

Hayley T. Kievman

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Education

University of Utah, Salt Lake City, UT

M.Sc. Anthropology

2020 – 2022

Committee: Alexandra Greenwald (chair), Brian Coddling, Jack Broughton

Ph.D. Anthropology

Planned 2025

The Pennsylvania State University, University Park, PA

2019

B.A. Anthropology

Publications

Kievman, H.T., Burns, G., Greenwald, A.M. Re-evaluating the significance of Gambel Oak acorns (*Quercus gambelii*) in the Great Basin, Colorado Plateau, and Southwest: Evidence from experimental foraging and direct bomb calorimetry. (Accepted) *Journal of Ethnobiology*.

Kievman, H.T., Wilson, K.M., Lamson, R.L.F., Coddling, B.F., Gyumushyan, A., Greenwald, A.M. Late Holocene Size Variation of *Mytilus Californianus* Remains from Shelter Cove (CA-HUM-182), Northern California. *California Archaeology*, July 2023, pp. 1-19, <https://doi.org/10.1080/1947461X.2023.2223494>.

Lamson, R.L.F., Wilson, Kurt. M., **Kievman, H. T.**, Yaworsky, P. M., Vernon, K. B., Coddling, B.F. *In review*. Environmental Drivers of Social Inequality in Prehistoric Basin-Plateau Populations. (Submitted) *American Antiquity: Reports*.

Fellowships, Awards, Grants

Kievman, H.T. (PI)

2024

The Wilkes Center for Climate Science and Policy Research Award, University of Utah.

Pleistocene-Holocene Transition Subsistence Behaviors in central California (\$3,000)

Kievman, H.T. (PI)

2024

Far Western Foundation Award

Pleistocene-Holocene Transition Subsistence Behaviors in central California (\$10,000)

Kievman, H.T. (PI)

2023

The Wilkes Center for Climate Science and Policy Travel Award, University of Utah.

Re-evaluating the significance of Gambel Oak acorns (Quercus gambelii) in the Great Basin, Colorado Plateau, and Southwest: Evidence from experimental foraging and direct bomb calorimetry (\$500)

Science Communication Fellowship, Natural History Museum of Utah

2024

Kievman, H.T. (PI)

2022

The Wilkes Center for Climate Science and Policy Travel Award, University of Utah.

*Late Holocene size variation of *Mytilus californianus* remains from Shelter Cove (CA-HUM-182, Northern California) (\$500)*

Kievman, H.T. (PI)

2021

Global Change and Sustainability Center Research Grant, University of Utah.

Exploring Links Between Late Holocene Environmental Change and Indigenous Mussel Harvesting Strategies on the Northwest Coast of California (\$3,000)

Presentations

Greenwald, A.M., Masters, O., Baka, A.S., Kankainen, K., **Kievman, H.T.**, Mangum, M., Medina, I., Yagüe, B., Nielsen-Grimm, G. Native American Voices Initiative: Centering Indigenous Knowledge in the Anthropology Collections at the Natural History Museum of Utah. Conference session at the 2023 Utah Museum Association Annual Conference; Vernal, UT, 09/21/2023

Kievman, H.T., Burns, G., Greenwald, A.M. October 2023. *Re-evaluating the significance of Gambel Oak acorns (*Quercus gambelii*) in the Great Basin, Colorado Plateau, and Southwest: Evidence from experimental foraging and direct bomb calorimetry*. Presentation, Great Basin Archaeological Association Bi-annual Conference

Kievman, H.T., Wilson, K.M., Lamson, R.L.F., Coddling, B.F., Greenwald, A.M. March 2023. *Late Holocene size variation of *Mytilus californianus* remains from Shelter Cove (CA-HUM-182, Northern California)*. Presentation, Society for California Archaeology Annual Meeting.

Greenwald, A.M., A. Niclou, **H.T. Kievman**, G.R. Burns, A. Baka, A.J. Baide, and C. Ocobock. March 2023. *Maternal foraging energetics in an acorn subsistence economy*. Society for California Archaeology Annual Meeting.

Greenwald, A.M., A. Merryweather, J. Herridge, A. Anderson, D. Carrier, G.R. Burns, C. McAllister, **H.T. Kievman**, and M. Weahkee. March 2023. *Ancestral Puebloan Running and Walking Biomechanics*. Society for American Archaeology Annual Meeting.

Greenwald, A.M., C. Ocobock, A. Niclou, G.R. Burns, A. Baka, **H.T. Kievman**, and A.J. Baide. April 2023. *Maternal Foraging Efficiency and Load Carrying*. American Association of Biological Anthropologists Annual Meeting. [accepted]

Masters, O., A. Baka, **H.T. Kievman**, I. Medina, B. Yagüe, and A.M. Greenwald. 2023. Centering Indigenous Knowledge in Anthropology Collections. *American Alliance of Museums Annual Meeting*. [accepted]

Masters, O., Baka, A., Kankainen, K., **Kievman, H.**, Mangum, M., Medina, I., Yagüe, B., Nielsen-Grimm, G., Greenwald A. 2022. *Native American Voices Initiative at the Natural History of Utah*. Utah Museum Association Annual Conference. Provo, UT.

Kievman, H.T., Wilson, K.M., Lamson, R.L.F., Coddling, B.F., Greenwald, A.M. 2022. *How do human-environment interactions impact mussel size during the Late Period of Northern CA?* Presentation, Annual Meeting of the Society for California Archaeology. Visalia, CA.

White, M. **Kievman, H.** 2018. *Conserving Biodiversity in the Cayman Islands: Fish, Fishermen and Coral Reefs*. Presentation, Annual Meeting of the American Folklore Society. Buffalo, NY.

Field & Research Experience

Research

Pleistocene-Holocene Subsistence Behaviors in central California 2023-Present
Resolving the dynamics of human subsistence and adaptation to climate change during the Pleistocene-Holocene Transition requires higher-resolution archaeological datasets and analyses of how climatic and ecological changes impacted plant and animal communities and, ultimately, human foraging behavior. A recent discovery of a ~10,500-year-old archaeological site in the San Francisco Bay Area with a substantial record of human skeletal material including 40 burials and associated faunal remains offers a unique opportunity to address these issues.

*Late Holocene size variation of *Mytilus californianus* remains from Shelter Cove (CA-HUM-182, Northern California)* 2020– Present
Archaeomalacological analysis of marine shell carbonates to explore how climate and paleoenvironmental change influenced human decision making on the North coast during the mid-to-late Holocene

*Re-evaluating the significance of Gambel Oak acorns (*Quercus gambelii*) in the Great Basin, Colorado Plateau, and Southwest: Evidence from experimental foraging and direct bomb calorimetry* 2022– Present
Using foraging and caloric data from 19 hours of experimental Gambel Oak acorn foraging and direct bomb calorimetry to explore the possible significance of Gambel Oak as a resource in the Great Basin, Colorado Plateau, and Southwest.

The Costs of Women's Work: Maternal Foraging Energetics in an Acorn Subsistence Economy 2022– Present
Alexandra Greenwald, University of Utah, Natural History Museum of Utah (PI), Alexandra Niclou, University of Notre Dame, Pennington Biomedical Research Center, Cara Ocobock, Eck Institute for Global Health, Natural History Museum of Utah, Hayley Kievman, Abby Baka, A. Ja'net Baide
The energetic expenditures and return rates of mothers foraging with infants is an understudied and important consideration in our understanding of the evolutionary role of foraging and gendered division of labor. We replicate acorn foraging conditions representative of Holocene California

hunter-gatherers and compare the energetic costs of acorn foraging in females under three different infant-carrying conditions.

University of Utah Native Voices Initiative, National Endowment for the Humanities 2022– Present
Alexandra Greenwald (PI)

Research assistant collaborating with Utah Tribal communities and the Natural History Museum of Utah to preserve, amplify, celebrate, and share the stories of Utah's Indigenous communities by documenting Native American Knowledge in the Museum's ethnographic collections.

The California Invertebrate Database Project 2021 – Present
Hayley Kievman (PI)

Constructing California invertebrate master database which will be used to explore variation along a coastal transect to understand how species composition is changing through time and space (add more here)

Leveraging Prehistoric Footwear to Reconstruct Ancient Running Biomechanics 2021– Present
Alexandra M. Greenwald, University of Utah, Natural History Museum of Utah (PI)

Graduate research assistant collaborating with the Department of Anthropology and the Natural History Museum of Utah to help reconstruct the biomechanics of running and walking using 3D scans taken from the Natural History Museum of Utah's collection of ~375 prehistoric yucca fiber sandals from across the Great Basin, Colorado Plateau, and Southwest.

Human and Environmental Dynamics Lab 2019 – 2020
Dr. Rebecca Bliege-Bird, Penn State (PI), Dr. Doug Bird, Penn State (Co-PI)

Collaborated with the Human and Environmental Dynamics Lab at the Pennsylvania State University as a post-baccalaureate research assistant investigating the emergent dynamics of hunter-gatherer mobility in Australia's Western Desert in relationship to the wide-spread environmental and social change that occurred following European contact in the 1950s.

Protecting Herbivorous Fish to Conserve Cayman Island Coral Reef Biodiversity. 2017
Dr. Marilyn White (PI), Central Caribbean Marine Institute

Assisted Dr. Marilyn White in designing an ethnographic project for the Darwin Initiative Award by collecting data on local fishers in the Cayman Islands to understand how individuals were modifying their behaviors and livelihoods in relationship to short and long-term changes in their local ecosystems.

Fieldwork

Far Western Anthropological Research Group 2023
Field crew

Supervisor: Daron Duke, Far Western Principle/Director
Excavation of ~10,000 year old footprints in the Western Utah desert.

Chronicle Heritage
Crew technician 40 hours per week 6/7 – 6/14

Red Hill Maple Hollow (23-0106)

North Hills Sagebrush project (23-0425)

Supervisor: Tim Algers, Crew Leader, Chronicle Heritage

Archaeological survey and site recording of BLM land designated for vegetation management for restoring habitat for both sage grouse and mule deer.

Uinta-Wasatch-Cache National Forest (UWCNF)

2022

Volunteer Technician (Equivalent to GS-0102-05) 40 hours per week 6/27 - 7/22

Supervisor: Thomas H. Flanigan, Heritage Program Manager / Forest Archaeologist, Uinta-Wasatch-Cache National Forest.

- Archaeological and historic site monitoring, recording, and assessing site eligibility and significance utilizing the criteria set forth in 36 CFR 60.4.
- Assisted UWCNF Heritage Staff with NHPA Section 106 & Section 110 compliance through Class II and III archaeological inventories.
- Class III Cultural Resource Inventories (Archaeological Survey):
 - Class III Cultural Resource Inventory for the proposed Hopkins access road alignment. Logan Ranger District, Uinta-Wasatch-Cache National Forest, Utah.
 - Class III Cultural Resource Inventory for the proposed Gloria Falls Trail Realignment Project. Salt Lake Ranger District, Uinta-Wasatch-Cache National Forest, Utah.
 - Class III Cultural Resource Inventory for the proposed Bear River Outdoor Recreation Alliance ADA compliant Yurt installation. Evanston-Mountain View Ranger District, Uinta-Wasatch-Cache National Forest, Utah.
 - Class III Cultural Resource Inventory for the proposed Maple Canyon Water System Development Project. Spanish Fork Ranger District, Uinta-Wasatch-Cache National Forest, Utah.
 - Class III Cultural Resource Inventory for the proposed Currant Creek Campground Fence Project. Heber-Kamas Ranger District, Uinta-Wasatch-Cache National Forest, Utah.
- Archaeological and Historic Site Monitoring:
 - Harker Canyon Rock Imagery Site. Spanish Fork Ranger District, Uinta-Wasatch-Cache National Forest, Utah.
 - Benmore Homestead Historic and Archaeological Site. Spanish Fork Ranger District, Uinta-Wasatch-Cache National Forest, Utah.
 - Hanging Rock, Rock Imagery Site. Pleasant Grove Ranger District, Uinta-Wasatch-Cache National Forest, Utah.
 - Diamond Fork Rock Imagery Sun Symbol. Spanish Fork Ranger District, Uinta-Wasatch-Cache National Forest, Utah.
 - Diamond Fork Historic Forest Service Guard Station. Spanish Fork Ranger District, Uinta-Wasatch-Cache National Forest, Utah.
 - Strawberry Reservoir pre-contact hearth and campsite. Heber-Kamas Ranger District, Uinta-Wasatch-Cache National Forest, Utah.
 - Bear River Historic Forest Service Guard Station and Tie Hack Logging Cabin. Evanston-Mountain View Ranger District, Uinta-Wasatch-Cache National Forest, Utah.

- Mill Hollow YMCA Camp Historic Buildings. Heber-Kamas Ranger District, Uinta-Wasatch-Cache National Forest, Utah.
- Centerville Medicine Wheel. Salt Lake Ranger District, Uinta-Wasatch-Cache National Forest, Utah.
- Parrish Canyon Rock Imagery Site. Salt Lake Ranger District, Uinta-Wasatch-Cache National Forest, Utah.
- New Archaeological Site Recording:
 - Indigenous Lithic Scatter located on a ridgeline above the Logan River. Logan Ranger District, Uinta-Wasatch-Cache National Forest, Utah.
- Task Specific Experience:
 - Archaeological site monitoring to assess natural decay, erosion, and vandalism.
 - Archaeological survey, Utah (Class I, II, and III).
 - Archaeological site recording using the Utah Archaeological Site Form, Parts A, B, C, and D.
 - Historic building recording utilizing the Utah Historic Bldg. Form.
 - Assessing site significance and eligibility to the National Register of Historic Places utilizing the criteria set forth in 36 CFR 60.4.
 - Familiarity with 36 CFR 800.

Bear River Massacre Archaeological Project, Preston, Idaho, Utah 2022
 Survey of the Bear River Massacre site in consultation and collaboration with the Northwestern Band of the Shoshone.

Infant Carrying and Maternal Foraging Efficiency Project 2021
 Dr. Alexandra Greenwald, University of Utah (PI)
 Field Assistant - Experimental project involving the collection of metabolic data using different cradle technology from the American Southwest.

Strawberry Reservoir Archaeological Project, Strawberry Reservoir, Summit County, Utah 2021
 Dr. Thomas H. Flanigan, Heritage Program Manager / Forest Archaeologist, Uinta-Wasatch-Cache National Forest (PI), Dr. Brian F. Coddington, University of Utah (Co-PI) Field Technician - Site recording and preliminary test excavation of paleo-archaic hearth and lithic features in collaboration with the Forest Service.

Coral Restoration Project, Little Cayman, Cayman Islands 2017
 Central Caribbean Marine Institute
 Field Assistant - Advanced SCUBA certified field assistant responsible for constructing an underwater coral nursery to assess the relationship between coral growth dynamics and local ecological conditions.

Field school
Northern Utah Archaeological Field School, Uinta-Wasatch-Cache National Forest, US Forest Service 2022

Teaching & Student Mentorship

Teaching

University of Utah, Department of Anthropology, Salt Lake City, Utah 2020 – 2022
Graduate Research and Teaching Assistantship
Fall 2020, Spring 2021 Teaching Assistant ANTH 1020: Biological Anthropology
Fall 2021, Spring 2022, Summer 2022 Teaching Assistant ANTH 1010: Cultural Anthropology

Get Results Tutoring, State College, Pennsylvania 2019 – 2020
Math and science tutor for k-12 and college level students

The Pennsylvania State University, Abington, Pennsylvania 2016 – 2017
French tutor for undergraduate students

Student Mentorship and Education Outreach

University of Utah, Department of Anthropology 2023 – Present
Founder of the Anthropology department's "Anthropology Outreach Committee" dedicated to promoting STEM learning and diversity among local underrepresented groups.

University of Utah, College of Sciences SRI Program 2024
Conducted an AMS dating lab where students prepped modern mussel shell's from California for AMS dating.

University of Utah Undergraduate Research Opportunities Program 2023
Supported undergraduate student in successfully applying to the UROP program, which funds students to do research projects with graduate students/faculty. Student actively engaged in research throughout the school year and presented a poster at two different conferences.

University of Utah, College of Behavioral Sciences Student Research Day 2023
Judge for undergraduate research posters at the 2023 student research day

University of Utah, Department of Anthropology 2022 – Present
Serving as a member of the colloquium committee, responsible for electing speakers for our monthly colloquium series.

University of Utah Archaeological Center, Salt Lake City, Utah 2021 – Present
Mentor to four undergraduate students, Arthur Gyumushyan *, Sophia Dodge, Brandy Webster, Dyana Hazen, working on projects in the lab and advising students on careers in Anthropology and how to apply to graduate and field school.

University of Utah Archaeological Center, Salt Lake City, Utah
Organizing the "Leigh lecture" in collaboration with SACNAS . 2023

Prehistoric Archaeology, University of Utah Department of Anthropology, Salt Lake City, Utah 2023
Presented as a guest speaker on archaeomological analysis of carbonate shell remains as a tool to understand human-environmental interactions in Late Holocene N. California.

Natural History Museum of Utah, Celebrate our State, Salt Lake City, Utah 2023
Engaged Utah legislators and their families in discussion about the importance of documenting and preserving the diversity of Indigenous cultures, as well as methods used in ethnographic research.

Bennion Elementary School, Salt Lake City, Utah 2022
Conducted Archaeology lesson and activities to houseless 4th and 5th grade students at the local elementary school. Facilitating an initiative to foster diversity in Anthropology by collaborating with the Salt Lake City School District, and the Society for Advancement of Chicanos/Hispanics and Native Americans in Science.

Natural History Museum of Utah, Behind the Scenes, Salt Lake City, Utah 2022
Displayed and interpreted ethnographic collections to local community members.

Indigenous Art Market Collections Interpreter, Natural History Museum of Utah, Salt Lake City, Utah 2022
Provided explanations and insights on ethnographic collections to both local community members and attendees of the art market.

Natural History Museum of Utah, Salt Lake City, Utah 2021 – 2022
Advised two undergraduate researchers using non-invasive imagery (3D Scanning and Photogrammetry) to digitize ~375 prehistoric yucca fiber sandals taken from the Natural History Museum of Utah's collection from across the Great Basin, Colorado Plateau, and Southwest.

Certifications

Foundations of Interpretation Training- Eppley Institute for Parks and Public Lands

Research Education Mentorship Certificate- University of Utah

Professional Affiliations

Great Basin Anthropological Association	2023 – Present
Society for Advancement of Chicanos/Hispanics & Native Americans in Science	2022 – Present
Society for California Archaeology	2020 – Present