JACOB J. BUKOSKI

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EDUCATION

Ph.D., **Environmental Science, Policy and Management**, University of California, Berkeley 2021
Dissertation: Forest carbon management in mangroves and monoculture plantations
Committee: Matthew D. Potts, Iryna Dronova & Gregory S. Biging
Honors: NSF Graduate Research Fellow, NSF Data Science for the 21st Century Fellow, visiting researcher at the International Institute of Sustainability, Rio de Janeiro, Brazil, 2019

M.S., Environmental Science, School of the Environment, Yale University 2016
Thesis: Modeling ecosystem carbon stocks in mangroves of the Asia-Pacific
Advisors: Timothy G. Gregoire & Mark S. Ashton

B.A., **Environmental Studies** (*with Distinction*), University of North Carolina, Chapel Hill 2011
Carolina Covenant Scholar, Carolina Student Transfer Excellency Program
Concentration: Energy and Sustainability

PROFESSIONAL EXPERIENCE

Assistant Professor, College of Forestry, Oregon State University 2023-Present

Science Advisor, Carbon Direct, Inc. 2021-Present

Associate Editor, Journal of Sustainable Forestry 2018-Present

Instructor of Record, University of California, Berkeley Fall 2021

Postdoctoral Associate, Natural Climate Solutions, Conservation International 2021-2023

PEER-REVIEWED PUBLICATIONS

Featured in: PhysWorld, Mongabay, Yale Forestry and Environmental Studies News, U.C. Berkeley News
* Signifies equal authorship, † Signifies undergraduate student author

Published:

[15] Holl, K.D., Ashton, M.S., **Bukoski, J.J.**, Culbertson, K., Curran, S., Harris, T., Potts, M.D., Valverde, Y., and Vincent, J.R. Clearly defining "abandoned" land in the context of reforestation. *Frontiers in Forests and Global Change* 5. doi: 10.3389/ffgc.2022.933887 2022

[14] **Bukoski, J.J.**, Cook-Patton, S., Melikov, C., Ban, S.†, Liu, J.C.†, Harris, N., Goldman, E., and Potts, M.D. Rates and drivers of aboveground carbon accumulation in global monoculture plantation forests. *Nature Communications* 13(4206). doi: 10.1038/s41467-022-31380-7 2022

[13] Prieto, P.V., **Bukoski, J.J.**, Barros, F.S.M., Beyer, H.L., Iribarrem, A., Brancalion, P.H.S., Chazdon, R.L., Lindenmayer, D.B., Strassburg, B.B.N., Guariguata, M.R., and R. Crouzeilles. Predicting landscape-scale biodiversity recovery by natural tropical forest regrowth. *Conservation Biology* e13842. doi: 10.1111/cobi.13842 2022

[12] **Bukoski, J.J.**, Dronova, I., and M.D. Potts. Net loss statistics underestimate carbon emissions from land use and land cover change in mangroves. *Ecography* 44: 1-11. doi: 10.1111/ecog.05982. 2021

[11] Golebie, E.*, Aczel, M.*, **Bukoski, J.J.***, Chau, S., Ramirez-Bullon, N., Gong, M., and Teller, N. 2021 A qualitative systematic review of governance principles for mangrove conservation. *Conservation Biology* 1-15. doi: 10.1111/cobi.13850 2021

[10] Rovai, A.S., Twilley, R.R., Castañeda-Moya, E., Midway, S.R., Friess, D.A., Trettin, C.C., **Bukoski, J.J.**, et al. Macroecological patterns and forest structure and allometric scaling in mangrove forests. *Global Ecology and Biogeography* 30(5): 1000-1013. doi: 10.1111/geb.13268 2021

[9] **Bukoski, J.J.**, Elwin, A., MacKenzie, R.A., Sharma, S., Purbopuspito, J., Kopania, B.†, Apwong, M., Poolsiri, R., and M.D. Potts. The role of predictive model data in designing mangrove forest carbon programs. *Environmental Research Letters*. doi: 10.1088/1748-9326/ab7e4e 2020

[8] Elwin, A., **Bukoski, J.J**., Jintana, V., Robinson, E.J.Z., and J. Clark. 2019. Preservation and recovery of mangrove ecosystem carbon stocks in abandoned shrimp ponds. *Scientific Reports* 9: 18275. doi: 10.1038/s41598-019-54893-6 2019

[7] Sanderman, J., Hengl, T., Fiske, G., Solvik, K., Adam, M.F., Benson, L., **Bukoski, J.J.**, et al. 2018. A global map of mangrove forest soil carbon at 30 m spatial resolution. *Environmental Research Letters.* doi: 10.1088/1748-9326/aabe1c 2018

[6] **Bukoski, J.J.***, Drazen, E.*, Johnson, W.R.*, and Swamy, L.* 2018. Tropical forests for sustainable development: Shaping the 2030 Agenda for Sustainable Development with knowledge from the field. *Journal of Sustainable Forestry* 37(2): 77-81. doi: 10.1080/10549811.2018.1418255 2018

[5] Swamy, L.*, Drazen, E.*, Johnson, W.R.*, and **Bukoski, J.J.*** 2017. The future of tropical forests under the United Nations Sustainable Development Goals. *Journal of Sustainable Forestry* 37(2): 221-256. doi: 10.1080/10549811.2017.1416477 2017

- Top 10 most read articles in the Journal of Sustainable Forestry

[4] **Bukoski, J.J.**, Broadhead, J.S., Donato, D.C., Kauffman, J.B., Murdiyarso, D., and Gregoire, T.G. 2017. The use of mixed effect models for obtaining low-cost ecosystem carbon stock estimates in mangroves of the Asia-Pacific. *PLoS ONE* 12(1): e0169096. doi: 10.1371/journal.pone.0169096 2017

[3] **Bukoski, J.J.**, Chaiwiwatworakul, P., and S.H. Gheewala. 2016. The life cycle assessment of an energy-positive peri-urban residence in a tropical regime. *Journal of Industrial Ecology*. doi: 10.1111/jiec.12494 2017

[2] **Bukoski, J.J.**, Chaiwiwatworakul, P., and S.H. Gheewala. 2015. Energy savings vs. costs of implementation for demand side management strategies within an energy efficient tropical residence. *Energy Efficiency* 8(4): 1-13. doi: 10.1007/s12053-015-9374-y 2015

[1] **Bukoski, J.**, Gheewala, S.H., Mui, A., Smead, M., and S. Chirarattananon. 2014. The life cycle assessment of a solar-assisted absorption chiller in Thailand. *Energy and Buildings* 72: 150-156. doi: 10.1016/j.enbuild.2013.12.034 2014

In Review & In Prep (drafts available upon request):

Evans, S., Haya, B., Brown, L., **Bukoski, J.J.**, Butsic, V., Cabiyo, B., Jacobson, R., Kerr, A., Potts, M.D., Sanchez, D.L. Scientific review of carbon quantification by improved forest management offset protocols. *In review at Frontiers in Forests and Global Change.*

Melikov, C., **Bukoski, J.J.,** Ban, S., Chen, J.L., Cook-Patton, S.C., and M.D. Potts. The effects of management actions on biomass growth in forest plantations. *In review at Current Forestry Reports*.

Busch, J., **Bukoski, J.J.**, Cook-Patton, S.C., Griscom, B., Kaczan, D., Li, Y., Potts, M.D., and Vincent, J.R. Tree plantations vs. natural forest regeneration: Relative cost-effectiveness at mitigating climate change. *In prep*.

TECHNICAL DOCUMENTS & REPORTS

Wolosin, M., Hole, D., Griscom, B., Rockstrom, J., Barrera, L., Beringer, T., **Bukoski, J.J.**, (+ 15 coauthors) 2022. Exponential roadmap for natural climate solutions. Conservation International. Arlington, VA. 2022

Wilson, S.J., Metzel, R., Harrigan, E., Sprenkle-Hyppolite, S., Begeladze, S., **Bukoski, J.J.**, Donatti, C., Hillman, I. Where to restore? Using spatial data to inform restoration prioritization for climate, biodiversity, and community benefits. Conservation International. Arlington, VA. 2022

Bukoski, J.J., Gravatt, Q., Holland, T. Strategic environmental and social assessment (SESA) for Reducing Emissions from Deforestation and Forest Degradation (REDD+) in Vanuatu: Scoping Report. Climate Law & Policy. Report submitted to The World Bank. 2019

Broadhead, J.S., **Bukoski, J.J.** and Beresnev, N. 2016. Mangrove carbon stock estimator and monitoring guide. United Nations Food and Agricultural Organization, Regional Office for the Asia Pacific (UN FAO-RAP) & International Union for the Conservation of Nature (IUCN). 2016

Saah, D., Manley, P., Chen, Q., O'Neil-Dunne, J., White, A., Moody, T., Freed, T., **Bukoski, J.**, Moghaddas, J. 2016. Monitoring desired conditions for vegetation and wildlife habitat: An independent test of proposed indicators for monitoring vegetation in the Lake Tahoe Basin. Report submitted to US Forest Service Pacific Southwest Research Station – SNPLMA Round 10 Science Project. 73 pp. 2016

FUNDING

Awards & Fellowships (~315k):

Bryan Wilson Gift Award ($4,750)	2020
UC Berkeley Continuing Fellowship ($22,000, declined)	2020-2021
Berkeley Connect Fellowship ($25,000)	2020-2021
Outstanding Graduate Student Instructor Award, UC-Berkeley ($500)	2018
NSF, Data Science for the 21st Century ($34,000)	2016-2018
NSF, Graduate Research Fellowship Program ($138,000)	2015-2020
Columbia Economics Review Environmental Policy Competition, 1st Place ($500)	2015
Yale Institutional Scholarship, Yale University ($44,500)	2015-2016
Yale Institutional Scholarship – Donnelley Fund, Yale University ($15,000)	2014-2015
Carolina Covenant Scholar, UNC-Chapel Hill, (~$30,000)	2009-2011

Research Funding (~37k):

NSF Socio-Environmental Synthesis Center, Pursuit ($2,000)	2021-2022
NSF-Graduate Research Opportunities Worldwide (~$7,000)	2019-2020
NSF Socio-Environmental Synthesis Center, Graduate Pursuit Co-Lead ($2,000)	2019-2020
Center for Southeast Asian Studies Research Award, UC-Berkeley ($1,500)	2018-2019
University of California Office of the President Carbon Neutrality Initiative ($4,000)	2018-2019
Undergraduate Research Apprenticeship Program Summer Award ($3,000)	2018
Starter Grant, UC-Berkeley ($1,000)	2016-2017
USAID/UN-FAO Project Funding ($5,600)	2015-2016
Carpenter Sperry Research Fund, Yale University ($2,000)	2015-2016
Williams Summer Internship Fund, Yale University ($3,400)	2015-2016
Tropical Resources Institute Fellow, Yale University ($6,000)	2015-2016

TEACHING

Instructor of Record

Applied Forest Ecology, UC-Berkeley 2021

Analysis of forest structure and carbon stock data using Program R, US. Forest Service 2020

Teaching Assistantships

Forest Ecosystem Management and Planning, UC-Berkeley 2019, 2020

Intro. to the Methods of Environmental Science, UC-Berkeley 2018

Resource Economics and Management, UC-Berkeley 2017

Sampling Methodology and Practice, Yale University 2016

Guest Lectures & Intensive Trainings

Massive geocomputation using open source software, UC-Berkeley, Co-Instr. 2019

GDAL/OGR software, GeoMatters Working Group, UC-Berkeley, Instr. 2019

Massive geocomputation using open source software, Yale University, Co-Instr. 2018, 2019

MENTORING

Research Mentoring, U.C. Berkeley

Jessica L. Chen, BS 2020-2021

Stella Ban, BS 2020-2021

Benjamin Kopania, BS 2016-2019

Natalia Mushegian, BS 2016-2017

Berkeley Connect, U.C. Berkeley 2020-2021

Mentored two 20 person sections of incoming undergraduate students at U.C. Berkeley. Helped the mentees navigate matriculating into a large research-focused university; included both one-on-one advising sessions as well as small group discussions on environmental topics.

Institute for Natural Resource Managers, Young Southeast Asian Leader Initiative 2019

In-country host for 21 individuals from 11 Southeast Asian countries. Co-led an intensive 10-day trip learning about natural resource management in California & the United States.

Environmental Leadership Mentoring Program, Yale University 2018-2019

Mentor for a master's level student at the Yale School of Forestry and Environmental Studies.

RELEVANT PROFESSIONAL EXPERIENCE

Contracted Data Analyst & Instructor, USFS Institute for Pacific Island Forestry 2020

Designed and conducted training on use of Program R for data analysis and assisted analysis of carbon stock and forest structure inventory data for mangroves in the F.S. of Micronesia.

Research Assistant, USFS Pacific Northwest Station 2020

Analysis of fire impacts on private vs. publicly held forest land in northern California

Visiting Research Scholar, International Institute for Sustainability of Rio de Janeiro, Brazil 2019

Visiting researcher at an interdisciplinary synthesis center focused on reforestation and forest restoration.

Spatial Analyst, The Republic of Vanuatu 2019

Assisting the Royal Department of Forests in spatial analyses and land cover mapping for climate change mitigation actions in the land use sector.

Contracted Grant Writer, Mangroves for the Future, IUCN 2018

Developed and drafted a three-year project proposal for integrating mangroves into REDD+ programs in Southeast Asia.

Webmap Developer, Earthrise Media 2018
Developed webmap application for display of environmental stories automatically generated from satellite imagery.

Research Scientist, Spatial Informatics Group, LLC 2016-
Geospatial data analysis and tool development to inform land-use decision making.

Research Assistant, School of Forestry and Environmental Studies, Yale University 2014-2015
Statistical analyses of clean cookstove and public health data

Research Assistant, Mangrove Forest Research Center 2012-2014
Conducted a decennial review of the Man and Biosphere Reserve for UNESCO.

Research Consultant, School of Architecture, KMUTT 2013-2014
Sustainability consultant for the Thai submission to the Solar Decathlon Europe, 2014 competition.

SELECT PRESENTATIONS

Invited Seminars & Lectures:

Department of Geography, George Washington University	2022
College of Forestry, Oregon State University	2022
Moore Center for Science, Conservation International (Remote; COVID19)	2021
The Evergreen Lectures, Berkeley Global, (Remote; COVID19)	2020, 2021
Center for Conservation and Sustainability Science (CSRio), Rio de Janeiro, Brazil. (Oral)	2019
Federal University of Rio de Janeiro, Brazil, 2019. (Oral)	2019
School of Forestry and Environmental Studies, Yale University, New Haven, CT. (Oral)	2016
United Nations Food and Agriculture Organization, Bangkok, Thailand. (Oral)	2015

Contributed:

American Geophysical Union Fall Meeting, (Remote)	2022
Data & the Environment Group, U.C. Berkeley, (Remote; COVID19)	2021
American Geophysical Union Fall Meeting, (Remote; COVID19)	2020
Ecological Society of America, Salt Lake City, UT. (Oral / Remote; COVID19)	2020
International Institute for Sustainability, Rio de Janeiro, Brazil. (Oral)	2019
American Geophysical Union Fall Meeting, San Francisco, CA. (Poster)	2019
California Higher Education Sustainability Conference, Santa Barbara, CA. (Poster)	2019
5th International Mangrove, Macrobenthos, and Management Meeting, Singapore. (Oral & Poster)	2019
Association of Tropical Biology and Conservation, Kuching, Malaysia. (Oral)	2018
American Geophysical Union – Ocean Sciences Meeting, Portland, OR, USA. (Oral)	2018
American Geophysical Union Fall Meeting, San Francisco, CA. (Poster)	2016
World Forestry Congress XIV, Durban, South Africa. (Oral)	2015
4th International Conference on Green and Sustainable Innovation, Bangkok, Thailand. (Oral)	2014

OUTREACH & SERVICE

Representative for Conservation International, The Forests Dialogue	2021
Special Issue Editor, Journal of Sustainable Forestry	2016-2018
Restructuring Committee, International Society of Tropical Foresters	2016-2017
Treasurer, Yale Chapter of the International Society of Tropical Foresters	2015-2016
Bay Area Tropical Forestry Network, Board Member	2016-
Women in Geospatial Network, Member and registered mentor	2020-2022
Staff Writer, Yale Environment Review	2014-2015

Academic Memberships:

American Geophysical Union	2016-
Association of Tropical Biology and Conservation	2015-
Ecological Society of America	2020-
International Society of Tropical Foresters	2015-

Skype with a Scientist

Met with seven classes (grades 1-6) to talk about varied aspects of science & research 2019-2020

Ad Hoc Academic Journal Reviewerships (18 journals; Publons Profile**)**:

Applied Sciences, Catena, Climate Policy, Ecosystem Health and Sustainability, Energy Conversion and Management, Environmental Research Letters, Forests, Forest Ecology & Management, Forest Science, Forestry: An International Journal of Forest Research, Frontiers in Forests and Global Change, Geoforum, Global Change Biology, Global Ecology and Conservation, Journal of Sustainable Forestry, Landscape and Urban Planning, Regional Environmental Change, Remote Sensing

SKILLS

Statistical software: Program R, STATA
Programming: Python, R, Javascript, HTML & CSS, and BASH
Geographic Information Systems: Google Earth Engine, QGIS, PostGIS, Leaflet, GDAL/OGR
Reproducible workflows: GitHub, Geo-/Django web development framework
Languages: French & Thai (limited working proficiency), Brazilian Portuguese (beginner)