

JACOB J. BUKOSKI

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310 Richardson Hall
Corvallis, OR 97331jacob.bukoski@oregonstate.edu
www.jacobjbukoski.com**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
Concentration: Energy and Sustainability
Honors: Carolina Covenant Scholar, Carolina Student Transfer Excellency Program

APPOINTMENTS

- Assistant Professor**, College of Forestry, Oregon State University 2023-Present
- Director**, Forest & Climate Change Graduate Certificate, 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

Research featured in outlets such as: BNN Bloomberg, TIME, PhysWorld, Mongabay, Yale School of the Environment News, U.C. Berkeley News

* *Equal authorship*, † *Undergraduate student author*

Published:

- [18] Holl, K., **Bukoski, J.J.**, Curran, S.R., Potts, M.D., and J.R. Vincent. 2023. Abandoned Land: Overestimated potential. *Science* 381(6655): 277-278. doi: 10.1126/science.adi8780 2023
- [17] Melikov, C., **Bukoski, J.J.**, Ban, S.†, Chen, J.L.†, Cook-Patton, S.C., and M.D. Potts. 2023. Quantifying the effect size of management actions on aboveground carbon stocks in forest plantations. 2023 *Current Forestry Reports* 9: 131-148. doi: 10.1007/240725-023-00182-5 2023
- [16] Haya, B.K., Evans, S., Brown, L., **Bukoski, J.J.**, Butsic, V., Cabiyo, B., Jacobson, R., Kerr, A., Potts, M.D., and Sanchez, D.L. 2023. Comprehensive review of carbon quantification by improved forest management offset protocols. *Frontiers in Forests and Global Change* 6(12): 958879. doi: 10.3389/ffgc.2023.958879 2023

- [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. 2022. 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. 2022. 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. 2022. 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. 2021. 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. 2021. 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. 2020. 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. Preservation and recovery of mangrove ecosystem carbon stocks in abandoned shrimp ponds. 2019. *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/aabelc 2018
- [6] **Bukoski, J.J.***, Drazen, E.* , Johnson, W.R.* , and Swamy, L.* Tropical forests for sustainable development: Shaping the 2030 Agenda for Sustainable Development with knowledge from the field. 2018. *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.*** The future of tropical forests under the United Nations Sustainable Development Goals. 2017. *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. The use of mixed effect models for obtaining low-cost ecosystem carbon stock estimates in mangroves of the Asia-Pacific. 2017. *PLoS ONE* 12(1): e0169096. doi: 10.1371/journal.pone.0169096 2017
- [3] **Bukoski, J.J.**, Chaiwiwatworakul, P., and S.H. Gheewala. 2017. 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):

- 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 review at Nature Climate Change*.
- Bukoski, J.J.**, Koenig, K., Arroyo, M., Miller, M., Reineman, D., and Atkinson, S. Co-occurrence of surf breaks and opportunities for improved protection of irrecoverable carbon. *In review at Conservation Letters*.
- Bourgeois, C., Mackenzie, R.A., Sharma, S., Bhomia, R.K., Johnson, N.G., Rovai, A.S., Worthington, T.A., Krauss, K.W., Analuddin, K., **Bukoski, J.J.** et al. (+12 coauthors). Is active planting effective in restoring mangrove carbon stocks up to the levels of intact stands? *Submitted to Nature Climate Change*.

TECHNICAL DOCUMENTS & REPORTS

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

- Outstanding Reviewer, 2022, Environmental Research Letters 2022
- 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

Case Studies in Forests and Climate Change, <i>Oregon State University</i>	2023
Interdisciplinary Approaches to Socio-Ecological Problems, <i>Oregon State University</i>	2023
Forest Carbon Analysis for Assessments & Policy Agreements, <i>Oregon State University</i>	2023
Applied Forest Ecology, <i>U.C. Berkeley</i>	2021

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

Intensive Trainings & Workshops

CEOS workshop on uptaking global AFOLU datasets, USGS Silvacarbon, Gabon, Co-Instr.	2023
Mapping risks to irrecoverable carbon in Earth's ecosystems, California	2023
CEOS workshop on uptaking global AFOLU datasets, USGS SilvaCarbon, Thailand, Co-Instr.	2023
Analysis of forest structure and carbon stock data using Program R, U.S. Forest Service	2020
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

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.	2020-2021
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- 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.
- 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.
- Web Map Developer**, Earthrise Media 2018
Developed a web map application for display of environmental stories automatically generated from satellite imagery.
- Research Scientist**, Spatial Informatics Group, LLC 2016-2021
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:

- Dept. of Forestry & Environmental Resources, North Carolina State University, (Guest Lecture) 2023
- Dept. of Geography, George Washington University (Guest Lecture) 2022
- College of Forestry, Oregon State University (Dept. Seminar) 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:

- 6th International Mangrove, Macrobenthic, and Management Meeting, Colombia. (Oral) 2023
- American Geophysical Union Fall Meeting, Chicago, IL. (Remote Oral) 2022

Data & the Environment Group, U.C. Berkeley, (Remote Oral)	2021
American Geophysical Union Fall Meeting, (Remote Oral)	2020
Ecological Society of America, Salt Lake City, UT. (Remote Oral)	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
5 th 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 XXIV, Durban, South Africa. (Oral)	2015
4 th 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 (23 journals; Publons Profile):	
Applied Sciences, Catena, Climate Policy, Ecosystem Health & Sustainability, Energy Conversion & Management, Environmental Health & Sustainability, Environmental Research Communications, Environmental Research Letters, Forests, Forest Ecology & Management, Forest Science, Forestry: An International Journal of Forest Research, Frontiers in Forests & Global Change, Geoforum, Global Change Biology, Global Ecology & Conservation, Global Ecology & Biogeography, Journal of Forestry Research, Journal of Sustainable Forestry, Landscape & Urban Planning, Regional Environmental Change, Remote Sensing, Sustainable Production & Consumption	

SKILLS

Statistical software: Program R, STATA
Programming: R, Python, 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)