Chris J. Ploetz

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RESEARCH PROFILE

Geospatial geoarchaeologist studying ancient, engineered landscapes, environmental legacies, and human-environment interaction in the Maya lowlands. My research integrates lidar, UAV mapping, GIS, 3D modeling, excavation, coring, soils, and paleoenvironmental reconstruction to examine how communities transformed tropical landscapes over time.

RESEARCH INTERESTS

Ancient, engineered landscapes; Maya archaeology; geospatial archaeology; lidar and drone mapping; geoarchaeology; human-environment interaction; paleoenvironmental reconstruction; settlement patterns; environmental remote sensing; digital heritage and visualization.

EDUCATION

2027 (expected**)**	Ph.D., Geography and the Environment, The University of Texas at Austin.
	Dissertation focus: integrated geospatial, geoarchaeological, and paleoenvironmental approaches to ancient Maya landscapes.
2011	M.S., Geography, The University of Georgia.
2007	B.S., Geography, cum laude, Auburn University.
2007	B.A., Anthropology, cum laude, Auburn University.

ACADEMIC APPOINTMENTS AND EMPLOYMENT

2027	Anticipated Instructor of Record, GRG 373F: Field Techniques, The University of Texas at Austin.
2026	Instructor of Record, GRG 401C: The Natural Environment, The University of Texas at Austin.
2025-2026	Teaching Assistant, The University of Texas at Austin. Courses: The Healthy, Livable City; Sustainable Development; Digital Earth.
2024-2025	Graduate Research Assistant, Beach-Butzer Geoarchaeology Lab, The University of Texas at Austin.
2021-2024	Graduate Research Assistant, Spatial and Environmental Archaeology Lab / Dr. Amy E. Thompson, The University of Texas at Austin. Projects included 3D tunnel modeling for the Early Copan Acropolis Program; settlement digitizing for ancient inequality research; Uxbenka Archaeological Project survey digitization; and TRAILS pedestrian survey digitization.
2023	Teaching Assistant, The University of Texas at Austin. Courses: The Natural Environment; Lidar Analysis.
2018-2021	Field Lead, NAVFAC lidar survey contract, Optimal GEO, Huntsville, Alabama.
2016-2017	Team Lead, NASA DEVELOP. Projects: Mississippi flood mapping with FEMA; Alabama drought mapping with USDA.
2012-2014	Assistant Language Teacher, Japan Exchange and Teaching (JET) Program, Nagasaki, Japan.
2011-2012	Geospatial Analyst, National Geospatial-Intelligence Agency, Springfield, Virginia.

PUBLICATIONS

Peer-Reviewed Publications and Proceedings

2023 Thompson, A.E., L.J. Kosakowsky, and C.J. Ploetz. (Re)Building chronologies and spheres of interaction in southern Belize: Excavations from Ek Xux, Muklebal Tzul, and Ix Kuku'il. Research Reports in Belizean Archaeology 18:385-396.

Other Publications

2023 Ploetz, C.J. Readers of the Lost Artifacts: The Heaven's Vault Video Game. *Advances in Archaeological Practice* 11(4):461-464. https://doi.org/10.1017/aap.2023.28

Manuscripts in Preparation

In prep. Ploetz, C.J., A.E. Thompson, L.P. Traxler, R. Wood, and W. Fash. Digital Dig Kits: iPhone Lidar for Advancing Accessible Archaeology. Manuscript in preparation for *Advances in Archaeological Practice*.

In prep. Ploetz, C.J., A.E. Thompson, M. D. Willis J. Fernandez-Diaz, B.A. Houk. Assessing Airborne and Drone lidar for Archaeological Prospection: A Workflow-Based Comparison Across Vegetation and Management Contexts in the Maya Lowlands. Manuscript in preparation for *Archaeological Prospection*.

In prep. Ploetz, C.J., A.E. Thompson, B.A Houk, T. Beach, S. Luzzadder-Beach, J. Dalton, and F. Valdez. Building and rebuilding at the water's edge: lidar-guided excavation and chronology building at Laguna Seca in northwestern Belize. Manuscript in preparation for *Journal of Field Archaeology*.

In prep. Ploetz, C.J., A.E. Thompson, M. Robinson, K. M. Prufer. Hold the Phone: An iPhone lidar workflow from field capture to printable 3D model for a fragile excavated ceramic vessel. Manuscript in preparation for *Digital Applications in Archaeology and Cultural Heritage*.

In prep. Ploetz, C.J., A. E. Thompson. Combining airborne lidar, Sentinel-2, and GEDI to map 2024 fire severity and biomass exposure in southern Belize. Manuscript in preparation for *Remote Sensing of Environment*.

CURRENT RESEARCH PROJECTS

Ancient Engineered Landscapes

Laguna Seca, Belize spring dam, reservoir, and peninsula connection: ancient water management and civic landscape engineering in northwestern Belize.

Booth's River, Belize canal coring and dating: chronology, hydrology, and built landscape modification.

Southern Belize GPR, targeted excavation, and volumetric fill/energetics: integrating geophysics, excavation controls, terrain modeling, and labor estimates.

Environmental Legacies

Laguna Verde, Belize lake core: paleolimnology, climate/environmental history, and long-term land-use context.

Río Azul, Guatemala desert/soil degradation/archaeology: assessing possible human-driven environmental transformation.

Wamil, Belize wetland comparison: wetland formation, land use, and environmental change in Maya landscapes.

Southern Belize vegetation regrowth fire/mulching experiment: remote sensing of post-fire recovery and land-cover change.

Digital Geospatial Heritage

Comparing drone and traditional airborne lidar for archaeological terrain modeling in Belize.

Sarstoon, Belize and "empty" areas lidar article: negative space, survey expectations, and monumental-site bias in lidar-based archaeology.

Drone lidar, TLS, hyperspectral/multispectral data, botanical surveys, VR, and 3D printing for digital twins and landscape legacies.

TECHNICAL REPORTS

2026 Ploetz, C. J., and C. Morales-Aguilar. Bathymetric mapping at Dos Lagunas, Guatemala. In Research Reports from the Río Azul Regional Archaeological Project: A Report of the 2026 Field Season, edited by C. Morales-Aguilar and C. Leal, pp. [xx–xx]. Report to [institution/agency].

2025 Ploetz, C. J., and J. Dalton. Excavations at the "Not-So-Seca" Laguna Seca: Chronology Building and Environmental Interpretation. In The 2025 Season of the Belize Estates Archaeological Survey Team, edited by B. A. Houk, pp. 157–176. Papers of the Chan Chich Archaeological Project, Number 18. Department of Sociology, Anthropology, and Social Work, Texas Tech University, Lubbock.

2025 Thompson, A. E., J. P. Walden, and C. J. Ploetz. Hinterland household excavations in the river valleys of the Maya Mountains. In Research on the Origins and Organization of Tropical Societies (ROOTS): Report of the 2024 Field Season, edited by N. Neff, A. E. Thompson, M. Robinson, and K. M. Prufer, pp. 22–35. Report prepared for the Belizean Institute of Archaeology, Forest Department, and National Biodiversity Office, Government of Belize; Ya'axché Conservation Trust.

2024 Neff, N. C., M. Robinson, A. E. Thompson, C. J. Ploetz, and K. M. Prufer. Bladen Paleoindian and Archaic Archaeological Project and Uxbenká Archaeological Project. Edited by K. M. Prufer. Report for the Belizean Institute of Archaeology, Government of Belize, National Institute of Culture and History, Forest Department and National Biodiversity Office, Belize; Ya'axché Conservation Trust.

2024 C. J., M. Warner, and A. E. Thompson. Excavations at Uxbentun Plazuela 1. In Toledo Regional Archaeology and Inequality Lidar Survey (TRAILS): Report of the 2023 Field Season, edited by A. E. Thompson, pp. 27–36. Report to the Institute of Archaeology, Government of Belize, and National Science Foundation.

2023 Thompson, A. E., and C. J. Ploetz. Plaza excavations at Group 1, Muklebal Tzul. In The Bladen Paleoindian and Archaic Project (BPAAP): Report of the 2022 Field Season, edited by K. M. Prufer, A. E. Thompson, and E. E. Ray, pp. 34–41. Report to the Institute of Archaeology, Government of Belize; Ya'axché Conservation Trust; National Science Foundation; and Alphawood Foundation.

2023 Ploetz, C. J., and A. E. Thompson. A lidar-based cave survey. In The Bladen Paleoindian and Archaic Project (BPAAP): Report of the 2022 Field Season, edited by K. M. Prufer, A. E. Thompson, and E. E. Ray, pp. 42–50. Report to the Institute of Archaeology, Government of Belize; Ya'axché Conservation Trust; National Science Foundation; and Alphawood Foundation.

2022 Thompson, A. E., and C. J. Ploetz. Plaza excavations at East Group, Ek Xux. In The Bladen Paleoindian and Archaic Project (BPAAP): Report of the 2022 Field Season, edited by K. M. Prufer, A. E. Thompson, and E. E. Ray, pp. 20–33. Report to the Institute of Archaeology, Government of Belize; Ya'axché Conservation Trust; National Science Foundation; and Alphawood Foundation.

2022 Thompson, A. E., and C. J. Ploetz. Plaza excavations at Group A, Ix Kuku'il. In The Uxbenká Archaeological Project: Report of the 2022 Field Season, edited by [editor name(s)], pp. [xx–xx]. Report to the Belizean Institute of Archaeology, Government of Belize.

GRANTS, FELLOWSHIPS, AWARDS, AND HONORS

Research Grants and Fellowships

2026 University of Texas Department of Geography Beach-Butzer Labs Travel Award ($1,500).
2025 GSA Continental Scientific Drilling Division ($3,000)
2025 University of Texas Teresa Lozano Long Institute of Latin American Studies Seed Grant, ($10,000).
2025 University of Texas Libraries Scholars Lab Fellowship ($5,000)
2025 Carl J. and Tamara M. Tricoli Endowed Fellowship ($1,000).
2024 University of Texas Scholars Lab Fellowship ($3,000).
2023 University of Texas Department of Geography Beach-Butzer Labs Travel Award ($1,000).
2022 University of Texas Department of Geography Karl Butzer Award ($1,200).
2007 Auburn University Undergraduate Fellowship ($1,700).
2003-2006 Hap Arnold Scholarship, annual award ($2,000).

Academic Awards and Honors

2023 Third Place, UT GIS Day Poster Competition.
2007 David Icenogle Award for Outstanding Senior in Geography, Auburn University.
2007 Third Place, GIS of Alabama Poster Competition.

SCHOLARLY PRESENTATIONS

2026 Ploetz, C.J., and A.E. Thompson. Pyrogeography in Southern Belize: Quantifying Biomass Loss Through the Integration of lidar Point Clouds and Satellite Imagery for Burn Detection and Land Cover Change. Paper to be presented in the As the World Burns 6: Pyrogeography in the Physical Environment session, AAG Annual Meeting, San Francisco, CA.

2026 Ploetz, C.J. Hold the Phone: iPhone lidar and 3D printing for digital conservation. Paper presented at the UT Austin Antiquities Action 7th Annual Symposium, Heritage Futures, Department of Art and Art History, The University of Texas at Austin.

2025 Ploetz, C.J. Comparing Drone and Traditional Airborne Lidar at Gallon Jug, Belize: Assessing Visibility, Resolution, and Terrain Modeling for Archaeology. University of Texas Library Scholars Lab Fellows Presentation.

2025 Ploetz, C.J., T. Beach, A.E. Thompson, S. Luzzadder-Beach, and B.A. Houk. Interdisciplinary Perspectives on Wetland Dynamics: Investigating Human-Environment Interactions in Ancient Maya Wetlands in Northwestern Belize. Paper presented at the 90th Annual Meeting of the Society for American Archaeology.

2024 Ploetz, C.J., T. Beach, A.E. Thompson, S. Luzzadder-Beach, and B.A. Houk. Integrating iPhone Lidar with Airborne Lidar and Multiproxy Evidence to Investigate Wetland-Human Interactions in the Periphery of Sierra de Agua, Belize. Virtual paper presented at the AAG Annual Meeting.

2023 Thompson, A.E., H. Richards-Rissetto, F. Estrada-Belli, M. Canuto, C.J. Ploetz, and B.A. Houk. Mapping and Modeling Ancient Maya Settlements in Northwestern Belize with Remote Sensing and Lidar. Paper presented at the XXI INQUA Congress, Rome, Italy.

2023 Ploetz, C.J., A.E. Thompson, R.L. Wood, L.P. Traxler, and W. Fash. Digital Dig Kits: Portable Affordable Archaeology for 21st-Century Fieldwork. Poster presented at the 88th Annual Meeting of the Society for American Archaeology.

2023 Traxler, L.P., R. Agurcia Fasquelle, W.L. Fash, A.E. Thompson, and C.J. Ploetz. Documenting Archaeological Tunnels within the Copan Acropolis - Part 1: Advances in Architectural and Geospatial Recording for Conservation. Paper presented at the 88th Annual Meeting of the Society for American Archaeology.

2022 Ploetz, C.J., A.E. Thompson, and K.M. Prufer. Identifying Caves in Southern Belize using Lidar-Derived Terrain Models and Multispectral Imagery. Virtual poster presented at the AAG Annual Meeting.

2010 Ploetz, C.J. Paleoenvironmental History of Otjimaruru Pan, Namibia Derived from OSL Dating of Lunette and Linear Dune Sediments. Poster presented at the AAG Annual Meeting.

2007 Ploetz, C.J. Geomorphologic Impact of Hurricanes Ivan and Katrina on Dauphin Island. Poster presented at the GIS of Alabama Conference.

FIELD EXPERIENCE

2026 Rio Azul Regional Archaeological Project, Río Azul, Guatemala. Preliminary bathymetric mapping at Dos Lagunas and terrestrial lidar mapping at Rio Azul. Principal Investigator Carlos Morales-Aguilar

2025 Belize Estates Archaeological Survey Team (BEAST), Orange Walk, Belize. Excavations at Laguna Seca. Principal Investigator: Brett A. Houk.

2025 Laguna Verde and Laguna Seca Paleoenvironmental Reconstruction Project, Orange Walk, Belize. Sediment coring at Laguna Verde and Laguna Seca. Principal Investigator: Chris J. Ploetz.

2023-24 Toledo Regional Archaeology and Inequality Lidar Survey (TRAILS), Toledo, Belize. Excavation supervisor at Lubaantun; pedestrian survey and mapping of Classic Maya settlements. Principal Investigator: Amy E. Thompson.

2024 Bladen Legacy Archaeological Project, Toledo, Belize. Household excavations at Ek Xux; artifact cataloging and soil sample collection. Principal Investigators: Keith M. Prufer and Mark Robinson.

2022-24 Uxbenká Archaeological Project, Toledo, Belize. Excavation, artifact cataloguing, pedestrian survey, and mapping at Ix Kuku'il and Uxbenká. Principal Investigator: Keith M. Prufer.

2023 Belize Estates Archaeological Survey Team (BEAST), Orange Walk, Belize. Wetland soils analysis and collection using core and trench methodologies at Wamil. Principal Investigator: Brett A. Houk.

2022 Early Copan Acropolis Program (ECAP), Copan Ruinas, Honduras. FARO lidar tunnel survey and 3D modeling at Copan. Principal Investigator: Loa P. Traxler.

2022 Bladen Paleoindian and Archaic Archaeological Project (BPAAP), Toledo, Belize. Excavation and artifact cataloguing at Ek Xux and Muklebal Tzul. Principal Investigator: Keith M. Prufer.

2020 San Clemente Island Archaeological Survey Project, California. Survey, site identification, mapping, and GIS analysis. Principal Investigator: Andy Yatsko, Navy Region Southwest/NAVFAC.

2009 Namibian Paleoclimate Reconstruction Project, Namibia. Site identification, mapping, water/sediment/artifact sample collection, GIS analysis, and sand augering. Principal Investigator: Eugene Marais.

2007 San Salvador, Bahamas Geologic Research Project. Survey, foraminifera and water sample collection, mapping, and GIS analysis. Principal Investigator: Ronald Lewis.

2004-05 Hickory Ground Archaeological Site, Wetumpka, Alabama. Excavation, survey, ceramic analysis, artifact cataloguing, burial excavation, mapping, and GIS analysis. Principal Investigator: John Cottier.

LABORATORY EXPERIENCE

2021-present	Beach-Butzer Geoarchaeology Lab, The University of Texas at Austin. Wetland soils and paleoenvironmental data analysis; geochemical techniques; GIS-based mapping of geomorphic features and Maya environmental adaptations.
2021-present	Spatial and Environmental Archaeology Lab, The University of Texas at Austin. GIS analysis, 3D modeling, AutoCAD digitization, settlement mapping, and spatial analysis.
2008-2010	University of Georgia Geomorphology Laboratory. Sediment analysis, soil classification and analysis, chemical weathering, and optically stimulated luminescence dating.
2004-2007	Auburn University Archaeology Lab. Ceramics analysis, sediment classification, artifact cataloging, and micromorphology analysis.
2007	Auburn GIS Lab. GIS analysis, instruction, mapping, and cartographic processing.

TECHNICAL AND METHODOLOGICAL SKILLS

Geospatial and remote sensing: ArcGIS Pro/ArcGIS Online, GIS analysis, lidar point clouds, airborne and UAV lidar, DEM and terrain modeling, satellite imagery, multispectral imagery, Google Earth Engine, cartography, and spatial analysis.

3D and digital documentation: Terrestrial laser scanning, FARO workflows, iPhone/mobile lidar, photogrammetry, 3D modeling, 3D printing, digital conservation, and digital-twin/visualization workflows.

Geoarchaeology and field methods: Excavation, pedestrian survey, archaeological mapping, sediment coring, wetland soils, trenching, soil and sediment description, artifact cataloging, and paleoenvironmental sampling.

Planned/expanding methods: GPR, bathymetric mapping, hyperspectral/multispectral drone workflows, VR-based visualization, and botanical/landscape legacy surveys.

TEACHING EXPERIENCE

Summer 2026	Instructor of Record, The Natural Environment, The University of Texas at Austin.
Spring 2026	Teaching Assistant, Digital Earth, The University of Texas at Austin. Instructor: Eugenio Arima.
Fall 2025	Teaching Assistant, Sustainable Development, The University of Texas at Austin. Instructor: Brenda Boonabaana.
Summer 2025	Teaching Assistant, The Healthy, Livable City, The University of Texas at Austin. Instructor: Jules Elkins.
Spring 2025	Guest Lecturer, Lidar Analysis, The University of Texas at Austin. Instructor: Amy E. Thompson.
Fall 2024	Guest Lecturer, The Past in Pop Culture, The University of Texas at Austin. Instructor: Tom Garrison.
Fall 2023	Teaching Assistant, Lidar Analysis, The University of Texas at Austin. Instructor: Amy E. Thompson.
Spring 2023	Teaching Assistant, The Natural Environment, The University of Texas at Austin. Instructor: Sheryl Luzzadder-Beach.

2012-2014	Assistant Language Teacher, Japan Exchange and Teaching (JET) Program, Minamishimabara-shi, Nagasaki, Japan.
2008-2010	Instructor Assistant, Introduction to Physical Geography Laboratory, University of Georgia.

COURSES PREPARED TO TEACH

Introduction to GIS; Remote Sensing; Drone Mapping and Lidar; Digital Archaeology; Geoarchaeology; Human-Environment Interaction; Environmental Geography; Physical Geography; Archaeological Field Methods; Spatial Analysis; Sustainable Development; Digital Earth; Ancient Maya Landscapes; Digital Heritage and 3D Visualization.

DEPARTMENTAL SERVICE

2026-2027	Professional Development Officer, UT Graduate Association of Geography and the Environment.
2026-2027	Member, UT Ecology, Sustainability and Human-Environment Interactions
2024-2025	President, UT Graduate Association of Geography and the Environment.
2023-2024	Treasurer, UT Graduate Association of Geography and the Environment.

PROFESSIONAL MEMBERSHIPS

2024-present	The Geological Society of America
2023-present	Conference of Latin American Geographers.
2022-present	Society for American Archaeology.
2021-present	UT Graduate Association of Geography and the Environment.
2007-present	Association of American Geographers.
2012-present	Association for Japan Exchange and Teaching.