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Research Interest and Focus

My research examines the complex relationships between people and the environment through the lens of social-ecological systems. I focus on how land change processes, sustainable development strategies, and community-based natural resource management influence both livelihoods and ecosystems. Methodologically, I integrate remote sensing, geospatial analysis, and big data techniques, including machine learning, to better understand patterns and drivers of change. Substantively, my work engages with global food systems and food security, framed within a coupled human and natural systems perspective that focuses on human-environment interactions. Much of my research is grounded in tropical conservation and development, with a particular emphasis on the Global South, where challenges and opportunities for innovation are especially pronounced.

Education

Ph.D., Geography, University of Florida	2025 expected
M.S., Geography, University of Florida	2017
B.A., Anthropology, University of Florida, <i>cum laude</i>	2012

Teaching and Research Appointments

Fulbright-Hayes Swahili-English Bilingual Early Childhood Curriculum Project <i>Arusha, Tanzania</i>	2024 Summer
Graduate Assistant <i>CLAS AI Communications, University of Florida</i>	2023–2025
Instructor of Record <i>Department of Geography, University of Florida</i>	2017–2025
Research Assistant <i>Department of Geography, University of Florida</i>	2019 Summer
Teaching Assistant <i>Department of Geography, University of Florida</i>	2015–2017

Courses Taught

GEO 2242 – Extreme Weather, <i>Instructor</i> <i>Department of Geography, University of Florida</i>	2017
GEO 3600 – Geography of Africa, <i>Instructor</i> <i>Department of Geography, University of Florida</i>	2017-2025
GEO 3372 – Conservation of Resources, <i>Instructor</i> <i>Department of Geography, University of Florida</i>	2021
GEO 2270 – Geography of Florida, <i>Instructor</i> <i>Department of Geography, University of Florida</i>	2021
GEO 3430 – Population Geography, <i>Instructor</i> <i>Department of Geography, University of Florida</i>	2020
SWA 2200 – Intermediate Swahili 1, <i>Guest Lecture</i> <i>Languages, Literatures & Cultures, University of Florida</i>	2022
IDS 4911 – Undergraduate Research in Interdisciplinary Studies, <i>Instructor</i> <i>Graham Center Civic Scholars Research Program, University of Florida</i>	2023
GEO 2351 – Geographical Sciences and Sustainability, <i>Guest Lecture</i> <i>Department of Geography, University of Florida</i>	2024
GEO 2500 – Global and Regional Economies, <i>Instructor</i> <i>Department of Geography, University of Florida</i>	2025

Course Development

GEA 3600 Geography of Africa <i>Department of Geography, University of Florida</i>	2017
GIS 2002 The Digital Earth <i>Department of Geography, University of Florida</i>	2021
GIS 2114 The World and Big Data <i>Department of Geography, University of Florida</i>	2021
IDS 4911 Introduction to Interdisciplinary Research for Undergraduates <i>Bob Graham Center for Public Service, University of Florida</i>	2022
Reimagining Ethical Interdisciplinary Research Practices <i>International Center, University of Florida</i>	2025

Fellowships and Grants

CLAS Supplemental Retention Scholarship <i>College of Liberal Arts and Sciences, University of Florida</i>	2025
Fulbright-Hayes Fellowship – Bilingual Swahili-English Curriculum Development <i>Florida International University, Project Participant</i>	2024
Office of Research Graduate Student Travel Grant <i>University of Florida</i>	2024
Civic Scholars Data Fellow <i>Bob Graham Center for Public Service, University of Florida</i>	2022–2023
Tropical Conservation and Development Travel Grant <i>University of Florida</i>	2021–2024
Data Carpentries Club Student Travel Grant <i>Informatics Institute, UF Data Carpentries Club</i>	2021

CLAS Student Travel Grant <i>College of Liberal Arts and Sciences (CLAS), University of Florida</i>	2021
Dissertation Research Grant <i>American Association of Geographers</i>	2020
Little Family Fellowship for Academic Excellence in Geography <i>Department of Geography, University of Florida</i>	2019–2022
Tropical Conservation and Development Field Research Grant <i>University of Florida</i>	2019
Foreign Language & Area Studies (FLAS) Fellowship <i>Swahili, Center for African Studies, University of Florida</i>	2018–2020
Land Use and Environmental Change Institute (LUECI) Travel Grant <i>University of Florida</i>	2018
Graduate Student Geography Department Travel Grant <i>Department of Geography, University of Florida</i>	2018
Pre-Dissertation Field Research Grant <i>Center for African Studies, University of Florida</i>	2018
Graduate Student Council Travel Grant <i>University of Florida</i>	2017
Graduate Student Council Travel Grant <i>University of Florida</i>	2016
Graduate Student Geography Department Travel Grant <i>Department of Geography, University of Florida</i>	2016

Awards and Honors

AAG World Geography Bowl First Place Winner, SEDAAG Team Player <i>American Association of Geographers Annual Meeting</i>	2023
Top Student Published Paper - Overall Geography and Diversity <i>Department of Geography, University of Florida</i>	2022
CLAS Graduate Student Travel Award <i>College of Liberal Arts and Sciences, University of Florida</i>	2021
The John & Dawn Dunkle Award for Graduate Student Travel <i>Department of Geography, University of Florida</i>	2019–2023
SEDAAG World Geography Bowl Graduate Student Top Scorer <i>Southeastern Division of the American Association of Geographers</i>	2021–2024
Honorable Mention, Student Poster Presentation <i>Tropical Conservation and Development Field Research Day</i>	2020
The David L. Niddrie Excellence Fund <i>Department of Geography, University of Florida</i>	2019
Graduate Honorable Mention, Student Poster Presentation <i>Women and Gender in Development Conference</i>	2019
2nd Place Best Graduate Student Paper Presentation <i>Florida Society of Geographers Annual Meeting</i>	2019
UF Data Carpentries Club Student Travel Award <i>Informatics Institute, University of Florida</i>	2019
The David L. Niddrie Excellence Fund <i>Department of Geography, University of Florida</i>	2018–2023
3rd Place Best Graduate Student Research Paper Presentation <i>Florida Society of Geographers Annual Meeting</i>	2017
Ryan Poehling Award for Top Masters Student <i>Department of Geography, University of Florida</i>	2017

Publications

- Rahaman, M., Southworth, J., Amanambu, A. C., Tefera, B. B., Alruzuq, A. R., Safaei, M., ... & **Smith, A. C.** (2025). Combining deep learning and machine learning techniques to track air pollution in relation to vegetation cover utilizing remotely sensed data. *Journal of Environmental Management*, 376, 124323. <https://doi.org/10.1016/j.jenvman.2025.124323>
- Southworth, J., **Smith, A. C.**, Safaei, M., Rahaman, M., Alruzuq, A., Tefera, B. B., ... & Herrero, H. V. (2024). Machine learning versus deep learning in land system science: A decision-making framework for effective land classification. *Frontiers in Remote Sensing*, 5, 1374862. <https://doi.org/10.3389/frsen.2024.1374862>
- Muir, C., **Smith, A.C.**, & Agrawal, A. (2023). Climate change, degradation, and land acquisitions: evaluating inequalities among competing interests for suitable cropland in Ethiopia. *Ecology and Society*, 28(1)
- Ross, A., Mack, E. A., Marcantonio, R., Miller-Graff, L., Pearson, A. L., **Smith, A. C.**, ... & Zimmer, A. (2023). A mediation analysis of the linkages between climate variability, water insecurity, and interpersonal violence. *Climate and Development*, 1-15.
- Ozsahin, E., Ozdes, M., **Smith, A. C.**, & Yang, D. (2022). Remote sensing and GIS-based suitability mapping of termite habitat in the African Savanna: A case study of the Lowveld in Kruger national park. *Land*, 11(6), 803.
- Smith, A.C.**, Merz, L., Borden, J.B., Gulick, C.K., Kshirsagar, A.R., Bruna, E.M. (2021). Assessing the effect of article processing charges on the geographic diversity of authors using Elsevier's "Mirror Journal" system. *Quantitative Science Studies*, 2 (4): 1123-1143. https://doi.org/10.1162/qss_a_00157
- Pearson A.L., Mack, E.A., Ross, A., Marcantonio, R., Zimmer, A., Bunting, E.L., **Smith A.C.**, Miller, J.D., Evans, T., & The HWISE Research Coordination Network. (2021). Interpersonal Conflict over Water Is Associated with Household Demographics, Domains of Water Insecurity, and Regional Conflict: Evidence from Nine Sites across Eight Sub-Saharan African Countries. *Water*, 13(9):1150. <https://doi.org/10.3390/w13091150>
- Smith, A.C.** (2020). Social-Ecological Impacts of Land Acquisitions in Tanzania. In *Center for African Studies Research Report 2018-2019*. Center for African Studies, University of Florida.
- Hassan, M., **Smith, A.C.**, Walker, K., Rahman, M., & Southworth, J. (2018). Rohingya Refugee Crisis and Forest Cover Change in Teknaf, Bangladesh. *Remote Sensing*, 10(5): 689. DOI: 10.3390/rs10050689
- Smith, A.C.** (2017). Vegetation Dynamics and Undernutrition: *A Spatio-Temporal Analysis of NDVI and Child Stunting in Zambia*. (Master's Thesis, University of Florida). UF Digital Collections. <https://ufdc.ufl.edu/ufl0051936/00001>
- Yang, D., Fu, C., **Smith, A.C.**, & Yu, Q. (2017). Open Land-Use Map: A Regional Land-Use Mapping Strategy for Incorporating OpenStreetMap with Earth Observations. *Geo-Spatial Information Science*, 20(3): 269-281, 2017. DOI: 10.1080/10095020.2017.1371385
- Smith, A.C.**, Ward, S., & Schneider, L. (2017). *Integrating Gender and Nutrition within Agricultural Extension Services: Zambia Landscape Analysis*. Feed the Future, USAID.

International Conference Presentations

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| Association of Tropical Biology and Conservation, Kigali, Rwanda
<i>Large-scale Land Acquisitions and Ecosystem Services: Impacts on Natural Woodlands, Biodiversity, and Local Livelihoods in Ethiopia</i> | 2024 |
| Global Land Program 4th Open Science Meeting, Bern, Switzerland
<i>LSLAs in the Context of Sustainable Development: A Comparative Study of East Africa</i> | 2019 |

National Conference Presentations

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| American Association of Geographers Annual Meeting, Detroit, MI
<i>Ethiopia's Evolving Landscape: Socio-ecological Impacts of Land Tenure, Land-use, and Land Cover Change</i> | 2025 |
| American Association of Geographers Annual Meeting, Honolulu, HI
<i>Social-Ecological and Environmental Impacts of Rapid Urban Expansion in Addis Ababa, Ethiopia</i> | 2024 |
| American Association of Geographers Annual Meeting, Denver, CO
<i>Forest Loss and Vegetation Degradation in Ethiopia: The Role of Large-Scale Land Acquisitions</i> | 2023 |
| American Association of Geographers Annual Meeting, Virtual
<i>Large-scale land acquisitions and ecosystem services: Impacts on natural woodlands, biodiversity, and local livelihoods in Ethiopia</i> | 2022 |
| American Association of Geographers Annual Meeting, Virtual
<i>Large-scale land acquisitions and ecosystem services: Impacts on natural woodlands and energy security in Ethiopia</i> | 2021 |
| American Association of Geographers Annual Meeting, Virtual
<i>Land Tenure, Land-use, and Livelihoods: Effects of Land Investments in East Africa</i> | 2020 |
| American Association of Geographers Annual Meeting, Washington, D.C.
<i>Large-scale Land Acquisitions in Africa: Implications for Ecosystem Services</i> | 2019 |
| American Association of Geographers Annual Meeting, New Orleans, LA
<i>Climate, Food Insecurity, and Under-five Stunting in Zambia</i> | 2018 |
| American Association of Geographers Annual Meeting, Boston, MA
<i>Vegetation and Undernutrition: A Spatiotemporal Analysis of NDVI and Child Stunting in Zambia</i> | 2017 |
| American Association of Geographers Annual Meeting, San Francisco, CA
<i>A Time-series Analysis of the Spatiotemporal Relationship Between Vegetation Health and Under-five Stunting in Zambia</i> | 2016 |

Regional and University Presentations

Florida Society of Geographers, Gainesville, FL <i>Socio-Ecological Impacts of the Rapid Urbanization of Addis Ababa, Ethiopia</i>	2025
Southeastern Division of AAG Annual Meeting, Greenville, SC <i>Assessing the Rapid Urban Expansion of Addis Ababa: A Remote Sensing and Landscape Metrics Approach</i>	2024
Florida Society of Geographers, St. Augustine, FL <i>Rapid Urbanization in the Context of Sustainable Development: A Case Study of Addis Ababa, Ethiopia</i>	2024
Southeastern Division of AAG Annual Meeting, Norfolk, VA <i>Agro-industrial Land Investments in Africa: Tradeoffs Between Food Production and Forest Conservation in Ethiopia</i>	2023
Florida Society of Geographers, St. Augustine, FL <i>The Gendered Impacts of Climate Change: Examining Links Between Water Insecurity and Violence Against Women in Sub-Saharan Africa</i>	2023
Southeastern Division of AAG Annual Meeting, Atlanta, GA <i>Remote Sensing and GIS-Based Suitability Mapping of Termite Habitat in the African Savanna: A Case Study of the Lowveld in Kruger National Park</i>	2022
Tropilunch, Tropical Conservation and Development Program, Gainesville, FL <i>Assessing the Effect of Article Processing Charges on the Geographic Diversity of Authors using Elsevier's 'Mirror Journal' System</i>	2020
Tropical Conservation and Development Field Research Day, Gainesville, FL <i>Land Tenure, Land-use Change, and Livelihoods: Socio-Ecological Impacts of Large-scale Land Acquisitions in Tanzania</i>	2020
Tropilunch, Tropical Conservation and Development Program, Gainesville, FL <i>Recent Land Transactions in Ethiopia: Impacts on Agriculture, Ecosystem Services, and Food-Energy Security</i>	2020
Southeastern Division of the AAG Annual Meeting, Wilmington, NC <i>Large-scale Land Acquisitions in Ethiopia: Implications for Ecosystem Goods and Services</i>	2019
Social Change and Development Working Group, CAS, Gainesville, FL <i>Large-scale Land Acquisitions and Ecosystem Services: Impacts on Natural Woodlands and Energy Security in Ethiopia</i>	2019
Florida Society of Geographers, Orlando, FL <i>The Rohingya Refugee Crisis and Forest Cover Loss in Teknaf, Bangladesh</i>	2019
Students in African Studies Association, Gainesville, FL <i>Land Tenure, Land-use Change & Livelihoods: Impacts of large-scale Land Acquisitions in Africa</i>	2019
Natural Resource Management in Africa Working Group, Gainesville, FL <i>Agricultural Intensification, Food Security, and Gender in Tanzania</i>	2018
Southeastern Division of the AAG Annual Meeting, Johnston City, TN <i>Rohingya Refugee Camp Expansion and Forest Cover Change in Teknaf, Bangladesh</i>	2018
Florida Society of Geographers, Melbourne, FL <i>Climate-driven Environmental Variability and Undernutrition in Zambia</i>	2018

Natural Resource Management in Africa Working Group, Gainesville, FL <i>Climate Variability and Precipitation Trends in Africa: Implications for Food Security</i>	2017
Climate Institute Three Minute Thesis Contest, Gainesville, FL <i>Climate, Vegetation Dynamics, and Child Undernutrition in Zambia</i>	2017
Geography Department Spring Colloquium Series, Gainesville, FL <i>Time-series Analysis of NDVI and Under-five Stunting in Zambia-Masters Research</i>	2016

Service and Leadership

Student Director, Natural Resource Management in Africa Working Group <i>Center for African Studies, University of Florida</i>	2020–present
Board Member, Data Carpentries Club <i>Informatics Institute, University of Florida</i>	2020–2023
Student Director, Africa Specialty Group <i>American Association of Geographers</i>	2020–2022
Reviewer, African Studies Quarterly <i>Center for African Studies, University of Florida</i>	2019–present
Graduate Student Representative <i>Department of Geography, University of Florida</i>	2017–2018

Technical and Language Skills

ENVI, ArcPro, QGIS, Google Earth Engine, RStudio, SPSS, STATA, Microsoft Office Suite

Languages: English (native), Swahili (fluent), German (conversational).

References

Dr. Jane Southworth | jsouthwo@ufl.edu | 352-294-0494

Dr. Brian Child | bchild@ufl.edu | 352-294-7511

Dr. Di Yang | yangdi1031@ufl.edu | 361-228-2913