

## María Rebolleda-Gómez

Yale University | Ecology and Evolutionary Biology  
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## PROFESSIONAL APPOINTMENTS

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Donnelley Postdoctoral Environmental Fellowship Yale University Sanchez lab (ecology and evolution of microbial communities)	2019-Present
Pittsburgh Ecology and Evolution Postdoctoral Fellow University of Pittsburgh Ashman lab (evolution and ecology of plant associated microbes)	2017-2019

## EDUCATION

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**Research interests:** *Evolutionary Ecology; Evolution of Complexity; Plant-Microbe interactions; Microbial Ecology; Evolution of Individuality; Metapopulation Dynamics, Spatial Ecology and Evolution.*

PhD <i>University of Minnesota, Program in Ecology, Evolution and Behavior</i> Adviser: Michael Travisano Committee: Alan Love, Ruth Shaw and Emilie Snell-Rood Dissertation: "Constructing individuality: Ecological and evolutionary dynamics in experimental transitions to multicellularity"	2011-2016
B. Sci Biology <i>Universidad Autónoma de México (UNAM)</i> Thesis: "Ecología Experimental: Diversidad, densidad bacteriana y heterogeneidad ambiental en microcosmos de <i>Pseudomonas</i> " (Experimental Ecology: Diversity, bacterial density and environmental heterogeneity in <i>Pseudomonas</i> microcosms) Honors: Dissertation defense "with Distinction"	2011

**PEER REVIEWED PUBLICATIONS**

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*Asterisk indicates equal contribution*

- [12] Forrester, N.J., **M. Rebolleda-Gómez**, J.L. Sachs and T-L Ashman. (2020). Polyploid plants obtain greater fitness benefits from a nutrient acquisition mutualism. *New Phytologist*.
- [11] Bowman, M.\* and **M. Rebolleda-Gómez\***. (2020). Uprooting Narratives: Legacies of colonialism in the neoliberal university. *Hypatia: A journal of feminist philosophy*. 35:18-40.
- [10] Rebolleda-Gómez, M.\***, C. W. Wood\*. (2019). Unclear intentions: eavesdropping in microbial and plant systems. *Frontiers in Ecology and Evolution*. [DOI:10.3389/fevo.2019.00385](https://doi.org/10.3389/fevo.2019.00385)
- [9] Rebolleda-Gómez, M.** and T-L . Ashman. (2019). Floral organs act as environmental filters and interact with pollinators to structure the yellow monkeyflower (*Mimulus guttatus*) floral microbiome. *Molecular Ecology*. [DOI:10.1111/mec.15280](https://doi.org/10.1111/mec.15280)
- [8] Metcalf, C. J. E., L.P. Henry, **M. Rebolleda-Gómez** and B. Koskella. (2019). Why evolve reliance on the microbiome for timing of ontogeny?. *mBio*. [DOI: 10.1128/mBio.01496-19](https://doi.org/10.1128/mBio.01496-19)
- [7] Rebolleda-Gómez, M.**, N.J. Forrester, A.L. Russell, N. Wei, A.M. Fellers , J.D. Stephens and T-L Ashman. (2019). Gazing into the anthosphere: Considering how microbes influence floral evolution. *New Phytologist*. [DOI:10.1111/nph.16137](https://doi.org/10.1111/nph.16137)
- [6] Johnson, A.L., **Rebolleda-Gómez, M.** and T-L. Ashman. (2019). Pollen on stigmas documents impacts of a century of environmental disturbance on pollen transfer. *The American Naturalist*. 194: 405-413. [DOI:10.1086/704607](https://doi.org/10.1086/704607)
- [5] Russell, A.L., **M. Rebolleda-Gómez.**, Shaible T. and T-L Ashman. (2019). Movers and shakers: bumble bee foraging behavior shapes the dispersal of microbes among and within flowers. *Ecosphere*. [DOI:10.1002/ecs2.2714](https://doi.org/10.1002/ecs2.2714)
- [4] Rebolleda-Gómez, M.** and M. Travisano. (2019). Selection, chance, and history in experimental evolutionary reversals to unicellularity. *Evolution*. 73: 73-83. [DOI: /10.1111/evo.13654](https://doi.org/10.1111/evo.13654)
- [3] Rebolleda-Gómez, M.** and M. Travisano. (2018). The cost of being big: dispersal limitation and experimental evolution of reversal to unicellularity. *The American Naturalist*. 192: 731-744. [DOI: 10.1086/700095](https://doi.org/10.1086/700095)
- [2] Escalante, A. E., **M. Rebolleda-Gómez**, M. Benítez and M. Travisano. (2015). Ecological Perspectives on Synthetic Biology: Insights from Microbial Population Biology. *Frontiers in Microbiology*. [DOI: 10.3389/fmicb.2015.00143](https://doi.org/10.3389/fmicb.2015.00143).

**[1] Rebolleda-Gomez, M.,** W. C. Ratcliff and M. Trivisano. (2012). Adaptation and Divergence during Experimental Evolution of Multicellular *Saccharomyces cerevisiae*. In: Adami, C., Bryson, D. M., Ofria, C. & Pennonck, R. T (eds.). *Artificial Life XIII. Proceedings of the Thirteenth International Conference on the Simulation and Synthesis of Living Systems*. MIT press, Cambridge, MA.

## **PUBLICATIONS SUBMITTED**

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Estrela, S., J.C.C. Vila, N. Liu, D. Bajic, **M. Rebolleda-Gómez**, C-Y. Chang and A. Sanchez. Metabolic rules of microbial community assembly. *In review at Cell*.  
preprint: [www.biorxiv.org/content/10.1101/2020.03.09.984278v1](http://www.biorxiv.org/content/10.1101/2020.03.09.984278v1)

## **PUBLICATIONS IN PREPARATION**

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**Rebolleda-Gómez, M.,** W. C. Ratcliff, D. López-Cámara and M. Trivisano. Change of scale: Niche construction promotes coexistence of recently evolved multicellular *Saccharomyces cerevisiae*. *In preparation*. (Version prior to physical modeling:  
<http://biorxiv.org/content/early/2016/08/05/067991>)

## **GRANTS AND FELLOWSHIPS (~296,000)**

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Donnelley Postdoctoral Fellowship (Yale Institute for Biospheric Studies; ~110,000 USD)	2019-2020
Pittsburgh Ecology and Evolution Postdoctoral Fellowship (~ 95,900 USD)	2016-2018
University of Minnesota Doctoral Dissertation Fellowship (23,600 USD)	2015-2016
Interdisciplinary Center for Global Change Fellowship (44,000 USD)	2011-2016
University of Minnesota Interdisciplinary Fellowship (22,500 USD)	2014-2015

## **AWARDS AND SMALL GRANTS (~13,000 USD)**

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Best poster award at the "Gordon Research Conference in Microbial Population Biology"	2019
Best poster award at the "Evolution of complex life conference"	2019
Ecology, Evolution and Behavior (EEB) Summer research grant (3,000 USD)	2015, 2016

Ecology, Evolution and Behavior (EEB) Travel Award (3,500 USD)	2012-2015
Finalist for the Hamilton award for best student presentation at "Evolution"	2014
EEB "Elmer C. Birney Fellowship" for summer research (5,800 USD)	2013
Nominated for "Best Teaching assistant in the College of Biological Sciences"	2013
Scholarship to attend the 13th International Alife (Artificial life) Conference	2012

## **TEACHING EXPERIENCE**

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**Teaching interests:** *Evolution; Evolutionary Ecology; General Biology; Microbiomes; Plant-microbe interactions; Microbial Ecology; Microbial Evolution; Science and Society.*

Lead instructor <i>Department of Biological Sciences, Carnegie Mellon University</i> 99-236: Introduction to Environmental Ideas Advanced undergraduate class co-taught with an Environmental Historian	2019
Curriculum design I am currently advising the teaching faculty at the Department of Biological Sciences at the University of Pittsburgh in designing an introductory biology lab for undergraduate students (800/year) coupled to my research in flower coloration and microbial associations.	2018-present
Mentor I have mentored ten undergraduate students. Advised three in independent projects. Assisted one with successful applications to graduate school and one with his successful application to Med school.	2011-present
Lead instructor <i>Department of Biological Sciences, University of Pittsburgh</i> BIOSC 2351: Advanced Evolution Graduate Seminar in Evolutionary Theory	2018
Lead instructor <i>Department of Biological Sciences, University of Pittsburgh</i> BIOSC 2110: Microbial Diversity Graduate Seminar in Microbial Ecology and Evolution	2017
Guest lecturer <i>Department of Biological Sciences, University of Pittsburgh</i>	2018

Undergraduate biology survey class

Guest lecturer 2017  
*Department of Biological Sciences, University of Pittsburgh*  
Ecology graduate seminar

Teaching Assistant 2013  
*College of Biological Sciences, University of Minnesota*  
BIOL 3409: Evolution  
In charge of two laboratory sections.

Teaching Assistant 2013  
*College of Biological Sciences, University of Minnesota*  
BIOL 2002: Foundations of Biology for Biological Sciences Majors, Part I  
in charge of one laboratory section. This class has a strong laboratory component with each section meeting twice a week.

Teaching Assistant 2012  
*College of Biological Sciences, University of Minnesota*  
BIOL 1001: Introductory Biology: Evolutionary and Ecological Perspectives for non-majors.  
I was in charge of two laboratory sections.

Private tutoring of mathematics, chemistry and biology 2007-2009

Volunteer educator in a project of education and literacy with adults  
in Mexican rural communities. 2005-2006  
*Proyecto de alfabetización rural del Colegio Madrid*  
Taught reading skills, writing skills, reading comprehension, mathematics and science to adults who could not finish their k-12 education. Received training on teaching and pedagogical theory for nine months each year, in preparation for three months of teaching within the community.

Volunteer educator in a project of education with unprivileged adults in  
Mexico City. 2002-2004  
*Proyecto de alfabetización urbana del Colegio Madrid*  
Taught reading comprehension, mathematics and science to adults that, for economic reasons, could not finish their k-12 education.

## **INVITED PRESENTATIONS**

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Dimensions of Plant Resilience Symposium 2020  
*Michigan State University Plant Resilience Institute (Postponed due to COVID-19)*

Ecology and Evolutionary Biology Department Seminar

<i>University of Michigan (February, 11th 2020)</i>	2020
Ecology and Evolutionary Biology Department Seminar <i>University of California, Irvine (February, 5th 2020)</i>	2020
Biology Department Seminar <i>University of Toronto, Mississauga (January, 14th 2020)</i>	2020
Microbiology Seminar <i>Cornell University (December, 4th 2019)</i>	2019
Microbial and Plant Biology Seminar <i>University of California, Berkeley (March, 14th 2019)</i>	2019
Integrated Bioscience Program Friday seminar <i>University of Akron (October, 12th 2018)</i>	2018
Minnesota Center for Philosophy of Science brown bag <i>University of Minnesota, MN (April, 16th 2018)</i>	2018
New Directions on the Emergence and Maintenance of Individuality Workshop <i>Sydney, Australia (October, 3th 2017)</i> (Had to present remotely for immigration conflicts)	2017
International Society for History, Philosophy, and Social Studies of Biology (IHPSSB) <i>São Paulo, Brazil (16 to 21 July, 2017)</i> (Had to cancel for immigration conflicts)	2017
Pittsburgh Ecology and Evolution Postdoc (PEEP) Fellows Symposium <i>University of Pittsburgh, PA (December, 2th 2016)</i>	2016
META Center Seminar <i>University of Oregon, OR (February 16th 2016)</i>	2016
STEM Seminar at University of Washington Bothell <i>Bothell, WA (December 14th 2015)</i>	2015

**OTHER PRESENTATIONS AND WORKSHOPS**

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HKW: Mississippi. An Anthropocene River <i>New Orleans, LA (November 10th to November 16th)</i>	2019
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Interdisciplinary project on the novel epistemic, aesthetic, and educational challenges of the Anthropocene

Gordon Conference in Microbial Population Biology 2019  
*Proctor Academy, NH (July 7th to July 12th)*  
Poster: "Community assembly of flower microbiomes in *Mimulus guttatus*"  
**Best poster award**

Evolution of Complex Life conference 2019  
*Georgia Tech, Atlanta, GA (May 15th to May 17th)*  
Poster: "Change of scale: Multicellular evolution alters physical dynamics promoting diversification"  
**Best poster award**

Microbial Eco-Evolutionary Dynamics Symposium 2018  
*ICG, Lisbon, Portugal (October 22th to October 24th)*

Ecological Society of America annual meeting 2018  
*New Orleans, LA (August 6th to August 12th)*

EDAMAME microbial ecology workshop 2017  
*Kellogg Biological Station, MI (August 6th to August 12th)*

Gordon Conference in Microbial Population Biology 2017  
*Proctor Academy, NH (July 9th to July 14th)*  
Poster: "Ecological consequences of architectural complexity in the evolution of multicellularity"

Evolution 2016  
*Austin, TX (June 17<sup>th</sup> to 21<sup>st</sup>)*  
Presentation: "Experimental evolution under UV radiation: A case for multi-level adaptation"

Gordon Conference in Microbial Population Biology 2015  
*Proctor Academy, NH (July 19th to July 24th)*  
Poster: "Multilevel fitness and multicellular (des)integration; conflict of interests in the experimental evolution of multicellularity"

Forecasting Evolution? 2015  
*Lisbon, Portugal (July 8<sup>th</sup> to July 11<sup>th</sup>)*  
Poster: "Evolutionary reversal to unicellularity: History across levels of organization"

Evolution 2014  
*Raleigh, NC (June 20<sup>st</sup> to July 24th)*  
Presentation: "Multicellularity: A key *innovation* for adaptive radiation in experimental microcosms"  
**Finalist for the Hamilton Award to the best student presentation**

Gordon Conference in Microbial Population Biology 2013  
*Proctor Academy, NH (July 21st to July 26th)*

- Poster: Experimental evolution and stable coexistence of diverse multicellular life-histories  
Biennial Meeting of the International Society for the History, Philosophy and Social Studies of  
Biology 2013  
*Montpellier, France (July 7<sup>th</sup> to July 12<sup>th</sup>)*  
Paper: Modularity and division of labor: from theory to experimental evolution in a session  
organized by me titled: *Individuality and Division of Labor*.
- II Congreso Mexicano de Ciencias de la Complejidad (2nd Mexican Conference of Complexity  
Sciences) 2012  
*UNAM, Mexico City, Mexico (October 22<sup>nd</sup> to October 24<sup>th</sup>)*  
Oral presentation: Complejidad emergente como consecuencia de la evolución de  
multicelularidad (Emergent complexity as a consequence of the evolution of multicellularity).
- Alife XIII. 13th International Conference on the Simulation & Synthesis of Living Systems:  
"Evolution in action" 2012  
*Michigan State University, East Lansing, Michigan (July 19th to July 22<sup>nd</sup>)*  
Oral presentation: Adaptation and divergence during experimental evolution of multicellular  
*Saccharomyces cerevisiae*.
- Society for Molecular Biology and Evolution (SMBE) annual meeting 2012  
*The Convention Centre, Dublin (June 23<sup>th</sup> to June 26<sup>th</sup>)*  
Oral presentation: Molecular basis of increased evolvability as a result of multicellularity  
evolution.
- UMN-BTI/NAIST Joint Symposium 2012  
*Naist (October 18<sup>th</sup>)*  
Poster: Tempo and mode in the evolution of multicellularity across experimental populations of  
*Saccharomyces cerevisiae*.
- Taller Latinoamericano de Evolución Molecular  
(Latin-American workshop on molecular evolution) 2009  
*UNAM, Cuernavaca, Mexico (June 22<sup>nd</sup> to July 3<sup>th</sup>)*  
Poster: Evolución de dos linajes de *Exiguobacterium* en un ambiente estructurado (Evolution of  
two *Exiguobacterium* lineages within a structured environment).

## **OUTREACH AND OTHER ACADEMIC ACTIVITIES**

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- Co-organizer of the bi-national conference "Connections across  
borders: Microbial communities at the interface between ecology  
and evolution" 2019-present
- Organizer, session leader and volunteer of Market Science PGH 2017-2019  
(Bringing science outreach to local farmers markets in Pittsburgh)  
<https://marketscipgh.wordpress.com/>



Participant on “Two scientists walk into a bar” (Answering science questions in a bar in a diverse neighborhood in Pittsburgh) <a href="http://www.carnegiesciencecenter.org/programs/adult-programs-two-scientists-walk-into-a-bar/">http://www.carnegiesciencecenter.org/programs/adult-programs-two-scientists-walk-into-a-bar/</a>	2017
Volunteer in learning parties at Assemble (Science outreach with kids of multiple ages in a mostly black neighborhood in Pittsburgh) <a href="http://assemblepgh.org/">http://assemblepgh.org/</a>	2017
Writer of science blog “Fenotípico” (Science blog in Spanish) <a href="https://fenotipico.wordpress.com/">https://fenotipico.wordpress.com/</a>	2015-2016
Session leader and volunteer of Market Science MN	2015-2016
University of Minnesota Ecology, Evolution and Behavior committee on diversity	2016
Member of the interdisciplinary graduate group BIG-WIG (Biological Interest Group- Works in gestation)	2016
Organizer of the interdisciplinary graduate group BIG-WIG (Biological Interest Group- Works in gestation) <a href="http://mcps.umn.edu/groups/BIG-WorksinGestation.html">http://mcps.umn.edu/groups/BIG-WorksinGestation.html</a>	2014-2016
Student fellow at the Interdisciplinary Center for Global Change	2011-2016
Graduate fellow at the Minnesota Center for Philosophy of Science	2009-2016

## **PROFESSIONAL ORGANIZATIONS**

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Ecological Society of America	2018-Present
Society for the Study of Evolution	2014-Present
American Society of Naturalists	2014-Present
British Ecological Society	2018-2019
International Society for the History, Philosophy and Social Studies of Biology	2013
Society of Molecular Biology and Evolution	2012

## **SERVICE**

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Reviewer for NSF-DEB

Reviewer for BioScience, Basic and Applied Ecology, American Biology Teacher, Biology and Philosophy, Molecular Ecology, FEMS microbiology ecology, Frontiers in Microbiology, Fungal Biology and Biotechnology.

## **REFERENCES**

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