Orlando Schwery

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University of Kentucky
Dept. of Biology
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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:

2025- present **Research Scientist,** Zenil-Ferguson Lab, University of Kentucky, Lexington

2022-2025 **Postdoctoral Fellow SNSF/ Research Scientist,** Uyeda Lab, Virginia Tech, Blacksburg

2021-2025 **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, 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
Labs: *Blanckenhorn, Schiestl, Linder*

Peer-Reviewed Publications:

Turck, DF, **Schwery, O,** Harmon, LJ, Tank, DC. (**2025**) Fire in the Tree: The Origin and Distribution of Fire-adapted Traits within Conifers and their Influence on Speciation Rates across the Conifer Phylogeny. *American Journal of Botany*, **112**(1): e16454. doi:10.1002/ajb2.16454

Barido-Sottani, J, **Schwery, O,** Warnock, RCM, Zhang, C, Wright, AM (**2024**) Practical guidelines for Bayesian phylogenetic inference using MCMC. *Open Res Europe:* **3**:204. doi:10.12688/openreseurope.16679.3

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. *Evolution Letters*, **8**(5): 623-637. doi:10.1093/evlett/qrae022

Schwery, O, Sipley, BN, Braga, MP, Yang, Y, Rebollo, R, Zu, P (**2023**) Plant scent and plant–insect interactions—Review and outlook from a macroevolutionary perspective. *Journal of Systematics and Evolution*, **61**: 465-486. doi: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

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

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
**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

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.

Preprints:

Schwery O, Freyman, W, Goldberg, EE (**2023**) *adequaSSE*: Model Adequacy Testing for Trait-Dependent Diversification Models. *bioRxiv.*: 2023.03.06.531416v1.

Schwery O, O'Meara BC (**2021a**) Age, Origin, and Biogeography: Unveiling the Factors Behind the Diversification of Dung Beetles. *bioRxiv.*:2021.01.26.428346.

Schwery O, O'Meara BC (**2021b**) The Shape of Trees - Limits of Current Diversification Models. *bioRxiv.*:2021.01.26.428344.

Schwery O, O'Meara BC (**2020**) *BoskR* - Testing Adequacy of Diversification Models Using Tree Shape. *bioRxiv.*:2020.12.21.423829.

Funding Received ($138'020)

(Principal applicant for all)

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

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 – 20 speakers from 8 countries across 3 continents. [Video 1] [Video 2]

Conference Participation & Seminars:

(Seminars and Symposia were invited)

2024 [Talk] 3rd Joint Congress on Evolutionary Biology, Montreal, Canada; *Seeing further: How to build Knowledge when Studying Adaptive Radiations* [Video]

2024 [Talk] British Ecological Society Macro 2024, Cardiff, Wales, virtual attendance; *Causal Inference for Macroevolution – Immediate Insights & Long-Term Benefits* [Video]

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** (**2025**) The life aquatic: this board game lets you dip into marine ecology. *Nature* **640**(8058): p 309-310. doi: 10.1038/d41586-025-01066-3

Chuang, A, **Schwery, O** (**2024**) A voyage to victory. *Science* **386**(6723): p734. doi: 10.1126/science.adr3499

Chuang, A, **Schwery, O** (**2020**) Evolution makes a splash. *Science* **367**(6482): p1081. doi: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

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:

Postdoc-Teaching - Instructor of Record:

Spring 2022 **Introductory Biology II** (GBIO 153), undergrad lecture class (2 sections/24 students), South-eastern Louisiana University. Intro to Ecology & Evolution with Code-to-learn activities in R.

Fall 2021 **Introduction to RevBayes** (BCB 503), graduate hybrid class (15 students), University of Idaho. Hands-on introduction to specialised software for Bayesian phylogenetic methods. Materials

Graduate Teaching Assistant at the University of Tennessee:

F2028 - S2019 **Evolution Discussion** (2 semesters, *Primary Instructor*, 2 sections/~20 students), advanced undergraduate literature discussion class (companion class to Evolution lecture).

S2016 - S2018 **Human Anatomy** (4 semesters, 2 sections/~20 students), undergraduate lab for nursing and kinesiology majors. Guided study of anatomical structures using models and cadavers.

F2014 - F2015 **Introduction to Biology I & II** (3 semesters, 3 sections/25 students): Undergraduate lab for non-biology majors. Experiments, activities, and readings.

Workshops and Other Teaching Activities:

Jan 2026 **Upcoming:** A Primer for Phylogenetic Causal Inference, SSB Standalone Meeting 2026. Web
Feb 2023 Hands-on Phylogenetics in R - II (**O**pen **K**nowledge **E**cology & **E**volution), ETH Zurich.
Jan 2023 Hands-on Phylogenetics in R - I (**O**pen **K**nowledge **E**cology & **E**volution), ETH Zurich. Materials

UT CIRTL Practitioner Level Certification in Teaching and Learning
Guest Lectures UTK: Evolution, Macroevolution, and Urban Ecology, VT: Macroevolution

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'); since 2016 in Symposium-Subcommittee
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, 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, Bioinformatics, Bulletin of the Society of Systematic Biologists, Ecology Letters, Evolution (3), Journal of Evolutionary Biology, Journal of Systematics and Evolution, Molecular Biology and Evolution, Methods in Ecology and Evolution (3), Molecular Ecology Resources, Molecular Phylogenetics and Evolution, Nature Communications, Nature Ecology & Evolution, PLOS ONE, Proceedings of the Royal Society B, Systematic Biology (5), 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:

2024	Judge Grad Talks, SSE Hamilton Award, 3rd Joint Congress of Evolutionary Biology
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), English (fluent), French (advanced), Spanish (basic)