



WORKING PROJECT TITLE	Invasion ecology of the emerging alien plant species in South Africa
CORE TEAM MEMBER	Dr Thabiso Mokotjomela
ACADEMIC LEVEL OF THE PROJECT	BSc Hon & MSc
PROJECT BACKGROUND	<p>Biological invasions are a major threat to biodiversity and economy worldwide (Nel et al. 2004; Pimentel et al. 2005; Hulme 2012). South Africa is second most alien plant invaded country to Australia, and consequently has devoted immense effort to managing alien and invasive species (Richardson and van Wilgen 2004; Poona 2008). Different risk analysis tools have been developed aiming to proactively determine potential impacts of invasion for some species and advise on effective management and policy development (Kumschick and Richardson 2013; Wilson <i>et al.</i> 2013; Faulkner <i>et al.</i> 2014; Keller and Kumschick 2017; Kumschick <i>et al.</i> 2018). Despite the efforts to control the widespread invaders in South Africa, many other species are not managed and sometimes their impacts are not reported (van Wilgen and Wilson, 2018) because they are either not yet listed in national legislation as targets for regulation or conflict of interest in their socio-economic use. While the impacts of the major invaders are well known, the emerging invaders together with other unlisted/undetected alien species may compound the problem of invasion in South Africa. There is limited scientific knowledge especially on ecological aspects and life-history</p>



traits of many alien plants in South Africa of which precludes accurate categorization of the invasiveness of a species and thus their listing for regulations. Factors influencing the spread rates and establishment success of alien plants should be determined for the accurate prediction of future species invasion risk (Kumschick *et al.* 2018).

This study therefore aims to collect experimental and observational evidence on life-history traits of alien fleshy-fruited/seed-bearing plant species for supporting the risk analysis processes and accurate listing of species under the current national regulatory framework. In the proposed study, we will also investigate ecological impacts of selected emerging alien species on native habitat as well as their spread and establishment mechanisms. The study will also compare the differences in reproductive biology between invasive and non-invasive home range of each plant species to determine the potential barriers to invasion.

FURTHER READING

Faulkner KT, Robertson MP, Rouget M, Wilson JRU (2014) A simple, rapid methodology for developing invasive species watchlists. *Biological Conservation* 179, 25-32.

Hulme PE (2012) Weed risk assessment: a way forward or a waste of time? *Journal of Applied Ecology* 49, 10-19.

Keller RP, Kumschick S (2017) Promise and challenges of risk assessment as an approach for preventing the arrival of



harmful alien species. *Bothalia - African Biodiversity & Conservation* 2311-9284.

Kumschick S, Richardson DM (2013) Species-based risk assessments for biological invasions: Advances and challenges. *Diversity and Distributions* 19, 1095-1105

Mokotjomela TM, Musil CF, Esler KJ (2013) Frugivorous birds visit fruits of emerging alien shrub species more frequently than those of native shrub species in the South African Mediterranean climate region. *South Africa Journal of Botany* 86, 73-782.

Van Wilgen BW, Wilson JR (Eds.) (2018) The status of biological invasions and their management in South Africa in 2017. South African National Biodiversity Institute, Kirstenbosch and DST-NRF Centre of Excellence for Invasion Biology, Stellenbosch.

KEY CONTACTS

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