

Is Groenvlei really fed by groundwater discharged from the Table Mountain Group (TMG) Aquifer?

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Abstract

Vankervelsvlei is a unique wetland located in the stabilised dunes east of Sedgefield. Groenvlei is one of a series of 5 brackish coastal lakes along the Southern Cape coast of South Africa, but is the only one disconnected from the sea. It has been hypothesised that discharge from the underlying Table Mountain Group Aquifer sustains Vankervelsvlei, which in turn discharges into Groenvlei. This paper critically reviews the conceptual model and information on which the hypothesis was based. It is argued that the conceptual model is flawed as it does not take account of topographical and geohydrological conditions prevalent in the area. Analysis of limited hydrochemical data did not explore other possible water sources, and the electrical conductivity characteristics used to confirm the link between the wetlands and the deeper secondary aquifer also apply to 56.3% of boreholes located in a variety of aquifer types across the Western Cape Province. No information is available that supports a link to the Table Mountain Group. Rather, it appears that Vankervelsvlei is sustained by direct rainfall and there is no hydraulic link between Vankervelsvlei and Groenvlei.

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