

Jeremias N. Brand

Curriculum Vitae

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Education

- 2015 - present **PhD candidate in Animal Biology**, *University of Basel*.
- Nov. 2017 - March 2018 **Visiting student at University of Idaho, collaborating with Luke J. Harmon.**
- 2013–2015 **Master of Animal Biology**, *University of Basel*, Grade – 5.8/6.0.
Specialization in Evolutionary Biology
- 2009–2013 **Bachelor of Organismal Biology**, *University of Basel*, Grade – 5.0/6.0.
Specialized in Parasitology, Ecology, Evolutionary Biology and Plant Science
- 2005–2008 **Highschool Diploma**, *Gymnasium Oberwil*.
Specialization in Biology and Chemistry; Laudatio for distinguished Thesis

Masters Thesis

- Title *Flexibility and Phylogenetic Distribution of Sex Allocation in the Genus *Macrostomum**
- Supervisors PD Dr. Lukas Schärer, Co-examinor: Prof. Dr. Walter Salzburger
- Abstract I used the emerging model organism *Macrostomum lignano* to demonstrate that adults individuals flexibly adjust their sex allocation in response to a change in social group size. Using an image database of field caught *Macrostomum* specimen I also described the distribution of sex allocation across a molecular phylogeny containing 47 species. I could show that traumatically mating species have a more female biased sex allocation than copulating species.

Publications

- submitted Schärer L., **Brand J. N.**, Singh P., Zadesenets K., Stelzer C. and Viktorin G., A phylogenetically-informed search for an alternative *Macrostomum* model species, with notes on taxonomy, mating behaviour, karyology and genome size.
- in prep **Brand J. N.** and Schärer L., Flexible adjustment of sex allocation tracked in individual hermaphroditic flatworms.
- 2016 Neves R., **Brand J. N.**, Gan Q. and Reichert H., First time surveying meiofauna in Singapore *Raffles Bulletin of Zoology Supplement* 34(1): 8-12.

Presentations

- 2019 Simultaneous and Sequential Hermaphroditic Organisms Workshop, Salford, UK:
Evolution of sex allocation and its correlates in the flatworm genus Macrostomum
- 2019 Biology 19, Zürich, CH:
Frequent convergent evolution of hypodermic mating in a flatworm genus revealed by phylogenomics
- 2018 17. Annual Meeting of the Swiss Systematics Society, Bern, CH:
Transcriptome based phylogenomics reveal convergent evolution of hypodermic insemination in Macrostomum flatworms
- 2018 Poster at the 1. Summer school on Biomathematics, Greifswald, DE:
Frequent origins of hypodermic insemination in a free-living flatworm genus
- 2018 International Symposium on Flatworm Biology, Alghero, IT:
Frequent origins of hypodermic insemination in a free-living flatworm genus
- 2017 Science Slam 17, Basel, CH:
"Sex and Violence in the Beach", Award for 2nd place
- 2017 Poster at BoS.14 Biology of Spermatozoa, Sheffield, GB:
Exaggeration of a sperm trait in four newly discovered flatworm species
- 2017 Poster at the Conference of the European Society of Evolutionary Biology, Groningen:
Comparing phylogenies inferred with few or many genes in a flatworm genus
- 2017 Simultaneously Hermaphroditic Organisms Workshop, Lund, SE:
Plastic adjustment of sex allocation tracked in individual hermaphrodites
- 2016 10th International *Macrostomum* Meeting, Basel, CH:
A phylogenomic approach to understand sexual trait evolution in hermaphrodites
- 2016 Basel Evolutionary Genomics meeting, Basel, CH:
Understanding sexual trait evolution in hermaphrodites using RNAseq
- 2015 9th International *Macrostomum* Meeting, Innsbruck, AU:
Flexible sex allocation in Macrostomum lignano
- 2015 Poster at the Conference of the European Society of Evolutionary Biology, Lausanne:
Comparative phylogenetic analysis of sex allocation evolution in the hermaphroditic flatworm genus Macrostomum
- 2009 & 2012 Presentations on critical thinking for the student organization Freethinkers University Basel.

Experience

Civil Service

- 4.–11.2015 **Research Assistant**, *Research Institute for Organic Farming*, Frick.
I assisted in field and laboratory trials of compounds used to treat fungal infections in organic farming. I developed a new protocol to assess the UV-stability of these compounds.
- Implementing cultivation measures for apple and grape
 - Application of fungicides in the field and lab
 - Assessment of severity of infection on apple and grape
 - Quantitative-PCR for pathogen detection
 - Statistical analysis of field trials
- 2.–8.2012 **Lab Technician & Research Assistant**, *Institute for Ecopreneurship*, University of Applied Sciences and Arts Northwestern Switzerland, MuttENZ.
Worked part time in a lab developing alternative water treatments to remove pharmaceuticals from waste water and part time as a literature researcher and coordination assistant for an European Union Project to recharge aquifers in India.
- Kit analysis of phosphate and nitrate levels
 - Matter flow analysis using radioactive isotopes
 - Maintenance of bioreactors
 - Literature research
 - Co-authored deliverable on state of the art of managed aquifer recharge in India
 - Organized an international conference for German and Indian project partners
- 7.–9.2011 **Nature Conservation**, *Verein mum*, Zürich.
Worked on the maintenance and preservation of marshes and wetlands.
- removal of neophytes
 - cutting of meadows, clearing woodland

Teaching Experience

- 6.2017 **Teaching Assistant**, *Field Course*, Marine Biology and Biogeochemistry, Elba.
See below.
- 2.–4.2017 **Teaching**, *Block Course*, Zoology & Evolution, 3rd year BSc of Biology, Basel.
In this course I guided two students through an intensive six week project including development of a research question, planning and executing an experiment, data analysis and presentation. I also assisted in course teaching.
- 2.–4.2016 **Teaching**, *Block Course*, Zoology & Evolution, 3rd year BSc of Biology, Basel.
In this course I guided two students through an intensive six week project including development of a research question, planning and executing an experiment, data analysis and presentation. I also assisted in teaching a one week workshop on Wikipedia in which students wrote their own articles.
- 6.2015 **Teaching Assistant**, *Field Course*, Marine Biology and Biogeochemistry, Elba.
This course is designed to teach how to work scientifically in a marine environment and obtain integrative biological and biogeochemical insight into the coastal marine ecosystem.

Courses

- 16.-22.9.2018 **GreifOlution: 1st Greifswald Summer School on Mathematics of Evolution**, *Institute of Mathematics and Computer Science*, University of Greifswald, DE .
This summer school aims at bridging the gap between mathematics and biology and providing both a broad introduction to various fields of biomathematics (e.g. biostatistics, bioinformatics and mathematical phylogenetics) as well as insights into state-of-the-art research.
- 3.-5.9.2018 **Comparative Genomics**, *Swiss Institute for Bioinformatics*, Lausanne, CH.
- 8.-19.5.2017 **Computational Molecular Evolution**, *European Bioinformatics Institute*, Wellcome Genome Campus, Hinxton, Cambridge, UK.
The extensive programme comprises a mixture of lectures and computer practicals, and covers: data retrieval and assembly, alignment techniques, phylogeny reconstruction methods including maximum likelihood and Bayesian methods, hypothesis testing, and coalescent-based inference methods at the interface of phylogenetics and population genetics.
- 11.1.-23.2.2016 **Workshop on Genomics**, Cesky Krumlov, CZ.
The Workshop curriculum includes extensive coverage of fundamental techniques required of all studies utilizing modern sequence data. This includes management and modification of modern sequence data files, using the Unix command-line and editors to manipulate large data files, assembly and best practices for sequence data generation, management and analysis.

Awards

- 2018 **Best Poster Award at 1st Summer School for Biomathematics in Greifswald Germany.**

Extracurricular Activities

- 2009 – **Co-founder and board member of 'Freethinkers University Basel'**, Basel.
present This is a student organization dedicated to the promotion of a science-based world view and facilitates interdisciplinary discussions about science, philosophy and society.

Skills

Languages

German	Mother tongue
English	Fluent in speech and writing
French	Basic knowledge

Computer

OS	Windows, Mac, UNIX
Programming	Bash, Python, R, javascript
Software	MS Office, ImageJ, Illustrator