



MSc project: The impact of invasive alien plant species on ecosystem processes: using plant-animal interactions on Seychelles Inselbergs as model systems

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The Seychelles National Park Authority (NPA) is the largest organisation in Seychelles responsible for the management and protection of terrestrial and marine biodiversity across the islands. Invasive alien plant species pose a severe threat to the long-term viability of threatened endemic plant communities. To mitigate their impact and improve understanding of how alien plants interfere with native ecosystem processes, research is ongoing to investigate direct and indirect effects of alien plants on native antagonistic and mutualistic interactions on a community level. There will be at least one (ideally two) MSc project position available in early 2012, and each project would be a self-contained part of a larger community-level experiment which has been running since 2007.

Background of the project:

Alien plants can compete with natives for pollination services. In 2007, we studied such indirect interactions between alien and native plants in six Seychelles Inselbergs communities across an invasion gradient. We used pollination networks to show that high invasion levels can destabilise native plant-pollinator interactions. At low levels of invasion, however, native species seem to be little affected by the presence of alien plants (see Kaiser-Bunbury *et al.* 2011, *J Ecol* for further information).

A new 3-yr project was launched in 2011, advancing the previous study by conducting a restoration experiment on the community level and investigating changes in pollination network structure as a result of alien plant removal.

Research foci and MSc project questions:

The MSc project(s) will aim to quantify the indirect impact of alien on native plant species through ecosystem processes such as feeding relationships (e.g. herbivory by insects) or seed-dispersal interaction by birds. The underlying hypothesis is that the presence of alien plants negatively affects co-existing native species thus jeopardising the long-term viability of native vegetation.

Specific research questions will be developed by the student, and depending on the student's interest and experience the research focus could include either individual species or communities with a diverse range of native and alien plant, invertebrate (e.g. beetles, moths, flies) and vertebrate (e.g. birds, geckos) species.

NPA and AU will provide:

- Logistical & administrative support
- Field guidance as part of a larger research team
- Supervision on Mahé

The student will be expected to provide (with UZH support):

- International travel, accommodation, living costs, transport, field equipment



The project will provide an excellent opportunity to obtain theoretical and practical experience in tropical ecology and conservation, in the highly topical and expanding areas of plant-animal interactions and invasive species biology, with an active research team in the Seychelles. We would consider recruiting a highly motivated student with a strong interest in plant-animal interactions and invasive species and experience in field work, preferably in the tropics. The candidate has to be physically fit and must be able to work for long hours in the field. **If you are interested**, please contact **Christopher** (c.kaiser-bunbury@biology.au.dk) or **Dennis** (dennis.hansen@ieu.uzh.ch) for further information. Applications should include a CV and motivation letter.