WORKING PROJECT TITLE	Determining realistic restoration goals for riparian vegetation in a social-ecological landscape context: Case Study Dwars River, Western Cape.
CORE TEAM MEMBER	Karen Esler, Dave Richardson
ACADEMIC LEVEL OF THE PROJECT	MSc
PROJECT BACKGROUND	The United Nations declared 2021-2030 the "decade on ecosystem restoration" (https://www.decadeonrestoration.org/), during which the restoration & repair of degraded lands needs to be scaled up to mitigate against global warming and to improve the flow of ecosystem goods and services. Riparian systems are disproportionately impacted by a range of perturbations, including water-consuming tree invasion in the Western Cape that alters the ecology & hydrology of river systems. Here, improving hydrological flows and increasing water delivery to people provide key motivations for restoring these systems. However small-scale interventions are unlikely to succeed in the long-term without integrated landscape-level planning that considers the social-ecological context. While an ecological understanding is critical in formulating goals, social drivers are also key, as restoration goals may be strongly influenced by historical and or cultural prerogatives. This MSc will aim to determine how best to integrate such diverse (and often opposing) ecological & social goals in developing a rigorous landscape/catchment scale restoration plan. The context is the Dwars River, Western Cape, within a significantly altered and human-occupied catchment. Here, the Wildlands Conservation Trust has been working since 2018 on clearing invasive species and implementing some active restoration interventions in places. However, to scale up and ensure long-term effectiveness, an integrated, sustainable and socially

	acceptable catchment-level plan is necessary. The research will involve baseline and historical mapping to determine ecological units, collation of ecological and social data, and a knowledge co-creation process possibly involving restoration scenarios.
FURTHER READING	Gann, G. D., McDonald, T., Walder, B., Aronson, J., Nelson, C. R., Jonson, J., . . . Dixon, K. W. (2019). International principles and standards for the practice of ecological restoration. Second edition. Restoration Ecology, S1-S46. Holmes, P. M., Richardson, D. M., Esler, K. J., Witkowski, E. F., & Fourie, S. (2005). A decision-making framework for restoring riparian zones degraded by invasive alien plants in South Africa. South African Journal of Science, 553-564. Metzger, J.P., Esler K., Krug, C., Arias, M., Tambosi, L., Crouzeilles R., Acosta A.L., Brancalion, P.H.S., D'Albertas F., Teixeira Duarte, G., Couto Garcia, L., Grytnes, J., Hagen, D., Jardim, A., Kamiyama C., Latawiec, A., Ribeiro Rodrigues R, Ruggiero PGC, Sparovek G., Strassburg, B., Saraiva A.M., Joly, C., (2017) Best practice for the use of scenarios for restoration planning. Current Opinion in Environmental Sustainability 29:14-25.
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