

Orlando Schwery

Postdoctoral Fellow

E-mail: schwery.macroevo@pm.me/oschwery@vt.edu

Website: oschwery.github.io

Virginia Tech

Dept. of Biological Sciences

926 West Campus Drive, Blacksburg, VA 24061

Education:

- 2014-2019** **PhD, Ecology and Evolutionary Biology** University of Tennessee, Knoxville
The Formation of Diversity - The Role of Traits, Environment and Biogeography in Dung Beetle Species Richness, and the Adequacy of Current Diversification Models
Advisor: Dr. Brian O'Meara, Department of Ecology and Evolutionary Biology
- 2012-2013** **Master of Science UZH in Biology, Systematics & Evolution** University of Zurich
The influence of functional leaf traits and mountain association on species richness within the family of Ericaceae (1 year)
Advisor: Dr. Peter Linder, Institute of Systematic Botany, Co-Advisor: Dr. Renske Onstein
- 2007-2011** **Bachelor of Science UZH in Biology** University of Zurich
Morphometrical analysis of the baculum of a raccoon (Procyon lotor L.) population (12 weeks)
Advisor: Dr. Winand Brinkmann, Paleontological Institute and Museum;
Cooperation with "Projekt Waschbär", TU Dresden, Institute of Forest Zoology
- BUSS (Biology Undergraduate Summer School) 2009** University of Zurich
Ancient-DNA analysis of the alpine ibex (Capra ibex) (9 weeks)
Advisor: Dr. Lukas Keller, Institute of Evolutionary Biology & Environmental Studies

Employment:

- 2022-present** **Postdoctoral Fellow SNSF**, Uyeda Lab, Virginia Tech, Blacksburg
- 2021- present** **Visiting Scholar**, Brown Lab, Louisiana State University, Baton Rouge
- 2021-2022** **Postdoctoral Researcher**, Wright Lab, Southeastern Louisiana University, Hammond
- 2019-2021** **Postdoctoral Researcher**, Goldberg Lab, New Mexico Consortium, Los Alamos
(remote position, hosted by Harmon Lab & Tank Lab, University of Idaho, Moscow)
- 2014-2019** **Graduate Teaching Assistant**, University of Tennessee, Knoxville
- 2009-2014** **Student Assistant / Research Assistant**, University of Zurich
Blanckenhorn lab: on dung flies; dissection, binocular photography, morphometrics
Schiestl lab: on orchids; morphometrics, seed counting
Linder lab: on Ericaceae; phylogenetics, diversification analyses, trait measurements

Peer-Reviewed Publications:

- Schwery, O**, Sipley, BN, Braga, MP, Yang, Y, Rebollo, R, Zu, P (2022) Plant scent and plant–insect interactions—Review and outlook from a macroevolutionary perspective. *Journal of Systematics and Evolution*, [doi:10.1111/jse.12933](https://doi.org/10.1111/jse.12933)
- Zu, P, Koch, H, **Schwery, O**, Pironon, S, Phillips, C, Ondo, I, Farrell, IW, Nes, WD, Moore, E, Wright, GA, Farman, DI, & Stevenson, PC (2021) Pollen sterols are associated with phylogenetics and environment but not with pollinators. *New Phytologist*, **230**: 1169–1184. [doi:10.1111/nph.17227](https://doi.org/10.1111/nph.17227)
- Schwery, O** & O'Meara, BC (2016), *MonoPhy*: A simple R package to find and visualize monophyly issues. *PeerJ Computer Science* **2**:e56. [doi:10.7717/peerj-cs.56](https://doi.org/10.7717/peerj-cs.56)
- Bouchenak-Khelladi, Y*, Onstein, RE*, Xing, Y, **Schwery, O**. & Linder, HP (2015), On the complexity of triggering evolutionary radiations. *New Phytologist*, **207**: 313–326. [doi:10.1111/nph.13331](https://doi.org/10.1111/nph.13331)
*Authors contributed equally
- Schwery, O**, Onstein, RE, Bouchenak-Khelladi, Y, Xing, Y, Carter, RJ & Linder, HP (2015), As old as the mountains: the radiations of the Ericaceae. *New Phytologist*, **207**: 355–367. [doi:10.1111/nph.13234](https://doi.org/10.1111/nph.13234)
- Schwery, O**, Köhnemann, BA, Michler, F-U & Brinkmann, W (2011) Morphometrical characterisation of a raccoon (*Procyon lotor* L.) population from Müritz National Park (Germany) by means of the *Os baculum*. *Beiträge zur Jagd- und Wildforschung*, **Bd. 36**, 605–617.

Submitted & In Review:

Alencar, LRV, **Schwery, O**, Gade, MR, Domínguez-Guerrero, SF, Daniel, E, Bodensteiner, BL, Uyeda, JC, Muñoz, MM. Opportunity begets opportunity to drive macroevolutionary dynamics of a diverse lizard radiation. *Evol Lett*, *accepted with minor revision*.

Barido-Sottani, J, **Schwery, O**, Warnock, RCM, Zhang, C, Wright, AM. Practical guidelines for Bayesian phylogenetic inference using MCMC. *Open Res Europe*: 2023, **3**:204. [doi:10.12688/openreseurope.16679.1](https://doi.org/10.12688/openreseurope.16679.1)

Turck, DF, **Schwery, O**, Harmon, LJ, Tank, DC. Fire in the Tree: The Origin and Distribution of Fire-adapted Traits within Conifers and their Influence on Speciation Rates across the Conifer Phylogeny. *SystBio*.

Preprints:

Alencar, LRV, **Schwery, O**, Gade, MR, Domínguez-Guerrero, SF, Daniel, E, Bodensteiner, BL, Uyeda, JC, Muñoz, MM. (2024) Opportunity begets opportunity to drive macroevolutionary dynamics of a diverse lizard radiation. [EcoEvoRxiv: 10.32942/X2CS4G](https://doi.org/10.32942/X2CS4G).

Schwery O, Freyman, W, Goldberg, EE (2023) *adequaSSE*: Model Adequacy Testing for Trait-Dependent Diversification Models. [bioRxiv.: 2023.03.06.531416v1](https://doi.org/10.32942/X2CS4G).

Schwery O, O'Meara BC (2021a) Age, Origin, and Biogeography: Unveiling the Factors Behind the Diversification of Dung Beetles. [bioRxiv.:2021.01.26.428346](https://doi.org/10.32942/X2CS4G).

Schwery O, O'Meara BC (2021b) The Shape of Trees - Limits of Current Diversification Models. [bioRxiv.:2021.01.26.428344](https://doi.org/10.32942/X2CS4G).

Schwery O, O'Meara BC (2020) *BoskR* - Testing Adequacy of Diversification Models Using Tree Shape. [bioRxiv.:2020.12.21.423829](https://doi.org/10.32942/X2CS4G).

Funding Received (\$138'020)

(Principal applicant for all)

2021 August	Postdoc Mobility Fellowship, <i>Swiss Nat'l Science Foundation</i> , CHF107'935 (~\$120'000)
2018 May	Departmental Research Grant, <i>University of Tennessee Dept. of EEB</i> , \$1650
2018 April	SSB Standalone Meeting Travel Fund, <i>Society of Systematic Biologists</i> , \$200
2018 April	UTK Graduate Student Association Travel Grant \$74
2017 December	Travel Award, <i>University of Tennessee Graduate Student Senate</i> , \$690
2016 August	Nantucket Phylogenetics Developer Bootcamp, <i>Nat'l Science Foundation</i> , travel, room, board
2016 July	Graduate Student Research Award, <i>Society of Systematic Biologists</i> , \$1300
2016 May	Departmental Research Grant, <i>University of Tennessee Dept. of EEB</i> , \$1500
2016 April	Travel Award, <i>University of Tennessee Graduate Student Senate</i> , \$650
2016 April	Systematics Research Fund, <i>Systematics Association</i> , £1255 (~\$1580)
2016 February	UTK Graduate Student Association Travel Grant \$86
2015 October	UTK Graduate Student Association Travel Grant \$130
2015 May	Departmental Research Grant, <i>University of Tennessee Dept. of EEB</i> , \$750
2015 March	Travel Award, <i>Phylogenomics Software School</i> , \$500
2014 August	Chancellor's Award, <i>University of Tennessee</i> , \$9200 (\$2300/y for 4 years)

Conference Participation & Seminars:

(Seminars and Symposia were invited)

- 2024 [Poster]** Biology24, Zürich, Switzerland; *Starting Causal Inference for Macroevolution* [\[PDF\]](#)
- 2023 [Seminar]** Silvestro-Lab Seminar U of Fribourg, Fribourg, Switzerland; *Two Ways of Gaining Confidence in our SSE Inferences*
- 2023 [Seminar]** Stadler-Lab Seminar ETH Zürich D-BSSE, Basel, Switzerland; *A Starting Point for Causal Inference with SSE-Models*
- 2023 [Seminar]** Evolution Seminar Naturalis Biodiversity Center, Leiden, the Netherlands; *Trait-Dependent Diversification: Adequacy, Causality, and Relative Effects*
- 2023 [Sympos.]** Evolution, Albuquerque NM, USA; *Plausibility, Causality, and Relative Effects in Trait Dependent Diversification* [\[Video\]](#)

- 2023 [Poster]** Biology23, Geneva, Switzerland; *New Ways to Gain More Reliable Insights Into Adaptive Radiations: A Case in Pleurodonta* [\[PDF\]](#)
- 2023 [Poster]** SSB Standalone Meeting, Mexico City, Mexico; *Distinguishing Causal Scenarios Using SSE Models* [\[PDF\]](#)
- 2022 [Talk]** Evolution, Cleveland OH, USA; *Adequacy of Fossilised Birth-Death models: a test case in ants*
- 2022 [Talk]** Evolution, Cleveland OH, USA; *Inferring diversification rates from fossil data: assumptions, choices, challenges* **[Co-Author, presented by David Cerny]**
- 2022 [Panelist]** iEvoBio Unconference, Cleveland, OH, USA; *Experiences using Code-to-Learn Techniques*.
- 2022 [Seminar]** SEE Spring Seminar Series, LSU, Baton Rouge, LA, USA; *adequaSSE – Exploring the Adequacy of Lineage Diversification Models for your Data, your Question, and More*
- 2021 [Talk]** Entomology, virtual attendance; *Investigating mammal/dung beetle co-diversification*
- 2021 [Seminar]** Biology Seminar Series, SELU, Hammond, LA, USA; *Model Adequacy for Diversification - On Picking Reliable Tools and Beyond*.
- 2021 [Talk]** Virtual Evolution; *Adequate for What? Exploring Diversification using Model Adequacy*.
- 2021 [Talk]** Virtual Asilomar; *The Right Tool for The Job: Is My Phylogenetic Diversification Model Adequate?* [\[Video\]](#)
- 2020 [Seminar]** IBEST Lunch Seminar, Moscow, ID, USA; *The Right Tool for the Job: Is my Phylogenetic Diversification Model Adequate?* [\[Video\]](#)
- 2019 [Talk]** Entomology, St. Louis, MO, USA; *Unveiling the Factors Behind the Diversification of Dung Beetles (Scarabaeinae)*
- 2018 [Talk]** SSB Standalone Meeting, Columbus, OH, USA; *Limits of Diversification Models – The Shape of Trees*
- 2018 [Talk]** 150 Years ASN, Asilomar, CA, USA; *Unveiling the Factors Behind the Diversification of Dung Beetles (Scarabaeinae)*
- 2016 [Talk]** Evolution, Austin, TX, USA; *Adequacy and Limits of Current Diversification Models*
- 2016 [Panelist]** iEvoBio Unconference, Austin, TX, USA; *Should all graduate students in biology learn to code?*
- 2015 [Talk]** SSB Standalone Meeting, Ann Arbor, MI, USA; *MonoPhy: A simple R package to find and visualize monophyly issues*
- 2014 [Poster]** Evolutionary Plant Radiations, Zurich, Switzerland; *Leaf traits and Mountain Habitat influence Diversification in Ericaceae*
- 2013 [Talk]** Young Systematists' Forum, London, United Kingdom; *Leaf traits and mountain association influence Diversification in Ericaceae*
- 2013 [Talk]** Biology13, Basel, Switzerland; *The influence of functional leaf traits and mountain association on species richness within the family of Ericaceae*
- 2011 [Poster]** Int'l Symposium on Population Ecology, Schneverdingen, Germany; *Morphometrical characterisation of a raccoon population by means of Os baculum* [\[PDF\]](#)

Other Publications:

Chuang, A & **Schwery, O** (2020), Evolution makes a splash. *Science* **367**(6482): 1081-1081. [doi:10.1126/science.aba9172](https://doi.org/10.1126/science.aba9172)

Schwery, O (2019) *The Formation of Diversity - The Role of Environment and Biogeography in Dung Beetle Species Richness, and the Adequacy of Current Diversification Models*. PhD diss., University of Tennessee. [TRACE](#)

Chuang, A & **Schwery, O** (2019), Who cares? Parenting in invertebrate animals. *Frontiers for Young Minds*. **7**:78. [doi:10.3389/frym.2019.00078](https://doi.org/10.3389/frym.2019.00078)

Software:

- MonoPhy** R package to explore monophyly at different taxonomic levels in a phylogeny. [CRAN](#) - [GitHub](#)
- BoskR** R package to test the adequacy of birth-death diversification models. [GitHub](#)
- adequaSSE** RevBayes workflow to test adequacy of trait-dependent diversification models using posterior predictive simulations.

Mentoring:

2023-present	Neha Tiwari , Louisiana State University, USA, PhD Committee Member
2023-present	Aaron Mboma , Chandigarh University, India, SSB Mentorship Program
2019-2021	Robyn Dodd , University of Tennessee, Knoxville, USA, Grad-Undergrad Mentoring Program
2017-2021	Preston Yoon , University of Tennessee, Knoxville, USA, Grad-Undergrad Mentoring Program

Teaching and Workshops:

Feb 2023	Hands-on Phylogenetics in R - II (Open Knowledge Ecology & Evolution Workshop), ETH Zurich
Jan 2023	Hands-on Phylogenetics in R (Open Knowledge Ecology & Evolution Workshop), ETH Zurich
Spring 2022	Introductory Biology II (GBIO 153 lecture class), Southeastern Louisiana University
Fall 2021	Introduction to RevBayes (BCB 503), University of Idaho

Graduate Teaching Assistant at the University of Tennessee:

Spring 2019	Evolution Discussion (Primary Instr.)	Fall 2018	Evolution Discussion (Primary Instr.)
Spring 2018	Human Anatomy (lab)	Fall 2017	Human Anatomy (lab)
Spring 2017	Human Anatomy (lab)	Fall 2016	EEB Dept. AV-TA
Spring 2016	Human Anatomy (lab)	Fall 2015	Introduction to Biology I (lab)
Spring 2015	Introduction to Biology II (lab)	Fall 2014	Introduction to Biology I (lab)

UT CIRTl Practitioner Level Certification in Teaching and Learning

Guest Lectures in courses at UTK on Evolution, Macroevolution, and Urban Ecology

Conference Organisation:

2024 Symposium *"What we can and cannot know through current and upcoming phylogenetic comparative methods"*, 3rd Joint Congress of Evolutionary Biology, Montréal, Co-Organised with Mariana P. Braga [**Symposium Proposal Accepted**]

Outreach and Leadership:

2020-2022	National Liaison of University of Idaho SACNAS Chapter
2018-2019	Graduate Student Representative on Graduate Affairs Committee
2017-2018	Vice President of GREBE (UT EEB Graduate Student Association)
2017	Judge TN State Science Olympiad
2015-2017	Committee for Women in STEM ('Pipeline'); Symposium Subcommittee since 2016
2016-2017	GREBE Outreach-Committee, University of Tennessee, Knoxville
2015-2018	Instructor KidsU, Summer School for Local Youth. Vertebrate Zoology (1 week course): 2018 Co-taught with Maggie Mamantov (Grades 4-8 rising) 2017 Co-taught with Angela Chuang (Grades 4-7 rising) 2015 Co-taught with Jess Welch (Grades 4-7 rising)
2015/2017	Volunteer Darwin Day Tennessee
2013	Public talk and guided tour at the Botanical Garden Zurich
2010/2011	Teaching in preparation camp for Swiss Biology Olympiad
2008-2014	Volunteer at Swiss Foundation for Bat Conservation

Membership:

American Society of Naturalists, Botanical Society of America, Entomological Society of America, European Society for Evolutionary Biology, Society of Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS), Society for the Study of Evolution, Society of Systematic Biologists, The Systematics Association, Swiss Systematics Society

Reviewing and Service:

Manuscripts: American Journal of Botany, Bulletin of the Society of Systematic Biologists, Ecology Letters, Evolution, Journal of Evolutionary Biology, Journal of Systematics and Evolution, Molecular Biology and Evolution, Methods in Ecology and Evolution (2), Molecular Phylogenetics and Evolution, Nature Communications, Nature Ecology & Evolution, PLOS ONE, Systematic Biology (3), Zoology and Ecology

Proposals:

2022	Reviewer, SSB Grad Student Research Award Proposals
2020	Reviewer, SSB Grad Student Research Award Proposals
2018	Reviewer, SACNAS Travel Scholarships
2018	Reviewer, SACNAS Poster Proposals
2019	Reviewer, SSB Grad Student Research Award Proposals
2018	Reviewer, SSB Grad Student Research Award Proposals

Judging:

2023	Judge Grad Talks, SSE Hamilton Award, Evolution Conference
2020	Mentor-Judge UG Posters, SACNAS Nat'l Diversity in STEM Conference
2020	Judge Grad Talks, SACNAS Nat'l Diversity in STEM Conference

Technical Skills/Experiences:

Analysis:	RAXML, BEAST, Mesquite, geneious, mafft, AliView, 4Peaks, Tracer, FigTree, ImageJ, tps-suite, git, MS Office, SPSS, JMP
Methods:	Phylogenetic comparative methods, diversification rate estimation, phylogenetic and biogeographic reconstruction, molecular dating, geometric morphometrics, statistics, programming in R and RevBayes
Lab Work:	DNA extraction, PCR, gel electrophoresis, sanger sequencing, ancient DNA
Field Work:	dung beetle trapping, species identification (plants, vertebrates, invertebrates), plant functional trait measurements, morphometrics & dissection (arthropods & flowers)
Collections:	herbarium, archaeological/paleontological bone collections, entomological collections

Certificates:

2012	Field botany level 1 (300 spp)	Swiss Botanical Society
2011/10	Herpetological Field Course: Amphibians/Reptiles	karch (Swiss Herpetofauna Conservation)

Languages:

German:	Fluent (mother tongue)	English:	Fluent (TOEFL iBT: 115/120)
French:	Advanced	Spanish:	Basic