DANIEL BEENE, M.S.

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University of New Mexico
Community Environmental Health Program
College of Pharmacy
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EDUCATION

MS University of New Mexico, Geography & Environmental Studies — May 2019
Thesis: "Adjudication and the Adaptive Capacity of Pecan Farmers in the Lower Rio Grande"
Advisor: Dr. Yan Lin

BA University of New Mexico, Psychology — May 2009
Graduated Cum Laude
Minored in Communications

HONORS AND AWARDS

Master's Thesis Distinction 2019

Outstanding Graduate Student Award 2019
UNM Department of Geography & Environmental Studies

Conrad Snead Scholarship 2019
UNM Department of Geography & Environmental Studies

Austrian Marshall Plan Scholarship 2017
Visiting Fellow, Carinthia University of Applied Sciences, Villach, AT

PUBLICATIONS

Book Chapters

Hoover, Joseph, Lin, Y., **Beene, D.**, & Liu, Z. (2020). Partnering with Indigenous Communities to Address the Environmental Health Legacy of Abandoned Mines in the Western United States. In Keables, M. J. (Ed.) The Rocky Mountain West: A Compendium of Geographic Perspectives. American Association of Geographers: Washington, D.C.

Beene, D. R. & Lane, K. M. D. (2020). Unmappable Variables: GIS and the Complicated Historical Geography of Water in the Rio Grande Project. In Travis, C., Ludlow, F. M., & Ferenc, G. (Eds.) Historical Geography, GIScience, and Textual Analysis: Mapping the Landscapes of Time and Place. Berlin: Springer.

Articles in Refereed Journals

Lin, Y., Hoover, J., **Beene, D.**, Erdei, E., & Liu, Z. (2020). Environmental risk mapping potential for abandoned uranium mine contamination on the Navajo Nation, USA, using a GIS-based multi-criteria decision analysis approach. *Environmental Science and Pollution Research*. https://doi.org/10.1007/s11356-020-09257-3

Ketai, L., Melendres, L. D., DuBroff, J., Lin, Y., & **Beene, D.** (2019). High Geographic Prevalence of Pulmonary Arterial Hypertension: Associations with Ethnicity, Drug Use and Altitude. *Pulmonary Circulation*. https://doi.org/10.1177%2F2045894019894534

Beene, D., Zhang, S. & Paulus, G. (2019). Workflow for hydrologic modelling with sUAS-acquired aerial imagery. *Geocarto International.* https://doi.org/10.1080/10106049.2019.1648562

EMPLOYMENT AND RESEARCH EXPERIENCE

Community Environmental Health Program, University of New Mexico College of Pharmacy
Data Manager, Supervisor: Dr. Johnnye Lewis (UNM-HSC) 2019 (current)

- Development of data management protocol for all publication-ready datasets generated under Superfund Research Project and Navajo Birth Cohort Study/ECHO Project to navigate the requirements of FAIR data management and sensitive Tribal information
- Coordination with PIs and research scientists to acquire and publish data and metadata in machine-readable format
- Implementing database management systems (DBMS) for different permission levels at three sites across UNM
- Authored intellectual property statement with project and Tribal leaders for sensitive data
- Developing active DBMS for Cove Livestock Project with PI, Dr. Joe Hoover
- Member of statistics working group
- Participation in NIEHS P-50 grant application, November 2019

Agnese Nelms Haury Program in Environment and Social Justice, University of Arizona
Co-Investigator, Dr. Karletta Chief (UofA) 2020 (current)

- Transdisciplinary program with researchers from University of Arizona, Northern Arizona University, University of Montana – Billings, University of California – Los Angeles, and Southwest Research and Information Center
- Provide analysis and mapping of potential COVID-19 correlates to Navajo Water Access Coordination Group (WACG) for COVID-19 response on Navajo Nation
- Coordinate timely and appropriate messaging to Tribal health authorities and members

NIH P50 Center for Native American Environmental Health Equity Research
Co-Investigator, PIs: Dr. Yan Lin (UNM) & Dr. Joseph Hoover (MSUB) 2020 – 2025

- Project Title: Evaluating Cumulative Environmental Exposure to Metals and Non-metals and Community-level Health Using Geospatial Modeling and Personal Exposure Assessment
- Awarding agency: National Institutes on Minority Health and Health Disparities (NIMHD)
- Provide data management and ensure data integrity among multiple project partners
- Develop geospatial models and extensible tools with Python

Admin Supplement to Superfund Research Program (SRP) Center, NIH/NIEHS
Co-Investigator, PI: Dr, Ana Navas-Acien (Columbia University) 2019-2020

- Project Title: Arsenic Mass Balance: Integrating Environmental Biomarker Data across Diverse Populations
- SRP External Use Case (EUC) between UNM, Columbia University, and UC Berkeley
- Provide data management, establish common analytical code repository, identify and utilize defined data ontologies
- Contribute to manuscript (in process)
- Led project update presentation to NIEHS and other EUCs (February 2021)

Admin Supplement to Superfund Research Program (SRP) Center, NIH/NIEHS
Co-Investigator, PI: Dr. David Kaeli (Northeastern University) 2019-2020

- Project Title: Data Harmonization Across SRP Pregnancy & Birth Cohorts
- EUC between UNM, Northeastern University, and Dartmouth College
- Established secure Linux server to host website for analysis of secure harmonized datasets
- Developed data dictionary and machine-readable metadata
- Led project update presentation to NIEHS and other EUCs (February 2021)

University of New Mexico, Earth Data Analysis Center
Co-Investigator, Dr. Su Zhang (UNM) 2019 (current)

- Project Title: Effect of Pan Sharpening Algorithms on Local Uncertainty of Vegetation Indices

- Normalized differential vegetation indices are generated from systematic comparison of four pan sharpening algorithms on Landsat 8 and proprietary QuickBird imagery of five cities worldwide
- Developing new quality assessment that is fusion of cumulative distribution functions of local quality (Q4) and NDVI values
- Generating recommended workflow for vegetation monitoring using fused imagery

University of New Mexico, Department of Geography & Environmental Studies
Staff Research Assistant, PIs: Dr. Joe Hoover (MSUB) and Dr. Yan Lin (UNM) 2019

- Project Title: GPS Tracking Livestock Movement and Exposure to Abandoned Uranium Mine Waste in Cove Watershed United States Environmental Protection Agency (USEPA)
- Big data management of multiple geospatial files, environmental sampling datasets
- Field work meeting with livestock owners, equipping livestock with GPS devices
- Risk mapping
- Development and execution of research design
- Co-management of undergraduate student research assistants

University of New Mexico, Department of Geography & Environmental Studies
Research Assistant, PIs: Dr. Joe Hoover and Dr. Yan Lin 2018 – 2019

- Project Title: Novel Geospatial Modeling to Inform Risk Assessment for Metal Contamination Research on Tribal Lands (P50 Native Environmental Health Equity Research Center 2018 Pilot Project)
- Big data management, maintained a Git repository of scripts, metadata, and project file structure
- Data analysis and environmental risk modeling
- Coordinated data management workshop for project team
- Managed data compression, physical, and cloud storage
- Co-authored final manuscript, project poster, helped grant proposal writing

Master's Thesis, University of New Mexico 2019
Advisor: Dr. Yan Lin

- Mixed methodology with GIScience modeling and semi-structured interviews
- Big data mining, organizational management, Python and SQL programming
- Computational univariate and multivariate regression models
- Extensive field work with research participants
- UNM Office of the Institutional Review Board approval
- Passed with distinctions

University of New Mexico, Department of Geography & Environmental Studies
Research Assistant, PI: Dr. Tema Milstein (UNM) 2018

- Edited "Make love not war?: Representational risks and opportunities in no-compromise direct environmental action", in *Local Environment* (under review)
- Edited "Routledge Handbook of Ecocultural Identity" by Milstein, T. & Castro-Sotomayor, J. (Eds.) (under contract for 2019 publication). London, UK: Routledge.

Carinthia University of Applied Sciences (CUAS/FH-Kärnten), Villach, AT
Visiting Fellow, Co-PI: Dr. Gernot Paulus (CUAS) 2018

- Developed a methodology for conducting complex hydrological modeling using small unmanned aerial systems (sUAS)
- Compiled and maintained multiple terabytes of aerial and LiDAR imagery
- Statistical sensitivity analysis of multiple model inputs to baseline model
- Completed project report for Austrian Marshall Plan Foundation

TEACHING EXPERIENCE

University of New Mexico, Department of Geography & Environmental Studies:

- GEOG 195 – Introduction to Environmental Studies, University of New Mexico. Fall 2018. Teaching assistant.
- GEOG 364 – Law & Geography: Law, Control, Human Environment, University of New Mexico. Fall 2018. Teaching assistant.

PRESENTATIONS AND INVITED LECTURES

Poster, "Geospatial Modeling to Map Environmental Exposure to Abandoned Uranium Mine Waste on the Navajo Nation, USA," **Daniel Beene**, Yan Lin, Joseph Hoover, Esther Erdei, Zhuoming Liu, 2020 NIH/NIEHS Superfund Research Program Virtual Online Meeting, Hosted by Texas A&M University. URL: https://bit.ly/3pRZZyi

Poster, "Distributed Harmonization and Analysis Across Three SRP Cohorts," **Daniel R. Beene**, Nicolas Bohm Agostini, Yuliya Halchenko, David Kaeli, Margaret R. Karagas, Johnnye Lewis, Debra MacKenzie, Justin Manjourides, Martha Powers, Antonia J. Signes-Pastor, Deborah Watkins, 2020 NIH/NIEHS Superfund Research Program Virtual Online Meeting, Hosted by Texas A&M University

Poster, "University of New Mexico SRP Responds to COVID-19 in Tribal Communities," Carolyn Roman, Chris Shuey, David Begay, Joe Hoover, **Daniel Beene**, Mallery Quetawki, Romiasha Rahman, Johnnye Lewis, Matt Campen, Debra MacKenzie, Melissa Gonzales, 2020 NIH/NIEHS Superfund Research Program Virtual Online Meeting, Hosted by Texas A&M University

Presentation, "Report from UNM regarding data on COVID-19 Data Collection," Dr. Johnnye Lewis, Dr. David Begay, Chris Shuey, Dr. Li Luo, **Daniel R. Beene**, Requested

report to Health, Education, and Human Services Committee of the 24th Navajo Nation Council, teleconference, May 13, 2020

Paper, "Feedbacks of irrigator decisions, hydrologic change and long-term water planning, Mesilla Valley, NM," Authors: **Daniel Beene**, Erek Fuchs, Alex Rinehart, Yan Lin, NGWA Water, Energy, and Policy in a Changing Climate Conference, Albuquerque, NM, February 2020

Presentation, Mini-Symposium on Novel Methods for Integrating Environmental and Metal Biomarker Data, Yan Lin, **Daniel Beene**. Columbia Mailman School of Public Health, New York, NY, February 2020.

Session Chair, Health Geographies. Association of Pacific Coast Geographers Annual Meeting, Flagstaff, AZ, October 2019.

Paper, "Abandoned uranium mines in the Navajo Nation: how do we responsibly and ethically model risk?," Authors: **Daniel Beene**, Yan Lin, Joseph Hoover, Zhuoming Liu, Association of Pacific Coast Geographers Annual Meeting, Flagstaff, AZ, October 2019.

Poster, "Classifying livestock grazing behavior and GIS-modeling potential for exposure to Abandoned Uranium Mine Waste in the Cove Wash Watershed, Arizona, USA," Authors: Zhuoming Liu, Yan Lin, Joseph Hoover, **Daniel Beene**, Southwest Division, American Association of Geographers Annual Meeting, Fort Worth, TX, October 2019.

Paper, "Modeling Irrigation and Agrarian Change in the Lower Rio Grande: Lessons Learned from Mixed Methods Research," New Mexico Geographic Information Council (NMGIC) Annual Meeting, Albuquerque, NM, April 2019.

Paper, "Understanding the Adaptive Capacity of Farmers in the Mesilla and Rincon Valleys with Mixed Geospatial Methods," American Association of Geographers Annual Meeting, Washington, D.C., April 2019.

Paper, "Adjudication and the Adaptive Capacity of Farmers in the Lower Rio Grande," Second Biennial Population and Public Policy Conference, Albuquerque, NM, February 2019.

Poster, "Novel Geospatial Modeling to Inform Risk Assessment for Metal Contamination Research on Tribal Lands", NIH P50 (Native Environmental Health Equity Research Center 2018 Pilot Project), Authors: Yan Lin, Joseph Hoover, Esther Erdei, **Daniel Beene**, The 10th Conference on Metal Toxicity & Carcinogenesis, Albuquerque, NM, February 2019.

Paper, "Complicating Water Management Binaries in the Rincon and Mesilla Valleys by Coupling Grounded Theory and Geospatial Modeling," Southwest Division, American Association of Geographers Annual Meeting, Baton Rouge, LA, October 2018.

Poster, "Water Use, Delivery and the River: Modeling the Effect of Irrigation on the Rio Grande's Efficiency," UNM GIS Day, Albuquerque, NM, November 2017.

Poster, "Bighorn Sheep Reintroduction in New Mexico: A Selective Habitat and Disease Transmission Model," CNM Advanced Technology Center, 2016.

PROFESSIONAL TRAINING

Seminar or Workshop
UNM Libraries & Data Carpentries
Data Carpentry for Ecological Data 2019

UNM Organization, Information and Learning Sciences (OILS)
Project Data Management Workshop with Dr. Karl Benedict 2018

UNM Health Sciences Center
- Collaborative Institutional Training Initiative (CITI), Group I Biomedical Research Investigator 2018
- Ethics: A Framework for Ethical Decision Making 2018
- Financial Conflicts of Interest Training 2018

Python Scripting for Map Automation, ESRI 2018
Python for Everyone, ESRI 2018
3D Analysis of Surfaces and Features Using ArcGIS, ESRI 2017
Regression Analysis Using ArcGIS, ESRI 2017
Go Deeper with Data Analytics Using ArcGIS Pro and R, ESRI 2017
Building Models for GIS Analysis Using ArcGIS, ESRI 2017
Address Geocoding with ArcGIS, ESRI 2016
Using Raster Data for Site Selection, ESRI 2015
Learning ArcGIS Desktop, ESRI 2015
Creating, Editing and Managing Geodatabases, ESRI 2015

PROFESSIONAL AFFILIATIONS

American Association of Geographers, 2018-Present
Association of Pacific Coast Geographers, 2019-Present
Southwest Division, American Association of Geographers, 2018-Present
New Mexico Geographic Information Council, 2015-Present

PROFESSIONAL SERVICE

Peer Reviewer
Cogent Social Sciences Journal, Taylor & Francis, 2020

Lightning Talk Organizer
GIS Day, University of New Mexico, 2019

Symposium Co-Organizer
GIS Day, University of New Mexico, 2018

Student Association of Geography & Environmental Studies
President, 2017-2018

Central New Mexico Community College GIS Student Organization
Authored official charter grant, 2016

COMPUTER SKILLS

Programming: Python, R, SQL, Matlab, XML

Applications: ESRI ArcGIS Suite, Adobe Creative Suite, Microsoft Office, SPSS, R Studio, Autodesk AutoCad & Civil 3D, Erdas Imagine, TerrSet, ENVI, HEC-RAS, QGIS, PostgreSQL, PostGIS

PRESS INTERVIEWS

"Daniel Beene – University of New Mexico," G[Insight], FH-Kärnten, issue 2018/2019.
"Water use, delivery and the river," UNM Newsroom Front Page, January 29, 2018.