

SANBI Team Member: tbc

University Supervisor(s): John Wilson (SANBI / Stellenbosch University), Tumeka Mbobo (SANBI), Jana Fried (Coventry University, UK)

Location: Stellenbosch / Coventry, UK (tbc)

Level of project: Doctoral

Working title: Regulating fruity invasions—passion fruit in South Africa as a case study

Background

In South Africa, blackberry, dragon fruit, guava, jambolan, loquat, mulberry, prickly pear, passion fruit, and tree tomato are grown commercially, in people's gardens, and their fruit are harvested from populations outside of cultivation. All of these plants are regulated as invasive in South Africa, while there are also exemptions from the regulations if fruit are used for human consumption. Does this dual approach appropriately balance the twin desires for fruit and for a South Africa protected from the harm caused by biological invasions?

The purpose of this project is to explore these issues using passionfruit (*Passiflora* species) as a case study group. The project is likely to include the following aspects:

- A review of the movement of species in the group around the world, including synthesising the evidence for naturalisation, invasions, and impacts, as well as exploring how alien species traits, location characteristics, and factors related to introduction events interact;
- Detailed studies of the invasion ecology of selected species in South Africa;
- A determination of the extent of usage, intensity of economic usage, and perceptions of the group within South Africa;
- Explore the consequences of different regulatory options for this group; and
- Evaluate the extent to which lessons can be transferred across different taxa—is this an invasion syndrome?

This is a project suitable for students interested in using a variety of disciplinary tools and approaches to develop recommendations for regulation and management. There may be an option for the project to be jointly based at Stellenbosch University and Coventry University.

Key contacts

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Further Reading

Catford JA, Wilson JRU, Pyšek P, Hulme PE, Duncan RP (2022) Addressing context dependence in ecology.

Trends in Ecology & Evolution 37: 158–170. <https://doi.org/10.1016/j.tree.2021.09.007>

Kumschick S, Wilson JRU, Foxcroft LC (2020) A framework to support alien species regulation: the Risk Analysis for Alien Taxa (RAAT). Neobiota 62: 213–239. <https://doi.org/10.3897/neobiota.62.51031>

Mbobo T, Richardson DM, Lucas EJ, Wilson JRU (2022) Patterns of introduction, naturalisation, invasion, and impact differ between fleshy- and dry-fruited species of Myrtaceae. Perspectives in Plant Ecology, Evolution and Systematics 54: 125648. <https://doi.org/10.1016/j.ppees.2021.125648>

Novoa A, Shackleton R, et al., Wilson JRU (2018) A framework for engaging stakeholders on the management of alien species. Journal of Environmental Management 205: 286–297.

<https://doi.org/10.1016/j.jenvman.2017.09.059>

Novoa A, Richardson DM, et al., Wilson JRU (2020) Invasion syndromes: a systematic approach for predicting biological invasions and facilitating effective management. Biological Invasions 22: 1801–1820.

<https://doi.org/10.1007/s10530-020-02220-w>

Pyšek P, Bacher S, et al., Blackburn TM (2020) Macroecological Framework for Invasive Aliens (MAFIA): disentangling large-scale context dependence in biological invasions. Neobiota 62: 407–462.

<https://doi.org/10.3897/neobiota.62.52787>

Zengeya T, Ivey P, et al., van Wilgen B (2017) Managing conflict-generating invasive species in South Africa: Challenges and trade-offs. Bothalia: African Biodiversity and Conservation 47: a2160.

<https://doi.org/10.4102/abc.v47i2.2160>