# Benjamin R. Vining

Department of Anthropology University of Arkansas-Fayetteville Old Main 304 Fayetteville, AR 72701 bvining@bu.edu, (cell) 857 207 5838 https://sites.uark.edu/vining/

#### **EDUCATION**

B.A.

Ph.D.	Boston University. Department of Archaeology, 2011. Dissertation: Ruralism, Land
	Use History and Holocene Climate Change in the Suches Highlands, Peru.
M.A.	Boston University. Department of Archaeology, 2005.

## PROFESSIONAL APPOINTMENTS

2016–present	Assistant Professor. Department of Anthropology, University of Arkansas-Fayetteville.
2013–2016	Postdoctoral Researcher. NASA ROSES Space Archaeology Program.
2012–2016	Lecturer. Department of Anthropology, Wellesley College.
2011–2012	Lecturer. Tufts Institute for the Environment, Tufts University.
2006	Research Fellow, Joint Laboratory of Remote Sensing Archaeology, Chinese Academy of Sciences. Beijing.

Colgate University. Anthropology and Geology, 1998.

### **PUBLICATIONS**

### **Books**

Vining, Benjamin. Social Pluralism and Lithic Economy at Cerro Baúl, Peru. BAR International Series 1461. Oxford: Archaeopress.

### Peer-reviewed articles and chapters

- Vining, Benjamin, Byron Steinman, and Mark Abbott. "Palaeoclimatic and archaeological evidence from Lake Suches for highland Andean refugia during the arid middle Holocene," *The Holocene*: 29(2) 328–344. DOI: 10.1177/0959683618810405
- Vining, Benjamin and Sara Burns. "Understanding the ecological decision-making of Tiwanaku pastoralists through geospatial Agent-based models," in *New Geospatial Approaches in Anthropology*, edited by Robert Anemone and Glenn Conroy. Albuquerque: School for Advanced Research Press, pp. 137 170.

Vining, Benjamin, "Cultural Niche Construction and remote sensing of ancient anthropogenic environmental change in the north coast of Peru," *Journal of Archaeological Method and Theory*, 25(2): 559-586. DOI: 10.1007/s10816-017-9346-y

- 2017 Michael E. Moseley, Susan D. deFrance, **Benjamin Vining**. "Droughts, floods, and farming at Quebrada Tacahuay from Late Prehispanic to Colonial times," *Ñawpa Pacha* 37(1): 25-37. DOI: 10.1080/00776297.2017.1324010
- Vining, Benjamin. "Pastoral intensification, social fissioning, and ties to state economies at the Formative Middle Horizon transition in the Lake Suches region, southern Peru," in *The Archaeology of Andean Pastoralism*, edited by José M. Capriles and Nicholas Tripcevich. Albuquerque: University of New Mexico Press, pp. 87 118.
- Vining, Benjamin. "Reconstructions of local resource procurement networks at Cerro Baúl, Peru using multispectral ASTER satellite imagery and geospatial modeling," *Journal of Archaeological Science* 2: 492 506. DOI: 10.1016/j.jasrep.2015.05.001
- Vining, Benjamin. "Más Allá Encuentran los Antiguos: Temporality, Distance, and Instrumentality in Aymara Interactions with Archaeological Landscapes," *Cambridge Archaeological Journal.* 25(1): 239 259. DOI: 10.1017/S0959774314001073
- 2010 Stanish, Charles, Edmundo de la Vega, Michael Moseley, Ryan Williams, Cecilia Chávez, **Benjamin Vining**, and Karl La Favre. "Tiwanaku Trade Patterns in Southern Peru," *Journal of Anthropological Archaeology* 29(4): 524–532. <u>DOI: 10.1016/j.jaa.2010.09.002</u>
- Creasman, Paul, **Benjamin Vining**, Samuel Koepnick, and Noreen Doyle. "An Exploratory Geophysical Survey at the Pyramid Complex of Senwosret III at Dahshur, Egypt, in Search of Boats". *International Journal of Nautical Archaeology* 38: 386–399. DOI:10.1111/j.1095-9270.2008.00214.x
- Vining, Benjamin and James Wiseman. "Multispectral and SAR remote sensing-based models for Holocene coastline development in the Ambracian Gulf, Epirus, Greece."

  Archaeological Prospection 13: 258–268. DOI: 10.1002/arp.292
- Aveni, Anthony F., Anne S. Dowd and **Benjamin Vining**. "Maya Calender Reform? Evidence from Orientations of Specialized Architectural Assemblages," *Latin American Antiquity* 14(2): 159–178. DOI: 10.2307/3557593

### Book and monograph chapters

2018 Christopher P. Dayton, Patrick Ryan Williams, **Benjamin R. Vining**, and Scott C. Smith. "Geophysical Investigations at Khonkho Wankane," in Khonkho Wankane: Archaeological Investigations in Jesus de Machaca, Bolivia, John W. Janusek, ed. Berkeley: Contributions of the Archaeological Research Facility, Number 68. pp. 57 – 64.

Vining, Benjamin. "Geophysical Surveys at Tanah Datar," in *Tanah Datar: Early Settlement Archaeology and History in the Highlands of Sumatra, Indonesia*, Mai Lin Tjoa-Bonatz, editor. ISEAS—Yusof Ishak Institute, Singapore, pp.

Vining, Benjamin. "Geophysical Survey," in *Harbor of the Pharaohs to the Land of Punt:*Archaeological Investigations at Mersa/Wadi Gawasis, Egypt, 2001 – 2005, Kathryn Bard and Rudolpho Fattocich, editors. Università Degli Studi de Napoli "L'Orientale," Naples, Italy, pp. 77–90.

## Conference proceedings

- E. Edwards McKinnon, **Benjamin Vining**, Naniek Harkantiningsih Wibisono, Heddy Surachman, Sarjiyanto, Stanov Purnawibowo, and Lim Chen Sian. "The Kota Rentang Excavations." *Crossing States and Empire. Proceedings of the EurASEAA13 Conference. vol. 2.*, Singapore, pp. 67-81.
- Vining, Benjamin, Patrick Ryan Williams, Deborah Blom, and Nicole Couture. "Hacia una imagen del espacio social en Tiwanaku: Perspectivas por medio de métodos geofísicos en el Altiplano boliviano." *Arqueología de las Tierras Atlas, Valles Interandinos, y Tierras Bajas de Bolivia: Memorias del I Congreso de Arqueología de Bolivia.* Universidad Mayor de San Andrés, La Paz, Bolivia, pp. 63–76.
- Williams, P. Ryan., Nicole Couture, Deborah Blom, John Janusek, **Benjamin Vining**, and Chris Dayton. "Ground-Based Remote Sensing and Early State Development in the South-Central Andes." *Proceedings of the International Conference on Remote Sensing Archaeology*. Joint Laboratory of Remote Sensing Archaeology, Chinese Academy of Sciences, Beijing, pp 149–157.

### **Book Reviews**

Vining, Benjamin. Book Review of "Archaeological Research on the Islands of the Sun and Moon, Lake Titicaca, Bolivia: Final Results from the Proyecto Tiksi Kjarka," *Journal of Field Archaeology* 30(4): 362–365.

## **GRANTS, FELLOWSHIPS and ACADEMIC HONORS** (awards to date totaling \$440,352)

- NSF-Archaeology, BCS-1848699. "Collaborative Research: Coupling and Cohesion as factors affecting vulnerability to abrupt climatic change: A theoretical model and its application to prehispanic agroecology in Peru". Principal Investigator. (\$221,821 total award).
- 2018 National Geographic Society, "Tiwanaku Pastoralism and Economy in Far Southern Peru: Creating a Strontium Baseline and Isoscape to Aid Archaeological Research". NGS-14017 (co-PI, \$22,300 total award).
- Sandra and Robert C. Connor Endowed Faculty Fellowship. University of Arkansas. (\$5000).

2017	Faculty Travel Grant. Fulbright College of the University of Arkansas-Fayetteville. (\$1000).
2017	Faculty Travel Grant. Fulbright College of the University of Arkansas-Fayetteville. (\$1000).
2013–2016	NASA ROSES Space Archaeology Program. Postdoctoral Researcher. (\$41,212 annually).
2012–present	Research Associate. Department of Anthropology, The Field Museum of Natural History, Chicago.
2010	Cora Du Bois Dissertation Writing Fellowship. Tozzer Library of Harvard University and the Cora Du Bois Charitable Trust. (\$5,000).
2010	Boston University Graduate School of Arts and Sciences Dean's Fellowship.
2009	National Science Foundation-SBE. BCS 0900904, Doctoral Dissertation Improvement Grant (\$14,995).
2009	Douglas C. Kellogg Award for Geoarchaeological Research. Society for American Archaeology. (\$500).
2007	Graduate Research Abroad Fellowship, Boston University. (\$10,000).
2003–2007	Teaching Fellowships, Boston University. (totaling \$24,000).
2006	National Science Foundation-EAPSI grant number 0611686. (\$3,000 plus expenses).
2006	Research Assistantship, Xibun Archaeological Research Project. Boston University. (\$8,000).
2005	Creighton Gabel Memorial Scholarship, Boston University. (\$400).
2005	Sackler Scholarship, Raymond and Beverly Sackler Foundation. (\$500).
2004, 2011	GSO Conference Travel Grant, Boston University. (totaling \$1,000).
2003	CCC Research Fellowship, The Field Museum of Natural History. (\$2,500).
2002–2003	Editorial Fellow, Journal of Field Archaeology, Boston University. (\$16,000).

# **INVITED TALKS**

Vining, Benjamin. "Archaeological perspectives on adapting to climate change: two examples from ancient Peru," meeting of the Arkansas Archaeological Society, March 13, 2019.

Vining, Benjamin. "Catastrophe and opportunity during el Niño disasters: using archaeology and paleoclimatology to find lessons for the future in abrupt climatic events," Department of Anthropology, Washington University at St. Louis. March 8, 2019.

- Vining, Benjamin. "Integrating archaeology, remote sensing, and paleolimnology to understand the ecological effects of Andean climate change, past and future," First International Workshop on Paleoclimate, Water Use and Environmental Phenomena in Ancient Peru and Their Contemporary Impacts, Newton Fund and the Universidad Nacional de Trujillo.
- Vining, Benjamin. "el Niño's Destruction: perspectives from integrated archaeology, remote sensing and paleoclimate proxies on ENSO disaster and mitigation in northern Peru," GEOS Colloquium Series, Department of Geosciences, University of Arkansas.
- Vining, Benjamin. "Cultural Niche Construction and remote sensing of ancient anthropogenic environmental change in the north coast of Peru," presented at the Advanced Seminar "New Geospatial Approaches in Anthropology," School for Advanced Research. Santa Fe, NM.
- 2014 "Prehistory by the Numbers: Remote Sensing and Quantitative Models of Socio-Environmental Dynamics in Southern Peru," Celebrating QR Connections, Wellesley College. November 19, 2014.
- 2014 "Archaeology, water, and climate in Suches, Peru: socio-ecological histories and environmental mutualism" University of Connecticut, Storrs. October 5, 2014.
- 2014 "Where the wild things aren't: human niche-construction, climate, and anthropogenic environmental networks in Peru's southern highlands," Harvard University and the Peabody Museum of Archaeology. March 27, 2014.
- 2012 "Rural Land Use and Holocene Climate Reconstructions in the Southern Peruvian Highlands," University of Maine-Orono, Anthropology and Climate Change Institute. April 16, 2012.
- 2010 Lithic Technology and Analysis. Department of Anthropology, University of Massachusetts-Boston. October 15, 2010.
- "Geospatial approaches to reconstructing social structure and resource use at the archaeological site of Cerro Baúl, Peru," Institute of Archaeology, Chinese Academy of Social Sciences, Beijing. July 20, 2006.

## **CONFERENCE PAPERS (selected)**

2019 Vining, Benjamin. "Identifying Refugial Areas during abrupt and protracted climate change using archaeological, paleoclimatic, and geospatial data." 25<sup>th</sup> Annual Meeting of the European Archaeological Association, Bern, Switzerland.

Goodin, John, Aubrey Hillman, and Ben Vining. "The Spatial and Temporal Distribution of Metalworking within Northern Peru," Annual Meeting of the Geological Society of America. Pheonix, AZ.

- Vining, Benjamin and Seth Price "Marginality and opportunity in the deserts of Chicama, Peru: perspectives from integrated archaeology, remote sensing, and paleoclimatic analysis." 84<sup>th</sup> Annual meeting of the Society for American Archaeology, Albuquerque, NM.
- Vining, Benjamin. "Past and future responses to el Niño Southern Oscillation in Peru's Chicama Valley: mapping disaster and mitigation with archaeology and remote sensing," 24<sup>th</sup> Annual Meeting of the European Association of Archaeologists, Barcelona, Spain.
- Vining, Benjamin. "Detecting el Niño: remote sensing of recent ENSO events in Northern Peru and implications for prehispanic societies." 83<sup>rd</sup> Annual Meeting of the Society for American Archaeology, Washington, D.C.
- Vining, Benjamin. "Disaster's Reach: Remote sensing of environmental change caused by the 2017 el Niño and their implications for prehispanic agriculture in Peru's Chicama Valley." 46th Annual Midwest Conference on Andean and Amazonian Archaeology and Ethnohistory, Chicago, IL.
- Vining, Benjamin. "Remote Sensing of archaeological environmental change in the Chicama Valley." 82<sup>nd</sup> Annual Meeting for the Society for American, Archaeology, Vancouver, BC.
- Vining, Benjamin. "Wetlands, Sugar, and Archaeological Remote Sensing: legacy effects of ancient land use on modern vegetation and environmental function." Anthropology, Weather and Climate Conference, Royal Anthropological Institute and the British Museum. London, UK.
- Vining, Benjamin. "Detection of latent archaeological landscapes in the intensively cultivated Chicama Valley (Peru) through high resolution, multispectral remote sensing." 34<sup>th</sup> Annual Meeting of the Northeast Conference on Andean Archaeology and Ethnohistory, University of Toronto.
- Vining, Benjamin, Tom Sever, Rob Griffen, and Bill Saturno. "A clearer sense of self: landscape-scale remote sensing of human impacts during the Anthropocene." 5<sup>th</sup> International Conference on Remote Sensing in Archaeology, Duke University, NC.
- Saturno, Bill and Benjamin Vining. "More than meets the eye: Examining the spectral response of sugar cane to subsurface features." 79<sup>th</sup> Annual Meeting of the Society for American Archaeology, Austin, TX.

Vining, Benjamin and Bill Saturno. "Multispectral satellite remote sensing of latent archaeological landscapes in the Chicama Valley, Peru." 54<sup>th</sup> Annual Meeting of the Institute of Andean Studies, UC Berkeley, CA.

- Vining, Benjamin. "Climate Change and Long Term Rural Land use in Southern Peru: Archaeological, Palaeoenvironmental, and Policy Perspectives on the importance of Rural Environmental Services." 112<sup>th</sup> Annual Meeting of the American Anthropological Association. Chicago, IL.
- Vining, Benjamin. "Condiciones de Refugio Climático y ocupación arqueológica continua en la cuenca del Lago Suches, Moquegua, Perú durante el Holoceno, 13.600 años al presente." VIII Simposio Internacional de Arqueología PUCP: 15.000 años de clima y hombre en los Andes centrales: enfoques paleoclimatológicos y arqueológicos". Pontifica Universidad la Católica, Lima, Perú.
- Vining, Benjamin. "'Persistent Places': Long-term occupations in the southern Peruvian highlands and their role in cultural landscape formation." Fryxel Symposium in Honor of Anthony Aveni, 78<sup>th</sup> Annual Meeting of the Society for American Archaeology. Honolulu, HI.
- Vining, Benjamin. "Pastoral Intensification, Social Fissioning, and Ties to State Economies at the Formative Middle Horizon Transition in the Lake Suches Basin, Peru." 111<sup>th</sup> Annual Meeting of the American Anthropological Association. San Francisco, CA.
- Williams, Patrick Ryan and Benjamin Vining. "Crossing the Western Altiplano: Tiwanaku Routes, Pasture, and Camelid Transport." 111<sup>th</sup> Annual Meeting of the American Anthropological Association. San Francisco, CA.
- Vining, Benjamin. "Systems-scale, change thresholds, and stability in the settlement and climatic history of the Lake Suches Highlands, Peru." 77<sup>th</sup> Annual Meeting of the Society for American Archaeology. Memphis, TN.
- Vining, Benjamin. "The Development of Rural Societies in the Lake Suches Highlands of Southern Peru." 40<sup>th</sup> Annual Midwest Conference on Andean and Amazonian Archaeology and Ethnohistory. Chicago, IL.
- Vining, Benjamin. "Refugia-effects and stability in small-scale systems: implications of new archaeological survey and palaeoclimate data from *el Proyecto Arqueologico Lago Suches*," 30<sup>th</sup> Annual Northeast Conference on Andean Archaeology and Ethnohistory. Andover, MA.
- Vining, Benjamin and Chris Roosevelt. "Geophysical and Microtopographical Survey at Kaymakçı, a Regional Capital of the Second Millennium BCE," 73<sup>th</sup> Annual Meeting of the Society for American Archaeology, Vancouver, British Colombia.

Vining, Benjamin. "Teledetección a base de plataforma alta de recursos geoarqueológicos en la Zona Arqueológica de Cerro Baúl." Simposio Internacional Sobre Arqueología del Área Centro Sur Andina. Universidad Católica de Santa María, Arequipa, Perú.

- Vining, Benjamin, Carol A. Stein, and James Wiseman. "Tracing landscape evolution in the Ambracian Gulf, Greece: Results from integrated geoarchaeological and satellite remote sensing data." Remote sensing and environmental modeling in alluvial landscapes, 11<sup>th</sup> Annual Meeting of the European Association of Archaeologists, Cork, Ireland.
- Vining, Benjamin. "Lithic materials and social contexts at the Middle Horizon Huari site of Cerro Baúl, Peru." Production and Consumption on the Wari-Tiwanaku Frontier, 69<sup>th</sup> Annual Meeting of the Society for American Archaeology, Montreal, Quebec.
- Vining, Benjamin, Ryan Williams, Chris Dayton, Nicole Couture, Deborah Blom, and John Janusek. "Imaginando yacimientos arqueológicos en el Altiplano Boliviano: Prospecciones geofísicos en Mollo Kontu, Tiwanaku y Khonko Wankane." el Primer Congreso de Arqueología y Etnología Andina. Universidad Pontifica La Católica, La Paz, Bolivia.

#### **TEACHING POSITIONS**

## University of Arkansas-Fayetteville, Department of Anthropology. Assistant Professor.

Courses: Society and Environment; Ecological Anthropology; Landscape Archaeology; Latin American Archaeology; Introduction to Archaeology, Approaches to Archaeology

#### Wellesley College, Department of Anthropology. Visiting Lecturer.

Courses: Archaeology of Environmental Change; Introduction to Archaeology; Politics and Ritual of Ancient South America; Mapping Society, Public Health, and the Environment: GIS approaches

### Tufts University, Environmental Studies. Lecturer.

Introduction to Geographic Information Systems

## Boston University. Department of Archaeology. Lecturer.

Great Discoveries in Archaeology

### Boston University, Department of Archaeology. Teaching Assistant.

Courses: Archaeological Sciences; Great Discoveries in Archaeology; Introduction to Archaeology; Remote Sensing and Archaeology

# ARCHAEOLOGICAL AND REMOTE SENSING PROJECTS (selected)

2016 – present	t Principal Investigator: "Climate and agroecological change in the Chicama Valley of Northern Peru, ca. 3000 – 600 years BP". Integrated paleoclimatic and ecological modeling.
2013–2016	Project Lead. NASA ROSES Space Archaeology Program.  "An Archaeological Investigation into the Northern Peruvian Desert Region Using Landsat, Hyperion, Advanced Land Imager (ALI), and ASTER Data."
2009 – 2014	Principal Investigator, "el Proyecto Arqueológico Lago Suches. Huaytire, Peru. Pedestrian survey, multispectral remote sensing, and palaeoclimate reconstruction.
2010, 2016	Topographic and Geophysical Survey, Xultun Regional Archaeological Project. Peten, Guatemala. William Saturno, Director (Boston University).
2011	Geophysical Surveys at Adam Park and Pine Grove, Singapore. Lim Chen Sian, Director (National University of Singapore).
2011	Geophysical Survey at Bukit Gombak, West Sumatra, Indonesia. Domink Bonatz, Director (Institut für Vorderasiatische Archäologie, Freie Universität Berlin).
2007 – 2011	Director of Geophysical Survey. Central Lydia Archaeological Survey, Chris Roosevelt, Director (Boston University). Sart, Turkey.
2008	Geophysical Survey at Roman bath complex. Ilidza, Bosnia, Christine Zitrides Atiyeh, Director (Kutztown University).
2008	Geophysical Survey and excavations at Pulau Majapahit, Kota Rentang, Indonesia. National University of Singapore, and Institute of Archaeology (Jakarta), Edmunds McKinnon, Director.
2008	Geophysical Survey at the Wakefield Estate, Milton, Massachusetts. Mary Beaudry, Director (Boston University).
2007	Geophysical survey at Senwosret III pyramid compound. Dahshur, Egypt. Dieter Arnold, Director (Metropolitan Museum of Art).
2007	Geophysical survey at Wits Cah Ak'al. Hattieville, Belize. Patricia McAnany, Director (Boston University).
2006 – 2007	Research Assistant, Xibun Archaeological Research Project. Boston University. Construction of GIS database for regional archaeological settlement analysis.
2006, 2007	Geophysical survey at Mersa/Wadi Gawasis. Safaga, Egypt. Rudolpho Fattovich (Università Degli Studi de Napoli "L'Orientale) and Kathryn Bard (Boston University), Directors.

2006	Field Director, Pedestrian surface survey for "el Proyecto Arqueológico Qawra Thaki". Huaytire, Peru. Charles Stanish (UCLA) and P. Ryan Williams (Field Museum of Natural History), Directors.
2006	Geophysical survey at Menkaure Valley Temple, Khentkawe Lower Town, and Khafre Valley Temple. Giza, Egypt. Giza Plateau Mapping Project, Mark Lehner, Director.
2005	Research Associate. Center for Archaeological Studies, Boston University. Multispectral and radar remote sensing to detect relict coastlines and model landscape evolution, Epirus, Greece.
2001 – 2005	GIS and Image Analyst. Center for Remote Sensing, Boston University. GIS and multispectral image analysis for natural resources inventory projects.
2004	Geophysical survey at Lianchengzhen, China. P. Ryan Williams and Anne Underhill, Directors (Field Museum of Natural History).
2004	Geophysical survey at Tiwanaku and Konkho Wankane (Jesús de Machaca), Bolivia. P. Ryan Williams and John Janusek, Directors.
2002 – 2004	Excavation supervisor and lithics analyst. Excavations at Cerro Baúl. P. Ryan Williams, Director (Field Museum of Natural History). Moquegua, Peru.

### **ACADEMIC SERVICE**

### **Peer Review**

Manuscript reviews: Journal of Archaeological Science; Journal of Archaeological Research; Latin American Antiquity; Remote Sensing, Sustainability; Geosciences, American Anthropologist; Archaeological Prospection; Historical Archaeology

2014-present National Science Foundation: SBE (Archaeology) ad hoc review; EAPSI-SBE Proposal Review Panel.

2014–present Member, Advisory Board for Research Evaluation, Office of the Vice President of Research, *Pontifica Universidad la Catolica*, Lima, Perú

## Conference/Symposia Organizer

2019 - present Program Chair, Institute of Andean Studies Annual Meeting.

2017 "Landscapes of Change: Integrated Socio-ecological histories in the Chicama Valley, Peru," organized with Jeff Quilter and Ari Carimanica, 82<sup>nd</sup> Annual Meeting of the Society for American Archaeology, Vancouver, BC.

## Internal and National Committees

2015 – present Society for American Archaeology Climate Change Strategies and Archaeological Resources Committee (SAA-CCSAR)

2018 - present Undergraduate Student Committee, Department of Anthropology

2016 – 2018 Committee for Diversity and Inclusion, Department of Anthropology

2004 – 2011 Administrator, Geographic Information Systems and Remote Sensing Committee. Department of Archaeology, Boston University.

## **Academic Advising**

#### Advisees:

Sam Martin, Ph.D. in Anthropology, University of Arkansas (2018-present).

Hali Thurber, Ph.D. in Anthropology, University of Arkansas (2017-2018).

Seth Price, Ph.D. and M.A. in Anthropology, University of Arkansas (2016-present).

Mitra Panahipour, Ph.D. in Anthropology, University of Arkansas (2016-present).

#### Committees:

Marc Marino, Ph.D. in Anthropology, University of Arkansas (2017 – present)

Kyle Urqhart, Ph.D. in Anthropology, University of Arkansas (2017 – present)

Jacob Schider, Ph.D. in Anthropology, University of Arkansas (2017 – present)

Jeremy Menzer, Ph.D. in Environmental Dynamics, University of Arkansas (2016-present).

Caleb Ward, M.A. in Anthropology, University of Arkansas (2016-2018).

Forest Follett, M.A. in Anthropology and Classics, University of Arkansas (2016-present).

Christopher Motz, M.A. in Classics and Archaeology, Tufts University (2012).

## PROFESSIONAL MEMBERSHIPS and AFFILIATIONS

2013 – present Institute for Andean Studies

2011 – 2014 American Anthropological Association

2005 – present Register of Professional Archaeologists

2003 – present Society for American Archaeology

#### SPECIALITIES AND SKILLS

Multispectral and SAR/radar remote sensing image-analysis. Image processing using Research Systems, Inc. ENVI (v. 4-5); ERDAS Imagine.

**Geographic Information Systems (GIS)** methods applied to settlement, ecology, and Agent-based modeling. GIS database construction and analysis. Software Packages: ESRI ArcGIS (v. 9 – 10.2, including earlier Arcview (v. 3.2 – 10) and ArcInfo suites); Agent Analyst; Golden Surfer.

Spatial Ecology Modeling: Geospatial Modeling Environment; MaxEnt; NetLogo.

**Surveying/mapping** using total stations (Topcon and Sokkia EDM's) and Global Positioning Systems (Topcon HiPerLite+ Real-Time Kinematic GPS, Trimble GEO-series and Garmin handheld GPS with mobile GIS).

**Near-Surface geophysical survey**: Magnetometry (Geometrics G-858 and GEM-19 overhauser magnetometers); Electromagnetic Induction (Geonics EM38 and EM31); Groundpenetrating Radar (GSSI SIR-2000/3000 and RAMAC systems); Electrical Resistivity (TRSystems Twin Probe Array).

Statistical analysis using SPSS PSAW, Systat packages. R. Basic knowledge of Matlab.

#### **LANGUAGES**

English: Native speaker.

Spanish: Written and spoken fluency.

#### REFERENCES

Dan Sandweiss

Professor

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Orono, Maine 04469-5773 USA

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Patrick Ryan Williams

Associate Curator and Chair,

Department of Anthropology, Field Museum of Natural History

Lake Shore Drive, Chicago, IL, 60605-2496

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Mark Abbott

Professor

Department of Geology and Environmental Science, University of Pittsburgh

315 SRCC

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Ram Natarajan

Assistant Professor

Department of Anthropology, University of Arkansas

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