

Work experience report

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1. Formal Education

I have completed my M.Sc. in Aquatic Health (Department of Zoology) at the University of Johannesburg in 2014 and submitted the mini-dissertation titled: “Biological aspects of the *Mutale, Mutshundudi and Tshinane Rivers, Limpopo Province*”.

Prior to starting the M.Sc., I hold a National Diploma (2005) and *Baccalaureus techniae* (2009) in Nature Conservation at Tshwane University of Technology. I conducted by required practical year on the Farm Pumba Wilderness (portion 7 of the Farm Diamant 227 KQ, Lephalala) in 2005. My B Tech mini dissertation was completed on the use of strip transect game count methodology on the Ndumo KZN-Wildlife with the title: “*Ndumo game count: Critical reviews of line transect data from 1999 to current (2009)*”.

2. Work experience and standard consulting methodology

Currently I work for Galago Environmental as a Limnologist with experience including consultation, implementation and monitoring work specializing in aquatic and terrestrial systems ecology. All projects are conducted in the following manner:

- a. Site visit,
- b. Map/ GIS of findings,
- c. Present Ecological Score, EIS Calculations, Buffer calculations
- d. Report Compilation
- e. Review of report by Professional Natural Scientist
- f. Editing of any comments by reviewer
- g. Final document

I am completely responsible for the whole document, from field work to compilation of the document.

3. Accreditation

- SASS 5 Accreditation (expiring end of 2019)

4. Short Courses and other training

- Water Quality assessment- UNESCO-IHE (September 2016- January 2017),
- Fish identification course held in Kruger National Park at the end of May 2016 by Roger Bills from SAIAB.
- Wetland Rehabilitation- University of the Free State 2015
- Wetland Soils and Wetland Delineation- Terrasoils 2012
- Wetland Management: Introduction and Delineation- University of the Free State 2011
- SASS 5 Training- Nepid Consultants 2011
- Environmental Law for Environmental Managers- Centre for environmental management (Center for Environmental Management @ North West University) 2011
- FGASA Level 1- Field guides association of South Africa 2006
- Caping and meat handling- Lephalala FET-college 2006
- First aid level 1- Lephalala FET-college 2006
- Basic introductory course in weapon handling- TUT 2004

5. Employment History

2011-Currently: I am employed at Galago Environmental cc. as a terrestrial and aquatic ecologist. My primary functions are the delineation and impact assessment of wetland and lotic ecosystems, throughout South Africa. Other aspects of my portfolio at Galago Environmental cc. include the compilation of Ecological management plans, Wetland rehabilitation plans and Riparian assessments. Recently I have been appointed to conduct the ecological assessment of ridges in the greater Gauteng area. Furthermore I am contracted to conduct aquatic specific environmental control officer duties (AECO), and compile audits for national and province departments.

2008-2010: I joined Aquamulch (also trading as Aquacuna) a company conducting rehabilitation of terrestrial ecosystems using hydro-seeding and other methods. I was responsible for implementing the required rehabilitation works according to the specifications as well as liaison with the environmental officers and clients on site. As part of the responsibilities for the projects was the monitoring post rehabilitation of the seeding effort, and remediation of any discrepancies found.

2007-2008: During the completion of my B Tech Nature Conservation, I worked on the Ndumo Community Project under management of the Tshwane University of Technology (TUT). I was responsible for the community project, the vegetable gardens at the schools, and the liaisons with the reserve management and the environmental education in the community. I was also involved with the management of the reserve on a day-to-day basis.

2005-2007 My work experience for the completion of my National Diploma Nature Conservation was conducted during the year of 2005 on the farm Pumba Wilderness (portion 8 of the farm Diamant 338 KQ). I also completed a second year of work conducting the management of the farm.

2001-2004 During my studies for my national diploma in nature conservation, I held various student jobs as well as assisting senior students (M Tech) with research projects. These include:

- School excursions to the Lapalala Wilderness School as run by Mrs Madeleen van Schalkwyk.

- School holiday programs and sport events at Jubaweni Eco School.
- Riemland Game bird project completed by Mrs Helen Prinsloo (project title: “Helmeted Guineafowl population explosions in the Riemland of the north-eastern Free State”.)

6. Work experience/ Projects completed

Please see the list of projects completed as per type.

a) Aquatic ecosystem delineation

This includes rivers and wetlands. The delineation of the riparian edge of rivers is done to determine the edge of the riparian conditions found on site. Also included in the scope of work, is to determine which areas on the site is deemed sensitive, and if necessary propose mitigation and rehabilitation measures to ensure the riparian and river functioning is kept at optimum. Part of riparian delineation is the assessment and calculation of the Present Ecological Status (PES) of the vegetation component of the riparian edge. The program VEGRAI (level 3) is used. I was responsible person for the compilation of the all the projects. I was responsible person for the compilation of the all the projects.

Wetland delineation is done to determine the outer edge of the wetlands and to determine the potential impacts associated with development or conservation on the wetlands encountered. Also included in the scope of work, is to determine which areas on the site is deemed as wetland areas and thus as sensitive, and if necessary propose mitigation and rehabilitation measures to ensure the wetland functioning is kept at optimum. The results obtained during the site visit are used to determine the PES of the wetland(s) found on site. I was responsible person for the compilation of the all the projects.

As part of biodiversity requirements of authorising authorities (GDARD, DEA etc.) is the verification if any wetlands are present on a study site. This is only a preliminary study and if any wetlands are found full delineation will follow. I was responsible person for the compilation of the all the projects.

Please see Table 1: List of completed aquatic ecosystem delineations. All the work is undertaken by myself.

Table 1: List of completed aquatic ecosystem delineations

PROJECT NAME	Site visit	Aquatic Ecosystem Delineation	Report Compilation	PES and EIS calculations
African Leadership Academy Site	x	x	x	x
Andeon A H Holdings 124-125 on Farm Zandfontein 317-JR	x	x	x	x
Atridgeville walkways	x	x	x	x
Azaadville	x	x	x	x
Badirile Agricultural Projects - Remainder of Portion 151 of the farm Brandvlei 261-IQ	x	x	x	x
Berseba mine on the Remainder of the farm Berseba 391-JQ	x	x	x	x
Booyens Estate 98 IR				
Boschpoort-Nooitgedacht – Remainder of portion 27 of the Farm Boschpoort 284-JQ and Portion 2 of the Farm Nooitgedacht 287-JQ.	x	x	x	x
Brakpan Old location	x	x	x	x
Brakpan Ringpoort Site	x	x	x	x
Bredell - Holding 41, Bredell A H	x	x	x	x
Bredell - Holding 44, Bredell A H	x	x	x	x
Bredell - Holding 45, Bredell A H	x	x	x	x
Buffelspoort road	x	x	x	x
Bushbuck Ridge verification				
Carmel Estate Commonage - Portions 1, 11, 22, and 38 of the farm Koesterfontein 45JQ and remainder extent of portion 106, 107 and 2 of the farm Vaalbank 512-JQ	x	x	x	x
Chrissiesmeer brug, N17	x	x	x	x
Coopers MTN Mast on the Bronberg	x	x	x	x
Crystal Park	x	x	x	x
Curro Skool on the farm Kameelfontein 297-JR	x	x	x	x
Daxa Sands – Portion 19 of the Farm Reserve no 18 no 15838	x	x	x	x
Denver X15 - Erven 773 and 774 of Denver X15	x	x	x	x
Derdepoort - Ptn 256 also known as Bergtuin Ext 4	x	x	x	x
Devland X41 & X42 on the Farm Misgund 322-IQ	x	x	x	x
Die Hoewes	x	x	x	x
Diswilmar 48 also known as Homes Haven Ext 52	x	x	x	x
Doornfontein Filling Station on Portion 93 of the Farm Doornfontein	x	x	x	x
Driefontein - Portion 56 on the farm Driefontein 179-IQ	x	x	x	x
Duduxa	x	x	x	x

Elandsdrift mine	x	x	x	x
Elandsfontein mine	x	x	x	x
Erand Gardens	x	x	x	x
Erand Sewer on Portion 100 for the E-Rand A H X1	x	x	x	x
Erand X36	x	x	x	x
Ergo Road	x	x	x	x
Ermelo	x	x	x	x
Faerie Glen X1 on Erven 185-215	x	x	x	x
Fochville skool on a Portion of Portion 22 of the farm Foch 150-IQ	x	x	x	x
Garsfontein Road Crossings	x	x	x	x
Glen Eagles				
Glenferness Farmers Market	x	x	x	x
Glenway Cable	x	x	x	x
Goedehoop 498-JS (sand mine)	x	x	x	x
Goedehoop Colliery	x	x	x	x
Hartebeesfontein on Portion 38, 198 and 244 of the farm Hartebeesfontein 472-JQ	x	x	x	x
Hartebeeshoek Cell C Mas	x	x	x	x
Hekpoort				
Hennops lapa – 24G application on Erven 227 of Portion 228 of the farm Zwartkop 356 -JR	x	x	x	x
Heriotdale on Portion 19 of the farm Doornfontein 92-IR	x	x	x	x
Hertford Hotel on the Remainder of Portions 207 & 211, Remainder of Portions 208, 386 & 384 of the farm Nooitgedacht 534-JQ	x	x	x	x
Heuweloord ext 17	x	x	x	x
Honingklip - Portion 11 of the farm Honingklip 178-IQ	x	x	x	x
Honingnestkrans	x	x	x	x
Honingnestkrans - Portion 8 of the farm Honingnestkrans 269-jr	x	x	x	x
Houtkoppes – Remainder of Farm Houtkoppes 193-IQ	x	x	x	x
Jupiter sub-station on the farm Elandsfontein 107-IR	x	x	x	x
Kareekloof WWTW	x	x	x	x
Katbosfontein	x	x	x	x
Kendall power station	x	x	x	x
Kenmare Sewer Line	x	x	x	x
Kirkney - portions 40, 41, 42 and 192 of the Farm Zandfontein 317-JR	x	x	x	x
Klippoortjie 89 Ecological	x	x	x	x
Knoppieslaagte - Portion 291 (a Portion of Portion 123) of the farm Knopjeslaagte 385-JR	x	x	x	x
Kwa Mhlanga Shopping Centre	x	x	x	x
Kwa-Quqa Shopping Mall	x	x	x	x
Kwa-Thema hostel, Erf 9892, Kwa-Thema Township	x	x	x	x
Ladysmith – Greenfield site	x	x	x	x

Langkuil - Portion 22 of the farm Langkuil 363-JR	x	x	x	x
Langkuil - Portion 22 of the farm Langkuil 363-JR Meyerton area	x	x	x	x
Langlaagte - Portion 5 of the Farm Langlaagte 186-JR, Midvaal and Remainder of Portion 12 of the Farm Langlaagte 186-JR, Heidelberg	x	x	x	x
Lenasia Mosque on Lenasia South Ext 1, Erf 8403	x	x	x	x
Lenasia South X24	x	x	x	x
Limpopo Bridges Mareetsane and Letsitele	x	x	x	x
Linbro Park X157, Holding 35 Linbro Park Agricultural Holdings	x	x	x	x
Lindley New site WWTW	x	x	x	x
Lindley WWTW Biodiversity	x	x	x	x
Linksfield - Portion 1 Rietfontein 61-IR	x	x	x	x
Linmed Hospital	x	x	x	x
Lombardy West - Portions 7-8, 10 and 13 of Erf 105 Lombardy West	x	x	x	x
Loulardia X60	x	x	x	x
Majaneng stormwater pipeline in Kudube unit 3, Hammanskraal	x	x	x	x
Mangasutho Village - Wards 2 and 8 of the Mangosutho Village, Edumbe municipality, KZN, on portions of the Farms Frischgewaagd no 17210, Schaapkraal no 218 and Blinkwater no 229	x	x	x	x
Maroeladal X70 the Farm Witkoppen 194-IQ	x	x	x	x
Misgund Devland township on Misgund 322-JQ	x	x	x	x
Mogale Ext. 10 on the farm Nootgedacht 534-JQ	x	x	x	x
Moleleki X2, Vosloorus	x	x	x	x
Montrose Township on Portions 80 & 81 of the farm Middelvlei 255-JQ, Randfontein	x	x	x	x
Ngagane Railway Siding - Portions 3 and 5 of the Farm Macalman 4254-HS, near Newcastle	x	x	x	x
Nootgedacht Bulk Water & Sewer	x	x	x	x
North Riding - Holding 173, North Riding Agricultural Holdings	x	x	x	x
Nortons X8	x	x	x	x
Olympus 86 Boardwalk	x	x	x	x
Orchards X50-53	x	x	x	x
P70/1 Bridge Studies	x	x	x	x
Paardeplaats Ptn 402	x	x	x	x
Palm Ridge Ext 12	x	x	x	x
Palmietfontein - Portions 142 and 147 of the farm Palmietfontein 141-JR (Thina Sonke)	x	x	x	x
Palmietfontein (Thina Sonke)	x	x	x	x
Panvlakte - Portion 31 of the Farm Panvlakte,	x	x	x	x
Parkmore Erven - Proposed drive though for Burger King on erven 1090, 1091, 1093 and 1095 Parkmore	x	x	x	x
Paulshof 24G	x	x	x	x
Persikor Park	x	x	x	x
Petermaritsburg Fibre optic cable	x	x	x	x
Phola park	x	x	x	x

Pienaarspoort - Portions 66 & 67 of the farm Pienaarspoort 339-JR	x	x	x	x
Pienaarspoort Portions 66 & 67	x	x	x	x
Pomona Gardens Nelen Gounder	x	x	x	x
Pomona Gardens on Lots 127 & 128, Pomona Estates Agricultural Holdings, Kempton Park	x	x	x	x
Pomona X116 – Pomona Agricultural Holding	x	x	x	x
Pomona X83	x	x	x	x
Power Park Ext 2	x	x	x	x
President Park - President Park A H, holdings 78, 79, 80 and the rest of 81	x	x	x	x
Putfontein Feasibility EMM and private owned	x	x	x	x
Rabie Ridge	x	x	x	x
Richardsbay Ring Road	x	x	x	x
Rietfontein - Portions 383, 384, 385, 386 and remainder of portion 44 of the farm Rietfontein 189-IQ	x	x	x	x
Rietfontein 31 (Ptns 167 and 168 of the Farm Rietfontein 31-JR)	x	x	x	x
Rietfontein 44 - Portions 383, 384, 385, 386 and Remainder of Portion 44 of the farm Rietfontein 189 IQ	x	x	x	x
Rietfontein 485 (Ptn160 of the Farm Rietfontein 485-JR) (Clay quarry)	x	x	x	x
Road D1243	x	x	x	x
Road K109, Glen Austin	x	x	x	x
Road K124	x	x	x	x
Road K146	x	x	x	x
Road K164 Wetland	x	x	x	x
Road K54 Mamelodi (Southern Section)	x	x	x	x
Road K60 Road – Close to Witkoppen	x	x	x	x
Road K69 (Pienaars River)	x	x	x	x
Road K71 Road Phase 2	x	x	x	x
Road N4 track road - section 5b	x	x	x	x
Rondebult – Portions 11 & 12 of the farm Rondebult 136-JR	x	x	x	x
Rosherville Extension 16	x	x	x	x
Sam Malema Road – Storm water upgrade	x	x	x	x
Sedaven - Remainder of Portions 8 and 25 of the farm Boschhoek 385-IR	x	x	x	x
Serengeti Gholf Estate	x	x	x	x
Shoshanguve - Remainder of the farm Rietgat 611-JR (also known as Soshanguve ext 1)	x	x	x	x
Sibande Street Mamelodi Upgrade	x	x	x	x
Sinqobile road and stormwater on the farm Luipaardsvlei 246 IQ	x	x	x	x
Sonneglans - Portion 398 of the farm Boschkop 199-IQ	x	x	x	x
Spaarwater 171-IR Ptn 29	x	x	x	x
Stenekoppie - Remainder of Portion 38 and the of the Farm Stenekoppie 153-IQ (also known as Magaliesburg X10)	x	x	x	x
Sunderland Ridge X22 Water Pipeline	x	x	x	x
Tembisa X25	x	x	x	x

Trinity Blue Hills School	x	x	x	x
Tsepong Ext 1, 2 & 3 - Portion 9 of the farm Vlakfontein 546-IQ	x	x	x	x
Vaalbank - Portions 81 & 82 of the farm Vaalbank 512-JQ	x	x	x	x
Van Wyks Restant (Portion of the Farm van Wyks Restant 182-IQ)	x	x	x	x
Villa Liza - Remainder of the farm Villa Liza 675-JR	x	x	x	x
Vlakdrift	x	x	x	x
Vlakfontein - Portion 22 of the farm Vlakfontein 130IR	x	x	x	x
Vlakfontein - Portion 69 of the farm Vlakfontein 30-IR, Benoni	x	x	x	x
Vlakplaats - Remainder of Vlakplaats 138-JR	x	x	x	x
Vogelstruisfontein 263 IQ, Ptn 1	x	x	x	x
Vogelzang - Remainder of the farm Vogelsang 429-JQ	x	x	x	x
Vulcania Cemetery	x	x	x	x
Waaikraal piggery, Delmas	x	x	x	x
Waterstone X3	x	x	x	x
Weltevreden - Portion 37 of the farm Weltevreden 118-JR, Brakpan	x	x	x	x
Westdene Dam - upgrade project	x	x	x	x
Wheatlands 260-IQ	x	x	x	x
Witfontein 301 JR On Portion 252, 253 & Portion 748 (a Portion of Portion 131)	x	x	x	x
Wonderboom - Portion 277 of the farm Wonderboom 302-JR (also known as Annlin x97)	x	x	x	x
Zandfontein 317 ptns 63, 67, 82	x	x	x	x
Zevenfontein -Pnt 155 of the farm Zevenfontein 407-JR (Treesbank A H)	x	x	x	x
Zuurbekom (Protea Glen ext 21, 22, 23 and Industrial Park West on the remainder of ptns 15, 37 and 76 of the Farm Zuurbekom 297-IQ)	x	x	x	x
Zwartkop filling station	x	x	x	x
Zwavelpoort - Portion 494 of the farm Zwavelpoort 373-JR	x	x	x	x
Zwavelpoort - Portion 5 of the farm Zwavelpoort 373-JR	x	x	x	x
Daggafontein Lodeyko	x	x	x	x
K57 Rd	x	x	x	x
IRPTN WECO	x	x	x	x
IRPTN WECO	x	x	x	x
Craighall Erf 187	x	x	x	x
Kaalspruit O/Rcon WD	x	x	x	x
Apex 12 WULA	x	x	x	x
Daveyton WULA	x	x	x	x
Vogelstruis Ptn 12 & 94	x	x	x	x
Road K97	x	x	x	x
Elandsdrift mine review	x	x	x	x
Andeon Rehab	x	x	x	x
Jhb Botanical Rehab	x	x	x	x

Goudrand sewer	x	x	x	x
Goedekeus	x	x	x	x
Olievenhoutbosch Ptn 22-23	x	x	x	x
Olievenhoutbosch Ptn 131	x	x	x	x
Zuurbekom Ptn 38	x	x	x	x
Kraalkop Ptn 16	x	x	x	x
Orchards WECO	x	x	x	x
IRPTN WECO	x	x	x	x
Naauwpoort 54-56	x	x	x	x
Spookmill	x	x	x	x
KZN crossings)	x	x	x	x

b) Community Projects

Community projects include environmental education at schools in the surrounding area of the reserve as well as game reserve management activities.

Ndumo Community Project- under Tshwane University of Technology

- Project planning and management
- Management of eight vegetable ladies working on the project
- Management of staff and equipment at Environmental Education center
- Maintenance of vegetable gardens at eight schools involved in the Ndumo community project
- Basic management and upkeep of facilities in the internal environmental center
- Active participation in environmental education at the eight schools
- Equipping and installation of new kitchen at conference center
- Allocation of funds and budget management
- Facilitation of liaisons between KZN wildlife, the TUT and the Project
- Ensuring the good will of the project is kept in place
- Understanding and knowledge of socio economic conditions of the community
- Liaisons between the tribal authorities and the project

Ndumo game reserve

- All field work data collection for vegetation monitoring using step point as well as disk pasture meter methods.

- Strip transect method of game enumeration. This includes the pre setup of the count as well as the post count data coalition and enumeration.
- Culling operations
- Daily water purification plant operation and maintenance
- Extensive experience in acquisitions using KZN Wildlife purchasing rules

c) Environmental Control Officer (ECO) and Aquatic environmental control officer (AECO)

ECO are tasked with the audit of the environmental impact of pre, during and post construction to ensure the impacts are limited and in line to the prescribed and authorised activities. ECO work includes reporting to the client to guide them through the process and assess the construction crew in minimizing the impacts. The ECO is also responsible to report to the local and national authorities responsible for the authorisation of the activities in the Record of Decision (ROD). Due to my extensive knowledge of aquatic ecosystems I am also able to conduct auditing of water use licenses. This is specifically termed Aquatic environmental control officer (AECO).

ECO

- Country Life retirement village
- Forest Hill Shopping centre

AECO

- Springs Mall
- Netcare Linmed (started beginning May 2017)
- Ekurhuleni IRPTN BRT (March 2016- current)
- Orchards development (end 2015 to end 2016)
- Glenway Cable (February- May 2016)
- Alwyn Road (2013-2014)

- Secunda Mall Construction wetland ECO auditing as in terms of Water Use License 08/C12D/CI/1852 (2012-current)
- Klippoortje Development wetland ECO auditing (2011-2012)

d) Environmental impact assessments

Environmental impact assessments comprise many aspects. As part of the EIA application, many documents including scope of work reports, environmental management reports, photographic reports and other documents are required. As part of the team at Galago Environmental cc, I have been involved with the following EIA applications:

- Crudus waste management- Hazardous waste handling licence (2011)
- Development Bank of South Africa- Solar Energy Application (2011)

e) Environmental Education

Environmental education (EE) is done to sensitize individuals to the ecological complexity of the natural environment. To be able to conduct EE a good sound knowledge of ecological principals is required. EE is also required to sensitize construction workers prior to them accessing the site. This enables them to identify actions that could negatively affect the environment.

- Rynfield/ Lynmed hospital EE plan (2012)
- Lapalala Wilderness School (2003-2005)
- Jubaweni Eco-School (2002-2003)

f) Ecological Management Plans

Due dynamic pressures on the natural systems as well as ever-expanding human needs, the conservation of open spaces surrounding developments is of paramount importance. Ecological management plans are compiled to address any impacts, and

suggest preventative and mitigating measures to ensure the sustainability of the natural system and ecological health. Included in the scope of work to compile an ecological management plan is the monitoring of the ecology, fire management plan, open space management plan, impact mitigation and in some cases carrying capacity calculations and recommendations. I was responsible person for the compilation of the all the projects.

Galago Environmental cc

- Ecological Management Plan for the Linmed Hospital (June 2012)
- Ecological Management Plan for the Open Space Area on Portions 150&151 of the farm Doornpoort 295 JR. (January 2012).
- Ecological Management Plan for the Open Space Area on Portion 1 of Re 89 Klippoortje Agricultural Lots and Portion 2 of Re 91 Klippoortje Agricultural Lots. (August 2011).
- Ecological Management Plan for the Crudus Waste Management Hazardous waste license application. (April 2011).

Restigen Risk Management Consultants

- Golden valley Ecological Management Plan for mineral exploration. May 2011.

Pumba Wilderness

- Ecological Management and monitoring plan for Portion 7 of the farm Diamant 771KQ. November 2006.

g) Rehabilitation implementation

The correct implementation of rehabilitation planning is just as important as the planning of the rehabilitation effort. I have work with large and small rehabilitation projects including the use of hydro seeders and more labour intensive methodologies.

Galago Environmental cc

- Springs Mall

- Netcare Linmed
- Orchards storm water channel rehabilitation
- Implementation of the rehabilitation plan for Portions 89 & 90 of the farm Klippoortjie. November 2011.
- Implementation of the rehabilitation plan for the Secunda mall project. September 2012- current

Aquamulch/ Aquacuna

- Rehabilitation and Landscaping of Lynnwood and Simon Vermooten Road, Pretoria (2010)
- Assistance to environmental officer in all duties on the VRESAP project
- Hydro-seeding of VRESAP project (2009-2010)
- Bapong Weigh bridge rehabilitation (2009)

h) Ridge Ecology assessments

Ridges are defined by the Gauteng Department of Agriculture and Rural Development (GDARD) as:

*“The term “ridge” refers loosely to hills, koppies, mountains, kloofs, gorges etc. and the essential characteristic defining these topographical features is the slope of the site, whereby and topographical feature in the landscape that is characterised by slopes of 5° or more **as determined by means of a GIS digital elevation model**” (GDACE 2001).*

Galago Environmental cc

- K71 Road ridge assessment
- Portion 4 of the farm Kleinfontein 368 JR
- Mahube Valley Mall Development
- Misgund Development

- Alberton Churh/ Elandsfontein
- Van Wyks restant
- Coopers Mast
- K60
- K71
- Letlahbong housing development
- Lindley WWTW
- Lindley New
- Lindley ptn 172
- Mogale City
- Paardeplaats Ridge
- Sunderland Ridge Water Pipeline
- Zandfontein Ridge assessment
- Zwavelpoort Ridge assessment

i) Aquatic ecosystem rehabilitation and monitoring planning

The rehabilitation of wetlands is done to restore a specific goods or functions provided by the wetland to a state determined by the client of the authorities. This depends on the objectives of the project as well as the current condition of the wetland. Wetland rehabilitation is very complex as many ecological aspects are combined by the prolonged presence of water in the landscape. Post implementation of ecological management plans as well as terrestrial and aquatic rehabilitation plans requires the monitoring of the environmental factors to ensure the success of the plan. This is based on adaptive management, with a clear feedback into planning, and adaptations to results received. Please see Table 2: List of completed ecosystem rehabilitation plans below.

Table 2: List of completed ecosystem rehabilitation plans

PROJECT NAME
Buffelspoort road
Chrissiesmeer brug, N17
Daxa Sands – Portion 19 of the Farm Reserve no 18 no 15838
Erand Gardens
Erand Sewer on Portion 100 for the E-Rand A H X1
Ergo Road
Garsfontein Road Crossings
Hartebeesfontein on Portion 38, 198 and 244 of the farm Hartebeesfontein 472-JQ
Hennops lapa – 24G application on Erven 227 of Portion 228 of the farm Zwartkop 356 -JR
Heriotdale on Portion 19 of the farm Doornfontein 92-IR
Jupiter sub-station on the farm Elandsfontein 107-IR
Katbosfontein
Kendall power station
Klippoortjie 89 Ecological
Kwa Mhlanga Shopping Centre
Lindley New site WWTW
Lindley WWTW Biodiversity
Linmed Hospital
Majaneng stormwater pipeline in Kudube unit 3, Hammanskraal
Mangasutho Village - Wards 2 and 8 of the Mangosuthu Village, Edumbe municipality, KZN, on portions of the Farms Frischgewaagd no 17210, Schaapkraal no 218 and Blinkwater no 229
Ngagane Railway Siding - Portions 3 and 5 of the Farm Macalman 4254-HS, near Newcastle
Orchards X50-53
P70/1 Bridge Studies
Paulshof 24G
Petermaritzburg Fibre optic cable
Pomona Gardens Nelen Gounder
Richardsbay Ring Road
Road D1243
Road K109, Glen Austin
Road K124
Road K146
Road K164 Wetland
Road K54 Mamelodi (Southern Section)

Road K60 Road – Close to Witkoppen
Road K69 (Pienaars River)
Road K71 Road Phase 2
Road N4 track road - section 5b
Sam Malema Road – Storm water upgrade
Secunda Mall
Serengeti Gholf Estate
Shoshanguve - Remainder of the farm Rietgat 611-JR (also known as Soshanguve ext 1)
Singobole road and stormwater on the farm Luipaardsvlei 246 IQ
Vogelstruisfontein 263 IQ, Ptn 1

j) Fish population assessments

The assessment of fish populations is done using electronarcosis, and netting of fish in the described habitats as per Kleynhans (2007). I am well versed in the use of Module D: Fish Response Assessment Index in River EcoClassification: Manual for EcoStatus Determination. I have complete a fish identification course held in Kruger National Park at the end of May 2016 by Roger Bills from SAIAB.

k) Sass 5 Assessment

The rapid assessment of the aquatic macro-invertebrates is used to determine the condition of the aquatic habitat, using the method described by Dickens and Graham 2002. My accreditation is up for review at the end of the year.

Galago Environmental cc

- DaXa sand,
- Spookmil
- K69 road extension,
- Jan Hendriksfontein ptn 263,

7. Lecturing and course presentation

I presented parts of the “Advanced wetland course” held at the University of Pretoria 8 - 12 February 2016. I am also involved with presenting the “vleilande kenteken” at the Swartvlei Voortrekkers camp in July each year.

8. Computer proficiency: Programs specifically designed for ecological assessments

- Macfarlane, D.M., Bredin, I.P., Adams, J.B., Zungu, M.M., Bate, G.C. and Dickens, C.W.S. (2014). Preliminary guideline for the determination of buffer zones for rivers, wetlands and estuaries. Final Consolidated Report. WRC Report No TT 610/14, Water Research Commission, Pretoria.
- Distance 5.0: used to analyses distance sampling surveys of wildlife populations.
- FRAI: (Module D: Fish Response Assessment Index in River EcoClassification: Manual for EcoStatus Determination (version 2)). Kleynhans CJ. , 2007. WRC Report No. TT330/08
- FROC: (Reference frequency of occurrence fish species in South Africa). Kleynhans CJ, Louw MD, Moolman J. 2007. WRC Report No TT331/08.
- MERAI: Module E: Macroinvertebrate Response Assessment Index in River EcoClassification: Manual for EcoStatus Determination (version 2) Thirion, C. 2007. WRC Report No. TT 332/08.
- VEGRAI: (Riparian Vegetation Response Assessment Index in River Eco Classification: Manual for Eco Status Determination (version 2)). Kleynhans CJ, MacKenzie J, Louw MD. 2007. WRC Report No. TT 333/08.
- WET-EcoServices: A technique for rapidly assessing ecosystem services supplied by wetlands. Kotze DC, Marneweck GC, Batchelor AL, Lindley DS and Collins NB, 2007. WRC Report No TT 339/08.

- WET-Health: A technique for rapidly assessing wetland health Macfarlane DM, Kotze DC, Ellery WN, Walters D, Koopman V, Goodman P and Goge C. 2007.. WRC Report No TT 340/08.

9. APPENDIX B: Employment and studies timeline

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016								
Tertiary Studies	Tshwane University of Technology (TUT) N Dip Nature Conservation			Practical Experience Year N Dip Nature Conservation		Tshwane University of Technology (TUT) B Tech Nature Conservation				University of Johannesburg (UJ) M.Sc. Aquatic Science at Department of Zoology													
Short courses completed						FGASA Level 1				Environmental Law for Environmental Practitioners (CEM)		SASS 5 Training (Nepid Consultants)		Wetlands Management: Introduction and Delineation. (UFS CEM)		Soil Classification and Wetland Delineation (Terrasoil and SASSO)		SASS 5 Training (Groundtruth consulting)		SASS 5 Accreditation		Fish Identification course	
Work Experience	Jubaweni EcoSchool Facilitator		Game Count: Ndumo Game reserve	Riem land Gam	Pumba Wilderness Game Farm		Ndumo Community Project		Aquamulch/ Aquacuna Hydroseeders		Galago Environmental cc												
	Lapalala Wilderness School																						

