

# Christopher Trisos


National Socio-Environmental Synthesis Center (SESYNC), University of Maryland, USA

office: +1.410.919.4810

mobile: +1.202.374.3315

[ctrisos@sesync.org](mailto:ctrisos@sesync.org)

<http://www.sesync.org/users/ctrisos>

 @christrisos

## PROFILE

As an ecologist, I do actionable science to help both people and the planet. My core research interest is understanding biodiversity change. I recognise that environmental problems are also social problems, and I work in interdisciplinary science teams to understand how changes in human systems connect to changes in ecological systems.

## WORK EXPERIENCE

**Postdoc Scientist, National Socio-Environmental Synthesis Center** 2015-2018

*Research:* I focus on understanding links between humans and ecosystems. My research projects ask: What are the potential impacts of climate change and climate engineering technologies on biodiversity? Do cities help or harm biodiversity? How do we combine ecology and economics to sustainably manage connected human and ecological systems?

**Postdoc Scientist, South African Environmental Observation Network** 2014-2015

*Research:* Analysed the ecology of South African plant biodiversity in fire-prone ecosystems.

## EDUCATION

**PhD Zoology** University of Oxford 2009-2014

*Thesis research:* Tests of community assembly across spatial scales in Neotropical birds.

**MSc. Integrative Bioscience** University of Oxford 2008-2009

**BSc. Ecology & Economics** University of Cape Town 2006

## SELECTED AWARDS

**Rhodes Scholarship** (South Africa) 2008-2014

Awarded for academic excellence, leadership and commitment to service in South Africa.

**South African National Research Foundation Scholarship** 2012-2014

**Wingate Scholarship** 2010

Awarded for proven excellence in scientific research.

## SELECTED INTERDISCIPLINARY TEACHING, TEAM SCIENCE AND POLICY

**Coordinating Lead Author of Africa Chapter**, Intergovernmental Panel on Climate Change (IPCC) 6<sup>th</sup> Assessment report Working Group II *Climate Change 2021: Impacts, Adaptation and Vulnerability*. 2018

**Co-Lead and Developer**, *Socio-Environmental Immersion Program* 2017-2018

I design workshops integrating social and environmental research, train researchers to work in teams, and produce research for taking action on social and environmental problems. The workshops are held at the National Socio-Environmental Synthesis Center, University of Maryland.

## Christopher Trisos

<b>Invited Participant</b> , United Nations Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. I worked to develop positive visions for nature and people in the 21 <sup>st</sup> century.	2017
<b>Lead Facilitator</b> , <i>sUrBioCity</i> , interdisciplinary team science project to understand biodiversity in cities, hosted by German Synthesis Centre for Biodiversity Sciences (sDiv).	2017
<b>Participant</b> , <i>Narco-deforestation</i> , interdisciplinary team science project to map connections between the drug trade, drug enforcement and deforestation.	2017
<b>Invited Participant</b> , <i>Centre for Open Science</i> , worksho making recommendations for improving transparency and reproducibility in ecology and evolution research.	2015
<b>Invited Participant</b> , <i>Open Science for Synthesis</i> , training for open, collaborative and reproducible research at National Centre for Ecological Analysis and Synthesis, USA.	2014

---

### TEACHING AND EXPERIENTIAL LEARNING

---

<b>Co-supervisor of Masters by research</b> , California State University Fresno I mentor students to design research projects, help guide data analysis, write code in R, and edit research dissertations.	2017-2018
<b>Tutor</b> , undergraduate ecology and evolution courses, Oxford University I developed lesson plans, led tutorial discussions, and set and marked assignments.	2011-2013
<b>Tutor</b> , ecosystem ecology, University of Cape Town I mentored students for experiential learning through the development, implementation and evaluation of ecology research projects in a conservation area.	2008 & 2011
<b>Teaching assistant</b> , undergraduate biology labs, University of Cape Town	2007
<b>Leader</b> environmental education workshops for Grades 10-12 I led a team of undergraduates in the development of environmental science curricula for high school students from urban townships in Cape Town. I also led an experiential learning component of the project to restore a wetland neighbouring one of the high schools.	2005-2006

---

### GRANTS

---

<b>Lead scientist for the workshop: <i>Cross-Disciplinary Statistics for The Anthropocene</i></b> \$50,000 team science award from USA National Science Foundation.	2017
<b>SESYNC Postdoctoral Fellowship:</b> 3-year independent research fellowship \$200,000	2015
<b>Natural Environmental Research Council</b> , UK “Novel isotopic methods link functional traits and niches”, \$15000	2012
<b>Christensen Fund for Biodiversity Research:</b> \$1500	2012
<b>Abbey Santander:</b> research grant \$3000	2010

---

### PUBLICATIONS IN REVIEW OR PREPARATION

---

**Trisos, CH**, Merow, C. & Pigot, AL. (In prep.) Climate thresholds and tipping points for global biodiversity. *Nature*

## Christopher Trisos

**Trisos, CH**, Gephart, J, Alexander, SA et al. (In prep.) Trade-offs in sustainable development goals: the case of malaria control and fishing with mosquito nets in Africa. *Nature Ecology & Evolution*.

**Trisos, CH**, Beckman, N., Bonsall, MB et al. (In prep.) *Cross-disciplinary statistical applications in the Anthropocene*. *Nature Sustainability*.

**Trisos, CH**, Ricklefs, RE, Claramunt, S. & Tobias, JA. (In review). *Variation in dispersal ability moderates bird community assembly across South America*. **American Naturalist**

---

### ACADEMIC PUBLICATIONS

**Google Scholar:** [https://scholar.google.com/citations?user=th\\_p4V8AAAAJ&hl=en&oi=ao](https://scholar.google.com/citations?user=th_p4V8AAAAJ&hl=en&oi=ao)

**Trisos, CH**, Amatulli, G, Gurevitch, J. et al. (2018) *Potentially Dangerous Consequences for Biodiversity of Solar Geoengineering Implementation and Termination*. **Nature Ecology and Evolution**. <http://rdcu.be/FhUG>

Article is in the top 5% of all research for online attention. Selected news coverage:

<https://www.wired.com/story/how-engineering-earths-climate-could-seriously-imperil-life/>  
<http://www.sciencemag.org/news/2018/01/solar-shield-could-save-us-climate-change-its-sudden-collapse-would-doom-planet>

**Trisos, CH**, Gabriel, C, Robock, A. et al. (In Press) **Ecological, Agricultural and Health Impacts of Solar Geoengineering**. In *Resilience: The Science of Adaptation to Climate Change*. Zommers and Alverson (eds.).

CJ Lundquist, Pereira, HM, Alkemade, R. ...**Trisos, CH**. ... Zulfikar, D. (2018) *Visions for nature and nature's contributions to people for the 21<sup>st</sup> century*. National Institute of Water and Atmospheric Research report for the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). [https://www.niwa.co.nz/static/web/coasts-and-oceans/IPBES-Nature-Futures-report\\_2017.pdf](https://www.niwa.co.nz/static/web/coasts-and-oceans/IPBES-Nature-Futures-report_2017.pdf)

Miller, ET, Farine, DR & **Trisos, CH**, (2017). *Phylogenetic community structure metrics and null models: a review with new methods and software*. **Ecography**, 40: 461-477.

Fecchio, A., Svensson-Coelho, M., Bell, J., Ellis, VA, Medeiros, MC, **Trisos, CH**, Blake, JG, Loiselle, BA, Tobias, JA, Fanti, R. and Coffey, ED, 2017. *Host associations and turnover of haemosporidian parasites in manakins (Aves: Pipridae)*. **Parasitology**, 144: 984-993.

Fiorella, KJ, Rapacciuolo, G. & **Trisos, CH**. 2016. *Species loss: learn from health metrics*. **Nature**, 538 (7625).

Parker, TH, Nakagawa, S, Gurevitch, J & IIEE (Improving Inference in Evolutionary Biology and Ecology) **workshop authors\***. (2016). *Promoting transparency in evolutionary biology and ecology*. **Ecology Letters** 19.7: 726-728. \* **Workshop participating author**

Pigot, AL, **Trisos, CH** & Tobias, JA, (2016). *Functional traits reveal the expansion and packing of ecological niche space underlying an elevational diversity gradient in passerine birds*. **Proceedings of the Royal Society B** 283: p. 20152013.

**Trisos, CH**, Petchey, O & Tobias, JA. (2014). *Unravelling the complex interplay of community assembly processes acting on multiple niche axes across spatial scales*. **American Naturalist** 184:593-608.

Estrela, S., **Trisos, CH** & Brown, SP, 2012. *From metabolism to ecology: cross-feeding interactions shape the balance between polymicrobial conflict and mutualism*. **American Naturalist**, 180(5), pp.566-576.

## Christopher Trisos

Bergh, N.G., **Trisos, CH** & Verboom, G.A., (2011). *Phylogeny of the "Ifloga clade" (Asteraceae, Gnaphalium), a lineage occurring disjointly in the Northern and Southern Hemisphere, and inclusion of Trichogyne in synonymy with Ifloga*. **Taxon**. 60: 1065-1075.

---

### SCIENCE COMMUNICATION

---

*Why Africa needs a synthesis centre*, article in *The Conversation* 2017  
<https://theconversation.com/why-africa-needs-a-science-synthesis-centre-to-tackle-complex-problems-81846>

*Science Café*, speaker Washington, D.C. and Fresno 2016

*Open Streets: I'm a Scientist, ask me a question*, organiser Cape Town 2015

*Flash Seminars: Pop-up science discussions*, speaker and organiser Cape Town 2015

'Dance your PhD' winning team hosted by *Science* (vimeo.com/77304026) 2014

PhD research video (vimeo.com/16195743) 2010

---

### INVITED TALKS

---

*Climate change tipping points for biodiversity*. 2018. University of Maryland, Baltimore

*Climate engineering and biodiversity*. 2017. Rutgers University

*Climate velocities from solar geoengineering: potential biodiversity impacts*. 2017. Harvard University

*Ecological, agricultural and health impacts of solar geoengineering*. 2017. Good Hope for Earth Sciences International Meeting.

*Climate velocities from solar geoengineering: potential biodiversity impacts*. 2016. American Geophysical Union Fall Meeting.

*Global biodiversity monitoring for ecosystem services*. 2016. National Socio-Environmental Synthesis Center Seminar, University of Maryland, College Park

*Avian community ecology in the Neotropics*. 2016. University of Delaware

*Why do birds live where they do, in Peru?* 2015. South African National Biodiversity Institute.

---

### PROFESSIONAL SERVICE

---

**Peer review:** *Trends in Ecology and Evolution, Ecology, Global Ecology and Biogeography, African Journal of Ecology, Biodiversity and Conservation, Proceedings of the Royal Society B, Journal of Biogeography, Evolutionary Ecology, Organisms Diversity and Evolution, Functional Ecology, Ecography, Journal of Animal Ecology*.

**SESYNC research grant review panel** 2016

Reviewed applications for research fellowships.

**Treasurer, Rhodes Scholars Southern African Forum** 2010

Selected grantees and paid grants to NGOs creating positive social and environmental change.