

Erin Leigh Bunting, Ph.D.

Assistant Professor

Michigan State University, Department of Geography, Environment and Spatial Sciences

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Education

- 2014 **Ph.D. in Geography, University of Florida**
- 2009 **M.S. in Geography, University of Florida**
- 2006 **B.S. Geography, University of Florida**
 - Graduated Cum Laude
- 2004 **A.A. in Liberal Arts and Sciences, Santa Fe College**

Professional Appointments

- 2024-
Current **Tenure Stream Assistant Professor**
Michigan State University, Department of Geography, Environment, and Spatial Sciences,
- 2024-2026 **College of Social Science Dean's Institutional Access Fellow**
Michigan State University; College of Social Science
- 2017-2023 **Director & Fixed Term Assistant Professor**
Michigan State University, Department of Geography, Environment, and Spatial Sciences, Remote Sensing and GIS Research and Outreach Services
- 2014-2017 **Post-Doctoral Researcher**
U.S. Geological Survey, Southwestern Biological Science Center
- 2014-2015 **Post-Doctoral Researcher**
University of Florida, Department of Geography
- 2005-2007 **GIS Analyst (GISP)**
University of Florida, Department of Urban and Regional Planning, Geoplan Center

Peer-Reviewed Publications

2025

- **Bunting, E.L.**, and E. Theuerkauf. *What is a Coastal Hazard? Perceptions of Critical Coastal Hazards amongst Decision Makers in the Great Lakes*. Ocean and Coastal Management. 2025. *Q1. Impact Factor: 4.8* (Citations: 5)

2024

- Mittlefehldt, S., **Bunting, E.L.**, Welsh, J., Silver, E., Curth, M., McClure, M., *Wood Energy and Rural Planning: An Analysis of Land Use Policies in the Siting and Regulation of Forest-Based Bioenergy Technologies*. Land, 2024. *Q2. Impact Factor: 3.2*
- **Bunting, E.L.**, Tolmanov, V., Keellings, D., *What is a Heat Wave: A survey and literature synthesis of heat wave definitions across the United States*. PLOS Climate, 2024. *Q1. Impact Factor: 1.5* (Citations: 1)
- Mack, E., Theuerkauf, E.J., Pepper, J., Norton, R.K., **Bunting, E.L.** *Citizen Perceptions of Great Lakes Coastline Change and Management Efforts*. Ocean and Coastal Management. 2024. *Q1. Impact Factor: 4.8* (Citations: 1)
- Southworth, J., **Bunting, E.L.**, Herrero, H.V., Crews, K., *Women in Remote Sensing: 2022*. Frontiers in Remote Sensing. 2024. *Q1. Impact Factor: 3.9*
- Mittlefehldt, S., **Bunting, E.L.**, Welsh, J., Silver, E., *Mapping and Measuring Environmental Justice: A Case Study of Bioenergy Development in Michigan*. Environmental Justice. 2024. *Q1. Impact Factor: 1.7*

- Ross, A., Mack, E., Marcantonio, R., Miller-Graff, L., Pearson, A.L., Culver Smith, A., **Bunting, E.L.**, and A. Zimmer. *A Mediation Analysis of the Linkages between Climate Variability, Water Insecurity, and Interpersonal Violence*. Climate and Development, 2024. *Q1. Impact Factor: 3.5* (Citations: 4)

2023

- Huff, E., **Bunting, E.L.**, Mittlefehldt, S., Welsh, J., *Attitudes and Perceptions of Wood Energy Technologies in the Great Lakes Region, USA*. Biomass and Bioenergy. 2023. *Q1. Impact Factor: 5.8*
- Rabins, L.F., Theuerkauf, E.J., and **E.L. Bunting**. *Using Existing Infrastructure as Ground Control Points to Support Citizen Science Coastal UAS Monitoring Programs*. Frontiers in Environmental Science, 2023. *Q1. Impact Factor: 3.3* (Citations: 2)
- Southworth, J., Ryan, S.J., Herrero, H.V., Khatami, R., **Bunting, E.L.**, Hassan, M., Muir, C., and P. Waylen. *Latitudes and Land Use: Global Biome Shifts in Vegetation Persistence Across Three Decades*. Frontiers in Remote Sensing, Special Edition: Woman in Remote Sensing. 2023. *Q1. Impact Factor: 3.9* (Citations: 1)
- Wanyama, D., **Bunting, E.L.**, Weil, N., and D. Keellings. *Delineating and characterizing changes in heat wave events across the United States climate regions*. Climatic Change, 2023. <https://doi.org/10.1007/s10584-022-03476-y>. *Q1. Impact Factor: 4.8* (Citations: 13)
- Metiva, M., **Bunting, E.L.**, Steinke, K., Hayden, Z., *Topdress Strategies and Remote Sensing for Nitrogen Management in Processing Carrots*. Agronomy Journal. 2023. DOI: 10.1002/agj2.21257. *Q2. Impact Factor: 3.7* (Citations: 4)

2022

- Mack, E.A., Marcantonio, R.A., **Bunting, E.L.**, Ross, A., Zimmer, A., Gomez-Fernandez, E.L., Herndon, J., Zulu, L., Evans, T.P., Henebry, G.M., *A Systematic Literature Review of the Relationship Between Water and Conflict on the African Continent*. Sustainability, 2022, 14(22), 14912. DOI: 10.3390/su142214912. *Q1. Impact Factor: 3.3* (Citations: 4)
- Theuerkauf, E., **Bunting, E.L.**, Mack, E., and Rabins, L. *Initial Insights into the Development and Implementation of a Citizen-Science Drone-Based Coastal Change Monitoring Program in the Great Lakes Region*. Journal of Great Lakes Research, 2022, 48(2), 606-613. DOI: 10.1016/j.jglr.2022.01.011. *Q1. Impact Factor: 5.1* (Citations: 13)
- Tuttle, S. E., Roof, S. R., Retelle, M. J., Werner, A., Gunn, G. E., & **Bunting, E. L.** Evaluation of Satellite-Derived Estimates of Lake Ice Cover Timing on Linnévatnet, Kapp Linné, Svalbard Using In-Situ Data. *Remote Sensing*, 2022, 14(6), 1311. DOI: 10.3390/rs14061311. *Q1. Impact Factor: 4.2* (Citations: 11)

2021

- Mittlefehldt, S., **Bunting, E.L.**, and E. Huff., *New Methods for Assessing Sustainability of Wood Burning Energy Facilities: Combining Historical and Spatial Approaches*. Energies, 2021, 14(23), 7841. DOI: 10.3390/en14237841. *Q1. Impact Factor: 3.0* (Citations: 3)
- **Bunting, E. L.**, Wanyama, D., Goodwin, R., Weil, N., *Online Map-Based Decision Support System for Topographic Site Planning in Michigan Apple Orchards*. NYHS Fruit Quarterly, 2021.
- **Bunting, E. L.**, Wanyama, D., Goodwin, R., Weil, N., Sabbatini, P., & Andresen, J., *Vitis vinifera Production in Michigan: Factors and Trends Driving Cultivation Patterns*. Frontiers in Plant Science, 2021, 12. DOI: 10.3389/fpls.2021.704690. *Q1. Impact Factor: 7.3* (Citations: 8)
- Pearson, A., Mack, E., Ross, A., Marcantonio, R., Zimmer, A., **Bunting, E.**, Smith, A., Miller, J.D., *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, 2021, 13(9), 1150. DOI: 10.3390/w13091150. *Q1. Impact Factor: 3.0* (Citations: 21)
- Mack, E., **Bunting, E.L.**, Herndon, J., Marcantonio, R.A., Ross, A., Zimmer, A. *Conflict and its Relationship to Climate Variability in Sub-Saharan Africa*. Science of the Total Environment, 2021, 775, 145646. DOI: 10.1016/j.scitotenv. 2021.145646. *Q1. Impact Factor: 8.2* (Citations: 30)

2020

- **Bunting, E.L.**, Wanyama, D., Goodwin, R., Weil, N., *Characterization of Cold Air Movement in Apple*

Orchards using Unoccupied Aerial Systems (UAS) Thermal Infrared Imagery and High-Resolution Topographic Data. Fruit Quarterly, 2020.

- Mack, L., Theuerkauf, E., **Bunting, E.L.**, *Coastal Typology: An analysis of the spatiotemporal relationship between socioeconomic development and shoreline change*, Land, 2020, 9(7), 218. DOI: 10.3390/land9070218. *Q1. Impact Factor: 3.2* (Citations: 7)
- Wanyama, D., **Bunting, E.**, Goodwin, R., Weil, N., *Modeling Land Suitability for Vitis vinifera in Michigan Using Advanced Geospatial Data and Methods*, Atmosphere, 2020, 11(4), 339. DOI: 10.3390/atmos11040339. *Q1. Impact Factor: 2.5* (Citations: 12)
- Herrero, H., Southworth, J., Muir, C., Khatami, R., **Bunting, E.L.**, *An Evaluation of Vegetation Health in and around Southern African National Parks during the 21st Century (2000-2016)*, Applied Sciences, 2020, 10(7), 2366. DOI: 10.3390/app10072366. *Q1. Impact Factor: 2.5* (Citations: 14).

2019

- **Bunting, E.L.**, Munson, S.M., Bradford, J.B., *Assessing plant production responses to climate across water-limited regions using Google Earth Engine*, Remote Sensing of Environment, 2019, 233, 111379. DOI: 10.1016/j.rse.2019.111379. *Q1. Impact Factor: 11.1* (Citations: 28)
- Waylen, P.R., McFadden, A., Annear, C., **Bunting, E.L.**, *Interannual Hydroclimatic Variability of the Lake Mweru Basin, Zambia*. Water. 2019, 11(9), 1801. DOI: 10.3390/w11091801. *Q1. Impact Factor: 3.0* (Citations: 7)
- Herrero, H.V., Southworth, J., **Bunting, E.L.**, Kohlhaas, R.R., and Child, B., *Integrating Surface-Based Temperature and Vegetation Abundance Estimates into Land Cover Classifications for Conservation Efforts in Savanna Landscapes*, Sensors, 2019, 19(16), 3456. DOI: 10.3390/s19163456. *Q1. Impact Factor: 3.4* (Citations: 10).

2018

- Southworth, J., **Bunting, E.L.**, Zhu, L., Ryan, S.J., Herrero, H.V., Waylen, P., Munoz-Carpena, R., Campo-Bescos, M.A., and Kaplan, D., *Using a Coupled Dynamic Factor-Random Forest Analysis (DFRFA) to Reveal Drivers of Spatiotemporal Heterogeneity in the Semi-Arid Regions of Southern Africa*, PLOS ONE, 2018, 13(12), e0208400. DOI:10.1371/journal.pone.0208400. *Q1. Impact Factor: 2.9* (Citations: 7).
- Munson, S.M., **Bunting, E.L.**, Bradford, J.B., Butterfield, B.J. and J.R. Gremer, *Plant Production Responses to Precipitation differ along an Elevation Gradient and are enhanced under Extremes*, Ecosystems, 2018, 22(4), 699-708. DOI: 10.1007/s10021-018-0296-3. *Q1. Impact Factor: 1.50* (Citations: 22)
- **Bunting, E.L.**, Southworth, J., Herrero, H., Ryan, S.J., and Waylen, P., *Understanding Long Term Savanna Vegetation Persistence across Three Drainage Basins in Southern Africa*, Remote Sensing, 2018, 10(7), 1013. DOI:10.3390/rs10071013. *Q1. Impact Factor: 4.2* (Citations: 19)
- Keellings, D., **Bunting, E.L.**, and Engstrom, J., *Spatiotemporal Change in the Size and Shape of Heat Waves over North America*, Climatic Change, 2018, 147(1), 165-178. DOI: 10.1007/s10584-018-2140-3. *Q1, (Citations: 18)*

2017

- Herrero, H., Southworth, J., **Bunting, E.L.**, Child, B., *Using Repeat Photography to Observe Vegetation Change Over Time in Gorongosa National Park*. African Studies Quarterly, 2017, 17(2), 65-82. ISSN: 2152-2448. *Q1, (Citations: 12)*
- Fullman, T., **Bunting, E.L.**, Kiker, G., and Southworth, J., *Predicting Shifts in Large Herbivore Distribution under Climate Change and Management using a Spatially-Explicit Ecosystem Model*. Ecological Modeling, 2017, 352, 1-18. DOI: 10.1016/j.ecolmodel.2017.02.030. *Q1, (Citations: 23)*
- **Bunting, E.L.**, Munson, S., and Villarreal, M. *Climate Legacy and Lag Effects on Dryland Plant Communities in the Southwestern U.S.* Ecological Indicators, 2017, 74, 216-229. DOI: 10.1016/j.ecolind.2016.10.024. *Q1, (Citations: 73)*

2016

- **Bunting, E.L.**, Fullman, T., Kiker, G., and Southworth, J., *Utilization of the SAVANNA Ecosystem Model to Analyze Future Patterns of Vegetation Cover in Kruger National Park under Changing Climate*. Ecological Modeling, 2016, 342, 147-160. DOI: 10.1016/j.ecolmodel.2016.09.012. *Q1, (Citations: 30)*

- Herrero, H., Southworth, J., **Bunting, E.L.**, *Using Multiple Lines of Evidence to Determine Landscape Degradation within Protected Areas: A Case Study of Chobe National Park, Botswana from 1982-2011*. Remote Sensing. 2016, 8(8), 623. DOI: 10.3390/rs8080623. *Q1*, (Citations: 22)
- Hill, M.J., Zhou, Q., Sun, Q., Schaaf, C., Southworth, J., Mishra, N., Gibbes, C., **Bunting, E.L.**, Brandt, R., Crews, K., *Dynamics of the Relationship between NDVI and SWIR32 Vegetation Indices in Southern Africa: Implications for Retrieval of Fractional Cover from MODIS Data*. International Journal of Remote Sensing, 2016, 37(6), 1476-1503. DOI: 10.1080/01431161.2016.1154225. *Q1*, (Citations: 21)
- Thoma, D., Irvine, K., Witwicki, D., Munson, S., and **Bunting, E.L.**, *Semi-arid vegetation response to antecedent climate and water balance windows*. Applied Vegetation Science, 2016, 19(3), 413-429. DOI: 10.1111/avsc.12232. *Q1*, (Citations: 20)

2015

- Southworth, J., Zhu, L., **Bunting, E.L.**, Ryan, S.J., Herrero, H., Waylen, P.R., Hill, M.J., *Changes in Vegetation Persistence Across Global Savanna Landscapes, 1982-2010*. Journal of Land Use Science, 2015, 11(1), 7-32. DOI:10.1080/1747423X. *Q1*, (Citations: 31)

2014

- Fullman, T.J. and **E.L. Bunting**, *Analyzing Degradation in an Elephant-Impacted Landscape Using the Moving Standard Deviation Index*. LAND, 2014, 3, 74-104. Doi: 10.3390/land3010074. *Q1*, Impact Factor: 3.2 (Citations: 18)

2013

- **Bunting, E.L.**, Steele, J., Keys, E., Muyengwa, S., Child, B., Southworth, J. *Local Perception of Risk to Livelihoods in the Semi-Arid Landscape of Southern Africa*. LAND, 2013, 2, 225-251. DOI:10.3390/land2020225. *Q1*, (Citations: 38)
- Campo-Bescos, M.A., Munoz-Carpena, R., Southworth, J., Likai, Z., Waylen, P.R., and **Bunting, E.L.**, *Combined Spatial and Temporal Effects on Environmental Controls on Long-Term Monthly NDVI in Southern Africa Savannas*. Remote Sensing, 2013, 5(12), 6523-6538. DOI: 10.3390/rs5126513. *Q1*, (Citations: 69)

In Press or Under Review Publications

- Narayanan, A., Rezaali, M., **Bunting, E.L.**, Keellings, D. *It's getting hot in here: Spatial impact of humidity on heat wave severity in the US*. The Science of the Total Environment, **In Press 2025**. *Q1*
- **Bunting, E.L.**, Rabins, L., Theuerkauf, E.J., Mack, E., *Patterns of Geospatial Data and Imagery Use Within Coastal Communities along the Great Lakes of the United States*. Journal of Great Lakes Research, **In Press 2025**. *Q1*
- **Bunting, E.L.**, Silver, E., Mittlefehldt, S., Welsh, J., Goodwin, R., *Spatiotemporal Patterns of Forest Cover and Drivers of Change Across the State of Michigan, U.S*. Applied Geography. **Under Review**
- Metiva M., **Bunting, E.L.**, Steinke, K., and Hayden, Z.D., *UAS-based Remote sensing of Height and Nitrogen States in Fresh Market Tomato*. Horticulturae, **Under Review**

Books: Edited Volumes and Chapters

- **Bunting, E.L.**, Southworth, E.L., Gibbs, C., Herrero, H. Remote Sensing, Big Data, and GeoAI: Exploring Applications with Geospatial Insights. Edited Book. Elsevier. **In Prep Publication Fall 2025**
- **Bunting, E.L.** Southworth, E.L., Gibbs, C., Herrero, H., Big Data in Geospatial Context: Challenges and Opportunities. Chapter in Remote Sensing, Big Data, and GeoAI: Exploring Applications with Geospatial Insights. Elsevier. **Under Review**.
- **Bunting, E.L.** Dan Wanyama, Tolmanov. V., Earth Observations and Satellite Imagery in a Big Data World. Chapter in Remote Sensing, Big Data, and GeoAI: Exploring Applications with Geospatial Insights. Elsevier. **Under Review**.
- Southworth, J., Herero, H.V., Gibbes, C., **Bunting, E.L.**, and M. Hassan. *Savanna Vegetation Dynamics and Remote Sensing Challenges*. Chapter in Volume 9: Remote Sensing Applications. Elsevier. 2024
- **Bunting, E.L.**, Theuerkauf, E., Rabins, L., *Unoccupied Aerial Systems-Based Citizen Science Studies in*

Geography. Chapter in *sUAS Application in Geography*. Edited by: K. Konsoer, M. Leitner, and Q. Lewis. Publisher: Springer, 2022. DOI: 10.1007/978-3-031-01976-0. (Citations: 2).

- Southworth, J., Nagendra, H., Ryan, S.J., Gibbes, C., Herrero, H., **Bunting, E.L.**, Agarwal, S., “Protected Areas, Climate Change, and Ecosystem Sustainability.” *Comprehensive Remote Sensing Book #9*. Stephen Walsh Ed. University of Maryland: Elsevier, 2017, 201-219. (Citations: 7).

Funded Grants

- 2025 Center for Teaching and Learning, Michigan State University.** PI: **Bunting, E.L.**, Digital Expeditions: Bringing the Field to Students through Immersive Virtual Field Trip Experiences. \$4,000
- 2024-2026 Project GREEN, AgBioResearch, Michigan State University.** PI: **Bunting, E.L.**, Co-I: Mike Rinke. Fruit Abundance Mapping using LiDAR Collection and Learning Classification Models to Support Site-Specific Management and Harvesting Activities: A Case Study in MI Vineyards. \$72,702
- 2024-2028 National Institute of Health.** PI: M. Runge-Morris, Wayne State University. Co-PI (of multiple): **E.L. Bunting**. Center for Urban Response to Environmental Stressors, 1.28 million (Bunting ~\$88,045)
- 2022-2027 National Institute of Health.** PI: M. Runge-Morris, Wayne State University. Co-PI (of multiple): **E.L. Bunting**. Center for Leadership in Environmental Awareness Research, 2.2 million (Bunting ~\$46,247)
- 2024-2027 USDA, Subcontract from Iowa State University.** PI **Bunting, E.L.**, Interactive Soil Web Application Development. \$118,243 (RS&GIS but Bunting wrote the proposal).
- 2023-2026 US Forest Service.** PI **Bunting, E.L.**, Legacy TEUI Data Digitization Project for Huron-Manistee National Forests, \$54,992
- 2021-2026 State of Michigan.** PI: **Bunting, E.L.** Hydrography Realignment. \$2.1M
- 2022-2026 Department of Defense (DOD) Intelligence Advanced Research Projects Activity (IARPA).** Physics-driven Modeling and Learning for Person Recognition at a Distance and Altitude. \$10.7M (*Bunting, RS&GIS Share \$589,305*)
- 2021-2023 Project GREEN Grant, AgBioResearch, Michigan State University.** PI: Bunting, E.L., Co-Is: Yi, S., Online Agriculture-Focused Open-Source Drone Training. \$39,594.
- 2019-2023 Department of Energy BER Genomic Science Program.** PI: Schnable, J., Co-Is: Thomspson, A., Ge, Y., **Bunting, E.**, Sigmon, B., Yumou, Q., Jin, J., TGCM: (T)rait, (G)ene, and (C)rop Growth (M)odel directed Targeted Gene Characterization in Sorghum. \$2,675,032 (*MSU Share~\$770,000*).
- 2019-2023 Environmental Protection Agency EN Grant.** PI: Olaguer, J., Co-PI: **Bunting, E.L.**, A Web and GIS-Based 3D Visualization Platform for Electronic Permitting, Emission Reporting, and Compliance Assurance for Michigan Industrial Facilities. \$200,000 (*Bunting share~ \$150,000*)
- 2020-2023 National Science Foundation, Special Submission: EAGER, Coastlines and People Program.** PI: **Bunting, E.L.**, Co-PIs: Mack, L., and Theurkauf, E., CoPe EAGER: Development of Drone-Based Coastal Change Monitoring Program through Citizen Science Partnership and Capacity Building. \$300,000. (*Bunting share ~\$180,000*).
- 2019-2020 Strategic Partnership Grant, Michigan State University.** PI: Thompson, A., Co-PI: Biswas, S., **Bunting, E.L.**, et. al. Enabling Innovations in Plant Phenomic Data Acquisition and Analysis. \$400,000. (*Bunting share~\$275,000*).
- 2019-2020 Project GREEN Grant, AgBioResearch, Michigan State University.** PI: **Bunting, E.L.**, Co-Is: Andresen, J., and Sabittini, P., Modeling and Forecasting the Distribution of Vitis Vinifera Cultivars Sustainability under Current and Future Climate Regimes. \$36,700. (*Bunting share ~\$36,700*)
- 2019-2023 National Science Foundation, Science, Technology, and Society Program.** PI: Mittlefehldt, S., Co-PIs Huff, E., and **Bunting, E.L.**, Equity, Environment, and Woody Biomass Energy Technologies in Michigan. \$400,000. (*Bunting share ~\$95,000*)
- 2019-2020 Michigan Apple Committee.** PI: **Bunting, E.L.**, Co-PI: Andresen, J., Online Map-Based Decision Support System for Topographic Site Planning in Apple Orchards. \$15,000 (*Bunting Share: \$15,000*)
- 2019-2021 National Socio-Environmental Synthesis Center.** PI: **Bunting, E.L.**, Co-PI: Mack, L., A Socio-Environmental Synthesis of the Linkages between Water Scarcity Induced Conflict and Land Use / Land Cover Change in Africa to Enhance Multi-Scalar Decision Making.
- 2019-2023 National Science Foundation, Geography and Spatial Sciences Program.** PI: Keellings, D., Co-PI: **Bunting, E.L.**, A Spatiotemporal Investigation of Heat Wave Dynamics. \$357,700. (*Bunting share*

~\$125,000)

- 2019-2020 American Battlefield Trust.** PI: **Bunting, E.L.**, Documenting America's Battlefields from Past to Present. \$167,000
- 2018-2019 Michigan Apple Committee.** PI: **Bunting, E.L.**, Characterization of Cold Air Movement in Apple Orchards using Thermal Infrared Drone Imagery and High-Resolution Topographic Data. \$12,000
- 2018-2020 Project GREEN Grant, AgBioResearch Michigan State University.** PI: **Bunting, E.L.**, Co-Is: Basso, B., Commodity-Based Unmanned Aerial Vehicles (UAV) and Precision Agriculture Training. \$66,088 (*Bunting share ~\$35,000*)
- 2018-2019 Michigan Horticultural Society.** PI: **Bunting, E.L.**, Co-Is: Andresen, J., and Sabittini, P., Modeling Michigan Sustainability to Vitis Vinifera using Advanced Geospatial Data and Methods. \$24,676 (*Bunting share ~\$24,676*)
- 2018-2022 US Department of Agriculture. National Institute of Food and Agriculture.** PI: Hayden, Z., Co-Is: Brainard, D., **Bunting, E.L.**, Tiemann, L., Soil Health for Intensive Production: Understanding and Addressing Key Constraints for Vegetable Systems. \$468,500 (*Bunting share ~\$50,000*)
- 2014 University of Florida Seed Grant.** PI: Southworth, J., Co-I: **Bunting, E.L.**, Development of a Continental Scale Geospatial Database for Africa. \$85,000. (*Bunting share ~\$60,000*)
- 2012 University of Florida, College of Liberal Arts and Sciences Travel Grant.** PI: **Bunting, E.L.** The Influence of Climate Variability and Disturbance on the Vegetation of Southern Africa. \$300.
- 2012 University of Florida, Center for African Studies Travel Grant.** PI: **Bunting, E.L.** The Influence of Climate Variability and Disturbance on the Vegetation of Southern Africa. \$1500.
- 2009-2013 NASA Land-Cover / Land Use Change Program.** PI: Southworth, J., Co-PIs: G. Kiker, Y. Qiu, R. Munoz-Carpena, P.R. Waylen, M.W. Binford, E. Keys, B. Child. Understanding and predicting the impact of climate variability and climate change on land use and land cover change via socio-economic institutions in Southern Africa. \$871,000. (*Bunting share: Senior Graduate Student Funded*)

Submitted Grants

- 2025-2029 NASA ROSES: Ecological Conservation Program.** PI: Bunting, L., Co-I: Theuerkauf, E., Integrating Multi-Scale Earth Observations and Field Data to Assess Ecosystem Services and Vulnerability of Great Lakes Coastal Wetlands.

Awards, Accolades, News Reports

- 2023 Michigan Department of Transportation Research Spot Light.** PI: **Bunting, E.L.**, [Modernizing Right of Way Maps with Geographic Information System Technology.](#)
- 2021 AGU EOS.** PIs: **Bunting, E.L.**, Theuerkauf, E., Mack, E., [Drones and Crowdsources Science Aid Great Lakes Data Collection.](#)
News Article. PIs: **Bunting, E.L.**, Theuerkauf, E., Mack, E., [Great Lakes Levels Down, but MSU Experts say Threat "Far From Over"](#)
News Article. PIs: **Bunting, E.L.**, Theuerkauf, E., Mack, E., [Two Lakeshore Communities Focus of Shoreline Erosion Study](#)
News Article. PIs: **Bunting, E.L.**, Theuerkauf, E., Mack, E., [MSU Research Enlisting Volunteers to Document Coastal Erosion in MI](#)
News Article. PIs: **Bunting, E.L.**, Theuerkauf, E., Mack, E., [Chikaming Township Part of MSU Shoreline Erosion Study](#)
News Article. PIs: **Bunting, E.L.**, Theuerkauf, E., Mack, E., [Michigan Recovers Beach Areas as Great Lake Levels Drop](#)
News Article. PIs: **Bunting, E.L.**, Theuerkauf, E., Mack, E., [Researchers Seek Volunteers to Document Coastal Erosion in Michigan](#)
News Article. PIs: **Bunting, E.L.**, Theuerkauf, E., Mack, E., [MSU Researchers Establish Coastline Citizen Science Program.](#)
- 2013, 2014 Google for High Education Summit, Invited Attendee**
- 2013 Google Pre-AAG Workshop, Invited Attendee**

Presentations, Panels, and Organized Sessions

- Wernette, P., Goodwin, R., Weil, N., **Bunting, E.L.**, Value Added Remote Sensing: Integrating Machine Learning from the Lakebed to Grapes. BIG GIS Conference. **2025**
- **Bunting, E.L.**, Rinke, M., Goodwin, R., Weil, N., Precision on the Vine: Using LiDAR and Drones for Accurate Vineyard Insights. Southwest Michigan Horticulture Days. Kalamazoo, MI. **2025**.
- **Bunting, E.L.**, Rinke, M., Goodwin, R., Weil, N., Advancing Vineyard Yield Estimation: LiDAR-Based Grape Abundance Mapping Using Machine Learning. AAG Annual Meeting. Detroit, MI. **2025**
- **Bunting E.L.**, Southworth, J., Herrero, H., Remote Sensing, Big Data, and GeoAI I. Organized Session. Global Land Program Open Science Meeting. Oaxaca Mexico. **2024**.
- **Bunting E.L.**, Southworth, J., Herrero, H., Remote Sensing, Big Data, and GeoAI II. Organized Session. Global Land Program Open Science Meeting. Oaxaca Mexico. **2024**.
- **Bunting E.L.**, Southworth, J., Herrero, H., Remote Sensing, Big Data, and GeoAI III. Organized Session. Global Land Program Open Science Meeting. Oaxaca Mexico. **2024**.
- **Bunting E.L.**, Keellings D., Assessing the Impacts of Extreme Heat across the Landscapes of the US using GeoAI, Big Data, and Time Series Remote Sensing. Global Land Program Open Science Meeting. Oaxaca Mexico. **2024**.
- **Bunting, E.L.**, Theuerkauf, E.J., Mack, E., Welsh, J., Burchi, B., Embracing Community Science for Remote Sensing Research: Successes, Failures, Challenges, and Issues of Sustainability in the Development of a Coastal Monitoring Participatory Science Program. AAG Annual Meeting. Honolulu, HI, **2024**.
- **Bunting, E.L.**, Herrero, H., Crew, K., and J. Southworth. Women in Remote Sensing I . Organized Session. AAG Annual Meeting, Denver, CO. **2023**
- **Bunting, E.L.**, Herrero, H., Crew, K., and J. Southworth. Women in Remote Sensing II. Organized Session. AAG Annual Meeting, Denver, CO. **2023**
- **Bunting, E.L.**, Herrero, H., Crew, K., and J. Southworth. Women in Remote Sensing III. Organized Session. AAG Annual Meeting, Denver, CO. **2023**
- **Bunting, E.L.**, Herrero, H., Crew, K., and J. Southworth. Women in Remote Sensing Panel. Organized Session. AAG Annual Meeting, Denver, CO. **2023**
- **Bunting, E.L.** and D. Keellings. The Spatiotemporal Images of Heat Waves on Vegetation Dynamics across the United States. AAG Annual Meeting, Denver, CO. **2023**
- **Bunting, E.L.**, Theuerkauf, E., Embracing community science, rapid data development, and open science platforms to facilitate data driven management within coastal communities. American Geophysical Union. **2022**.
- Theuerkauf, E., **Bunting, E.L.**, Development and Implementation of a Citizen Science Drone Based Coastal Change Monitoring Program in the Great Lakes Region. American Association of Geographers. **Organized Session. 2022**.
- **Bunting, E.L.**, and E. Theuerkauf. Citizen Science as a Tool for Conducting Research on Landscape and Landform Change. American Association of Geographers Annual Meeting. **Organized Panel. 2022**.
- **Bunting, E.L.**, and D. Keellings. Climate Extremes: A Synthesis of Data, Methods, and Outcomes. American Association of Geographers Annual Meeting. **Organized Panel. 2022**.
- **Bunting, E.L.** and D. Keellings. Climate Extremes and Their Impact on Ecosystem Health Land Cover, and Land Use. American Association of Geographers Annual Meeting. **Organized Session. 2022**
- Keellings, D., **Bunting, E.L.**, and D. Wanyama. What is a Heat Wave: A Survey and Literature Synthesis of Heat Wave Definitions across the United States. American Association of Geographers Annual Meeting. **2022**
- **Bunting, E.L.**, Keellings, D., and D. Wanyama. Delineating and Characterizing Changes in Heat Wave Events and Associated Landscape Impacts across the United States. AAG Annual Meeting. **2022**
- Theuerkauf, E., **Bunting, E.L.**, Zoet, L., Matthaus C., Rawlings, J., and S. Brown. Addressing coastal monitoring data gaps in the Great Lakes of North America using UAVs, ROVs, and community scientists. American Geophysical Union Fall Meeting. **Dec. 2021**.
- **Bunting, E.L.**, R. Goodwin, N. Weil, and D. Wanyama. Using Modern Geospatial Techniques and Data to Map Vinifera Suitability Across Michigan. SW Michigan Annual Extension Meeting, **June 2021**.
- **Bunting, E.L.** Mack, E. Southworth, J., and Herrero, H. The Ecology of Conflict: Using Time Series Remote Sensing to Quantify Ecological Patterns, Resilience, and Rebounds in Conflict Impacted Regions of Africa.

Association of American Geographers Annual Meeting. **CANCELLED. 2020.**

- **Bunting, E.L.,** Keellings, D. Does Size and Shape Matter? A Spatiotemporal Analysis of Heat Wave Dynamics across the United States. East Lakes Association of American Geographers Annual Meeting. **Oct. 2019.**
- Goodwin, R., **Bunting, E.L.,** Modeling Michigan Suitability of Vitis Vinifera using Advanced Geospatial Data and Methods. East Lakes Association of American Geographers Annual Meeting. **Oct. 2019.**
- **Bunting, E.L.,** Gunn, G., A Cloud-Based Algorithm Development within Google Earth Engine to Derive Lake Ice Phenology from Sentinel-1 Data. Association of American Geographers Annual Meeting, Washington D.C., **2019.**
- **Bunting, E.L.,** Munson, S., Bradford, B., Understanding Spatiotemporal Relationships between Plant Production and Water Balance across Dominant Communities and Deserts of the Southwestern U.S. American Association of Geographers Annual Meeting, New Orleans. **2018**
- Southworth, J., Ryan, S.J., Khatami, R., Waylen, P., Herrero, H., **Bunting, E.L.,** Zhu, L., Hill, M., Latitudes and Land Use: Global Biome Shifts in Greenness Persistence across Three Decades. American Association of Geographers Annual Meeting, New Orleans. **2018**
- Gunn, G., **Bunting, E.L.,** Yang, D., Monitoring Ice Phenology of Small Ponds and Lakes using Sentinel-1 and Cloud-Based Detection Algorithms. Eastern Snow Conference, College Park, Maryland. **2018.**
- **Bunting, E.L.,** Munson, S., Bradford, J.B. Inter-Regional Comparisons of Plant Production Responses to Climate across the SW United States. American Association of Geographers Annual Meeting, Boston. **2017.**
- **Bunting, E.L.,** Munson, S., Bradford, J.B, Andrews, C.M. Assessing vulnerability to drought across dryland plant communities of the Western US. Ecological Society of America Annual Meeting, Fort Lauderdale. **2016.**
- **Bunting, E.L.,** Munson, S., Villarreal, M., Bradford, J., Spatiotemporal patterns of drought vulnerability across dryland vegetation types in the western U.S. American Association of Geographers Annual Meeting, San Francisco, **2016.**
- Southworth, J., Zhu, L., **Bunting, E.L.,** Ryan, S.J., Herrero, H., Waylen, P.R., Hill, M., Changes in vegetation persistence across global savanna landscapes. American Association of Geographers Annual Meeting, San Francisco. **2016**
- **Bunting, E.L.,** Munson, S., and Villarreal, M., The Cumulative Impacts of Climatic Lags and Legacies on Dryland Plant Communities. The USGS Biennial Conference on Management of the Colorado Plateau, **2015.**
- **Bunting, E.L.,** Munson, S., Villarreal, M., Thoma, D., Assessing the Vulnerability of Vegetation to Drought and Climate Change in the Southwestern U.S. American Association of Geographers Annual Meeting, **April 2015.**
- Southworth, J., Waylen, P., **Bunting, E.L.,** Zhu, L., Huffaker, R., Campo-Bescos, M., Munoz-Carpene, R., Kaplan, D., Using Time-Series and Dynamic Factor Analysis to Model and Explain the Combined Spatial and Temporal Effects of Environmental Drivers on Vegetation Growth in Southern Africa. American Association of Geographers Annual Meeting, **2015.**
- Herrero, H., Southworth, J., **Bunting, E.L.,** Observing Change in in Savanna Vegetation in the Chobe Riverfront, Botswana from 1990 to 2013. Southeastern Division of the Association of American Geographers. **2014.**
- Southworth, J., **Bunting, E.L.** Campo-Bescos, M.A., Munoz-Carpene, R., Likai, Z., Waylen, P.R., Using Dynamic Factor Analysis to Model the Combined Spatial and Temporal Effects of Environmental Covariates on NDVI in Southern Africa and to Develop New Land Change Analysis Techniques. Global Land Project International Conference. **2014.**
- **Bunting, E.L.,** Southworth, J. Pattern and Processes: The Impact of Climate and Environmental Variability on People and Vegetation in the Savanna Landscapes of Southern Africa. Global Land Project International Conference. **2014.**
- **Bunting, E.L.,** Southworth, J. The Vegetated State of Semi-Arid Ecosystems as Determined By Remotely Sensed Spectral Indices and Thermal Layers. University of Florida Geography Department Colloquium. **2013.**
- **Bunting, E.L.,** Southworth, J. The Vegetated State of Savanna Landscapes as Determined By Remotely Sensed Spectral Indices and Drivers of Spatial Heterogeneity. Association of American Geographers Annual Meeting, Los Angeles, **2013.**
- Keys, E., Steele, J., **Bunting, E.L.,** Child, B., Muyengwa, S., Good Elephant, Bad Elephant: Do Community Based Natural Resource Management Programs Work in Botswana? Association of American Geographers Annual Meeting, Los Angeles, **2013.**
- Keys, E., Steele, J., **Bunting, E.L.,** Child, B., Muyengwa, S., Good Elephant, Bad Elephant: Do Community Based Natural Resource Management Programs Work in Botswana? University of Florida Center for African Studies Colloquium, **2013.**
- **Bunting, E.L.,** Steele, J., Key, E., Child, B., Muyengwa, S., Southworth, J. Local Perceptions of Livelihood Risk

Across the Kwando, Okavango, and Zambezi Catchments of Southern Africa. Southeastern Division of the American Association of Geographers Annual Meeting, Ashville, **2012**.

- **Bunting, E.L.**, Southworth, J., The Impact of Climate Variability and Disturbance on the Landscape of Southern Africa. University of Florida Center for Africa Studies Seminar. **2011**.
- Southworth, J., Waylen, P., Keys, E., Child, B., Gibbes, C., **Bunting, E.L.**, Steele, J., Binford, M., Understanding and Predicting the Impact of Climate Variability and Climate Change on Land Use and Land Cover Change via Socio-Economic Institutions of Southern Africa. NASA Funded Projects Conference, Washington D.C., **2011**.
- **Bunting, E.L.**, Gibbes, C., Southworth, J., Climate Induced Vegetation Change within Protected Areas: A Case Study of Southern Africa, Association of American Geographers, Washington D.C., **2010**.
- **Bunting, E.L.**, Alterations to Florida's Land Use and Land Cover and Its Role in Emerging Pathogens Research, Florida Environmental Health Association Annual Meeting, Daytona Beach, **2009**.
- **Bunting, E.L.**, Matyas, C., The Composition of Radar Reflectivity Values Outside of the Radius of Gale-Force Winds in U.S. Landfalling Tropical Cyclones, AAG Annual Meeting, Las Vegas, **2009**.
- **Bunting, E.L.**, Matyas, C., The Spatial Distribution of Tropical Cyclone Rainfall in Relation to the Radius of Gale-Force Winds in U.S. Landfalling Storms, Southeastern Division of the American Association of Geographers, Greensboro, **2008**.
- **Bunting, E.L.**, Matyas, C., Relating Tropical Cyclone Rain Shields to Storm Size in U.S. Landfalling Storms. University of Florida Geography Colloquium, **2008**.
- **Bunting, E.L.**, Matyas, C., Relating Tropical Cyclones Rain Shield to Storm Size for U.S. Landfalling Storms, Association of American Geographers, Boston, **2008**.
- **Bunting, E.L.**, Matyas, C., The Relationship Between Wind Radii and Rainfall Extent of Hurricane Katrina. Southeastern Division of the Association of American Geographers Annual Meeting, Charleston, **2007**.

Invited Lectures and Colloquiums

- **Bunting, E.L.**, MIDAS: Harnessing the Power of Geospatial Data in a Collaborative Environment. Wayne State University CURES / CLEAR Colloquium Series. **2025**
- **Bunting, E.L.**, Remote Sensing from Global to Local Scales to Understand Complex Patterns of Human-Environment Interactions in the Face of Increased Climate Variability and Change. Cultivating Health Across Disciplines, Michigan State University. **2025**
- Theuerkauf, E., Arbogast, A., **Bunting, E.L.**, Mantha, P., *Great Lakes Coastline Challenges*. Environmental Science and Policy Program Fall 2023 Panel Series. Invited Panelist. **2023**.
- **Bunting, E.L.**, Mack, E., *A Spatiotemporal Perspective on Water Scarcity Induce Risk from Global to Local Scales*. Invited Speaker, Future of Water Institute @ The University of Cape Town, South Africa. **2019**.
- **Bunting, E.L.**, Munson, S., Bradford, B., *Understanding Spatiotemporal Relationships between Plant Production and Water Balance across Dominant Communities and Deserts of the Southwestern U.S.* Invited Speaker, University of Florida, Department of Geography Alumni Colloquium. **2018**
- **Bunting, E.L.**, *A Spatio-Temporal Analysis of Landscape Dynamics Under Changing Environmental Regimes in Southern African Savannas*. USGS / Northern Arizona University Brown Bag. **2014**
- **Bunting, E.L.** Tropical Cyclone Patterns, Formation Processes, and Impacts. Physical Geography GEO2200. & **2013**
- **Bunting, E.L.** Patterns of Climate Variability and Change Across Africa. Geography of Africa GEA3600. **Spring & Fall 2013**
- Southworth, J., Gibbes, C., **Bunting, E.L.**, Cui, X., The Impact of Climate Variability and Disturbance on the Landscape of Southern Africa. University of Northern Illinois Seminar. **2011**

Poster Presentations

- **Bunting, E.L.** Theuerkauf, E.J., Mack, L., Embracing community science, rapid data development, and open science platforms to facilitate data driven management within coastal communities. American Geophysical Union Annual Conference, Chicago, IL. **2022**.
- **Bunting, E.L.**, Fullman, T., Kiker, G., Southworth, J., Simulated Dynamics of Vegetation Cover and Large Herbivore Distributions under Climate Change, Water Management and Elephant Population Scenarios in Kruger National Park. Kruger Network Meeting, **2015**.
- **Bunting, E.L.**, Steele, J., Keys, E., Child, B. *The Socioeconomic Impact of Parks and Tourism on Livelihoods in Southern Africa*. Association of American Geographers Annual Meeting, New York City, **2012**.

- Steele, J., **Bunting, E.L.**, Keys, E., Child, B., Waylen, P. *The Diversification of Livelihoods across the Savanna Landscapes of Botswana*. Association of American Geographers Annual Meeting, New York City, **2012**.
- Southworth, J., Waylen, P., Keys, E., Child, B., Gibbes, C., **Bunting, E.L.**, Steele, J., Binford, M., Kiker, G., Cassidy, L., *Understanding and Predicting the Impact of Climate Variability and Climate Change on Land Use and Land Cover Change via Socio-Economic Institutions of Southern Africa*. NASA Funded Projects Conference, Washington D.C., **2011**.
- **Bunting, E.L.**, Gibbes, C., Southworth, J., *Interannual and Intra-Annual Shifts in Precipitation within the Semi-Arid Savanna Landscape of Southern Africa*. Florida Climate Institute Kickoff, **2010**.
- **Bunting, E.L.**, Gibbes, C., Southworth, J., *The Impact of Climate Variability / Change on the Semi-Arid Savanna Landscape of Southern Africa*, National Science Foundation Funded Student Conference, Gainesville, **2010**.
- **Bunting, E.L.**, Pries, C., Hotling, A., Clar, J., *Science Partners in Inquiry-Based Collaborative Education (SPICE) Modules in the Middle School Classroom*, National Science Foundation GK12 Conference, Washington D.C., **2010**.
- **Bunting, E.L.**, Southworth, J., *Anthropogenic Landscape Changes in Florida from 1974-2004*. Southeastern Division of the Association of American Geographers, Knoxville, **2009**.

Teaching

(Evaluations Available Upon Request)

- 2017-
Current **Michigan State University, Department of Geography, Environment, and Spatial Sciences**
- Remote Sensing of the Environment (1 semester-Spring 2025)
 - Drones in the Field (1 Semester- Fall 2024)
 - Remote Sensing of the Environment-Virtual (3 semesters-Fall 2024, Spring 2024, Spring 2023)
 - Geocomputation (2 semesters)
 - People and the Environment (3 semesters)
- 2007-2013 **University of Florida, Department of Geography**
- Advanced Remote Sensing (1 semester)
 - Introduction to Image Processing (1 semester)
 - GIS in Research (3 semesters)
 - GIS in Research Lab (3 semesters)
 - Extreme Weather (4 semesters)
 - Physical Geography (4 semesters)
 - Physical Geography Lab (1 semester)

Current Professional Associations

- American Geophysical Union (AGU)
- American Association of Geographers (AAG)
- Remote Sensing Specialty Group, AAG

Service to the Discipline

- **Dean's Fellow for Institutional Access**-Spring 2024-Spring 2026.
- **MSU College of Social Science Committees:** Dean's Advisory Committee on Institutional Access, Promoting Safe and Accessible Spaces (Chair), Engaged Learning (Chair), Staff Excellence (Chair)
- **Departmental Committees:** Graduate funding committee, Graduate Admission Committee, Graduate Curriculum Committee, Community Building Committee
- **National Science Foundation Reviewer:** HEG panel (fall 2020, 10 proposals), Experimental Program to Stimulate Competitive Research (summer 2021, 1 proposal), Division of Ocean Sciences, Ocean Technology and Interdisciplinary Coordination Program (spring 2022, 1 proposal)
- **Department of Geography, Environment, and Spatial Science Chair Search Committee-** Member of the Search Committee
- **College of Social Science Dean Search Committee-**Member of the Search Committee
- **Association of American Geographers-Specialty Group Board Member-**Human Dimensions of Global Environmental Change

Journal Reviewer / Editor

Special Editions:

- Frontiers in Remote Sensing, Special Issue Editor, *Title: Woman in Remote Sensing*, 2022-2023.

Section Editor:

- Frontiers in Environmental Science, section: Environmental Informatics and Remote Sensing, since 2022
- African Studied Quarterly, 2009-2012

Graduate Students Mentored

Ph.D.

Alana Post, current student, committee member
Rachel Lau, current student, committee member
Yuean Qiu, current student, committee member
Dan Wanyama Ph.D., graduated 2022, committee member
Lauren Medwid Ph.D., graduated 2022, committee member

Masters

Parker Hopkins, current student, committee member
Jenna Bryn, current student, committee member
Dillion Haller, current student, committee member
Jack Magee, M.S., current student in Wildlife Department, committee member
Nathaniel Penrod M.S., graduated 2024, committee member
Lucas Rabbins M.S., graduated 2022, committee co-chairperson
Michael Metiva M.S., graduated 2022, committee member