia. The project includes 5GW's of wind and solar PV generation, battery energy storage, transmission, desalination plant, water pipeline, electrolysis and hydrogen storage, ammonia production and storage and associated port facilities.</p>
<p>Regulatory Review for the permitting of green hydrogen and ammonia projects in South Africa, Confidential Client (2021)</p>	<p>Project Director for the regulatory review for permitting of green hydrogen and ammonia projects in South Africa.</p>
<p>Environmental and Social Screening and constraints mapping for a 5GW green hydrogen project, Namibia, Confidential Client (2021)</p>	<p>Project Director for an environmental and social screening and constraints mapping for green hydrogen project in response to the Namibian Governments RFP to conduct feasibility activities within the Tsau//Khaeb (Sperrgebiet) National Park for Renewable Wind Energy. NIPDB/RFP/SCDI/2021-001.</p>
<p>Position Paper of the green hydrogen market in South Africa, Confidential Client (2021)</p>	<p>Researcher and lead author for a position paper on the green hydrogen market in South Africa including global trends and South African environmental regulatory requirements.</p>
<p>ESIA for four 250MW wind energy facilities and associated transmission lines, Red Cap (2021)</p>	<p>Project Director for the ESIA for 4 x 250MW wind energy facilities and associated transmission line. The ESIA includes terrestrial and aquatic biodiversity, avifauna and bat monitoring, visual, social and heritage baseline studies, stakeholder engagement and compilation of an ESIA Report and ESMP.</p>
<p>Environmental and Social Screening Study for a Wind Energy Facility to provide power to a green hydrogen facility, Confidential Client (2021)</p>	<p>Project Director for an Environmental and Social Screening Study for a Wind Energy Facility to provide power to a green hydrogen facility on the east coast of South Africa.</p>
<p>E&S Advisory (RMIPPPP) for the establishment of a 450MW OCGT Power Plant in Richards Bay, Confidential Client, (2020)</p>	<p>Project Director for advisory services for the development of a 450MW LPG OCGT Power Plant in Richards Bay. Advisory services included the review of the Final Scoping Report and all associated documents.</p>
<p>Environmental Authorisation Amendment (RMIPPPP) for a 1500MW OCGT/CCGT Power Plant in Atlantis, Confidential Client, South Africa (2020)</p>	<p>Project Director for the Amendment of the Environmental Authorisation for the change of the project from an 1500MW OCGT/CCGT Power Plant using LNG as a fuel source, to a 400MW OCGT power plant using LPG as a fuel source. EA Amendment includes undertaking revised air quality, noise, risk assessment, climate change, flora and heritage studies. Process includes stakeholder engagement.</p>

<p>Environmental Authorisation Review (RMIPPPPP) for a 1507MW OCGT/CCGT Power Plant in Saldanha Bay, Confidential Client, South Africa (2020)</p>	<p>Project Director for the review of the Environmental Authorisation for the change of Phase 1 of the project from OCGT Power Plant using LNG as a fuel source, to a OCGT power plant using LPG as a fuel source. EA Amendment includes undertaking revised air quality, noise, risk assessment, climate change, flora and heritage studies. Process includes stakeholder engagement.</p>
<p>ESIA for 4 x 100MW solar PV plants and associated transmission lines, Freestate, South Africa, Confidential client, (2020 - 21)</p>	<p>Project Director for the ESIA for 4 x 100MW solar PV Plants associated transmission line. The ESIA includes terrestrial and aquatic biodiversity, avifauna, visual, social and heritage baseline studies, stakeholder engagement and compilation of an ESIA Report and ESMP.</p>
<p>Environmental and Social Impact Assessment for a 20MW solar PV plant and transmission line, Gigawatt Global, Liberia, (2020)</p>	<p>Project Director for the ESIA a 20MW solar PV plant and associated transmission line. The ESIA includes biodiversity, social and heritage baseline studies, stakeholder engagement and compilation of an ESIA Report and ESMP. The ESIA will be aligned with the IFC Performance Standards.</p>
<p>ESIA for an 80-200 MW wind farm development, Mphepo Power, Zambia (2019-20)</p>	<p>Project Director for the ESIA for the development of a wind farm in Zambia. The ESIA included terrestrial and aquatic, social, heritage, noise and visual baseline studies, stakeholder engagement and compilation of an ESIA Report and ESMP. The ESIA was aligned with the IFC Performance Standards.</p>
<p>Environmental and Social Impact Assessment for a Road Upgrade, QGMI, Ghana, (2019-20)</p>	<p>Project Director for the Scoping Phase of the Environmental and Social Impact Assessment process for the proposed Winneba Obetsebi-Lamptey Flyover (Phase 2) project in Accra, Ghana in collaboration with local consultants. The project included additional visual impact assessment, air quality modelling and noise modelling. All work undertaken to IFC Performance Standards.</p>
<p>Environmental and Social Impact Assessment (ESIA) for the Gamsberg Mine Zinc Smelter, Black Mountain Mine (Vedanta), South Africa (2019-20)</p>	<p>Project Director for the ESIA for a new zinc smelter and associated infrastructure to beneficiate the 250 000 to 300 000 tpa of zinc concentrate produced at the Gamsberg Zinc Mine Phase-1 concentrator plant. The ESIA included extensive baseline studies including biodiversity, social, air quality, noise, visual, hydrology, geohydrology, and climate change. The process included extensive stakeholder engagement during the scoping and impact assessment phase.</p>
<p>ESIA Scoping Phase for the desalination plant and water carrier system, NamWater, Windhoek Namibia (2019-20)</p>	<p>Team member for the ESIA Scoping Phase for the proposed desalination plant and water carriage system to secure water supply to the central coast, Windhoek and en-route users. The Scoping Process included extensive stakeholder engagement and the Scoping Report was aligned with the KfW Sustainability Guidelines and World Bank Environmental and Social Standards.</p>
<p>Environmental & Social Due Diligence for 5MW solar PV plant, Confidential Client, Namibia (2019)</p>	<p>Project Director for an Environmental and Social (E&S) Due Diligence (Red Flags only) of a 5 MW solar PV facility located near Outapi, Namibia.</p>
<p>Environmental & Social Screening Study for 20MW solar PV plant, CIGenCo, Eswatini (2019)</p>	<p>Project Director for an Environmental and Social (E&S) Screening Study of two potential sites for development of solar PV projects as part of CIGenCo's bid as part of the Eswatini Independent Power Producers Policy (ESIPPP).</p>

<p>Permitting Strategy and Planning for the Rovuma LNG Project in Mozambique, ExxonMobil, Mozambique (2018-2019)</p>	<p>Team member supporting Exxon with the permitting strategy and plans for the Rovuma LNG Project in northern Mozambique.</p>
<p>Environmental and Social Impact Assessment (ESIA) Gap Analysis for a 50MW solar PV Plant, Volt Renewable, Zimbabwe (2018)</p>	<p>Environmental lead for the review of the locally approved EIA against the IFC Performance Standards. Gaps were identified and an Environmental and Social Action Plan (ESAP) developed to close the gaps.</p>
<p>Environmental and Social Impact Assessment (ESIA) Gap Analysis for a 5-star hotel development, Motal-Engil, Zimbabwe (2018)</p>	<p>Environmental lead for the review of the locally approved EIA against the IFC Performance Standards. Gaps were identified and an Environmental and Social Action Plan (ESAP) developed to close the gaps.</p>
<p>Environmental and Social Screening Study for a 100MW hybrid HFO and Solar PV Power Plant for a mine in Mali, Confidential client (2018)</p>	<p>Environmental lead for the screening of environmental and social risks for the development of a solar PV plant on a mine in Mali.</p>
<p>Environmental and Social Screening Study for 3 x 40MW solar PV plants, Confidential Client, GETFIT Zambia (2018)</p>	<p>Project Manager for an environmental and social screening study for 3 x solar PV sites in Zambia. The Screening Study included the review of desk top information and site visits to assess environmental and social risks. A comparative analysis was undertaken to select the site with the least environmental and social risks. This was combined with the technical analysis to select the preferred site to be taken into more detailed studies.</p>
<p>Environmental and Social Impact Assessment for a 40MW solar PV farm for Goldfield's South Deep Mine, Enel Green Power, South Africa (2017)</p>	<p>Project Director for an Environmental and Social Impact Assessment for a 40MW solar PV plant for Goldfield's South Deep Mine in South Africa. The study included scoping and stakeholder engagement, various specialist studies and the compilation of an ESIA Report and ESMP.</p>
<p>Environmental and Social Impact Assessment for 2 run-of-river Hydropower Plants and associated transmission lines in Northern Zambia, Globeleq, Zambia (2017)</p>	<p>Project Director for an Environmental and Social Impact Assessment for 2 run-of-river hydropower plants and associated transmission lines on the Kalungwishi River in Northern Zambia. The study included scoping and stakeholder engagement, various specialist studies including environmental flow, heritage, social, biodiversity, visual, noise and other studies. All work was undertaken to IFC Performance Standards. The project was put on hold after the baseline and Scoping Phase.</p>
<p>Environmental and Social Screening Study for an 212MW HFO Power Plant, Confidential Client, Angola (2017)</p>	<p>Project Director for an Environmental and Social Screening Study for a 212MW HFO Power Plant in Angola. The study included noise and air quality baseline sampling, soil and groundwater baseline sampling, community health screening, and the compilation of a detail legal register and compliance road map.</p>

Environmental and Social Screening Study for a Hydropower Plant in Gabon, Confidential Client, Gabon (2017)	Environmental and Social Screening Study for a Hydropower Plant in Gabon, Confidential Client, Gabon, 2017
Environmental and Social Due Diligence (ESDD) for two Solar PV and two Wind Farm Projects South Africa, Confidential Client, South Africa (2017)	Project Director for the ESDD for two Solar PV and two Wind Farm Projects in South Africa.
Environmental, Health and Safety Risk assessment of four Solar PV sites in South Africa, Enel Green Power, South Africa (2017)	Project Director for the EHS Risk Assessments.
Environmental and Social Impact Assessment for a 100MW to 250MW solar PV Plant, Globeleq, Zambia (2016-17)	Project Director for an Environmental and Social Impact Assessment for a 100MW to 250MW solar PV plant in Zambia. The study included the analysis of key environmental and social impacts, compilation of an ESIA and ESMP reports and stakeholder engagement.
Environmental and Social Screening Study for a solar PV Plant, Confidential client, Zambia (2016)	Project Director for an Environmental and Social Screening Study for the establishment of solar PV power plant in Zambia. The study included the analysis of key environmental and social risks including regulatory, biodiversity and social risks.
Environmental and Social Due Diligence, Six Solar PV Farms, Confidential Client, South Africa (2016)	Project Director for an ESDD for six solar pv farms in South Africa. The ESDD was undertaken against SA Legislation and Regulations and IFC Performance Standards.
Environmental and Social Impact Assessment for a CCGT Power Plant, ArcelorMittal, South Africa (2016)	Project Director for an Environmental and Social Impact Assessment study for the establishment of a 1500MW CCGT power plant for ArcelorMittal in Saldanha Bay, South Africa. The ESIA includes detailed specialist studies including air emissions modelling, noise modelling, biodiversity and heritage assessment. Full stakeholder engagement is also part of the scope of work.
Environmental and Social Management Plans, Wind Farm Development, Confidential Client, Kenya (2016)	Project Director and involved in advising the client on various strategies including vantage point bird monitoring and management plan development.
Environmental and Social Screening Study of potential solar PV sites, Confidential Client, Ivory Coast (2016)	Environmental and Social Screening Study of potential solar PV sites, Confidential Client, Ivory Coast, 2016
Environmental and Social Impact Assessment for the Tete-Macuse Railway Line and Macuse Power Development, Italthai, Mozambique (2015-17)	Project Director for the Environmental and Social Impact Assessment (ESIA) for the proposed Tete-Macuse railway line and Macuse Port development for the export of coal from Tete Province in Mozambique. The project included the development of over 700km of railway line and a new port development.

Strategic Environmental Assessment for the supporting infrastructure for the Baynes Hydropower Project, Baynes PJTC, Namibia/Angola (2014-15)	Project Director for the Strategic Environmental Assessment of the associated infrastructure for the Baynes hydropower project. The SEA covered the assessment of access roads for construction, transmission lines routing in Angola and Namibia and locations of an airfield.
Cumulative Impact Assessment of the development of numerous hydropower plants on the Kwanza River, Odebrecht, Angola (2014-15)	Project Director for the Cumulative Impact Assessment of the development of a number of hydropower plants on the Cuanza River in Angola.
Environmental and Social Impact Assessment for the Batoka Gorge Hydropower Project, ZRA, Zambia/Zimbabwe (2014-15)	Advisor to the ESIA team undertaking the Environmental and Social Impact Assessment (ESIA) for the proposed Batoka Gorge Hydropower Plant on the Zambezi River below the Victoria Falls. The project includes the construction of a dam wall, hydropower plants, transmission lines and associated infrastructure. The ESIA is being conducted in alignment with the IFC Performance Standards and the World Bank Safeguard Policies.
Environmental and Social Impact Assessment for the Rehabilitation of the Kariba Dam Wall, ZRA, Zambia/Zimbabwe (2014-15)	Project Director for the Environmental and Social Impact Assessment (ESIA) for the proposed Kariba Dam Rehabilitation Project. The project includes the rehabilitation of the plunge pool and spillway of the dam wall. The project is being funded by the World Bank, African Development Bank and the EU.
Environmental and Social Due Diligence (ESDD) for a 98 MW wind farm in South Africa, Confidential Client, South Africa (2015)	Project Director for the ESDD.
Environmental and Social Due Diligence (ESDD) for a 2 x 75 MW solar pv farm in South Africa, Confidential Client, South Africa (2015)	Project Director for the ESDD.
Environmental and Social Due Diligence (ESDD) for a 74 MW wind farm in South Africa, Confidential Client (2015)	Project Director for the ESDD.
Environmental and Social Screening Study for a CCGT Power Plant, Confidential Client, South Africa (2015)	Project Director for an Environmental and Social Screening study for the establishment of a gas power plant in Saldanha Bay, South Africa. The screening study outputs included a permitting strategy, environmental opportunities and constraints maps, and input into the site selection process.
Environmental and Social Impact Assessment for Floating Power Plants in the Port of Richards Bay, Department of Energy IPP Office, South Africa (2015-16)	Project Director for the ESIA for the establishment of Floating Power Plants in the Ports of Richards Bay in South Africa. The ESIA includes detailed specialist studies including marine outfall modelling, air emissions modelling and marine ecology studies. Full stakeholder engagement is also part of the scope of work.
Environmental and Social Impact Assessment for Floating Power Plants in the Port of Richards Bay, Department of Energy IPP Office, South Africa, (2015-16)	Project Director for the ESIA for the establishment of Floating Power Plants in the Ports of Saldanha in South Africa. The ESIA includes detailed specialist studies including marine outfall modelling, air emissions modelling and marine ecology studies. Full stakeholder engagement is also part of the scope of work.

<p>Environmental and Social Impact Assessment (Scoping Phase) for LNG Import Terminal in the Port Richards Bay for the Gas to Power Programme, Department of Energy IPP Office, South Africa (2015-16)</p>	<p>Project Director for the ESIA for the establishment of LNG Import Terminals as part of the DoE's Gas to Power Programme in South Africa. The ESIA (Scoping Phase) included scoping of detailed specialist studies including marine outfall modelling, air emissions modelling and marine ecology studies. Full stakeholder engagement is also part of the scope of work.</p>
<p>Environmental and Social Impact Assessment (Scoping Phase) for LNG Import Terminal in the Port Saldanha for the Gas to Power Programme, Department of Energy IPP Office, South Africa, (2015-16)</p>	<p>Project Director for the ESIA for the establishment of LNG Import Terminals as part of the DoE's Gas to Power Programme in South Africa. The ESIA (Scoping Phase) included detailed specialist studies including marine outfall modelling, air emissions modelling and marine ecology studies. Full stakeholder engagement is also part of the scope of work.</p>
<p>Environmental and Social Screening study for the establishment of an CCGT power plant in the Ports of Richards Bay, Confidential client, South Africa (2015)</p>	<p>Project Director for an Environmental and Social Screening Study for the establishment of a CCGT power plant in Richards Bay, South Africa. The study included the analysis of key environmental and social risks including air emissions, effluent emissions, biodiversity (terrestrial and marine) and social issues. The assessment applies to the power plant site, transmission line routing and pipeline routing and compares the opportunities and constraints associated with the two locations.</p>
<p>Environmental and Social Screening study for the establishment of an CCGT power plant in the Port of Saldanha, Confidential client, South Africa (2015)</p>	<p>Project Director for an Environmental and Social Screening Study for the establishment of a CCGT power plant in Saldanha Bay, South Africa. The study included the analysis of key environmental and social risks including air emissions, effluent emissions, biodiversity (terrestrial and marine) and social issues. The assessment applies to the power plant site, transmission line routing and pipeline routing and compares the opportunities and constraints associated with the two locations.</p>
<p>Environmental and Social Screening study for the establishment of an SCGT power plant in the Ports of Saldanha, Confidential client, South Africa (2015)</p>	<p>Project Director for an Environmental and Social Screening Study for the establishment of an SCGT power plant in the Port of Saldanha. The study included the analysis of key environmental and social risks including air emissions, effluent emissions, biodiversity (terrestrial and marine) and social issues. The assessment applies to the power plant site, transmission line routing and pipeline routing.</p>
<p>Environmental and Social Impact Assessment for the Burgan Oil Fuel Storage Depot in the Port of Cape Town, Burgan Oil, South Africa (2014-15)</p>	<p>Project Director for the ESIA for the Burgan Oil Fuel Storage Depot in the Port of Cape Town.</p>
<p>Millennium Challenge Account – Malawi: Infrastructure Development Project – Energy Sector (hydropower plants, transmission and distribution lines and substations), MCC, Malawi (2014-15)</p>	<p>Environmental Lead for the Independent Engineer to review all the Contracting Engineers environmental and social studies associated with the Infrastructure Development Project. The project includes the upgrade and development of new power infrastructure including hydropower plants, transmission lines, distribution lines and substations.</p>
<p>Strategic Environmental Assessment of the New Town Integrated Development Zone, TFM Mining, Katanga Province, DRC (2014)</p>	<p>Project Director for the Strategic Environmental Assessment of the New Town Integrated Development Zone undertaken for Tenke Fungurume Mining (TFM) in Katanga Province, DRC.</p>

<p>Environmental and Social Impact Assessment (ESIA) for the Gamsberg Zinc Mine, South Africa, Black Mountain Mine (Vedanta) (2012-13)</p>	<p>Project Director for the Environmental and Social Impact Assessment for a new Zinc Mine in the Northern Cape Province in South Africa. The ESIA includes the assessment of the mine and all associated infrastructure including waste rock dumps, tailing dams, processing plant, transmission lines, a new township development, upgrade of a water pipeline and associated water treatment facilities, and transport options to the Port of Saldanha via both road and rail. The ESIA is being undertaken as an integrative process to meet various environmental legal requirements including National Environmental Management Act (NEMA): EIA Regulations, NEM: Waste Act, NEM: Air Quality Act, NEM: Biodiversity Act, National Heritage Resource Act, National Water Act and the Minerals Petroleum Resources Development Act. The process includes various specialist studies, full stakeholder engagement as well as integration with a Biodiversity Off-sets process.</p>
<p>Environmental and Social Impact Assessment for the Expansion of Transnet's existing Manganese Ore Export Railway Line and Associated Infrastructure, South Africa (2012)</p>	<p>Project Director for the ESIA for the Expansion of Transnet's existing Manganese Ore Export Railway Line and Associated Infrastructure in the Northern and Eastern Cape, South Africa.</p>
<p>Ore Line Expansion Project for the Sishen-Saldanha Ore Line and Port of Saldanha, various Mining Companies and Transnet, South Africa (2011-2012)</p>	<p>Project Director for the Environmental and Social Screening Study for the Pre-feasibility Phase of the Ore Line Expansion Project. This included compiling a detail Environmental and Social Design Criteria Report together with initial Stakeholder Engagement. A detailed multi-criteria assessment for various port and stockpile options was undertaken. The project included upgrading over a 1000 km of railway line and upgrading the port facilities including stockpiles, stacker-reclaimers, conveyors and ship loading facilities. The stakeholder engagement process was specifically designed to obtain buy-in from stakeholder who were strongly opposed some components of the port and rail expansion.</p>
<p>Strategic Environmental Assessment for the Mozambican Regional Gateway Programme, MRGP, Mozambique, Malawi, Zambia, Zimbabwe (2012)</p>	<p>Project Director for the SEA of the MRGP. The MRGP aims to support the improvement of the Southern African transport (roads, rail and ports), regional infrastructure network, which uses Mozambique as a gateway for international trade. The MRGP geographic scope encompasses the Beira and Nacala Transport Corridors and the respective links to the Maputo and Limpopo Corridors. The SEA identified environmental and social issues that need to be considered in the long terms planning an implementation of the rail and port infrastructure that makes up the Beira and Nacala Transport Corridors.</p>
<p>Strategic Environmental Assessment (SEA) for the coastline of Mozambique, MICOA, Mozambique (2012)</p>	<p>Adviser on the SEA for the coast of Mozambique. The SEA aims to identify potential conflicts between various uses of the coastal zone and to recommend strategic interventions to facilitate sustainable development within the coastal zone. Various users of the coastal zone that are being considered include off-shore oil and gas operations, coastal mining, tourism, conservation and artisanal and industrial fishing.</p>
<p>Environmental and Social Screening Study for port options in Pemba Bay, Anadarko, Mozambique (2012)</p>	<p>Project Lead for an Environmental and Social Screening Study for various port options in Pemba Bay. The screening study includes a multi-criteria assessment of various port locations taking into account marine and terrestrial ecology, social issues, land ownership, legal aspects and physical marine conditions.</p>
<p>Environmental and Social Impact Assessment for a LPG import and distribution facility, Sunrise Energy, South Africa (2011-2012)</p>	<p>Project Director for the Scoping/EIA for a LPG importation, storage and distribution facility which includes a marine offloading facility in Saldanha Bay, a pipeline and a storage facility. The environmental permitting process required the liaison with local and provincial environmental authorities, co-ordination of specialist studies, public participation and impact assessment.</p>

Environmental and Social Screening Study for a Mine development in Angola, Confidential Client, Angola (2011-2012)	Project Director for the Environmental and Social Screening Study for the Concept Phase for a new mine development in Angola. The study included identifying environmental and social risks to the project and costing a full ESIA according to IFC Performance Standards and Equator Principles.
Equator Principles and IFC Performance Standards Training, Vedanta Resources Plc, Zambia (2012)	Lead facilitator of a 5-day training course on the implementation of the Equator Principles and IFC Performance Standards for a number of Vedanta's mining operations across Southern Africa, Europe and Australia.
Environmental and Social Impact Assessment for the upgrade of the Principe Airport, HBD, Principe (2011-2012)	Project Director for the Environmental and Social Impact Assessment for the upgrade of the airport in Principe.
EIA for a 380MW renewable energy facility north of Touwsrivier in the Western Cape (2010-2011)	Project Director for the Scoping/EIA for a proposed renewable energy facility incorporating wind and photovoltaic power generating technologies. The environmental permitting process required liaison with local, provincial and national environmental authorities, co-ordination of specialist studies, public participation and impact assessment.
EIA for a 170MW renewable energy facility east of Touwsrivier in the Western Cape (2010-2011)	Project Director for the Scoping/EIA for a proposed renewable energy facility incorporating wind and photovoltaic power generating technologies. The environmental permitting process required liaison with local, provincial and national environmental authorities, co-ordination of specialist studies, public participation and impact assessment.
EIA for a 670MW renewable energy facility south of Sutherland in the Western and Northern Cape (2010-2011)	Project Director for the Scoping/EIA for a proposed renewable energy facility incorporating wind and photovoltaic power generating technologies. The environmental permitting process requires the liaison with local, provincial and national environmental authorities, co-ordination of specialist studies, public participation and impact assessment.
EIA for a 500MW renewable energy facility south of Beaufort West in the Western Cape (2010-2011)	Project Director for the Scoping/EIA for a proposed renewable energy facility incorporating wind and photovoltaic power generating technologies. The environmental permitting process required liaison with local, provincial and national environmental authorities, co-ordination of specialist studies, public participation and impact assessment.
EIA for a 120MW renewable energy facility south east of Victoria West in the Northern Cape (2010-2011)	Project Director for the Scoping/EIA for a proposed renewable energy facility incorporating wind and photovoltaic power generating technologies. The environmental permitting process required liaison with local, provincial and national environmental authorities, co-ordination of specialist studies, public participation and impact assessment.
EIA for a 225MW wind farm in the Richtersveld, Western Cape (2011)	Project Director for the Scoping/EIA for a proposed wind farm. The environmental permitting process required liaison with local, provincial and national environmental authorities, co-ordination of specialist studies, public participation and impact assessment.
EIA for a 750MW wind farm in the Roggeveld, Western Cape and Northern Cape (2011) Director	Project Director for the Scoping/EIA for a proposed wind farm. The environmental permitting process required liaison with local, provincial and national environmental authorities, co-ordination of specialist studies, public participation and impact assessment.

EIA for a 225MW renewable energy facility between Vredenburg and Velddrif in the in the Western Cape (2010-2011)	Project Director for the Scoping/EIA for a proposed renewable energy facility incorporating wind and photovoltaic power generating technologies. The environmental permitting process required liaison with local, provincial and national environmental authorities, co-ordination of specialist studies, public participation and impact assessment.
Environmental and Social Impact Assessment for the Lesotho Highland 150 MW Wind Power Project, Breeze Power, Lesotho (2011)	Project Director for the Scoping Phase of the Environmental and Social Impact Assessment for a 150MW wind farm development in Lesotho. The Scoping Phase included the analysis of available information to identify key environmental and social risks associated with the siting of the wind farm.
Environmental Screening Study for a Wind Farm Development in the Southern Cape, South Africa (2011)	Project Director for the Environmental Screening Study for a wind farm development in the Southern Cape.
Environmental and Social Due Diligence for a Wind Farm Development in Coega, Electrawinds, South Africa (2011)	Project Director for the Environmental and Social Due Diligence for a wind farm development in the Coega.
Environmental and Social Impact Assessment for Venetia Diamond Mine, De Beers, South Africa (2011)	Project Director for the Scoping and ESIA for the proposed new underground mine and EMP consolidation for existing mining activities. The ESIA was undertaken as an integrative process to meet various environmental legal requirements including National Environmental Management Act (NEMA): EIA Regulations, NEM: Waste Act, NEM: Air Quality Act, NEM: Biodiversity Act, National Heritage Resource Act, National Water Act and the Minerals Petroleum Resources Development Act.
Environmental and Social Impact Assessment for a river barging project on the Zambezi River, Riversdale Mining, Mozambique (2010-2011)	Project Director for the project which includes the assessment of environmental and social impacts associated with dredging over 500km of the Zambezi River. The project includes full stakeholder engagement, coordination of various specialist studies with extensive field work and the integration of all information into an ESIA report and ESMP.
EIA for two solar PV plant development, South Africa (2010)	Project Director of the EIA for the development of two solar PV plants in the Northern Cape and Free State Provinces of South Africa. ERM undertook the required studies to obtain environmental approval for these developments, including specialist studies such as landscape and visual and cultural heritage assessments, and stakeholder engagement.
Basic Assessment for the installation of wind measuring masts on six sites in the Western Cape and two sites in the Northern Cape (2010)	Project Director for the Basic Assessments to install wind measuring masts at eight sites in South Africa. The scope of work included the submission of the application, public participation, preparation of an EMP and submission of the Basic Assessment report.
EIA for a 100MW renewable energy facility north of Velddrif in the in the Western Cape (2010)	Project Director for the Scoping process for a proposed renewable energy facility incorporating wind and photovoltaic power generating technologies. The environmental permitting process required the liaison with local, provincial and national environmental authorities, co-ordination of specialist studies and public participation.
EIA for a 300MW renewable energy facility east of Lambert's Bay in the Western Cape (2010)	Project Director for the Scoping process for a proposed renewable energy facility incorporating wind and photovoltaic power generating technologies. The environmental permitting process required liaison with local, provincial and national environmental authorities, co-ordination of specialist studies and public participation.

External adviser and reviewer for an ESIA for a wind farm development in the Eastern Cape, Confidential Client, South Africa (2010)	Adviser and reviewer for an EIA for the development of a wind farm in the Eastern Cape.
Environmental Advisor Environmental and Social Impact Assessment for the Mphanda Nkuwa Hydropower Project in Mozambique (2010)	Adviser for the ESIA for the Mphanda Nkuwa Hydropower Project in Mozambique. The core service was to advise the project team on international standards such as the IFC Performance Standards and World Commission on Dams.
Environmental Sensitivity Study of the Durban Airport Site Expansion Project , South Africa, Transnet (2010)	Project Director for the Environmental Sensitivity Study for the proposed dig-out port currently being considered by Transnet at the Durban International Airport Site. The aim of this assessment was to determine the biophysical, natural and social opportunities and constraints to the development of the dig-out port, as well as provide a strategic overview of the environmental context of the site. In addition, the sensitivity study provided strategic guidance in terms of the environmental due process and licensing requirements with respect to the National Environmental Management Act, and associated legislation.
ESIA for a new high voltage overhead transmission power line in Cameroon, AES Sonel, Cameroon (2007- 2009)	Project Director for the Environmental and Social Impact Assessment and a full Resettlement Action Plan for a new electricity distribution project, comprising a 113km overhead power line, for AES Sonel. As Project Director, Mr Heather-Clark was responsible for client liaison, quality control and final review of all reports.
Advisor to the Environmental and Social Impact Assessment for the Baynes Hydropower Project in Namibia and Angola (2009)	Project Advisor for the Environmental and Social Impact Assessment for the proposed Baynes Hydropower Project on the Kunene River. The ESHIA process is being conducted in accordance to the Angolan EIA Regulations, the Namibian EIA Regulations, the World Bank Safeguard Policies and the IFC performance standards.
Environmental and Social Impact Assessment for the upgrade of a 1100 km railway line in South Africa, Transnet (2008- 2009)	Project Director for the Environmental and Social Impact Assessment for the upgrade of a commodities railway line across South Africa. The project included a number of specialist studies, managing subcontractors, interfacing with the railway engineering team, report writing, managing an extensive stakeholder consultation process, client liaison and management of project finances.
Environmental and Social Impact Assessment for the services corridor associated with the development of a greenfield CTL Plant, Sasol, South Africa (2009)	Project Director for an ESIA of a services corridor to support the development of a greenfield CTL plant development in South Africa. The ESHIA process was conducted in accordance to the South African EIA Regulations and the IFC performance standards.
Environmental and Social Impact Assessment for 2D seismic exploration project in the Rovuma Basin, Petronas, Mozambique (2009)	Project Director for the ESIA for the offshore seismic exploration activities in Blocks 3 & 6, situated in the Rovuma Basin off the coast of Mozambique. The exploration activities comprise 2D seismic surveys in deepwater.
Environmental and Social Screening Study for a river barging project on the Zambezi River, Riversdale Mining, Mozambique (2009)	Project Director for the project which included the assessment of environmental and social risks associated with dredging over 500km of the Zambezi River. The project included reviewing existing information, mapping key sensitivities and facilitating a specialist workshop in order to develop Terms of Reference for detailed baseline studies that will be required should the project proceed to a full ESIA.

Equator Principled and IFC Performance Standards Review and Training, African Housing Solutions, South Africa (2009)	Lead reviewer for the ESIA and Resettlement Policy Framework, for a housing development in Nigeria, against the Equator Principles and IFC Performance Standards. Mr Heather-Clark was responsible for reviewing the ESIA Report and for presenting a 2 ½ day training course on the Equator Principles and IFC Performance Standards.
Environmental Assessment for the dredging and disposal of dredge spoil at the Port of Saldanha, Transnet, South Africa (2008)	Project Director for this project and was responsible for guidance of technical studies which included dredging studies and marine sediment contamination characterization. The study included the assessment of dredge spoil dumping alternatives. Stakeholder engagement included an important component of the project.
Environmental and Social Screening Study, Port of Saldanha, Transnet, South Africa (2008)	Project Director for the screening study which included an assessment of alternative berth options for the export of iron ore at the iron ore terminal at the Port of Saldanha, South Africa. The work included ongoing interaction with the port engineering and design teams, together with stakeholder engagement.
ESIA for an Early Production System (EPS) and Power Plant for Kaiso-Tonya Area, Exploration Area 2, Tullow Uganda Operations Pty Ltd, Uganda (2007-08)	Project Director for the project which included a full ESIA for an Early Production System and associated Power Plant in the Kaiso-Tonya area on the banks of Lake Albert, Uganda. The intent of the project is to produce oil (and small amounts of gas) which will be converted into electrical power and distillate products (kerosene and diesel) for consumption within Uganda. The electrical power will be fed into the main grid supplementing the Ugandan electrical power grid while the distilled products (diesel and kerosene) will be used to displace the currently imported fuels. The ESIA included a detailed assessment of alternative sites for the proposed EPS and power plant, together with various environmental and social baseline studies and stakeholder engagement.
ESIA monitoring studies for Sasol's Off-shore gas exploration activities in Inhambane and Sofala Provinces, Mozambique, Sasol Petroleum Sofala & Empresa Nacional de Hidrocarbonetos (2007-08)	Project Director for an environmental monitoring survey programme for Sasol's offshore hydrocarbon exploration activities. Monitoring studies included seismic noise modelling and monitoring, dugong surveys, artisanal fish catch monitoring, coral reef surveys and monitoring, sea turtle monitoring and tourism monitoring.
Strategic Environmental and Social Overview and ESIA's for offshore exploration well drilling activities in Blocks 2 and 3A, Lake Albert, Uganda. Tullow Oil Plc and Heritage Oil and Gas Limited (2006- 2008)	Project Director for this project. The project involved undertaking a strategic overview study of Lake Albert that provided background information on the limnological (physical, chemical and biological) features of the lake as well as environmental and socio-economic resources (such as nature reserves, tourism nodes, prime fishing areas etc). It also presented areas of environmental risk and opportunity associated with oil explorations on, and immediately adjacent to, the lake. The strategic overview provided a framework within which ESIA's were undertaken for the offshore drilling project. A site selection study was undertaken for onshore support infrastructure. Baseline studies included shoreline sensitivity mapping, oil spill modelling, water and sediment quality surveys, fish and fisheries surveys, socio-economic surveys and terrestrial ecology surveys. An extensive public participation process was undertaken as part of the ESIA's.
Environmental and Social Baseline Assessment for a green fields coal mine and CTL plant development, Sasol, South Africa (2008)	Project Director the environmental and social baseline studies to support the evaluation of sites for potential development of a green field's coal mine and associated CTL Plant in South Africa. Mr. Heather-Clark has assisted with review and quality control of the various baseline studies.

Development of guideline document for the integration of environmental and social issues into the project lifecycle for mine development, De Beers, South Africa (2008)	Team member of the project team that assisted the client in developing a detailed guideline document for the integration of social and environmental issues into mine planning. This included all phases of the planning process from Concept through to Pre-feasibility, Feasibility and Implementation. Mr Heather-Clark, as lead facilitator, presented a 2 day training course on these guidelines, to mine planners and engineers.
EIA for a Metal Recovery Plant and Slag Crushing, Screening and Weathering facility at Arcelor Mittal Saldanha Works, MultiServ, South Africa (2007 – 2008)	Project Director for the EIA, including a public consultation process and the following specialist studies: air quality, groundwater, noise impact assessment, botanical and archaeology studies and a traffic impact assessment. Mr Heather-Clark was responsible for client liaison, quality control and final review of all reports.
Implementation of the Equator Principles for Standard Bank's Project Financing Processes, Standard Bank, South Africa (2008)	Lead facilitators for Equator Principles and IFC Performance Standards training to assist Standard Bank in adopting the Equator Principles. An assessment system (based on the IFC Performance Standards) to link with Standard Bank's project finance transaction life-cycle was developed. This involved the development of "tools" and guidance documents to form a system, together with training on the use of the system for all project finance staff.
Comparative review of EIAs undertaken by ERM globally for electricity utilities, Eskom, South Africa (2007)	Project Director for this project. The project included research to provide Eskom with an overview of different EIA governance systems and approaches to managing EIAs in other countries, as well as identifying trends in EIA practice.
Environmental and Social Screening and Qualitative Risk Assessment Western Ports and Rail Corridor, Transnet, South Africa (2007)	Project Director involved in identifying environmental and social risks associated with future port development in the Port of Saldanha, Port of Cape Town and Port of Mossel Bay. The scope of the study included the review of previous EIAs, SEAs and other planning documents to identify environmental and social drivers and assess their risk to future port planning, development and operations. As the environmental team, ERM interacted on a regular basis with the port engineering and design teams to develop a port development framework for a 30 year planning period.
Environmental and Social Screening and Qualitative Risk Assessment Central Ports and Rail Corridor, Transnet, South Africa (2007)	Project Director involved in identifying environmental and social risks associated with future port development in the Port of East London, Port of Port Elizabeth and Port of Ngqura. The scope of the study included the review of previous EIAs, SEAs and other planning documents to identify environmental and social drivers and assess their risk to future port planning, development and operations. As the environmental team, ERM interacted on a regular basis with the port engineering and design teams to develop a port development framework for a 30 year planning period.
Environmental and Social Screening and Qualitative Risk Assessment Eastern Ports and Rail Corridor, Transnet, South Africa (2007)	Project Director involved in identifying environmental and social risks associated with future port development in the Port of Durban and Port of Richards Bay. The scope of the study included the review of previous EIAs, SEAs and other planning documents to identify environmental and social drivers and assess their risk to future port planning, development and operations. As the environmental team, ERM interacted on a regular basis with the port engineering and design teams to develop a port development framework for a 30 year planning period.
EIA of the Moatize Coal Mine and associated railway line and deep water port infrastructure, CVRD, Tete Province, Mozambique (2006-2007)	Project Coordinator and Cost Controller on this project. ERM was commissioned by CVRD, a Brazilian Mining Company, to undertake environmental studies related to the green fields development of a coal mine in Tete Province, Mozambique. The project included the development of a power plant, railway line and port for the export of coal.

Corporate Social Responsibility Strategy development for a leading South African retailer, South Africa (2006)	Lead facilitator for this project. The project involved identifying and prioritising the company's sustainability issues and defining a strategy to address these issues. The process was driven by the need for the company to be listed on the Johannesburg Stock Exchanges SRI Index.
Research project on the effects of water scarcity on the fresh produce supply to a major South Africa retailer, South Africa (2006)	Project Leader coordinated a group of researchers to identify water scarce areas and to plot these against the location of fresh produce suppliers for a major retailer in South Africa. This researched form a core component of the companies Sustainability Strategy.
Independent Environmental Advisers to the Financing Parties of the Gautrain Rapid Rail Link project, Bowman Gilfillan (2006)	Independent Environmental Advisers to the Financing Parties, provided review and advisory services through Bowman Gilfillan on Environmental Management Plans for the Gautrain Rapid Link project.
ESIA for seismic surveys and exploration well drilling and testing in Blocks 16 and 19 off the coast of Mozambique, Sasol Petroleum Sofala & Empresa Nacional de Hidrocarbonetos (2005 – 2006)	Project Manager for the ESIA which involved undertaking an ESIA and compiling EMPs for offshore exploration activities in Blocks 16 & 19, situated to the east of the Bazaruto Archipelago National Park, off the coast of Mozambique. The exploration activities comprised 2D and 3D seismic surveys in deepwater and shallow water as well as exploration well drilling and testing activities.
EIA for the upgrade and expansion of the existing sinter plant at Vanderbijlpark, ArcelorMittal, South Africa (2006)	Project Director for the EIA and stakeholder engagement process to meet South African requirements. This included coordination of the technology review, air quality, health and waste management specialist studies and compilation of the integrated Scoping and EIA Report.
Review of Sustainability Report and Sustainability Management System, Confidential, South Africa (2004)	Lead reviewer of the Sustainability Report of a leading retailer in South Africa and providing adhoc advice on sustainability issues. This included compiling a monthly news letter to staff on relevant sustainability issues facing the retail industry in South Africa.
EIA of a proposed expansion of the Container Terminal Stacking area at the Port of Cape Town, National Ports Authority, South Africa (2003-2004)	Project Manager for this EIA. The project included the expansion of the Cape Town container terminal into the sea though dredging 1 million m3 of material for reclamation. The project included a detailed study on alternative sources for fill material and other studies which focused on marine archaeology, coastal erosion, marine hydrodynamics and water quality, visual, noise and traffic. The EIA included full stakeholder engagement throughout the EIA process.
Environmental Site Suitability Study for a manganese smelter, Asia Minerals Limited (2004)	Part of the project team that undertook a preliminary site selection process for a manganese smelter by identifying key environmental and social issues for potential sites within Southern Africa. Sites included the Belualane Industrial Park (Mozambique) and Richards Bay, the Coega Industrial Development Zone (IDZ) and Saldanha (South Africa).
DFID funded project to assess progress towards meeting the water relater targets of the Millennium Development Goals, DIFD, Zambia (2004)	Country Coordinator for Zambia on this project. The project included detailed stakeholder surveys secondary data analysis to establish the countries progress towards meeting the Millennium Development Goals, specifically related to water supply and sanitation.
Roll-out of ISO14001 and OHSAS18001 management systems to 2 industrial sites in South Africa, Confidential, South Africa (2004)	Project Manager responsible for undertaking ISO14001 training at two industrial sites. The project formed part of a global initiative to have several industrial sites throughout Africa and Europe ISO14001 certified.

<p>Strategic Environmental Assessment (SEA) for the Port of Cape Town, National Ports Authority of South Africa, South Africa (2003)</p>	<p>Project Manager for this project and played a lead role in directing the course and outcome of the SEA. The SEA focussed on key environmental and social opportunities and constraint to the future long term development of the Port of Cape Town. A Sustainability Framework was developed to address key opportunities and constraints and to set up long terms monitoring programs. A key component of this study was to understand the Port-City linkages and developing mechanisms to ensure that port planning was supported by city planning and visa-versa.</p>
<p>Strategic Environmental Assessment (SEA) for the Port of Richards Bay, National Ports Authority of South Africa, South Africa (2003)</p>	<p>Project Adviser for this project and played a lead role in directing the course and outcome of the SEA. The SEA focussed on key environmental and social opportunities and constraint to the future long term development of the Port of Cape Town. A Sustainability Framework was developed to address key opportunities and constraints and to set up long terms monitoring programs. A key component of this study was to understand the Port-City linkages and developing mechanisms to ensure that port planning was supported by city planning and visa-versa.</p>
<p>E&S Due Diligence of the Phase 2 Maputo Port Revitalisation and Rehabilitation Project, Standard Corporate Merchant Bank, Mozambique (2003)</p>	<p>Environmental Adviser to the Standard Corporate Merchant Bank for the review of the EIA and Risk Assessment studies undertaken for the Phase 2 Maputo Port Revitalisation and Rehabilitation Project. The EIA was reviewed against the Mozambican and International Best Practice guidelines and detailed recommendation made on how to manage the environmental risks associated with the revitalisation project.</p>
<p>National Oil Spill Contingency Plan for Cameroon, funded by the World Bank, Cameroon Government, Cameroon (2003)</p>	<p>Part of the team that compiled a comprehensive Oil Spill Contingency Plan for Cameroon (OSCP). The OSCP form a core component of the Chad Cameroon Pipeline and included contingency plans for both on land and marine based spills. The OSCP was compiled according to the IPEACA guidelines and was reviewed by the World Bank.</p>
<p>EIA/SEA Capacity Building, Environmental Public Authority (EPA), State of Kuwait (2003)</p>	<p>Lead facilitator for a 2 day training course on SEA and EIA for the Environmental Public Authority (EPA) of the State of Kuwait.</p>
<p>Training Workshop on Strategic Environmental Assessment for South Eastern Africa and the Western Indian Ocean Island States, SEACAM, Mozambique (2003)</p>	<p>Lead course facilitator for the SEA training course funded by SEACAM. The training course included the principles of SEA, SEA process and case studies of SEA's in Southern Africa.</p>
<p>Improving the Effectiveness of EIA and the Potential of SEA in Southern Africa: Case Study on SEA of the National Commercial Ports Policy and SEA for the Port of Cape Town, World Bank/SAIEA, Namibia (2003)</p>	<p>Presenter of two case studies on SEA at a regional workshop funded by the World Bank and SAIEA.</p>
<p>Environmental Impact Assessment for the Eskom SABRE-GEN wind turbine test facility, Eskom, South Africa (2002)</p>	<p>Project Manager for the EIA. The EIA included stakeholder engagement throughout the process and included the following specialist studies: visual assessment, bird strike modelling and noise assessment.</p>
<p>Strategic Environmental Assessment: Scoping Phase Port of Richards Bay, National Ports Authority of South Africa, South Africa (2002)</p>	<p>Project Leader and integrative writer for the Scoping Phase of the SEA for the Port of Richards Bay. This phase included detailed stakeholder consultation to identify opportunities and constraints to long term port development at the Port of Richards Bay.</p>

White Paper on National Commercial Ports Policy, National Ports Authority, South Africa 2002	Lead reviewer of the White Paper on National Commercial Ports Policy for South Africa. The review focussed on the integration of environmental and social issues into the port planning process. Mr Heather-Clark made a formal submission and presentation to the Portfolio Committee on Transport in the South African Parliament.
Environmental Liability and Risk Assessment for the Multi-Purpose Terminal at the Port of Saldanha, National Ports Operations, South Africa (2002)	Project Manager for the project. The purpose of the project was to identify key environmental risks associate with the material handling at the Multi-Purpose Terminal at the Port of Saldanha.
Environmental Overview of South Africa's major ports with special reference to future container terminal development, National Ports Authority Container Terminal Strategy, National Ports Authority, South Africa (2002)	Project Manager for the comparative assessment of the relative environmental sensitivity of the seven commercial ports in South Africa with reference to future container terminal development. The study included a detail review of secondary environmental information of all the ports, the identification of specific environmental criteria and the use of these criteria to rank each port in terms of its sensitivity to future container terminal development.
Review of the EIA undertaken for the Maputo Port Privatisation and Rehabilitation Project, Development Bank of Southern Africa (DBSA), South Africa (2002)	Environmental Adviser to the Development Bank of Southern Africa to review the Phase 1 EIA for the Maputo Port Privatisation and Rehabilitation Project. The review was undertaken against the Mozambican EIA Regulations and International Best Practice.
Oil Spill Contingency Plan, Agip Angola oil operations, Angola, (2002)	Team member of the team to develop an oil spill contingency plan according to the IPEICA International Guidelines.
Ecologically Sustainable Industrial Development Programme, United Nations Industrial Development Organisation (UNIDO), Tanzania (2002)	Team member of the project team appointed to review the Industrial Development Strategy for Industrial Development in Tanzania. The focus of the project was to integrate environmental and social issues into the programme.
Environmental Audit and Assessment of the Socio-economic Impacts of the Trans-Kgalagadi Highway, Botswana, Development Bank of Southern Africa, Botswana (2002)	Lead reviewer of the EIA and EMP implementation for the Trans-Kalagadi corridor in Botswana. The review included site visits, detailed interviews and review of secondary data and records.
World Bank EIA Project Management Training Course, World Bank/SAIEA, Zambia (2002)	Lead facilitator for the 5 day EIA Project Management Training Course. The course was presented to 20 African delegates from southern Africa. The course focused on the practical aspects of EIA project management including budgeting and scheduling an EIA, contract negotiations with clients, managing specialist studies, managing the public participation phase and compiling an integrated EIA report. The course formed part of a Southern Africa capacity building initiative lead by the SAIEA.
Environmental screening study for the establishment of a deep-water port at Ponta Dobela, Confidential Client, Mozambique (2001)	Team member of the project team who undertook a screening study to identify environmental, social and economic issues and show stoppers associated with the development of a deep-water port on the coast on Mozambique.

ESIA of the proposed seismic survey in licence area 2814a on the continental shelf of Namibia, Shell Exploration and Production Namibia B.V., Namibia (2001)	Team member of the ESIA for the offshore seismic exploration project. The ESIA included all issues associated with seismic surveys including seismic noise impacts on marine mammals, oil spill modelling and general environmental management issues.
Environmental Impact Review for the abandonment of the Cuntala Well Protector Platform off the coast of Angola (Block 2), Texaco Panama Inc., Angola (2001)	Team member of the project team who developed a decommissioning plan for a well protector platform off the coast of Angola.
Legal, Technical and Economic Feasibility Study for the Commercialisation of the SSF Association Milnerton Tank Farm and its links to the Port of Cape Town, SFF, Cape Town (2001)	Project Manager for this project.
ESIA of the Phase 2 expansion of the Mozal Aluminium Smelter and Matola Port Terminal in Maputo, BHP Billiton, Mozambique (2000-2001)	Project Manager and integrative writer for this ESIA. The EIA included an assessment of the expansion of the port terminal at the Port of Matola and a review of the Phase 2 expansion of the aluminium smelter. All reports together with the EIA process were reviewed and approved by the International Finance Corporation (IFC).
Scoping Phase of the Environmental Impact Assessment for the expansion of the Container Terminal at the Port of Cape Town, Portnet, South Africa (2000)	Project Manager for the EIA for the expansion of the container terminal at the Port of Cape Town. The project included the dredging of 1 million m3 dredge material to provide fill for the expansion of the port. Specialist studies that were required included coastal dynamic modelling, hydrodynamic modelling to assess water quality issues associated with dredging, marine archaeological issues, marine ecology issues, traffic, visual and noise.
Strategic Integrated Port Planning, Port of Saldanha, Transnet (1998)	Project Manager for the Strategic Integrated Port Planning process for the Port of Saldanha. The process culminated in the first Port Development Framework for the Port of Saldanha which integrated environmental and social issues into the port planning process. It included the identification and inclusion of environmental and social opportunities and constraints into the future port planning and development.
Environmental Impact Assessment for the PPC Slag Grinding Mill within the Saldanha Steel Complex, PPC (1998)	Project Manager for the EIA for PPC slag grinding mill. The EIA included a number of specialist studies and comprehensive stakeholder engagement.

MEMBERSHIPS	
CEAPSA	Registered as an Environmental Assessment Practitioner with the Environmental Assessment Practitioners Association of South Africa (EAPASA)
IAIAsa	Member of the International Association for Impact Assessment South Africa
IAIA International	Member of the International Association for Impact Assessment
PUBLICATIONS	
	Sep 2007: Co-author of case study for IIEDs 'User Guide' to effective tools and methods for integrating environment and development. South African case study: Role of environmental and social screening in informing the conceptual design and planning of large-scale projects in the pre-feasibility stage.
	Aug 2003: Author of a case study on the SEA for the Port of Cape Town, contained in "The Status and Potential of Strategic Environmental Assessment" by Barry Dalal-Clayton and Barry Saddler, DRAFT 17 September 2003.
	March 2002: Strategic Integrated Port Planning: Moving from EIA to SEA. International Conference on Coastal Zone Management and Development, Kuwait 18 to 20 March 2002.
	Nov 2000: Sustainable Port Development: Report on the preparatory seminar for Africa. 7th International Conference of the International Association for Cities and Ports, Marseilles – France.
	Mar 2000: The development of Strategic Environmental Assessment in South Africa: Journal of Impact Assessment and Project Appraisal, Vol 18, Number 3, pg 217-223. September 2000.
	April 1999: Integrating environmental opportunities and constraints into Port Planning, Development and Operation. 5th International Conference on Coastal and Port Engineering in Developing Countries, Cape Town, 19 to 23 April 1999.

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Curriculum vitae: Chris van Rooyen

Profession/Specialisation : Avifaunal Specialist
Highest Qualification : BA LLB
Nationality : South African
Years of experience : 25 years

Key Experience

Chris van Rooyen has twenty-two years' experience in the assessment of avifaunal interactions with industrial infrastructure. He was employed by the Endangered Wildlife Trust as head of the Eskom-EWT Strategic Partnership from 1996 to 2007, which has received international acclaim as a model of co-operative management between industry and natural resource conservation. He is an acknowledged global expert in this field and has consulted in South Africa, Namibia, Botswana, Lesotho, New Zealand, Texas, New Mexico and Florida. He also has extensive project management experience and he has received several management awards from Eskom for his work in the Eskom-EWT Strategic Partnership. He is the author and/or co-author of 17 conference papers, co-author of two book chapters, several research reports and the current best practice guidelines for avifaunal monitoring at wind farm sites. He has completed around 130 power line assessments; and has to date been employed as specialist avifaunal consultant on more than 50 renewable energy generation projects. He has also conducted numerous risk assessments on existing power lines infrastructure. He also works outside the electricity industry and he has done a wide range of bird impact assessment studies associated with various residential and industrial developments. He serves on the Birds and Wind Energy Specialist Group which was formed in 2011 to serve as a liaison body between the ornithological community and the wind industry.

Key Project Experience

Bird Impact Assessment Studies and avifaunal monitoring for wind-powered generation facilities:

1. Eskom Klipheuwel Experimental Wind Power Facility, Western Cape
2. Mainstream Wind Facility Jeffreys Bay, Eastern Cape (EIA and monitoring)
3. Biotherm, Swellendam, (Excelsior), Western Cape (EIA and monitoring)
4. Biotherm, Napier, (Matjieskloof), Western Cape (pre-feasibility)
5. Windcurrent SA, Jeffreys Bay, Eastern Cape (2 sites) (EIA and monitoring)
6. Caledon Wind, Caledon, Western Cape (EIA)
7. Innowind (4 sites), Western Cape (EIA)
8. Renewable Energy Systems (RES) Oyster Bay, Eastern Cape (EIA and monitoring)
9. Oelsner Group (Kerriefontein), Western Cape (EIA)
10. Oelsner Group (Langefontein), Western Cape (EIA)
11. InCa Energy, Vredendal Wind Energy Facility Western Cape (EIA)
12. Mainstream Loeriesfontein Wind Energy Facility (EIA and monitoring)
13. Mainstream Noupoot Wind Energy Facility (EIA and monitoring)
14. Biotherm Port Nolloth Wind Energy Facility (Monitoring)
15. Biotherm Laingsburg Wind Energy Facility (EIA and monitoring)
16. Langhoogte Wind Energy Facility (EIA)
17. Vleesbaai Wind Energy Facility (EIA and monitoring)
18. St. Helena Bay Wind Energy Facility (EIA and monitoring)
19. Electrawind, St Helena Bay Wind Energy Facility (EIA and monitoring)
20. Electrawind, Vredendal Wind Energy Facility (EIA)
21. SAGIT, Langhoogte and Wolseley Wind Energy facilities
22. Renosterberg Wind Energy Project – 12-month preconstruction avifaunal monitoring project
23. De Aar – North (Mulilo) Wind Energy Project – 12-month preconstruction avifaunal monitoring project
24. De Aar – South (Mulilo) Wind Energy Project – 12-month bird monitoring
25. Namies – Aggenys Wind Energy Project – 12-month bird monitoring
26. Pofadder - Wind Energy Project – 12-month bird monitoring
27. Dwarsrug Loeriesfontein - Wind Energy Project – 12-month bird monitoring

28. Waaihoek – Utrecht Wind Energy Project – 12-month bird monitoring
29. Amathole – Butterworth Utrecht Wind Energy Project – 12-month bird monitoring & EIA specialist
30. Phezukomoya and San Kraal Wind Energy Projects 12-month bird monitoring & EIA specialist study (Innowind)
31. Beaufort West Wind Energy Facility 12-month bird monitoring & EIA specialist study (Mainstream)
32. Leeuwdraai Wind Energy Facility 12-month bird monitoring & EIA specialist study (Mainstream)
33. Sutherland Wind Energy Facility 12-month bird monitoring (Mainstream)
34. Maralla Wind Energy Facility 12-month bird monitoring & EIA specialist study (Biotherm)
35. Esizayo Wind Energy Facility 12-month bird monitoring & EIA specialist study (Biotherm)
36. Humansdorp Wind Energy Facility 12-month bird monitoring & EIA specialist study (Cennergi)
37. Aletta Wind Energy Facility 12-month bird monitoring & EIA specialist study (Biotherm)
38. Eureka Wind Energy Facility 12-month bird monitoring & EIA specialist study (Biotherm)
39. Makambako Wind Energy Facility (Tanzania) 12-month bird monitoring & EIA specialist study (Windlab)
40. R355 Wind Energy Facility 12-month bird monitoring (Mainstream)
41. Groenekloof Wind Energy Facility 12-month bird monitoring & EIA specialist study (Mulilo)
42. Tsitsikamma Wind Energy Facility 24-months post-construction monitoring (Cennergi)
43. Noupoot Wind Energy Facility 24-months post-construction monitoring (Mainstream)
44. Kokerboom Wind Energy Facility 12-month bird monitoring & EIA specialist study (Business Venture Investments)
45. Kuruman Wind Energy Facility 12-month bird monitoring & EIA specialist study (Mulilo)
46. Dassieklip Wind Energy Facility 3 years post-construction monitoring (Biotherm)
47. Loeriesfontein 2 Wind Energy Facility 2 years post-construction monitoring (Mainstream)
48. Khobab Wind Energy Facility 2 years post-construction monitoring (Mainstream)
49. Excelsior Wind Energy Facility 18 months construction phase monitoring (Biotherm)
50. Boesmansberg Wind Energy Facility 12-months pre-construction bird monitoring (juwi)
51. Mañhica Wind Energy Facility, Mozambique, 12-months pre-construction monitoring (Windlab)
52. Kwagga Wind Energy Facility, Beaufort West, 12-months pre-construction monitoring (ABO)
53. Pienaarspoort Wind Energy Facility, Touws River, Western Cape, 12-months pre-construction monitoring (ABO).
54. Koup 1 and 2 Wind Energy Facilities, Beaufort West, Western Cape, 12 months pre-construction monitoring (Genesis Eco-energy)
55. Duiker Wind Energy Facility, Vredendal, Western Cape 12 months pre-construction monitoring (ABO)
56. Perdekraal East Wind Energy Facility, Touws River, Western Cape, 18 months construction phase monitoring (Mainstream).
57. Swellendam Wind Energy Facility, Western Cape, 12-month pre-construction monitoring (Veld Renewables)
58. Lombardskraal Wind Energy Facility, Western Cape, 12-month pre-construction monitoring (Enertrag SA)
59. Mainstream Kolkies & Heuweltjies Wind Energy Facilities, Western Cape, 12-month pre-construction monitoring (Mainstream)
60. Great Karoo Wind Energy Facility, Northern Cape, 12-month pre-construction monitoring (African Green Ventures).
61. Mpumalanga & Gauteng Wind and Hybrid Energy Facilities (6x), pre-construction monitoring (Enertrag SA)
62. Dordrecht Wind Energy Facilities, Eastern Cape, Screening Report (Enertrag SA)
63. Dordrecht Wind Energy Facilities, Eastern Cape, Screening Report (ACED)
64. Nanibees North & South Wind Energy Facilities, Northern Cape, Screening Report (juwi)
65. Sutherland Wind Energy Facilities, Northern Cape, Screening Report (WKN Windcurrent)
66. Pofadder Wind Energy Facility, Northern Cape, Screening Report (Atlantic Energy)
67. Haga Haga Wind Energy Facility, Eastern Cape, Amendment Report (WKN Windcurrent)
68. Banken Wind Energy Facility, Northern Cape, Screening Report (Atlantic Energy)
69. Hartebeest Wind Energy Facility, Western Cape, 12-month pre-construction monitoring (juwi).
70. Perdekraal East Wind Energy Facility, Touws River, Western Cape, 24 months operational phase monitoring (Mainstream).
71. Great Karoo Wind Energy Facility, Richmond, Northern Cape, 12 months pre-construction monitoring, African Green Ventures.

72. Ezelsjacht Wind Energy Facility, De Doorns, Western Cape, 12-months pre-construction monitoring Mainstream Renewable Power.
73. Canopus Wind Energy Facility, Laingsburg, Western Cape, 12-months pre-construction monitoring WKN Windcurrent.
74. Kangnas Wind Energy Facility, Aggeneys, Northern Cape, 24-months operational monitoring, Mainstream Renewable Power.
75. Taaibosch Wind Energy Facility, Lime Acres, Northern Cape, 12-months pre-construction monitoring, Enertrag SA
76. Mpumalanga & Gauteng Wind and Hybrid Energy Facilities (6x), pre-construction monitoring (Enertrag SA)
77. Dordrecht Wind Energy Facilities, Eastern Cape, Screening Report (Enertrag SA)
78. Dordrecht Wind Energy Facilities, Eastern Cape, Screening Report (ACED)
79. Nanibees North & South Wind Energy Facilities, Northern Cape, Screening Report (juwi)
80. Kappa Solar PV facility, Touwsrivier, Western Cape, pre-construction monitoring (Veroniva)
81. Sutherland Wind Energy Facilities, Northern Cape, Screening Report (WKN Windcurrent)
82. Pofadder Wind Energy Facility, Northern Cape, Screening Report (Atlantic Energy)
83. Haga Haga Wind Energy Facility, Eastern Cape, Amendment Report (WKN Windcurrent)
84. Banken Wind Energy Facility, Northern Cape, Screening Report (Atlantic Energy)
85. Hartebeest Wind Energy Facility, Western Cape, 12-month pre-construction monitoring (juwi).
86. Iphiko Wind Energy facilities, Laingsburg, Western Cape, screening and pre- construction monitoring (G7 Energies)
87. Kangnas Wind Energy Facility, Northern Cape, Operational Phase 2 years avifaunal monitoring (Mainstream)
88. Perdekraal East Wind Energy Facility, Northern Cape, Operational Phase 2 years avifaunal monitoring (Mainstream)
89. Aberdeen 1, 2 & Aberdeen Kudu (3&4) Wind Energy Facilities, Eastern Cape, 12- month pre-construction monitoring (Atlantic Renewable Energy Partners)
90. Loxton / Beaufort West Wind Energy Facilities, Northern Cape, 12-month pre- construction monitoring (Genesis Eco-Energy Developments)
91. Ermelo & Volksrust Wind Energy Facilities, Northern Cape, Screening Report (WKN Windcurrent)

Bird Impact Assessment Studies for Solar Energy Plants:

1. Concentrated Solar Power Plant, Upington, Northern Cape.
2. Globeleq De Aar and Droogfontein Solar PV Pre- and Post-construction avifaunal monitoring
3. JUWI Kronos PV project, Copperton, Northern Cape
4. Sand Draai CSP project, Groblershoop, Northern Cape
5. Biotherm Helena PV Project, Copperton, Northern Cape
6. Biotherm Letsiao CSP Project, Aggeneys, Northern Cape
7. Biotherm Enamandla PV Project, Aggeneys, Northern Cape
8. Biotherm Sendawo PV Project, Vryburg, North-West
9. Biotherm Tlisitseng PV Project, Lichtenburg, North-West
10. JUWI Hotazel Solar Park Project, Hotazel, Northern Cape
11. Namakwa Solar Project, Aggeneys, Northern Cape
12. Brypaal Solar Power Project, Kakamas, Northern Cape
13. ABO Vryburg 1,2,3 Solar PV Project, Vryburg, North-West
14. NamPower CSP Facility near Arandis, Namibia
15. Dayson Klip PV Facility near Upington, Northern Cape
16. Geelkop PV Facility near Upington, Northern Cape
17. Oya PV Facility, Ceres, Western Cape
18. Vrede and Rondawel PV Facilities, Free State
19. Kolkies & Sadawa PV Facilities, Western Cape
20. Leeuwbosch PV1 and 2 and Wildebeeskuil PV1 and 2 Facilities, North-West
21. Kenhardt PV 3,4 and 5, Northern Cape
22. Wittewal PV, Grootfontein PV and Hoekdoornen PV Facilities, Touws River, Western Cape
23. Aardvark Solar PV facility, Copperton, Northern Cape, 12-month pre-construction monitoring (ABO)
24. Bestwood Solar PV facility, Kathu, Northern Cape, pre-construction monitoring (AMDA)
25. Boundary Solar PV facility, Kimberley, Northern Cape, Site sensitivity verification

26. Rinkhals PV 1 – 6 Solar PV Facility, Kimberley, Northern Cape.

Bird Impact Assessment Studies for the following overhead line projects:

1. Chobe 33kV Distribution line
2. Athene - Umfolozi 400kV
3. Beta-Delphi 400kV
4. Cape Strengthening Scheme 765kV
5. Flurian-Louis-Trichardt 132kV
6. Ghanzi 132kV (Botswana)
7. Ikaros 400kV
8. Matimba-Witkop 400kV
9. Naboomspruit 132kV
10. Tabor-Flurian 132kV
11. Windhoek - Walvisbaai 220 kV (Namibia)
12. Witkop-Overysseel 132kV
13. Breyten 88kV
14. Adis-Phoebus 400kV
15. Dhuvu-Janus 400kV
16. Perseus-Mercury 400kV
17. Gravelotte 132kV
18. Ikaros 400 kV
19. Khanye 132kV (Botswana)
20. Moropule – Thamaga 220 kV (Botswana)
21. Parys 132kV
22. Simplon –Everest 132kV
23. Tutuka-Alpha 400kV
24. Simplon-Der Brochen 132kV
25. Big Tree 132kV
26. Mercury-Ferrum-Garona 400kV
27. Zeus-Perseus 765kV
28. Matimba B Integration Project
29. Caprivi 350kV DC (Namibia)
30. Gerus-Mururani Gate 350kV DC (Namibia)
31. Mmamabula 220kV (Botswana)
32. Steenberg-Der Brochen 132kV
33. Venetia-Paradise T 132kV
34. Burgersfort 132kV
35. Majuba-Umfolozi 765kV
36. Delta 765kV Substation
37. Braamhoek 22kV
38. Steelpoort Merensky 400kV
39. Mmamabula Delta 400kV
40. Delta Epsilon 765kV
41. Gerus-Zambezi 350kV DC Interconnector: Review of proposed avian mitigation measures for the Okavango and Kwando River crossings
42. Giyani 22kV Distribution line
43. Lihobong-Kao 132/11kV distribution power line, Lesotho
44. 132kV Leslie – Wildebeest distribution line
45. A proposed new 50 kV Spoornet feeder line between Sishen and Saldanha
46. Cairns 132kv substation extension and associated power lines
47. Pimlico 132kv substation extension and associated power lines
48. Gyani 22kV
49. Matafin 132kV
50. Nkomazi_Fig Tree 132kV
51. Pebble Rock 132kV
52. Reddersburg 132kV

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53. Thaba Combine 132kV
54. Nkomati 132kV
55. Louis Trichardt – Musina 132kV
56. Endicot 44kV
57. Apollo Lepini 400kV
58. Tarlton-Spring Farms 132kV
59. Kuschke 132kV substation
60. Bendstore 66kV Substation and associated lines
61. Kuiseb 400kV (Namibia)
62. Gyani-Malamulele 132kV
63. Watershed 132kV
64. Bakone 132kV substation
65. Eerstegoud 132kV LILO lines
66. Kumba Iron Ore: SWEP - Relocation of Infrastructure
67. Kudu Gas Power Station: Associated power lines
68. Steenberg Booyendal 132kV
69. Toulon Pumps 33kV
70. Thabatshipi 132kV
71. Witkop-Silica 132kV
72. Bakubung 132kV
73. Nelsriver 132kV
74. Rethabiseng 132kV
75. Tilburg 132kV
76. GaKgapane 66kV
77. Knobel Gilead 132kV
78. Bochum Knobel 132kV
79. Madibeng 132kV
80. Witbank Railway Line and associated infrastructure
81. Spencer NDP phase 2 (5 lines)
82. Akanani 132kV
83. Hermes-Dominion Reefs 132kV
84. Cape Pensinsula Strengthening Project 400kV
85. Magalakwena 132kV
86. Benfiosa 132kV
87. Dithabaneng 132kV
88. Taunus Diepkloof 132kV
89. Taunus Doornkop 132kV
90. Tweedracht 132kV
91. Jane Furse 132kV
92. Majeje Sub 132kV
93. Tabor Louis Trichardt 132kV
94. Riversong 88kV
95. Mamatsekele 132kV
96. Kabokweni 132kV
97. MDPP 400kV Botswana
98. Marble Hall NDP 132kV
99. Bokmakiere 132kV Substation and LILO lines
100. Styldrift 132kV
101. Taunus – Diepkloof 132kV
102. Bighorn NDP 132kV
103. Waterkloof 88kV
104. Camden – Theta 765kV
105. Dhuvu – Minerva 400kV Diversion
106. Lesedi –Grootpan 132kV
107. Waterberg NDP
108. Bulgerivier – Dorset 132kV
109. Bulgerivier – Toulon 132kV
110. Nokeng-Fluorspar 132kV

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111. Mantsole 132kV
112. Tshilamba 132kV
113. Thabamoopo - Tshebela – Nhlovuko 132kV
114. Arthurseat 132kV
115. Borutho 132kV MTS
116. Volspruit - Potgietersrus 132kV
117. Neotel Optic Fibre Cable Installation Project: Western Cape
118. Matla-Glockner 400kV
119. Delmas North 44kV
120. Houwhoek 11kV Refurbishment
121. Clau-Clau 132kV
122. Ngwedi-Silwerkrans 134kV
123. Nieuwehoop 400kV walk-through
124. Booyesdal 132kV Switching Station
125. Tarlton 132kV
126. Medupi - Witkop 400kV walk-through
127. Germiston Industries Substation
128. Sekgame 132kV
129. Botswana – South Africa 400kV Transfrontier Interconnector
130. Syferkuil – Rampheri 132kV
131. Queens Substation and associated 132kV powerlines
132. Oranjemond 400kV Transmission line
133. Aries – Helios – Juno walk-down
134. Kuruman Phase 1 and 2 Wind Energy facilities 132kV Grid connection
135. Transnet Thaba 132kV

Bird Impact Assessment Studies for the following residential and industrial developments:

1. Lizard Point Golf Estate
2. Lever Creek Estates
3. Leloko Lifestyle Estates
4. Vaaloewers Residential Development
5. Clearwater Estates Grass Owl Impact Study
6. Somerset Ext. Grass Owl Study
7. Proposed Three Diamonds Trading Mining Project (Portion 9 and 15 of the Farm Blesbokfontein)
8. N17 Section: Springs To Leandra –“Borrow Pit 12 And Access Road On (Section 9, 6 And 28 Of The Farm Winterhoek 314 Ir)
9. South African Police Services Gauteng Radio Communication System: Portion 136 Of The Farm 528 Jq, Lindley.
10. Report for the proposed upgrade and extension of the Zeekoegat Wastewater Treatment Works, Gauteng.
11. Bird Impact Assessment for Portion 265 (a portion of Portion 163) of the farm Rietfontein 189-JR, Gauteng.
12. Bird Impact Assessment Study for Portions 54 and 55 of the Farm Zwartkop 525 JQ, Gauteng.
13. Bird Impact Assessment Study Portions 8 and 36 of the Farm Nooitgedacht 534 JQ, Gauteng.
14. Shumba's Rest Bird Impact Assessment Study
15. Randfontein Golf Estate Bird Impact Assessment Study
16. Zilkaatsnek Wildlife Estate
17. Regenstein Communications Tower (Namibia)
18. Avifaunal Input into Richards Bay Comparative Risk Assessment Study
19. Maquasa West Open Cast Coal Mine
20. Glen Erasmia Residential Development, Kempton Park, Gauteng
21. Bird Impact Assessment Study, Weltevreden Mine, Mpumalanga
22. Bird Impact Assessment Study, Olifantsvlei Cemetery, Johannesburg
23. Camden Ash Disposal Facility, Mpumalanga
24. Lindley Estate, Lanseria, Gauteng
25. Proposed open cast iron ore mine on the farm Lylyveld 545, Northern Cape

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26. Avifaunal monitoring for the Sishen Mine in the Northern Cape as part of the EMPr requirements
27. Steelpoort CNC Bird Impact Assessment Study

Professional affiliations

I work under the supervision of and in association with Albert Froneman (MSc Conservation Biology) (SACNASP Zoological Science Registration number 400177/09) as stipulated by the Natural Scientific Professions Act 27 of 2003.

Curriculum vitae: Albert Froneman

Profession/Specialisation : Avifaunal Specialist
Highest Qualification : MSc (Conservation Biology)
Nationality : South African
Years of experience : 22 years

Key Qualifications

Albert Froneman (*Pr.Sci.Nat*) has more than 22 years' experience in the management of avifaunal interactions with industrial infrastructure. He holds a M.Sc. degree in Conservation Biology from the University of Cape Town. He managed the Airports Company South Africa (ACSA) – Endangered Wildlife Trust Strategic Partnership from 1999 to 2008 which has been internationally recognized for its achievements in addressing airport wildlife hazards in an environmentally sensitive manner at ACSA's airports across South Africa. Albert is recognized worldwide as an expert in the field of bird hazard management on airports and has worked in South Africa, Swaziland, Botswana, Namibia, Kenya, Israel, and the USA. He has served as the vice chairman of the International Bird Strike Committee and has presented various papers at international conferences and workshops. At present he is consulting to ACSA with wildlife hazard management on all their airports. He also an accomplished specialist ornithological consultant outside the aviation industry and has completed a wide range of bird impact assessment studies. He has co-authored many avifaunal specialist studies and pre-construction monitoring reports for proposed renewable energy developments across South Africa. He also has vast experience in using Geographic Information Systems to analyse and interpret avifaunal data spatially and derive meaningful conclusions. Since 2009 Albert has been a registered Professional Natural Scientist (reg. nr 400177/09) with The South African Council for Natural Scientific Professions, specialising in Zoological Science.

Key Project Experience

Renewable Energy Facilities –avifaunal monitoring projects in association with Chris van Rooyen Consulting

1. Jeffrey's Bay Wind Farm – 12-months preconstruction avifaunal monitoring project
2. Oysterbay Wind Energy Project – 12-months preconstruction avifaunal monitoring project
3. Ubuntu Wind Energy Project near Jeffrey's Bay – 12-months preconstruction avifaunal monitoring project
4. Bana-ba-Pifu Wind Energy Project near Humansdorp – 12-months preconstruction avifaunal monitoring project
5. Excelsior Wind Energy Project near Caledon – 12-months preconstruction avifaunal monitoring project
6. Laingsburg Spitskopvlakte Wind Energy Project – 12-months preconstruction avifaunal monitoring project
7. Loeriesfontein Wind Energy Project Phase 1, 2 & 3 – 12-months preconstruction avifaunal monitoring project
8. Noupoot Wind Energy Project – 12-months preconstruction avifaunal monitoring project
9. Vleesbaai Wind Energy Project – 12-months preconstruction avifaunal monitoring project
10. Port Nolloth Wind Energy Project – 12-months preconstruction avifaunal monitoring project
11. Langhoogte Caledon Wind Energy Project – 12-months preconstruction avifaunal monitoring project
12. Lunsklip – Stilbaai Wind Energy Project – 12-months preconstruction avifaunal monitoring project
13. Indwe Wind Energy Project – 12-months preconstruction avifaunal monitoring project
14. Zeeland St Helena bay Wind Energy Project – 12-months preconstruction avifaunal monitoring project
15. Wolseley Wind Energy Project – 12-months preconstruction avifaunal monitoring project
16. Renosterberg Wind Energy Project – 12-months preconstruction avifaunal monitoring project
17. De Aar – North (Mulilo) Wind Energy Project – 12-months preconstruction avifaunal monitoring project (2014)
18. De Aar – South (Mulilo) Wind Energy Project – 12-months bird monitoring
19. Namies – Aggenys Wind Energy Project – 12-months bird monitoring
20. Pofadder - Wind Energy Project – 12-months bird monitoring
21. Dwarsrug Loeriesfontein - Wind Energy Project – 12-months bird monitoring

22. Waaihoek – Utrecht Wind Energy Project – 12-months bird monitoring
23. Amathole – Butterworth Wind Energy Project – 12-months bird monitoring & EIA specialist study
24. De Aar and Droogfontein Solar PV Pre- and Post-construction avifaunal monitoring
25. Makambako Wind Energy Facility (Tanzania) 12-month bird monitoring & EIA specialist study (Windlab)
26. R355 Wind Energy Facility 12-month bird monitoring (Mainstream)
27. Aletta Wind Energy Facility 12-month bird monitoring (Biotherm)
28. Maralla Wind Energy Facility 12-month bird monitoring (Biotherm)
29. Groenekloof Wind Energy Facility 12-month bird monitoring & EIA specialist study (Mulilo)
30. Tsitsikamma Wind Energy Facility 24-months post-construction monitoring (Cennergi)
31. Noupoot Wind Energy Facility 24-months post-construction monitoring (Mainstream)
32. Kokerboom Wind Energy Facility 12-month bird monitoring & EIA specialist study (Business Venture Investments)
33. Kuruman Wind Energy Facility 12-month bird monitoring & EIA specialist study (Mulilo)
34. Mañhica Wind Energy Facility 12-month bird monitoring & EIA specialist study (Windlab)
35. Klipheuwel-Dassiefontein Wind Energy Facility, Caledon, Western Cape – Operational phase bird monitoring – Year 5 (Klipheuwel-Dassiefontein Wind Energy Facility)
36. Kwagga Wind Energy Facility, Beaufort West, 12-months pre-construction monitoring (ABO)
37. Pienaarspoort Wind Energy Facility, Touws River, Western Cape, 12-months pre-construction monitoring (ABO). Koup 1 and 2 Wind Energy Facilities, Beaufort West, Western Cape, 12 months pre-construction monitoring (Genesis Eco-energy)
38. Duiker Wind Energy Facility, Vredendal, Western Cape 12 months pre-construction monitoring (ABO)
39. Perdekraal East Wind Energy Facility, Touws River, Western Cape, 18 months construction phase monitoring (Mainstream).
40. Swellendam Wind Energy Facility, Western Cape, 12-month pre-construction monitoring (Veld Renewables)
41. Lombardskraal Wind Energy Facility, Western Cape, 12-month pre-construction monitoring (Enertrag SA)
42. Mainstream Kolkies & Heuweltjies Wind Energy Facilities, Western Cape, 12-month pre-construction monitoring (Mainstream)
43. Great Karoo Wind Energy Facility, Northern Cape, 12-month pre-construction monitoring (African Green Ventures).
44. Mpumalanga & Gauteng Wind and Hybrid Energy Facilities (6x), pre-construction monitoring (Enertrag SA)
45. Dordrecht Wind Energy Facilities, Eastern Cape, Screening Report (Enertrag SA)
46. Dordrecht Wind Energy Facilities, Eastern Cape, Screening Report (ACED)
47. Nanibees North & South Wind Energy Facilities, Northern Cape, Screening Report (juwi)
48. Kappa Solar PV facility, Touwsrivier, Western Cape, pre-construction monitoring (Veroniva)
49. Sutherland Wind Energy Facilities, Northern Cape, Screening Report (WKN Windcurrent)
50. Pofadder Wind Energy Facility, Northern Cape, Screening Report (AtlanticEnergy)
51. Haga Haga Wind Energy Facility, Eastern Cape, Amendment Report (WKN Windcurrent)
52. Banken Wind Energy Facility, Northern Cape, Screening Report (Atlantic Energy)
53. Hartebeest Wind Energy Facility, Western Cape, 12-month pre-construction monitoring (juwi).
54. Iphiko Wind Energy facilities, Laingsburg, Western Cape, screening and pre-construction monitoring (G7 Energies)
55. Kangnas Wind Energy Facility, Northern Cape, Operational Phase 2 years avifaunal monitoring (Mainstream)
56. Perdekraal East Wind Energy Facility, Northern Cape, Operational Phase 2 years avifaunal monitoring (Mainstream)
57. Aberdeen 1, 2 & Aberdeen Kudu (3&4) Wind Energy Facilities, Eastern Cape, 12-month pre-construction monitoring (Atlantic Renewable Energy Partners)
58. Loxton / Beaufort West Wind Energy Facilities, Northern Cape, 12-month pre-construction monitoring (Genesis Eco-Energy Developments)
59. Ermelo & Volksrust Wind Energy Facilities, Northern Cape, Screening Report (WKN Windcurrent)
60. Aardvark Solar PV facility, Copperton, Northern Cape, 12-month pre-construction monitoring (ABO)
61. Bestwood Solar PV facility, Kathu, Northern Cape, pre-construction monitoring (AMDA)
62. Boundary Solar PV facility, Kimberley, Northern Cape, Site sensitivity verification

- (Atlantic Renewable Energy Partners)
63. Excelsior Wind Energy Facility, Swellendam, Western Cape, Operational Phase 2 years avifaunal monitoring & implementation of Shut Down on Demand (SDOD) pro-active mitigation strategy (Biotherm)
 64. De Aar cluster Solar PV facilities, De Aar, Western Cape, Site sensitivity verification (Atlantic Renewable Energy Partners)
 65. Rinkhals Solar PV facilities, Kimberley, Northern Cape, Pre-construction monitoring (ABO)
 66. Kolkies Sadawa Solar PV facilities, Touwsrivier, Western Cape, pre-construction monitoring (Mainstream)
 67. Leeudoringstad Solar PV facilities, Leeudoringstad, North West, Pre-construction monitoring (Upgrade Energy)
 68. Noupoot Umsobomvu Solar PV facilities, Noupoot, Northern Cape, Pre-construction monitoring (EDF Renewables)
 69. Oya Solar PV facilities, Matjiesfontein, Western Cape, pre-construction monitoring (G7 Energies)
 70. Scafell Solar PV facilities, Sasolburg, Free state, pre-construction monitoring (Mainstream)
 71. Vrede & Rondawel Solar PV facilities, Kroonstad, Free state, pre-construction monitoring (Mainstream)
 72. Gunstfontein Wind Energy Facilities, Sutherland, Northern Cape, additional pre-construction monitoring (ACED)
 73. Ezelsjacht Wind Energy Facility, De Doorns, Western Cape, pre-construction monitoring (Mainstream)
 74. Klipkraal Wind Energy Facility, Fraserburg, Northern Cape, avifaunal screening (Klipkraal WEF)
 75. Pofadder Wind Energy Facility, Pofadder, Northern Cape, pre-construction monitoring (Atlantic Renewable Energy Partners)

Bird Impact Assessment studies and / or GIS analysis:

1. Aviation Bird Hazard Assessment Study for the proposed Madiba Bay Leisure Park adjacent to Port Elizabeth Airport.
2. Extension of Runway and Provision of Parallel Taxiway at Sir Seretse Khama Airport, Botswana Bird / Wildlife Hazard Management Specialist Study
3. Maun Airport Improvements Bird / Wildlife Hazard Management Specialist Study
4. Bird Impact Assessment Study - Bird Helicopter Interaction – The Bitou River, Western Cape Province South Africa
5. Proposed La Mercy Airport – Bird Aircraft interaction specialists study using bird detection radar to assess swallow flocking behaviour
6. KwaZulu Natal Power Line Vulture Mitigation Project – GIS analysis
7. Perseus-Zeus Powerline EIA – GIS Analysis
8. Southern Region Pro-active GIS Blue Crane Collision Project.
9. Specialist advisor ~ Implementation of a bird detection radar system and development of an airport wildlife hazard management and operational environmental management plan for the King Shaka International Airport
10. Matsapha International Airport – bird hazard assessment study with management recommendations
11. Evaluation of aviation bird strike risk at candidate solid waste disposal sites in the Ekurhuleni Metropolitan Municipality
12. Gateway Airport Authority Limited – Gateway International Airport, Polokwane: Bird hazard assessment; Compile a bird hazard management plan for the airport
13. Bird Specialist Study - Evaluation of aviation bird strike risk at the Mwakirunge Landfill site near Mombasa Kenya
14. Bird Impact Assessment Study - Proposed Weltevreden Open Cast Coal Mine Belfast, Mpumalanga
15. Avian biodiversity assessment for the Mafube Colliery Coal mine near Middelburg Mpumalanga
16. Avifaunal Specialist Study - SRVM Volspruit Mining project – Mokopane Limpopo Province
17. Avifaunal Impact Assessment Study (with specific reference to African Grass Owls and other Red List species) Stone Rivers Arch
18. Airport bird and wildlife hazard management plan and training to Swaziland Civil Aviation Authority (SWACAA) for Matsapha and Sikhupe International Airports

19. Bird Impact Assessment Study - Proposed 60 year Ash Disposal Facility near to the Kusile Power Station
20. Avifaunal pre-feasibility assessment for the proposed Montrose dam, Mpumalanga
21. Bird Impact Assessment Study – Proposed ESKOM Phantom Substation near Knysna, Western Cape
22. Habitat sensitivity map for Denham’s Bustard, Blue Crane and White-bellied Korhaan in the Kouga Municipal area of the Eastern Cape Province
23. Swaziland Civil Aviation Authority – Sikhuphe International Airport – Bird hazard management assessment
24. Avifaunal monitoring – extension of Specialist Study - SRVM Volspruit Mining project – Mokopane Limpopo Province
25. Avifaunal Specialist Study – Meerkat Hydro Electric Dam – Hope Town, Northern Cape
26. The Stewards Pan Reclamation Project – Bird Impact Assessment study
27. Airports Company South Africa – Avifaunal Specialist Consultant – Airport Bird and Wildlife Hazard Mitigation
28. Strategic Environmental Assessment For Gas Pipeline Development, CSIR
29. Avifaunal Specialist Assessment - Proposed monopole telecommunications mast – Roodekrans, Roodepoort, Gauteng (Enviroworks)
30. Gromis-Nama-Aggeneis 400kv lpp Integration: Environmental Screening - Avifaunal Specialist Desktop Study
31. Melkspruit - Rouxville 132kV Distribution Line - Avifaunal Amendment and Walk-through Report
32. Gamma - Kappa 2nd 765kV transmission line – Avifaunal impact assessment GIS analysis

Geographic Information System analysis & maps

1. ESKOM Power line Makgalakwena EIA – GIS specialist & map production
2. ESKOM Power line Benficsosa EIA – GIS specialist & map production
3. ESKOM Power line Riversong EIA – GIS specialist & map production
4. ESKOM Power line Waterberg NDP EIA – GIS specialist & map production
5. ESKOM Power line Bulge Toulon EIA – GIS specialist & map production
6. ESKOM Power line Bulge DORSET EIA – GIS specialist & map production
7. ESKOM Power lines Marblehall EIA – GIS specialist & map production
8. ESKOM Power line Grootpan Lesedi EIA – GIS specialist & map production
9. ESKOM Power line Tanga EIA – GIS specialist & map production
10. ESKOM Power line Bokmakierie EIA – GIS specialist & map production
11. ESKOM Power line Rietfontein EIA – GIS specialist & map production
12. Power line Anglo Coal EIA – GIS specialist & map production
13. ESKOM Power line Camcoll Jericho EIA – GIS specialist & map production
14. Hartbeespoort Residential Development – GIS specialist & map production
15. ESKOM Power line Mantsole EIA – GIS specialist & map production
16. ESKOM Power line Nokeng Flourspar EIA – GIS specialist & map production
17. ESKOM Power line Greenview EIA – GIS specialist & map production
18. Derdepoort Residential Development – GIS specialist & map production
19. ESKOM Power line Boynton EIA – GIS specialist & map production
20. ESKOM Power line United EIA – GIS specialist & map production
21. ESKOM Power line Gutshwa & Malelane EIA – GIS specialist & map production
22. ESKOM Power line Origstad EIA – GIS specialist & map production
23. Zilkaatsnek Development Public Participation – map production
24. Belfast – Paarde Power line - GIS specialist & map production
25. Solar Park Solar Park Integration Project Bird Impact Assessment Study – avifaunal GIS analysis.
26. Kappa-Omega-Aurora 765kV Bird Impact Assessment Report – Avifaunal GIS analysis.
27. Gamma – Kappa 2nd 765kV – Bird Impact Assessment Report – Avifaunal GIS analysis.
28. ESKOM Power line Kudu-Dorstfontein Amendment EIA – GIS specialist & map production.
29. Proposed Heilbron filling station EIA – GIS specialist & map production
30. ESKOM Lebatlhane EIA – GIS specialist & map production
31. ESKOM Pienaars River CNC EIA – GIS specialist & map production
32. ESKOM Lemara Phiring Ohrigstad EIA – GIS specialist & map production
33. ESKOM Pelly-Warmbad EIA – GIS specialist & map production
34. ESKOM Rosco-Bracken EIA – GIS specialist & map production
35. ESKOM Ermelo-Uitkoms EIA – GIS specialist & map production
36. ESKOM Wisani bridge EIA – GIS specialist & map production

37. City of Tswane – New bulkfeeder pipeline projects x3Map production
38. ESKOM Lebohang Substation and 132kV Distribution Power Line Project Amendment GIS specialist & map production
39. ESKOM Geluk Rural Powerline GIS & Mapping
40. Eskom Kimberley Strengthening Phase 4 Project GIS & Mapping
41. ESKOM Kwaggafontein - Amandla Amendment Project GIS & Mapping
42. ESKOM Lephalele CNC – GIS Specialist & Mapping
43. ESKOM Marken CNC – GIS Specialist & Mapping
44. ESKOM Lethabong substation and powerlines – GIS Specialist & Mapping
45. ESKOM Magopela- Pitsong 132kV line and new substation – GIS Specialist & Mapping
46. Vlakfontein Filling Station – GIS Specialist & Mapping -EIA
47. Prieska – Hoekplaas Solar PV & BESS - GIS Specialist & Mapping – EIA
48. Mulilo Total Hydra Storage (MTHS) De Aar - GIS Specialist & Mapping – EIA
49. Merensky Uchoba Powerline, Steelpoort - GIS Specialist & Mapping – EIA
50. Douglas Solar Part 2 Amendment – grid connection - GIS Specialist & Mapping – EIA

Professional affiliations

- South African Council for Natural Scientific Professions (SACNASP) registered Professional Natural Scientist (reg. nr 400177/09) – specialist field: Zoological Science. Registered since 2009.
- Southern African Wildlife Management Association - Member
- Zoological Society of South Africa - Member



herewith certifies that

Albert Froneman

Registration Number: 400177/09

is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following field(s) of practice (Schedule 1 of the Act)

Zoological Science (Professional Natural Scientist)

Effective **8 September 2009**

Expires **31 March 2023**



A handwritten signature in black ink, appearing to read 'Botha', written over a horizontal line.

Chairperson

A handwritten signature in black ink, appearing to read 'M. Froneman', written over a horizontal line.

Chief Executive Officer

