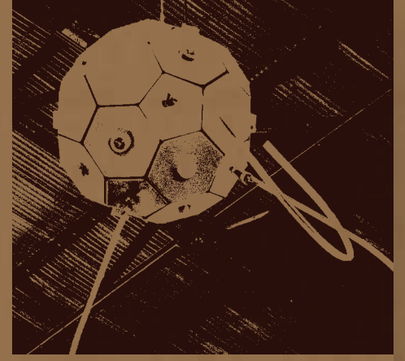
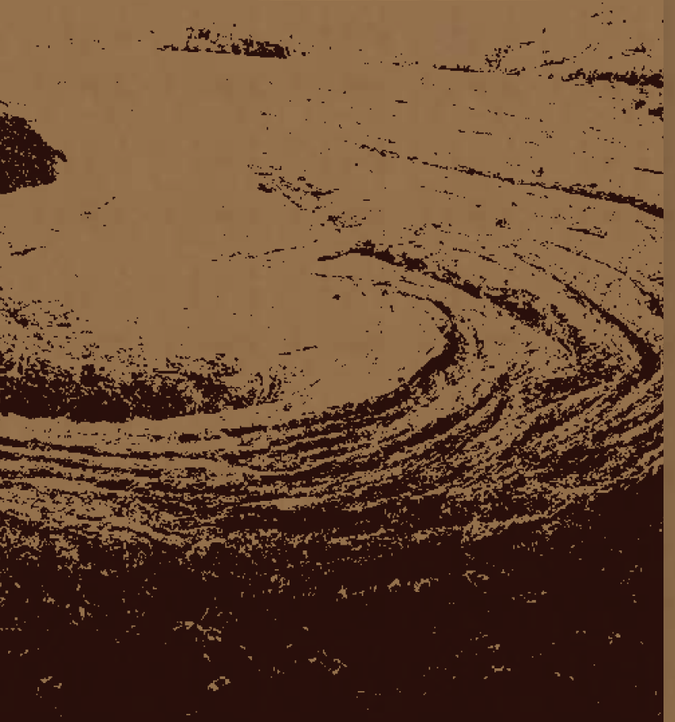
Nurturing Diversity in Hostile Environments

FROM THE GROUND UP





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Nurturing Diversity in Hostile Environments

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Land Acknowledgment

Armory Center for the Arts in Pasadena acknowledges our presence on the traditional, ancestral, and unceded territory of the Tongva peoples, whom we recognize as the traditional caretakers as well as the current and future inhabitants of the land we occupy. We offer our deepest respect to Tongva elders past and present.

Contents

Director's Foreword

Understanding means throwing away your knowledge.
—Thich Nhat Hanh, *Being Peace*

As Zen master and peace activist Thich Nhat Hanh shared, the act of undoing what we've learned leads to new levels of understanding. The seed—one of the smallest but most powerful catalysts for change, growth, and sustainability—takes us back to the very beginnings of life, society, and communities.

In presenting *From the Ground Up: Nurturing Diversity in Hostile Environments*, the Armory Center for the Arts returns to a familiar intersection of art and science. This exploration began for us in the Armory's early days, under the vision of our inaugural curator, Jay Belloli. Curator Irene Georgia Tsatsos conceived *From the Ground Up* at a time when climate disasters were, for many in the United States, abstract concepts being explored by scientists and artists. Five years later, we find ourselves undeniably in the midst of hostile environments produced by the climate crisis. My hope is that this exhibition will offer not only a creative roadmap for possibility and growth but also glimmers of joy to propel us toward a more just and humane world.

The exhibition and associated arts education and public programs seek to cultivate sustainable futures, imagine alternative ways of living, and call us to action. We aspire to spark creativity in the hundreds of school-aged children who will visit the exhibition and be inspired to create their own visions for the future. This publication records the reflections and imaginative speculations of artists and writers and makes space for moments of contemplation at a time of continual upheaval.

I hold deep gratitude for the sixteen artists and collectives whose works are exhibited in this show, as well as the research and advisory group that collaborated with us from the beginning. The entire Armory exhibitions team, led by Director of Exhibitions Heber Rodriguez, and administrative and operations staff have worked together diligently behind the scenes to make magic happen once again.

We gratefully acknowledge the Getty Foundation for their generous support and leadership of PST ART: *Art & Science Collide.* We are honored to be a part of this landmark art event in Southern California.

—Leslie A. Ito
Executive Director/President

Time Spiral

Irene Georgia Tsatsos

TUESDAY, DECEMBER 5, 2017

"We had a fire today."[1]

Our fire started in an unincorporated area of Los Angeles County in the foothills of the Angeles National Forest, where urban development abuts chaparral and woodland. Twenty-nine smaller fires grew and consolidated into six massive infernos. Over the course of the month, 230,000 people were evacuated. My child, spouse, and I were among them. This wasn't the largest fire I have encountered over the past twenty-five years I've lived in Southern California, but more than any other, this one made me acutely aware of the limitations and excesses of our atomized contemporary life. What do we do when the lights go out and power grids fail? When mass populations that are dependent upon transnational capital for basic needs are systemically disconnected from that production? Where is the knowledge for securing food and shelter?

FRIDAY, JUNE 1, 2018

Fire and escape, on an edge perilously close to apocalypse. Countless ancestors have experienced these conditions. Gerald Vizenor discusses the idea of "survivance," reminding us that the end of the world has already been experienced by countless people, mostly nonwhite. Still, these people resist, survive, and thrive.[2] Humans have experienced the end of the world many times over.

The Thomas Fire, the largest of the six Southern California wildfires that started six months ago, is declared officially extinguished. Overall, approximately 440 square miles burned. At least 1,063 structures were destroyed and another 280 damaged. Over 104,000 people had to evacuate. Miraculously, only two people perished, thanks in part to the efforts of over 8,500 firefighters.

FRIDAY, OCTOBER 4, 2019

Enid Baxter Ryce and I met at Brookside Restaurant, which overlooks the expansive, manicured lawn of a thirty-six-hole golf complex in Pasadena. She is completing the inaugural AgKnowledge Fellowship with Western Growers/Shippers Association Foundation. We talked about the history of seeds, poetry, and tarot.

She told me about the American Seed Trade Association (ASTA), one of the oldest trade organizations in the United States. ASTA developed seeds as commodities. During WWI, the group was effectively deputized by the US Department of Agriculture to maintain, "under extraordinary strain, the machinery of producing and the distributing of seeds, without which agriculture must fail. Because we realize in some measure the magnitude of the task to which our country is committed, we are the more earnest in pledging to it our entire resources."[3] Through their efforts, federal programs that supported the free distribution of seeds ended, and the hybrid-seed industry began to grow. Since WWII, ASTA has lobbied for the growing agrichemical industry.

In the twentieth century, Earth has lost 94 percent of its seed varieties.[4] Current data projects that the planet will need to grow at least twice as much food using half as many resources by 2050.[5] A global economic system is threatening the world with extinction.

Who are the hidden voices in this system, such as migrant youth? Why are children and their families homeless when their parents are working in a $3.9 billion global industry? Where is the shared political will to solve these problems?

(1) Octavia E. Butler, *Parable of the Sower* (New York: Grand Central Publishing Edition, 2007), 31.

(2) See Gerald Vizenor, *Manifest Manners: Narratives on Postindian Survivance* (Lincoln, NE: Bison Books, 1999).

(3) American Seed Trade Association, "A short history of the American Seed Trade Association," SeedQuest: Global Information Services for Seed Professionals, https://www.seedquest.com/resources/history/archive/from/asta/history.htm.

(4) This figure is cited extensively, including in the film *Seed: The Untold Story*, dir. John Betz and Taggart Siegel (Anchorage, 2016).

(5) Weronika Strzyżyńska, "Can the World Feed 8 Billion People Sustainably?," *Guardian*, November 15, 2022, https://www.theguardian.com/global-development/2022/nov/15/can-the-world-feed-8bn-people-sustainably.

Migration + drought + economic imperialism = climate change

Enid is an artist, teacher, and systems thinker engaged in citizen science. She starts with now and goes back to the medieval age in a bright, dazzling timeline. She depicts lineages of land and place and divination practices through the trajectory and alignment of medieval land ownership conventions (the taproot of Western coloniality), epic poetry, moral allegory, place naming, the Jeffersonian Grid, and Manifest Destiny. Among her sources are *Piers Plowman*, a moral allegorical poem that was an inspiration to the earliest US colonial settlers, and the tarot, both of which date to the medieval age.

FRIDAY, JANUARY 15, 2020

Art and science are investigative. Along with storytelling, they help us understand the world and our place in it. Life and death are inscribed in the soil. Attempts at erasure are never absolute because a trace always remains. How to see memory in plants and soil? How to connect this, learn from it, and contribute to it?

Left and right: The start of organizing ideas, January 2020. Photo: Irene Georgia Tsatsos.

Consider the colonial and contemporary sociopolitical/economic impacts around the indexing of seeds; the contemporary cultivation of plants in politically and environmentally hostile environments, such as forced displacement and toxic soil; ancient seed knowledges and their transmissions (past, present, and future); contemporary aesthetic applications of and content about plant matter; and plants as material and subject in art. Without a formal name yet, we have nicknamed this project "Seeds."

FRIDAY, JANUARY 31, 2020

President Trump issued Proclamation 9984, a "suspension of entry as immigrants and nonimmigrants of certain additional persons who pose a risk of transmitting 2019 Novel Coronavirus and other appropriate measures to address this risk." According to the President, "I found that the potential for widespread transmission of a novel (new) coronavirus . . . by infected individuals seeking to enter the United States threatens the security of our transportation system and infrastructure and the national security."[6]

"You've seen the refugees going nowhere."[7]

(6) Donald J. Trump, "Proclamation on the Suspension of Entry as Immigrants and Nonimmigrants of Certain Additional Persons Who Pose a Risk of Transmitting Coronavirus," Trump White House Archives, issued on February 29, 2020, https://trumpwhitehouse.archives.gov/presidential-actions/proclamation-suspension-entry-immigrants-nonimmigrants-certain-additional-persons-pose-risk-transmitting-coronavirus/.

(7) Adam Zagajewski, "Try to Praise the Mutilated World," in *Without End: New and Selected Poems* (New York: Farrar, Straus & Giroux, 2002).

(8) Zagajewski, "Try to Praise the Mutilated World."

SUNDAY, FEBRUARY 9, 2020

Antarctica reached temperatures greater than 20 degrees Celsius (68 degrees Fahrenheit) for the first time on record.

"Try to praise the mutilated world."[8]

MONDAY, MARCH 16, 2020

Covid lockdown starts. The world struggles to create new protocols for safety, work, intimacy, travel, and safe distribution of goods and services.

For decades, futurists and speculators have imagined the consequences of severe disruptions to social, economic, and environmental systems. The "when, not if" question of such events occurring on a global scale is now past.

Face masks made by Irene Georgia Tsatsos for distribution by Auntie Sewing Squad, June 23, 2020. Photo: Irene Georgia Tsatsos.

(9) Camille T. Dungy, “Black Nature, Poetry, and Coexistence: Camille T. Dungy & Ross Gay,” introduced by Aya de León, Readings and Conversation by Arts Research Center, University of California, Berkeley, November 17, 2021, https://www.youtube.com/watch?v=utbUy8maSx8&ab_channel=Arts-ResearchCenter.

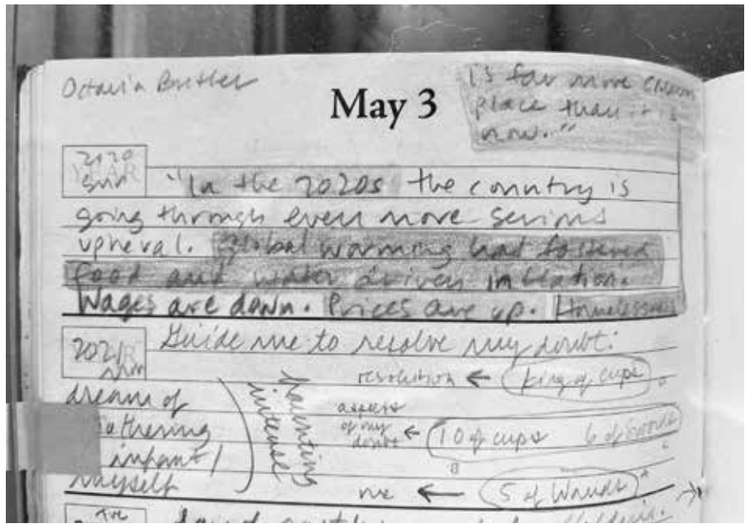
(10) Varshini Prakash, cited by Anya de León, “Black Nature, Poetry, and Coexistence.”

(11) Aya de León, “Black Nature, Poetry, and Coexistence: Camille T. Dungy & Ross Gay.”

(12) I was inspired to add this after seeing an Instagram post by Amir Zaki on January 14, 2024: “I’m an artist, not a scientist so I get to be interested in things without precision.”

MONDAY, MAY 3, 2020

Thinking of Octavia E. Butler.



Journal entry about Octavia E. Butler by Irene Georgia Tsatsos, May 3, 2020. Photo: Irene Georgia Tsatsos.

SATURDAY, MAY 30, 2020

More fire, more fury. Pepper spray, barricades, and curfews as protestors galvanize in Minneapolis; Washington, DC; Los Angeles; and other cities around the country in grief and rage over the murder of George Floyd.

The transatlantic slave trade, with Indigenous people sold as export commodity, was built on values that justified exploitation of nature, dehumanized humans, cemented Western hegemony, and laid the groundwork for today’s ecological crisis. Camille Dungy notes that anti-Blackness is at the center of the ecological crisis.[9] Aya de León, citing Varshini Prakash, notes that if Black and brown lives mattered, we would be out of the climate crisis by now.[10] After Hurricane Katrina, it would have been unacceptable. Instead, we have sacrifice zones, urban and rural spaces around the globe that are maintained to support the accumulation of capital.[11]

Opportunity for decentralization =
applying empathy + rejecting hostility + nurturing diversity

Protesters, signs, and police in the Fairfax District in Los Angeles on May 30, 2020. Photos, left and center: Irene Georgia Tsatsos; photo, right: T Antonakis Kane.

THURSDAY, APRIL 8, 2021

The Armory hosted an informal conversation via Zoom with members of the Seeds research team (Olivia Chumacero, Sandra de la Loza, Sean C. Lahmeyer, Hillary Mushkin, David Delgado Shorter, PhD, Enid Baxter Ryce, and me) to introduce the project publicly. Each has their own expertise; my job is to hold the space in the center of the Venn diagram of their ideas. The impact of the coronavirus requires awkward adjustments—not just to programs but also to work, medical care, language, love, and more, all mediated through Zoom.

MONDAY, MAY 3, 2021

Enid Baxter Ryce convened *Against Eden: Threshold Conversations*, an online dialogue with Dr. Peggy Lemaux, Dr. Daniel Fernandez, Dr. Kouslaa Kessler-Mata, Andrea Monroe, and Emily Morales-Ortiz. It reflected the range of academic and intuitive knowledge that underpins this project. Conversation circulated around water and land sovereignty; the ethics, values, and relationships of GMOs and hybrid seeds; objectivity and objectification in science; systems thinking; difference and alignment diagrammed in geometry; culture, its erasure and its cultivation/preservation; sharecropping, reimagined flag-making, and self-identity; and the relationship of policies to stories and vice versa. Recurring throughout the day were ideas about interconnectedness, intersections, storytelling, and mutual accountability—themes and values at the core of this project.

I’m an artist, not a scientist. I can apply imprecision as a tool.[12]

THURSDAY, MAY 6, 2021

Against Eden: Threshold Conversations, Part 2, was a conversation between Enid and Luis “xago” Juárez, independent playwright and community activist, on community organizing, immigration, agriculture, and art in California’s Salinas Valley. Their conversation centered on farmworker communities in Salinas (the “salad bowl of the world”) and “IYA: The Ex’celen Remember,” a play written by xago that was inspired by Louise J. Miranda Ramirez, tribal chairwoman of the Ohlone/Costanoan-Esselen Nation. The story incorporates the creation myth of the Esselen tribe and contemporary concerns such as land rights, gentrification, and displacement.

(13) Ross Gay, “Black Nature, Poetry, and Coexistence.”

WEDNESDAY, JULY 28, 2021

Across a spectrum, environments of knowledge production are met with growing wariness and even contempt. Heroic librarians and teachers are finding ways to share banned books. On college campuses, faculty issue content-awareness agreements, alerting students in advance that they will be presented with material they may find offensive and inviting them to drop the classes if they prefer to avoid sensitive or provocative subject matter.

Poet and scholar Ross Gay asks: What is the pedagogy of joy, one without a punitive, segregated mode? How can we witness each other change with tenderness and love?[13] Let’s make a space, a practice of holding questions, of accepting that some discomfort may accompany learning about the perspectives of another—a radical act.

Getty Marrow Undergraduate Interns visit the Huntington Library, Art Museum, and Botanical Gardens, San Marino, California, July 28, 2021. The objective of the event, facilitated by Heber Rodriguez (right) and hosted by Sean Lahmeyer (left), was to consider plants as holdings of a museum collection. Photo: Irene Georgia Tsatsos.

MONDAY, AUGUST 16, 2021

A series of coincidences, scant historical records, vivid nighttime dreams throughout my life, and pressing curiosity led me to a Bodewadmi (Potawatomi)/Neshnabe serpent mound. The mound is near the Des Plaines River in the Cook County Forest Preserve, which is visible from the window of my childhood bedroom in River Forest, Illinois. For over twenty-five years, I have written about my recurring dreams of mounds or berms adjacent to water in my journal and drawn images of them. Now I know I was dreaming about a serpent mound.

In March 2019, I learned that the site was topo-mapped in 1938 by Isabel Bassett Watson, one of the first female petroleum geologists in the United

Serpent Mound, River Forest, Illinois, August 16, 2021. Photo: Irene Georgia Tsatsos.

States, the first female ranger at Yellowstone Park, and one of the first interpretive rangers hired by the National Park Service. The mound was verified at that time by Dr. Faye Cooper Cole, head of the anthropology department at University of Chicago, as an “Indian effigy mound.” Dr. Cole’s plans to have her students study it further were derailed by WWII. Isabel Watson reidentified the mound in 1969, and in 1973, she reported her findings to Cook County’s Department of Conservation (but not before the serpent’s tail was crushed by a county truck removing blighted elms). The site remains unmarked, at least by the graphic protocols of Cook County Forest Preserve. It is unknown to the staff at the adjacent (and beloved) ninety-year-old nature center and appears to be almost completely overgrown. I wouldn’t have found it without Watson’s detailed notes from forty-nine years ago, which I found through a fluke on Facebook.

SUNDAY, AUGUST 22, 2021

Two organizing principles for this project are emerging: how to live on our planet with resilience and sustainability and the idea of future imaginaries. The works emphasize or at least include elements that suggest alternatives to normative ways of doing things, being, and/or understanding the world around us. These proposals contain embedded critiques of colonialism and diverse ways of providing hopeful resistance and/or alternatives to the varied conditions of different hostile environments.

The role of the curator is to create conditions through which meanings emerge for those who engage with the artworks. If it doesn’t align with someone’s perspective, I hope it nonetheless suggests alternative imaginaries characterized by engagement, empathy, and a sense of wonder, through eyes infused with love instead of with fear.

“Thinking about...,” graffito on the wall of the art building at Antioch College, Yellow Springs, Ohio, August 22, 2021. Photo: Irene Georgia Tsatsos.

MONDAY, SEPTEMBER 13, 2021

Vick Quezada and I Zoomed today, and we discussed hostile environments and living in conflict or, rather, conflict as transition. I was reminded again of Ross Gay's remarks in "Black Nature, Poetry, and Coexistence" about joy. How did we get here, and where are we going? Perhaps an answer is not necessary; rather, one needs an ability to simultaneously experience different directions. Vick describes their queer abstraction as a temporal experience that engages plants, animals, ancient Indigenous knowledges, contemporary politics—including immigration—and land use in myriad forms. Landscape and the body are vessels that contain history, the present, and the future. From an Indigenous perspective, seeds collapse time between past, present, and future and dispel notions of distance between spirit and land.

Friant Dam on the San Joaquin River on the boundary of Fresno and Madera Counties, California, October 2, 2021. Photo: Irene Georgia Tsatsos.

THURSDAY, SEPTEMBER 30–SATURDAY, OCTOBER 2, 2021

Smoke fills the orange sky at Friant Dam in Madera and Fresno Counties, California, approximately one hundred miles from the lethal Paradise and Colony Fires, together renamed the KNP Complex Fire. Where the blaze was most intense, all trees and vegetation were killed, including thousands of mature giant sequoias. These trees, which can live for two to three thousand years, thrived for millennia when they were stewarded by Indigenous peoples, who practiced planned burns to manage the forests. These controlled burns decreased in the mid-1800s with the introduction of cattle grazing, which reduced the live and dead vegetation on the forest floor that feeds ground fires, and fire suppression by government agencies. Smoke from this inferno prompted air quality alerts as far away as Los Angeles County.

We are camping at Friant Dam during a three-night trip organized by Hillary Mushkin. Our focus is El Nido—a key location to collect scientific data about groundwater loss—and surrounding rural and small-town locations in California's Central Valley. The group includes members of the Caltech/JPL/ArtCenter data visualization group, Data to Discovery; Heather L. Williams, Professor of Politics/Coordinator of Environmental Analysis at Pomona College; and members of the *From the Ground Up* research team.

Points of interest are the Merced National Wildlife Refuge, the sundown town of Fairmead and its elementary school and water storage tank, and Friant Dam, where we are camping. The area's land subsidence—that is, the collapse of an aquifer after groundwater is removed—is pronounced. We are studying water access, equity, and environmental racism in areas relevant to the historical loss of native rights to tribal land and water as well as migrant labor, community water, and land rights. The group is hearing from experts deeply informed about local water and immigration safety, including farmers, a national park ranger, activists, artists, and a nurse.

Corn and agricultural runoff on a land-grant farm, San Joaquin Valley, California, October 1, 2021. Photo: Irene Georgia Tsatsos.

We also drive through miles of agricultural bounty lands, further from the fire, under hazy but clearer skies. These lands were granted to individuals by colonial authorities between 1775 and 1855 to encourage military volunteerism and to reward service during the Revolutionary War, the War of 1812, the Mexican War, and a variety of Indian wars, Indian removals, and other military and paramilitary actions.

Someone said, "Hillary is trying to help us time travel."

SUNDAY, FEBRUARY 13, 2022

Today, David Delgado Shorter facilitated a convening at Kuruvungna Springs, the ancient and sacred Tongva site that is maintained by the Gabrielino/Tongva Springs Foundation on what is now the campus of University High School in West Los Angeles.

Sky reflected in the water of Kuruvungna Springs, Los Angeles, February 13, 2022. Photo: Irene Georgia Tsatsos.

Leading up to the event, David shared a reading list with participants, saying: "I've long been interested in both my academic research and my personal life how to be with, how to encounter, and how to reciprocate carefully with other than human persons (a phrase used by A. Irving Hallowell). I am frequently reminded that all knowledge is not for everyone. Some people struggle to make sense of how to escape Cartesian thinking, which has been so central in the colonial project around the globe. But I have learned that the balance must be one of will and grace. As Martin Buber wrote in *I and Thou*, to encounter fully, one must be open to the encounter and exchange, but then also graced by a mutual commitment (whether from a tree, or a deer, as examples) which is never guaranteed. Yet it starts with will. How can you be willing to do something thought of as impossible by most of our educational training?"

David moderated a dialogue between Leah Garza and Craig Torres (Tongva) for members of our research team. It included a prayer song from Craig and regular commentary from other than human persons—the crows overhead and the gurgling spring. The morning's conversation was followed by a hands-on art/botany/observation workshop facilitated by Samantha Morales-Johnson (Tongva). We received a training in botanical study and used only blue and red pencils to draw from observation. The heady rigor of the drawing exercise quickly gave way, for me, to a series of messy, impressionistic purple blurs.

MONDAY, FEBRUARY 14, 2022

Sean Lahmeyer, along with Kelly Fernandez, brought the research team to the Huntington Library, Art Museum, and Botanical Gardens for a service-learning experience around the impact of the invasive emerald ash borer, an insect that has decimated ash trees in the eastern United States and is advancing westward. As we sat outside at tables under a large canopy, we cleaned *Fraxinus* (ash) seeds to support an initiative that aims to collect, store, and distribute seeds from species across the western United States.

FRIDAY, APRIL 1–SUNDAY, APRIL 3, 2022

Members of the project research team convened in Oakhurst, California, at the eighty-acre habitat that Olivia Chumacero (Rarámuri) stewards. Olivia guided us through two days of observations, dialogue, listening, and work. Olivia questioned the use of the word "myth," which she feels implies her culture's beliefs are fictions. Instead, she said, everything is storytelling. Indigenous sciences are embedded in stories. She invoked the work of Gregory A. Cajete, PhD, a member of the Santa Clara Pueblo Nation who has worked in the field of native sciences. Cajete asks, "What is Indigenous science? It is knowing how to live in a place sustainably."

Over the weekend, which included camping and community food preparation in a no-waste environment, the team delved into native strategies for land management, particularly fire hardening—reducing an area's vulnerability to wildfire through strategies such as controlled burns and raising tree canopies. We heard from two knowledge bearers in addition to Olivia: Ron Goode, Tribal Chair of the North Fork Mono Tribe and lobbyist for Indigenous fire management strategies on public lands, who advises agencies such as CalFire, and Cahuilla M. Red Elk (Cahuilla/Lakota), tribal elder, storyteller, and retired tribal attorney. We sat in circle. Ron acknowledged his relative, a red-tailed hawk circling overhead. Dr. Red Elk passed around the wing of an eagle, a sacred object amid the infinite others that surround and comprise us.

This time together served as a reminder to sit, observe, ask a question. Be okay with discomfort, embrace simultaneously different directions. How can we be willing, as David Delgado Shorter asks, to do something thought of as impossible by most of our educational training? No need to make space for people. Instead, amplify relational aspects. Be open to the context we're in now.

Oakhurst, California, September 28, 2021. Photo: Irene Georgia Tsatsos.

THURSDAY, JUNE 30, 2022

Cielo Saucedo and I met in their UCLA studio today. They have been producing 3D printouts of Mesoamerican artifacts from scans generated by the library at Miami University, which holds the collection. Students of anthropology recreate these artifacts in resin and other durable materials in order to study them while keeping the original objects intact. Cielo displays their printed objects on sparkling glass shelving units in accordance with museum conventions. Yet Cielo's printouts inevitably fall apart, because they are formed from Maseca, a masa product made in Mexico from genetically modified corn imported from the United States.

What does it mean to care for objects as they crumble? What is their afterlife? How do our efforts to maintain fragile artifacts inform our notions about what's to come? Cielo's objects rot and crack. They're subject to multi-organism impact (i.e. flies, ants). They're meant to degrade, like our bodies, like the urgent matters of our time. Cielo considers this work as a metaphor for their own body as a disabled person. Their work asks for the right to decay with dignity. Digging sites on land as surgery on the body? Consider the lifesaving properties of contemporary technologies in relation to the life-threatening realities of extractive practices. See the fragilities of and within our bodies, histories, identities, and land, physical and immaterial.

THURSDAY, JULY 14, 2022

In the basement of the Carnegie Observatories' Pasadena office is the Plate Vault, a fireproof storage unit that houses the second largest collection of astronomical glass plates in the United States. This collection consists of over 200,000 glass plate negatives of spectra—data taken from the light emanating from celestial forms, such as stars, and broken down into elements. The data is used to learn about the object's mass and size, composition, movement, distance from Earth, temperature, and more. These delicate glass plates, which date from 1892 to 1994, were generated using telescopes at the Kenwood Observatory in Chicago, Mount Wilson and Palomar Observatories in Southern California, and Las Campanas Observatory in Chile. They are organized according to coordinates in the sky and stored in wooden boxes with brass handles. The storage room itself is an archive of familiar smells and sounds; the gliding open and tapping shut of wooden drawers reminds me of old library card catalogues.

The artist Sarah Rosalena (Wixárika) translates these sublime glass images of past, present, and future into exquisitely beaded objects using traditional Huichol practices. Using beads attached to gourds and woven into textiles, she visually renders atmospheric maps that record temperature variations in the Earth's climate. With these and other works, she uses traditional, ancestral art forms to interpret twentieth-century mapping and data visualization, creating what she calls "glitches."

TUESDAY, AUGUST 16, 2022

How is it that in the most brutal environments, both on the home front and the battlefield, gardens continue to flourish?

Liz Goetz and I meet at Art in the Park, where she is director, in the Arroyo Seco in the Hermon neighborhood of Los Angeles. Liz works with Malaqatel Ija, Semillas Viajeras, Seed Travels, a collective comprised of individuals and groups in Guatemala, New Mexico, and East Los Angeles. Together, they apply practices of Indigenous science as they engage the itinerary of the plant through a broad network created by the travel of its seeds. This radical project focuses on community contexts and policy advocacy, spiraling around roots and seeds as time capsules for building a world. We're starting a conversation about planting amaranth in the Armory's front garden, a process that would create a community site for planting and harvest rituals.

Ancestral languages and the reintroduction of ritual are key themes flowing through the organic, intersubjective process of developing this project, which embraces the trajectory of forms of esoteric knowledge.

WEDNESDAY, OCTOBER 5, 2022

I've been meeting off and on with iris yirei hu since 2018. She uses paint, collage, and other media to represent her personal, spiritual, and psychic cosmologies. Her ideas about the ways plants can be racialized resonate with current environmentally sensitive preferences for "native" flora and fauna vis-à-vis current hostilities around immigration. Today, iris introduced me to Blue CHiLD., her persona that integrates geographically and temporally distinct events into a single complex portrait, as if transcendentally. Like her other projects, iris's newest work tenderly and analytically investigates cultural heritage, markers of Indigeneity, connections between people across land masses, and the effects of globalization. It suggests how people might reconstruct themselves after enduring imperialistic traumas throughout history. Her work is steeped in knowledge that has been passed down through language and ritual and held in community.

FRIDAY, OCTOBER 7, 2022

The research team continues to think about the conceptual framework of this exhibition project. The subject and place of land—the gift of ground on which we stand—is a unifying theme. We are looking at intersections of diverse practices that have informed our engagement with place, urban and rural, rather than focusing solely on the representation of specific cultural territories and traditions. We are engaging visual artists and cultural practitioners with deep, often intergenerational relationships to the land and the struggles to build collaborative and sustainable futures.

Marcus Zúñiga visited the Armory today to share his plans for a sculpture that uses 3D printed lenses, light, reflective surfaces, and plant matter to align his family's stories of movement and place with astronomical phenomena. His work is based on conversations with his family about their history and experiences, and his forms evoke intergenerational connections that are spiral, not linear. He speaks of time in terms of its specific movements and abstract representations and references an alignment of his spiritual engagement with the land and his and his ancestors' "embodied experiences" there.

How to establish one's place as a human—an offering to the cosmos.

TUESDAY, DECEMBER 20, 2022

Just one day before the northern hemisphere winter solstice and three days before the final new moon of 2022, fourteen people came together and built a collective altar with herbs used to connect to dream worlds. The event was an herb and dream workshop at Lewis MacAdams Riverfront Park in Los Angeles facilitated by Charmaine Bee. It confirmed the power of the dreams that led me along the forest path to the serpent mound.

Spirit and trauma. Older and more futuristic.

FRIDAY, FEBRUARY 10, 2023

In the post-hardware future of Larissa Lai's novel *The Tiger Flu* (2018), flora and fauna have become technologies and the world has shifted entirely to wetware, cell culture, and herbology. Lai's science fiction responds to knowledges of the land rather than limiting itself to "hard" technology, like spaceships. It calls to mind the work of Carl Cheng, in which he uses hand and machine craft to transforms found objects and materials associated with waste into public art interventions that track, map, index, and archive the routes of objects, people, and systems of organization.

WEDNESDAY, JUNE 14, 2023

This project could go in many directions—madness and civilization (whatever each means); representation, perception, and subjectivity; a study of the devastation of climate change. In the research process, we foregrounded experimentation, subjectivity, and relationships, allowing for unknown and unexpected outcomes. The results of our research—the "findings"—are more questions. Embedded in all of the works in the exhibition are an implicit or explicit critique of colonialism and diverse ways of providing optimistic resistance to conditions of diverse hostile environments. This project is a love letter to land.

Nikesha Breeze explores dance as a form of inscription on land in the former location of Blackdom, their ancestral home in New Mexico. Blackdom was a frontier boomtown in northern New Mexico that was founded in 1903 and lasted about thirty years. It was a manifestation of a nineteenth-century vision of an Afrotopia that existed outside of Jim Crow, as Indigenous spaces in the region metamorphosed into the imaginary of the American West. Breeze's film documents a performance ritual that somatically maps the lineage of place.

TUESDAY, JULY 25, 2023

This project foregrounds experimentation and conversation; it acknowledges relationships and collaborations, personal stories, and oral histories, and has resisted mainstream ideas of institutions as authoritative cultural voices.

In community processionals using puppets, masks, and other theatrical tools, Lez Batz (Sandra de la Loza and Jess Gudiel) draws out relationships with land and the community of humans and nonhumans in the hills of Northeast Los Angeles and beyond. Through events and community organizing, such as efforts to stop commercial development projects, the artists strive to invert the status quo, foregrounding native and interstitial spaces while moving the built environment to the background. Their

(14) Winfried E.H. Blum, Sophie Zechmeister-Boltenstern, and Katharina M. Keiblinger, "Does Soil Contribute to the Human Gut Microbiome?" National Library of Medicine, National Center for Biotechnology Information, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6780873/#:~:text=The%20soil%20contributes%20to%20the,provider%20of%20beneficial%20gut%20microorganisms.

decolonial process offers a way to move through layers of capitalism and displacement by building relationships with local flora and fauna. Lez Batz turns research into graphics, activism, and installation.

WEDNESDAY, SEPTEMBER 13, 2023

In *Moon of the Crusted Snow* (2018), dystopian fiction by Waubgeshig Rice (Anishinaabe), the power goes down in an Indigenous community in rural Canada. All connections to the rest of the world are severed. To ensure their survival, will community members revert to their traditional customs, for example, sharing a successfully hunted moose with everyone, beginning with the elders? Is the will to do so still there? Having endured environmental and external threats in the past, will the community recover the knowledge and resilience necessary to navigate through this and future crises collectively?

Mercedes Dorame (Tongva) and I visited today. She said, "My work has always trusted in a sense that's not my own." For her community, self-preservation was a sacred tongue, a method of banding together in solidarity against a broader culture that was hostile to their existence.

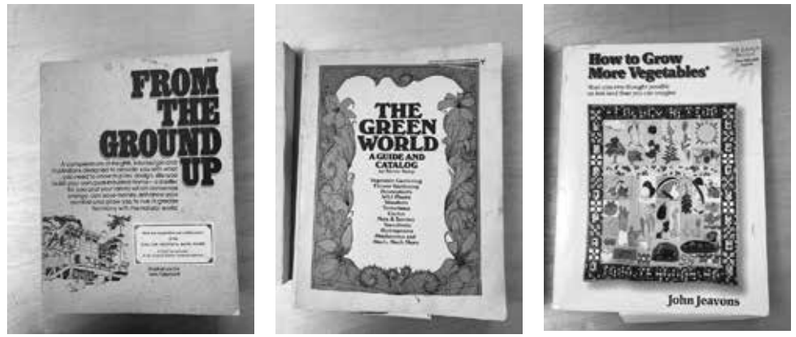
SATURDAY, SEPTEMBER 16, 2023

Earth: a dominion that is being drained.

A chore for the apocalypse: how to prepare seeds for worlds they weren't made for?

At a party, conversation turned to NASA, JPL, and other governmental agencies and corporations that are asking how to prepare seeds for extraplanetary ecosystems. Facing the consequences of extractive practices on Earth, technology is enabling a capacity to seed planets in outer space. Against this Icarian mentality is an uprising of integrated, holistic perspectives that strive for healing on Earth. The work of these artists, scientists, and activists reflects a longing to connect with the natural systems that modernity has almost obliterated.

Seeds are time capsules. They contain histories, and in any given present they can be sites of resistance and conquest as well as sustainability and abundance. Within them is the power to generate a landscape of alternative potentials. Artist and teacher Beatriz Cortez conceives of the planet as an organism. She sees the end of the Anthropocene but not the end of plants. Beatriz offers seeds and gardens for future life forms, with knowledge transmitted through the instructions and materials—seeds—embedded in her works. She advocates for displacing humanism and listening to other, nonhuman voices that exist in the human era. The world is undergoing significant realignments; imagine the future is now.



From left to right: John N. Cole and Charles Wing, *From the Ground Up*, New York: Little Brown & Co., 1976; Stone Soup, *The Green World, A Guide and Catalog*, New York: Berkley Windhover, 1975; John Jeavons, *How to Grow More Vegetables*, Berkeley: Ten Speed Press, 1995. Photos: Kimberly Varella.

TUESDAY, SEPTEMBER 26, 2023

This project centers knowledge transmitted through community, storytelling, and ritual. Fittingly, then, this publication is inspired by the propositional qualities of manuals, which provide guidance to people who want to figure things for themselves—and others. Graphic designer Kimberly Varella shared inspiring images of seventies-era books on gardening. One of them, called *From the Ground Up*(!), uses the word "compendium" to characterize its content and approach. According to Wiktionary, the Latin *compendium*, from *com-* ("with") and *pendō* ("I weigh"), is "that which is weighed together; a sparing, a saving, an abbreviation." In this project, we weigh information and learning, the ways they're accessed and produced and where they're held. And we question, who owns this knowledge, and who is entitled to it?

FRIDAY, OCTOBER 6, 2023

According to the National Center for Biotechnology Information, "Soil and the human gut contain approximately the same number of active microorganisms, while human gut microbiome diversity is only 10% that of soil biodiversity and has decreased dramatically with the modern lifestyle. . . . Soil . . . was essential in the evolution of the human gut microbiome and it is a major inoculant and provider of beneficial gut microorganisms."[14]

Aroussiak Gabrielian and I met again today over Zoom to talk more about her work capturing excretions of the human body to support "future kin," the organisms in soil created by bodies upon decomposition. She works with a choreographer, a sound artist, and an ethnoentomologist to develop labors and rituals of care for soil, our ancestors, our future kin. Their work proposes a new way of thinking about our relationship to the biophysical world and to death.

Science maintains that matter is neither created nor destroyed. It gets reconfigured, from stars to atmospheric mass to earthbound soil, ice, flora, and fauna. Earth is estimated to be approximately 4.5 billion years old. Extrapolating from this, the atoms throughout the planet—and within our bodies—are billions of years old.

You and I are earth.

Kuruvungna Springs Convening:

A Conversation between Craig Torres and Leah Garza

David Delgado Shorter, PhD

On February 13, 2022, staff members and researchers of *From the Ground Up: Nurturing Diversity in Hostile Environments* gathered at Kuruvungna Springs in West Los Angeles for a discussion between Craig Torres, Tongva knowledge-bearer, and Leah Garza, PhD student in community liberation and Indigenous and Akashic psychology at Pacific Graduate Institute. Their conversation was moderated by me, David Delgado Shorter, PhD, professor of World Arts and Cultures and Director of the Archive of Healing at the University of California, Los Angeles.

Flora at Kuruvungna Springs, Los Angeles, 2022. Photo: Irene Georgia Tsatsos.

As the organizer, I worked with Irene Georgia Tsatsos, project director of From the Ground Up, and Bob Ramirez, president of the Gabrielino/Tongva Springs Foundation, to foster a conversation intended to help us bridge the gap between Indigenous and non-Indigenous worldviews and the false dichotomy, from an Indigenous perspective, between art and science. The day-long convening also included other artists and cultural producers: Sandra de la Loza, Diana Castro, Kelly Fernandez, Lilia Hernandez, Hillary Mushkin, Enid Baxter Ryce, Jen Jahner, Caroline Liou, and Karen Satzman. In the afternoon, we were joined by Tongva botanical artist Samantha Johnson, who helped us put into practice our renewed attention to the plants around us at Kuruvungna Springs.

During the conversation, a core value of being *in relation* emerged, with an emphasis on breaking free from the individualistic thinking that sets humans apart from other living beings. Artists, activists, scientists, poets, choreographers, gardeners, Native people, and settlers, we are all facing some of the same questions, and our future depends on seeing our relatedness, rather than our separateness. Relations with others are key to our collective health. If we are to avoid continued environmental collapse, we must decolonize our sense of the possible in order to challenge a worldview that positions Western-educated humans above all other forms of life. We can then begin to see ourselves within a vast array of intelligent, sensual lives who know much more about living in balance than the capitalist and object-oriented sciences, which are useful in some ways and dangerous in others. The Cartesian model of thinking has been central to the colonial project around the globe. This destructive mindset, which divides our educational system into discrete disciplines, such as art and science, has not helped us to discern the interconnectedness of our methods and values. But we do have some tools to find better ways.

The day is gentle, a cool breeze blows through the tall trees overhead, and the sun shines through a crystal blue sky upon the Kuruvungna Springs, a meeting place for the Tongva since long before Europeans came to the Western US coast. Tongva elder Craig Torres stands up wearing all white except for his teal blue vest and a glimmering abalone shell necklace carved in the shape of a large fishhook upon his chest. He keeps a steady rhythm with his hands and sings in Tongva. His words, foreign to everyone else in attendance, float into the trees and join the sound of the trickling spring water running through plants and rocks nearby. Just as these waters show us the way, a group of scholars, artists, and curators gather to replenish and renew our sense of hope for balanced relations with our environment and with the traditional caretakers of this region. We convene to think together about how to move through what feel like hostile environments—ecological imbalance, social justice uprisings, and the intense political pressure on already over-stressed populations—in ways that do not replicate the too-often extractive collaborations between artists, scientists, and Indigenous communities.

While Torres and Garza speak, tree branches sway in the breeze. Crows call from above. We are quiet and deeply listening. This is it. This is the medicine we need to heal and to help others find collective wellness.

DAVID DELGADO SHORTER (DDS)
CRAIG TORRES (CT)
LEAH GARZA (LG)

DDS We are honored to have the Tongva elder Craig Torres start us off with a blessing.

CT My blessings are simple. I want to thank everybody for being here and to thank David for the opportunity to be here. To Robert [Bob Ramirez] for providing the space and to the spirits of the Earth—the land that inhabits this place—for their permission to be here. I want to welcome everybody with an ancestor song that's asking the ancestors to look at us, to look into our hearts, and to acknowledge who we are. We believe that when they see us they don't really see the outside, they recognize us by our hearts, because that never changes.

[Torres sings Tongva Ancestor Song.]

I always tell the children I teach at Rancho Los Alamitos [Historic Ranch and Gardens] that I didn't learn about my culture from a book, I learned from my family. When I was a kid, my mother would get together with her sister, and they were always talking about their *nanita* and how she had land at one time and that land was taken away from her. I heard that story over and over again. Being a kid, I got tired of it. But now I'm grateful, because repetition never lets us forget. I was one of those kids that liked to hear the stories. I'm the youngest of seven children, and I'm the one who keeps up the stories in our family. That has connected me to this land.

When I was eighteen or nineteen, I knew that we were Gabrielino from the San Gabriel Mission, but I didn't know much about those ancestors, because all of that knowledge was severed from us in the process of colonization. I was raised in a Catholic household, although I've never been really connected to that way of being. When I found out how my Tongva ancestors did things, it was like coming home: "That's who I am." That led me on the journey of my entire adult life of trying to find out what happened, why we don't know anything about who we are.

I know David refers to me as an elder. But I don't feel comfortable taking on that title until my community tells me that that's what I am. For the longest time, my education was focused on Tongva culture, but now it's come to a point in the last fifteen years where it's focused on Indigenous core values that anybody around the world can identify with. People who maybe have been separated from Indigenous culture, they can still connect with it, because it's basically talking about reciprocity, ancestors, sharing, and community. Who doesn't have core values based in those?

DDS In my work with native communities and as a non-native person—as a settler—I have noticed a chasm between Indigenous experiences of the world and those of the people who are well-meaning and well-intentioned who want to collaborate with these communities. Our language and our culture drive home the notion that you are an individual, while native communities think of themselves as *dividuals*. They are connected, they speak of "we." Craig would never say, "I'm an elder," because that's an individual claiming something. He would only accept it if a collective said it.

One of the ideas that I want to talk about today is protocol, what Craig calls "core values." For any of us working in the world of curation and event organizing with artists who center Indigenous perspectives, the conversation today is going to focus on some of the ways that we can learn about where to meet in the middle. There's a saying in Yoeme: *Inepo hiva nooka*. (I am only one person talking.) I want to accentuate that Craig does not represent the Tongva today, he's one person talking. I also want to say that this is a safe space—that's why it's a closed, not public, event. Do not feel afraid to ask a question because you don't know about the right words. We're not that kind of people.

My first question is to Craig. What are some of the things you wish the non-Tongva people you have worked with over the last couple decades would have known? What has either caused problems or caused you to do more work than you wish you would've had to? What are those things you wish they would've known at the outset?

CT I would probably say that there's nowhere to go to learn about the Tongva. Many of our own community members don't know their history. Let me put it into perspective. I'm the youngest of seven children. My mother is the youngest of seven children. And out of all those relatives, I'm only one person who knows about their family history. It's probably been my generation and maybe a generation of people ten years older than me or so that have been able to stand up and articulate our culture and history for the first time. I'm always telling people that we didn't have a group of elders to go to when we wanted a question to be answered. We really had to put ourselves on the forefront. At fifty-six years old today, I feel like I'm an elder, because I've done so much education within social work. I haven't even been able to focus on my art, because I have spent a lifetime doing that.

There are many things that I want people to know. We don't have a vehicle to get ourselves to our homeland, we don't have a homebase, and we don't have cultural centers, with the exception of places like this, which are beginning to be satellite places that we use in reclaiming the landscape. We're a landless people in our own homelands. When they talk about the homelessness epidemic across the nation, I can empathize with that, in a way. I'm fortunate enough to have a literal house to live in, but I still do feel homeless in a sense. The only time that I feel connected to those ancestors is when I'm on the land. All those buildings are gone. That's why places like this are so important, because they allow us to reconnect and reestablish relationships with those relatives that allowed us to endure on this land for thousands of generations. If it wasn't for them—the animals, the plants, the rocks, the stones—we wouldn't have survived as human beings. I want people to know about those things.

Since the beginning of colonization, there has been a mistrust between Indigenous people and institutions, government agencies, and organizations. If these groups don't get the answer they want from one person, they go to somebody else. Part of that is our responsibility—to come together as a people and find ways to maneuver through that, because it is an old tactic; the colonizers divided and conquered us. One of the things that I have experienced in what feels like a lifetime of working with all these places is that you can develop a great relationship with one person or a few people, and then, when they leave, you have to start all over again. One of the things that I'm trying to teach a younger generation is to establish an MOU [memorandum of understanding] with the institution, before you even start working with them. Some type of agreement that is sustainable. It's not just a one-time thing, it's a continued relationship. I'm trying to look out for the youths that are starting to get involved in this. They have the energy, and they want to take on a lot of stuff. I tell them, "Slow down, because you're gonna wear yourself out."

The bottom line is that we were given instructions on how to conduct ourselves on this landscape thousands of years ago. Anybody who lives here now should start practicing those ways of existing. And they should know their place as human beings. I'm still learning what my place is as a human being, I'm still reestablishing that relationship. Just because those are my ancestors doesn't mean

I know everything about it. But I have a certain connection, because the stories that I heard when I was young embedded that sense of being in me. I've learned all my adult life through books and through other people, but I really started to learn some profound lessons when I started putting myself on the land. They started talking to me in a certain way that I allowed myself to be open to.

People look at the Spanish missions and think of them as horrifying. They don't realize that when this area was taken over by Americans and it became the United States, it was worse, because there was a mandate to annihilate Indigenous people. It wasn't integrating them into society, it was annihilation. People don't understand, and we still don't have conversations about that, because it's so painful, even for the general public. Unfortunately, that legacy of mistrust is still present in today's relationships.

DDS In Bob [Ramirez]'s tour earlier today, he talked about how it was impossible to be Indian. There were generations that couldn't say they were Indian, and it was literally *illegal* under federal law to practice your dances. Now, we define "Indianness" as people knowing the dances. But how are you supposed to know the dances when it was illegal for three generations to practice it? There was a ten-dollar bounty on any Indian scalps brought to San Francisco in 1910. I don't talk a lot about this violent aspect except to say that we're asking our native collaborators to perform a type of "Indianness" that they haven't, literally, in their own families and tribes, been able to be.

That accentuates another thing that you said. There is a handful of people in the Los Angeles area who are knowledge bearers. That means a lot of institutions and artists and other people are coming to a *handful* of people, of which you are one. We want people to work with Tongva people because, yay, we agree with their moral compass of centering Tongva stories and people. But that's also just another person asking you to do something. Do you want fewer people coming to you?

CT You know, probably at this point, yeah. I've been doing it for so long. It's time for me to transition into other things. One of our deceased elders, Julia Bogany [1948–2021], made a comment that I'll never forget. We were talking about historical trauma, and she said our people focus so much on the historical trauma and how that has affected us trans-generationally. That can put you in a hole that you never climb out of, and it can lead to so many other things that we won't even get into here. She said, "I want to start focusing on the historical wisdom of our people and what got us through all those generations of trauma. What did we do historically, what did we do traditionally?" We have focused so much on the trauma, but we're not embracing that wisdom.

DDS Capitalism and consumer culture have created a vacuum in contemporary society. People then see Indians as the fix: Native stuff is going to fill the chasm; we need to learn Native ways of taking care of plants. And the first thing I think of is, "Great, another responsibility for Natives to do for non-Natives." We are all in it together, it's time to be "we." As Olivia [Chumacero] says, "I start with, 'I'm human.'" But not all humans are equally responsible for the situation we're in right now. So, who takes the lead, and what do you see as the role of collaboration? It would be interesting to hear your takes on this. Leah's perspective, as a person who studies decolonization, might be a bit broader. We'll start with Craig again, but I'd like Leah to answer as well.

CT I'm going to take it from a personal perspective and focus on the work that I do as an educator. That's something that I learned from one of my contemporaries, Cindi Alvitre, in talking about this phase, about refocusing your cultural lens on the landscape. That's what my education has evolved into—getting people to question their relationship with the rest of the nature around you. It goes back to our narratives about when human beings first emerged on the landscape, they were the last ones to emerge. It was their responsibility to never separate themselves from everybody else who had been here before them—the nature. In fact, we don't even have a word for nature in Tongva, because to make up a separate word for it, you're separating yourselves. So that's the first thing: to understand your role. It's not to chastise people, because my approach is always to get people to think and to question for themselves. Go and experience it for yourselves, don't listen to me.

We are in a critical time right now where people have to use common sense. My ancestors were given a way to live on this land so long ago, and they survived that way not for a few hundred years but for thousands of generations. In comparison, how long has this been the United States of America, and how much of the landscape has been destroyed since? It's the same for any place you go around the world. People need to seek out the Indigenous people of the land. But it needs to be built on reciprocity. You don't just go and say, "Hey, you guys have this knowledge, I want it." After years and years of nicely tapping people over the head and saying, "Hey, wake up," they're barely starting to wake up now. I'm transitioning to my community. There's a new generation coming up, and they need our guidance. Then they can go out and teach other people.

If people are going to live here and call this their home, then they better understand those ancient instructions that were given to the people that first lived on this land and survived with just the nature around them. It seems like common sense, but I don't think people use that today. They're so distracted by all these other things that they are detached from the basic, simple things that are in front of them. That's how my role as an educator has evolved, from getting people to know not just about this plant or that animal, but also to really change up here [pointing to his head] and right here [pointing to his heart]. Because if you don't change those two things, they are always going to look at it as something to commodify or exploit. They're not going to see that each living thing on this land has a personhood of its own, and it needs to be respected, it needs to be approached in a certain way. It's not yours for the taking.

LG You used the phrase "Go ask a Native." That inherently invokes this idea that we have to go find and extract the thing that will remedy the extractive mindset that we live with. This is why I'm so fascinated with ontology, because it's in the very way that we ask questions, it's in the very way that we pose problems. I'm teaching a class right now to the public about decoloniality and ontology. So many of the students, like you said, with great beautiful hearts, ask, "How do we fix it?!" The notion of fixing—it's hard to say this—comes from the world of brokenness. So you're immediately turning a natural relationship into work, into labor. I have to reflect on where I turn my existence into labor. How can I not do that? Whether you're Indigenous or not, you're Indigenous to the planet; somewhere in you is a relationship with the land. But if we see that as work, then we bring all the trappings of capitalism into a relationship that we're trying to make to heal capitalism.

CT From a cultural perspective, the only thing we ever wanted was to be allowed to be human beings and to follow the instructions we were given on how to conduct ourselves on the landscape. That tie was severed. Those core values are part of who we are as a human being. Reciprocity is the concept or practice of sharing and caring for your neighbor, not just thinking about yourself. Because we live in such a "me"-based society, it's really hard for people to go outside of themselves and even look at the communities around them. What is your community, not just your human community but also the nonhuman community, and what is your impact on that in your everyday life?

One of the things Cindi [Alvitre] told me was that in the morning, when she first wakes up and she's brushing her teeth, she says thank you to that water, because we're not guaranteed it all the time, and to acknowledge the spirit that exists in every living thing around us. It's trying to be a human and understanding what that is. And for me, it's going back to these stories that tell you how you're supposed to conduct yourself on the landscape. That's how your ancestors survived thousands of generations, that's how you're going to do it. You tried the way of the settlers, and it's not working.

DDS Can you each find one positive thing right now that is not a crisis but a moment of beauty, joy, or hope in your individual work?

CT One of the things that Bob [Ramirez] has done here is bartering, knowing that things don't exist just as economic capital. Lawrence Orozco, who is non-Tongva, is doing the same thing up at Haramokngna [a Tongva village whose name roughly translates as Gathering Place]. There are ways to exchange and volunteer, there's give and take. You give me this service, I'll give you that. We all have our talents, and those talents are worth something. If I have a talent for doing something, hey, maybe you can use that talent. And I need a talent that you have, so let's do an exchange, right? In our Tongva language, we call it *maxaa*, which means to share. Embedded in that word is an active role, a process of give and take. People need to start thinking of things that way too.

DDS I lived on the Navajo reservation for three different summers. When my parents disowned me, I was adopted into a Navajo family, and I would always tell the medicine men, when I would ask them to do something, "I have cash!" And they would say, "Oh, yeah, we love cash. You can also just bring something you made or something that's really important to you that's of equal value to what you get from the ceremony." They were essentially saying that cash works, KFC [Kentucky Fried Chicken] works, turquoise works, you cutting wood for me the week after works.

Leah, what are you seeing that's positive?

LG You know, the master's tools will never dismantle the master's house, as Audre Lorde says. We don't have the answers within colonialism. But we can look at places that are struggling yet writing into their doctrines of governance dignity for the land or stating that dignity is a part of wellness. Money is not the only thing. We have to look at those examples.

I would say that the thing that keeps me going is the notion of decoloniality. Social justice asks us to find ways of equity within systems that care not for the global South, care not for Indigenous people, care not for the land. Social justice is limited to making equity within the systems that are breaking the environment. In contrast, decoloniality offers the question, What else is possible? What else can we dream? What else can we imagine? What other ways of being together that encompass equity or justice or dignity for everyone and everything are possible? Eve Tuck says the same thing—social justice and decoloniality are incommensurable in a lot of ways. They're not seeking the same goals, even if their trajectories look a bit the same. I'm not asking anyone to join me, I'm just saying this is where I am.

DDS Tuck and [K. Wayne] Yang are the authors of an essay that argues that decolonization is not a metaphor.[1] They essentially want us to stop using the word *decolonize* unless there's a real bite to it, like the *actual* transfer of land. Anything else is a reach towards but not an actual exchange of power. I think about how decolonization is something that intellectuals can throw around and artists can play with, but at the end of the day, you come up against the blunt force of capitalism.

We've been asked to think about art and science for this Getty Initiative, PST ART: *Art & Science Collide*. As part of our research process, we've had some online exchanges where scientists have tried to talk to artists, and I find that they are talking right past each other. There's a failure to meet in the middle. I don't know if it's about positivism or the scientific method, but sometimes I feel like there's an attitude that science has the right way and the truth, and artists are just playing with emotions and subjectivity.

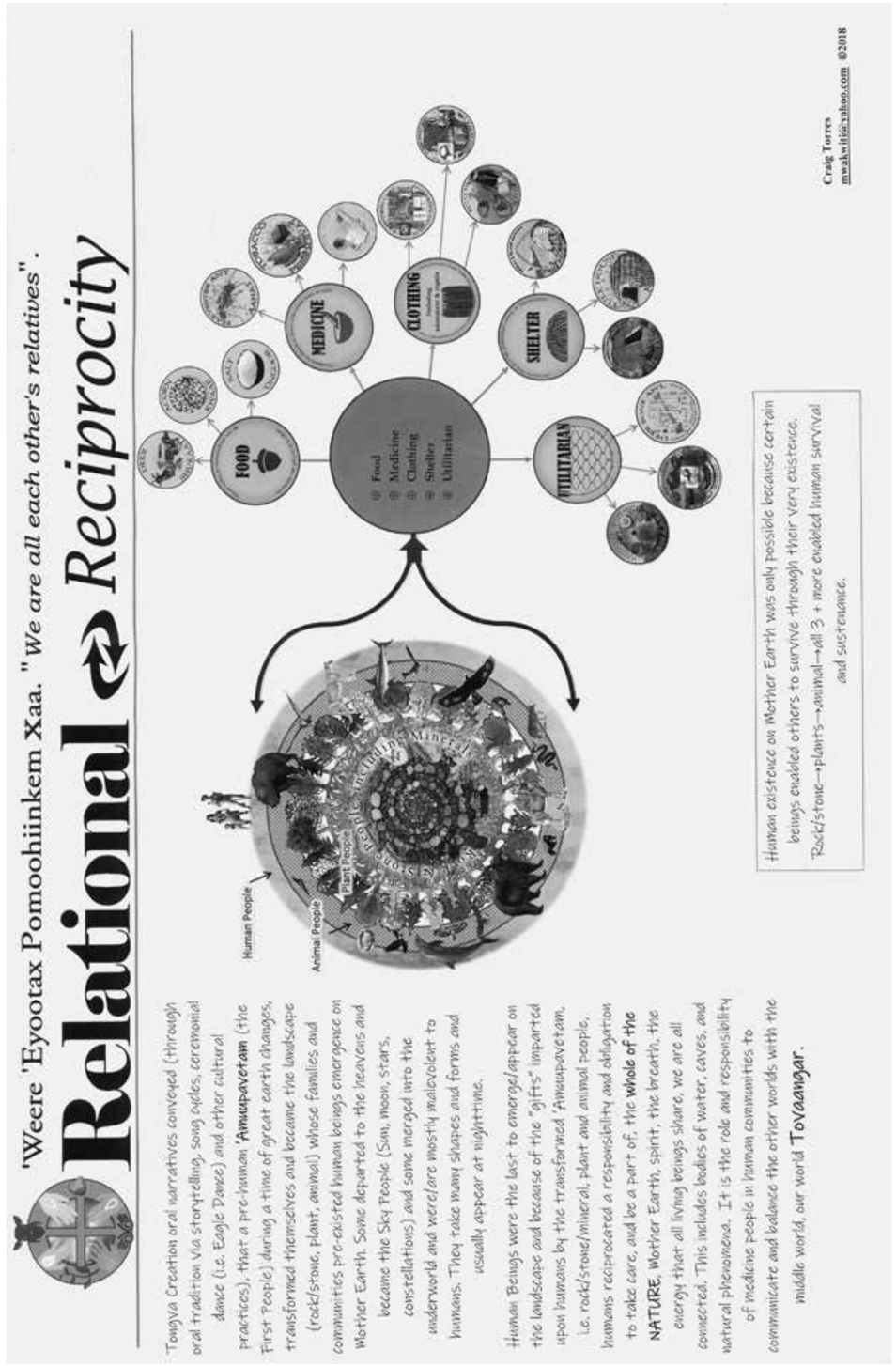
Craig, you said you haven't done your art in a while. Doesn't that deeply affect how you move in the world? The last time we had a meeting, in November, some of the Tongva community members said that we shouldn't do anything really political right now, because that's too contentious. They want to focus on art and culture. But art is always political. I want you to speak a little bit about how art and science are in your life, how you see them creating friction against each other—or not.

CT For me, there's no separating it. Some of the stuff that we've been doing over the years, like our sand paintings and sand sculptures, are, for lack of a better word, sacred art installations. They are really not art, because they're part of a ceremony. But where do you draw the line? Over the years, in our community, we've integrated art without even knowing we were doing it. It just became part of who we are and what we do. I think that's my question to a lot of the younger up-and-coming artists—and we do have a lot of very talented young artists in our community. Where does it become something that is defined in Western terms versus the way your own people would have defined it?

LG It's funny that the Getty is hosting this, because traditional Western museums are mapped out in eras, and Indigenous art is never in the same canon as Western art. That, in and of itself, is a deep misunderstanding. When spiritual relics are grouped into this notion of art, they're stripped of their powers and their relevance to a culture. Craig and I were talking about how, in the Tongva view, a museum holding their baskets is like those baskets being imprisoned. They're "things" to that museum. Here [at Kuruvungna Springs], you understand how basket weaving and the baskets themselves don't ever lose that living relationship, even if a museum has classified them as objects of art. It's still a plant that you continue to have a relationship with.

There's a huge international movement right now in museums to return artifacts. Who will and who won't? To me, that's an ontological rift. These two worlds are butting up against each other, unable to speak the same language. Both art and science come from the world of Enlightenment, which is the root of our colonial structures today.

(1) See Eve Tuck and K. Wayne Yang, "Decolonization Is Not a Metaphor," *Decolonization: Indigeneity, Education & Society* 1, no. 1 (2012), 1–40.



Craig Torres, *Relational Reciprocity*, 2018. Printed and digital poster; dimensions variable. Courtesy of the artist.

(2) For more information about the Mapping Indigenous LA project, see https://mila.ss.ucla.edu/.

DDS Ontology, in the philosophical sense, is what is real. In ethnological terms, in the last fifteen years, it has meant *who* is alive. This relates to theories of animism, in which Indigenous people relate with living beings whom others might consider "things" or inanimate. This is where the English language is colonial, because they're not *things*. The third-person impersonal pronoun *it* has done us a disservice, because it separates us humans from the rest of the world, which we now think of as natural resources, meteorological events, and geological structures, rather than Great-Great-Grandma or other relatives. We don't see plants as someone we can relate with. We don't see animals as having will, intention, agency, and even intelligence that is different from human intelligence. Craig idealistically uses the term *common sense*, but what's common sense to me—as someone who was raised by my great-grandmother, who was a healer—is not common sense to a lot of people.

On a personal level, can you give us an example of how you relate that we might bring into our own lives?

LG This question comes up with my clients in my Akashic practice. People want to know, "Do I have a gift? Can I connect? Is there something special about me? This happened, was it real? Can I trust myself?" All of these questions point back to the way we embody the coloniality of being that we have been taught from a very early age. Our abilities to relate and perceive outside of our five senses have been completely quashed by our indoctrination into society. We learn early to diminish our knowing. I don't know how to teach someone how to undo that, but it starts with having compassion for your colonial self. I have compassion for myself for doubting my knowing, doubting myself, or thinking that I'm not good enough at something. Compassion is the language, it's the lubricant in the machine that makes the shift happen. For me, it is getting people to have that compassion first and then settle into whatever is the thing that you are wishing to know.

[To Torres] When you were first speaking, when you were singing, I saw in the corner of my eye somebody moving back and forth over here. That's a pretty average experience in my life. But for a long, long time, I would doubt it: "Oh, my mind's playing tricks on me. That's not happening. That's my imagination; imagination is child's play; imagination is nothing." *Imagination is everything*. It is deceptively powerful. And it is the scariest thing for the colonialists.

We have to abolish schools. I'm not kidding, we call it *spirit murder*. I worked with young adults that were just getting out of prison and coming back to school after a long break. They were so out of touch with their bodies, with trusting themselves, with a sense of belonging. Schools crush that right out of you.

CT Well, that gets into renegotiating and redefining the words that we use, which leads me to the posters that I'm sharing with you today. For years, I've been working with UCLA's Mapping Indigenous LA project, trying to develop a repository of resources for teachers.[2] What inspired me to make the posters was a question. As the Indigenous people of this land, how would we educate a younger group of people about at least starting to do this? I didn't even realize in the process of making story maps that I was using our tradition of sand paintings, which are also, in a sense, a kind of mind-mapping. I don't know if you are familiar with the process of mind-mapping, but you start with a central idea, and then all these other spokes come out from it. So I started doing that with this poster, which was based on one of our narratives. I always tell people, we don't have one creation story, we have many narratives that explain different things.

One of the stories is about how when death was first brought into the world, everything on the Earth transitioned. The first people were called the Amupaavetam. They weren't humans like us. I tell the kids, I don't even know what they look like; they were spirit beings that existed on the Earth. When death was first brought into the world, they became the rocks, stones, animals, and plants. We humans were the last ones to emerge, and we are the most vulnerable of all of the species, because we need the most help. The Amupaavetam transformed to help us survive. Some went up to the sky and some went to the Underworld, but everybody took their place in the world.

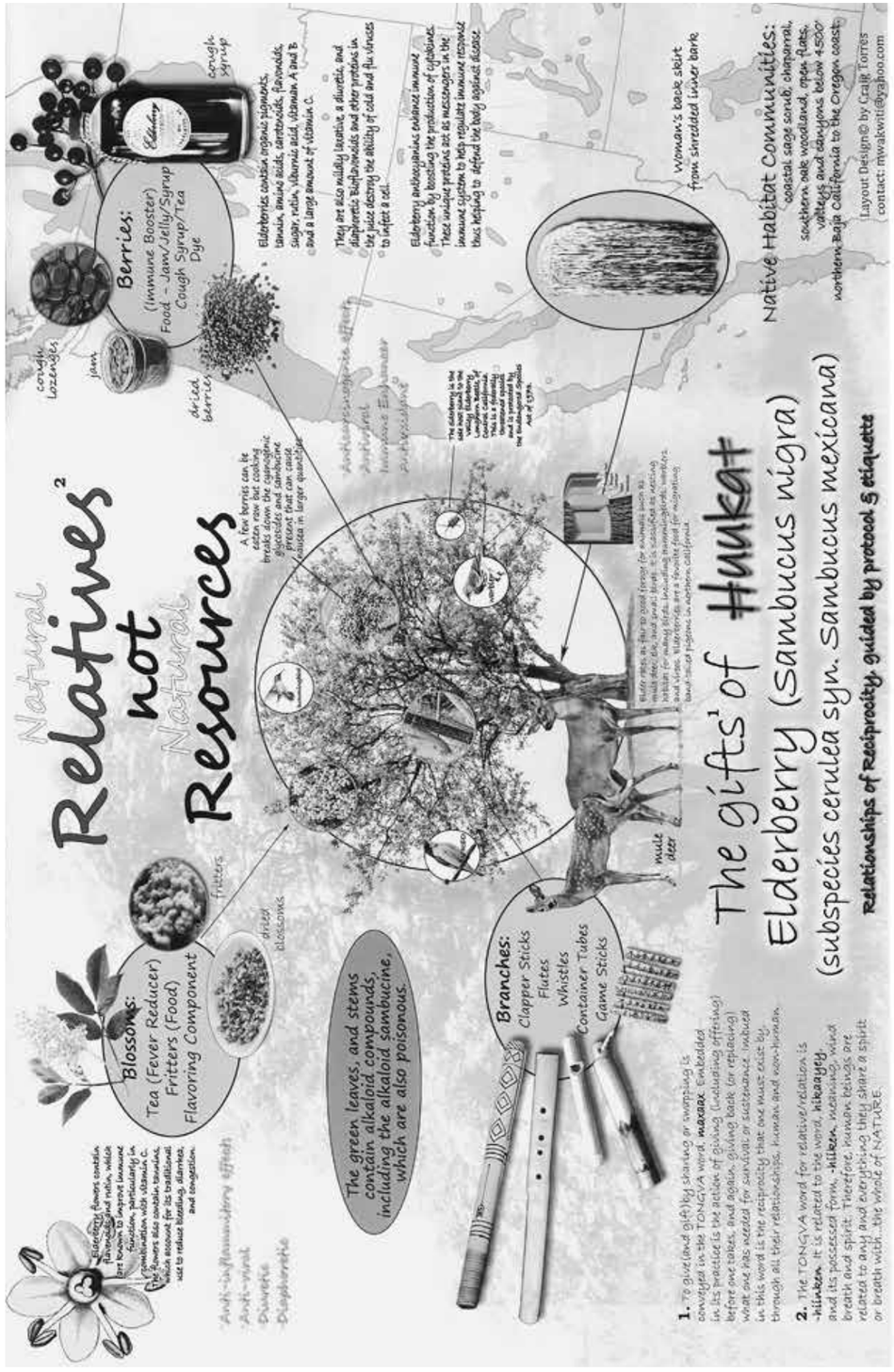
In the poster, you see concentric circles starting in the center, with the most ancient of our ancestors—the rocks and stones. Then come the plants; the rocks, the stones, and the land help them survive. Then come the animals, and they sustain themselves on the plants. And so it keeps going. The last to emerge are the humans. They are on the outside of the circle not because they dominate everything on the inside, but because they're responsible for maintaining a balance between everything inside that circle and never removing themselves.

Sometimes text just goes in one ear and out the other, but visually, it starts to make more sense. You see these arrows over here? Well, how have humans survived on the landscape since they first existed? It was through food, clothing, and shelter. Then I added medicine and utilitarian tools. And I thought, my ancestors didn't have a concept of trash like we do today. Imagine that. There was no such thing as trash. Everything that we used came from an animal, a plant, a rock, or the elements—fire, earth, air. I made this for kids, but it is a teaching tool for anybody who's trying to refocus their cultural lens onto the landscape. Because, when it comes down to it, this whole thing is about mapping relationships.

In the second poster, I started with the elderberry in the middle surrounded by all the gifts that the plant gives us, starting with the berries for immune support, the flowers for fever reduction, and the branches for our musical instruments. I don't like the term *natural resources*, because it implies commodification and exploitation. That's not the right word for the elderberry, so I call it a natural relative. I thought, what about all these other natural relatives that have a relationship with the plant? So, I included the deer, and the birds that use the elderberry for nesting. All these comprise a plant community. When we take one thing out, it changes everything. Mapping out all these relationships puts things in perspective.

We're all removed from where these things come from. We rarely look at the ground below us. We look at a store to get our clothing, our food, even things to build our house. The tie has been severed. My ancestors lived on this land for thousands of years, and they knew the protocol and etiquette of how to conduct themselves. You just didn't go up to a plant and rip it out because you needed it. You approached it in a certain way, you offered it something, and then it gave you one of its gifts. Then, you ensured that it was going to continue on for the next generation. If I'm going to plant an elderberry, I need to know what environment it best thrives in, when to harvest, and what it needs as far as coppicing or pruning. All those things develop a relationship. If you don't follow protocol, nature has a way of teaching you lessons in its own way.

DDS I'm struck by how perfectly these ideas have been woven together. We're all from the same heritage, so why wouldn't we just sit with the knowledge that we're related, rather than start from the premise that we're "other"? Also, I look at this, and I don't see a lot of spiritual, mystical Indian



Craig Torres, *Relatives not Resources*, 2018. Printed and digital poster; dimensions variable. Courtesy of the artist.

Bob Ramirez speaking at Kuruvungna Springs, Los Angeles, 2022. Photo: Irene Georgia Tsatsos.

stuff. I see practical, logical relation. You're using art to communicate something that science would put inside a taxonomic structure.

LG So many of us were raised to believe that we're on the outside of a living system, and if we're on the outside, then we have to extract, we have to take. But if we relocate ourselves within, then that becomes a loving relationship. It's not a punishment to have to tend to my garden, or even to see it as a garden. It becomes a relationship of love and belonging. I'm a part of it, and it's a part of me.

CT I'm always going back to our narratives. When all these came into being, everything that existed was inhabited by a spirit or an essence, just like we as humans have in us. Then came a time in human history when people began to take the spirit out of the nature and relegate it to just humans. And then it became just a certain type of human that was imbued with spirit; other types of humans didn't have it. It's easy to commodify or exploit something or someone that doesn't have a spirit like you.

Torres's words land heavily. A crow in the trees above calls out his presence with us. "We were given instructions on how to conduct ourselves on this landscape thousands of years ago. Anybody who lives here now should start practicing those ways of existing." But how do we do that? Torres and Garza's talk, a performative act, educates us about our relations with everything around us. To get this understanding, we as individuals come together to find a ground on which to stand. We share a space and create a reciprocal relationship with an Indigenous elder, standing next to where the spring water comes up from the ground to nourish the trees, plants, animals, and humans since before these were the United States. After the conversation, we share a meal. We sit with plants and consider them and their environment with care. We leave with a sense of the world seeming slightly less hostile and perhaps even promising a way toward collective health.

Querkus Kwi

(Between Spirit of Land and Heart of the Universe)

PREAMBLE

I am no one I am nothing
The immensity of an open blue sky
Sees my nothingness
I am not food for any Flora
for any Fauna
for ANY

When I ask the Wind
What am I doing in these mountains
Cradled between hot embers and dew
Perfumed by the wisdom of—oak—cedar—pine
A long Silence
answers me

Uninvited Darkness walks in
Sits—Visits—Dances
A starlight heaves
accompanied
by ancestral memory
Travelers they are
Carried through the many roads of our veins
Blood Memory

Perched in the evening birdsong
extracting water from my eyes
Inundating my nothingness
a jagged pensiveness blankets me
Still I remain …
as nothing

In the near distance time
pink salmon dresses the horizon
Awe and Wonder gasps in my lungs
A knowing has arrived
Gently Softly

Branded into my sentient cells
I see
I am merely a being…
Here to move with
and through this place

Honoring
Respecting
Nurturing
All of that which sustains Life

Seed of the *Romneya coulteri* (Matilija poppy) before the plant goes dormant, Ascot Hills Park, Los Angeles, 2017. Photo: Sandra de la Loza.

In this hybrid text, I honor you the reader, your ancestors, and the ancestors of the land wherever on Turtle Island you may reside. In this telling, I honor the Indigenous people of California, the endemic flora, and the sacred seeds.

"IN NATURE, OF NATURE, WITH NATURE"

When the sun woke up nobody was counting time and not a single word had been voiced; at that very moment a fluid ray of light reached and warmed the rough surface of a sleeping planet: Earth, or Turtle Island. When this event took place everyone and everything simultaneously began their journey on Turtle Island—undulating through a myriad of folds with a constant changing face, and we called it: Life.

Olivia Chumacero

INTERTWINED

in relationship with Life / we Live
manifestations by the millions / we Live
ecological extensions of Turtle Island / we Live
in the diaspora of flow / we Live
relatives to the Flora to the Fauna / we Live
We Are
All Our Relations

Nothing exists alone or in a void here on Turtle Island; every aspect of life is intertwined. This basic tenet remains at the forefront of our Indigenous traditions, Indigenous science; it permeates our worldview and creates a perspective of interrelationship with life. This perspective is ephemeral, has no tangible properties, yet forms and maintains a marked presence in each of us. Understanding this basic tenet of our intertwined relationship is paramount when engaging, working, and living with seeds, givers of life.

At a young age, I was introduced to the tool of modern western science in school. I folded this tool into my traditional Indigenous knowledge, my Indigenous science. This enables me to journey as an empath into the life of flora, of seeds, and opens a door making the invisible visible. Whether I come to the understanding in the midst of an Indigenous ceremony or through a rigorous accumulation of recorded data, both paths follow a language of energy, flow, and perspective, always perspective.

Either journey requires a relationship of responsibility to the gift of knowledge. In the canon of Indigenous science, we call this "the ancestry of being." We carry this ancestry of being in our *blood memory* (or, if you prefer, DNA). We acknowledge what preceded us so that we may work and live in the present for the future generations yet to come.

BEFORE-BEFORE

Before Animals … Plants
Before Plants … Fungi
Before Fungi … Protista
Before Protista … Monera
Before Monera

Before
Before
Sun … Carbon Dioxide … Water
Atmospheric Winds

Before Winds
Light … Darkness … Emptiness … Void
Before the Void
SILENCE

Modern science has determined that every single cell in the entirety of Turtle Island holds memory. In the canon of traditional Indigenous science, we have known this for thousands of years before the tool of modern western science came to this realization. We saw the manifestation of life in everything and respectfully made offerings to honor life. However, this Indigenous knowledge was labeled as superstition by the European invaders of the Americas. We were not deterred. To this day, we make offerings, acknowledge our *blood memory*, hold space, and use Indigenous science to make the invisible visible.

As humans, we have agreed that the language of science is numbers, and that the language of art, of culture, is the juxtaposition and reconfiguration of our perceptions of reality. However, what science, art, and culture are always attempting to understand is the same thing: *Nature*. As a species this is our quest. But whether we quest through science, art, or culture, always the journey's path is from the finite to the infinite, from the macro to the micro, because we are nature, of nature, with nature.

Romneya coulteri (Matilija poppy) in full bloom, Ascot Hills Park, Los Angeles, 2017. Photo: Sandra de la Loza.

i could not grasp time
porous were my hands
fluid was its hold

In this telling, the invisible life of time is recorded by counting. From this point on, I will use numbers to denote the passing of time, measured by years.

In 1735, the Swedish naturalist Carolus Linnaeus formalized the use of the Latin language to name flora and fauna. Now all flora, all fauna have two names, the common cultural name with which people identify them and the scientific designation in Latin. About six hundred species of oak (*Quercus*) worldwide have been identified by science: sixty are endemic or native to the United States, and nineteen of these are native to California.

Today, one of the oldest living oak trees in California is under the protection of the Pechanga Indian Reservation and believed to be almost two thousand years of age. The tree was given the name Wi'áaşal in the Indigenous Luiseño language of the land. The scientific name of Wi'áaşal is *Quercus agrifolia* or coast live oak.

I have chosen to give voice to an acorn seed that becomes a prominent oak tree. The autobiographer of this telling is Querkus Kwi, the narrator. The life journey of Querkus Kwi is a tale for the two-legged being. And the telling begins in the year 1500 CE, also known as the pre-contact era.

QUERKUS KWI TREE MEMORY 1500 CE: TRADITIONAL INDIGENOUS SCIENCE–ANCESTRY OF BEING

My name is Querkus Kwi, an Indigenous coastal live oak. I am in the midst of an ancient oak forest, surrounded by over twenty-one lakes, a northwest dancing river, more than a few step-over springs, and a copious understory of flora. I took root from a single potbelly acorn. But first allow me to acknowledge that if you are reading these words, it means you woke up today. You are breathing. I take this moment to thank your ancestors and the ancestors of the land wherever you may be on Turtle Island. I thank them for their hardship and the care they gave to our home planet so that it would continue to be imbued with Life.

Thank you for allowing me the honor to tell my story. I am holding space as an oak tree. I am more than the sum of all my parts. I am a shape-shifter. And no matter which manifestation I take on—oak, humxyn, fish, ocean, cloud, rock, or wind—everything carries the flow of life. My parent is an ancient elder oak tree named Wi'áaşal. There, on its limbs, I was gifted life and began my journey as an acorn.

My parent's pronouns as well as mine are she, he, they, it. So, like millions before me and millions after me, I began my oak journey from catkin, to pollinated female flower, to acorn, to falling off Wi'áaşal's limbs, to the wind scattering and finally nudging me to land in a large berm pile of decayed oak leaves. My humble beginnings as a brown acorn seed small enough to fit in the palm of a toddler's hand was already filled with drama.

When I left the limbs of Wi'áaşal propelled by the wind, I was tossed around through brush and rocks and lost my acorn cup (cupule), or hat, by the time I landed on that berm pile of oak leaves. Suddenly, I was pushed deep into the hummus soil by the hoof of a passing deer leaping away from the claws of a pursuing mountain lion (Wa-Hessit). The winter set in and I lay dormant in the arms of darkness, holding space for our ancestors of being, yet still a mere seed. Then the rains fell and a warm buzz song upturned the soil. I began growing in opposite directions as I lay there on my side. From inside my potbelly oak nut, the embryo germinated. I broke through the fruit wall or skin of the acorn shell, eager to continue experiencing life. One radical grew straight down into a taproot. Diametrically in the opposite direction, a young tendril, the plumule, shot straight up until I sprouted. I felt the breeze of wind storytelling on my stalk, as I recalled the nudging touch of an old friend. I stretched and formed two leaves that unfurled towards the sky ready for sun, ready for rain, ready.

I'm not going to lie: it was harrowing those first three to seven years as a sapling. Saddest of all was saying good-bye to most of the other saplings that had sprouted around me through those years. Deer ate most of them, bears sat on all of us, turkeys pecked mercilessly, uprooting many, while scrub jays and raccoons swallowed whole the sweet germinated oak nut.

One time, water drowned the entire area and most everyone was washed away. But I held on; my taproot almost six feet down hugged the soil. Another time fire licked all around, but still I lived.

Having initially landed on a high berm of dead oak leaves had given me an advantage, because I had a bird's-eye view of my surrounding community. By now, I had reached my forty-second birthday. And I'm using the Gregorian calendar system to count time here, to make a reference for humxyns and flora. At forty-two, I'm barely a yearling of an oak. I was born in an ancient oak forest; many of my tree relatives were a thousand years old and counting.

I thrived because I was nurtured and protected by my parent Wi'áaşal. Now, every oak tree that you encounter is a two-spirit because it grows flowers (female) and catkins (male appendages). When I emerged from that oak leaf berm, Wi'áaşal had already completed more than a thousand years of navigation around the sun. This elliptical life journey around the sun is made by every life form on Turtle Island. For us oak trees, this journey is recorded in the concentric circles of our trunks, because we have much to tell about ourselves and our community. We are the story tellers, the ones that connect the spirit of land to the heart of the universe.

As a yearling oak tree living about two hundred yards away from Wi'áaşal, I was the last line of protection for our Great Elder Oak, but I was preceded by more than ten other defense lines. Our community, our concentric existence created these lines of defense with the families of oak, black walnut, cottonwood, buckeye, elderberry, white alder, pine, cedar, madrone, manzanita, laurel sumac, bush lupin, bush monkeyflower, bladderpods, sugarbush, skunkbush, lemonade berry, sage, ceanothus, oak gooseberry, western raspberry, California blackberry, wood strawberry, willows, Matilija poppy, juniper, creosote, countless endemic flowers, oceans of grass, deergrass, redbud, California grape, riparian flora too prolific and diverse to mention, native pollinator bees, hummingbirds, California sister butterfly and monarch butterfly, deer, bear, mountain lion, coyote . . . I could continue filling page after page with the names of all the flora and fauna that comprised our community.

Time rests on my limbs
Out-stretched hugging sky
The leaves gossip as they give way
To bloom

We forest are a massive, interconnected superorganism; we create an understory of community. If you engage with us for generation after generation, we will exchange knowledge, provide food, medicine, and a connection to the changing rhythms of life. We follow an ancient practice here in the forest of our collective community: we continually make offerings.

It may seem to you that at times I, Querkus Kwi, may ramble or may fixate on historical data, but there are reasons for this. First, let me assure you that my memory is precise, fluid, and accustomed to holding space while navigating around the sun in our yearly space trip. We are able to record our oral history in this manner.

So on this day in 1542, the California sister butterflies were warming up after separating from their cocoons. This tickled my leaves and my limbs as they took flight. I was mesmerized. I wondered, Where to? However, my vacillating contemplation was interrupted by the arrival of some alarming news.

Yes, News! You see, all my family members from the oak tree side have an underground web of roots that spread out from the taproot and extend the width of our canopy. This spiderweb of roots is deep beneath my trunk, underground. This root-web actually mirrors the extended width of my leaf canopy. Deep down in darkness, the soil holds life; at the end tip of every single extended root of my web, a specific type of fungi attaches itself. We live in a synergistic relationship, the fungi family and the oak family.

How is this so, you may ask. Well, we trees use leaves to inhale carbon dioxide from the air, and we exhale oxygen as a byproduct of this process called photosynthesis. Through the action of the sun and leaves, carbon dioxide and water are transformed into sugars. This sugar travels down through the phloem system of our inner bark and pools at the base of our trunk. There, unseen by the humxyn eye, an exchange takes place. Nutrients—minerals and ions—extracted by the fungi from the deep moist soil are exchanged for the much needed sugars created by photosynthesis. The nutrients that the fungi offer travel straight up through our xylem system, defying gravity to feed our every leaf.

Along with this exchange of nutrients, we exchange news. In drought conditions, we send down signals about impending actions that will be taken by the canopy, and likewise the fungi exchanges information with us. Fungi are ultrasensitive communicators; good and bad news are known by our entire community of coastal live oak beings instantaneously. Also, we cohabitate with more than three hundred inhabitants of flora and fauna, and our collective community above and below ground lives in constant communication. We get the news.

We are very social, us trees. We experience pain, have memories, usually live nearby our parent trees, share nutrients, assist the ill; at times we even nourish our competitors. We do all this because we continually try to create a consistent local climate, an ecosystem conducive to our coinhabitants' growth and survival. We communicate through scent. We register pain, especially when an invasive starts nibbling our leaves. We release pheromones to attract predators so they can come and devour the attacking insects. We send electrical signals and send defensive compounds to the bitten leaves at the rate of one-third of an inch per minute. Yes, we live on sloth time. This means that it takes an hour for a major increase of tannin to reach that bitten leaf. We can identify an enemy or a friend by the saliva they deposit on our leaves. So you can argue that we have a sense of taste. It has also been communicated to us that other life forms, such as jellyfish and earthworms, travel at sloth time as well.

There I go, rambling on. Anyway, in our massive existence as forests, helping our neighbors in times of need is the Rule because we are one interconnected and interdependent community struggling, healing pain, and manifesting beauty through the seasons.

ALIVE

The longer I live
the closer to my expiration date
I am Finite
basking in slivers of sunlight
Petal-like unfolding I offer myself
Playfully—Cunningly—Ethereally
Hiding in Wa-Hessit smiles
behind unseen mountain ranges
in a state of memory
Slumbering

Far away an exhale cuts
piercing where sky meets earth
Silently each orb sliver runs catlike
across the terrain
The brain registers
The body responds
Boundless the mind travels
in circumference
in whole
in exasperating sighs
I ask
Who is doing the breathing
It or I

But back to the year 1542, when I decided to shape-shift. Shape-shifting as a mode of travel is not uncommon; we honor ancestors, we hold time and space in this manner. And traveling with the wind, well, that goes without saying.

So, in 1542, this area of the world was home to millions of Indigenous people. In the far future, it would be called California. Well, so numerous was the population that there were more than ninety *different* Indigenous languages spoken, and over 285 dialects. And these millions of people had been inhabiting this landmass for ten thousand years, if not more. The area had produced the most linguistically diverse Indigenous population of the Americas, if not the entire planet.

Life was sustained by no fewer than one hundred rivers, creeks, wetlands, and marshes; over three thousand lakes of variable sizes; plus an eight-hundred-forty-mile-long coastline that bordered Oregon at the northern tip and Baja California at the southern tip. These pristine freshwater carriers provided an environment for an astounding array of avian, fish, other fauna, flora, and, of course, the humxyn population, which included no fewer than ninety different Indigenous language groups. All were sustained by water and more water.

Of the many freshwater ways on our land, the longest rivers were the Sacramento in the north, with an outstretched arm of four hundred miles, and its cousin the San Joaquin River, navigating through 366 miles of mountains and valleys. The cousins met each other as they forked at Suisun Bay in the San Francisco area. There at the bay, they graciously offered themselves to the Pacific Ocean and created a community of fresh and salty waters along with their two-spirit coinhabitants of flora and fauna.

When the ninety different Indigenous language groups made this area of Turtle Island their home, the San Joaquin River had a forty-mile width at various points as it meandered the fertile San Joaquin Valley. The salmon and the steelhead had relatives in every river that came from the inland mountain ranges to meet the Pacific Ocean. From the northernmost border of the Klamath River to the southern Santa Ana River, with its headwaters in the San Bernardino Mountains, salmon runs were a yearly event.

sage filled paths
obsidian cut winds
morning sun woke up
running the night away

Life was a continuous task of survival within the ninety different Indigenous language groups. Without fail, generation after generation, the people's relationship to the land and life's sustaining properties remained the unifying factor. The responsible management of the massive ancient oak forest ensured that food and shelter would be available for future generations. This perspective pervaded every aspect of the ninety different Indigenous language groups' way of life.

Disagreements, violence, and transgressions were resolved generally by a council of elders. Cultural governance was unique to each language group. When a transgression involved the neighbors of a different language group, as is common even today in the nation-states of our planet, disagreements were at times settled through violent acts.

Besides the shared responsible relationship to land, another prevalent unifying factor was the culture of eating acorn mush and salmon. The abundance of water made this life possible. The network of lakes, rivers, and creeks offered themselves to the Pacific Ocean, making it a gateway for yearly salmon runs. The salmon swam upstream, enduring turbulent rivers and defying waterfalls in their calling to spawn in ancestral fresh waters. The salmon were so prolific during the spawning period that in some areas along the rivers they could be caught with specially made baskets.

This landmass with its abundant waterways cradled an immense and ancient oak tree forest. In fact, two-thirds of this pre-contact landmass held ancestral space with ancient elder oaks. The acorn crops provided by the ancient forest fed hundreds of tons of acorn to grizzlies, deer, squirrels, chipmunks, scrub jays, woodpeckers, beetles, humxyns—to more than three hundred different life forms. One-thousand-year-old oaks, redwoods, and sequoias prevailed from north to south and from east to west of the Sierra Mountains. As a shape-shifter, I relished traveling with the wind to carry offerings and messages from my parent Wi'áaşal to our cousins, the sequoias and the redwoods. In 1542, this landmass was not a desert, as some are prone to flippantly comment. If you are still in doubt, oak trees cannot grow in the desert.

Our favorite time of the year was when the humxyns harvested our oak fruit. Families would come. The children would climb our limbs, laugh, and make jokes. The adults would harvest. We could see that the harvest was a time-consuming process shared by the humxyn beings. Massive amounts of acorn were harvested on a yearly basis. Baskets of every size imaginable were ceremoniously constructed from deer grass, juncus, sumac, redbud, tule, and willow, and used to gather and store hundreds of pounds of acorn. This was necessary to weather the winter months.

I especially enjoyed all the singing and the dances, these were the many offerings from everyone. Even small children would come and leave an offering at the base of our trunks. The humxyn beings hummed with gratitude and we hummed right along with them, happy to serve. Each of the ninety different language groups created their distinctly definable culture through their music, dance, attire, dwellings, and their use of hardwood manzanita, black oak, madrone, and obsidian for tools, arrows, and spears. But what all these humxyns had most in common, besides their relationship to land, was their freedom.

Today signs of this food culture pepper the state of California with thousands of grinding stones seen in rocks and large boulders, especially near or alongside creeks, rivers, lakes, and ocean shores. Even in the Mojave Desert, the Colorado Desert, and the Great Basin Desert, these very arid lands hold vestiges of grinding stones in shadowed boulders. The principal tools used to manage and maintain these massive oak food forests were fire, harvest season, and collective management.

But back to the alarming News that had interrupted my butterfly contemplation earlier. The moment I heard the news, I shape-shifted. I wanted to go see these new humxyns that the fungi family was so alarmed by. I took off, but not before assuring Wi'áaşal that I would return much sooner than later.

Well, unbeknownst to the ninety different Indigenous language groups, on September 28, 1542, the Spaniards, under their captain, Juan Rodriguez Cabrillo, sailed into the San Diego Bay. And though Cabrillo entered the bay, he and his crew did not engage with the Indigenous humxyns of the area. They did, however, claim ownership of the land in the name of their king, Charles V of Spain, and noted in their official journals that smoke from small fires could be seen throughout the forests and mountains in "alarming" numbers.

The news of the Spaniards' arrival had not resonated well in our collective forest community. But the ninety different language groups continued flourishing and living in a state of freedom, although the land was now stamped with a royal seal, mapped, and known in the European annals as "Alta California."

Know that time
was born invisible
its shadow
the uncut umbilical cord
of life

Unfurling fern-like
our collective memory reads
fungi married algae
Grass became bush became tree
Turtles became birds
became flight
ascending forest to sky
Fortuitous chance directing journeys
woven into every day

I continued my journeys with my friend Wind. Always I would return with something new to tell our collective community, and especially to share with my parent, Wi'áaşal. Beauty abounded in my journeys, and I learned so much that I was compelled to describe with as much detail as memory allowed.

Buttressing the coastal lands, from the north to south of the newly named Alta California, are the Sierra Mountains. In the spring and summer, the valleys, foothills, and mountainsides are infused by a rainbow mantle of golden orange poppies, purple lupin, yellow woolly sunflowers, red penstemon, seas of purple grass, white popcorn flowers, wild iris, buttercups, blooming sages, native pink thistle, red tubular fuchsia, yellow arnica, and white-to-lilac milkweed laden with monarch butterflies, creating a breathless panoramic beauty. Add to this ecological environment: the awe-inspiring redwoods, massive sequoias, black walnuts, and ancient majestic oaks resembling a cresting wave of green as it ran whispering into a blue sky. This pristine Alta California landmass was maintained and managed by the ninety or more distinctly different Indigenous language groups who made it their home through hunting, gathering, fishing, and cultural fire practice.

I, Querkus Kwi, a coast live oak, continued to flourish. By now I had made that yearly elliptical journey around the sun 269 times, and it was the year 1769. My Great Elder Oak, Wi'áaşal, nurtured, protected, and advised all the coinhabitants of our surrounding community with great ease. My Elder's heavy limbs had begun to touch the ground, looking for some much needed support. Wi'áaşal was well over one thousand years of age in 1769, but every three years or so, the Great Elder Oak provided acorns for the community of flora, fauna, and humxyns. I, Querkus Kwi, emulated my great elder and would cover the ground underneath my canopy with a bumper crop of acorn.

At 269 years of age, I, Querkus Kwi, had begun my walk into the middle age for an oak. Somewhat more mature now, I had become fixated in telling and recording historical data. It had been hundreds of years since 1542, when I had been distracted by the California sister butterfly and abruptly shape-shifted because the News had been too alarming to stay put. For a second time, after hearing more alarming News, I took off again. I didn't wait for my friend Wind, I shape-shifted into the eyes of a golden eagle.

clouds descend
hearts moan
Awaé—little eagle—
dissolves into cumulus flutter
snow implodes

Well, it was 1769, and the Spanish had returned to Alta California. They renamed the land area the Presidio (fort) San Diego on behalf of their new king, Charles III, and they claimed ownership of all land, flora, fauna, minerals, waterways, and what the Spanish called "the savages of the land." This unfortunate year marked the beginning of a devastation to the Indigenous population and to the flora and fauna that continues to date. A virile infestation of smallpox and measles, slavery, subjugation through religious repression, and the invading Europeans' brutal military force systematically committed atrocious genocidal acts. Sadly, I, Querkus Kwi, the narrator, continue to experience the aftermath of the invasion.

Among the Spanish who made their claim was a priest named Junipero Serra of the San Franciscan Catholic Order. Serra began the state-wide movement to construct missions with enslaved Indigenous labor. Hangings, beheadings, and whippings of the Indigenous humxyns became the modus operandi for managing construction projects. Mission San Diego de Alcala, located in the Presidio San Diego, was the first one completed in California, on July 16, 1769.

Now, for the first but not the last time, the sound of axes cutting ancient elder oaks and many other cousin trees echoed through the valleys, mountains, and waterways of Alta California. This News traveled instantaneously to the Great Elder Oak, Wi'áaşal. And a subvocalized warning was issued throughout the land to all the flora. The humxyn elders had been speaking about the coming of these days for centuries, it seemed. In retrospect, I, Querkus Kwi, did not recognize then the beginning of the extinction of the collective coinhabitants of the land, as those axes cut away indiscriminately.

Around this time my fixation to record and story tell was honored and I was given the title of "Speaker." I, Querkus Kwi, the Speaker, became a scholar from this date forward. I held record through my telling. My elder Wi'áaşal and the family of ancient oak forests honored me with this responsibility. I knew and felt all along that this was my reason for being.

Another time, not now, I will sing all my tellings in the manner in which we oaks are known for; but back to my story. The everyday living actions of the invading European humxyns was so radically opposite to the behavior of the ninety different Indigenous language groups with whom we had coexisted for thousands of years that I was not the only one who made note of this in the canon of ancient forest knowledge.

While the invasion on the West Coast was being carried out systematically by Spain, on the East Coast, or the Atlantic Ocean side of Turtle Island, the thirteen colonies were disgruntled with British rule and the rumblings of a revolution were about. These rumors became fact on April 19, 1775, with the exchange of gunfire at Lexington and Concord in Massachusetts.

When the revolution began in the East Coast, four missions had already been constructed with enslaved Indigenous labor in Alta California. A total of twenty-one missions were constructed a day's horse ride away from each other. The last one constructed was Mission San Francisco Solano, completed in 1823, in the northern part of Alta California.

From 1542 through 1821, Spain held the deed to our lands. They ruled for a period of 283 years. I, Querkus Kwi, had been a young sapling of an oak when the Spanish invaded, but my continued elliptical journey around our sun had me tracked as being 321 years of age. I was no spring chicken, as they say in the humxyn vernacular. The landmass in the Americas that Spain ruled was called El Imperio de Nueva España (The Empire of New Spain), which included lands as far north as Wyoming, south to Central America, and a large part of South America, with the exception of Brazil. Alta California was a smudge on their maps.

In 1811, Spain abolished the enslavement of Indigenous and African humxyns. The newly formed nation-state of Mexico (previously part of El Imperio de Nueva España) won its independence from Spain on September 27, 1821, after a lengthy revolutionary war that lasted a period of eleven years. Despite the right to citizenship and to own land, the Indigenous population had declined by more than half under Spain's rule, and they fared poorly under Mexican law.

Mexico had been an independent nation for only twenty-eight years when it went to war against the United States and lost. Mexico ceded half of its entire country when it signed the Treaty of Guadalupe Hidalgo on February 2, 1848. The territory lost included Alta California, Arizona, Nevada, Utah, New Mexico, Texas, parts of Colorado, Oklahoma, Kansas, and Wyoming. The treaty specified that Indigenous people in the new US territory were to have the same legal rights they had as Mexican citizens. Instead, the US government chose to withhold citizenship from Indigenous Californians and, as a result, most if not all lost their right to own property and the right to practice their traditional Indigenous ceremonies.

Alta California underwent another name change soon after the treaty was signed. On September 9, 1850, California became the official name, and it joined the Union as its thirty-first state. During this period in history, gold was discovered in California, and it brought another onslaught of genocidal acts against the ever-diminishing ninety different Indigenous language groups, waterways, ancient oak forests, flora, and fauna.

Under orders of the United States president, the federal militia was sent to rid the land of the Indigenous humxyns by any means necessary. For a second time, a virile infestation of smallpox, slavery, subjugation through religious repression, and a brutal military force systematically committed atrocious genocidal acts against millions of Indigenous people. Many were displaced or died as coastal tribes were forced to move to different areas of the state in the depths of winter. Children as young as six years old were forcibly taken from their families and held against their will in boarding schools; there they were brutally castigated for speaking their Indigenous languages and many died from forced labor. In this imposed culture of violence, reading and writing of the English language was taught in order to speed up compulsory acculturation and kill any identifying Indigenous characteristics.

Arctostaphylos glauca (Bigberry manzanita), the habitat, land stewarded by Olivia Chumacero, Oakhurst, CA, 2022. Photo: Sandra de la Loza.

Red-tailed hawks speak
Graze high above
Break blue air streams
Soar into our invisible hearts
They portend

And where was I, Querkus Kwi, a coast live oak, as all this transpired around me? Growing, rooted as the pounding sound of axes echoed but a few miles away. Our ancient oak forests were diminishing by the day. My Great Elder Wi'áaşal still nurtured and protected our coinhabitants, but this was not enough for what was coming. The Indigenous humxyns still came, offered their songs, their dances, and harvested our acorns and all the food and medicine that our collective community gifted. Much of this was done in the secrecy of night, since it was a federal criminal offense for Indigenous humxyns to exhibit any cultural activity that reflected their traditions. This was a new era for all of us who had lived on these lands for thousands of years, now under the rule of United States presidents and their laws.

Each passing year, the flora, the fauna, and the Indigenous humxyns went down the road of extinction. My heart grew a tortoise shell as the lines of defense circumventing my Great Elder Oak, Wi'áaşal, diminished rapidly decade by decade. As best I could, I persevered, maintaining my line of defense at great peril.

More than five hundred years had passed since I began my journey and sprouted in that advantageous berm so long ago. I and my parent Wi'áaşal are still in each other's lives and it's now the year 2023. I, Querkus Kwi, am now 522 years of age and am an elder oak myself and have continued to work as Speaker for the collective community of flora and fauna. The ecological disaster that has befallen our landmass has forced me to become the first and the last line of defense for my Great Elder Oak, Wi'áaşal, who is almost two thousand years of age and provides acorns for the surrounding community still. The land is now called Temecula Valley, and the Pechanga Indigenous humxyns are taking care of us.

I joined Wind and shape-shifted this summer of 2023, wanting to visit old friends. We used to call the freshwater ways "jumping rivers" because of

the flash floods and the earthquakes. But much of the land has been paved and many rivers damned. My northwest neighbor, the Santa Ana River, carries sewage from a population of over five million humxyns plus tons of industrial chemical waste. Sadly, the river snakes its way to the Pacific Ocean, spewing its poisonous water, and the chinook salmon and steelhead trout no longer make the Santa Ana River their home. With a heavy heart I tell you that at the juncture where fresh water meets salt water the flora and fauna can no longer gather to celebrate each other. Too much humxyn sewage and chemical runoff is killing all life. The mighty San Joaquin River no longer has a forty-mile width anywhere on its 366-mile journey to the Pacific. Of the ninety different Indigenous languages, only about thirty continue to be spoken, and some of those are nearing extinction, since the last fluent speakers are in their elder years as of today.

Then one day something beautiful happened. Something that had been absent for quite some time. A warm Fall wind carried the songs of the humxyn Bird Singers to our community, to our understory. Then the patter of small feet gathered under our canopy and children's hands were harvesting the acorn. Their grandmothers, grandfathers, aunties, uncles, mothers, and fathers were teaching them the acorn gathering songs, and the sound of clapper-sticks, and bladder-pod-filled shakers, and ceanothus beetle pods accompanied their voices. Our Great Elder Oak, Wi'áaṣal, and I beamed. We released the pleasing aroma of our moist inner barks into the air and we heard a child say—

"Hmmm . . . what's that smell? Huela? Auntie? It's delicious, Daddy! I like it. Can we stay here in the shade with da trees forever?"

We have always been here
Between the spirit of land
and the heart of the universe

Salvia 'Pozo Blue' (Pozo Blue sage), The Huntington Library, Art Museum, and Botanical Gardens, San Marino, CA, 2017. Photo: Sandra de la Loza.

Charmaine Bee

CHARMAINE BEE (b. Beaufort, SC; works in Bahia, Brazil, and Brooklyn) is a multidisciplinary artist and herbalist who uses photography, sound, video, writing, movement, textile, and plant matter, including historically charged materials such as rice and indigo, to connect with African diasporic spirituality, memory, histories, and their Gullah heritage. Bee has shown work at Southern Exposure, San Francisco (2021); Craft Contemporary, Los Angeles (2019); and 18th Street Arts Center, Santa Monica, CA (2015). Bee is the founder of Bee's Well Apothecary, which focuses on making healing blends for Black communities. The artist hosts workshops teaching participants how to explore their inner worlds with herbal supports. They also run the Dream Support Hotline, an independent radio show that serves as a forum for dream decoding and collective dream research. Bee has been in residence at Pivô Research, São Paulo, Brazil (2023); ACRE, Steuben, WI (2019); Five Myles Gallery, Brooklyn (2018); and Fountainhead, Miami (2014). They have received grants from the Felix Gonzalez-Torres Foundation (2016), Puffin Foundation (2012), and Brooklyn Arts Council (2012). Bee earned an MFA from California Institute of the Arts, Valencia (2017), and a BFA from the School of the Art Institute of Chicago.

Charmaine Bee aspires to support physical and psychic health by using traditional plant medicine, dreamwork, and their knowledge of the healing practices of their ancestral community. Bee's multimedia practice, which often integrates textile and craft, is informed by their Gullah upbringing in the Sea Islands of South Carolina among people with a potent relationship to plants. Descended from ancestor futurists who nurtured seeds, Bee draws from and expands on a vast archive of Black herbal healing practices, such as using plants to subdue crying children while escaping slavery; to fake or end pregnancies; in subsistence gardening; as poison; for material support through sale and purchase; and to understand the messages of dreams.

Bee's installation at the Armory recalls the landscape and dreamscape around their grandmother's South Carolina home, where marshes continue to provide sanctuary. For *Uma voz do mangue* (2024), Bee has stitched emptied tea bags into long strips, dyed them using herbal botanicals, and sewed them into layered panels that evoke this restful, alive, and ancient wetland. Their work reflects on the histories and ongoing life forces in and around these brackish waters, which comprise spaces of liberation through which people traveled to escape slavery; the ecosystem's characteristic bioluminescence, which inspires stories of spirits, ghosts, and other supernatural phenomena; the coexistence today of land loss due to commercial exploitation; and the medicine the marshes continue to provide. Accompanying this sewn sculpture is a crocheted blanket, which Bee offers as a covering and as a portal to dream space. A sound interlude provides the melodies of bog life, which persists within the densely populated spaces that now surround the marsh.

Diverse human activities have contributed to the degradation of marshlands throughout the world. Legal battles are currently underway near Bee's ancestral home among real estate developers, regional permitting agencies, and nonprofit advocates working to prevent land loss among the Gullah Geechee community. South Carolina has a legal mechanism called "heir's property" that allows land inheritance by multiple family members for generations. (Many of the properties in the Sea Islands were purchased by freedmen during Reconstruction.) But clear title is often lacking, which opens opportunities for the displacement of families that have been living on properties for many successive generations. Bee's work offers a counternarrative to these structures of oppression through an ethics of care that speaks with quiet yet unshakeable force at the intersection of liberation, decoloniality, and spirituality. Bee reminds us that, while acts of erasure are frequent and undeniable, traces always remain in the memory of the place. Drawing from their deep ethnobotanical inquiries, Bee's work continues a tradition of liberatory imaginaries, holding up the stories of lands inscribed with life and histories. —IGT

Pages 56–57 Charmaine Bee, untitled work in progress, 2019– (detail). Jute twine; 40 × 20 ft. Installation view, ACRE Residency, Steuben, WI. Photo: Charmaine Bee.

Pages 60–61 Charmaine Bee, *Marsh, Swamp, Sea Island Stories* (working title), 2023– (detail). Mixed media; dimensions variable. Installation view, Pivô Art and Research Residency, São Paulo. Photo: Marina Lima.

Pages 62–63 Charmaine Bee, *Marsh, Swamp, Sea Island Stories* (working title), 2023–. Mixed media; dimensions variable. Installation view, Pivô Art and Research Residency, São Paulo. Photo: Marina Lima.

Pages 64–65 Charmaine Bee, *Ocean*, 2023. Hand-dyed and crocheted blanket of cotton yarn, indigo, fiber-reactive dye; 87 × 72 in. Photo: Evan Scott, courtesy of The Noguchi Museum.

Page 66 (top) Charmaine Bee, *Marsh*, 2023 (detail). Hand-dyed and crocheted blanket of cotton, yarn, indigo, fiber-reactive dye; 168 × 72 in. Photo: Evan Scott, courtesy of The Noguchi Museum.

Page 66 (bottom) Charmaine Bee, *Ocean*, 2023 (detail). Hand-dyed and crocheted blanket of cotton, yarn, indigo, fiber-reactive dye; 87 × 72 in. Photo: Evan Scott, courtesy of The Noguchi Museum.

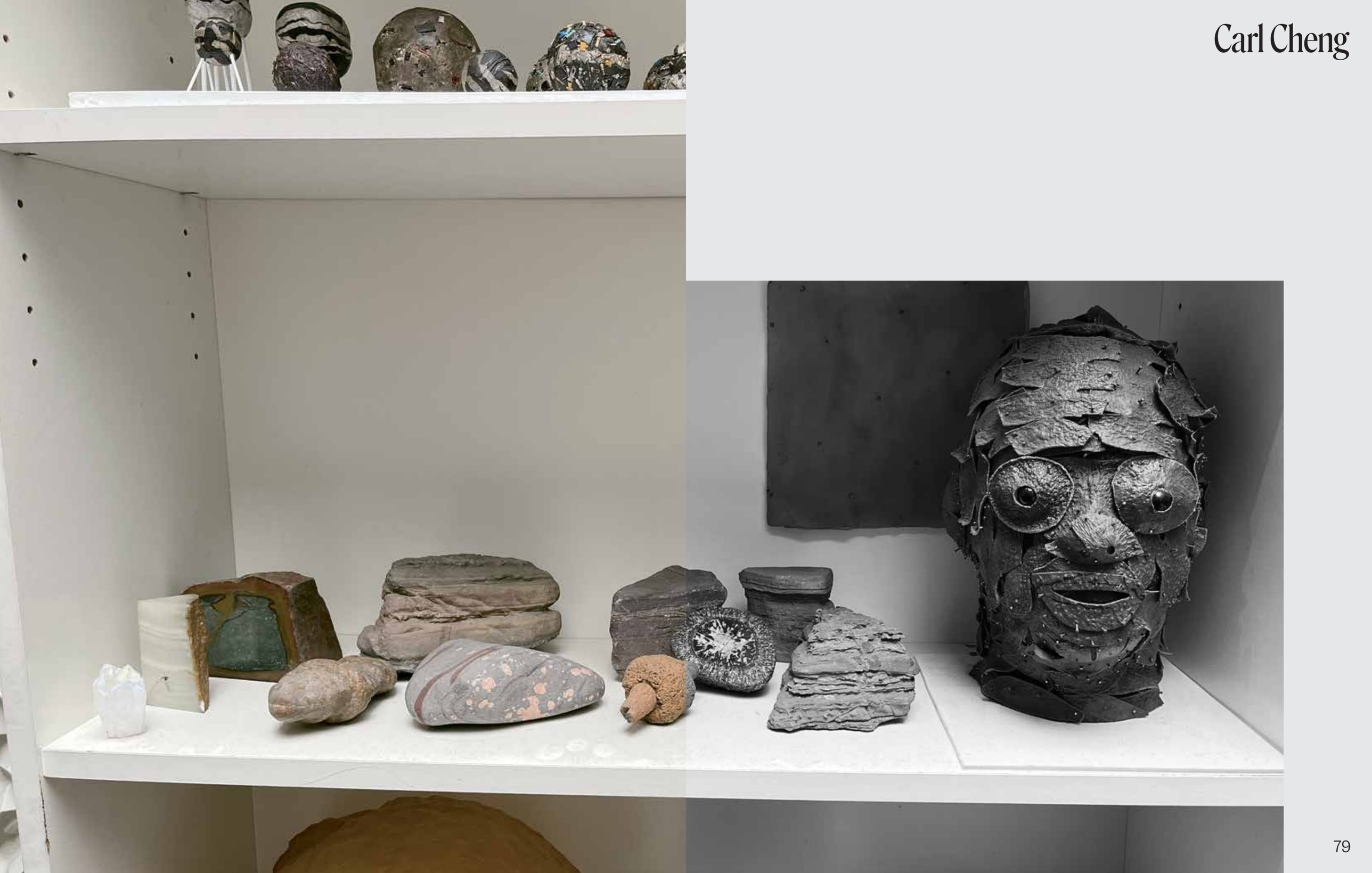
Page 67 Charmaine Bee, *Marsh, Swamp, Sea Island Stories* (working title), 2023– (detail). Mixed media; dimensions variable. Installation view, Pivô Art and Research Residency, São Paulo. Photo: Marina Lima.

NIKESHA BREEZE (b. 1979, Portland, OR; works in Taos, NM) reimagines the inheritance of intergenerational trauma through art and ritual from global African diasporic, Afrocentric, and Afrofuturist perspectives. They use performance art, film, painting, textiles, sculpture, and site-responsive engagement to create spaces that center Black, brown, Indigenous, and queer bodies. Their methodologies call upon ancestral memory and archival resurrection to bring forward the faces, bodies, stories, and spirits that have been systematically erased from popular narratives. Breeze is an African American descendant of the Mende People of Sierra Leone and Assyrian American immigrants from Iran. They have shown work at the University Art Museum, New Mexico State University, Las Cruces (2022); Albuquerque Museum of Art (2021); Museum of Contemporary African Diasporan Arts, Brooklyn (2019); and NkyinKyim Museum, Ada Foah, Ghana (2019). Their work has been awarded the Kindle Project Maker's Muse Artist Grant (2022); National Performance Network and Partners Storyteller's Grant (2022); 3D Installation Jury Award Winner, Artprize 10, Grand Rapids Art Museum, MI (2018); and the Black Contemporary Arts Award (2018). They were commissioned by the Legacy Museum of the Equal Justice Initiative, Montgomery, AL, to produce a large-scale public installation, now in the museum's permanent collection. Breeze earned a BFA in Socially Engaged Art from Goddard College, Plainfield, VT, and an MFA from the University of New Mexico at Taos.

In the thirty-minute, two-channel video *Stages of Tectonic Blackness: Blackdom* (2021), Nikesha Breeze brings together two edits of a collaborative, site-specific dance ritual they performed with Miles Tokunow at the former site of Blackdom, New Mexico. Breeze is a direct descendant of Blackdom, a community that was founded in the early twentieth century by thirteen African Americans near Roswell, New Mexico. At its peak, the township had around three hundred residents, a school, businesses, a church, and a post office. By the early 1920s, a combination of drought and oil speculation had driven away most of Blackdom's population. Videographer and artist MK Kennedy recorded the durational performances in which Breeze and Tokunow were accompanied by New Mexico-based musician Lazarus Nance Letcher. In the video, Letcher's viola, gourd shakers, Geiger counter, and song are combined with the desert wind and intermittent spoken word. Against this soundscape, Breeze and Tokunow move slowly and methodically in tune with the geological formations of the ancient and historically significant site.

Lasting eight continuous hours, their performance was a prolonged practice of resistance that prioritized Black experience, Black time, and the care of Black bodies. Breeze speaks of "the radicality of slow movement for Black bodies in a society that is infatuated with Black Death or Black production. The only stillness . . . allowed is in death. How do we transmute that and bring life? What does it mean to be a Black still body on the Earth?" According to Tokunow, the artists used the performance and video to create "a healing portal that was ancestral and futuristic and time collapsing/expanding." This "healing portal" allowed them to relate deeply to the land in ways both tangible and metaphysical. The intentionally slow choreography facilitated deep connections to the past of the landscapes. This makes the performance, in part, an elongated mourning ritual to grieve the transgressions against Black and Indigenous communities at this site. In addition to grieving, the project allowed the artists to transmute those deep historical wounds felt within the body into new ways of relating to the desert ecosystem. The video recording of the performances invites viewers to think about how they too can incorporate slower movements and transformational relations to land into the rhythm of their lives and create a deeply personal connection to the land that enacts change within and without. —JAV

Pages 68–69, 72–76 Nikesha Breeze, *Stages of Tectonic Blackness: Blackdom*, 2021. Stills from two-channel video, sound, color, 29 min. Documentation of a collaborative performance by Miles Tokunow, Nikesha Breeze, and Lazarus Nance Letcher. Cinematographer: MK Kennedy.



The material and conceptual approach of CARL CHENG (b. 1942, San Francisco; works in Los Angeles) pushes the boundaries of traditional object making, post-minimalism, systems art, environmental art, and social practice. For nearly six decades, he has explored the relationship between art and technology through sculptural and photographic works. Cheng has long questioned the role of individuals in a mass-media society driven by corporate interests. His registered entity, John Doe Co., which he established in 1967 in the face of American Vietnam War-era racism, has served as a means to engage and critique corporate culture. Cheng's work is the subject of a forthcoming survey exhibition at the Institute of Contemporary Art, University of Pennsylvania, Philadelphia (2024) that will travel to the Tingley Museum, Basel, Switzerland, and the Bonnefanten Museum, Maastrich, Netherlands. Cheng's work was the subject of a landmark solo exhibition at California Institute of Technology's Baxter Art Gallery, Pasadena (1975), and he was involved with Experiments in Art and Technology at Los Angeles County Museum of Art (1967–71). More recently, his work has been seen at the Migros Museum of Contemporary Art, Zürich (2021), de Young Museum, San Francisco (2019), and K11 Art Foundation, Hong Kong (2018). Cheng studied art and design at the University of California, Los Angeles, and the Folkwang School of Art, Essen, Germany.

Carl Cheng's artistic practice comprises immersive and visually striking installations, photography, and sculpture that makes use of found objects, discarded technology, and industrial processes. His thought-provoking creations question the purpose and meaning of artwork in relation to everyday objects and prompt us to reevaluate the divisions between technology and nature.

Since the 1960s, Cheng has made art under the pseudonym the John Doe Company. This assumed name has permitted him not only to operate like a business but also to pursue his interest in industrial design technologies, materials, and processes that were not typically accessible to artists in the 1960s and 1970s. Acrylic, sheet metal, vacuum forming, and machined parts are integral elements in Cheng's work. These materials and methods allow him to work easily in multiples and iterations, as exemplified by the *Erosion Machine* series from 1969. These sculptures were created to replicate the natural process of erosion by spraying down any human-made rock with water and quickly converting it to debris. For Cheng, working iteratively removes the preciousness around the singular art object. The *Erosion Machine* also reveals Cheng's recurring interest in natural phenomena.

Central to Cheng's practice is the merging of organic textures with industrial aesthetics. The artist has been experimenting with avocados as an art material for decades. The installation *Nature Laboratory Collection 3.0* (1970–2022), for example, includes avocado skin sculptures assembled into groupings and displayed on twelve mass-produced cafeteria trays. The various shapes and forms that Cheng makes from the dried, leather-like avocado skins collectively resemble a laboratory experiment with decay and detritus. Through meticulous handcrafting, Cheng gives these organic castoffs new life and meaning, transforming the remnants of consumption into artworks that engage with themes of sustainability, reclamation, and innovation.

In an era in which concerns about climate change, waste management, and the depletion of resources are increasingly urgent, Cheng's work invites viewers to reflect on the balance between technological advancement and environmental stewardship and the often arbitrary boundaries we place between art, utility, and waste. —HR

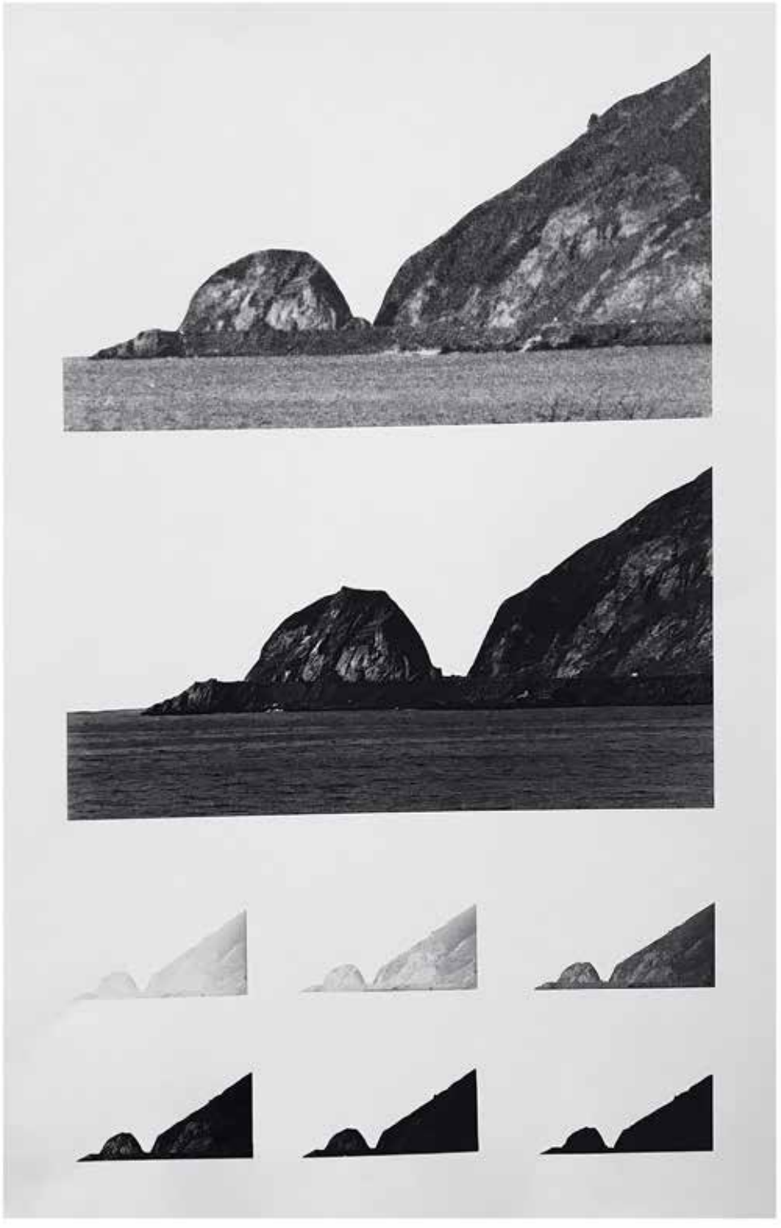
Pages 78–79, 82–83 Studio of Carl Cheng, Santa Monica, CA, 2023. Photos: Irene Georgia Tsatsos.

Page 84 Carl Cheng, *Car Hoods*, 1976. Silver gelatin print; 12⅜ × 9¹³⁄₁₆ in. Courtesy of the artist and Philip Martin Gallery, Los Angeles.

Page 85 Carl Cheng, *Mixing Stick*, 1974. Silver gelatin print; 9 × 12 in. Courtesy of the artist and Philip Martin Gallery, Los Angeles.

Page 86 Carl Cheng, *Uncarved Block*, 1976. Silver gelatin print; 9¹³⁄₁₆ × 12⅜ in. Courtesy of the artist and Philip Martin Gallery, Los Angeles.

Page 87 Carl Cheng, *Landscape Essay*, 1967. Silver gelatin print; 25¹¹⁄₁₆ × 17½ in. Courtesy of the artist and Philip Martin Gallery, Los Angeles.



Olivia Chumacero

OLIVIA CHUMACERO (b. 1951, Cañon del Cobre, Mexico; works in the Sequoyah National Forest)

KWIRA'BA

Time—hangs to no emotion
relentless it proceeds
Continuous by nature
deposits no imprint on the skin
Though upward drifts
gauge
black holes
in memory they root
Un-escapable Fibonacci tears
ascend ...
—Everything—
remains a construct
crystalized in space
leaving emptiness filled
by the dot-wave course
of time—

Olivia Chumacero (Rarámuri) upholds relational values and right living in her life and creative practice, called *everything is medicine* (e.i.m.). Through e.i.m., she applies Indigenous perspectives to the study of the legacies of colonization and liberation movements. Chumacero also teaches the practicalities of living with health, mutuality, and agency in urban space through an organic, collaborative process. She centers the perspectives of our other-than-human relatives, using what she terms "tools of resilience": plant growth, seed saving, storytelling, and song. Her always evolving e.i.m. team includes dancers, activists, educators, and gardeners who work together to repair a historical legacy of disconnection from the natural world and to practice a continuity of ancestral responsibility by living in reciprocity with the flora and fauna while building lifelong relationships to place.

Chumacero's mixed-media artwork *Dispersing Time* (2023–) can be imagined as a portrait of an oak tree. One panel depicts a youthful acorn; another shows a mature oak tree lying on its side. An accompanying codex chronicles the life of the ancient tree. In Indigenous cosmology, trees and other plants are our relatives, and their seeds collapse time between past, present, and future. Oaks can live hundreds of years and through many experiences, such as drought, infestation, fire, and sabotage, all of which inevitably leave scars. Chumacero's tree has been downed by winds and torrential rain yet is very much alive, with a lush canopy and firmly grounded roots. Resting in a mode of restorative growth, the oak continues to offer its crop of acorns to the surrounding world. That this tree is still breathing is cause for celebration.

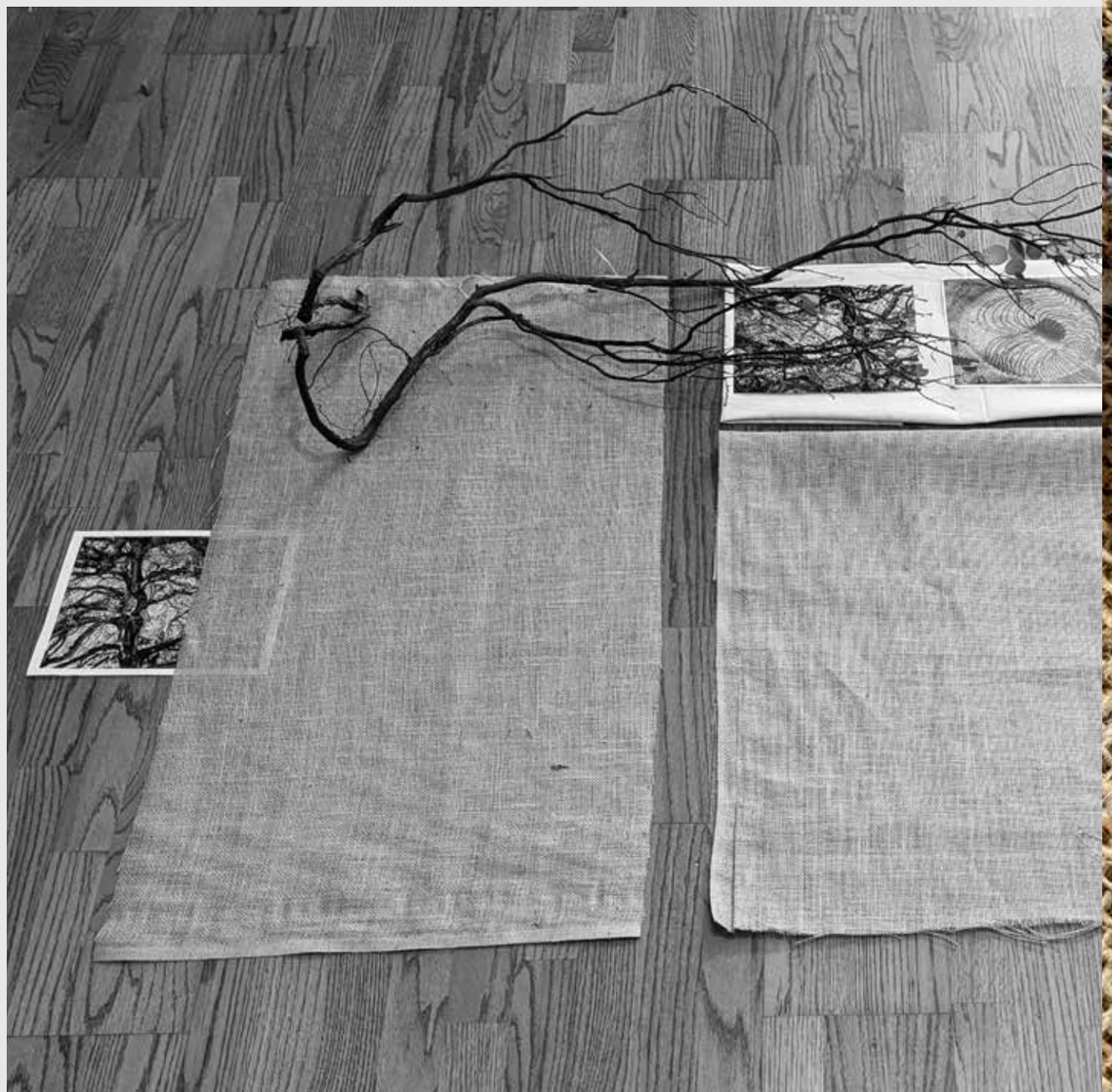
Chumacero created *Dispersing Time* using dyes that she made by hand, mostly from plants that she grew. The artwork is inspired by Wi'áaşal (Temecula), a sacred oak on Pechanga land in the Southwestern United States. This ancient and majestic tree is still producing acorns after 1800 years, marking time through ongoing becoming. Chumacero sees the resilience of the tree as akin to that of Indigenous peoples, whose lines of existence have been disrupted but not destroyed and who are now recovering, reclaiming, and resurgent. Her lyrical text in this volume tells the story of Querkus Kwi, the offspring of Wi'áaşal, which is also thriving in a space of abundance on Pechanga land. Chumacero's poetry and paintings embody her philosophy that everything is connected in support of our shared ecosystem. —IGT

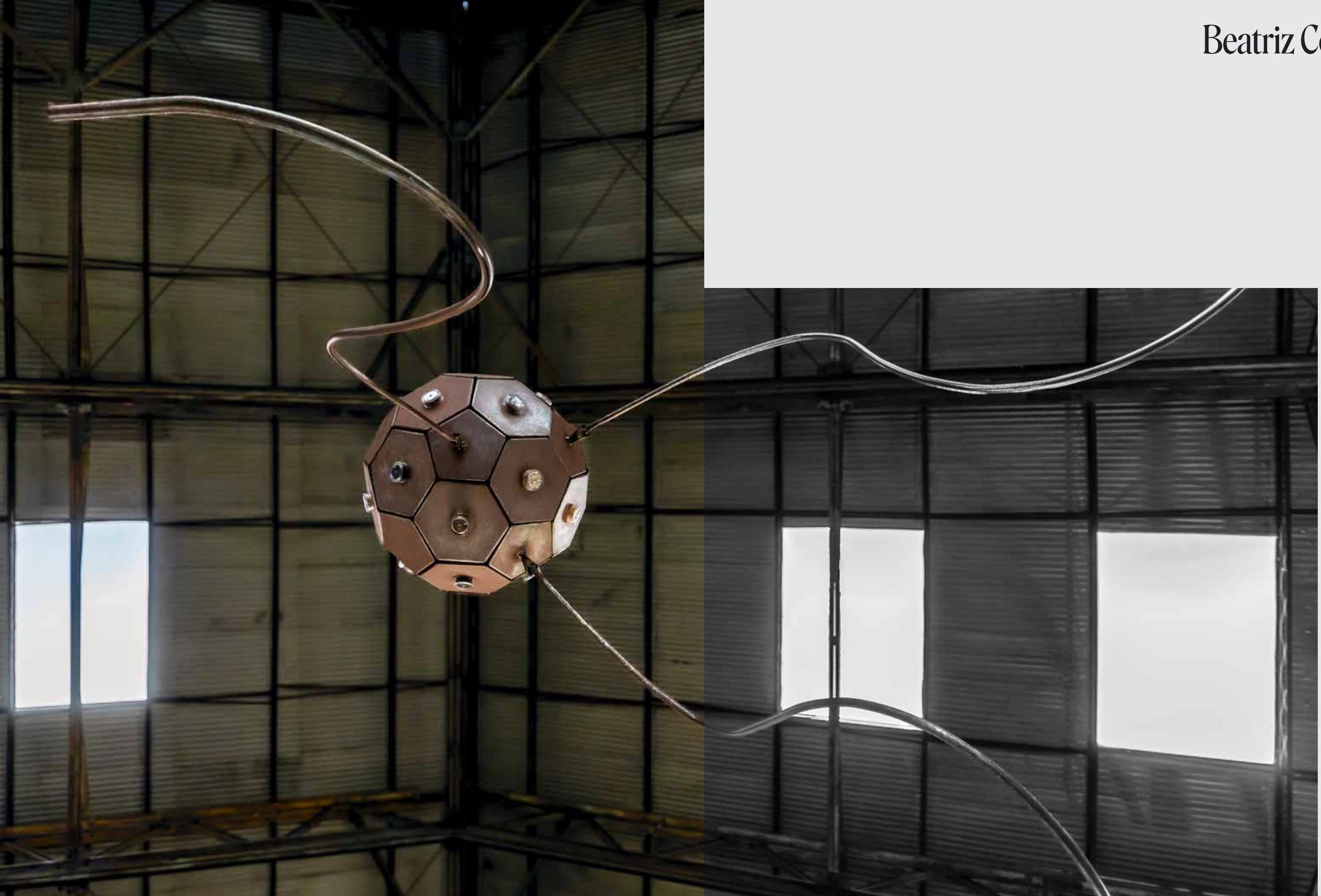
Pages 88–89, 92–93 Olivia Chumacero, *Dispersing Time*, 2023– (details). Plant pigments, ink, organic acrylic, burlap, muslin, manzanita branches, feathers, sound (Cahuilla acorn harvest song); dimensions variable. Photos: Sandra de la Loza.

Pages 94–95 Elder *Arctostaphylos glauca* (Bigberry manzanita) tree, over one hundred years old, at the habitat, eighty acres of land stewarded by Olivia Chumacero, Oakhurst, CA, 2019. Photo: Sandra de la Loza.

Pages 96–97 Meadow restored with native plants by Olivia Chumacero at The Huntington Library, Art Museum, and Botanical Gardens, San Marino, CA, 2017. No longer extant. Photo: Sandra de la Loza.

Pages 98–99 *Arctostaphylos glauca* (Bigberry manzanita) and ants at the habitat, eighty acres of land stewarded by Olivia Chumacero, Oakhurst, CA, 2019. Photo: Sandra de la Loza.





BEATRIZ CORTEZ (b. 1970, San Salvador, El Salvador; works in Los Angeles) explores simultaneity, life in different temporalities, and different versions of modernity. Her work, which is informed by ancient civilizations, migration, war, loss, and the Indigenous diaspora, imagines the future by investigating spatial and chronological temporalities. Cortez has exhibited at Storm King Art Center, New York (2023); Williams College Museum of Art, Williamstown, MA (2023); Pitzer College Art Galleries, Claremont, CA (2022); Centro Cultural de España de El Salvador, San Salvador (2014); and Museo Municipal Tecleño, Santa Tecla, El Salvador (2012). Her work has been included in group exhibitions at Smithsonian Arts + Industries, Washington, DC (2021); Hammer Museum, Los Angeles (2018); Ballroom Marfa, TX (2017); Whitney Museum of American Art, New York (2017); Los Angeles Contemporary Exhibitions (2016); and Centro Cultural Metropolitano, Quito, Ecuador (2016). Cortez was awarded the Borderlands Fellowship at the Vera List Center for Art and Politics, New York (2022–24); artist residencies at Atelier Calder (Saché, France, 2022); California Studio Manetti Shrem at University of California, Davis (2022); Longenecker-Roth at University of California, San Diego (2021); and the California Community Foundation Fellowship for Visual Artists (2016). Cortez received an MFA from California Institute of the Arts, Valencia (2015), and a PhD in Literature and Cultural Studies from Arizona State University, Tempe (1999).

Beatriz Cortez

The multidisciplinary works of Beatriz Cortez explore time and the untimely, simultaneity, and speculative imaginaries of the future. In *Generosity I* (2019), a steel sphere is suspended overhead. Its pentagonal and hexagonal panels are assembled into a mathematical form called a truncated icosahedron, commonly known as the pattern of a soccer ball. In the center of each hexagon, a transparent, node-like receptacle contains seeds of Indigenous non-GMO corn, beans, amaranth, quinoa, sorghum, and gourd—plants central to Mesoamerican quotidian and spiritual life. Three long appendages protrude from this hovering object, their spindly presence evoking antennae or the tropism of plant tendrils moving imperceptibly toward stimuli.

The form of *Generosity I* is reminiscent of the Russian satellite Sputnik, the first space probe launched into Earth's orbit, in 1957. The Russian word *sputnik* translates as *co-traveler*, and Cortez's otherworldly voyager likewise evokes the presence of another. Science has affirmed that plants retain a form of memory of past experiences, such as environmental threats, and they can apply their adaptive responses in subsequent situations and transmit that awareness epigenetically. With its bank of seeds, *Generosity I* serves as an offering, a gift of resources inscribed with knowledge and memories for potential future life forms. Its implicit call for communication with others in the present and in another time to come invites us to consider other dimensions and realms beyond the human.

The concept of time fundamentally informs Cortez's work. She thinks in "long temporalities," citing as inspiration the Mayan Long Count calendar, with its mathematically complex synchronized and supplemental cycles of varying durations. According to the artist, this calculation engages with the ideas that systems fail and everything is always in motion. Her explorations of time and space emphasize that nothing human or nonhuman is static. She invokes global migration crises as examples of the constant flux of life, as human lives transcend established barriers. This flux extends to the nonhuman: lava flows under the volcanic range that spans the artist's homes in Los Angeles and San Salvador; rivers cross continents and the geopolitical borders that divide them; and seeds are transported by wind and animals.

Within the probabilities of an outer space where *Generosity I* is present, the inheritance of things, feelings, and knowledge spans generations. In an act of generosity and hospitality, Cortez extends life into the future by offering seeds to imagined others whom she will never meet in a shared, intergenerational, and interspecies space. None of us is alien; this is the intimacy and the defiance of colonized subjects of empire. —IGT

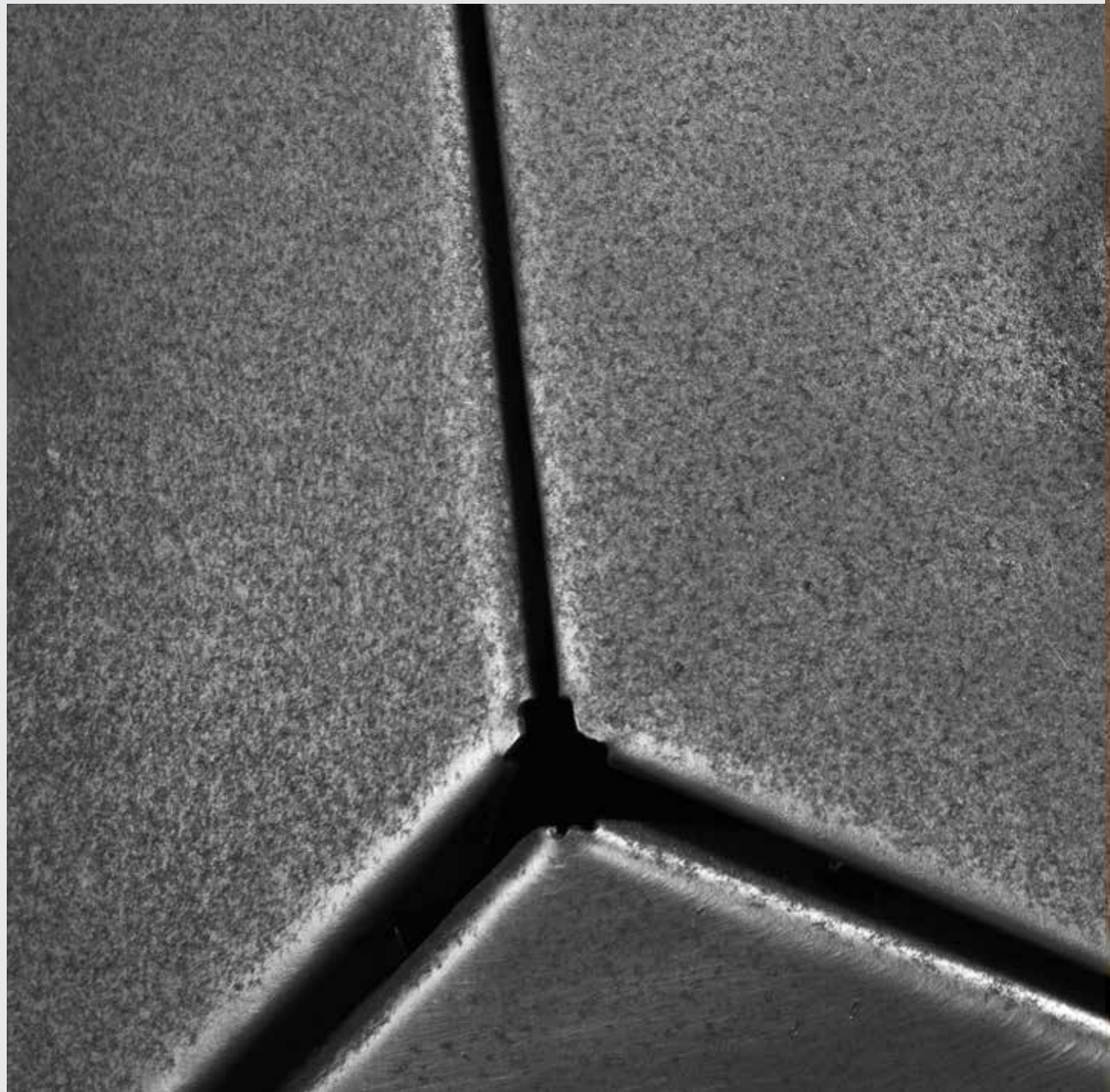
Pages 100–101 Beatriz Cortez, *Generosity I*, 2019. Steel, plastic, seeds (corn, beans, amaranth, quinoa, sorghum, gourd); 63 × 24 × 24 in. Installation view in *Beatriz Cortez & Kang Seung Lee | Becoming Atmosphere*, 18th Street Arts Center, Airport Campus, Santa Monica, CA, October 26, 2020–February 5, 2021. Photo: Marc Walker, courtesy of 18th Street Arts Center, Santa Monica, CA.

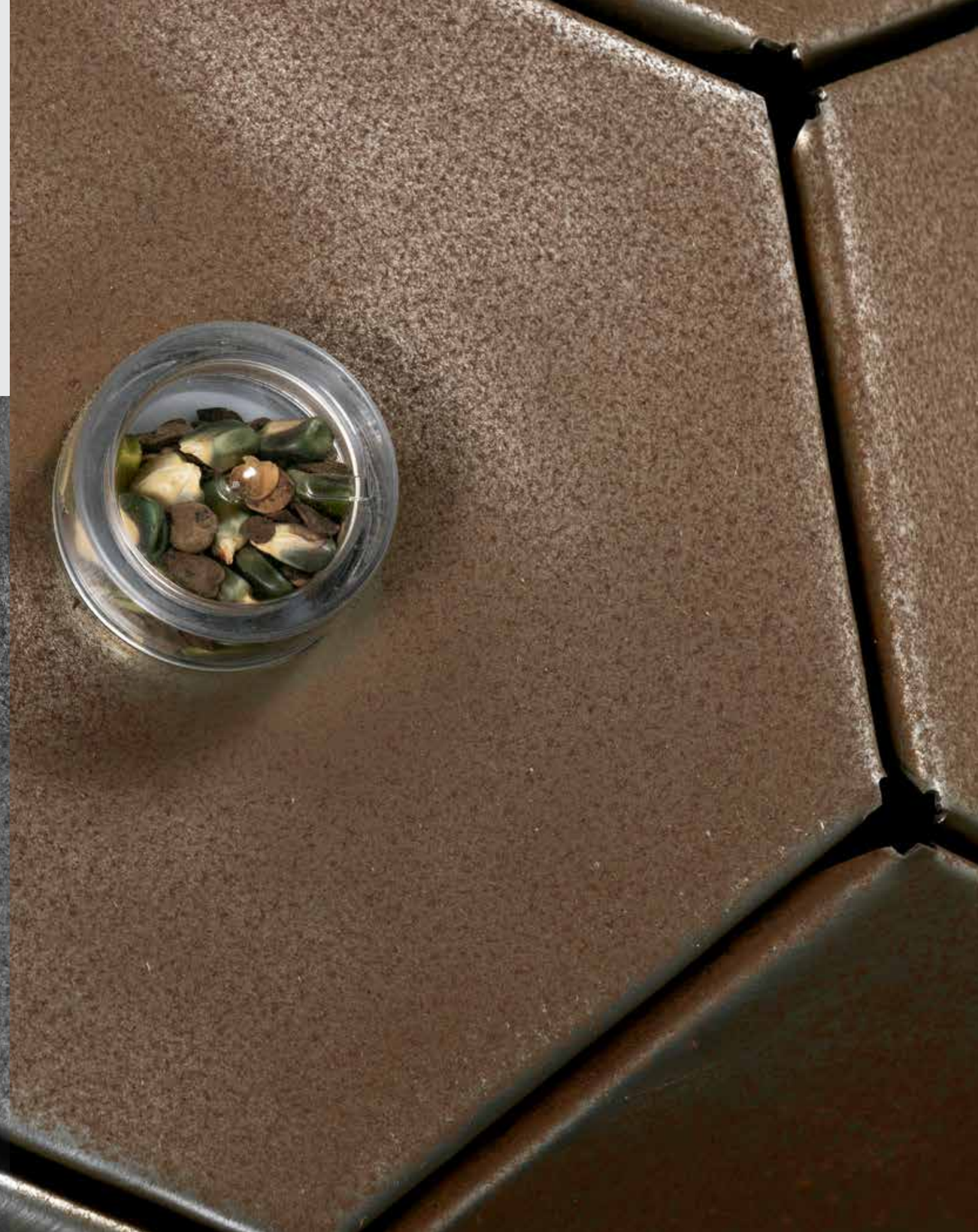
Pages 104–5 Beatriz Cortez, *Generosity I*, 2019 (detail). Steel, plastic, seeds (corn, beans, amaranth, quinoa, sorghum, gourd); 63 × 24 × 24 in. Photo: Marc Walker, courtesy of Commonwealth and Council, Los Angeles and Mexico City.

Page 106 Beatriz Cortez, *Generosity I*, 2019. Steel, plastic, seeds (corn, beans, amaranth, quinoa, sorghum, gourd); 63 × 24 × 24 in. Installation view in *Beatriz Cortez & Kang Seung Lee | Becoming Atmosphere*, 18th Street Arts Center, Airport Campus, Santa Monica, CA, October 26, 2020–February 5, 2021. Photo: Marc Walker, courtesy of 18th Street Arts Center, Santa Monica, CA.

Page 107 Beatriz Cortez, *Generosity I*, 2019 (detail). Steel, plastic, seeds (corn, beans, amaranth, quinoa, sorghum, gourd); 63 × 24 × 24 in. Photo: Anthony Zavala, courtesy of 18th Street Arts Center, Santa Monica, CA.

Pages 108–9 Beatriz Cortez, *Generosity I*, 2019. Steel, plastic, seeds (corn, beans, amaranth, quinoa, sorghum, gourd); 63 × 24 × 24 in. Pictured at the Bowtie, Rio de Los Angeles State Park, Los Angeles, 2019. Photo: Tatiana Guerrero, courtesy of the artist and Commonwealth and Council, Los Angeles and Mexico City.





MERCEDES DORAME (b. 1980, Los Angeles; works in Los Angeles) uses photography and mixed-media installation to address her Tongva heritage and landscape. By researching and exploring unceded traditional land, she seeks to document the forgotten and erased narratives of her Tongva ancestors and imagine the future of Tongva descendants. Dorame's installation *Woshaa'axre Yang'aro* (*Looking Back*) (2023) was the Getty Museum's first solo presentation by an Indigenous Californian. She participated in *UCLA: Our Stories, Our Impact* (2019), the university's centennial initiative, and the Hammer Museum's *Made in LA* exhibition (2018). Her work is held in the collections of the Hammer Museum, the San Francisco Museum of Modern Art, and the Triton Museum and the de Saisset Museum, both in Santa Clara, CA. She has been honored as a grant and fellowship recipient by Creative Capital, Montblanc Art Commission, New York Foundation for the Arts, Loop Artist Residency, Harpo Foundation, Galleria de la Raza, En Foco's New Works Photography Fellowship Awards program, and James Phelan Award for California-born visual artists. Dorame is currently a photography and media faculty member in the School of Art at California Institute of the Arts, Valencia. She received an MFA from the San Francisco Art Institute (2010) and a BFA from the University of California, Los Angeles (2003).

Mercedes Dorame

Mercedes Dorame (Tongva) situates her photographic images, mixed-media installations, and ritual practices in a fertile location she describes as "between observation and enactment." She looks for meaning, knowledge, and understanding of her place in the world in the overlays of her personal and Indigenous identities. Her artworks invite contemplation of our metaphysical relationship to the unified flow of space and time.

Dorame uses the phrase "everywhere is west" to orient herself and remember the land of her ancestors in Southern California, which is at the center of her life and artistic practice. Another expression, "hand in land," inspired the installation in this exhibition. Visitors are invited to a low round table that holds a selection of "cultural belongings," natural objects and herbs that the artist gathered on culturally significant lands of Tongva heritage. The objects invoke both ceremony and everyday use. Indigo panels suspended above the table create a canopy reminiscent of a night sky. This nurturing, devotional environment invites physical interaction and self-reflection, encouraging viewers to shift their perception toward a holistic alignment of self, land, and celestial bodies. Each of the ancient objects that comprise Dorame's "offering space" contains an entire cosmology. The work is like a seed—a literal growing space and a metaphorical place that honors what land has held and continues to hold for us through time.

In her practice, Dorame upends linear notions of time and place by recovering the embedded knowledge and foundational wisdom that have been here all along. Implicitly, her work raises questions of how the land we occupy is represented and understood through various stories, including those of ancient practices and the contemporary legacies of settler colonialism. Her recent photographic series *Everywhere is West* (2023) includes depictions of glistening abalone attached firmly to rocks in the tide pools of Santa Catalina Island, California—Tongva and Chumash land that is also a tourist destination. Dorame's images document the tenacity of these small, endangered creatures, which have long supported other forms of life around them, including serving as a traditional source of food and regalia for Tongva people. Against the dispiriting ubiquity of colonialism, Dorame's work asserts the strength of cultural legacy and personal reflection in combination with the empowering magic of storytelling. "My work has always trusted in a sense that's not my own," she says. Her artworks create portals through layers of interconnected worlds that reveal the vastness within oneself. —IGT

Pages 110–11 Mercedes Dorame, *Woshaa'axre Yaang'aro (Looking Back)*, 2023 (detail). Mixed media; dimensions variable. Artwork © Mercedes Dorame. Courtesy of and © 2023 J. Paul Getty Trust. *Woshaa'axre Yaang'aro (Looking Back)* was commissioned by the J. Paul Getty Museum, Los Angeles. Installation view, J. Paul Getty Museum, Los Angeles, June 20, 2023–July 28, 2024.

Pages 114–15 Mercedes Dorame, *Pulling the Sun Back–Xa'aa Peshii Nehiino Taamet*, 2021. Mixed media; dimensions variable. Installation view, Los Angeles State Historic Park, October 11, 2021–January 31, 2022.

Pages 116–17 Mercedes Dorame, *We remember the Milky Way–Yaraarkomokre Navaayoy Tokuupra*, 2019. Mixed media; dimensions variable. Installation view in *Another West*, Fraenkel Gallery, San Francisco, September 5–October 19, 2019

Page 118 Mercedes Dorame, *I Will Come from the Ocean–Mooomvene Kimaaro* (from *Everywhere is West*), 2022 (detail). Inkjet print; 30 × 30 in.

Page 119 Mercedes Dorame, *Two Worlds–Ooxor Tokuupar* (from *Everywhere is West*), 2022 (detail). Inkjet print; 30 × 37½ in.

AROUSSIAK GABRIELIAN (b. 1982, Yerevan, Armenia; works in Los Angeles) is an environmental designer and "bioartist" working with living organisms, natural systems, and atmospheric phenomena to explore multispecies entanglements. Her work aims to help us rethink our interactions with human and nonhuman agents on this planet. Gabrielian has recently exhibited at the Ford Foundation Gallery, New York (2023); A+D Museum, Los Angeles (2021); and Ars Electronica, Beijing (2019). She is cofounder and Design Principal of Foreground Design Agency, a design practice that aims to dismantle structures of power that render silent specific species, including some humans, and matter. Gabrielian's work has received numerous recognitions, including the Emerging Designer Award from the Design Futures Initiative (2019); the Tomorrowland Projects Foundation Award through the New York Foundation for the Arts (2019); the Fast Company's World Changing Ideas Award (2019); and the Rome Prize from the American Academy in Rome (2018). She is affiliated with University of Southern California (USC) as an Assistant Professor of Landscape Architecture + Urbanism in the School of Architecture, Affiliate Faculty of Media Arts + Practice in the School of Cinematic Arts, and Director of the Landscape Futures Lab. Gabrielian holds master's degrees in Architecture and Landscape Architecture from the University of Pennsylvania and a PhD in Media Arts + Practice from the School of Cinematic Arts at USC.

Aroussiak Gabrielian

Aroussiak Gabrielian's art practice proposes novel modes of living that reshape our connections with the natural world and offer innovative solutions to some of the most intractable problems of our time. With her recent work *Future Kin* (2024), she introduces an affective and embodied composting ritual that speaks to multispecies symbiosis, collaboration, and heightened environmental consciousness.

Future Kin is the third project in a series that includes *Posthuman Habitats* (2018) and *Liquid Breath* (2023). All three engage the value of mutual dependence and the exchange of knowledge between species. *Posthuman Habitats* consists of vests made of layers of moisture-retaining fabric and containing seeds that sprout and flourish. These wearable gardens operate in a self-sustaining cycle, wherein human waste—sweat and urine—is directed into the organic material, fostering its growth. Gabrielian's approach taps into ideas of transcorporeality, where the human body becomes an integral component of the ecosystem it supports. Her reimagining of clothing as a living landscape dissolves boundaries between nature and culture and human and environment. The work embraces the possibility of a world where human needs no longer take precedent over those of the flora and fauna that cohabit this planet.

In *Liquid Breath*, the collaboration takes place between humans and fungi. Gabrielian's installation contains her design prototype *Transcorporeal Atmospheres*, which takes the form of an undulating glass vessel. Enclosed within is a moist environment that enables organisms, in this case a shiitake mushroom, to grow and be sustained by human breath. The fungus in turn filters the liquid for potable use by humans. *Liquid Breath* forges an intimate alliance between very different organisms, offering a glimpse into a sustainable future made possible by trans-species cooperation.

Gabrielian extends the scope of cross-species engagement in *Future Kin*, which focuses on the biological process of organic decay through the act of composting. This installation, which includes video monitors, soil, ceramic objects, sound, and speakers, draws comparisons between the life cycles of humans, the biome in our digestive tract, and the bacterial, fungal, and animal medley that allows for the resurgence of new life in degraded soil. The multichannel video in the installation depicts a grieving ritual in which undulating hands move through soil in a choreography that caresses, laments, and cares for the decomposing organic matter. *Future Kin* implicates humans in the functioning of natural systems and makes a case for the necessity of our direct engagement, empathy, and renewed awareness of our ecological interconnectedness. —HR

Pages 120–21 Aroussiak Gabrielian, *Future Kin*, 2023. Digital concept sketch.

Pages 124–25 Aroussiak Gabrielian, *Future Kin*, 2024 (detail). Video still from mixed-media installation, dimensions variable.

Pages 126–27 (background) Aroussiak Gabrielian, *Future Kin*, 2023. Digital concept sketch.

Pages 126–27 (foreground) Aroussiak Gabrielian, *Gut Microbiome/Soil Biome*, 2023. Research diagram.

Pages 128–29 (background) Aroussiak Gabrielian, *Future Kin*, 2023. Digital concept sketch.

Page 128 (foreground) Aroussiak Gabrielian, *Gut Microbiome/ Soil Biome (shared organisms)*, 2023. Research diagram.

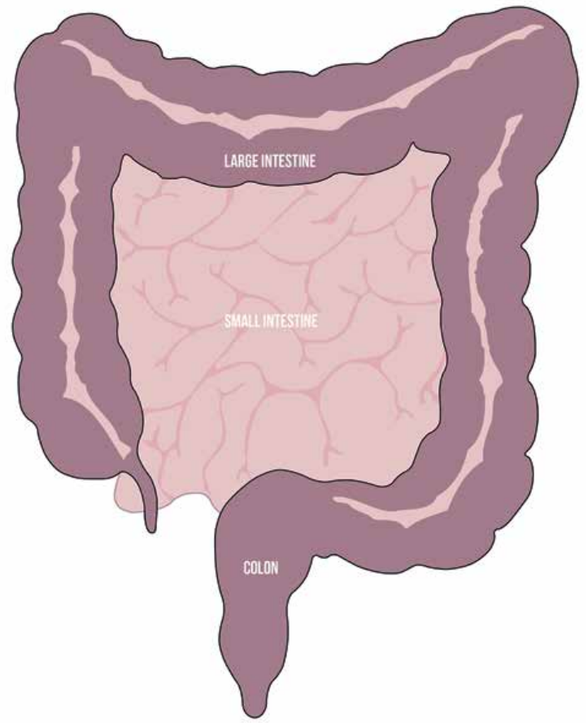
Page 129 (foreground) Aroussiak Gabrielian, *Phases of Decomposition*, 2023. Research diagram.

Pages 130–31 Aroussiak Gabrielian, *Future Kin*, 2023. Digital concept sketch.

GUT MICROBIOME

MATERNAL GUT

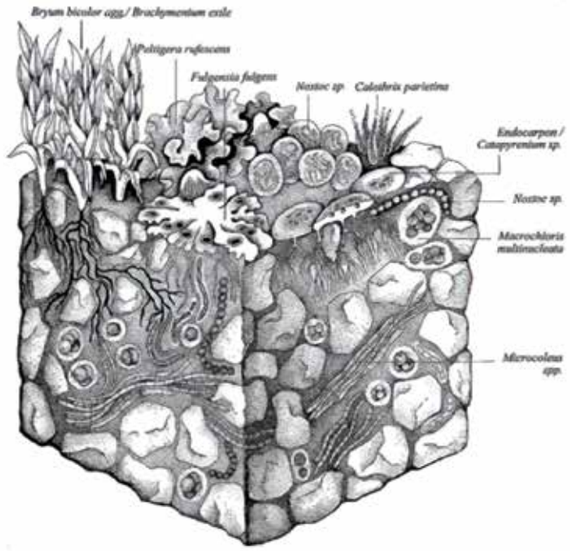
The microbial population of the human gut derived from the ancestors, individually from the mother through vertical transmission during gestation, during birth, and after birth through contact with maternal body sites, with the greatest contribution of the maternal gut.



SOIL BIOME

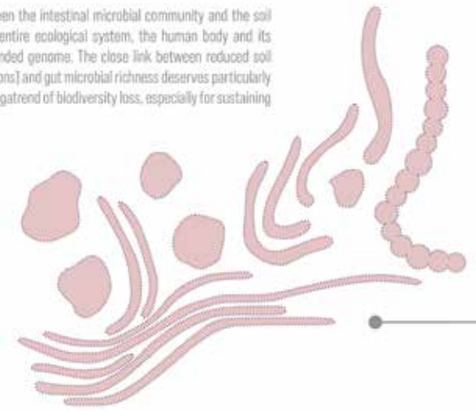
FUNCTIONAL ECOSYSTEM

The soil contributes to the human gut microbiome—it was essential in the evolution of the human gut microbiome and it is a major inoculant and provider of beneficial gut microorganisms. In particular, there are functional similarities between the soil rhizosphere and the human intestine. In recent decades, however, contact with soil has largely been reduced, which together with a modern lifestyle and nutrition has led to the depletion of the gut microbiome with adverse effects to human health.

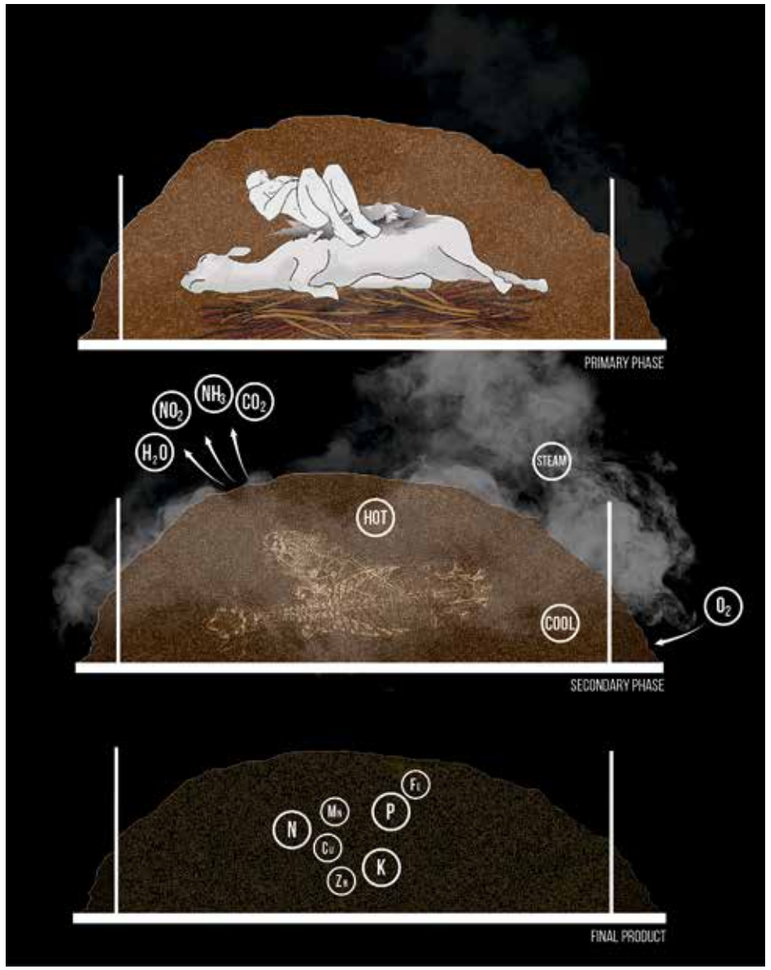


SHARED ORGANISMS

There are functional similarities between the intestinal microbial community and the soil microbial ecosystem. Looking at the entire ecological system, the human body and its microbes can be regarded as an extended genome. The close link between reduced soil biodiversity (due to alkaline soil conditions) and gut microbial richness deserves particularly critical scrutiny in view of the global megatrend of biodiversity loss, especially for sustaining human health.



The intestinal microbial community represents an ecosystem of a trillion microbial cells. The greatest number of cells within the human gut is found in the colon which supports a diverse and dense population of microbes, dominated by anaerobes that utilize carbohydrates. By comparison, the lowest number of cells found in the small intestine is due to properties that limit bacterial reproduction such as high levels of acids and antimicrobials. Also, short transit times in the small intestine limit bacterial reproduction. The colonization of the human gut starts at birth, with the rapid expansion of microbial diversity, influenced by endogenous and exogenous factors, such as human genetic variation as well as diet, infections, xenobiotics, and exposure to environmental microbial agents including the large plant and soil microbiome.



IRIS YIREI HU (b. 1991, Los Angeles; works in Los Angeles) creates and supports intergenerational and cultural community-based relationships through weaving, natural dyeing, fiber, soil, installation, public art, and poetry. Her practice focuses on outdoor recreation, plants, and a critical reflective process of building interdependent relationships with local communal ecosystems. In 2022, hu exhibited at the Center for Art, Research, and Alliances, New York, and at Museum of Contemporary Art, Tucson. Her work has been shown at the Armory Center for the Arts (2023); We Rise/Art Rise, produced by Los Angeles Nomadic Division and Institute of Contemporary Art, Los Angeles, at Los Angeles State Historic Park (2021); France Los Angeles Exchange (2019); Los Angeles Contemporary Exhibitions (2019); OxyArts at Occidental College, Los Angeles (2019); Art Salon Chinatown, Los Angeles (2019); Visitor Welcome Center, Los Angeles (2019); Municipal Art Gallery, Los Angeles (2018); Feminist Center for Creative Work, Los Angeles (2018); and Human Resources, Los Angeles (2017). She has been commissioned by Los Angeles County Metro to create a public art mural at the UCLA/Westwood Purple Line Station (2022–27) and a mural at California State University, Dominguez Hills (2020). She received a BFA from the University of California, Los Angeles (2013) and an MFA from Columbia University, New York (2017).

iris yirei hu

In installations and public artworks, iris yirei hu uses painting, dyeing, weaving, and writing to share her journeys in cultivating relations with all living beings. Her teachers are the natural world—the sun, soil, plants, and water—and she views her organic materials as embodiments of the matter that binds land and people, whom she sees as inseparably linked.

The artist has studied the ancestral traditions and processes of Indigenous communities in California, Ecuador, Mexico, Peru, Southwest China, and Taiwan. Her explorations have led to relationships with many knowledge bearers, including tribal elders, keepers of ancestral traditions, land and water protectors, scientists, historians, and artists—including Navajo textile artist Melissa Cody and the late Tongva elder Julia Bogany.

Bogany taught hu how art could be used to foster love and resistance. Their collaborative process explored opportunities for intercultural care for the land and each other in Southern California—a place of tangled Indigenous and immigrant histories. Their joint efforts inform hu's philosophy of "collaborative optimism," which is rooted in the potential of trauma to be a source of healing, solidarity, and creativity for co-creating liberating futures for Indigenous, Black, and people of color.

In 2023, hu studied the ceramics of the Ripanu community in the Sapara territory of the Ecuadorian Amazon. She observed the role of their craft traditions in preserving local Indigenous knowledge, which is threatened by the exploitative extraction of natural resources in the Amazon. Grounded in the politics of land rights, hu's work creates space for worlds of story, love, and magic—making perceptible the humanity within these struggles. Her curiosity about the Sapara's practice of lucid dreaming as a way of communicating with the forest, which they see as their kin and ancestors, initially led her to their community.

The blur between the states of dreaming and wakefulness is a subject in hu's paintings of Blue CHiLD. In her work, this recurring indigo entity comes from an ancient allegorical clan of Blue People whose craft of storytelling grew into a technology for healing across time and place. Their descendants cannot help but continue to tell stories and create as ways to understand themselves and connect with kin around the world. Blue CHiLD. is characterized by an attuned, embodied way of living, a profound relationship to the Earth, and a rejection of the need to be legible. Blue CHiLD. exists not only in hu's works but also within the artist herself. —SR

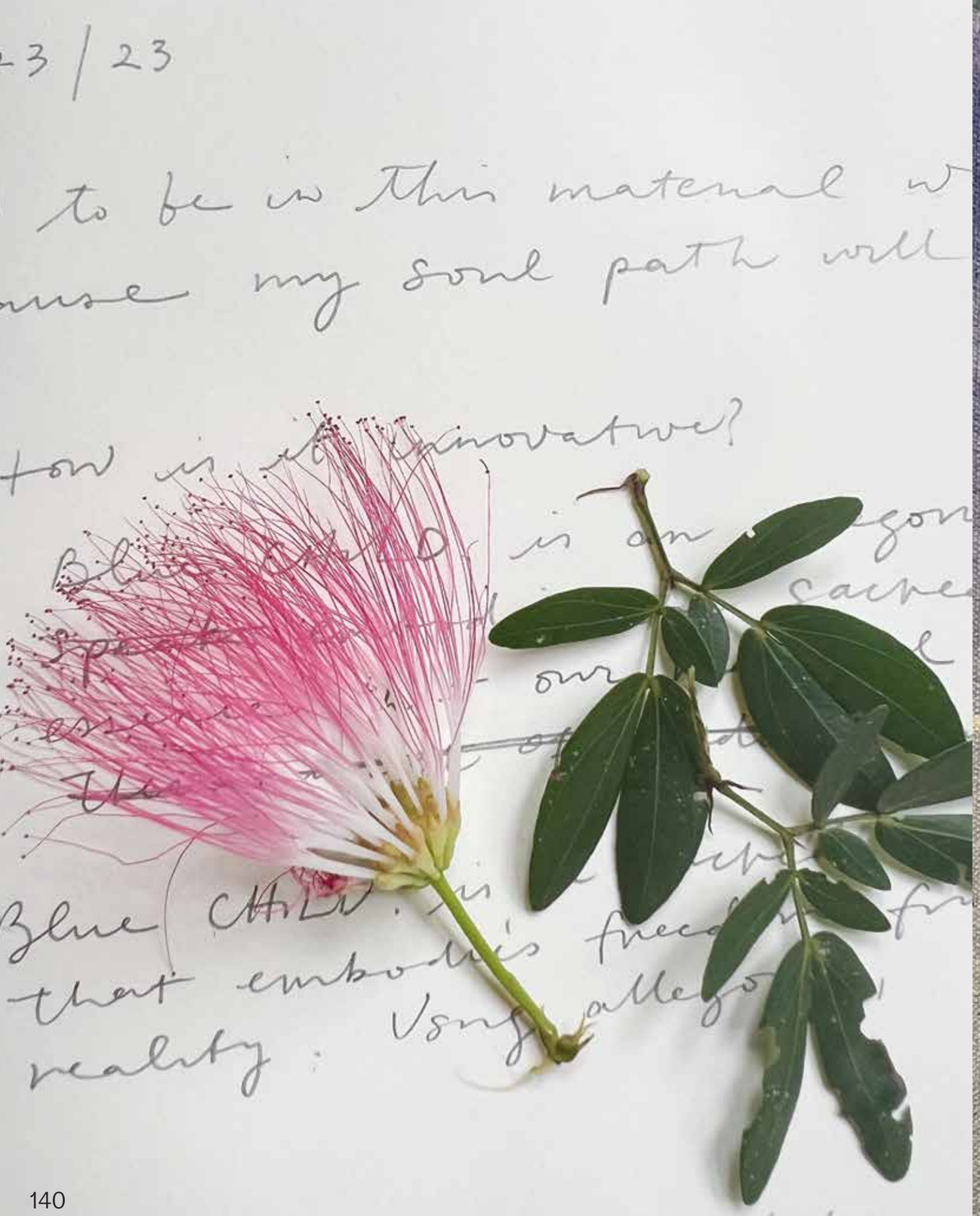
Pages 132–33, 136–37 iris yirei hu, hand-processed natural pigments, 2023. Photos: iris yirei hu.

Page 138 iris yirei hu, *mercurial*, 2023 (detail). Acrylic, hand-processed watercolor, and pastel on canvas; 60 × 60 in. Photo: Paul Salveson.

Page 139 iris yirei hu, *mercurial*, 2023. Acrylic, hand-processed watercolor, and pastel on canvas; 60 × 60 in. Photo: Paul Salveson.

Page 140 iris yirei hu, study for *mercurial*, 2023. Photo: iris yirei hu.

Page 141 iris yirei hu, *mercurial*, 2023 (detail). Acrylic, hand-processed watercolor, and pastel on canvas; 60 × 60 in. Photo: Paul Salveson.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Lez Batz
(Sandra de la Loza and Jess Gudiel)

LEZ BATZ is a performance and visual art collaboration between Los Angeles-based artists Sandra de la Loza (b. 1968, Los Angeles) and Jess Gudiel (b. 1981, Los Angeles). Their mixed-media artworks disrupt the shadows of colonialism on local environments by reinforcing connections to land. In 2023, they facilitated workshops and a procession as part of *Heal Hear Here,* a festival organized by Freewaves at Los Angeles State Historic Park. De la Loza is a research-based artist and Assistant Professor of Chicanx Studies at California State University, Northridge. She founded *The Pochx Research Society of Erased and Invisible History* (2002–7) and co-created community spaces for artistic production, including at land's edge, Los Angeles (2016–18). Past exhibitions include *Undoing Time*: *Histories of Art and Incarceration* at the Contemporary Art Center, New Orleans (2023), and *Xican-a.o.x.* at the Cheech Marin Center for Chicano Art & Culture of the Riverside Art Museum, Riverside, CA (2023). For over a decade, Gudiel has practiced horticulture, shadow art, and puppetry in schools and art centers, intersecting sustainable organic growing, creativity, and shadow work to deepen interactions with place. Gudiel's most recent work is a visual and oral Tongva narrative called *Paviinokre*: *We Flow*, created in collaboration with Tina Calderon and Rosanna Esparza Ahrens. Gudiel's work was included in *Of Seed, Soil, and Stars* at Los Angeles Contemporary Exhibitions (2023).

Lez Batz

Latinx artists Sandra de la Loza and Jess Gudiel's collaborative practice Lez Batz is driven by relationship and community building. The group was formalized in 2022, and their projects are dedicated to resurfacing ecological layers of Tongva land that are currently obscured by the built environment. Their work often leads them to honor the natural coinhabitants of the land that is contemporarily referred to as Los Angeles in community-driven settings that encourage reconnection to the natural world around us.

On the occasion of a large public healing arts event held at the Los Angeles State Historic Park in May 2023, de la Loza and Gudiel held a procession to honor the 1931 discovery of a fully intact *Mixocetus elysius* whale skull in the hills of Northeast Los Angeles. Donning bat masks handcrafted from felt—in homage to the many bat communities in this Southern California ecosystem—the artists transformed into Lez Batz. They paraded a large cardboard puppet in the form of a whale skeleton through the park as whale songs echoed in the air. A supporter blew bubbles behind them, evoking the mammal's swim through the sea. The work was intended to remind those at the park that the land they stood on was once an underwater home to many different species. In September 2023, de la Loza and Gudiel reactivated their skeletal whale puppet on Black Walnut Tree Day as part of a community event honoring the ecosystemic importance of the black walnut trees native to Northeast Los Angeles.

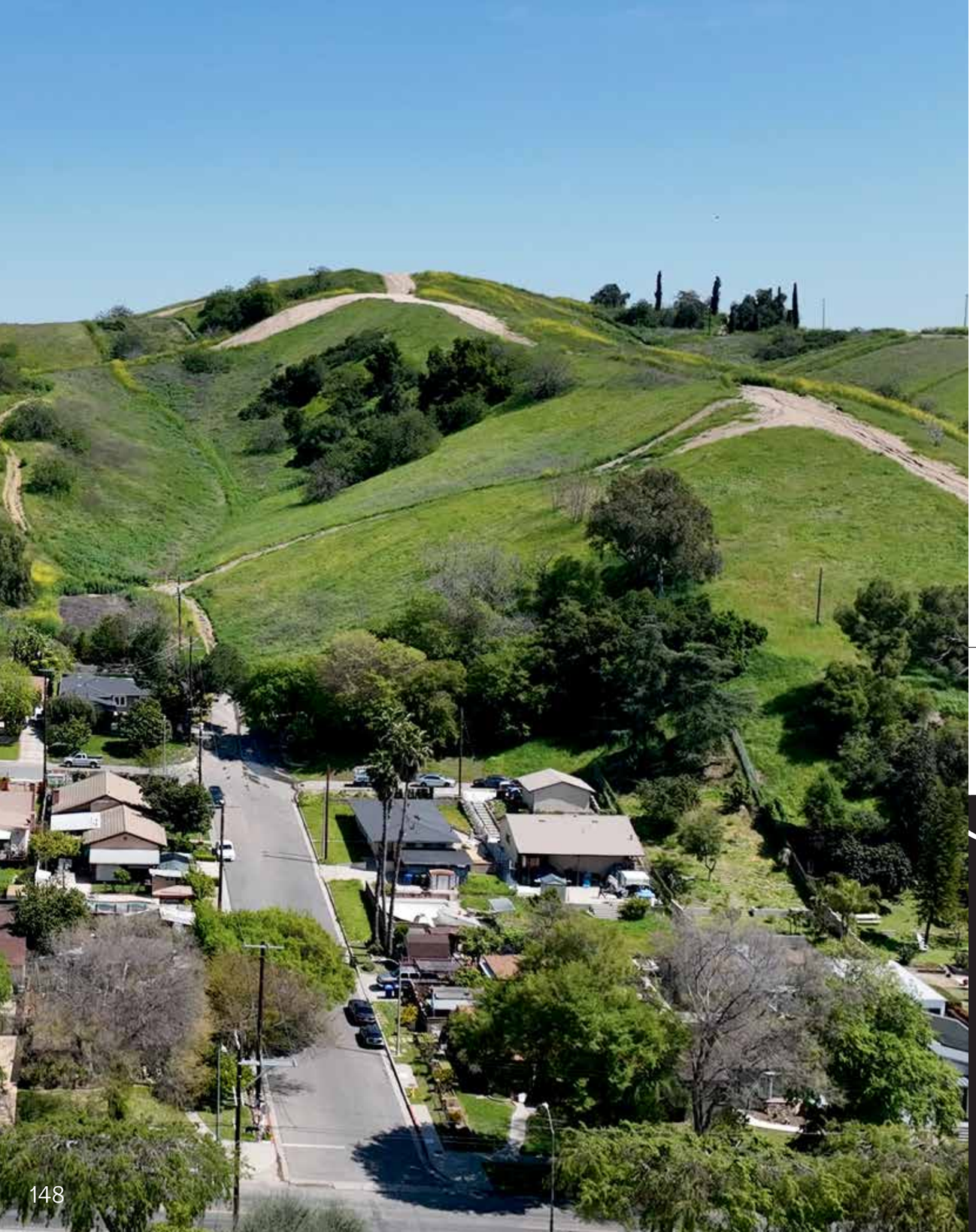
The whale puppet reappears at the forefront of Lez Batz's immersive installation at the Armory. Bat masks representing twenty-five different species that are native to California hover below the ceiling, surrounding a video monitor. On the screen, a drone video created by de la Loza follows a stream in the hills of El Sereno from the place it runs underground to where it leaves a hint of its existence by trickling onto a residential street. As the ambient noise of water and whale songs fills the space, the different elements combine in a somatic tribute to the past, present, and future ecosystems of Northeast Los Angeles. —JAV

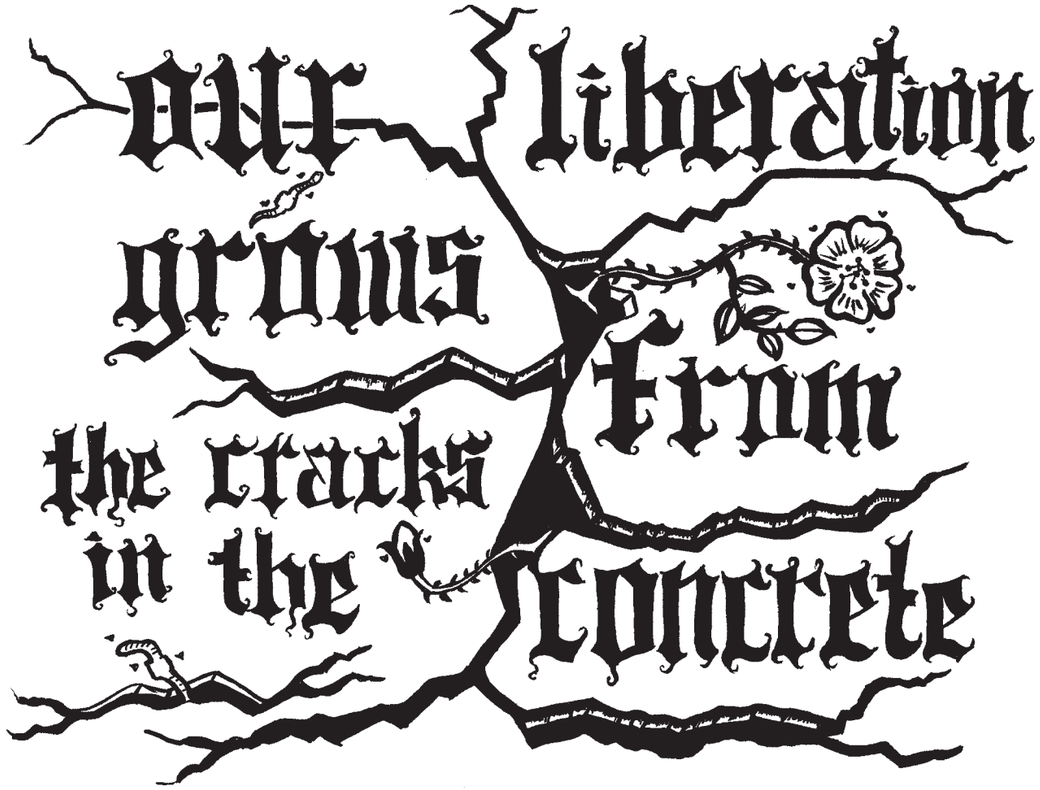
Pages 142–43 Lez Batz (Sandra de la Loza and Jess Gudiel) performing at Takaape'Waashut / Black Walnut Day, Ascot Hills Park, Los Angeles, September 17, 2023. Photo: Isabel Avila.

Pages 146–47, 148 Lez Batz (Sandra de la Loza and Jess Gudiel), *Source*, 2023. Video stills.

Page 149 (top and bottom) Lez Batz (Sandra de la Loza and Jess Gudiel), *Our Liberation Grows from the Cracks in the Concrete*, 2023 (details). Photocopied zine; 11 × 8½ in.

Pages 150–51 Lez Batz (Sandra de la Loza and Jess Gudiel), *Moving with Circadian Rhythms*, 2023. Procession and workshop at the Heal Hear Here festival, Los Angeles State Historic Park, May 20, 2023. Photo: Sonia Hernandez.





SAVE NELA HILLS!


BATS

Malaqatel Ija, Semillas Viajeras, Seed Travels

MALAQATEL IJA, SEMILLAS VIAJERAS, SEED TRAVELS is a collective founded in 2014 and based in California and New Mexico. The group shares ancestral Indigenous amaranth seeds to build awareness of the human connection to the natural world while strengthening local communities. The collective's members are Qachuu Aloom Mother Earth Association, an affiliation of Maya Achi farmers in and around Rabinal, Guatemala; The Garden's Edge, based in Albuquerque, NM, which supports sustainable agriculture and environmental education; Milagro Allegro Community Garden, a community garden in the Highland Park neighborhood of Los Angeles; and Indigenous Permaculture, based in San Francisco's Mission district, which supports communities in developing self-sustainable ways of living. The women of Rabinal used amaranth seeds to rebuild their community after a civil war in Guatemala from 1960 to 1996 killed their leadership and broke their social ties. The amaranth seed serves as a symbol for food sovereignty, labor, migration, trading structures, and the benefits of community infrastructures. Malaqatel Ija, Semillas Viajeras, Seed Travels collaborates with farmers to explore agricultural practices and communal and ecological beliefs throughout their regions. Through ongoing dialogue, workshops, and collaborations, the collective has also worked with Side Street Projects, Pasadena (2014), and home-grown gardens in Santa Clara Pueblo and Amyo Farms in New Mexico (2015).

Malaqatel Ija, Semillas Viajeras, Seed Travels

Over the past ten years, Mayan Achi community members in Guatemala have organized into a collective called Malaqatel Ija, Semillas Viajeras, Seed Travels to revitalize ancestral amaranth farming, which was nearly eradicated in the region by Spanish settlers in the sixteenth century. The grain, a cornerstone in Indigenous Guatemalan communities both for its sustenance and its spiritual significance, again became a target of violently oppressive forces during the civil war of 1960 to 1996. In the 1980s, during the construction of the Chixoy Dam, which received significant support from the World Bank, the Guatemalan government launched genocidal campaigns to forcibly remove the local Maya Achi residents, which resulted in the Río Negro Massacre. These campaigns led to the country's dependence on imported seeds from foreign providers.

The Malaqatel Ija, Semillas Viajeras, Seed Travels collective is a broad constellation of organizations and individuals that use *Campesino a Campesino* (farmer-to-farmer) peer learning methodologies to share native amaranth seeds, promote traditional methods of cultivation, and build community. Beyond the Guatemalan highlands, members have collaborated with farms, community spaces, and green spaces in California, New York, and the Southwestern United States, creating a network of connections.

Video artist Liz Goetz has organized, facilitated, and documented the collective's actions at organizations in Southern California, including the Milagro Allegro community garden, Villa Parke, and Art in the Park, alongside members from Qachuu Aloom, another Indigenous-led organization within the Malaqatel Ija collective. As the facilitator and organizer of the Malaqatel Ija, Semillas Viajeras, Seed Travels project at the Armory, Goetz created a planting and workshop program that runs in tandem with the exhibition. Cristóbal Osorio Sánchez, Julian Vasquez Chun, and Maria Aurelia Xitumul planted amaranth in the Armory's front garden using their community's traditional growing methods. Throughout the course of the exhibition, the garden will host communal harvests, seed sharing, and workshops. As Malaqatel Ija member The Garden's Edge writes of the collective, "Many voices need to have a place at our collective table; together we can germinate new ideas of hope and action for the future." —JAV

Pages 152–53 Xitumul family home garden with plants sown from seeds returned to elders at Qachuu Aloom through the Bishop Paiute Food Sovereignty Project, Chiac, Baja Verapaz, Guatemala, 2019. Photo: Malaqatel Ija, Semillas Viajeras, Seed Travels.

Pages 156–57 Amaranth in the Qachuu Aloom Collective garden, Pacux, Baja Verapaz, Guatemala, 2019. Photo: Malaqatel Ija, Semillas Viajeras, Seed Travels.

Pages 158–59 Vazquez Chun family home garden with amaranth returned to elders at Qachuu Aloom through Tewa Women United's Española Healing Foods, El Sauce, Baja Verapaz, Guatemala, 2019. Photo: Malaqatel Ija, Semillas Viajeras, Seed Travels.

Page 160 Orange amaranth seeds, San Francisco, Baja Verapaz, Guatemala, 2019. Photo: Malaqatel Ija, Semillas Viajeras, Seed Travels.

Page 161 Orange amaranth sprouts, San Francisco, Baja Verapaz, Guatemala, 2019. Photo: Malaqatel Ija, Semillas Viajeras, Seed Travels.

Pages 162–63 Orange amaranth field, San Francisco, Baja Verapaz, Guatemala, 2019. Photo: Malaqatel Ija, Semillas Viajeras, Seed Travels.

HILLARY MUSHKIN (b. 1969, New York; works in Los Angeles) is an artist, researcher, and writer. She is also a research professor of art and design at the California Institute of Technology (Caltech) in Pasadena. Her work explores the power of and limits to human and technological observation. In 2011, she founded Incendiary Traces, an ongoing art and research effort to collaboratively reverse-engineer the politics of landscape visualization. Mushkin's art has been exhibited at the Getty Museum, Los Angeles; the Freud Museum, London; nGbK, Berlin; and Ex Teresa Arte Actual Museum, Mexico City. Her monograph *Hillary Mushkin*: *Incendiary Traces* (2017) was published by the Benton Museum of Art at Pomona College, Claremont, CA, to coincide with her solo exhibition of the same name. Mushkin's essays have been published in *Places Journal* and KCET's *Artbound*. She is also a cofounder of Data to Discovery, a data visualization, art, and co-design group based at NASA/Jet Propulsion Lab, Caltech, and ArtCenter College of Design. Her collaborations with Data to Discovery have led to the development of data visualization systems for scientists worldwide to increase scientific understanding of Mars, Earth's environment, and climate change. She received a BFA from the Rhode Island School of Design, Providence, RI (1991), and an MFA from the University of California, Irvine (1994).

Hillary Mushkin

Hillary Mushkin's practice is concerned with ways of seeing, understanding, and experiencing contested terrain. Her projects trace landscapes through a process of on-site drawing, historical archive research, and experiential place-based inquiry, which she accomplishes in collaboration with artists, scholars, activists, and scientists.

Incendiary Traces, a research project Mushkin began in 2012, examines the visual documentation and representation of environments shaped by political and commercial interests. It originated in a series of drawings in which she compared the striking visual similarities between news footage of conflict zones in Baghdad from 1991 with images of her Los Angeles neighborhood. Since then, the project has expanded beyond the studio to include field trips and on-site investigation in areas of Southern California where human intervention on the landscape makes power relations abundantly clear, from military training grounds to heavily surveilled sites along the US-Mexico border. Mushkin's work emphasizes the value of spending time on location while looking, drawing, and asking questions in order to understand the history of a place through communal experiences. The products of Mushkin's and her collaborators' fieldwork include collectively generated drawings, writing, and video documentation.

Starting in 2021, Mushkin brought Incendiary Traces together with Data to Discovery—a data visualization project she co-leads—to focus on the subject of groundwater in California's San Joaquin Valley. With a team of artists, scientists, and activists, Mushkin traveled to El Nido, Fairmead, the Merced National Wildlife Refuge, and Friant Dam to uncover the history and politics surrounding the use and control of water in the area. This region has been profoundly affected by generations of groundwater pumping, hydrological engineering, and climate change. Today, the valley is experiencing subsidence, a phenomenon in which the ground sinks due to excessive water extraction, and other challenges that impact the land and people that depend on it for their livelihoods. This research has materialized in the form of *Groundwater* (2024), an artist's book and installation that seeks to analyze and represent the intricate web of water rights legislation and discriminatory cartography and its effects on Central Valley communities. The oversized, hand-bound tome incorporates drawings by Mushkin and her Incendiary Traces collaborators, collaged research material and ephemera, diagrams, and maps that convey the narrative of water loss and land degradation. The installation includes a wall-sized map of the region, four videos documenting the different areas and waterways visited during their research trips and narratives of San Joaquin residents and workers, and an audio recording of a ceremony song by Indigenous artist and writer Olivia Chumacero.

Mushkin and her collaborators utilize a means of contemporary land surveillance that works against the nineteenth-century tradition of identifying, naming, and classifying as a strategy of control. Their collective process of extended looking and drawing challenges the sense of place that has been established through the historicization and representation of land by authoritative bodies. —HR

Pages 164–65 Hillary Mushkin, *Merced National Wildlife Refuge (from the Groundwater project)*, 2022. Photo: Leonardo Pirondi and Zazie Ray-Trapido.

Pages 168–73 Hillary Mushkin, *The River and the Grid*, 2024 (details). Ink, watercolor, graphite, archival inkjet prints, and glue on paper; artist's book, closed: 26 × 40 in., open: 26 × 80 in. Photos: Evan Walsh.

here are the marks
of many hands
little by little
marking up the valley
accumulating imperceptibly
one by one
to change
the whole environment

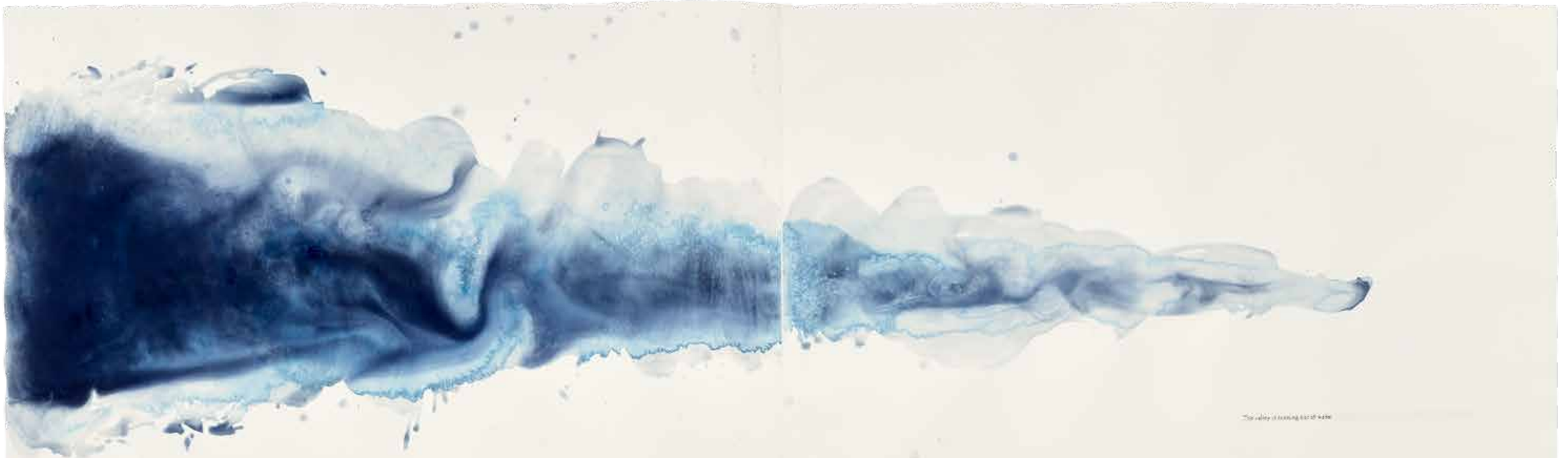
LEGEND

LOCATION MAP

1948-50 map of Delta-Mendota Canal
Regional Operations Manager Martin H. Blote
Drawn by W.M.B.
Traced by W.S.W.
Submitted by H.E. Horton
Approved by D.G. Boden

he claims the water flowing there

between appropriators, *the one first in time is the first in right.*"



VICK QUEZADA (b. 1979, El Paso, TX; works in New Haven, CT) was raised on the US-Mexico border. Their sculpture, photography, video, and performance bridge Aztec spirituality, technology, history, and present-day materiality to resist and reconcile with settler colonialist ideology. Quezada's works integrate repurposed items and natural elements, such as soil, corn, flora, dirt, cans, shopping carts, wire, and trash. Their research is rooted in the Aztec belief that living and nonliving species, cosmos, and ecology are interconnected and survival depends on their absolute connectedness. Quezada is Assistant Professor of Studio Arts and Visual Culture at Hampshire College in Amherst, MA. They have received grants and awards from the University of Massachusetts Amherst; the US Latinx Forum Fellowship, co-sponsored by the Andrew W. Mellon Fellowship and the Ford Foundation; Robert Rauschenberg Foundation; and the Artist Relief Grant, supported by Americans for the Arts and Creative Capital. They recently became the Yale Center for the Study of Race, Indigeneity, and Transnational Migration Fellow. They were featured in El Museo del Barrio's La Trienal, New York (2021). Quezada received a BFA from the University of Texas at El Paso (2005) and an MFA from the University of Massachusetts Amherst (2018).

Vick Quezada

Through ceramics, mixed-media sculpture, video, and performance, Vick Quezada (Mestizx-Latinx) considers the overlays and interplays of immigration, agricultural labor, plant cultivation, and queer Aztec ritual. Quezada pursues these themes through studies of personal and cultural experiences that have been erased over time, histories embedded in society and in the body, and a queered understanding of time as a spiral. The artist's practice also follows a paradigm of *research-as-action* and *action-as-research*. In addition, Quezada is interested in the histories and politics of where objects are from—including where and how their elements are sourced and how and by whom they are produced.

The potted cactus and string of limes in Quezada's assemblage *N-400 Hustle* (2023) reference traditional dietary stapes of people throughout the Americas and the artist's family's *mestizo* culture. The dull gray tape on one of the arms of a hand truck suggests a copper bracelet, a nod and wink to the familiar custom of *abuelitas* as well as an assertion of queer identity. The elements of this mixed-media installation signal hope and resistance while also serving as an example of Quezada's characteristic embrace of *rasquache*—expressions of ingenuity and defiance. The artist has had a lifelong relationship to systems of oppression in relation to Latinx and Indigenous migrants. Quezada's father and young brothers experienced exploitation in Texas and California as migratory farmworkers in a pipeline to US citizenship. The artwork offers a narrative of agency while acknowledging the hardships of disenfranchisement and itinerate agricultural labor.

Quezada sees settler colonialism embedded in the landscape and the body, with both bearing the inscriptions of time and actions. The US-Mexico border and human actions around it are phenomena created from the ideologies of imperialism and American exceptionalism. Quezada's embodied practice rejects colonial regimes of gender while embracing Indigenous spiritualities and a tradition of radical queer joy. They cite the Maya Maize God as an inspiration, a progenitor to life who has been represented as both male and female. Against the contested domains of the sacred grain of *santo maíz*—including corporate seed patents and the injustices of immigrant labor—the artist's work enacts resilience, celebration, and joy in order to help build worlds beyond. —IGT

Pages 174–75, 180–83 Vick Quezada, *N-400 Hustle*, 2023 (details). Assemblage, ceramics; dimensions variable. Photos: Vick Quezada.

Pages 178–79 Vick Quezada, *N-400 Hustle*, 2023. Assemblage, ceramics; dimensions variable. Photo: Vick Quezada.

SARAH ROSALENA (b. 1982, Los Angeles; works in Los Angeles) creates objects rooted in Indigenous cosmologies that fuse handicraft of ancient Wixárika and European traditions in weaving, beadwork, and clay with contemporary technologies such as digital programming and 3D printing. Throughout her work, Rosalena renders world-building on a cosmological scale to address power structures of conquest and discovery. She has exhibited at the Los Angeles County Museum of Art (LACMA) (2023); Columbus Museum of Art, OH (2023); Museum of Contemporary Art Santa Barbara, CA (2023); Today Art Museum, Beijing (2023); and the Espronceda/International Symposium for Electronic Art, Barcelona (2022). Rosalena's public art installation *For Submersion* was produced by Clockshop, Los Angeles, and debuted at the Los Angeles State Historic Park (2023). Her work is in the permanent collection of LACMA. She has earned the Artadia Award (2023), Carolyn Glasoe Bailey Art Prize (2022), Creative Capital Award (2022), LACMA Art + Tech Lab Fellowship Grant (2019), and the Steve Wilson Fellowship Award (2018). She is Assistant Professor of Art at the University of California, Santa Barbara, in Computational Craft and Haptic Media. Rosalena received her MFA in Media Arts from the University of California, Los Angeles, and her BA in Cinema from San Francisco State University.

In a time when people increasingly are seeking social relations and knowledge in the dematerialized and dehumanizing zone of digital space, Sarah Rosalena (Wixárika) weaves together traditional Indigenous craft and cutting-edge technology to make works that insist on an embodied materiality. Her hybrid artistic practice merges ideas and knowledge traditions that normally exist in opposition, incorporating machine learning, neural networks, coding, 3D printing, ceramics, beadwork, and weaving in forms that eschew categorization and build new narratives around art and technology.

Rosalena operates from an Indigenous perspective in the nascent field of computational craft, and her works challenge conventional modes of understanding and representing the world through scientific data and cosmic bodies by giving physical form to abstract information and concepts. Rosalena learned to weave in the Wixárika tradition from her grandmother on a loom passed down to her from her mother. The Wixárika, known more commonly as Huichol, are an Indigenous people of Mexico recognized for their skilled craft work, especially in weaving and beadwork. In addition to incorporating these techniques, Rosalena applies the symbology and cosmology of Wixárika culture as a framework to reimagine and interrogate the fields of technology-aided discovery, artistic production, and knowledge making in order to correct for the Western colonial bias and the military-industrial-complex violence embedded in their histories.

Much of Rosalena's practice involves the act of translation. From the digital to the physical and from machine language to the tactile, her work proposes ways in which traditional art forms can engage with modern technology to introduce new modes of seeing. When depicting cosmic bodies, satellite imagery, and computer-generated data, Rosalena often exchanges the pixels on a screen for a bead or a thread. This process of materializing pixels through weavings and beadwork draws parallels between ancient forms of computation and contemporary data processing through algorithms.

Rosalena frequently employs machines in her practice to assist with the production of her work. In addition to a traditional hand loom, she uses a Jacquard loom and other mechanical processes to create her woven structures. She has also developed a series of ceramic works made using 3D printer technology to build up clay layer by layer, simulating traditional coil pot construction. In *Transposing a Form*, a series of ceramics made between 2019 and 2023, Rosalena uses this machine-aided ceramic process with a clay made from MMS-2 Mars Soil Simulant, a material developed by the National Aeronautics and Space Administration to simulate Martian terrain. The vessel-like forms created using this technique evoke traditional baskets and pottery but are open on each end. Rosalena's practice pushes against the confines of computational art by intertwining data with craft to create a rich tapestry of connections in which dualities collapse and new stories emerge. Her work posits that combining the slowness and organic irregularities of hand knowledge with the speed and precision of mechanical computation and computer science presents a valuable approach to interpreting our contemporary world. —HR

Pages 184–85 Sarah Rosalena, naturally dyed fibers, 2023. Photo: Katie Han. Courtesy of Stanford Arts, Stanford University, CA.

Pages 188–89 Sarah Rosalena, *Woven Pine*, in progress, 2023. Pine needles, cotton yarn; 51 × 49 in. Photo: Katie Han. Courtesy of Stanford Arts, Stanford University, CA.

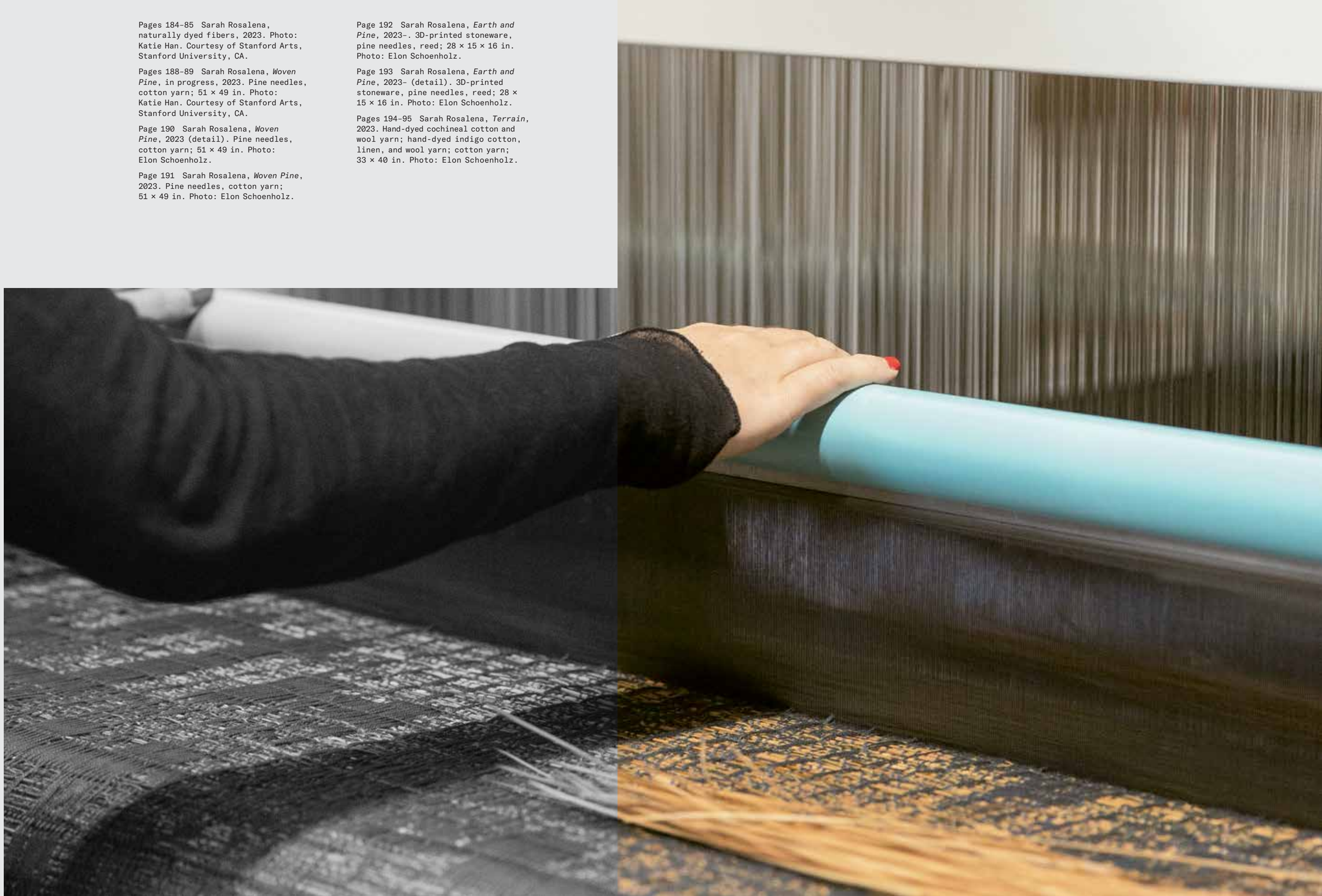
Page 190 Sarah Rosalena, *Woven Pine*, 2023 (detail). Pine needles, cotton yarn; 51 × 49 in. Photo: Elon Schoenholz.

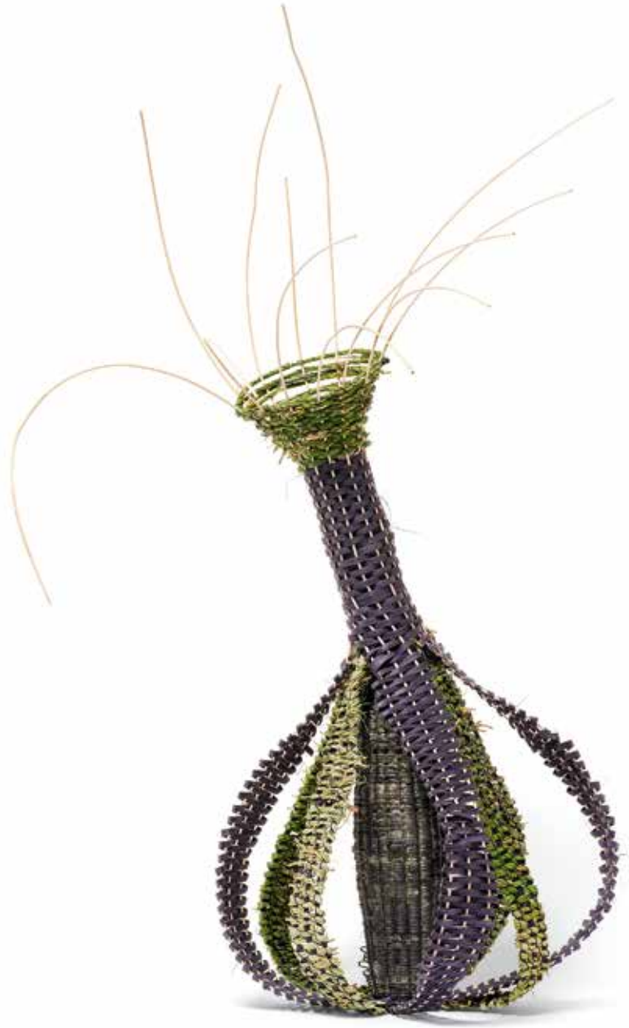
Page 191 Sarah Rosalena, *Woven Pine*, 2023. Pine needles, cotton yarn; 51 × 49 in. Photo: Elon Schoenholz.

Page 192 Sarah Rosalena, *Earth and Pine*, 2023–. 3D-printed stoneware, pine needles, reed; 28 × 15 × 16 in. Photo: Elon Schoenholz.

Page 193 Sarah Rosalena, *Earth and Pine*, 2023– (detail). 3D-printed stoneware, pine needles, reed; 28 × 15 × 16 in. Photo: Elon Schoenholz.

Pages 194–95 Sarah Rosalena, *Terrain*, 2023. Hand-dyed cochineal cotton and wool yarn; hand-dyed indigo cotton, linen, and wool yarn; cotton yarn; 33 × 40 in. Photo: Elon Schoenholz.





ENID BAXTER RYCE (b. 1974, Washington Crossing, PA; works in Marina, CA) is an author, artist, and filmmaker specializing in exploring art, science, and history. She exhibits internationally at museums and festivals. Her work has been written about in *The New York Times*, *Artforum*, *Artreviews*, *The Los Angeles Times*, and many others. She is co-principal investigator on a five-year, $1.25 million National Institutes of Health-SEPA grant. Ryce is a curator for the Philip Glass Center for the Arts, Science, and the Environment. She coauthored the research guide *Borders, Nature, and the West* for the Library of Congress and was a guest curator for the 2023 MexiCali Biennial: *Land of Milk and Honey*. Her film *War and the Weather*, featuring the music of Philip Glass, premiered at the theater of the National Gallery of Art in Washington, DC (2021). Ryce has won awards for her work as an artist and arts educator. Ryce is Professor of Cinematic Arts and Environmental Studies at California State University Monterey Bay. Her newest book, *Borderlands Tarot*, co-illustrated with Luis Camara, will be published by Running Press (2024). She has an MFA in Visual Arts from Claremont Graduate University and studied at the Cooper Union and Yale University.

Enid Baxter Ryce

Enid Baxter Ryce traces a history of nation-building in the United States through the manipulation and control of land via agriculture. Her work explores the language, logic, and colonial practices of land "improvement" alongside contemporary cultural longings to connect with the natural systems that modernity has erased. In tandem with her essay in this volume, her work in the exhibition traces subterranean connections between medieval culture, the history of land usage in North America, and the fragility of our agricultural systems today.

Ryce's sculpture *Shed* (*Mapping the Devil's Half Acre*) (2024) is comprised of maps painted onto layers of silk that record locations throughout the United States bearing the name Devil's Half Acre. In her essay, Ryce discusses these uncultivated plots of land that defy efforts to be tilled into submission in reference to William Langland's fourteenth-century religious poem *Piers Plowman*. The poem, which influenced many notable early settlers, made the cultivation of land through tilling not just a practical matter but also a moral one. Medievalist scholar Jen Jahner, with whom Ryce collaborates, remarks, "To map the Devil's Half Acre . . . is to map the places of desolation in our own national history."

Ryce's fabric panels hang from a wooden structure adorned with mixed-media elements, including dried plants. The artist uses natural dyes from plants she grows and harvests, including indigo and woad, in her paints and thread. As viewers walk into the installation, they encounter *Devil's Half Acre Tarot* (2024), a bilingual (English/Spanish) tarot card deck that recalls medieval tarot playing cards. Ryce created the cards in collaboration with the filmmaker Luis Camara, using natural pigments in the hand-painted illustrations of flora and fauna. Ryce's facility with natural materials is likely influenced by her unique childhood experiences growing up in a Revolutionary War reenactment park, where her family raised and sheared sheep and used the wool to produce yarn, which they dyed by hand and wove into textiles.

One of Ryce's themes is the necessary overhaul of our current food production and social systems, which are based on competition and exploitation. In their place, she proposes agricultural solutions that "center on regenerative farming using practices that bring food production closer to the systems of wildness. In recognizing the elaborate organisms that create living soils . . . the solutions take us further away from the medieval piety of perfectly plowed rows isolated from fearsome nature." In her writing and artworks, Ryce encourages a close and connected relationship with the natural world built on respect and curiosity. —JAV

Pages 196–97, 200–201 Enid Baxter Ryce, *Shed (Mapping the Devil's Half Acre)*, 2024 (details). Mixed-media; 120 × 110 × 72 in. Photos: Brent Dundore-Arias.

Page 202 Enid Baxter Ryce, *Shed (Mapping the Devil's Half Acre)*, 2024. Mixed media; 120 × 110 × 72 in. Photo: Brent Dundore-Arias.

Page 203 Enid Baxter Ryce, *Shed (Mapping the Devil's Half Acre)*, 2024 (details). Mixed media; 120 × 110 × 72 in. Photos: Brent Dundore-Arias.

Pages 204–5 Enid Baxter Ryce and Luis Camara, *Devil's Half Acre Tarot*, 2024 (details). Ink on paper; 78 sheets, 5 × 3 in. each.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CIELO SAUCEDO (b. 1993, Whittier, CA; works in Los Angeles) is a disabled interdisciplinary artist, writer, and access worker who uses computer-generated imagery, sculpture, and virtual reality to imagine expansive ecologies, environmental justice, and the spiritual impact of landscapes. In New York City, they created 3D animations and artworks in collaboration with musicians and other artists at nightclubs. In their activist and collective work, Saucedo cofounded an ecological group called W.E. in Chicago and participated in an artist collective called SIQ (Sick in Quarters). They are the Nonfiction Access Initiative Funds Program & Access Coordinator at International Documentary Association in Los Angeles. Saucedo participated in the MexiCali Biennial: *Land of Milk and Honey* at the Cheech Marin Center for Chicano Art & Culture of the Riverside Art Museum (2023) and has exhibited in New York, Chicago, London, Quito, and Los Angeles. Their writing about disability representation and confronting technological biases in computer graphics has been published in the journal *First Monday*. Saucedo received a BFA from the School of the Art Institute of Chicago and an MFA from the University of California, Los Angeles.

Cielo Saucedo

Cielo Saucedo uses computer graphics and 3D printing to translate virtuality into corporality. Saucedo's novel expressions of disability explore systemic impairment (conditions affecting one or more of the body's systems) and institutional systems of "care." For the *Maseca* series (2021–ongoing), the artist repurposes a commonly used dehydrated masa into a 3D printing material for digitally sourced objects.

In the studio, Saucedo feeds the white corn flour into a 3D printer to make reproductions of Mesoamerican artifacts. The artist downloaded the plans for these objects from Miami University–Ohio's open-source database, which contains 3D scans of the three-dimensional objects in the form of OBJ files. While the files appear to precisely and perpetually preserve the artifacts, Saucedo's corn-based 3D prints are purposefully impermanent—fragile, cracked, and sometimes moldy.

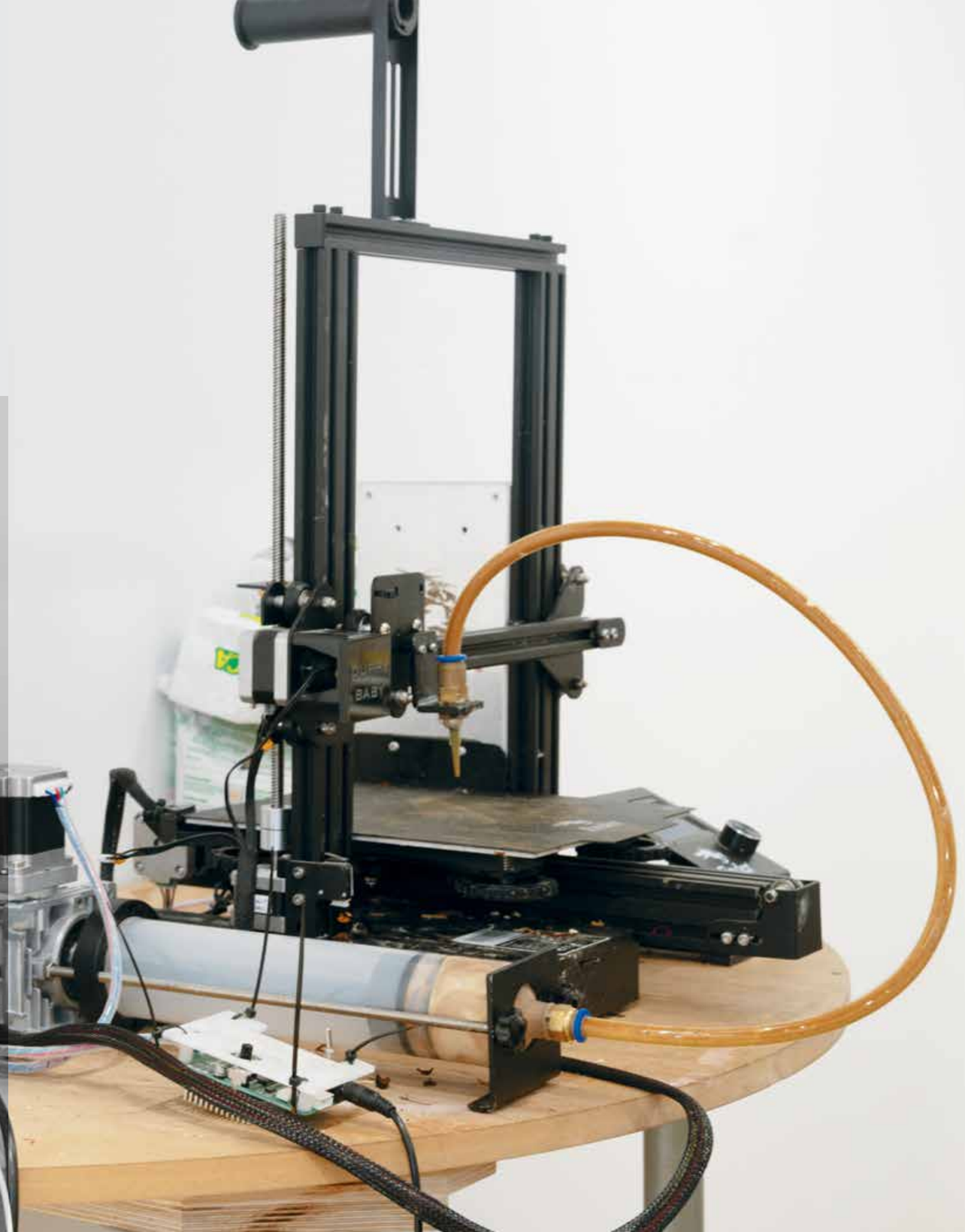
Of their chosen material Saucedo says, "Maseca is symbolic of post [North American Free Trade Agreement] policies.... After NAFTA was signed in 1994, the Salinas government [in Mexico] put a limit on the amount of corn that was purchased from farmers by tortilla factories and replaced the rest with corn imported from the US as per the agreement. This destroyed Mexico's rural farming economies. In an effort to compete with the imported corn, Indigenous varieties that were cultivated by Mexican farmers for generations were replaced on local farms with the commodity variety. These forced subsidies by the government made Barrera's corporation grow, but with farming no longer a profitable occupation, immigration [to the United States] increased. Post NAFTA, Mexico's biggest export went from corn to laborers. The effect of the diet change and immigration changed Mexican bodies for generations."

In this iteration of the *Maseca* series, about two dozen 3D prints of Mesoamerican artifacts lie evenly spaced on suspended plexiglass shelving. In accordance with the artist's ethos of accessibility, the installation allows ample space for viewing. In a nod to the display protocols of the Natural History Museum of Los Angeles County, the objects rest on a cushion of foam. The simulated artifacts are joined by prints of organs and bones, which were produced using files downloaded from the same database and printed via the same process. The presentation, in which the printed artifacts, bones, and organs commingle on the shelves, resembles a museum's archival storage area. Ideologically, their close proximity draws a connection between objects and bodies in institutional care and circulation. Saucedo has pigmented some of the Maseca printing material with self-tanner, making those objects appear aged. Because of their organic composition, each object deteriorates at a different rate. For Saucedo, "The mold that is introduced by nature of their organic form shows that life prevails, regardless of circumstance, policy or violence." —JAV

Pages 206–7 Cielo Saucedo, study for *Visible Vault* (from *Maseca*), 2024 (detail). Maseca, plexiglass, wire cable, foam; 75 × 75 × 75 in. Photo: Amina Cruz.

Pages 210–11 Studio of Cielo Saucedo, 2023. Photo: Amina Cruz.

Pages 212–15 Cielo Saucedo, studies for *Visible Vault* (from *Maseca*), 2024. Maseca, plexiglass, wire cable, foam; 75 × 75 × 75 in. Photos: Amina Cruz.



MARCUS ZÚÑIGA (b. 1990, Silver City, New Mexico; works in Los Angeles) creates time-based works that bridge ancestry, Mesoamerican mythology, curanderismo, and cosmology. Inspired by astronomy, digital aesthetics, and Xicanismo, he uses sunlight and video projection to register time and place within the universe. His solo exhibitions include *there our star lies visible*, Philosophical Research Society, Los Angeles (2021); *you are here,* ArtCenter College of Design, Pasadena (2019); and *ya veo,* No Land Art Space, Santa Fe (2017). His work has been exhibited in group exhibitions including MexiCali Biennial: *Land of Milk and Honey*, Cheech Marin Center for Chicano Art & Culture of the Riverside Art Museum (2023); *Los Angeles Sees Itself*, Biola University, La Mirada, CA (2023); *Technologies of the Spirit*, 516 Arts, Albuquerque, NM (2022); and *Long Echo*, Center for Contemporary Arts, Santa Fe (2016). Zúñiga's book *gila emplacement (CA)* was published by the Philosophical Research Society. He received a BFA from the University of New Mexico, Albuquerque, and an MFA from Art Center College of Design, Pasadena.

Marcus Zúñiga

In Marcus Zúñiga's artworks, forms, knowledge traditions, and histories converge in space and across time. His *mutualism imager* (2024) sculptural installation and altar-like ritual artifact points to other geographies and cosmologies. Drawing from symbiotic relationships found in nature; ancestral wisdom and genealogies; and the spatial relations of human, spiritual, and cosmic bodies, the installation manifests his ongoing practice of "relearning the cosmos through a cultural consciousness."

Mutualism, a biological term that identifies a mutually beneficial relationship between two different species, is a central concept in Zúñiga's work. Here, he references the symbiotic bond between the yucca plant, a low-lying, sharp-leaved species native to Mexico and the Southwest United States, and the yucca moth. The moth is the yucca's only pollinator, and the insect's larvae rely exclusively on the plant's seeds for food. The dried and seedless yucca pods incorporated into *mutualism imager* not only point to mutualism's significance but also serve to ground the sculpture in the landscape of the Southwest.

Mutualism imager was originally installed as a ceremonial earthwork, the locus for a ritual offering to the ecology and the artist's deep family roots in the Gila region. The work was initially situated in a clearing surrounded by juniper trees in the mountains just outside of Reserve, New Mexico, an area that has been home to Zúñiga's family for generations and is characterized by abundant yucca plants. The sculptural elements of *mutualism imager* include obsidian mirrors, black acrylic, pine, and yucca pods. The form tilts toward the sun as it appeared in the sky on the day it was installed. It acts as a nexus point, bound to the earth by a single line of cornmeal, a traditional Mesoamerican ingredient, that extends out on the ground toward an obsidian marker some distance away. Together, the elements form a quincunx, an arrangement of four objects in the corners of a square, representing the four directions, with a fifth object at its center. In the *curanderismo* tradition common throughout Latin America, the quincunx symbolizes the coordinates of space and time in the cosmos.

In the sculpture, an array of obsidian discs also forms a quincunx. These black "smoking mirrors" were used by Aztec cultures in ritual and when evoking Tezcatlipoca, the deity associated with the jaguar *nahual*, obsidian, and the night sky. The arrangement of discs is also a direct reference to the Cosmic Background Imager telescope that operated in the Chilean Atacama desert from 1999 to 2008. Zúñiga applies the visual language of contemporary scientific inquiry to a cosmic spiritualism informed by his cultural heritage. *Mutualism imager* is a beacon for the interconnectedness of natural and spiritual forces; a reminder of the phenomenological interactions between the work's materials and the New Mexico site; and a portal transporting cultural and familial histories to the present moment. —HR

Pages 216–17, 228 Marcus Zúñiga, *mutualism imager*, 2024. Light, obsidian, pine, yucca, corn, earth, and land-based ritual. Dimensions variable. Reserve, NM. Photo: Marcus Zúñiga.

Pages 220–27, 229 Marcus Zúñiga, *mutualism imager*, 2024 (details). Light, obsidian, pine, yucca, corn, earth, and land-based ritual. Dimensions variable. Reserve, NM. Photos: Marcus Zúñiga.

Groundwater

Hillary Mushkin, cornfield in the San Joaquin Valley, study for *Groundwater*, 2021. Photo: Hillary Mushkin.

In October 2021, I brought a team of artists, filmmakers, computer scientists, and a political scientist to meet activists in California's rural San Joaquin Valley. The trip was part of the project *Groundwater* (2024), a joint effort between Incendiary Traces—my art and research initiative focused on the politics of landscape imaging—and Data to Discovery, an art, design, and data visualization group I co-lead at the California Institute of Technology (Caltech), the National Aeronautics and Space Administration (NASA) Jet Propulsion Lab, and ArtCenter College of Design with participants from around the country.[1] We were seeking to gain perspective from the ground on subsidence—the sinking of land caused by the slow collapse of an underground aquifer due to groundwater extraction and other factors. We visited El Nido, Fairmead, the Merced National Wildlife Refuge, and the Central Valley Project's Friant Dam, which contains and diverts the San Joaquin River. We stopped at a cornfield along the way.

(1) The Incendiary Traces survey team: Olivia Chumacero, Angela Islas, Steven Camacho Nunez, Jasmine Otto, Leonardo Pirondi, Zazie Ray-Trapido, Irene Georgia Tsatsos, and Heather Williams. Preliminary research collaborators: Maggie Hendrie, Angela Islas, Jena Lee, Eddie Ocampo, and Heather Williams. Summer Research Assistants: Isabelle Chaligne, Jeremy Yijie Chen, Evan Stalker, and Shiny Shuan-Yi Wu. Data to Discovery is based at Caltech, the NASA Jet Propulsion Lab, and ArtCenter College of Design. Data to Discovery co-organizers: Scott Davidoff, Maggie Hendrie, and Santiago Lombeyda. NASA/JPL Earth Sciences section collaborators: J.T. Reager and Kyra Kim. Data Visualization Team: Noah Deutsch and Malika Khurana with contributions from Maalvika Bhat, Adam Coscia, and Jasmine Otto.

CORNFIELD AND COLONIZATION

A cornfield in the San Joaquin Valley can tell us a lot about the mess we're in with water scarcity, human rights, politics, and climate change. The San Joaquin Valley is in the center of California's Central Valley, one of the most hydrologically engineered regions in the world, on par with or even exceeding China's mega-dams. From the air or on a map, the cornfield looks like a square. From the ground, it looks like a massive slab—with corn packed densely within the lines of the parcel, which is surrounded by flat ground as far as the eye can see. The stark geometric form does not come about naturally but instead is the result of at least 140 years of human manipulation.

This plot of land was awarded to John H. Cushing on March 8, 1871, as a "bounty land," an area that the United States government granted through an 1855 military program that rewarded settlers for contributing to the Indian Disturbance campaigns, which involved murdering and otherwise violently removing Indigenous people in the United States. Spanish missionaries had already been killing and enslaving the Indigenous people in California for decades, but after the United States gained control of the territory from Mexico in 1848, the campaign intensified. Manifest Destiny became the political and religious rationale for colonizing the area and driving the Indigenous residents out. Today's cornfield is one square within a neat grid laid across the country by the federal government in order to establish a Christian, Eurocentric, and industrial system of land ownership and development.

Hillary Mushkin, Friant Dam on the San Joaquin River, study for *Groundwater*, 2021. Photo: Leonardo Pirondi.

SUBSIDENCE AND THE HYDROLOGICAL SYSTEM

For the past one hundred years, farmers have been pumping groundwater for industrial agriculture in the San Joaquin Valley. Located near the small farming communities of El Nido and Fairmead, the cornfield is part of over five thousand square miles that have been sinking by as much as one foot per year since the United States Geological Survey (USGS) started measuring subsidence, almost one hundred years ago. On a USGS interactive map of drought indicators, this area looks like a sinkhole the size of Connecticut, but while standing on the ground, the area is so vast that the subsidence is hardly recognizable.

Beginning in 1933, the federal government and state of California built the Central Valley Project and the California State Water Project. Together, the two projects form a hydrological system of dams and canals that catch and control the flow of nearly all water coming from the western edge of the Sierra Mountains and into the valley. Before this system was built, enough water from annual snowpack and precipitation flowed from the mountains into the San Joaquin Valley to create a seasonal river that was forty miles wide. This fundamental alteration of the environment, along with an increasingly dry climate and pumping of groundwater for agricultural purposes, has caused aquifers to collapse and the land to sink by as much as 150 feet in the past one hundred years. Today, scientists can estimate groundwater loss from satellite data, but the government does not use this information to regulate groundwater pumping. In fact, until recently, they did not regulate groundwater pumping at all.

Groundwater would not be such a critical resource if there were enough surface water to meet the needs of everyone in the region. The United States relies on the San Joaquin Valley for much of the country's food—25 percent overall, including 40 percent of all fruits and nuts—and people living in this region increasingly rely on the agricultural industry to survive. The right to buy water in this region has been regulated since the California Gold Rush in the mid-nineteenth century through a system known as "first in time, first in right." This system monetized the right to water and gave first priority to white settlers, while blatantly dispossessing the Indigenous peoples whom they brutally displaced. Now, the river water that nurtures the valley is captured by government and commercial entities and sold to municipal water districts and wealthy landowners. People without access to this water must rely on groundwater. That includes less affluent rural landowners and tenants. (People living in cities get their water through municipal water districts.)

HARD-HIT COMMUNITIES

The most severely affected people typically own small homes on single lots, or rent houses or mobile homes, in small communities and amidst farms. They are immigrants, retirees, and descendants of migrant and enslaved laborers who do not have generational wealth or a safety net. Living in rural communities, they are solely responsible for their water supply, of which the only source is groundwater pumped from wells dug near their homes. Massive farms surrounding their homes pump groundwater from the aquifer at increasing and unsustainable rates. While groundwater can be replenished by surface water absorption, the water level decreases when more water is extracted than is absorbed. Once the groundwater level goes below the depth of a well, it is no longer accessible. Wells are expensive to dig, and the deeper the well, the more expensive. Farmers with economic resources can keep drilling their way to water, while residents who cannot are without water for everyday living. Until sustainable groundwater pumping regulations are developed and enforced, landowners can extract as much water as they wish, regardless of how it affects their neighbors.

While the bounty land plot is a vestige of a history of violent exploitation, the corn grown there today is a relatively sustainable crop for contemporary water conditions. Like all annual crops, a farmer can choose not to plant it for a season if there isn't enough water to sustain it. However, permanent crops, such as perennial trees and vines, are different. The biggest cash crops taking over the valley are nut trees and grape vines, which need to be watered continuously. Given this and climate-change-related drought, farmers are increasingly using groundwater. The water now being pumped in some areas is so far below the earth's surface—as much as 3,500 feet in some places—that it was deposited in the aquifer thousands of years ago.

Here is the tangle: surface water and groundwater are controlled by and sold to those who can afford it. Meanwhile, nonprofit agencies truck in emergency water supplies in tanks to people without other options whose wells run dry. To address this we have the 2014 Sustainable Groundwater Management Act (SGMA). This statewide legislation requires regional management agencies—often controlled by larger landowners—to make a plan for sustainable groundwater use by 2040. A human right to water is written into California law, but it is not enforced. Advocates are fighting for this right in order to protect hard-hit communities' access to groundwater in SGMA planning meetings. Meanwhile, unchecked pumping continues.

Hillary Mushkin, interview with Merced National Wildlife Refuge Ranger Madeline Yancey (from *Groundwater*), 2021. Photo: Leonardo Pirondi.

GROUNDWATER PROJECT

This story cannot be understood merely from scientific measurements or from historical materials collected in official archives. In order to gain a human perspective, the *Groundwater* project collaborators interviewed local advocates Rosa Inguanzo, Angela Islas, and Vicki Ortiz, who are fighting to prioritize the human right to water for their severely impacted communities, and Madeline Yancey, a park ranger who told us how migratory bird species have relied on the area's seasonal wetlands since the forty-mile-wide river covered the valley floor each spring. These are the stories of the groundwater in context—human, environmental, legal, political, and historical. The story of climate change, like the story of the cornfield, speaks of countless sites of struggle. This project is an effort to study the tangled mess, with the hope that following the threads will show us a way out.

Devil's Half Acre

Enid Baxter Ryce

Washington Crossing, Pennsylvania, 1974–92: Women in the village moved through seasons marked by the work of agriculture and textile preparation. Spring lambs grew into summer sheep sheared—publicly and, to my childhood sensibility, frighteningly—in the middle of the park. We carded the fatty sheep wool without washing away the lanolin. The wire brushes pulled and straightened all the fibers until they were organized. In late summer and autumn, we collected the dye plants. In winter, we wound the tamed wool on bobbins, dropping it or spinning it into yarn. Long work, best done beside a fire.

The yarn was steeped in mordant baths and vast bubbling pots of dye. As winter broke, we soaked green twigs in buckets overnight, softening them enough to weave them into baskets. The twig baskets were filled with colorful yarn and placed next to looms that looked like complicated harps. Slowly, the year's weavings would take shape in sections. Shuttle, warp, weft, pedal, pull. Shuttle, warp, weft, pedal, pull. The continuous rhythm was unchanged through the waxing and waning seasons until a textile was finished.

Pages 236–47 Illustrations by Enid Baxter Ryce, 2024.

There was always more to do. We twisted the yarn through our fingers at night with knitting needles. We wove twigs into chairs. We burned the rest in wood stoves and fireplaces because we had no other indoor heating. The twigs lay balanced under firewood piles, split hastily in autumn in preparation for winter. Cisterns stood outside the back door to collect rain for when the wells ran dry.

Some of this traditional work was done out of need. A dry well was almost impossible to cope with, and water had to be hauled. Planting a vegetable patch was the only way to taste fresh produce. A house without heat was cold in northern winters—especially when the roof was tin. In the morning, I could see my breath when I woke up in my bed, which inspired me to chop wood when we had it. This was work of necessity in a place that hadn't caught up to the modern world.

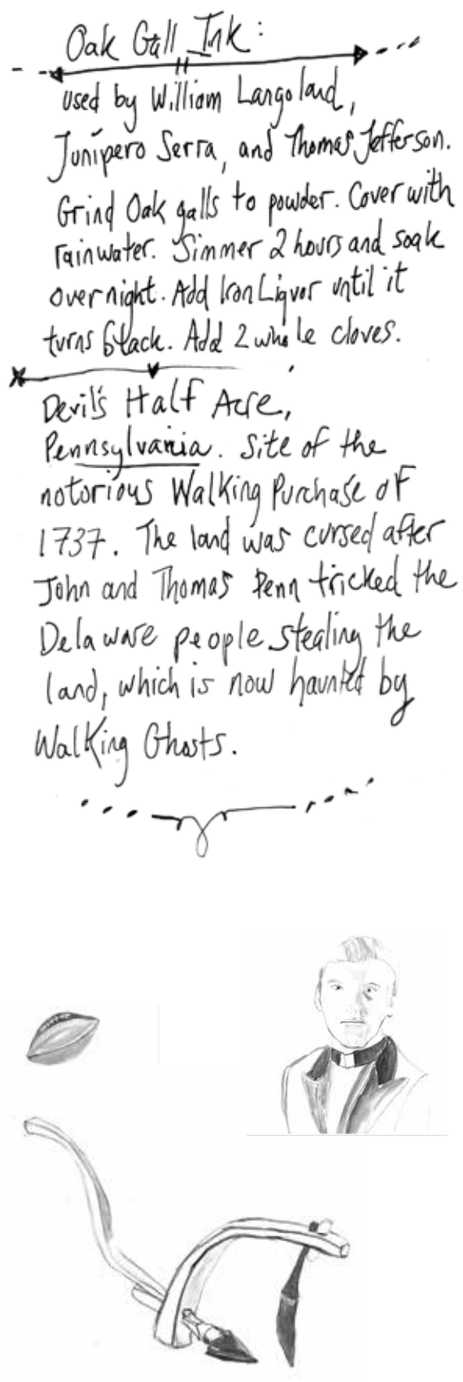
For others, traditional work was romantic. People loved to weave, even though one could buy a blanket at faraway Kmart. Some sought to learn these practices as adults, precursors to the contemporary hipster. They were enamored with the poetry of it all and grateful for the connection to nature. The word *artisanal* wasn't commonly used yet, but they already spoke it.

A lot of the work was done as performance so that tourists could see a simulation—a fantasy—of what colonial life had been. The village was part of a Revolutionary War reenactment park. Besides mining, the local industry was manufacturing amnesia. Performers lured the modern visitor into the patriotic dream of redemption, a fantastically pure past of bootstraps and endless agricultural work. So much to be done just to put clothes on one's back.

Where did the clothing I wear against my skin today come from? What kinds of agriculture were needed to make this shirt? What was cooked into the dye? Who made it? The contemporary imagination doesn't bother with these questions. In this world, the work of hands is invisible. We've forgotten where things come from. Amnesia is a symptom of modernity.

In the sixteenth century, Spanish colonists aimed to rule both the natural and spiritual worlds on the West Coast of North America. Similarly, in the seventeenth-century East Coast colonies, British religious extremists struggled with wildlands, imagining them to be dark and menacing—tangled with snake-like vines and dangerous mysteries, like the human heart. In this raging spiritual battleground, the inner being was constantly under threat of temptation if left uncultivated.

This was a departure from the imagined wildernesses of European Medieval Christianity, which were places for spiritual transformation. The real wildernesses across the Atlantic frightened colonists on both coasts. Agriculture was understood to be the path to victory in this American struggle of and for the soul. Missionaries and colonists were spiritually compelled to tame, order, and claim dominion over the deserts or forests surrounding them to biblically



subdue nature's wildness. Their fear of North America's Indigenous inhabitants was supernatural.[1] As the colonists expanded their land seizure, the ensuing brutal warfare only reinforced their beliefs. We find an echo of this battle for the invisible world in American toponymy (place naming). After all, what is named and by whom is powerful in theology, empire, and science.

Just up the river from our village was a place named Devil's Half Acre. It was a small, damp plot of land with a single crumbling structure in a patch of dark forest by the Delaware River. A shadow always hung over it, cold and dark. My mother, who knew all the stories, told me that it was the site of many unmarked graves. Irish bondservants fleeing the first potato famine had been put to work digging the nearby canal and were killed in forgotten violence. Before that, it was the site of the infamous 1737 Walking Purchase, in which William Penn's sons tricked the Delaware tribe, seizing lands they occupied. She said that because of the deception the land was cursed.

Outside of the United States, the placename "Devil's Half Acre" doesn't appear frequently. But every state within the United States has a small, unusual place with a derivation of this name. They are typically marginal, natural, or interstitial spaces that defy control. They are often the settings of secret folk histories of America. In my fifteen years of researching them, I have found that Devil's Half Acres are universally characterized by their lack of agriculture.

The placename likely derives from William Langland's epic religious poem, *Piers Plowman* (c. 1370–90), in which penitents plow and cultivate the half acre of the soul to keep it from becoming part of the Devil's territory.[2] Agriculture was the mechanism by which one could be assured of salvation amidst the wild, twisted vines and briar patches of unchecked nature, which might hide the snakes of temptation and the lure of evil mysteries.

Both Junípero Serra, the Spanish priest who was the architect of the mission system in the West, and Thomas Jefferson, who, among other things, advocated for agrarian plot systems for America, took literally the idea of agriculture as instrumental to salvation and a healthy society. As the United States began its expansion toward the Pacific, Jefferson argued for each newly drawn plot of seized land to be one half of an acre, so that every citizen had the opportunity to farm. The square plot maps of America drawn by the nineteenth-century railroad companies are evidence of his idea's implementation from coast to coast.

Jefferson, a slave owner who inherited his plantation at age twenty-one, espoused the moral purity of agriculture with a remarkable lack of irony. In a letter, he wrote, "State a moral case to a ploughman and a professor. The former will decide it as well, and often better than the latter because he has not been led astray by artificial rules."[3]

The early nineteenth-century US economy depended on plantations. Their brutal practices of enslaved labor, family separation, dispossession, and genocide characterized much of the American agricultural condition. This nightmare unfolded starting in the eighteenth century in Spain's North American missions.

Founded by religious colonists who gloried in a forest that frightened, a climate that confounded, and a landscape that resisted, America has always been preoccupied with ideas of good and evil. We are less concerned about amnesia. The fantasy of a holy and civilizing relationship among agriculture and colonization, assimilation, and environmental dislocation has carried us into the modern age, where the Devil's Half Acres of American memory are as invisible as the hands that make the clothes we wear and pick the food we eat.

My father, who was born in a displaced persons' camp in Berlin to two Jewish Holocaust survivors and came to this country as a war refugee, grew up on a chicken farm. He and other children from agricultural communities have a more pragmatic experience of nature. They worked the land to produce as much from it as possible, to feed people and make a living. In their understanding, natural forces are to be engineered into an organization of the earth's resources as part of the vast food system.

Now I live in Monterey County, California, which is recognized by the state of California as the tribal homeland of the Ohlone/Costanoan-Esselen Nation, at the edge of the "Salad Bowl of the World," the Salinas Valley. According to the "2021 Monterey County Crop & Livestock Report," our county produces upwards of $4.1 billion in gross annual agricultural revenue.[4] With rich, dark soil and multiple harvest seasons per year, this historically has been where most of the world's lettuces, strawberries, and grapes are grown.

Most of the area's essential workers live in East Salinas, and most of them are agricultural workers. Originally a separate small city called Alisal, this area has been home to generations of agricultural workers arriving from China, Japan, the Philippines, Mexico, and Central American countries since the 1840s.[5] East Salinas is so populous that the Watershed Institute at California State University, Monterey Bay (CSUMB) has designated it the most densely populated area west of New York.

However, people in Salinas are not living in tall skyscrapers. East Salinas is characterized by terrible housing shortages and absentee landlords. Multiple families live in one-bedroom homes or garages. One of my favorite East Salinas artists has shared with me that he spent his teenage years and early twenties sleeping on the kitchenette floor between his brother and his grandmother.

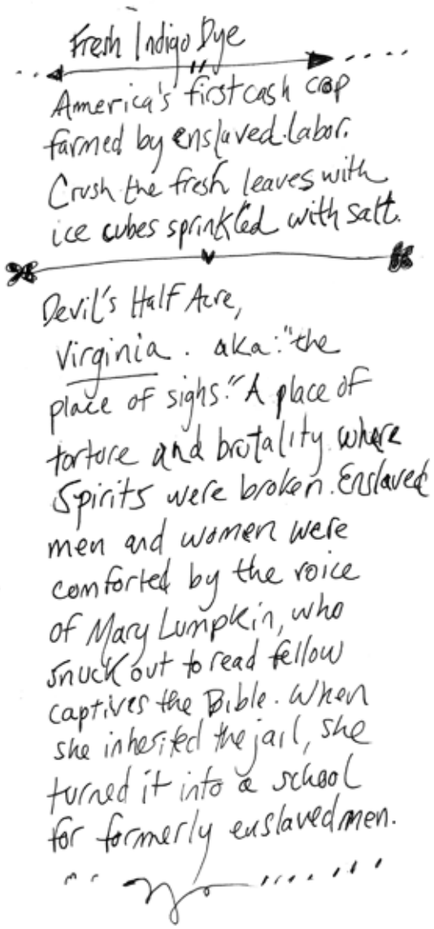
(1) For more on this history, see Mary Beth Norton, *In the Devil's Snare: The Salem Witchcraft Crisis of 1692* (New York: Vintage, 2002).

(2) For more on the history of how this medieval poem affected American land-development policy, please see the companion essay to this text by Dr. Jennifer Jahner, PhD, on the Armory website: armoryarts.org/exibitions/2024/from-the-ground-up/.

(3) From Thomas Jefferson to Peter Carr, with Enclosure, 10 August 1787, *Founders Online*, National Archives, https://founders.archives.gov/documents/Jefferson/01-12-02-0021. Original source: *The Papers of Thomas Jefferson*, *7 August 1787–31 March 1788*, vol. 12, ed. Julian P. Boyd (Princeton, NJ: Princeton University Press, 1955), 14–19.

(4) Monterey County Agricultural Commissioner, "2021 Monterey County Crop & Livestock Report: Salad Bowl to the World," California Department of Food and Agriculture (2022), 5–8, https://www.co.monterey.ca.us/home/showpublisheddocument/113214.

(5) Their voices ring through the scripts of local playwright Luis xago Juárez. For more on his work, see "Against Eden: A Threshold Conversation with Luis 'xago' Juárez and Enid Baxter Ryce," Armory Center for the Arts, Pasadena, CA, https://www.armoryarts.org/schedule/2021-events/against-eden/.



(6) First 5 Monterey County and Harder + Company, "Nurturing Success: A Portrait of Kindergarten Readiness in Monterey County" (2015), https://www.first5monterey.org/download/library/other-important-reports/kindergarten-readiness-assessment-full-report-2015-nurturing-success-a-portrait-of-kindergarten-readiness-in-monterey-county-62.pdf.

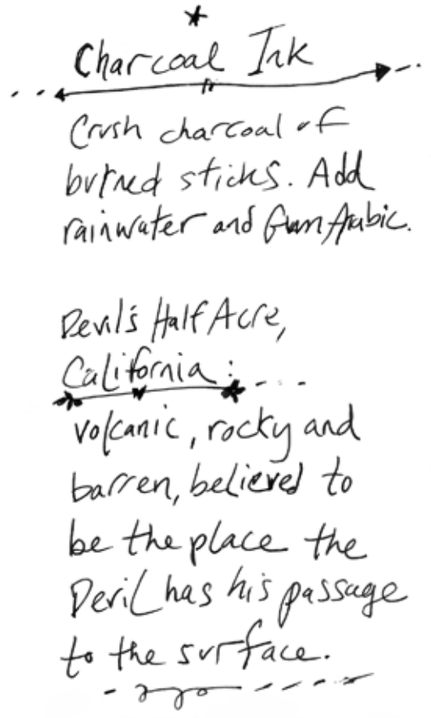
Many of these youths came to Salinas speaking neither Spanish nor English. They speak Triqui, Mixtec, or other Indigenous languages. They learn Spanish and English simultaneously at public schools, like Sherwood Elementary, in East Salinas.

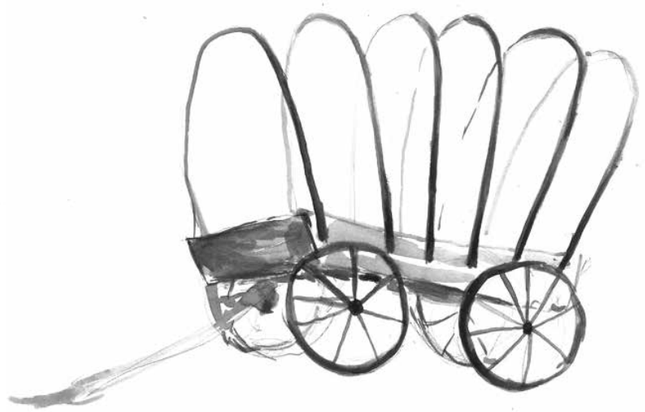
When I created the Migrant Youth Stories project with my CSUMB students at the Migrant Activity Center at Sherwood Elementary in 2019, it was February, early in the season. We started with just twelve students. On that first day, I happened to visit the local homeless warming center for a meeting about another project. I found out that all twelve migrant students were staying there, with their mothers. The warming center had no kitchen or showers. The staff went out and bought cup-o-soups to be served every evening. Their fathers were "sleeping out," camping somewhere in an urban wilderness area. The parents worked in the fields.

By late March, we had about sixty-five kids. Half of the students at the Migrant Activity Center came from Guatemala and Honduras. At the time, both countries were experiencing desperate drought conditions, now linked to the climate crisis by the emerging field of attribution science. Some of the kids had lost siblings to starvation before arriving in Salinas. Here, school was the source of the majority of their meals.

When the children's parents were working full-time in the agricultural industry, they would head to work as early as 3 am. The children arrived at school for breakfast and were with us until 6 pm. Some came later and stayed until 7:30 pm. The average child in East Salinas spends eleven hours a day at school. In total, Sherwood School had a 65 percent homelessness rate among students in pre-pandemic numbers.

In all of Monterey County, only 20 percent of five-year-olds (one in five) are considered kindergarten-ready.[6] Twenty-six percent live below the federal poverty line in one of the highest cost-of-living areas





(7) United States Census Bureau, "Quick Facts: Monterey County, California" (2019), https://www.census.gov/quickfacts/montereycountycalifornia.

(8) Rashida Crutchfield and Jennifer Maguire, *Basic Needs Initiative: Study of Basic Student Needs* (2018), https://www.calstate.edu/impact-of-the-csu/student-success/basic-needs-initiative/Documents/BasicNeedsStudy_phaseII_withAccessibilityComments.pdf.

(9) United States Census Bureau, "Quick Facts: Monterey County, California."

(10) The ESTA grant is part of the N.I.H.'s Science Education Partnership program. The program aims to deliver science education to children in underserved agricultural communities through projects that connect human health to environmental health and incorporate the arts. In our project, we will also test the fog for residual pesticides and monitor airborne particulate levels in the Salinas and Central Valleys of California.

(11) Center for Environmental Research and Children's Health, UC Berkeley School of Public Health, "CHAMACOS Study," https://cerch.berkeley.edu/research-programs/chamacos-study&sa=D&source=docs&ust=1640849605028542&usg=AOvVaw0-jGarRlCfQm2tMGMAqluC.

(12) Stephen S. Hall, "The Lost Generation: Trump's Environmental Policies Are Putting the Health of American Children at Risk," *New York Magazine*, February 2, 2019, https://nymag.com/intelligencer/2019/02/trump-epa-risking-health-of-american-children.html&sa=D&source=docs&ust=1640836241725994&usg=AOvVaw3tQfu5V22Hy3b41PDqp_TN.

(13) Brenda Eskenazi, interview by the author, Monterey County, California, January 28, 2022. For her collaborative research on a solutions-based approach, see Jenna Cheng, Brenda Eskenazi, Felicia Widjaja, Jose Cordero, and Robert Hendren, "Improving Autism Perinatal Risk Factors: A Systematic Review," *Medical Hypotheses* 127 (June 2019): 26–33, https://doi.org/10.1016/j.mehy.2019.03.012.

in the United States.[7] Our somewhat more privileged CSUMB students have a rate of 15.9 percent homelessness, and 51 percent report being nutritionally insecure. So, at least one in five of them hasn't had anything to eat when they get to class, even though they live in the "Salad Bowl of the World."[8]

That same year that we started the Migrant Youth Stories project, wildfires ravaged nearby Big Sur, where 91 percent of adult residents report having a white-collar job.[9] There were lots of newspaper articles about the fires and the loss of homes and property. People began holding fundraisers to benefit fire victims. I was mystified. To me, it seemed like people were donating to help rich people who lost their vacation homes. My husband, who grew up in the housing projects of the nearby historically Black city of Seaside, California, corrected me: "Some people live in Big Sur full time. Rich people."

It's true, and their beautiful homes are in the forest. As a result, the forest hasn't been allowed to burn naturally. Yet fires are an essential part of the forest's natural cycle. So now, the California Department of Forestry and Fire Protection (CalFire) has to fight mega-fires. In 2019, firefighters spent dangerous, exhausting weeks battling fires in remote areas and camping at the abandoned military base where we live. A thirty-five-year-old bulldozer operator lost his life attempting to create a fire line beneath homes on a steep ridge. Farmworkers continued working in the nearby fields in smoke and airborne ash so thick that it obscured my vision as I drove by them.

As a result of the fire, which left hillsides barren of ground cover, mudslides ensued during the rainy season. A local stretch of Highway 1 collapsed and was rebuilt for the third time in four years. Private drives were repaved and reopened. Insurance payments kicked in. Homeowners rebuilt. All of society's systems worked to support the landed Big Sur fire victims and allowed them to carry on much as before.

To get to Salinas from Big Sur, one takes Highway 1 past areas of enormous wealth: Carmel Highlands, Carmel-by-the-Sea, and Pebble Beach—as well as the Highway 68 corridor, where the major growers of the Salinas Valley reside.

Meanwhile, in the Salinas Valley, environmental epidemiologist Dr. Brenda Eskenazi has worked for the last twenty years to document how child poverty and chemical exposures affect children's bodies, minds, and emotions. Eskenazi and I are working on a project funded by a National Institute of Health Environmental Science Through the Arts grant, together with scientists Corin Slown, Asa Bradman, and Daniel Fernandez.[10]

Eskenazi has been a longtime hero of mine. The findings of one of her groundbreaking studies conducted at the Center for the Health Assessment of Mothers and Children of Salinas (CHAMACOS), which she founded,[11] was recently written about in *New York Magazine*: "Eskenazi and her fellow scientists across the field have amassed an increasingly consistent, grim picture of possible neurological harms from a variety of environmental poisons, including chemicals found in agricultural pesticides (that also turn up in food), microscopic particles of carbon and other pollutants in the air, barely detectable levels of lead in the water—all are toxins that travel across state lines and abide by no barriers, socioeconomic or otherwise."[12] Eskenazi's research focuses on the health of children and their mothers. Her more alarming discoveries have been reproduced by other scientists, including links between elevated levels of fetal pesticide exposure in the womb and "neurological delays and autism-like symptoms in 2-year-olds; by age 7, the children with the highest exposures showed behavioral problems and a loss of IQ; by age 14, the link to autism-spectrum traits persisted."[13]

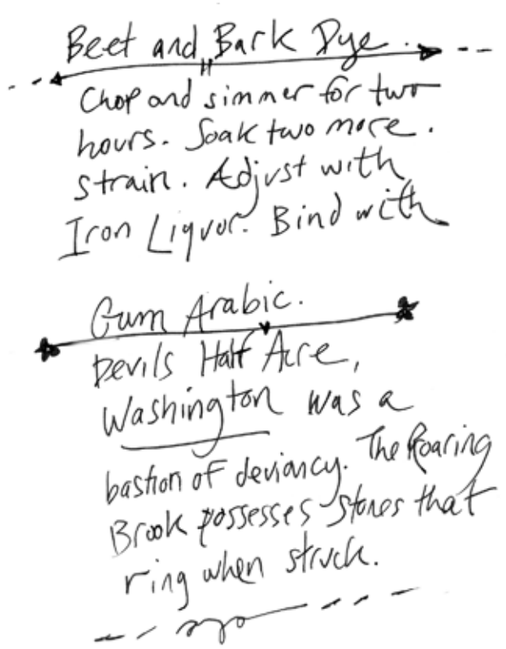
Eskenazi and her team have also authored a series of studies that document the emotional effects of poverty on these children. In a 2018 study, she found

(14) Nina Roehl, "Deportation Fears Trigger Anxiety and Sleep Problems for Latinx Teens," *YR Media*, July 16, 2019, https://yr.media/news/deportation-fears-trigger-anxiety-and-sleep-problems-for-latinx-teens/.

(15) Eskenazi, interview by the author.

(16) Grower-Shipper Association Foundation, "AgKnowledge," https://growershipperfoundation.org/agknowledge/.

(17) Eskenazi, interview by the author.



that, following the 2016 presidential election of Donald Trump, farmworkers' children in the Salinas Valley "had higher anxiety levels, sleep problems, and blood pressure changes, especially among young people in the most vulnerable [migrant] families. Among young people surveyed, 44.6% said they worried at least sometimes about family separation due to deportation."[14] Anecdotally, those of us who teach young people from underserved agricultural communities can tell you that we see the stress, neurological differences, sleep deprivation, and nutritional deficiencies affecting our students.

At the onset of the COVID-19 pandemic, Eskenazi and her colleagues wrote an op-ed predicting the impact of the pandemic on the health and lives of farmworker families. She helped to organize a coalition of support to reduce the anticipated disproportionate harm. Together with numerous community leaders and the Salinas agricultural industry, she worked tirelessly and collaboratively to provide testing and vaccinations to farmworkers. Eskenazi and colleagues conducted an epidemiologic investigation showing the extremely high levels of infection in farmworkers, which led to farmworkers being prioritized for vaccination. This community now has one of the highest vaccination rates in the nation. Eskenazi observes, "Covid has pulled back the curtain on what farmworkers have endured for so long—poor housing, food insecurity, [and] concern about coming out of the shadows because of fear of deportation or family separation—but also showed what is possible when the community works together and realizes that farmworkers are essential."[15]

In Monterey County, farmers grow what are called specialty crops—salad greens. Our local infrastructural systems are designed to support the production of food for human beings and nursery crops. All stakeholders agree that in the Salinas Valley, the biggest challenges surround agricultural labor.

A massive worker shortage is exacerbated by immigration policies that do not take into account Latin American communities being dislocated by drought attributed to climate change. These issues are interconnected, and people in our community are employing creative solutions to meet them. Our regional challenges are also central to the most important national and global scientific and political conversations happening today.

To learn more, Eskenazi and I applied to the AgKnowledge fellowship in 2018. The program is offered by the Grower-Shipper Association Foundation, which says: "The goal of AgKnowledge is to assist policy-makers and community leaders in developing an informed appreciation of the broad spectrum of issues affecting agriculture. Fellows will better understand the people, the families, the history, and the interdependencies of the agricultural industry."[16] We participated as fellows in 2019. I was the first artist to be part of the program; other participants included policymakers, civic engineers, union activists, and academics.

Eskenazi was the most respected (and sometimes feared) fellow, including by the secretary of California's Department of Food and Agriculture and Henry S. Gonzales, then-Agricultural Commissioner of Monterey County. (Gonzales was the first ag commissioner who had been a child migrant farmworker, and on the first day of the fellowship, I heard him remark on his memories of back pain from using the short-handled hoe.) At the end of the fellowship, Eskenazi told me, "I better understand the complexity of agriculture and how we all must work together to both protect the industry, our food supply, the community, and the workers. I think this is possible and essential."[17]

We all must work together.

(18) Christopher Flavelle, "Climate Change Threatens the World's Food Supply, United Nations Warns," *The New York Times*, August 8, 2019, 1.

(19) C. Whitlock, W. Cross, B. Maxwell, N. Silverman, and A. A. Wade, *2017 Montana Climate Assessment* (Bozeman and Missoula, MT: Montana State University and University of Montana, Montana Institute on Ecosystems, 2017), 318, https://doi.org/10.15788/m2ww8w.

(20) Paul Hawken, *Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming* (New York: Penguin Books, 2017), 40.

(21) Hawken, *Drawdown*, 37.

(22) Hawken, *Drawdown*, 37.

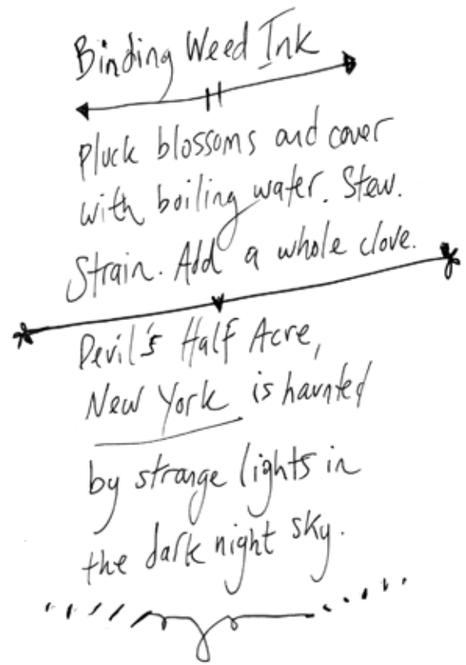
(23) See "Food: Multistrata Agroforestry," Project Drawdown, http://archive.drawdown.covive.com/solutions/food/multistrata-agroforestry.

(24) See "Food: Regenerative Agriculture," Project Drawdown, http://archive.drawdown.covive.com/solutions/food/regenerative agriculture.

(25) Robin Wall Kimmerer, *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants* (London: Penguin, 2020), 190.

(26) Suzanne Simard, interview with Dave Davies, "Trees Talk to Each Other. 'Mother Tree' Ecologist Hears Lessons for People, Too," *Fresh Air*, National Public Radio, May 4, 2021, https://www.npr.org/sections/health-shots/2021/05/04/993430007/trees-talk-to-each-other-mother-tree-ecologist-hears-lessons-for-people-too.

(27) Suzanne Simard, *Finding the Mother Tree* (New York: Knopf, 2021), 5.



On August 8, 2019, the United Nations released a report that the food system is currently under threat of collapse due to climate change. "A particular danger is that food crises could develop on several continents at once," said Cynthia Rosenzweig, a senior research scientist at the NASA Goddard Institute for Space Studies. "The potential risk of multi-breadbasket failure is increasing," she said.[18]

According to the *2017 Montana Climate Assessment*, a report coauthored by scientists and farmers, millions upon millions of acres in the heartland are dedicated to crops that aren't for human consumption. Rather, they are growing food for animals in confinement and ethanol. The rest are for the manufacture of fructose corn syrup.[19] These farming practices—including vast acreages of soil covered with monocrops that lead to nutrient depletion and the release of thousands of tons of carbon when the land is tilled—are destructive to the climate. Plowing is the third leading cause of climate change.[20] The modern equivalent of Piers Plowman's work—tractors turning over the soil—devastates the atmosphere each season.

Paul Hawken's *Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming* is a widely referenced and important source for those hoping to reverse climate change. The section of the book titled "Food" begins: "If you add to livestock all other food-related emissions—from farming to deforestation to food waste—what we eat turns out to be one of the greatest causes of global warming, along with the energy sector."[21] But the book offers hope: "Instead of releasing carbon dioxide and other greenhouse gases into the atmosphere, food production can capture carbon as a means to increase fertility, soil health, water availability, and ultimately nutrition and food security."[22]

The agricultural solutions offered in *Drawdown*—from what the author calls "multistrata agroforestry" (in which farms act like forests, with three dimensional plant systems of understories and overstories that work together to nurture crops and soils[23]) to no-till seeding (where seeds are planted without plowing)—all center on regenerative farming, using practices that bring food production closer to the systems of wildness.[24] In recognizing the elaborate networks of organisms that create living soils and can safely store massive amounts of carbon, the solutions take us further away from the medieval piety of perfectly plowed rows that are isolated from fearsome nature.

As Potawatomi botanist Robin Wall Kimmerer writes in *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants*, "One of our responsibilities as human people is to find ways to enter into reciprocity with the more-than-human world. We can do it through land stewardship, science, art, and in everyday acts of practical reverence."[25]

Isolating ourselves from each other, from the natural world, and from nature's systems hearkens back to the medieval European belief that traditional agriculture keeps the Devil away. This approach is echoed in Darwinian theories of nature as competitive and individualistic. In *Finding the Mother Tree: Discovering the Wisdom of the Forest*, forest ecologist Suzanne Simard's research demonstrates that, in fact, cooperative organisms are successful. In an interview, she says:

> All trees and all plants—except for a very small handful of plant families—have obligate relationships with … fungi. That means that they need them in order to survive and grow and produce cones and have fitness—in other words, to carry their genes to the next generations. And the fungi are dependent on the plant or the trees … because they don't have leaves themselves [for photosynthesis]. And so they enter into this symbiosis in that they live together in the root, and they exchange these essential resources: carbohydrates from the plant for nutrients from the fungus, in this two-way exchange …[26]

My childhood in Washington Crossing was mostly unsupervised, and I spent hours in the woods, alone. One of my favorite things to do was to look at the moss. I'd press my cheek against the earth and gaze at what appeared to be tiny elaborate dream forests. I loved them and felt that they, and the trees that surrounded us, nurtured me. I still believe that the forest saved me.

Now, I take my college students to hunt for moss forests and cryptobiotic crust, the complex ecosystems made of bacteria, lichens, and fungi on the soil's surface. We explore paths that they walk every day without realizing that these little worlds exist just underfoot. The tiny forests lay dormant until the rains come, when suddenly, miraculously, they awaken. The most wonderous things of all are their minuscule mushrooms. My students love to photograph them and marvel at them. This web of underground fungi—called mycelia—carries messages and nutrients among families of trees and other plants and is the carbon-storing powerhouse of living soils. It can stretch underground for hundreds of feet and, if left undisturbed by tilling, can support all plant life on forest-farms. Simard writes, "The scientific evidence is impossible to ignore; the forest is wired for wisdom, sentience, and healing."[27]

The interconnected systems of wildness could save us.

Diversifying Collections in Herbaria:

A Pilot Project to Create a Color Pigment Library for the Genus *Aloe*

Sean C. Lahmeyer

In 2021, botanical staff from The Huntington Library, Art Museum, and Botanical Gardens, including Kelly Fernandez (head gardener of the herb garden) and me (collections and conservation manager and curator of the herbarium), undertook a collaborative project with artist Enid Baxter Ryce, professor of Experimental Arts and Environmental Studies at California State University Monterey Bay, to create a color pigment library for the genus *Aloe*. This unique ethnobotanical collection explores and documents the genus's wide range of dried pigment colors.

ALOE ANDONGENSIS

PMS 2404 U (epidermis)

PMS 2439 U (pulp)

PMS 2440 U (pulp)

ALOE PETRICOLA

PMS 7402 U (pulp)

PMS 7405 U (pulp)

PMS 7753 U (epidermis)

PMS 7754 U (epidermis)

PMS 7751 U (epidermis)

PMS 728 U (epidermis)

PMS 729 U (epidermis)

ALOE LOLWENSIS

PMS 479 U (pulp)

ALOE STRIATA

PMS 2439 U (pulp)

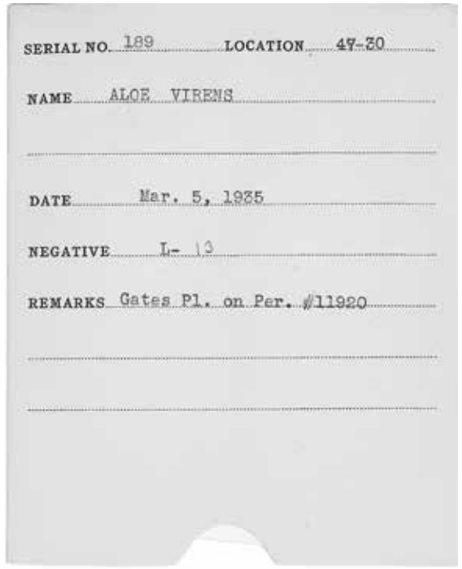
PMS 2440 U (pulp)

A selection of color tints from aloe exudate identified by number according to the Pantone Matching System, 2024. Graphic by Content Object.

(1) See R. Leopoldina Torres, "A Short History of a Pigment Collection (and Art Conservation in the United States)," October 2, 2013, Harvard Art Museums, https://harvardartmuseums.org/article/a-short-history-of-a-pigment-collection-and-art-conservation-in-the-united-states.

To build the library, we drew from the Huntington's rich collection of more than 350 species of aloe. The team hammered and pressed freshly extracted leaves in order to remove the exudate (leaf sap). The exudate was allowed to dry for one week, leaving behind oxidized plant pigments in a variety of colors, from dusty rose to olive green. The tints were then matched to the standardized Pantone Matching System, which contains over one thousand colors and is frequently consulted by printers and designers. The dried plant pigments are stored on archival paper in the herbarium of the Huntington as a pigment reference collection. This library provides a unique synoptic collection for the genus *Aloe* for future taxonomists who wish to study pigment characters in this group (chemotaxonomy). It also serves as a natural color reference collection, such as can be found in the Forbes Pigment Collection at the Harvard Art Museums' Straus Center for Conservation and Technical Studies.[1] No other color pigment library for the economic plant aloe is currently known to exist.

As of December 2021, the Huntington's color library includes thirty-four species of *Aloe* as part of the pilot phase of the project. Ten of these species were artistically interpreted by Ryce's students at CSU Monterey Bay, as part of a visual design course that was inspired by traditional medieval herbals.


SERIAL NO. 189 LOCATION 47-Z0

NAME ALOE VIRENS

DATE Mar. 5, 1935

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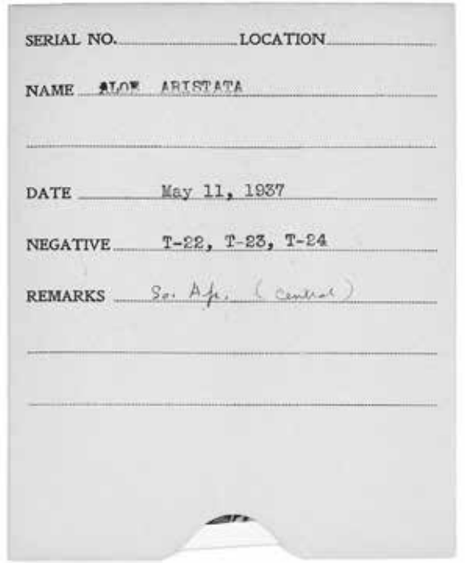
Archival photo envelope, 1935. Courtesy of The Huntington Library, Art Museum, and Botanical Gardens, San Marino, CA.

Aloe virens Haw., 1935. Plant in full flower in the Desert Garden, The Huntington Library, Art Museum, and Botanical Gardens, San Marino, CA, March 5, 1935. Photo: William Hertrich. Courtesy of The Huntington Library, Art Museum, and Botanical Gardens, San Marino, CA.

Aloe aristata Haw., 1937. Plant in full flower in the Desert Garden, The Huntington Library, Art Museum, and Botanical Gardens, San Marino, CA, May 11, 1937. Photo: William Hertrich. Courtesy of The Huntington Library, Art Museum, and Botanical Gardens, San Marino, CA.



Archival photo envelope, 1937. Courtesy of The Huntington Library, Art Museum, and Botanical Gardens, San Marino, CA.

ROLE OF HERBARIA

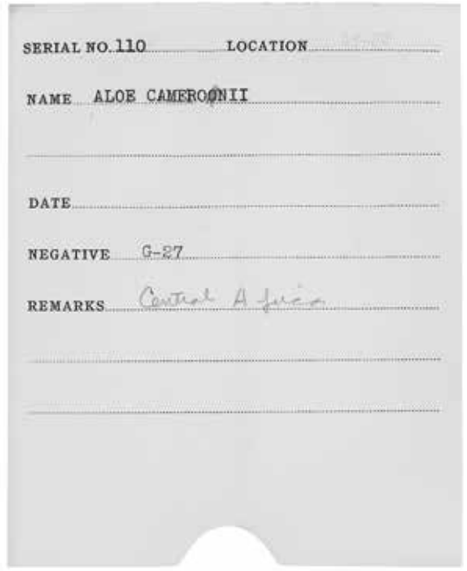
An herbarium is a collection of preserved plants stored, catalogued, and arranged systematically for scientific study by professionals and amateurs. Herbaria offer a vital reference library to aid in current plant identification and future taxonomy. The written data accompanying the specimen is as important as the specimen itself. Herbarium specimens are datasets, providing information relating to taxonomy, classification, chemistry, curatorial practice, flowering and fruiting times, morphology, and physiology.

Herbaria have long stored economic botany collections, such as plant raw materials and artifacts representing all aspects of craft and daily life worldwide, including medicines, textiles, basketry, dyes, gums and resins, foods, and woods. Dried sap and plant pigments fall into this category.

As a collections-based institution that bridges both the scientific and cultural uses of plants, The Huntington Botanical Gardens Herbarium plays an important role in documenting the plants that make up its living collection. It does this by creating vouchers, preserved specimens (often dried) that serve as verifiable and permanent records of living organisms. These vouchers are made accessible to the public so they can be used by people from a variety of disciplines who study plants.

(2) Olwen M. Grace et al., "Documented Utility and Biocultural Value of *Aloe L.* (Asphodelaceae): A Review," *Economic Botany* 63, no. 2 (May 19, 2009): 167–78, https://doi.org/10.1007/s12231-009-9082-7.

(3) Gary Lyons, *Desert Plants: A Curator's Introduction to the Huntington Desert Garden*, 1st ed. (San Marino, CA: Huntington Library Press, 2007).



Archival photo envelope, no date. Courtesy of The Huntington Library, Art Museum, and Botanical Gardens, San Marino, CA.

BIOCULTURAL VALUE OF ALOE

The genus *Aloe L.* (of the Asphodelaceae family of flowering plants) comprises over 560 accepted species, of which at least one-third are documented as having some utilitarian value. The group is of conservation concern due to habitat loss and being extensively collected from the wild for horticulture and natural products. Such cultural value is increasingly important in the effective conservation of biodiversity.[2]

Aloes are often associated with the well-known medicinal qualities of their leaf sap. Because of this quality, it was the earliest succulent plant to be documented. A Sumerian tablet records the use of aloe in the Middle East as early as 1450 BCE. Centuries later, it was one of the plants that the Franciscan missionaries brought to Southern California.[3]

A survey of the literature in 2009 showed that among the other material uses for aloe were the extraction of dyes and ink of various hues from *Aloe* spp.[4] Yellow dyes from *A. maculata* and *A. zebrina* are used to dye sisal and palm fiber for basketry;[5] red-brown, purple, blue-black, and black dye are obtained from six other species.[6] Black ink was also historically produced from *A. littoralis*.[7]

The Huntington's rich history of cultivating aloe dates to the 1920s and 1930s.[8] One of the most iconic and picturesque vistas in the Desert Garden is known as Aloe Hill, a mass planting of *Aloe arborescens* in the lower portion of the garden. In fact, the first superintendent of the gardens, William Hertrich, took a keen interest in aloe and laid the foundation for what is one of the finest living collections of *Aloe* in the world. Today, there are 381 species of *Aloe* in the Huntington's living collection, with 137 of them listed as threatened in the wild.

(4) Grace et al., "Documented Utility and Biocultural Value of *Aloe L.* (Asphodelaceae)": 167–78.

(5) FAO Food Policy and Nutrition Division, "Traditional food plants. A resource book for promoting the exploitation and consumption of food plants in arid, semi-arid and sub-humid lands of Eastern Africa," *FAO Food and Nutrition Paper*, no. 42 (1989); Ben-Erik Van Wyck and Nigel Gericke, *People's Plants: A Guide to Useful Plants of Southern Africa* (Pretoria, South Africa: Briza Publications, 1999).

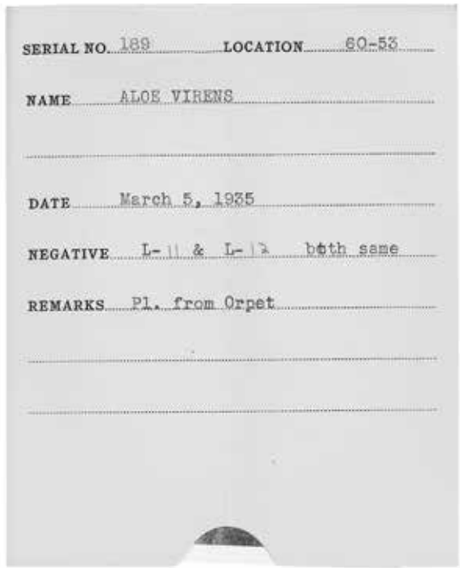
(6) Shahina A. Ghazanfar, *Handbook of Arabian Medicinal Plants* (Boca Raton, FL: CRC Press, 1994); L. E. Newton, "Taxonomic use of the cuticular surface features in the genus *Aloe* (Liliaceae)," *Botanical Journal of the Linnean Society* 65, no. 3 (July 1972): 335–39, https://doi.org/10.1111/j.1095-8339.1972.tb00123.x; Gilbert W. Reynolds, *The Aloes of South Africa* (Johannesburg, South Africa: Aloes of SA Book Fund, 1950); Van Wyck and Gericke, *People's Plants*.

(7) Heber Drury, *The Useful Plants of India* (Madras, India: Asylum Press, 1858).

(8) William Hertrich, *The Huntington Botanical Gardens, 1905–1949: Personal Recollections of William Hertrich, Curator Emeritus* (San Marino, CA: Huntington Library Press, 1949).

Aloe cameronii Hamsl., no date. Mass of aloes in the Desert Garden, The Huntington Library, Art Museum, and Botanical Gardens, San Marino, CA. Photo: William Hertrich. Courtesy of The Huntington Library, Art Museum, and Botanical Gardens, San Marino, CA.

Aloe virens Haw., 1935. Plant in full flower in the Desert Garden, The Huntington Library, Art Museum, and Botanical Gardens, San Marino, CA, March 5, 1935. Photo: William Hertrich. Courtesy of The Huntington Library, Art Museum, and Botanical Gardens, San Marino, CA.



Archival photo envelope, 1935. Courtesy of The Huntington Library, Art Museum, and Botanical Gardens, San Marino, CA.

(9) Gilbert W. Reynolds, *The Aloes of Tropical Africa and Madagascar* (Mbabane, Eswatini: Aloes Book Fund, 1966); Olwen M. Grace, personal communication with the author, March 2022.

DOCUMENTING PIGMENT COLOR IN ALOE

From a practical standpoint, the dried sap color in aloe is a useful character to help distinguish different species of aloe in the wild.[9] Gilbert Reynolds, who studied aloe his entire professional career, specified this attribute in many of his species descriptions. But he did not do so with all of them, which raises questions about whether the dried sap color was not accessible for some of the plants he studied or whether this was a secondary character that he found useful only when other diagnostic criteria were unavailable.

CONCLUSION

This niche color pigment library at The Huntington highlights the diversity of collections that can be stored in herbaria and complements existing pigment libraries, as well as offering another set of traits that may be useful in the field for botanical researchers studying *Aloe*.

Exhibition Checklist

Charmaine Bee
Uma voz do mangue series, 2023–
Tea bag filters, thread, dye, indigo, sugar dust, video projection
Dimensions variable
Courtesy of the artist

Nikesha Breeze
Stages of Tectonic Blackness: Blackdom, 2021
Dual-channel video with sound
29:00 min.
Documentation of a collaborative performance by Miles Tokunow, Nikesha Breeze, Lazarus Nance Letcher
Cinematographer: MK Kennedy
Courtesy of the artist

Carl Cheng
Landscape Essay, 1967
Archival pigment print
25 11/16 × 17 1/2 in.
Courtesy of Carl Cheng and Philip Martin Gallery, Los Angeles

Carl Cheng
Mixing Stick, 1974
Archival pigment print
9 × 12 in.
Courtesy of Carl Cheng and Philip Martin Gallery, Los Angeles

Carl Cheng
Car Hoods, 1976
Archival pigment print
9 13/16 × 12 3/8 in.
Courtesy of Carl Cheng and Philip Martin Gallery, Los Angeles

Carl Cheng
Uncarved Block, 1976
Archival pigment print
9 13/16 × 12 3/8 in.
Courtesy of Carl Cheng and Philip Martin Gallery, Los Angeles

Olivia Chumacero
Dispersing Time, 2023–
Plant pigments, ink, organic acrylic, burlap, muslin, manzanita branches, feathers, sound (Cahuilla acorn harvest song)
Dimensions variable
Courtesy of the artist

Beatriz Cortez
Generosity I, 2019
Steel, plastic, seeds (corn, beans, amaranth, quinoa, sorghum, gourd)
63 × 24 × 24 in.
Courtesy of the artist and Commonwealth and Council, Los Angeles and Mexico City

Mercedes Dorame
They dance across the water—Mwaar'a Hevuuchok Yakeenax, 2024
Mixed media
12 × 16 × 12 1/2 ft.
Courtesy of the artist

Aroussiak Gabrielian
Future Kin, 2024
Soil, video monitors, ceramics, sound, speakers, wiring
Dimensions variable
Courtesy of the artist

iris yirei hu
dream sequence, 2024
Mixed media
Dimensions variable
Courtesy of the artist

Lez Batz (Sandra de la Loza and Jess Gudiel)
Source, 2023
Mixed-media installation, including seventy assorted paper bat masks, baleen whale cardboard puppet, graphic mural, single-channel video
Overall dimensions variable;
masks: 8 × 6 in. each;
puppet: 39 × 50 × 164 in.
Courtesy of Lez Batz

Malaqatel Ija, Semillas Viajeras, Seed Travels
Malaqatel Ija, Semillas Viajeras, Seed Travels, 2014–ongoing
Film, community events and collaborations, labor, seeds, site-responsive garden at the Armory
Courtesy of the Malaqatel Ija, Semillas Viajeras, Seed Travels community

Hillary Mushkin
Groundwater, 2024
Four-channel video installation, wall drawing
Dimensions variable
10:34 min.
Camera: Hillary Mushkin and Leonardo Pirondi
Sound: Hillary Mushkin and Zazie Ray-Trapido
Editor: Hillary Mushkin
Interviewer: Heather Williams
Courtesy of the artist

Hillary Mushkin
The River and the Grid, 2024
Ink, watercolor, graphite, and glue on paper
Artist's book, closed: 26 × 40 in., open: 26 × 80 in.
Courtesy of the artist

Vick Quezada
N-400 Hustle, 2023
Assemblage, ceramics
Dimensions variable
Courtesy of the artist

Sarah Rosalena
Woven Pine, 2023
Pine needles, cotton yarn
51 × 49 in.
Courtesy of the artist

Sarah Rosalena
Terrain, 2023
Hand-dyed cochineal cotton and wool yarn; hand-dyed indigo cotton, linen, and wool yarn; cotton yarn
40 × 33 in.
Courtesy of the artist

Sarah Rosalena
Untitled, from the series *Earth and Pine*, 2023
3D-printed stoneware, pine needles, reed
Dimensions variable
Courtesy of the artist

Sarah Rosalena
Untitled, from the series *Earth and Pine*, 2024
3D-printed stoneware, pine needles, reed
Dimensions variable
Courtesy of the artist

Sarah Rosalena
Untitled, from the series *Earth and Pine*, 2024
3D-printed stoneware, pine needles, reed
Dimensions variable
Courtesy of the artist

Sarah Rosalena
Untitled, from the series *Earth and Pine*, 2024
3D-printed stoneware, pine needles, reed
Dimensions variable
Courtesy of the artist

Enid Baxter Ryce and Luis Camara
Devil's Half Acre Tarot, 2024
Ink on paper
Seventy-eight cards, dimensions variable
Drawings: Enid Baxter Ryce and Luis Camara
Color: Enid Baxter Ryce
Courtesy of the artists

Enid Baxter Ryce
Shed (Mapping the Devil's Half Acre), 2024
Mixed media, including hand-printed silk, dried plants, hand-printed cotton, antique tobacco sticks, cherry, cedar, glass, botanical inks, papers, crates
120 × 110 × 72 in.
Courtesy of the artist

Cielo Saucedo
Visible Vault, 2024
Maseca, plexiglass, wire, foam
75 × 75 × 75 in.
Courtesy of the artist

Marcus Zúñiga
mutualism imager, 2024
Light, obsidian, pine, yucca, corn, earth
55 × 59 × 36 in.
Courtesy of the artist

Additional Resources

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Contributors' Biographies

Written by Janeth Aparicio Vazquez and Danielle A. Hill

Janeth Aparicio Vazquez (b. 1997, Los Angeles; works in Los Angeles) is an artist and arts administrator. Through her work, Aparicio Vazquez seeks to establish connections between her interests, which include muralism and agriculture. Aparicio Vazquez has worked for and with many arts organizations in the United States and Mexico, including Los Angeles Contemporary Exhibitions, Lagos Galeria y Residencias, Mexico City, and REDCAT, Los Angeles. She has exhibited in a number of art spaces in California, including the Santa Cruz Museum of Art & History. Aparicio Vazquez serves as Project Coordinator/Curatorial Assistant for *From the Ground Up*. She has a BA in studio art and art history from Occidental College.

Leah Garza (b. 1980, San Diego; works in Los Angeles) is a student, teacher, and mystic who engages in activism and education within frameworks of decoloniality, ontology, and depth psychology. Centered on various forms of liberation, Garza leads groups of students through courses aimed at comprehending systemic injustices from a social justice perspective. She created the Crystals of Altamira and Living Systems, two platforms for collective liberation, to introduce and merge her post-humanism ideology with her personal convictions of social justice, radical healing, and the Akashic Records. Garza earned an MA in Community, Liberation, and Eco-Psychologies from Pacifica Graduate Institute, where she is currently a PhD candidate in Community, Liberation, Indigenous, and Eco-Psychologies and writing her dissertation on depth psychology, decoloniality, and ontology. Garza's work, whether academic or spiritual, is focused on dissolving the illusion of fixed individualism and reimagining relationality and belonging for all beings.

Danielle A. Hill (b. 1997, Cleveland, OH; works in Los Angeles) is an artist and arts administrator interested in collective infrastructure, nature, spirituality, and human connection with surrounding ecosystems and the natural environment. She received an MA from Sotheby's Institute of Art at Claremont Graduate University, Claremont, CA (2020) and a BA in Arts Management and Entrepreneurship with minors in Art History and Studio Art from Baldwin Wallace University, Berea, OH (2019). She is currently the exhibition coordinator at the Armory Center for the Arts.

Sean C. Lahmeyer (b. 1972, Los Angeles; works in San Marino, CA) serves as Associate Director of Botanical Collections, Conservation and Research at The Huntington Library, Art Museum, and Botanical Gardens. He provides programmatic, curatorial, and administrative leadership and coordinates all ex situ conservation activities, including a botanical research program, tissue culture lab, seed bank, and herbarium. In 2022, he served as an international delegate at the Seventh Annual Global Botanical Gardens Congress in Melbourne, Australia, and in 2023, he spoke on a panel for Founder's Day at The Huntington. Lahmeyer has been featured in online articles, published in botanical journals, and was a

recent guest on the popular plant podcast *In Defense of Plants*. In addition to this Getty-initiated Pacific Standard Time project, he has consulted with the Natural History Museum of Los Angeles on a reinvigoration of their diorama exhibits and the Norton Simon Museum, where he identified plant material in major works of art. Lahmeyer has also been an adjunct instructor of biology—specializing in botany—at Pasadena City College since 2007, where he has shared his love of plants with hundreds of students. He earned a BA in Biology from University of California, Santa Cruz, and an MS in Plant Biology from California State Polytechnic University Pomona.

Heber Rodriguez (b. 1985, Mexico City, Mexico; works in Los Angeles) is a curator, arts administrator, and creative who builds community through cultural events, exhibitions, and performances. His areas of focus are art and technology, internet culture, and experimental sound practices. Rodriguez serves as Director of Exhibitions at the Armory Center for the Arts. He received an MA in Art and Curatorial Practices in the Public Sphere from the University of Southern California's Roski School of Art and Design.

Shoop Rozario (b. 1999, Los Angeles; works in Pasadena) is an artist-organizer who experiments with zines, animation, food, craft, and more as tools to facilitate connection, celebration, knowledge sharing, and healing-based storytelling. They are interested in bearing witness to our individual and tethered histories in order to create spaces for relationship building and playful collaboration. Rozario currently works at the Armory Center for the Arts as the Public Programs Associate. They hold a Bachelors of Legal Studies in Social Movements from Scripps College in Claremont, CA.

David Delgado Shorter, PhD (b. 1970, Alamogordo, NM; lives in Los Angeles, CA) is a professor of World Arts and Cultures at the University of California, Los Angeles (UCLA). Dr. Shorter is a recipient of the university's distinguished teaching award, and he teaches courses on the history of science, colonialism, and healing across cultures. His first book, *We Will Dance Our Truth: Yaqui History in Yoeme Performance* (2009), won the Chicago Prize. He has curated physical and digital exhibitions, created three digital publications, and directed an ethnographic film. He is currently the Director of the Archive of Healing at UCLA and working on a book about his work with *curanderos* (traditional healers).

Craig Torres was born in 1965 in Santa Ana, CA, and lives and works in Tovaangar (the Los Angeles basin), the ancestral and present land base of the Tongvetam kikiiyam (Tongva community). Torres is a Tongva educator, presenter, artist, and consultant descended from the Yaavetam and Komiikravetam communities; is a member of the Traditional Council of Pimu; and is involved with Ti'at Society. As a cultural educator, Torres shares knowledge about Tongva history and culture, including plants, food, clothes, and land, at schools, museums, nature centers, and government agencies. His workshops introduce the significance and health benefits of native plants for a sustainable contemporary diet and serve as a call to end the exploitation of plants. Torres also combines graphic design, painting, drawing, and digital media to create sacred art installations based on his Tongva heritage. He has programmed with and presented at organizations in Los Angeles, including Preserving Our Heritage and Chia Café Collective, sharing culinary demonstrations to educate about the importance of studying and protecting native plants for posterity; California Native Plant Society and LA Conservatory (2021); Autry Museum of the American West (2022); and Occidental College (2023).

Irene Georgia Tsatsos (b. 1961, Gary, IN; works in Kagel Canyon, CA) is an artist, curator, and writer. She has shown her artwork in galleries and artist initiatives in Oakland, CA; Santa Cruz, CA; Los Angeles; and Chicago. She was the Director of Exhibition Programs and Chief Curator at the Armory Center for the Arts from 2010 to 2023 and Director/Curator at Los Angeles Contemporary Exhibitions from 1997 to 2004. Tsatsos has taught writing and curatorial practice at Claremont Graduate University, Claremont, CA; University of Southern California, Los Angeles; California Institute of the Arts, Valencia; and My Friends Place, a social service agency in Los Angeles that supports system-impacted youth. She earned a BA from Antioch College, Yellow Springs, OH; a BFA from the School of the Art Institute of Chicago; and an MA from California Institute of the Arts.

Acknowledgments

From the Ground Up: Nurturing Diversity in Hostile Environments was years in the making and could not have happened without the interest and support of numerous colleagues and friends who generously shared their time and insights throughout this process. First, I am grateful to my fellow researchers—Olivia Chumacero, David Delgado Shorter, PhD, and Enid Baxter Ryce—who embraced the ideas and ideals of this project from the start. They have been heartfelt champions and valued critics, providing rigor and insight throughout the process. Research advisors Sandra de la Loza, Hillary Mushkin, and Sean C. Lahmeyer also provided essential guidance.

The earliest days of research coincided with the Covid pandemic, and in that context Enid Baxter Ryce convened the dynamic *Against Eden: Threshold Conversations*, an online dialogue with Daniel Fernandez, PhD; Kouslaa Kessler-Mata, PhD; Peggy Lemaux, PhD; Andrea Monroe; and Emily Morales-Ortiz. Their conversation was followed by a performative presentation by Luis "xago" Juárez. Collectively, the events reflected the dynamic range of academic and intuitive knowledge that underpins this project. Later, when the pandemic lockdown was starting to thaw, David Delgado Shorter organized a convening at the sacred Kuruvungna Springs in Los Angeles, where the research team learned about Tongva land and anti-colonial practices from Craig Torres, Leah Garza, Samantha Johnson, and Bob Ramirez, with assistance from D Castro. Sean C. Lahmeyer, along with Kelly Fernandez, brought the research team to the Huntington Library, Art Museum, and Botanical Gardens in San Marino, California, for a service-learning discussion of the impact of the invasive Emerald Ash Borer. Hillary Mushkin gathered members of the research team along with Maggie Hendrie, Angela Islas, Jena Lee, Steven Camacho Nunez, Jasmine Otto, Leonardo Pirondi, and Heather L. Williams, PhD, for a field trip to California's Central Valley to study of the extent of groundwater depletion over the past twenty years from the perspectives of agribusiness, native sovereignty, and vulnerable populations. Olivia Chumacero welcomed the team to her habitat in Oakhurst, California, which encompasses eighty acres of land managed according to traditional Indigenous practices. During two days of camping and community food preparation in a no-waste environment, the team sat in circle with Ron Goode and Cahuilla M. Red Elk, PhD, with support from Maritza Alvarez, Sandra de la Loza, Sarita Dougherty, Meredith Hackleman, and Marcia Kamiya-Cross. I thank Enid Baxter Ryce; David Delgado Shorter, PhD; Sean C. Lahmeyer; Hillary Mushkin; and Olivia Chumacero, along with the convening participants they gathered, for these rich, diverse experiences and for the additional insights and reflections they have shared through their written contributions to this book.

For her incredible vision for the catalogue, I would like to thank Kimberly Varella of Content Object Design Studio who, along with Gabrielle Pulgar, brought the words and images to life on these pages. Elizabeth Pulsinelli once again brought unerring good judgement in her role as editor. Heber Rodriguez, Janeth Aparicio Vazquez, Shoop Rozario, and Danielle A. Hill contributed texts, and I appreciate having their voices in this volume.

The Getty has shown tremendous dedication to and support for this project, and Getty colleagues have provided hours of guidance and wisdom. I'm honored by and grateful to Joan Weinstein, Heather MacDonald, and Zach Kaplan. I also value the critical funding provided by the Mike Kelley Foundation for the Arts, the Pasadena Community Foundation, the Pasadena Art Alliance, and the National Endowment for the Arts. For additional time for focused research as well as conviviality, I thank Frederick Janka and the Carolyn Glasoe Bailey Foundation. I appreciate the teams at Commonwealth and Council, Los Angeles and Mexico City, and Philip Martin Gallery, Los Angeles, for their support.

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Finally, I am honored by the participation of the artists in this project. I am inspired by their courage, rigorous inquiry, and the many truths they reveal. Our lives on this planet are the better for it.

—Irene Georgia Tsatsos

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Front cover (clockwise from the top) Nikesha Breeze, *Stages of Tectonic Blackness: Blackdom*, 2021; Beatriz Cortez, *Generosity I*, 2019 (detail); Enid Baxter Ryce and Luis Camara, *Devil's Half Acre Tarot*, 2024 (detail); Aroussiak Gabrielian, *Future Kin* (digital concept sketch), 2023; and Cielo Saucedo, study for *Visible Vault* (from *Maseca*), 2024. All works courtesy of the artists. For materials, dimensions, and photo credits, please see the artists' pages.

Pages 258–59 Sowing amaranth seed, 2023. Photo: Malaqatel Ija, Semillas Viageras, Seed Travels.

Back cover (clockwise from the top left) iris yirei hu, hand-processed natural pigments, 2023; Richard Rodriguez, Olivia Chumacero at Kaweah Oak Preserve, Visalia, CA, 2023; Marcus Zúñiga, *mutualism imager*, 2024; Malaqatel Ija, Semillas Viajeras, Seed Travels, Orange amaranth field, San Francisco, Baja Verapaz, Guatemala, 2019; Charmaine Bee, untitled work in progress, 2019– (detail); Mercedes Dorame, *Two Worlds–Ooxor Tokuupar* (from *Everywhere is West*), 2022; Carl Cheng, *Landscape Essay*, 1967; Vick Quezada, *N-400 Hustle*, 2024; Sarah Rosalena, *Woven Pine*, in progress, 2023; Hillary Mushkin, cornfield in the San Joaquin Valley, study for *Groundwater*, 2021; (center) Lez Batz (Sandra de la Loza and Jess Gudiel) performing at Takaape'Waashut / Black Walnut Day, Ascot Hills Park, Los Angeles, September 17, 2023. All works courtesy of the artists. For materials, dimensions, and photo credits, please see the artists' pages.

This publication accompanies the exhibition *From the Ground Up: Nurturing Diversity in Hostile Environments*, presented at the Armory Center for the Arts, August 9, 2024–February 23, 2025. The exhibition was organized by Irene Georgia Tsatsos.

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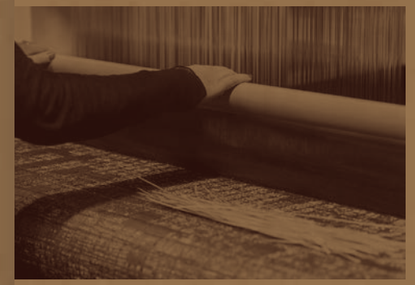
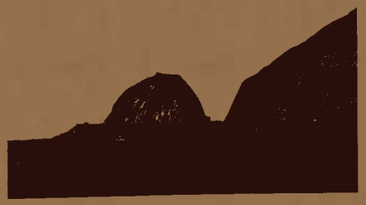
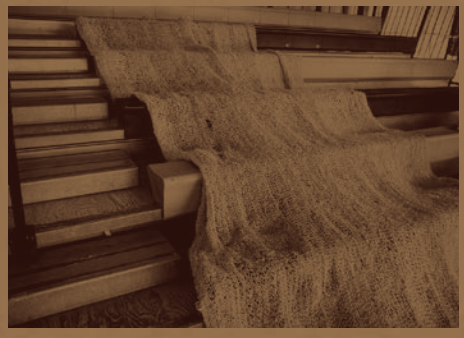




What do we do when the lights go out and power grids fail? What happens when mass populations are systemically disconnected from the trans-national capital they depend upon for basic needs? Where is the knowledge for securing food and shelter? *From the Ground Up: Nurturing Diversity in Hostile Environments* is a compendium of artworks, insights, and information designed to inspire readers to explore speculative ecologies, ancient technologies, and possible scenarios of being in community with our other-than-human relations.



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