



Tanya Strydom

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TanyaS08 |  TanyaS_08

Dear Kevin Wilcox,

This position will examine the drivers of plant community and ecosystem stability at a variety of spatial and temporal scales. The student will learn to incorporate empirical findings into process-based and hierarchical models. Dissertation subject matter is flexible and will depend on student's interests and affinities. Training and mentorship will be available in study design, ecological sampling, and process-based modeling. Student will be based at the University of Wyoming, and field research will likely be in US grassland ecosystems.

INTRODUCTION

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RESEARCH INTERESTS

Broadly I am interested in the factors that play a role in shaping communities, more so how species respond to and interact with their environment and neighbouring species. I find this especially interesting at fine scales and am particularly interested in the role of the microclimate and niche construction in shaping species responses and interactions. With regards to species responses I am interested in how these may be manifested as variation in trait expression or as changes in species interactions. A topic that I find of particular interest is the role of phenotypic plasticity in allowing a species to persist in an area and as a result how trait expression may vary among different microhabitats or along environmental gradients and how this in turn may alter the importance or nature of species interactions. I am also interested in how we can use this information with regards to improving our understanding species distributions and our ability to model them. However, there are other avenues of research that I have always found interesting and would love to gain more exposure to, such as looking at the bigger, phylogenetic, picture or how pairwise interactions fit together to form networks within the community and the importance of indirect interactions. I believe that improving our understanding of these relationships may prove beneficial in understanding how a species may respond in a changing world. I enjoy projects that have a strong field component that find their basis in observational studies as I believe that it is often difficult to emulate the nuances of real world conditions using a strictly experimental approach. However, I do believe that there is value in working with quasi-experimental designs in natural settings. In addition, I would love to work with a project that has a temporal component to it and tracks species/individuals in time not just in space (due to the limited time available for honours and masters projects I have only worked with the spatial component of environmental variation). I have an inclination towards and enjoy the analytical and programming side of research as well and have done multiple statistical courses including a PhD-level course focusing on Bayesian statistics. I am very interested in further developing this skillset by implementing them within an ecoinformatic framework by conducting research that is focused on the building of usable models and furthering the development of ecological theories. I would like to broaden my skillset as a researcher and am interested in potentially applying my research interests in systems that I have previously had limited exposure to, this includes potentially working with plant-animal interactions or solely with animals as a way to expand on the plant-focused research I have previously conducted.

TRAINING

WHY INTERESTED IN THIS POSITION

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CONCLUSIONS

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Best Regards,

A handwritten signature in black ink, appearing to read 'Tanya Strydom', with a large, stylized flourish extending from the end.

Tanya Strydom

Curriculum Vitae

Research Interests

functional traits; ecoinformatics; microclimates; species interactions; FAIR and open science

Education

Master of Science: Ecology and Biodiversity

Stockholm, Sweden

STOCKHOLM UNIVERSITY

2018-20

- Advisor: K. Hylander, PhD
- Thesis: Thesis: Declines and increases in northern and southern plant populations after changes in the microclimate

Bachelor of Science (Honours): Plant Sciences

Pretoria, South Africa

UNIVERSITY OF PRETORIA

2017

- Advisor: P.C. le Roux, PhD
- Thesis: Thesis: Bush encroachment in South Africa's montane grasslands: the impact of *Leucosidea sericea* on microclimate and vegetation

Bachelor of Science: Ecology

Pretoria, South Africa

UNIVERSITY OF PRETORIA

2014-16

Research Experience

Plant functional trait responses to elevation and fire

V. VANDVIK, PhD AND B.J. ENQUIST, PhD

2020

- Attended the 5th Plants Functional Traits Course in Peru co-hosted by the University of Bergen and Arizona University.
- Theory on plant functional traits and their relationships with broader ecological processes.
- Practical elements include: experimental design, data collection and curation, and report writing.

Plant vital rates along microclimate gradients.

K. HYLANDER, PhD

2019-20

- Masters degree research project.
- Focused on the variation of plant population vital rates along microclimate gradients and the role of historic climatic conditions.

Plant-pollinator interactions in different microsites

J. EHRLÉN, PhD AND A. TACK, PhD

2019

- A Masters level course research project.
- Independently worked on hypothesis formulation and experimental design.

Changes in plant functional traits at fine-scales

P.C. LE ROUX, PhD

2018

- Collecting and processing plant functional traits on sub-Antarctic Marion Island.
- Research focused on looking at changes in plant functional traits along microclimate gradients.

The impact of an encroaching species on vegetation and microclimate

P.C. LE ROUX, PhD

2017

- Honours degree research project.
- Research focused on the concepts of biotic interactions, ecosystem engineering and habitat modification.

Skillset

Statistical Analysis

generalized and linear mixed-effect models; multivariate analysis; Bayesian analysis; primarily using R

Spatial Analysis

spatial analysis in ecology; ArcGIS; Maxent; GBIF

Image Analysis

ImageJ; Adobe Photoshop

Phylogenetic Analysis

Extracting and cleaning samples from GenBank; MEGA

Academic Writing

assessed at various levels; peer-reviewed articles; literature reviews; research proposals; reports; popular articles

Oral Communication

masters level course; presented in various settings

Peer Review

as an assistant (PLoS ONE, 2018); second-round reviewer (Plant Ecology, 2019)

Website Development

content creation; front-end development (Adobe Illustrator/HTML/CSS/R Markdown)

Language Skills

English and Afrikaans as a native speaker; conversational in German; basic Swedish and Spanish

Written Work

PEER-REVIEWED

1. Kattge, J, G Bönnisch, S Díaz, S Lavorel, I Prentice, P Leadley, and ... (2020). TRY plant trait database–enhanced coverage and open access. *Global change biology*.

MANUSCRIPTS

Under Review

1. Geange, SR, J von Oppen, **T Strydom**, M Boakye, TLJ Gauthier, R Gya, AH Halbritter, LH Jessup, SL Middleton, J Navarro, ME Pierfederici, S Cotner, and V Vandvik (*under review*). Next-generation field courses: integrating Open Science and online learning.

In Prep

1. Geange, SR, J von Oppen, **T Strydom**, M Boakye, TLJ Gauthier, R Gya, AH Halbritter, LH Jessup, SL Middleton, J Navarro, ME Pierfederici, S Cotner, and V Vandvik (*under review*). Next-generation field courses: integrating Open Science and online learning.
2. Chacón-Labela, J, SR Geange, SL Middleton, M Boakye, AH Halbritter, R Gya, **T Strydom**, J von Oppen, and W Farfan-Rios (*in prep*). Challenges and opportunities for science in the COVID-19 era.
3. **Strydom T** and PC le Roux (*in prep*). Bush encroachment in South Africa's montane grasslands: the impact of *Leucosidea sericea* on microclimate and vegetation.

POPULAR ARTICLES

1. Cotner, S, BJ Enquist, J Chacon, BS Maitner, W Farfan-Rios, S Michaletz, J Garen, TLJ Gauthier, V Vandvik, R Gya, AH Halbritter, K Hořková, ME Pierfederici, NL Quinteros-Casaverde, ES Diaz, LH Jessup, **T Strydom**, and J von Oppen (2020). *International scientists need better support during global emergencies*. <https://www.timeshighereducation.com/blog/international-scientists-need-better-support-during-global-emergencies>.

Internships

UiB Internship

UNIVERSITY OF BERGEN

2020

- Website development for the Plants Functional Courses website. This included content creation as well as some front end development

3rd year Undergraduate Mentorship Program

UNIVERSITY OF PRETORIA

2016

- Worked as an assistant within the M. Robertson lab. This included the sorting and identification of pitfall trap samples as well as extracting information from databases

Funding and Awards

Qualified for the UP Postgraduate Masters Research Bursary.

AWARDED BY: UNIVERSITY OF PRETORIA

2018

Awarded the 3rd year Undergraduate Mentorship Bursary.

AWARDED BY: UNIVERSITY OF PRETORIA

2016

References

Peter C. le Roux, Ph.D.

ASSISTANT PROFESSOR OF ECOLOGY AND BIODIVERSITY, UNIVERSITY OF PRETORIA

peter.leroux@up.ac.za

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Kristoffer Hylander, Ph.D.

PROFESSOR OF ECOLOGY, DEPARTMENT OF ECOLOGY, ENVIRONMENT AND PLANT SCIENCES, STOCKHOLM UNIVERSITY

kristoffer.hylander@su.se

Sehoya Cotner, Ph.D.

PROFESSOR OF BIOLOGY TEACHING AND LEARNING, UNIVERSITY OF MINNESOTA

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