CLARKE JM VAN STEENDEREN

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PERSONAL INFORMATION

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EDUCATION

- PhD, Entomology, Rhodes University, 2020-present. Supervisors: Prof. Iain Paterson and Dr. Guy Sutton
- MSc, Entomology, Rhodes University, 2018-2019. Supervisors: Prof. Iain Paterson and Dr. Shelley Edwards
- BSc Hons (with distinction, top honours student), Entomology, Rhodes University, 2017. Supervisors: Prof. Martin Hill and Prof. Julie Coetzee
- BSc, Zoology and Entomology (with a distinction in Entomology), Rhodes University, 2014-2016
- Selly Park Secondary School (IEB, Grade 8 - 12), Rustenburg, North West Province, South Africa. 2008 - 2012

COURSES COMPLETED

- Advanced Statistics in R, accredited through Rhodes University (August 2020)
- Invasive Weeds Short Course, accredited through Rhodes University (October 2018)
- Phylogenetics beginner and advanced workshop, Stellenbosch University (June 2018)

RESEARCH INTERESTS

- Biological control of invasive weeds and/or insect pests
- Answering evolutionary questions using phylogenetic and molecular tools
- Creating user-friendly GUI applications in R and Python to streamline data processing

SKILLS

- **Molecular biology:** DNA extraction, PCR, phylogenetics, genetic barcoding, fragment analyses (ISSR, SSR) and data processing
- **Computational:** Programming in Python and R, R Shiny Apps

PEER-REVIEWED PUBLICATIONS

- **van Steenderen, C.J.M**. BinMat: A molecular genetics tool for processing binary data obtained from fragment analysis in R. 2022. ***Biodiversity Data Journal*** 10:. doi: https://doi.org/10.3897/BDJ.10.e77875
- **van Steenderen, C.J.M.** and Sutton, G.F. SPEDE-sampler: an R Shiny application to assess how methodological choices and taxon-sampling can affect Generalised Mixed Yule Coalescent (GMYC) output and interpretation. 2022. ***Molecular Ecology Resources*** 00:1-16. doi: https://doi.org/10.1111/1755-0998.13591
- **van Steenderen, C.J.M.**, Paterson, I.P., Edwards, S., and Day, M.D. Addressing the red flags in cochineal identification: the use of molecular techniques to identify cochineal insects that are used as biological control agents for invasive alien cacti. 2021. ***Biological Control*** . doi: https://doi.org/10.1016/j.biocontrol.2020.104426

POPULAR ARTICLES

- **van Steenderen, C.J.M.** Joe Dispenza's *Becoming Supernatural*: How Common People Are Being Misled. *Skeptical Inquirer* Vol. 40, No. 4. July/August 2020. https://skepticalinquirer.org/authors/clarke-van-steenderen/

R PACKAGES ON CRAN

- BinMat: Processes Binary Data Obtained from Fragment Analysis (Such as AFLPs, ISSRs, and RFLPs)
- ThermalSampleR: Calculate Sample Sizes Required for Critical Thermal Limits Experiments

AWARDS

- Best student presentation (PhD) runner-up, 22nd Congress of the Entomological Society of Southern Africa (ESSA), 2021
- Departmental PhD bursary through the Centre for Biological Control (CBC) (2020 – 2022)
- Awarded an NRF bursary for an MSc degree (2018 - 2019)
- Academic Colours (Rhodes University, 2017)
- Entomological Society of Southern Africa Student Award: best Honours student in Entomology, Rhodes University, 2017
- Ewer prize for Zoology, Department of Zoology and Entomology, Rhodes University, 2017
- Academic Excellence Award, Postgraduate Hall, 2017
- Recipient of the Ada and Bertie Levenstein bursary for 2017, 2018, and 2019
- Awarded the Henderson bursary for 2017 and 2018
- Placed on the Dean's list of the Faculty of Science for Academic Merit for the years 2014, 2015, 2016, and 2017, Rhodes University

- Academic Excellence Award (Kimberley Hall, Rhodes University, 2016)
- Distinguished Excellence Award (Kimberley Hall, Rhodes University, 2016)
- The Most Inspiring Person Award (Kimberley Hall, Rhodes University, 2015)
- Top Student's Award (Kimberley Hall, Rhodes University, 2015)
- Academic Excellence Award (Kimberley Hall, Rhodes University, 2015)
- Academic Half Colours (Rhodes University, 2015)
- "Top 5" student award received from grade 8 through to matric.
- Represented the North West Province in the South African National Chess Championships in 2010 (UCT) and 2011 (UJ)

CONFERENCE AND OTHER PRESENTATIONS

- Sutton, G.F., **van Steenderen, C.J.M.**, Canavan, K., Yell, L., and Paterson, I.D. South Africa is a hotspot for previously unknown stem-boring wasps of grasses (*Tetramesa*; Eurytomidae). Grassland Society of Southern Africa, 56th Annual Congress. July 26 - 30 2021.
- **van Steenderen, C.J.M.**, Paterson, I.D., Sutton, G.F., and Canavan, K. A genetic investigation of the native stem-galling *Tetramesa* Walker (Hymenoptera: Eurytomidae) in South Africa, and their potential use as biological control agents. 22nd Hybrid Congress of the Entomological Society of Southern Africa (ESSA). 28 June - 1 July 2021 [15 minute talk].
- **van Steenderen, C.J.M.**, Paterson, I.D. and Edwards, S. Cochineal identification: how molecular techniques can distinguish between biological control agents and agricultural pests. Second International Congress of Biological Control (ICBC2), Davos, Switzerland [virtual conference]. Biological control of cactus pests and pest cacti online session. 26 - 30 April 2021 [15 minute talk].
- **van Steenderen, C.J.M.**, Paterson, I.D. and Edwards, S. The genetic barcoding of the species and lineages of *Dactylopius* Costa (Hemiptera: Dactylopiidae). The National Symposium on Biological Invasions, Tulbagh, Western Cape. 15 - 17 May 2019 [15 minute talk].
- Cactus Working Group (CWG), Botanical Gardens, Pretoria, 14 November 2018
- Guest talk at Victoria Girls High School, 29 October 2018, Grahamstown

PROJECT EXPERIENCE

- **PhD** A genetic investigation of the native stem-boring *Tetramesa* wasps in South Africa: identifying potential biological control agents of invasive grasses
- **MSc** Using genetic barcoding methods to identify the different species and intra-specific lineages of *Dactylopius* Costa used as biological control agents of invasive Cactaceae
- **Honours** The biological control of water hyacinth under eutrophic conditions and the effects of different herbivorous feeding guilds on plant health and defenses
- **Honours** The determination of the efficacy of a unisexual vs a bisexual sterile insect release for the false codling moth (*Thaumatotibia leucotreta* Meyrick) (Lepidoptera: Tortricidae); a major citrus pest in South Africa. I also compared mating preference and successful mating ability between sterile and wild adults
- **Third year** The efficacy of a host-specific granulovirus (PlxyGV) under field conditions on the biological control of the diamondback moth (*Plutella xylostella* L.)
- **Third year** The extent of microplastic pollution along the South African coastline using indigenous (*Perna perna*) and invasive (*Mytilus galloprovincialis*) mussel tissue as indicators

POSITIONS HELD

- **Journal club and seminar series organiser** Department of Zoology and Entomology, Rhodes University (2022)
- **Postgraduate student representative (Hons, MSc, PhD)** Department of Zoology and Entomology, Rhodes University (2022)
- **Postgraduate student representative (MSc students)** Centre for Biological Control, Department of Zoology and Entomology, Rhodes University (2018-2019)
- **Library assistant** Student assistant at the Rhodes University main library loans desk (2018)
- **Committee member** Environmental Representative (House Committee) for my residence at Rhodes University (Kimberley Hall) (2016)

TUTORING

- **Phylogenetics tutorials** I delivered a series of 1-1.5 hour/week tutorials to colleagues within the Centre for Biological Control (CBC) research group, September - October 2020. See my GitHub repository.
- **University tutoring** Cell biology; Zoology 1 and 2; Entomology 2 and 3; Honours R statistics courses. Department of Zoology and Entomology, Rhodes University (2017 - 2022).
- **Private tutoring** IGCSE mathematics (Grahamstown, 2022); Computer skills on FirstTutors South Africa (online, 2021); Mathematics, physical science and life science to grade 10 and 11 homeschooling students (Rustenburg, North West Province, 2013).

REVIEWER

Biological Control (1 paper), Weed Research (1 paper) Biological Invasions (1 paper)

OTHER SKILLS

Software Microsoft Word, Excel, and PowerPoint, LaTex, GitHub, and a variety of phylogenetic software programs
Languages English: professional proficiency. Afrikaans: conversational. Dutch: Basic understanding and reading ability.