

Investigating anthropogenic impacts on the Johannesburg Botanical gardens and Emmarentia Dam in Johannesburg.

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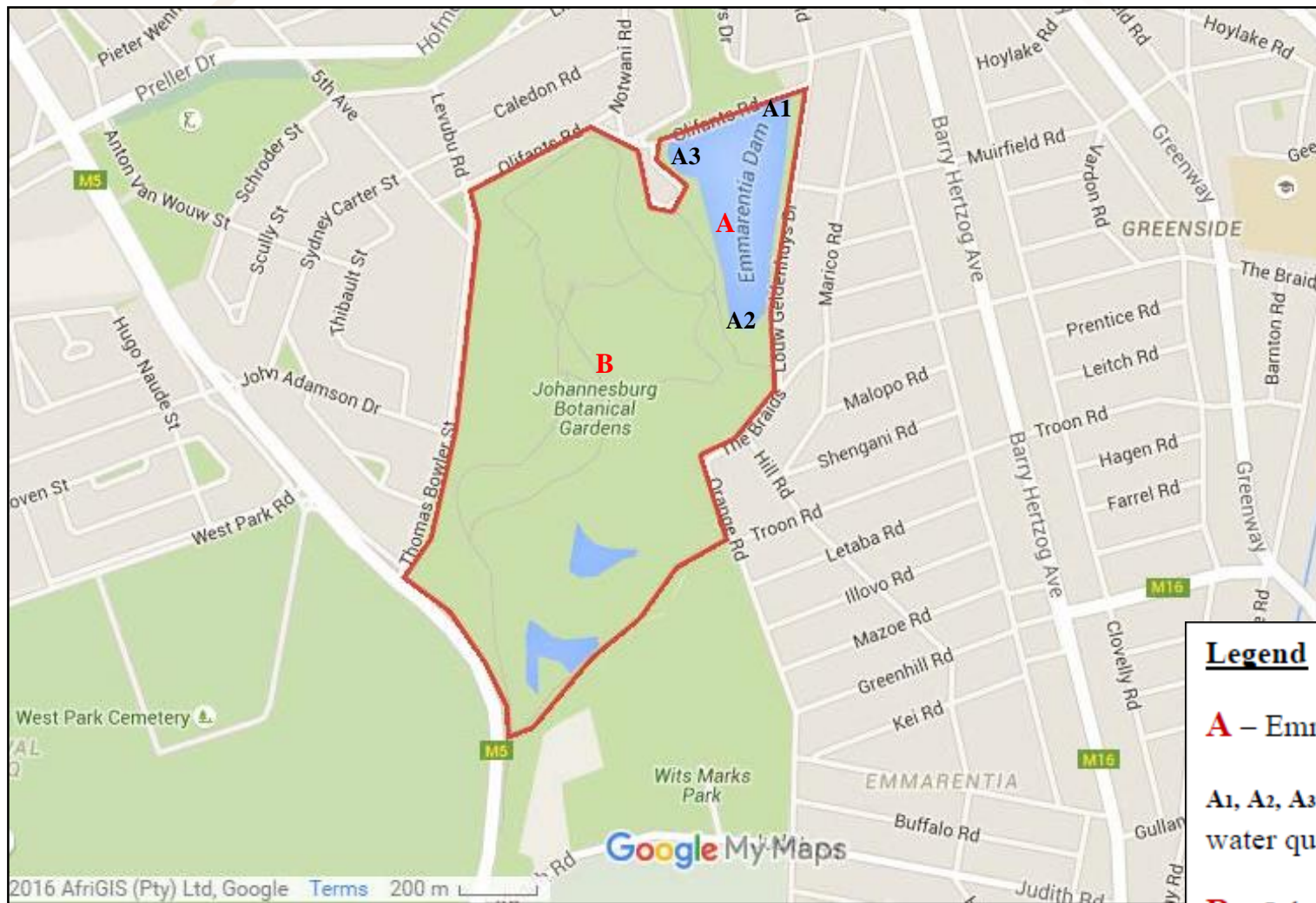
Kevin Mearns



Why the investigation?

- Increase human population, rapid urbanization and industrialization places huge stress on the environment.
- Green spaces such as botanical gardens traditional served predominantly research and ecological roles but more recently botanical gardens serve as important green lungs and recreational roles.(Ballantyne et al., 2008; Chiesura, 2004; Leung, 2012).
- Johannesburg Botanical Garden and Emmarentia Dam is home to over 30000 trees. Facilities are open for public use daily.
- Activities such as cycling, picnicking, running and hiking, walking pets, wedding receptions, canoeing, and nature appreciation.
- These activities however have a direct impact of soil, vegetation, water quality and to a lesser extent animal life.
- This study investigated these impacts through a series of field surveys.

Study Area



Legend

A – Emmarentia Dam

A1, A2, A3 – Sampling points for water quality testing.

B – Johannesburg Botanical Gardens

— - Study Area

Water Quality

PARAMETER	A1	A2	A3	SANS241
Suspended solids (mg/l)	13	11	7	-
pH	6.8	7.2	7.6	5-9.7
Electrical Conductivity (mS/m)	32	31	31	170
Dissolved Oxygen (mg/l)	4.19	2.83	5.71	-
Chemical Oxygen Demand (mg/l)	13	19	12	-
Esherichia Coli (mpn/100ml)	83	24	70	Not detected
Total Coliforms (mpn/100ml)	2420	2420	2420	10

Water quality is good
Ecoli and total coliform
Monitoring
Water recreation
activities.

Soil

Trampling vegetation

Soil compaction

Increased runoff

Loss of fertility

Footpaths



Vegetation



Animal Life



Eutrophication



Solid Waste



Way forward

- Signage
- Paving walkways and boardwalks
- Active and Passive controls
- Waste bins
- Zoning (recreational vs ecological)
- Water quality monitoring



Thank you

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