KENDRA L. WALKER

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EDUCATION

2010 **Ph.D. in *Natural Resource Policy & Management*, University of Michigan**
School for Environment & Sustainability
Certificate of Graduate Studies, *Spatial Analysis and GIS*

2000 **B.S., *Ecological, Behavioral & Evolutionary Biology*, University of California at San Diego**

1999 *Tropical Ecology Field Certificate,* **University of Costa Rica**

RESEARCH AND PROFESSIONAL EXPERIENCE

Remote Sensing Specialist -- Environmental Markets Lab, UC Santa Brbara   2021-present
Develop remote sensing analyses to identify causal relationships between policy, human behavior, and environmental outcomes. Design workflows applying different tools, often involving machine learning, to diverse remote sensing products targeting various geographies and subject matters. Responsible for all aspects of remote sensing analysis involving large amounts of data in an HPC environment. Obtain primary data and imagery; write and package scripts in Python, R, and Google Earth Engine; develop reproducible protocols for data processing; oversee the collection of validation and training data; select, train, and supervise a team of undergraduate, graduate and specialist technicians; serve as a liaison between historically divided fields of economics and remote sensing; present and publishing results.

Research Scientist -- University of Michigan   2018-19
Designed and conducted time-series analysis with Landsat and Sentinel-2 data resulting in the first consistent set of maps of forest-cover change in Panama for the past three decades. Collaborated with government institutions to integrate detailed land tenure data. Developed population and hydrological models for robust analysis of deforestation drivers and potential conservation interventions.

Postdoctoral Researcher -- Smithsonian Tropical Research Institute, Panama   2011-14
Principal Investigator on research on land-use/land-cover change in Panama involving GIS analysis and interviews and plot measurements throughout Panama in forests under diverse tenure arrangements including protected areas, private reserves and indigenous lands.

Spatial Analysis & Modeling Assistant -- IFRI Central African Forestry & Institutions   2009-10
Interdisciplinary team member for NSF-sponsored study of the effects of institutions on forest cover in Africa. Prepared GIS datasets, processed and interpreted high-resolution satellite imagery, informed equation-based and agent-based models, engineered quantitative features from forestry reports in French.

Principal Investigator -- University of Michigan & Wildlife Conservation Society, Gabon 2004-10
Designed and managed research project assessing strategies to protect against crop loss from wildlife in Gabon. Wrote grant proposals, secured funding, trained field assistants, designed and conducted interviews in French, and orchestrated quantitative field assessments and risk mapping in 38 remote villages throughout Gabon.

Research Intern -- Station d'etudes des Gorilles/Chimpanzés, Lopé, Gabon   2003-04
Designed and conducted research on the impact of invasive ants. Initiated an invasion-mapping program leading to many subsequent studies by local students.

Research Technician -- Scripps institute of Oceanography, La Jolla, CA   2000
Assisted with nuclear analysis of Volstock ice cores to inform climate change study.

PUBLICATIONS

Walker, K.L. 2024. Overcoming common pitfalls to improve the accuracy of crop residue burning measurement based on remote sensing data. *Remote Sensing* 16(2) 342. https://doi.org/10.3390/rs16020342

Bardino, G., Di Fonzo, G., **Walker, K.L.**, Vitale, M., Hall, J.S., 2023. Landscape context importance for predicting forest transition success in central Panama. *Landscape Ecology*.

Hall, J.S., Plisinski J, Mladinich, S., van Breugel, M., Lai, H, Asner, G., **Walker, K.L**., Thompson, J. 2022. Deforestation scenarios show the importance of secondary forest for meeting Panama's carbon goals. *Landscape Ecology*.

Walker, K.L. 2021. Effect of land tenure on forest cover and the paradox of private titling in Panama. *Land Use Policy* 109.

Walker, K.L. 2020. Capturing ephemeral forest dynamics with hybrid time-series and composite mapping in the Republic of Panama. *International Journal of Applied Earth Observation and Geoinformation* 87.

Walker, K.L. 2016. Seasonal mixing in forest-cover maps for humid tropics and impact of fluctuations in spectral properties of low vegetation. *Remote Sensing of the Environment* 179 p 80-88.

Walker, K.L. 2011. Labor costs and crop protection from wildlife predation: the case of elephants in Gabon. *Agricultural Economics* 43(1) p. 61-72.

Walker K.L. 2009. Protected-area monitoring dilemmas: A new tool to assess success. *Conservation Biology.* 23(5) p. 1294-1303.

Walker, K.L. 2006. Impact of the Little Fire Ant, *Wasmannia auropunctata*, on native forest ants in Gabon. *Biotropica* 38(5) p.666-673.

Other works

Walker, K.L., Moscona, B., Jack, B.K., Jayachandran, S., Kala N., Pande, R., Xue, J., 2023. Detecting crop burning in India using satellite data. arXiv preprint arXiv:2209.10148.

Jack, B.K & **Walker, K.L.** 2023. Integrating Remote Sensing and Randomized Control Trials. Collaboration between UCSB & Conservation International. https://tinyurl.com/RCT-RS-Guide

Walker, K.L., Sharwood, L., Ayala, A., Heilmayr, R., Graesser, J., & Pede, A. *In Prep.* Mapping agricultural systems and change in Paraguay over three decades.

Pede, A., **Walker, K.L.**, Sharwood, L., Ayala, A., Heilmayr, R., & Graesser, J. *In Prep.* Impact of Paraguay's zero deforestation law on forest cover and agricultural systems.

SELECTED PRESENTATIONS

Crop Species Mapping to Understand the Agricultural Impacts of Conservation Policy in Paraguay
Space Week, Nordeste/NASA. Fortaleza, Brazil (in person), August 2023.

Mapping property values to understand land-use change in South America
NASA LCLUC Agricultural Hoptspots Series, May 2023 (co-presented with R. Heilmayr). (link)

Payments for Ecosystem Services to Reduce Crop Residue Burning
GeoField,(AidData), Leveraging Earth Observation for Impact Evaluations of Climate Sensitive Agriculture, Virtual Conference, May 2023. (link)

Panama Vegetation-Cover Time Series Maps – following forest change over three decades in Panama
Smithsonian Tropical Research Institute Research Seminar (virtual), March 2021.

LEADERSHIP & TEACHING

Graduate Student Instructor, University of Michigan   2005-06 & 2008-09
Trained over 100 MS/PhD students in fundamental GIS analysis using primarily ArcGIS software. Occasional lecturer for larger 200-student theory-based GIS course. Led discussion groups and study sessions for undergraduate courses (Sustainability and Development, General Ecology).

Presidential Management Fellow Finalist   2010
Status given to outstanding citizen-scholars with exceptional commitment to and excellence in the leadership and management of public policies and programs.

Fulbright Scholar, United States Department of State   2006-07

Graduate Student Coordinator   2004-06
Organized and coordinated meetings for graduate-level interdisciplinary workshop on sustainable livelihoods and conservation. Developed website, facilitated debates and collaborative feedback sessions, invited speakers and managed logistics.

Environmental Educator, Peace Corps, Gabon   2001-04
Collaborated with local community members to develop an environmental education curriculum and materials for six primary schools surrounding Lopé National Park, Gabon. Designed and constructed exhibits for two ecological museums. Authored grant proposals and secured funding for community development projects including a youth center, world environment day, and a pilot ecology camp.

LANGUAGE & COMPUTER SKILLS

English (native), **Spanish** (proficient), **French** (intermediate)

GIS and Remote Sensing analysis in ArcGIS, SAGA QGIS, ERDAS Imagine and Google Earth Engine. Extensive work with PlanetScope, Sentinel, Landsat, MODIS, Aster and Rapid Eye Imagery. Experience with LiDAR, Quickbird, Worldview, SAR (radar), and aerial imagery. Programming in Python, R, Java & Linux Shell (Bash); Parallel Programming for high-performance computing (HPC); Package development and management in GitHub; stable distribution with Docker; Project management and demo in Jupyter; Database design and management in mySQL, MS Access & Excel; Photography and graphics design hobbyist with Adobe Photoshop and Illustrator.