Bin Wang

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EDUCATION

Ph.D. in Environmental Science, University of Virginia, Charlottesville, VA 08/2013-12/2017
M.S. in Ecology, University of Chinese Academy of Sciences, Beijing, China 09/2010-05/2013
B.S. in Agronomy, Shandong Agricultural University, Tai'an, China 09/2006-07/2010

APPOINTMENTS

Postdoctoral scholar, University of California, Irvine 01/2018–present
Graduate Teaching Assistant, University of Virginia 08/2014–12/2017
Graduate Research Assistant, University of Virginia 08/2013–12/2017
Graduate Research Assistant, Institute of Botany, Chinese Academy of Sciences 05/2011-05/2013

PUBLICATIONS

Peer-reviewed manuscripts (* = corresponding author**, #** = student co-advised**)**

18. **Wang, B**.*, Steven D. Allison. A trait- and individual-based modelling framework of soil microbial systems—DEMENTpy v1.0 (*in preparation*)

17. Shugart, H.H.*, Adrianna Foster, **Bin Wang**, Dan Druckenbrod , Jianyong Ma, Manuel Lerdau , Sassan Saatchi , Xi Yang, & Xiaodong Yan. Gap Models across Micro- to Mega-scales of Time and Space: Examples of Tansley's Ecosystem Concept. ***Forest Ecosystems*** (*in review*)

16. **Wang, B.***, Herman H. Shugart, Manuel T. Lerdau. 2019. Complexities between plants and the atmosphere. ***Nature Geoscience*** 12, 693-694 doi.org/10.1038/s41561-019-0413-8.

15. **Wang, B.***, Steven D. Allison. 2019. Emergent properties of organic matter decomposition by soil enzymes. ***Soil Biology and Biochemistry*** doi.org/10.1016/j.soilbio.2019.107522

14. **Wang, B.*,** Paul Brewer, Herman Shugart, Manuel Lerdau, Steven D. Allison. 2019. Building bottom-up aggregate-based models (ABMs) in soil systems with a view of aggregates as biogeochemical reactors. ***Global Change Biology*** *doi.org/10.1111/gcb.14684*

13. **Wang, B.*,** Paul Brewer, Herman Shugart, Manuel Lerdau, Steven D. Allison. 2019. Soil aggregates as biogeochemical reactors and implications for soil-atmosphere exchange of greenhouse gases—A concept. ***Global Change Biology*** doi.org/10.1111/gcb.14515

→**F1000Prime Recommended** "**as being of special significance to its field**"

12. **Wang, B.***, Jacquelyn Shuman, Herman H. Shugart, Manuel T. Lerdau. 2018. Biodiversity matters in feedbacks between climate change and air quality: a study using an individual-based model. ***Ecological Applications*** doi.org/10.1002/eap.1721

11. Zhi-Ping Wang, Lin Zhang, **Bin Wang**, Long-Yu Hou, Chun-Wang Xiao, Xi-Mei Zhang, Xing-Guo Han. 2018. Dissolved methane in groundwater of domestic wells and its potential emissions in arid and semi-arid regions of Inner Mongolia, China. ***Science of the Total Environment*** 626, 1193-1199

10. Herman Shugart*, **Bin Wang**, Rico Fischer, Jianyong Ma, Jing Fang, Xiaodong Yan, Andreas Huth, Amanda Armstrong. 2018. Gap models and their individual-based relatives in the assessment of the consequences of global change. ***Environmental Research Letters*** doi.org/10.1088/1748-9326/aaaacc

9. Hao Yan*, Shaoqiang Wang, Kailiang Yu, **Bin Wang**, Qin Yu, Gil Bohrer, Dave Billesbach, Rosvel Bracho, Faiz Rahman, & Herman Shugart. 2017. A novel diffuse fraction-based two-leaf light use efficiency model: An application quantifying photosynthetic seasonality across 20 AmeriFlux flux tower sites. ***Journal of Advanced in Modeling Earth Systems*** 9, 2317-2332

→**highlighted in EOS, AGU**

8. **Wang, B.*,** Herman Shugart, Manuel Lerdau. 2017. Sensitivity of global greenhouse gases budget to tropospheric ozone pollution mediated by the biosphere. ***Environmental Research Letters*** 12, 084001

→**featured in *Physics World;* referenced in *Wikipedia* page Global Warming**

7. **Wang, B.***, Manuel Lerdau, Yongli He. 2017. Widespread production of non-microbial greenhouse gases in soils. ***Global Change Biology*** 23, 4472–4482

6. Yongli He, Jianping Huang*, Herman Shugart, Xiaodan Guan, Jacquelyn Shuman, **Bin Wang**, Kailiang Yu. 2017. Unexpected evergreen expansion in the Siberian forest under warming hiatus. ***Journal of Climate*** DOI: 10.1175/JCLI-D-16-0196.1

5. **Wang, B.*,** Herman H. Shugart, Manuel T. Lerdau. 2017. An individual-based forest volatile organic compounds emission model—UVAFME-VOCs v1.0. ***Ecological Modelling*** 350, 69-78

→**winner of International Society for Ecological Modelling (ISEM) Best Young Researcher Paper Award**

4. **Wang, B.,** Herman H. Shugart, Jacquelyn K. Shuman, Manuel T. Lerdau*. 2016. Forests and ozone: productivity, carbon storage, and feedbacks. ***Scientific Reports*** 6, 22133

   →featured in Science, Phys.org, Science Daily, EurekAlert!, etc.

3. **Wang, B.*,** Hou LY, Liu W, Wang ZP. 2013. Non-microbial methane emissions from soils. ***Atmospheric Environment*** 80, 290-298

2. Wang ZP*, Han XG, Chang SX, **Wang B**, Yu Q, Hou LY, Li LH. 2013. Soil organic and inorganic carbon contents under various land uses across a transect of continental steppes in Inner Mongolia. ***Catena*** 109, 110-117

1. Hou LY, Wang ZP*, Wang JM, **Wang B**, Zhou SB, Li LH. 2012. Growing season in situ uptake of atmospheric methane by desert soils in a semiarid region of northern China. ***Geoderma*** 189-190,415-422

Book chapter

1. Smith, D.E., S.A. Roe, **B. Wang** and H.H. Shugart. 2017. Modeling Natural Processes to Inform Sustainable Development of the World — The Example of Forests. Pages: 227-239[Polish];240-252[Italian];253-265[English]. In: J. Szyszko, G.K. Müller, W. Chrostowski, Z. Klafka and M. Bodzenta (eds.). ***Sustainable Development in the Context of Laudato Sí***. Poligrafia Redemptorystów, Wysoka. 686 pages.

PRESENTATIONS

10. **Wang, B.**, Steven D. Allison. A trait- and individual-based modelling framework of soil microbial systems—DEMENTpy v1.0. American Geophysical Union Meeting, San Francisco, CA, USA 12/2019

9. **Wang, B.**, Steven D. Allison. Reverse Michaelis-Menten Kinectis derived from Scaling-forward Kinetics. American Geophysical Union Meeting, Washington DC, USA 12/2017 (poster)

8. **Wang, B**., Herman H. Shugart, Manuel Lerdau. Integrating biodiversity into biosphere-atmosphere interactions using an individual-based model. American Geophysical Union Meeting, New Orleans, LA, USA 12/2017 (oral)

7. Shugart, Herman, **Bin Wang**, Ksenia Brazhnik, Amanda Armstrong, Adrianna Foster. Gap models as tools for sustainable development under environmental changes in Northern Eurasia. American Geophysical Union Meeting, New Orleans, LA, USA 12/2017 (oral)

6. **Wang B.** Embracing ecological complexity in biosphere-atmosphere interactions using individual-based model. Department of Environmental Sciences Seminar Series, University of Virginia, Charlottesville, VA, USA 11/2017 (oral)

5. **Wang, B**., Herman H. Shugart, Manuel Lerdau. An individual-based forest volatile organic compounds emission model—UVAFME-VOC. The International Society for Ecological Modelling Global Conference, Jeju Island, South Korea, 09/2017 (**award-winning talk**)

4. **Wang, B**., Herman H. Shugart, Manuel Lerdau. Impacts of climate change on forest isoprene emissions: diversity matters. American Geophysical Union Meeting, San Francisco, CA, USA 12/2016 (poster)

3. Manuel Lerdau, **Bin Wang**, Brynn Cook, Jessica L. Neu, David Schimel. Impacts of Species Interactions on Atmospheric Processes. American Geophysical Union Meeting, San Francisco, CA, USA 12/2016 (oral)

2. **Wang, B.** Herman H. Shugart, Sally Pusede, Manuel Lerdau**.** A global synthesis of tropospheric ozone impacts on budgets of long-lived greenhouse gases. Ecological Society of America Meeting, Fort Lauderdale, FL, USA 08/2016 (oral)

1. **Wang, B.,** Herman H. Shugart, Manuel T. Lerdau. An individual-based forest VOCs emission model. The International Society for Ecological Modelling Global Conference. Towson, MD, USA 05/2016 (oral)

TEACHING EXPERIENCES

From 2014 through 2017, as a teaching assistant in the Department of Environmental Sciences, University of Virginia I taught labs (leading discussion, lab, and field trip) including:

Fundamentals of Ecology	09/2017-12/2017
Forest Sampling	01/2017-05/2017
Forest Ecology and Management	09/2016-12/2016
Fundamentals of Ecology	01/2016-05/2016
Introductory Geology	01/2015-12/2015
Soil Science	09/2014-12/2014

STUDENTS CO-MENTORED

Elsa Abs, Postdoctoral scholar, University of California, Irvine	2019-
Katherine Mary Coughlin, MS, University of Virginia	2017-2018
Stephanie Roe, PhD candidate, University of Virginia	2016
Yongli He, visiting student, University of Virginia	2014-2016

HONORS AND AWARDS

Best Young Researcher Paper Award of International Society for Ecological Modelling	2017
Travel Award of University of Virginia	2016-2017
Fellowship of Department of Environmental Sciences, University of Virginia	2013-2017
Outstanding Graduate of Shandong Agricultural University	2010
First class scholarship of Shandong Agricultural University	2007-2009

MEDIA COVERAGE

My research has been featured in news outlets including, among others, *SCIENCE, Science Daily, EurekAlert, PHYS.ORG, China Science Daily, Yahoo*. For example:

4. "***How does tropospheric ozone pollution affect greenhouse gas budgets?***" ***environmentalresearchweb*** 2017

3. "***Improved Simulation of Gross Primary Productivity***" ***EOS***, ***AGU*** 2017

2. "***Smog may not hurt a forest's carbon-sucking ability, contrary to conventional wisdom***" ***SCIENCE*** 2016

1. "***Ozone does not necessarily promote decline of natural ecosystems***" ***Science Daily*** 2016

SERVICE

Journal reviewer

New Phytologist, JGR-Biogeosciences, Geophysical Research Letters, Ecological Modelling, Biogeosciences, Biogeochemistry, Environmental Research Letters, Science of the Total Environment, Atmosphere, Forests, Remote Sensing, Sustainability, IPCC Special Report on 1.5, Frontiers in Environmental Science, Geoderma, Chemosphere, Atmospheric Chemistry and Physcis

Professional societies

American Geophysical Union
Ecological Society of America
International Society of Ecological Modelling
American Association for the Advancement of Science

REFERENCES

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