WORKING PROJECT TITLE	Long term soil physico-chemical and microbial recovery monitoring after *Eucalyptus camaldulensis* clearing
CORE TEAM MEMBER	Dr. Sheunesu Ruwanza
ACADEMIC LEVEL OF THE PROJECT	M.Sc.
PROJECT BACKGROUND	The assessment of invasive alien plant management requires monitoring of both soil and vegetation properties over long time to gauge the effectiveness of ecological restoration (Ruwanza et al., 2018). Monitoring of alien plant cleared areas is essential for measuring soil and vegetation recovery trajectory, unfortunately most monitoring has been focused on vegetation recovery only neglecting soil physio-chemical and biological properties. Although soil physico-chemical properties take time to change after alien plant clearing (Ndou and Ruwanza, 2016), microbial indices are sensitive to small changes in the environment, therefore can act as good indicators of soil recovery after alien plant clearing. Interestingly, microbial communities are involved in soil functions such as soil C and N cycle, soil fertility and structure (Chaparro *et al*. 2012), thus more likely to change soil physico-chemical properties after alien plant clearing. It remains uncertain whether alien plant clearing for restoration purposes change soil physico-chemical and bacterial properties.

	Therefore, this proposed study will focus on changes in soil physico-chemical and bacterial properties ten years after *Eucalyptus camaldulensis* removal along the Berg River in the Western Cape, South Africa. The aim will be to quantify the long-term consequences of *E. camaldulensis* clearing on soil physico-chemical and bacterial properties. Various soil physico-chemical properties (soil moisture, pH, P, N, C, K, Na, Ca, Mg, NO_3^- - N, NH_4^+ - N, and soil repellency) and bacterial properties (Total bacteria, total coliforms, and E. coli) will be measured on *E. camaldulensis* cleared, uninvaded, and natural sites over four seasons of the year. Results of the study are aimed at documenting soil recovery trajectory following *E. camaldulensis* removal along the Berg River.
FURTHER READING	Chaparro, J.M., Sheflin, A.M., Manter, D.K., Vivanco, J.M. , 2012. Manipulating the soil microbiome to increase soil health and plant fertility. *Biology and Fertility of Soils* 48, 489–499. Ndou E., Ruwanza, S., 2016. Soil and vegetation recovery following alien tree clearing in the Eastern Cape Province of South Africa. African Journal of Ecology 54, 460-470. Ruwanza, S., Gaertner, M., Esler, K.J., Richardson, D.M., 2018. Medium-term vegetation recovery after removal of invasive *Eucalyptus camaldulensis* stands along a South African river. South African Journal of Botany 119, 63-68.
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