

**EDUCATION**

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- 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**

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**Remote Sensing Specialist -- Environmental Markets Lab, UC Santa Brbara** 2021-present  
Responsible for all aspects of 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. Tasks include: obtaining data, writing and packaging scripts in Python, R, and Google Earth Engine to process large amounts of data in an HPC environment; developing reproducible protocols for data processing, collection of validation and training data, and model optimization; hiring and overseeing a team of undergraduate, graduate and specialist technicians; serving as a liaison between historically divided fields of economics and remote sensing; presenting 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 and developed and extracted quantitative measures 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

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Walker, K.L. *in review with Remote Sensing*. Common pitfalls in measuring crop residue burning with remote sensing data.

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 (at: <https://tinyurl.com/RCT-RS-Guide>)

Walker, K.L. 2010. Moving away from prescriptive pachyderm palliative; toward an integrated assessment of farmer-elephant conflict in Gabon. Doctoral dissertation.

## SELECTED PRESENTATIONS

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*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)  
(available at: <https://lcluc.umd.edu/sites/default/files/heilmayr-webinar.mp4>)

*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. (available at: <https://www.geofield.org/videos/panel-1-recently-completed-impact-evaluations-with-earth-observation-2023-05>)

*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

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### **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 with undergraduate students for courses on Sustainability and Development and 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 three community development projects including a youth center, world environment day, and a pilot ecology camp.

## LANGUAGE & COMPUTER SKILLS

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**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.