

Jingjing Liang
Curriculum Vitae

Address: Department of Forestry and Natural Resources, 715 W. State Street, West Lafayette, IN 47907

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Website: <http://www.gfbinitiative.org/liang>

Education

Ph.D. (Forestry)	University of Wisconsin-Madison, United States	2001-2005
	Focus Areas: Forest ecology, biodiversity	
B.S. (Environ. Sci.)	Peking University, China	1997-2001
	Focus Area: Ecology	

Professional Experience

2018– present: Assistant Professor (Tenure track), Department of Forestry and Natural Resources, Purdue University

2017– present: Adjunct Professor, Beijing Forestry University, China

2017– present: Professeur associé, Université du Québec à Montréal, Canada

2017– present: Associate member, Centre d'étude de la forêt (CEF), Canada

2017– 2018: Associate Professor of Forest Ecology (Tenured), School of Natural Resources, West Virginia University

2011–2017: Assistant Professor of Forest Ecology (Tenure track), School of Natural Resources, West Virginia University

2007–2011: Assistant Professor of Forest Biometrics and Management (Tenure track) School of Natural Resources and Agricultural Sciences, University of Alaska Fairbanks

2006-2007: Post-doctoral Biometrician, U.S. Department of Agriculture, Rocky Mountain Research Station

2005-2006: Research Associate, Department of Forest Ecology and Management, University of Wisconsin-Madison

Editorship

Senior Handing Editor—*Forest Ecosystems*, 2018—present

Senior Editorial Board Member—*Scientific Data*, 2019—preent

Associate Editor—*Scientific Data*, 2017—2019

Associate Editor—*Canadian Journal of Forest Research*, 2011—2018

Elected Leadership Positions

- 2016-present: Leading Coordinator, Global Forest Biodiversity Initiative
- 2013-2015: Chair, A1/A3 Forest Inventory and Biometrics National Working Group, Society of American Foresters
- 2009-2011: Co-Chair, Alaska Northern Forest Cooperative
- 2008-2011: Faculty Senate, University of Alaska Fairbanks

Certification

- Since 2010, Certified Forester, Society of American Foresters, CN#4052
- 2013, Emergency Medical Technician, the State of West Virginia
- 2015, MSHA Part 46 Certified

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Recent Keynote and Invited Presentations (* indicates fully funded travel)

- 2018 (invited)* — Mapping global forest biodiversity. *Wageningen University and Research Centre, Netherlands & Aarhus University, Denmark*
- 2017 (keynote)* — Big data in forest research. *Inaugural Global Forest Biodiversity Initiative Conference & GFBI-FECS Joint Symposium 2017, China*
- 2017 (keynote) — Exploring global biodiversity-forest productivity relationship using GFBI data. *2017 Annual Conference of International Society of Forest Resource Economics (ISFRE), New Orleans, USA*
- 2017 (invited)* — GFBI data and structure. *Max Planck Institute for Biogeochemistry, Germany*
- 2017 (invited)* — Biodiversity-ecosystem functioning relationship and global forest ecosystems. *Universitat de Lleida, Spain*
- 2017 (invited)* — Stand Initiation Diversity Experiment and Biodiversity-ecosystem functioning relationship. *University of Freiburg, Germany*

Notable Synergistic Activities

- 2017: Founder— Secured *ca.* \$200,000 grants to establish two Global Forest Biodiversity Initiative Hubs, in Lleida Spain and Beijing China. Three more hubs will be developed in other countries to complete the global network of five centers
- 2017: Co-Chair—Inaugural Global Forest Biodiversity Initiative Conference & GFBI-FECS Joint Symposium 2017 (Beijing China, September 6-9 2017, with >100 participants from >50 countries)
- 2016: Developed Global Forest Biodiversity Initiative database (GFBI v.2.0), the most comprehensive global forest inventory database
- 2016-present: Founder and Lead Coordinator— Global Forest Biodiversity Initiative (GFBI, <http://www.gfbinitiative.org/>, with 150 members from 96 countries)
- 2016-present: Collaborator— The global land use open data, Food and Agriculture Organization of the United Nations
- 2012-2014: Founder—Secure Our Future with Education and Training (SOFET), a correctional education program and research dissemination platform.

Professional Affiliations

- Society of American Foresters (SAF)
- Institute for Operations Research and the Management Sciences (INFORMS)
- Ecological Society of America (ESA)
- International Society Of Forest Resource Economics (ISFRE)
- The American Association for the Advancement of Science (AAAS)

Awards

2012 International Scholars Recognition Award, West Virginia University
2009 Technology Advisory Board Award, University of Alaska Fairbanks
2008 International Arctic Science Committee (IASC) Early Career Scientist Support Award
2003 Xi Sigma Pi, Honorary Forestry Society, University of Wisconsin-Madison
2002 Gamma Sigma Delta, Honor Society of Agriculture, University of Wisconsin-Madison

PUBLICATIONS

Featured Publications

- ❖ **Liang, J.**, T. W. Crowther, N. Picard, S. Wiser, M. Zhou, G. Alberti, E.-D. Schulze, A. D. McGuire, F. Bozzato, H. Pretzsch, S. de-Miguel, A. Paquette, B. Hérault, M. Scherer-Lorenzen, C. B. Barrett, H. B. Glick, G. M. Hengeveld, G.-J. Nabuurs, S. Pfautsch, H. Viana, A. C. Vibrans, C. Ammer, P. Schall, D. Verbyla, N. Tchebakova, M. Fischer, J. V. Watson, H. Y. H. Chen, X. Lei, M.-J. Schelhaas, H. Lu, D. Gianelle, E. I. Parfenova, C. Salas, E. Lee, B. Lee, H. S. Kim, H. Bruelheide, D. A. Coomes, D. Piotta, T. Sunderland, B. Schmid, S. Gourlet-Fleury, B. Sonké, R. Tavani, J. Zhu, S. Brandl, J. Vayreda, F. Kitahara, E. B. Searle, V. J. Neldner, M. R. Ngugi, C. Baraloto, L. Frizzera, R. Bałazy, J. Oleksyn, T. Zawila-Niedzwiecki, O. Bouriaud, F. Bussotti, L. Finér, B. Jaroszewicz, T. Jucker, F. Valladares, A. M. Jagodzinski, P. L. Peri, C. Gonmadje, W. Marthy, T. O'Brien, E. H. Martin, A. R. Marshall, F. Rovero, R. Bitariho, P. A. Niklaus, P. Alvarez-Loayza, N. Chamuya, R. Valencia, F. Mortier, V. Wortel, N. L. Engone-Obiang, L. V. Ferreira, D. E. Odeke, R. M. Vasquez, S. L. Lewis, and P. B. Reich. 2016. Positive biodiversity-productivity relationship predominant in global forests. *Science* 354. DOI: 10.1126/science.aaf8957
- ❖ **Liang, J.**, Watson, James V., Mo, Zhou, Lei, Xiangdong (2016) Effects of productivity on biodiversity in forest ecosystems across the United States and China. *Conservation Biology* 30:308-317.
- ❖ **Liang, J.**, Zhou, Mo, Tobin, Patrick C., Reich, Peter, McGuire, A. David. (2015) Biodiversity Influences Plant Productivity Through Niche-Efficiency. *PNAS* 112(18):5738-5743.
- ❖ **Liang, J.** (2012) Mapping large-scale forest dynamics: a geospatial approach. *Landscape Ecology* 27(8): 1091-1108.

Peer-Reviewed Journal Articles

1. Luo, W., **J. Liang**, R. Cazzolla Gatti, X. Zhao, and C. Zhang. 2019. Parameterization of biodiversity-productivity relationship and its scale dependency using georeferenced tree-level data. *Journal of Ecology* <https://doi.org/10.1111/1365-2745.13129>.
2. Cazzolla Gatti, R., **J. Liang**, A. Velichevskaya, and M. Zhou. 2019. Sustainable palm oil may not be so sustainable. *Science of The Total Environment* 652:48-51.
3. Zeller, L., **Liang, J.** and Pretzsch, H., 2018. Tree species richness enhances stand productivity while stand structure can have opposite effects, based on forest inventory data from Germany and the United States of America. *Forest Ecosystems*, 5(1), p.4.
4. Lee, J; Gangnon, R; Zhu, J; **Liang, J.** 2017. Uncertainty of a detected spatial cluster in 1D: quantification and visualization. *Stat* 6 (1), 345-359
5. Fu, L., Lei, X., Hu, Z., Zeng, W., Tang, S., Marshall, P., Cao, L., Song, X., Yu, L. and **Liang, J.**, 2017. Integrating regional climate change into allometric equations for estimating tree aboveground biomass of Masson pine in China. *Annals of Forest Science*, 74(2), p.42.
6. Zhang, C., Y. Cheng, H. He, L. Gao, **J. Liang**, and X. Zhao. 2017. Structural drivers of biomass dynamics in two temperate forests in China. *Ecosphere* 8(3):e01752. 10.1002/ecs2.1752
7. Fan C, Tan L, Zhang P, **Liang J**, Zhang C, Wang J, Zhao X, von Gadow K. 2017. Determinants of mortality in a mixed broad-leaved Korean pine forest in northeastern China. *Eur J For Res*:1-13. doi:10.1007/s10342-017-1045-4

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8. **Liang J**, Crowther TW, Picard N, Wiser S, Zhou M, Alberti G, Schulze E-D, McGuire AD, Bozzato F, Pretzsch H, de-Miguel S, Paquette A, etc. 2016. Positive Biodiversity–Productivity Relationship Predominant in Global Forests. *Science* **354**. DOI: 10.1126/science.aaf8957
9. **Liang, J.**, Watson, James V., Mo, Zhou, Lei, Xiangdong. 2016. Effects of productivity on biodiversity in forest ecosystems across the United States and China. *Conservation Biology* 30:308-317 (DOI: 10.1111/cobi.12636).
10. Barrett, C. B., M. Zhou, P. B. Reich, T. W. Crowther, and **J. Liang**. 2016. Forest value: More than commercial—Response. *Science* **354**:1541-1542.
11. Ma, W., **Liang, J.**, JR Cumming, E. Lee, A. B. Welsh, J. V. Watson, and M. Zhou. (2016) Fundamental shifts of central hardwood forests under climate change. *Ecological Modelling* 332:28-41.
12. A. Hovi, **J. Liang**, L. Korhonen, H. Kobayashi, M. Rautiainen, (2016) Quantifying the missing link between forest albedo and productivity in the boreal zone. *Biogeosciences* 13,1-16.
13. **Liang, J.**, Zhou, Mo, Tobin, Patrick C., Reich, Peter, McGuire, A. David. (2015) Biodiversity influences plant productivity through Niche-Efficiency. *PNAS* 112(18):5738-5743.
14. Watson, James V., **Liang, J.**, Tobin, Patrick C., Lei, Xiangdong, Rentch, James S., Artis, Catherine E. (2015) Large-scale Forest Inventories of the United States and China Reveals Positive Effects of Biodiversity on Productivity. *Forest Ecosystems* 2: 22.
15. Lee, E., He, Y., Zhou, M., **Liang, J.** (2015) Potential Causal Effects of Recent Vegetation Changes on Summer Rainfall in the Sahel. *Physical Geography*. DOI: 10.1080/02723646.2015.1120139
16. Picard, N., **Liang, J.** (2014) Matrix models for size-structured populations: unrealistic fast growth or simply diffusion? *PLoS ONE* 9(6): e98254. doi:10.1371/journal.pone.0098254
17. **Liang, J.**, Zhou, M. (2014) Large-Scale Geospatial Mapping of Forest Carbon Dynamics. *Journal of Sustainable Forestry* 33: S104-S122.
18. Peterson, R.L., **Liang, J.**, Barrett, T.M. (2014) Modeling Population Dynamics and Woody Biomass in Alaska Coastal Forest. *Forest Science* 60(2)391-401(11).
19. **Liang, J.**, Picard, N. (2013) Matrix Model of Forest Dynamics: An Overview and Outlook. *Forest Science* 59(3): 359-378.
20. T. Malone, **J. Liang**. (2013) Total and merchantable volume of white spruce in Alaska. *Western Journal of Applied Forestry* 28(2): 71-77.
21. **Liang, J.** (2012) Mapping large-scale forest dynamics: a geospatial approach. *Landscape Ecology* 27(8): 1091-1108.
22. F.-M. Yuan, S.-H. Yi, A. D. McGuire, K.D. Johnson, **J. Liang**, J.W. Harden, E.S. Kasischke, and W.A. Kurz. (2012) Assessment of Historical Boreal Forest C Dynamics in Yukon River Basin: Relative Roles of Warming and Fire Regime Change. *Ecological Applications* 22(8): 2091-2109.
23. **Liang, J.**, M. Zhou, L. Zhang, D. Verbyla, A. Springsteen. 2011. Mapping forest dynamics under climate change: A Matrix model. *Forest Ecology and Management* 262: 2250-2262
24. Brian, Y., **J. Liang**, F.S. Chapin III. 2011. Effects of species and tree size diversity on recruitment in the Alaskan boreal forest: A geospatial approach. *Forest Ecology and Management* 262(8): 1608-1617.
25. Ping, C-L., G.J. Michaelson, L. Guo, M.T. Jorgenson, M. Kenevskiy, Y. Shur, F. Dou, **Liang, J.** 2011. Soil Carbon and Material Fluxes across the Eroding Alaska Beaufort Sea Coastline. *Journal of Geophysical Research* 116, G02004, doi:10.1029/2010JG001588
26. **Liang, J.**, M. Zhou. 2010. A Geospatial Model of Forest Dynamics with Controlled Trend Surface. *Ecological Modelling* 221: 2339-2352.
27. **Liang, J.** 2010. Dynamics and Management of Alaska Boreal Forest: An All-aged Multi-species Matrix Stand Growth Model. *Forest Ecology and Management* 260: 491-501.
28. Malone, T., **Liang, J.** 2009. A bark thickness model for white spruce in Alaska northern forests. *International Journal of Forestry Research* doi:10.1155/2009/876965.
29. **Liang, J.**, D.E. Calkin, K.M. Gebert, T.J. Venn, R.P. Silverstein. 2008. Factors influencing large wildland fire suppression expenditures. *Int. J. Wildland Fire* 17: 650-659.

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30. Zhou, M., **Liang, J.**, Buongiorno, J. 2008. Adaptive versus fixed policies for economic or ecological objectives in forest management. *Forest Ecology and Management* 254:178-187.
31. Zhou, M., Buongiorno, J., **Liang, J.** 2008. Economic and Ecological Effects of Diameter Caps: A Markov decision model for Douglas-fir/western hemlock forests. *Forest Science* 54(4): 397-407.
32. **Liang, J.**, J. Buongiorno, R.A. Monserud, E.L. Kruger, M. Zhou. 2007. Effects of diversity of tree species and size on forest basal area growth, recruitment, and mortality. *Forest Ecology and Management* 243: 116-127.
33. **Liang, J.**, J. Buongiorno, R.A. Monserud. 2006. Bootstrap simulation and response surface optimization of management regimes for Douglas-fir/western hemlock stands. *Forest Science* 52(5):579-594.
34. **Liang, J.**, J. Buongiorno, and R.A. Monserud. 2005. Growth and Yield of All-aged Douglas-fir/western hemlock Stands: A Matrix Model with Stand Diversity Effects. *Canadian Journal of Forest Research* 35: 2369-2382.
35. **Liang, J.**, J. Buongiorno, R.A. Monserud, and J. Fried. 2005. Estimation and Application of a Growth and Yield Model for Uneven-aged Mixed Conifer Stands in California. *International Forestry Review* 7(2):101-112.
36. **Liang, J.**, 2001. Study on the desertification of Ecotone. *Acta Scientiarum Naturalium Universitatis Pekinensis* 37(4): 543-549.

Books and Reports

1. Hand, M.S., Gebert, K.M., **Liang, J.**, Calkin, D.E., Thompson, M.P., Zhou, M. 2014. Economics of Wildfire Management: The Development and Application of Suppression Expenditure Models. Springer, New York, NY. ISSN 2193-6595. 71p.
2. **Liang, J.**, Watson, J.V. Handbook of Trees. West Virginia University. 103 p.
3. Zhou, M., Buongiorno, J., **Liang, J.** 2012. Bootstrap simulation, Markov decision process models, and role of discounting in the valuation of ecological criteria in uneven-aged forest management. In: Pukkala T. and Gadow K. v. (eds), Continuous Cover Forestry, Second edn. Springer, New York, NY
4. T. Malone, E.C. Packee, and **Liang, J.** 2012. List of Plant Species Present on Forest Permanent Sample Plots in Interior and Southcentral Alaska. University of Alaska Fairbanks – Agricultural and Forestry Experiment Station MP-2012-01. 10p.
5. **Liang, J.**, and J. Buongiorno. 2009. Optimizing Wood Quality and Stand Diversity in Uneven-aged Forest Management. In: R.A. Monserud and D. Dykstra (Editor), *2007 IUFRO Conference on Forest Growth and Timber Quality*, Portland, OR. p169-176.
6. Malone, T., **Liang, J.**, Packee, E.C., 2009. Cooperative Alaska Forest Inventory, USDA Forest Service, Pacific Northwest Research Station, *PNW-GTR-785*. Portland, OR. 42p.
7. **Liang, J.**, J. Buongiorno, and R.A. Monserud. 2006. WestProPlus: A spreadsheet program for the management of all-aged Douglas-fir/western hemlock forests in the Pacific Northwest. USDA Forest Service *PNW-GTR-674*. 42p.
8. **Liang, J.** 2005. Managing forests for diversity, wood quality and income: simulation models for western US forests (PhD Dissertation). University of Wisconsin--Madison, Madison, WI.
9. **Liang, J.**, J. Buongiorno, A. Hubbell, and B. Schulte. 2004. NorthPro: A spreadsheet program for the management of uneven-aged northern hardwood stands. Department of Forest Ecology and Management, University of Wisconsin-Madison. 36p.
10. **Liang, J.**, J. Buongiorno, and R.A. Monserud. 2004. CalPro: A spreadsheet program for the management of California mixed-conifer stands. USDA Forest Service *PNW-GTR-619*. 32p.

Conference Proceedings and Other Publications

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1. **Liang, J.**, de Miguel, S. (2018) Did you know? The Global Forest Biodiversity Initiative. *Silva Mediterranea* Issue 28 - January 2018. The Food and Agriculture Organization of the United Nations. 2pp.
2. **Liang, J.**, Watson, J.V. (2014) Is Forestry a Dying Profession? Here's What Our Students Say. *The Forestry Source* 19(3):6.
3. **Liang, J.**, J. Buongiorno, R. A. Monserud (2012) Bootstrap simulation and response surface optimization in forest management. Proceedings of the 2012 Southern Forest Economics Workers (SOFEW) Annual Meeting.
4. Zhou, M., and **Liang, J.** 2012. Modeling Alaska Boreal Forests with a Controlled Trend Surface Approach. Gen. Tech. Rep. SRS-157. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 299 p.
5. **Liang, J.** 2011 Population Dynamics of Alaska Boreal Forest under Climate Change. In: 2011 Society of American Foresters National Convention, Honolulu, HI 2011. vol 109. *Journal of Forestry*, p. 493
6. **Liang, J.** Geospatial Mapping of Forest Dynamics. In: 2011 Society of American Foresters National Convention, Honolulu, HI 2011. vol 109. *Journal of Forestry*, p. 501
7. **Liang, J.** 2010 Does tree diversity increase forest productivity? *SciTopics* (Invited article). http://www.scitopics.com/Does_Tree_Diversity_Increase_Forest_Productivity.html
8. Zhou, M., and **Liang, J.** 2010. Modeling Alaska boreal forests with a controlled trend surface approach. 2010 Joint Meeting of the Forest Inventory and Analysis (FIA) Symposium and the Southern Mensurationists, McWilliams W & Roesch FA (eds): pp 25-39.
9. **Liang, J.** and M. Zhou. 2010 Dynamics and Management of Alaska Boreal Forest. *SciTopics* http://www.scitopics.com/Dynamics_and_Management_of_Alaska_Boreal_Forest.html

Major Grants (total funded to date as Principal Investigator: approx. \$1.9 million)

- 2017: Start-up grant to establish a GFBI Research Center in Lleida, Spain (Total funded: *ca* €100,000)
- 2017: Start-up grant to establish a GFBI Research Center in Beijing, China (Total funded: *ca* \$100,000)
- 2017: Major international conference/workshop grant. Beijing Forestry University (Total Funded: *ca* \$98,000)
- 2017: Climate change and water use: can increase diversity help protect forests? Natural Sciences and Engineering Research Council of Canada (PI: Alain Paquette, Total funded: \$509,000)
- 2016-2018: Integrating Biological Conservation into Sustainable Forestry Based on Nationwide Analysis of Productivity-Biodiversity Relationship. USDA NIFA (Total Funded: \$30,340).
- 2015-present: Biodiversity and Ecosystem Functioning in North American Reclaimed Lands. ESSROC-Italcementi Group (Total Funded: \$69,508).
- 2012-present: Stand Initiation Diversity Experiment. West Virginia University Research Corporation (Total funded: \$75,000)
- 2011-2016: Mapping and Managing Central Appalachian Temperate Forest and Alaska Boreal Forest under Climate Change: Population Dynamics, Carbon, and Biodiversity. USDA MS-104 (Total Funded: \$277,610)

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- 2010-2011: Geospatial forest dynamics and management of Afognak Island, Alaska. Afognak Native Corporation Grant (Total Funded: \$29,600). Trained indigenous Afognak natives to conduct inventory and management of their forested land.
- 2009-2011: Measurement and Management of Alaska Boreal Forest Under Risks. USDA ALK-09-08 (Total Funded: \$723,056). Hired and trained undergraduate students including Alaska natives to conduct forest inventory.
- 2007-2009: Forest Stand Characterization and Growth and Yield for the Alaskan Northern Forest. USDA ALK-03-12 (Total Funded: \$518,495).
- 2008-present: Spatial projection of forest growth and woody biomass yield in coastal Alaska. USDA PNW 08-JV-112619 (Total Funded: \$56,294).

Teaching Experience (sole-instructor, G for graduate level courses)

West Virginia University (2011-present)

- FOR205 Dendrology (lecture + 5 field lab sessions)— every fall semester
- FMAN212 Forest ecology (lecture + 2 field lab sessions) — every fall semester
- FMAN693 Big data analysis in forest ecology (G, lecture) — 2016, 2017
- FMAN611 Advanced forest ecology (G, lecture) — every other spring semester

University of Alaska Fairbanks (2007-2011)

- NRM450 Decision methods in forest management (lecture + 1 computer lab session)
- NRM693 Spatial Modeling of Forest Resources (G, lecture)
- NRM611 Research Methods in Natural Resource Management (G, lecture)

Graduate Student Advisement

Student Name	Duration	Degree	Status
James Watson	2014-present	Ph.D.	In Progress
Laura Zeller	2017-present	Ph.D.	In Progress‡
Weixue Luo	2017-present	Ph.D.	In Progress‡
Zane Mikesell	2015-present	M.S.	In Progress
Kevin Tomlinson	2015-present	M.S.	In Progress
Philip Crim	2013-present	Ph.D.	In Progress
Wu Ma	2012-present	Ph.D.	Completed
James Watson	2012-2014	M.S.	Completed
Aaron Carpenter	2012-2014	M.S.	Completed
Lindsay Wilson-Kokes	2011-2013	M.S.	Completed
Randy Peterson	2009-2011	M.S.	Completed
Thomas Malone	2007-2011	M.S.	Completed
Brian Young	2008-2011	Ph.D.	Completed

*: Effective Spring 2018;

‡: Graduate students advising through GFBI International Visiting Program