

# 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**, Siple, 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
- 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.

### 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. *In revision*.

Barido-Sottani, J, **Schwery, O**, Warnock, RCM, Zhang, C, Wright, AM. Practical guidelines for Bayesian phylogenetic inference using MCMC. *Open Res Europe*.

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:

**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.

### Conference Participation & Seminars:

(Seminars and Symposia were invited)

**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 [Symposium]** 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*

**2023 [Poster]** SSB Standalone Meeting, Mexico City, Mexico; *Distinguishing Causal Scenarios Using SSE Models*

**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*

<b>2018 [Talk]</b>	150 Years ASN, Asilomar, CA, USA; <i>Unveiling the Factors Behind the Diversification of Dung Beetles (Scarabaeinae)</i>
<b>2016 [Talk]</b>	Evolution, Austin, TX, USA; <i>Adequacy and Limits of Current Diversification Models</i>
<b>2016 [Panelist]</b>	iEvoBio Unconference, Austin, TX, USA; <i>Should all graduate students in biology learn to code?</i>
<b>2015 [Talk]</b>	SSB Standalone Meeting, Ann Arbor, MI, USA; <i>MonoPhy: A simple R package to find and visualize monophyly issues</i>
<b>2014 [Poster]</b>	Evolutionary Plant Radiations, Zurich, Switzerland; <i>Leaf traits and Mountain Habitat influence Diversification in Ericaceae</i>
<b>2013 [Talk]</b>	Young Systematists' Forum, London, United Kingdom; <i>Leaf traits and mountain association influence Diversification in Ericaceae</i>
<b>2013 [Talk]</b>	Biology13, Basel, Switzerland; <i>The influence of functional leaf traits and mountain association on species richness within the family of Ericaceae</i>
<b>2011 [Poster]</b>	Int'l Symposium on Population Ecology, Schneverdingen, Germany; <i>Morphometrical characterisation of a raccoon population by means of Os baculum</i>

### Other Publications:

Chuang, A & **Schwery, O (2020)**, Evolution makes a splash. *Science* **367**(6482): 1081-1081. 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.

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

### Awards and Funding (\$116,730)

<b>2021 August</b>	Swiss Nat'l Science Foundation Postdoc.Mobility fellowship <b>\$100'000</b>
<b>2018 May</b>	UTK EEB Departmental Research Grant <b>\$1650</b>
<b>2018 April</b>	SSB Standalone Meeting Travel Funds <b>\$200</b>
<b>2018 April</b>	UTK Graduate Student Association Travel Grant <b>\$74</b>
<b>2017 December</b>	UTK Graduate Student Senate Travel Award <b>\$690</b>
<b>2016 August</b>	Nantucket Phylogenetics Developer Bootcamp ( <b>NSF funded, travel, board &amp; lodge</b> )
<b>2016 July</b>	SSB Graduate Student Research Award <b>\$1300</b>
<b>2016 May</b>	UTK EEB Departmental Research Grant <b>\$1500</b>
<b>2016 April</b>	UTK Graduate Student Senate Travel Award <b>\$650</b>
<b>2016 April</b>	SystAss Systematics Research Fund <b>£1255</b>
<b>2016 February</b>	UTK Graduate Student Association Travel Grant <b>\$86</b>
<b>2015 October</b>	UTK Graduate Student Association Travel Grant <b>\$130</b>
<b>2015 May</b>	UTK EEB Departmental Research Grant <b>\$750</b>
<b>2015 March</b>	Travel Award for Phylogenomics Software School <b>\$500</b>
<b>2014 August</b>	UTK Chancellor's Award <b>\$2300/y for 4 years</b>

### Teaching and Workshops:

<b>Feb 2023</b>	Hands-on Phylogenetics in R - II ( <b>Open Knowledge Ecology &amp; Evolution Workshop</b> ), ETH Zurich		
<b>Jan 2023</b>	Hands-on Phylogenetics in R ( <b>Open Knowledge Ecology &amp; Evolution Workshop</b> ), ETH Zurich		
<b>Spring 2022</b>	Introductory Biology II (GBIO 153 lecture class), Southeastern Louisiana University		
<b>Fall 2021</b>	Introduction to RevBayes (BCB 503), University of Idaho		
<b>Spring 2019</b>	Evolution Discussion (Primary Instr.)	<b>Fall 2018</b>	Evolution Discussion (Primary Instr.)
<b>Spring 2018</b>	Human Anatomy (lab)	<b>Fall 2017</b>	Human Anatomy (lab)
<b>Spring 2017</b>	Human Anatomy (lab)	<b>Fall 2016</b>	EEB Dept. AV-TA
<b>Spring 2016</b>	Human Anatomy (lab)	<b>Fall 2015</b>	Introduction to Biology I (lab)
<b>Spring 2015</b>	Introduction to Biology II (lab)	<b>Fall 2014</b>	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

### 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

### Membership:

American Society of Naturalists, Botanical Society of America, Entomological Society of America, 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, Ecology Letters, 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 (2), Zoology and Ecology

**Proposals:** SACNAS Travel Scholarships (Summer 2018), SACNAS Poster Proposals (Summer 2018), SSB Graduate Student Research Award Proposals (2018, 2019, 2020, 2022)

**Judging:** Mentor-Judge, undergraduate posters and graduate talks, 2020 SACNAS Virtual Conference; SSE W. D. Hamilton Award for Outstanding Graduate Student Presentation, Evolution 2023

### 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  
**2015/2017-18** Instructor KidsU, University of Tennessee, Knoxville, "Vertebrate Zoology"  
**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

### 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