

# THOMAS WARD CROWTHER

Curriculum Vitae

**Date of Birth:** 18/06/1986

**Address:** Institute of Integrative Biology, ETH Zurich, CHN G68.3, Univeritätstrasse 16, 8092 Zürich, Switzerland.

**Email:** Thomas.Crowther11@gmail.com

**Google Scholar:** <https://scholar.google.co.uk/citations?user=EYjCeRIAAAAAJ&hl=en>

## Higher Education:

PhD in Ecology - Cardiff University (2008-2012)

BSc in Zoology - Cardiff University (2004-2007). Awarded first class honors

## Employment:

Assistant Professor of Global Ecosystem Ecology, ETH Zurich (2017-present)

Marie Curie Postdoctoral Fellowship. Netherlands Institute of Ecology (2015-2017)

Adjunct Professor at University of Minnesota (2016-present)

Visiting research fellow at The Yale School of Forestry (2016-2017)

Postdoctoral Fellowship at The Yale School of Forestry (2012-2015)

## Advisory positions and editorial boards:

Lead scientific Advisor for the UNEP's, 'Billion Tree Campaign' (2016-present)

Co-founder and coordinator of the Global Forest Biodiversity Initiative (2016-present)

Senior Analyst for the 'Global Soil Biodiversity Initiative' GSBI (2016-present)

Scientific advisor for the youth-led organization 'Plant-for-the-Planet' (2016-present)

Scientific board member for the climate advocacy group 'Soil4Climate', (2017-present)

Scientific advisor to 'Pacific Slope Trail Project', Costa Rica (2016-present)

Member of the British Ecological Society (BES) Review College (2015-present)

Committee member for Plants, Soils, Ecosystems: BES special interest group (2014-Present)

## Academic Grants:

2017-2030: Establishing the Global Ecological Modeling (GEM) group. Career grant from DOB Ecology. (**\$18.31million**). Sole PI.

2017 - 2020: Establishing the Team for Research on Earth's Ecology (T.R.E.E.). Grant from the Federal Ministry for Economic Cooperation and Development (Germany). (**\$1.23 million**). Sole PI.

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2017: A symposium to establish the Global Forest Biodiversity Initiative (GFBI). Grant awarded by the Forest Ecosystems editorial board, Beijing, China. (**\$58,000**). I am one of 3 lead PIs with Dr Peter Reich and Dr Jingjing Liang.

2016-2018: Setting up a novel, long-term NIOO research line on vertebrate grazing in a globally distributed experimental network. Internal Strategic grant from The Royal Netherlands Academy of Arts and Sciences. (**€97,977**). I am one of 3 lead PIs.

2015-2018: Understanding local controls on fungal-mediated wood decomposition in a regional context. National Science Foundation (NSF). Division of Environmental Biology. (**\$149,901**). Co PI with Dr Mark Bradford.

2013-2016: Testing the mechanisms governing respiratory thermal acclimation heterotrophic soil microbes. British Ecological Society Large Research Grant (**\$39,430**). Sole PI.

2012-2015: Do soil fauna mediate microbial feedbacks to climate change? Yale Climate & Energy Institute Postdoctoral Fellowship (**\$202,000**). Sole PI.

## Academic Awards and Recognition:

2017: Early Career Award from the ESA Soil Ecology Society.

2017: Keynote speaker invitation to the global soil carbon and climate change symposium at the United Nation's FAO headquarters in Rome.

2015-2017: European Commission H2020, Marie Skłodowska-Curie Personal Fellowship grant (**€187,112**).

2016: Three lead author papers recognized by Altmetric as being in the top 1% of all scientific papers in terms of media attention and impact, with scores of 1656, 1109 and 749.

2012: Teaching award: Elected as a STEM ambassador for Cardiff University.

2011: Anne Keymer Prize for the Best PhD Student Talk at the British Ecological Society Annual Meeting in September 2010 (**\$300**).

**Peer reviewed publications: 69, Total Citations: 1888, Total Altmetric Score: 7202**

## Selected senior author publications (see [Google Scholar](#) for updated list):

1. Maynard, D.S., Bradford, M.A., Lindner, D.L., van Diepen, L.T.A., Frey, S.D., Glaeser, J.A. and **Crowther, T.W.\*** (2017). Diversity begets diversity in competition for space. **Nature Ecology & Evolution**, 1, 156.
2. **Crowther, T.W.**, Todd-Brown, K., Rowe, C.W., + 30 authors (2016) Quantifying global soil carbon losses in response to warming. **Nature**, 54, 104-108.
3. **Crowther, T.W.**, H.B. Glick, K.R. Covey, + 30 authors (2015). Mapping tree density at a global scale. **Nature** 525, 201–205.

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4. Liang, J., **Crowther, T.W.\***, Picard, N. + 80 authors. (2016) Positive Biodiversity–Productivity Relationship Predominant in Global Forests. **Science**, 345, aaf8957.
5. Bradford, M. A., Wieder, R.W., Bonan, G. B., Fierer, N., Raymond, P. A. & **Crowther, T. W.\*** (2016). Managing uncertainty in soil carbon feedbacks to climate change. **Nature Climate Change\***, 6, 751-758.
6. **Crowther, T.W.**, Thomas, S.M., Maynard, D.S., Baldrian, P., Covey, K.R., Frey, S.D., van Diepen, L.T.A. & Bradford, M.A. (2015). Biotic interactions mitigate soil microbial feedbacks to climate change. **PNAS**, 112, 7033-7038.
7. **Crowther, T.W.** & Bradford, M.A. (2013). Thermal acclimation in widespread heterotrophic soil microbes. **Ecology Letters**, 16, 469-477.
8. **Crowther T.W.**, Boddy, L. & Jones, T.H. (2011) Outcomes of fungal interaction are determined by soil invertebrate grazers. **Ecology Letters**, 14, 1134-1142. – *Featured by news outlets including [ScienceDaily](#), [Science Newline](#), [Bio-Medicine](#) etc.*

## Non-peer reviewed publications:

Op-Ed for the BBC: [COP21: 'A trillion trees to the rescue'](#)

**Crowther, T.W.**, Maynard, D.S. & Glick, H. Projecting global reforestation potential. WWF report.

Regular contributor to the British Ecological Society Bulletin

Glick, H.G. & **Crowther, T.W.** (2015) [How we found out there are three trillion trees on Earth](#). The Conversation.

[Baum für Baum – Jetzt retten wir Kinder die Welt](#) (English title: Tree by Tree – Now we children save the world). A Plant for the Planet publication.

[Ecosystems Underground; Consequences for Climate Change](#). Yale Climate and Energy Institute, December 2013.

[Fungi, not plants, drive long-term carbon sequestration in boreal forest](#). Yale Climate and Energy Institute, May 2013.

[Climate-Ecosystem Carbon Feedbacks](#). Yale Climate and Energy Institute, February 2013.

A’Bear, A.D., & Crowther, T.W. [Woodland Warfare in a Warming World](#). NERC Planet Earth Online article, Autumn 2012.

## Invited Presentations

**Crowther, T.W.** Quantifying global soil carbon losses in response to warming. Keynote speech at the first United Nations Food and Agriculture Organization’s symposium on global soil organic carbon and climate change, March 2017, Rome.

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**Crowther, T.W.** University of Minnesota mini symposium: Global forests, biodiversity, climate change and carbon cycling: the tip of the iceberg. September 2016. Invited by Dr Peter Reich.

**Crowther, T.W.** Ecological drivers of terrestrial carbon cycling. University of Washington, SEFS Seminar Series. September 2016. Invited by Dr Tom DeLuca.

**Crowther, T.W.** Mimicking nature: closing the C cycle. NWO conference: Science for a Circular Economy, Eindhoven, Netherlands. June 2016. Invited by Dr Louise Vet

**Crowther, T.W.** How many trees are there in the world? Plant for the Planet Annual Youth Conference, April 2016. Invited by Felix Finkbeiner.

**Crowther, T.W.** Ecological drivers of carbon cycling. Munich University seminar series, April 2016. Invited by Susanne Renner.

**Crowther, T.W.** Seeing the forest and the trees. World Wildlife Fund (WWF) UK. April 2016. Invited by Will Ashley-Cantillo.

**Crowther, T.W.** The ecological processes that drive the carbon cycle. University of Copenhagen seminar series, March 2016. Invited by Aimee Classen and Nate Sanders.

**Crowther, T.W.** Using functional traits in the search for predictable patterns in fungal biogeography. Free University of Berlin seminar series, October 2015. Invited by Dr Matthias Rillig.

**Crowther, T.W.** Seeing the forest and the trees: mapping tree density at a global scale. Plant for the Planet Youth Summit May 2015. Invited by Felix Finkbeiner.

**Crowther, T.W.** Thermal adaptation in fungi: using traits to predict biogeography. Mycological Society of America conference. Lansing, Michigan, June 2014. Invited by Mia Maltz for the symposium: Functional traits in a changing world.

**Crowther, T.W.** A trait-based approach to understanding fungal communities. The George Washington University, November 2013. Invited by Dr Amy Zanne.

**Crowther, T.W.** Fungal interactions mediate soil-climate feedbacks. University of Colorado at Boulder, April 2013. Invited by Dr Noah Fierer.

**Crowther, T.W.** Fungal interactions shape the underworld. Bowling Green State University seminar series, December 2012. Invited by Dr Shannon Pellini.

**Crowther, T.W.** Fungal interactions shape the underworld. Yale University, November 2012. School of F&ES weekly seminar series.

**Crowther, T.W.** Interactive effects of warming and grazing on fungal competitive outcomes. Harvard University, May 2012. Invited by Dr Aaron Ellison.

**Crowther, T.W.** & A'Bear, A.D. Biotic and abiotic factors affecting the growth and functioning of saprotrophic basidiomycete fungi. Netherlands Institute for Ecology (NIOO), January 2012. Invited by Prof Wim van der Putten.

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## Teaching experience:

Lecturer on the 'Cutting Edge Ecology' program at the Netherlands Institute of Ecology (2016)

'Soil Science' Lecturer at Yale University (2012-2014)

'Endemism and 'Conservation' course leader at Operation Wallacea, Honduras (2010)

Fungal Ecology, and Animal Behaviour teacher and Practical Demonstrator at Cardiff University (2008-2012)

## Supervising experience:

2015-2016: Co-advisor for Dr Antica Culina and Dr Elsa Desnoves during their post-doctoral positions at the Netherlands Institute of Ecology.

2014: Advised Stephen Thomas during his post-doctoral position at Yale University

2013-2016: Committee member and co-advisor for Daniel Maynard in his PhD dissertation at Yale University.

2013-2016: Co-advised Madeleine Rubenstein, Clara Rowe and Avishesh Neupane during their Masters of Research projects in Yale. All of these have lead, or co-authored publications in leading international journals during this research.

2012-2016: Co-advised Noah Sokol, Emily Oldfield and Daniel Maynard during their PhDs in Yale. All of these have lead, or co-authored publications in leading international journals during this research.

2009-2012: Co-advised two Cardiff University Masters of Research (MRes) students in their dissertation projects

2008-2012: Co-advised 33 Cardiff University undergraduate students during Final Year Dissertation projects. 7 of these (A'Bear A.D., Littleboy, A., Ashfield, R., Chadwick, D.D.A., Dempsey, J., Meletiyou, L., Rees, C.L) lead or co-authored publications in international, peer-review journals.

## Reviewing:

Reviewer for more than 30 journals, including Nature, Ecology Letters, Ecology, Ecological Monographs, Global Change Biology, Journal of Ecology, etc.

Editor for the peer-review journal, Agricultural and Forest Entomology (2012-Present)

Handling Editor For Forest Ecosystems (2017-present).

Reviewer for the European Food Safety Authority (EFSA), on the Panel of Plant Protection Products and their Residues (PPR).

Reviewer for the British Ecological Society grants series (2015-present)

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Reviewer for the Czech Science Foundation grants (2015-present)

Reviewer for the German Research Foundation grants (2015-present)

## Recent, first author conference proceedings

**Crowther, T.W.** Mapping tree density at a global scale. Paper presented at the British Ecological Society annual conference, Edinburgh, 2015.

**Crowther, T.W.** Untangling the fungal niche: a trait-based approach. Paper presented at the British Ecological Society annual conference, Lille, 2014.

**Crowther, T.W.** Thermal adaptation in fungi: using traits to predict biogeography. Mycological Society of America conference. Lansing, Michigan, June 2014.

**Crowther, T.W.** & Bradford, M.A. Vulnerability of Soil Biodiversity to Deforestation. Paper presented at the International Society for Ecology (INTECOL) Conference, 2013.

**Crowther, T.W.,** Boddy, L. & Jones, T.H. Functional and ecological consequences of saprotrophic fungus-grazer interactions. Paper presented at the British Ecological Society Annual Meeting, 2011.

**Crowther, T.W.,** Boddy, L. & Jones, T.H. Outcomes of fungal interactions are determined by soil invertebrate grazers. Paper presented at the British Ecological Society Annual Meeting, 2010. \* 1<sup>st</sup> prize for best student talk.

**Crowther, T.W.,** Boddy, L. & Jones, T.H. Species-specific effects of soil fauna on fungal foraging and decomposition. Paper presented at the British Ecological Society Annual Meeting, 2009.

## Academic society memberships

British Ecological Society

Ecological Society of America

Soil Ecology Society

Mycological Society of America

## Outreach & other Scholarly activities:

Held a popular [Reddit AMA](#) (Ask Me Anything), which received over 10,000 up-votes and 700 questions, and reached the front page of Reddit. DOI: 10.15200/winn.148612.26272

Expert witness for ‘Western Environmental Law Center’, USA – most notable contributions include a written declaration in support of the proposed ‘Clean air Rule’ used in the lawsuit against the Washington State Department of Ecology (2016).

Ambassador for Zig Zag Zoom: a children’s video game established to promote environmental stewardship and to plant a million trees worldwide.

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Presented on the trillion-tree project at the World Wildlife Fund (WWF) UK branch in April 2016.

Presented on the trillion-tree project at the World Wildlife Fund (WWF) Netherlands branch in March 2016.

Presented at the Plant for the Planet Youth Summit (2015). Invited by Felix Finkbeiner.

Presented at the 'Women Leaders in Green Careers' workshop at the Yale School of Forestry & Environmental Studies (2015).

Judge for the Poster presentation award at the International Association for Ecology Conference (2013), and the PhD talk competition at the BES annual meeting (2014).

Chair for the 'Above-ground below-ground interactions' session at the International Association for Ecology Conference (2013).

Volunteer tutor at New Haven Reads, New Haven, USA (2012-2013)

Stem Ambassador for Cardiff University, Wales (2011-2012)

## **Notable non-academic achievements:**

Tennis: 2001 Welsh National tennis champion under 16 and under 18. Represented North Wales men's team from 2001-present. First team varsity tennis for Cardiff University.

Football: First team varsity football for Cardiff University.

Running: Completed the Baystate Marathon (Massachusetts, USA) in 2013, and the Cardiff half marathon in 2011.