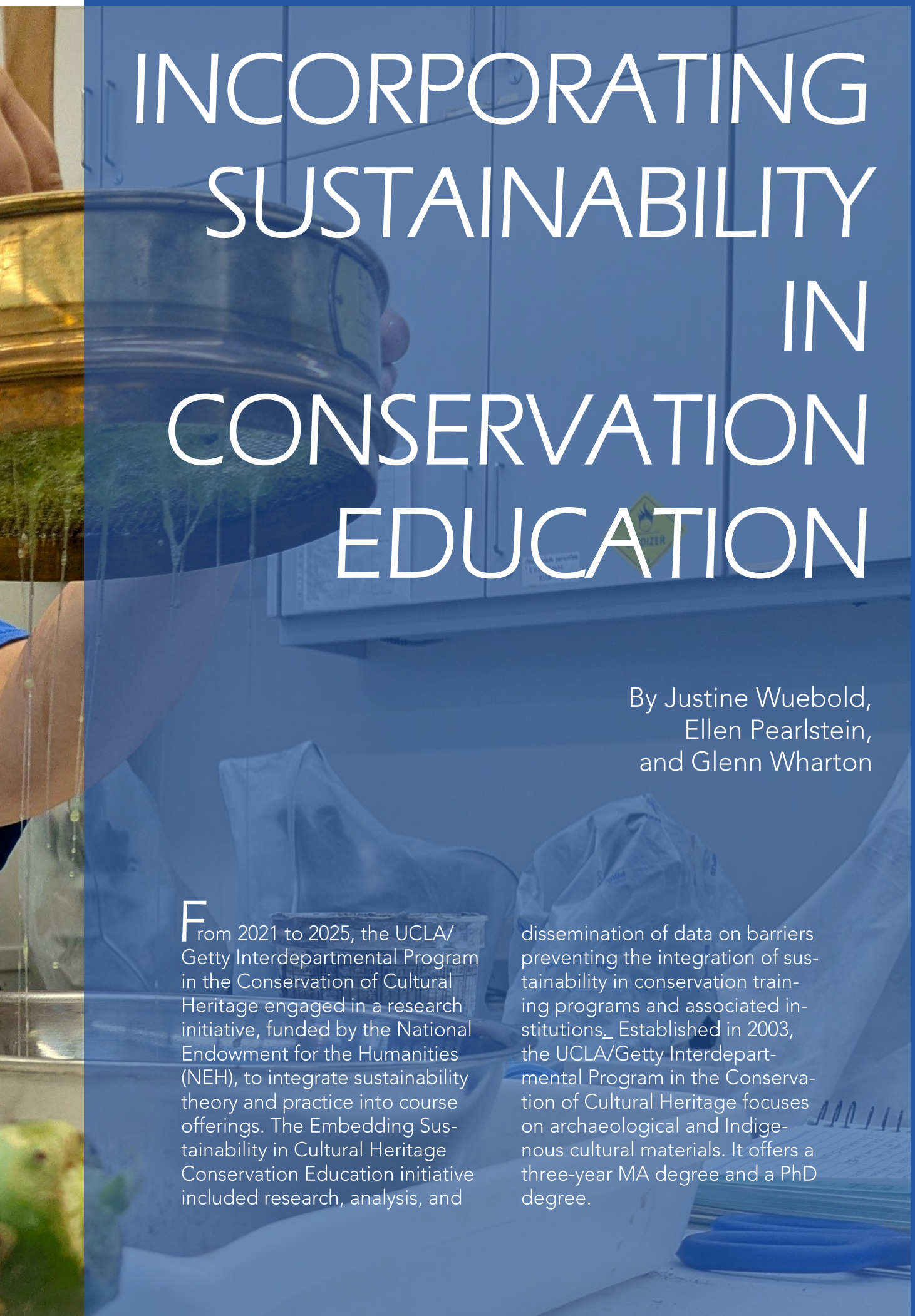
Paige Hilman Preparing Nopal Musilage for Replica. Image by Naomi Rosenkranz



INCORPORATING SUSTAINABILITY IN CONSERVATION EDUCATION

By Justine Wuebold, Ellen Pearlstein, and Glenn Wharton

From 2021 to 2025, the UCLA/Getty Interdepartmental Program in the Conservation of Cultural Heritage engaged in a research initiative, funded by the National Endowment for the Humanities (NEH), to integrate sustainability theory and practice into course offerings. The Embedding Sustainability in Cultural Heritage Conservation Education initiative included research, analysis, and dissemination of data on barriers preventing the integration of sustainability in conservation training programs and associated institutions. Established in 2003, the UCLA/Getty Interdepartmental Program in the Conservation of Cultural Heritage focuses on archaeological and Indigenous cultural materials. It offers a three-year MA degree and a PhD degree.

Based on our literature review and survey of the field, UCLA/Getty researchers identified a major gap in sustainability pedagogy. Our aim, therefore, was to design, field test, and produce curricular materials to incorporate into our own program and to share with educators internationally in cultural heritage conservation, including those within graduate programs, undergraduate programs, short courses, and workshops. We included foundational competencies of sustainability education, including systems thinking, future thinking, and traditional knowledge, as part of the interactive exercises and assignments in conservation courses. We also drew on new research for sustainability, such as carbon calculator tools and greener alternatives to solvents and pesticides, to promote student research on these important topics.

Following this preliminary phase, the project entered a second phase focused on understanding the barriers that conservators face in practice and in educational settings. Results from the initial survey suggested that educators face significant barriers to incorporating sustainability concepts into the curriculum they are teaching, which informed our interview protocol. We reviewed the literature in conservation and adjacent disciplines and interviewed conservation educators and practitioners about the barriers they encounter in their work. Chedeya Brown, a doctoral student in UCLA's Institute for the Environment and Sustainability, assisted us by locating journal articles that focus on barriers and successes to embedding sustainability. We also worked with a sustainability coach, educational evaluators, peer reviewers, and other advisors who assisted with our research to better understand these barriers and how to mitigate them. The articles that have informed our research discuss techniques for engaging students using modular and adaptable exercises and provide conceptual frameworks for future-thinking and transformative climate change and cultural sustainability. People we interviewed included geographically dispersed professionals at different stages of their careers working in different types and sizes of institutions as well as private practice.

MAIN MOTIVES AND FINDINGS

Conservators play an essential role in making positive change toward climate and social justice issues. Their training in both scientific analysis and the humanities is instrumental for building bridges between disciplines and fostering dialogue between communities. This multidisciplinary focus in the classroom presented us with the opportunity to rethink our systems and meet new challenges the field is facing.

Currently it is common for module-based courses taught at UCLA/Getty to include a separate module or discussion period on sustainability, so our challenge was to seek out ways that sustainability pertains to other modules by considering environmental, social, or economic sustainability concerns, with the goal of integrating sustainability education into all aspects of course work.

In the first phase of our research, we learned that barriers exist to integrating sustainability not only in teaching curricula but in all forms of conservation practice. The survey from our preliminary research served to better understand the extent to which sustainability is embedded throughout conservation curricula versus as a standalone course, which kinds of sustainability are addressed, and what types of assignments and activities are being utilized (Wuebold et al. 2022). A significant finding of the survey was that conservation educators need more sustainability resources to incorporate into current curricula.

We then expanded our research to explore the problem of

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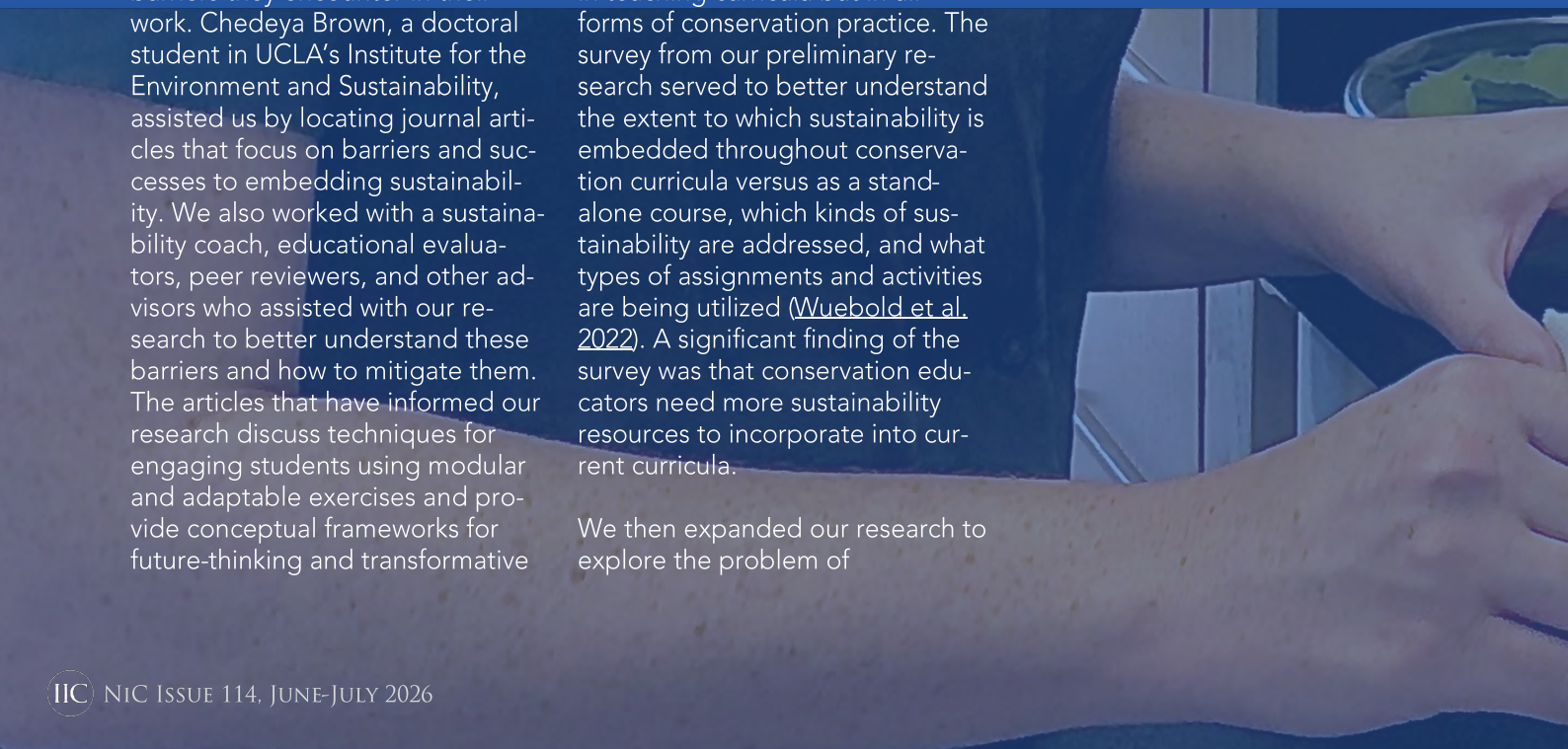

Elizabeth Salmon researching the efficacy of neem leaves as a sustainable pest deterrent in museums. Photo Credit: Tom Perring.

institutional resistance that many educators and practitioners experience and identified further barriers including resistance to change, time constraints, and financial barriers to sustainable practices. Through this research we formulated strategies for breaking down the barriers in both practice and in teaching that prevent our sector from fully embracing a more thoughtful, balanced, safe, and ultimately carbon-neutral approach to conserving cultural heritage collections (Pearlstein et al. 2024). Our interviewees discussed a paradigm shift that requires training and new practices that anticipate these real-world changes and that will prepare students for the increasingly complex problems they will face within a changing world.

In an upcoming publication, we discuss how our faculty and staff utilized results from this research to develop and run courses designed to teach conservation competencies through the lens of sustainability principles. Exercises within the courses are geared toward sustainable conservation practice; examples include the comparison of alternative plant-based or recycled leather for use as infills, lab testing less toxic corrosion inhibitors, evaluating greener solvents, and consensus-building exercises for developing exhibitions in museums. After each course exercise, students and faculty were asked to document their thoughts through discussion and written evaluation. Student feedback was valuable for planning future iterations of courses, ensuring that worksheets and rubrics were useful toward exercises and that the sustainability language was comprehensible.

Some of the UCLA/Getty students were inspired to incorporate sustainability principles into their thesis and dissertation work. MA graduate Makayla Rawlins' work centered on evaluating the use of juncus, a traditional California basketweaving plant, for repairs and loss compensation in historical basketry. Elizabeth Salmon's doctoral dissertation investigated the traditional use of neem leaves to protect textiles in India from varied carpet beetles as a sustainable alternative to pesticide use. Additionally, undergraduate student Fiona Dunlap, who showed interest in sustainability, helped develop guidance documentation for the UCLA/Getty training labs and then focused her undergraduate honors thesis on challenges of implementing sustainable practices within our conservation lab.

Faculty and staff found that many exercises can be altered to teach conservation techniques while also weaving sustainable methods throughout courses and projects. By integrating sustainability into our courses during this initial phase of our initiative, we enhanced the way these topics were taught while developing future deliverables. Our final publication will point to individuals across the conservation field working as change agents in their organizations to advance sustainability.

INITIATIVES CONTINUING FROM PROJECT

A key deliverable for this grant was to build strategies for mitigating barriers to including sustainability principles within graduate conservation education. The project team was thrilled to see that momentum across the field continued through our initiatives supporting this goal, some of which continued beyond the initial timeline.

One example of this continued momentum came out of a community of practice (CoP) group that we organized, consisting of graduate conservation educators who discussed methods for teaching sustainability principles and strategies. Faculty from most member programs of the Association of North American Graduate Programs in the Conservation of Cultural Property (ANAGPIC) joined our monthly sessions. These community members also willingly participated in a focus group exercise to gauge barriers and successes they've seen in their experiences, which added anecdotal evidence. While this CoP group discontinued at the end of our initiative, a separate group then formed as a collaboration between the Sustainability Committee of the American Institute of Conservation (AIC) and the Institute of Conservation (Icon) to offer an open forum discussing challenges and innovations in conservation labs in North America and the UK.

Also out of the CoP discussions came the concept of a competency guide as a tool for curricular planning and syllabus revision. In consultation with Jaimie Cloud, president of the Cloud Institute for Sustainability Education, the UCLA/Getty team worked on building a guide to align conservation and sustainability education competency frameworks. Jaimie Cloud, Justine Wuebold, and Marlene Sámano (Escuela Nacional de Conservación, Restauración y Museografía—ENCRYM) collaborated to align the Education for Sustainability (EfS) frameworks (developed by The Cloud Institute for Sustainability Education) with AIC's "Essential Competencies For Conservation, Preservation, And Scientific Analysis". The working document titled *Integrating Conservation and Sustainability Competencies* is available for feedback (Wuebold, Cloud, and Samano Chong 2026).

MA Students Consulting with Community at Conservation Clinic. Photo Credit: Justine Wuebold

A project that developed out of the first phase of this NEH research was The Global Mapping working group. In this initiative members of the Heritage Management Organization, Evangelos Kyriakidis and Panteliana Papamichali, have teamed up with Justine Wuebold to continue mapping activities focused on sustainable cultural heritage management and conservation in hopes that this resource will spur new partnerships. Disseminating new sustainability-focused work along with the outcomes from this NEH project will help future projects build on what has already been done rather than reinventing the wheel. To that end, doctoral students, Naomi Rosenkranz and Chongwen Liu, are helping to update the UCLA/Getty website to showcase our focus on sustainable practice and teaching.

"Conservators'... training in both scientific analysis and the humanities is instrumental for building bridges between disciplines and fostering dialogue between communities."

UCLA/Getty student Makayla Rawlins ('25) pointing to willow branches she helped collect for 2025 Barona Days, working with the Barona Cultural center and Museum. Image by Ellen Pearlstein

CLOSING THOUGHTS

In sharing our research through many different venues, we hope the findings and the tools developed can help provide a model for other programs. We at UCLA/Getty Conservation Program found that teaching can be enhanced through integrative methods that consider principles such as systems thinking and multiple perspectives as foundational to our current conservation concepts. We are happy to see the many projects that have emerged since our research began, and especially those that inspire new pedagogical strategies in conservation education. If you would like to get involved with the Sustainability Committee's Community of Practice, the Competencies project, or the Global Mapping working group, please reach out to Justine Wuebold (jwuebold@proton.me) for more information.

We want to recognize our forthcoming publication of research results, which is projected to be published in 2027. (Wuebold, Justine, Ellen Pearlstein, Glenn Wharton, and Gisela Cebrián. "Embedding Sustainability in Conservation Education." Chapter. In Learning and Teaching Heritage Conservation: From Theory to Practice. London: UCL Press, in press).

Justine Wuebold has worked in museums and cultural heritage for over ten years, with specialized knowledge in collections care, conservation, and green museum practices. She holds a museum studies MA-MBA from John F. Kennedy University where she penned her thesis on sustainable materials in collections care. Justine currently volunteers for the AIC Sustainability Committee and the AIC Materials Working Group.

Ellen Pearlstein is a founding faculty member and professor emerita in the UCLA/Getty Conservation Program; she invited Indigenous instruction for California basketry and featherwork. Her research includes feather regalia coloration, Peruvian *qeros* colorants, Indigenous basketry materials, and conservation pedagogy. Her book devoted to Indigenous collections conservation and care is in press in the Getty Readings in Conservation series.

Glenn Wharton is a professor of art history at UCLA and chair of the UCLA/Getty Interdepartmental Program in the Conservation of Cultural Heritage. His publications cover a range of initiatives in contemporary art conservation, the anthropology of public monuments, artwork identity, and enhancing sustainability and social justice through conservation research and intervention.