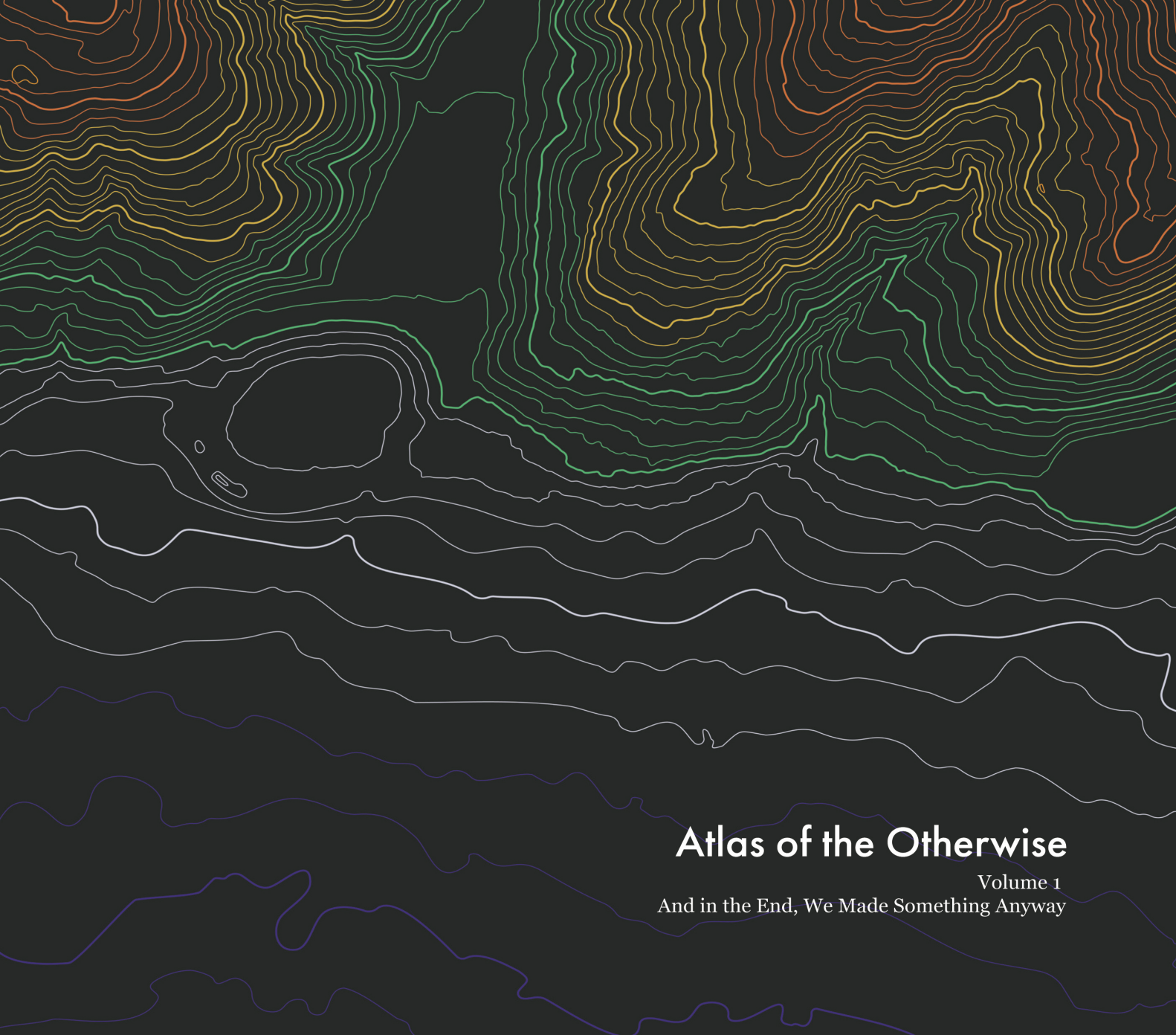

Atlas of the Otherwise

Volume 1

And in the End, We Made Something Anyway

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Atlas of the Otherwise
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On the Otherwise and Uncertainty

Clancy Wilmott and Jack Moorehead (eds)

In *A Critique of Postcolonial Reason*, Gayatri Chakravorty Spivak[1] argues that the structures of colonial knowledge silence the multiplicity of voices, subjects and experiences who exist both within, but also beyond, those epistemic blockades. Cartography, as an accomplice in the projects of colonial dispossession and capitalist expansion, carries this silencing capacity, embedded in its own representational limitations - from the graphic to the geometric[2]. Beyond JB Harley's[3] analysis of the silences which lay within maps - a fact which all cartographers know - , cartography as a discipline struggles with the fundamental question of subjectivity and the responsibility of looking at and articulating worlds which are incomplete, uncertain and multiplicitous, all the while trading in representational systems which depend on the universal, the fixed and the knowable.

This tension - which becomes more clear in times of increasing social, political, economic and environmental instability - is no longer possible to ignore. As environments break free from predictive modelling, and income inequality scales beyond the comparable, and the rules of politics which have long been solidified in maps begin to falter in explaining our political present, it is ever more urgent to tackle the problem of cartography and its representational limits. In short, our cartographies are failing us.

From McKittrick's[4] argument that metaphors are "signaling practices of liberation (tangible, theoretical, imaginary) that are otherwise-possible and already here (and over there)", to Braidotti's[5] analysis of the "otherwise" as a fundamental challenge to anthropocentrism, the concept of the otherwise seems a useful starting point for teaching new generations of cartographers to think differently about their maps, and to take on, as Meek and Fontanilla[6] describe, an enhanced sense of responsibility and accountability for the stories they tell, and the tools in which they use to tell them. Indeed, as Sarah Elwood[7] has noted, by locating the technical and technological - from smart cities to software engineering - as norms formed from a limited set of experiences

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1 Spivak, G. C. (1999) A Critique of Postcolonial Reason: Toward a History of the Vanishing Present, Cambridge, MA: Harvard University Press

2 Wilmott, C. (2024) 'Cartography Contra Colonialism" in Rosetto, T and Lo Presti, L (eds) The Routledge Handbook of Cartographic Humanities. Routledge: London.

3 Harley, J. B. (1988) 'Silences and secrecy: The hidden agenda of cartography in early modern Europe', Imago Mundi, 40(1), pp. 57–76.

4 McKittrick, K. (2021) Dear Science and Other Stories. Duke University Press: Durham NC. pp. 12

5 Braidotti, R. (2020). 'Metamorphic Others and Nomadic Subjects'. In D. Byrne-Smith (Ed.), Science Fiction: Documents of Contemporary Art (pp. 161-166). Whitechapel Gallery, London: The MIT Press

6 Meek, L. A., & Morales Fontanilla, J. A. (2022). Otherwise. Feminist Anthropology, 3(2), 274-283.

7 Elwood, S. (2020). Digital geographies, feminist relationality, Black and queer code studies: Thriving otherwise. Progress in Human Geography, 45(2), 209-228

acts as a mode of epistemic and ontological violence which has long been resisted by Black, Indigenous, queer and feminist creators, activists, academics and others, thriving otherwise. So, where our cartographies may stumble, our mappings may thrive - to Elwood's commentary, how can we create a cartographic pedagogy which is critical to power, yet open to experimentation?

Here, we can invoke the figuration of mapping as an expansive practice. Rather than foreclosing the otherwise, mapping draws together relations by starting with space and place, encountering multiple subjectivities and understanding deeply the edifices on which we stand. This means, for the want of a better description, trying to do better by the futures we are building. This first atlas, with the hope of many more to come, centers itself on the uncertainty of a new syllabus built on a course number over 20 years old, and a new cohort who have inherited the old troubles - the neoliberalisation of learning, the quantification of success and the turn towards the university as a place of economic extraction in which our students mortgage themselves to maintain the precarious status quo of our shuddering present.

This was undoubtedly a bumpy road, punctuated by glitches and reroutes, confusion and catharsis. The topology of this book is mirrored by the travels of each one of its contributors, as they coded and crocheted, drew and designed, jumped into other people's worlds and jumped out of theirs. This was a risky endeavour, in which uncertainty became a navigational tool, rather than an error of margin. In this sense, as Jack Halberstam[8] writes: "failure has often been a better bet than success". So we bet on stutters in the smooth facade of technical accomplishment, difficult ideas that have no single interpretation, the quixotic appearance of the unexpected and the precarity of unknown next steps, as our own pathways unfolded otherwise. Sometimes, it went exactly to plan, and otherwise, our mappings are left to be continued...

8 Halberstam, J. (2011) The Queer Art of Failure. Duke University Press. Durham, NC.

… And in the end, we made something anyway.

Ellos Eatnu

Evan Anderson

The decapitation of two indigenous Sámi men in Alta, Norway in 1854 proved an effective warning: rebellion against Norway's brutal practices of cultural assimilation, Christianization, and resource extraction was not to be tolerated. It would be another century before the Sámi of Norway made significant political ground against the erasure of their language and identity.

The 1968 proposal to develop hydroelectric power infrastructure in Northern Norway threatened to flood a village, landscape, and way of life. What unfolded were the largest acts of civil disobedience Norway has witnessed, marking a turning point in the movement for Sámi rights. Ellos Eatnu recounts this inspiring tale of indigenous courage and resistance. The events mapped here span two decades between the native Sámi territory of Sápmi and 1,250 km away in Norway's capital city.

In the early stages of investigation, it became clear in my conversation with UC Berkeley Sámi literature researcher John Prusynski that, despite the events being contained within Norwegian borders, this is not a Norwegian story. This is a Sámi story with Sámi struggle at its core. Their sovereign border is not Norway but Sápmi. Their interests differ from their non-indigenous co-protestors. Ellos Eatnu emphasizes this difference between Norwegian and Sámi perspectives during the conflict. Further, to inform, empower, and contextualize, this map also includes North Sámi, Norwegian Bokmål, and English place names. While this map reveals the story of Alta to a wide English-speaking audience, it appreciates toponymy as a critical marker of presence and a tool of resistance.

Filling in the blank interstices of government project proposals - the only maps on the topic - I aim to represent native presence and sovereignty of the landscape in combination, or conflict, with development. Weaving landscape, land use, and infrastructure layers reveals complex relationships in this open, but certainly not empty, arctic environment. Data pulls across well-kept Norwegian archives, from the national Digital Elevation Model painting the basemap to primary source accounts of northbound police mobilization. Perhaps most enjoyable in the research process were journalistic reports and photographs of the protests. I felt deeply inspired by these artifacts of fervor.

The events depicted here in Ellos Eatnu have also influenced popular culture, including the 2023 film by the same name, not to mention Frozen II. But Alta is not a lamented narrative. Sámi activists have since demonstrated against the destructive extraction of the Kallak and Kiruna mines in Sweden and the Fosen wind project in Norway. Most recently, in 2025, protests against the Repparfjord mining project eerily echo the events mapped here, just 70 kilometers away. Ultimately, Ellos Eatnu is only one point on a much larger and complex map of Sámi language, land use, history, and transborder identity.


ELLOS EATNU
LA ELVA LEVE
LET THE RIVER FLOW
The proposed development of hydroelectric power infrastructure in Northern Norway was met with sharp pushback in what eventually became known as the Alta Conflict. Protestors chanted “Elva skal leve”, “The river shall live”, to denounce environmental destruction and disposession of Sámi land. Most significantly, the project would alter a landscape sustaining reindeer herders’ way of life for hundreds of years. Protests, civil disobedience, and government reaction rattled Norwegian communities, politics, and media for two decades. While energy development ultimatvely prevailed, most see Alta as a place of pivotal victory for native Sámi rights, forcing a national reckoning with a long history of oppression. The bitter fight mapped here pushed Norwegian state power to the brink, and paved the way for today’s protections of Sámi language, culture, identity, and sovereignty across their native territory of Sápmi and beyond. These events precede ongoing environmental and indigenous struggles against extrative regimes in the Nordic region.
ÁLTÁ
ALTA
Àlttà joatkkaskuvla
Alta gymnas
Alta High School
Álttá hámman
Alta havn
Port of Alta
Álttá diggegoddi
Alta tingrett
Alta District Court
January 1981: 600 police officers, 10% of the country's force, fly to Alta to intervene in last-ditch blockades. On the morning of January 14, they leave from their barracks aboard the passenger ferry Janina docked at Alta havn. Over the course of the freezing day, police forcibly arrest and remove over 800 FA and Sámi "river rescuers" blocking the road at Ground Zero.
December 1980: The Alta District Court delivers a critical judgement deeming development legal. Construction resumes and activists appeal.
July 1978: The People's Action Group Against the Development of the Alta Watershed (FA) is formed in Alta. FA is organized by non-indigenous environmental activists with less concern for native rights. It quickly reaches 20,000 members, 15,000 signatures, and 80 chapters.
Stillaveien
Stilla road
STILLA
Fállejohka
Tverrelva
Summer 1979: As construction begins on the Stillaveien access road from Alta to the dam site, FA members chain themselves together to blockade machines. A long-term camp is set up at Ground Zero, where FA is eventually able to halt construction and bring the case to court.
Nullačuokkis
Nullpunktet
Ground Zero
Sámi protestors at Ground Zero.
Beavgohppi
Bevkop
1977: Synnøve Persen designs the first unoffical Sámi flag, becoming a symbol of resistance for Sámi protestors. Persen's design is the blueprint for today's Sámi flag, an embodiment of a shared Sámi identity across the four countries Sápmi spans.
Sombyšaldi
Sombybrua
Somby's Bridge
March 1982: Following the supreme court ruling, Niillas Somby attempts to blow up a bridge along Stillaveien. The bomb detonates accidentally, and Somby looses his arm. Somby is given a maximum sentence in prison. He later escapes to Canada with the help of Native American activists before returning to Sápmi. Somby also admitted to attempting to sink Janina.
Álttáeatnu
Altaelva
Alta River
The Sautso valley is rich in diverse and rare flora and fauna, including salmon and the golden eagle. The canyon sitting below the dam is the largest in Northern Europe.
Čávžu
Sautso
FINNMÁRKKODUOTTAR
FINNMARKSVIDDA
FINNMARK PLATEAU
Alta River, Alta Dam, and Sautso valley.
Álttá fápmorusttetv
Alta kraftverk
Alta Power Station
Virdnejávr buođđu
Altadammen
Alta Dam
May 1987: The 145-meter tall Alta Dam officially opens, regulating the Alta River 15 meters above natural levels. Two tunnels and a flood bypass are blasted into the rock. The nearby power plant produces and distributes 150 MW of electricity.
Spierkojohka
Spierkosavvonat
Iešjávri
Virdnejávri
Legend
Historical event
Sámi-led event
Power station
Transmission line
Water
Access road
River/lake
Dam-regulated water
Reindeer migratory passage
Passages for natural migration and active driving. Includes swimming paths. Pockets are for resting and grazing. Width depends on herd density, terrain, and season.
Herding area
Collection areas formed by grazing land and natural boundaries. Herders gather, mark, shear, slaughter, and relocate reindeer in these areas.
Reindeer herding facility
Fences, shepherd huts, trails, slaughter houses, lávvu (tents), bridges, and boat transport.
Herding district
State-designated district of at least one herding community (Siida), granting Sámis exclusive land use rights.
1968: NVE releases their first plan for a hydropower project to meet the growing energy needs of Northern Norway. The proposed dam would flood the small Sámi town of Masi and disrupt salmon fishing and reindeer husbandry Sámi people have relied on for hundreds of years.
Norges vassdrags- og energidirektorat
Norwegian Water Resources and Energy Directorate
OSLOVE
OSLO
January 1981: Sámi activists return to central Oslo for another hunger strike, this time met with less attention and effect. Three Sámis are later transported to Sweden to avoid state-authorized force feeding. Mikkel Eira goes thirty days without food in protest.
February 1982: The Supreme Court releases their decision, deeming the development of Alta kraftverk legal. PAG dissolves.
Stuorradiggi
Stortinget
Parliament
Alimusriekti
Høyesterett
Supreme Court
October 1979: Sámi activists pitch traditional lávvu tents on the Parliament lawn in protest. They garner significant attention from the public as a radical act of civil disobedience. Police and political backlash follow. The government halts dam authorization after a week of Sámi hunger striking and national acts of solidarity.
0 Kilometers 0.75 1.5
Cartographer: Evan Anderson-Flint, 2025.
Geospatial Data: Kilden (NIBIO), Landbruksdirektoratet, Norgeskart, NSF Arctic Data Center, NVE.
Basemaps: Kartverket, Esri, TomTom, Garmin, OpenStreetMap.
Historical Data: Aftenposten, Global Nonviolent Action Database (Lawrence), Kraftlandet, Nordnorsk Debatt, NRK, NVE, Store Norske Leksikon.
Local PCS: ETRS 1989 UTM Zone 33N. Regional PCS: WGS 1984.v
Photography credits: Altadam: Statkraft, CC. Stilla demonstration: Riksarkivet, 1979, CC. Nils Eira and a reindeer: Unni Fürst, 1956, CC.
Latnetjávri
Áisarjávri
Herder Nils Eira wearing a Sámi gákti.
October 1989: Sametinget opens in accordance with the Sámi Act of 1987. This democratically-elected parliament represents Sámi matters in Norwegian politics and is tasked with sustaining Sámi language, heritage sites, crafts, and culture.
Sámediggi (Kárášjohka)
Sametinget (Karasjok)
Sámi Parliament
April 1973: After unprecedented protest and civil disobedience from locals, environmentalists, and the ČSV Sámi activist group (inspired by the Black Panther Party and the IRA), Parliament votes to protect Masi from being flooded by the proposed dam.
Máze girku
Masi kirke
Masi church
MÁZE
MASI
Guovdageaineatnu
Kautokeinoelva
Kautokeino River
Guovdageaidnu
Kautokeino
SÁPMI
N
0 Kilometers 5 10

California Prison Expansion

Sabrina Anguiano

With this map of California, I wanted to visualize the rapid prison expansion in the 1980s and show how the loss of agricultural land influenced where these prisons were built in the Central Valley. I took inspiration from Ruth Wilson Gilmore's Golden Gulag and focused on just one factor behind prison growth: the decline of farmland. After major droughts in the 1970s, many small farms were pushed out because they couldn't afford the irrigation upgrades needed to stay viable. This led to significant farmland loss throughout the valley, which can be traced in the U.S. Department of Agriculture's Census of Agriculture.

To visualize this loss, I downloaded data from the California Department of Conservation, which provides farmland data every two years starting in 1984. The datasets categorize land across several types, but I focused only on Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance. One challenge was that not all counties reported data consistently. Some had data for 1984, skipped 1986, and then returned in 1988, which made it difficult to distinguish real land loss from gaps in reporting.

To address this, I compared each dataset to the previous reporting year to determine whether missing areas reflected actual loss or simply missing data. After cleaning each dataset, I mapped real farmland loss using the erase tool in ArcGIS to remove any overlap between the two layers I was comparing. Removing the overlap ensured that only newly lost farmland appeared in the final layer, which was the change I wanted to highlight.

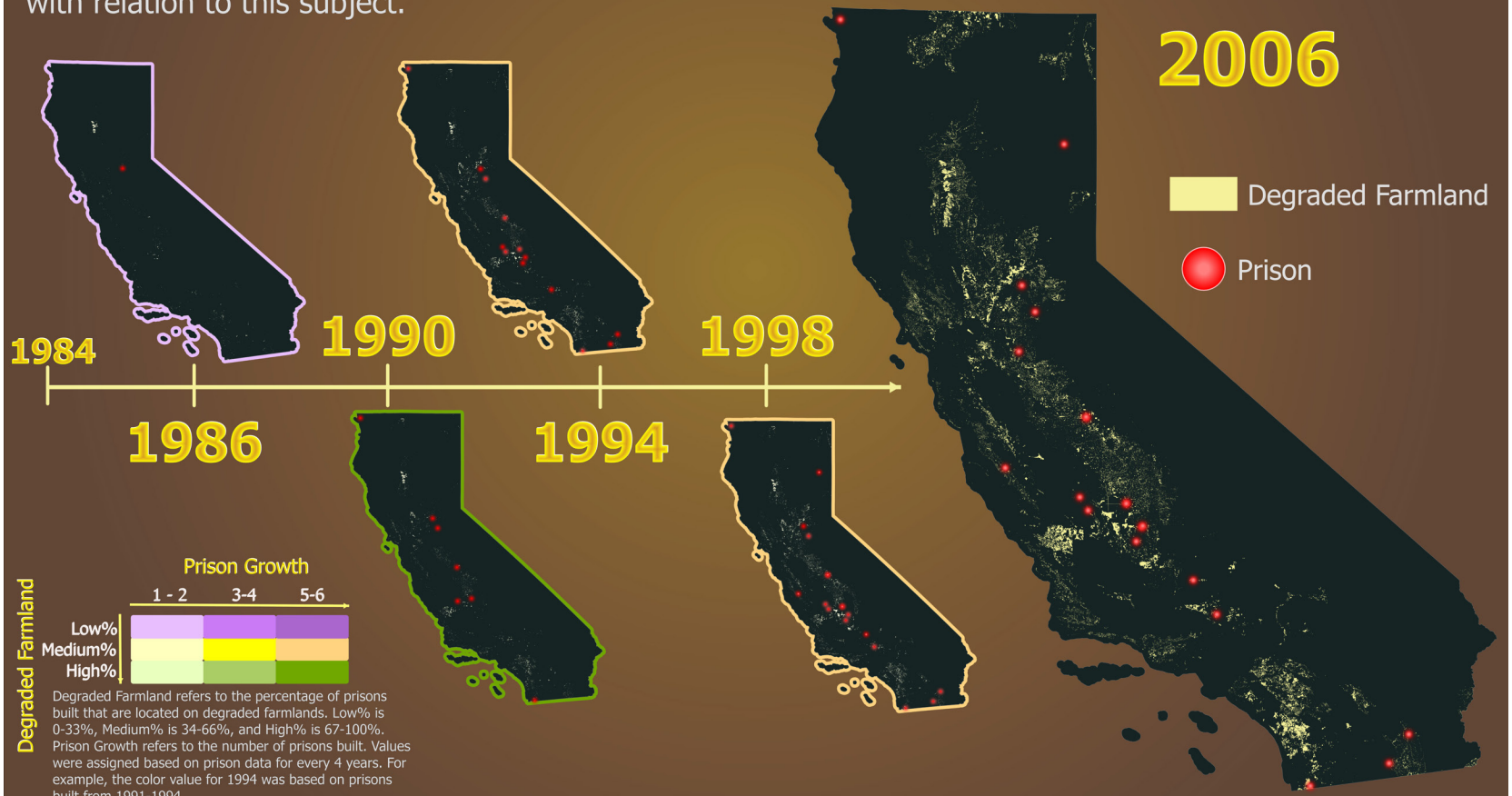
For the prison data, I used information from the California Department of Corrections and Rehabilitation, which provided a list of official prisons and their addresses. With this, I created a point layer in ArcGIS to map how prison locations overlapped with degraded farmland.

For my final print map, I chose a timescale-style layout because it best showed the progression of farmland changes over time. I also added a color classification based on the number of prisons built during each period and, within those, the percentage constructed on former agricultural lands. By doing this, I hoped to emphasize the relationship between where farmland disappeared and where prisons later appeared, making the connection intuitive for readers who may not be familiar with the history.

California Prison Expansion & Loss of Agricultural Land

Map created by Sabrina Anguiano.
Source: California agricultural land data was collected from the California Department of Conservation. Land loss data was reported every two years. California prison data was retrieved from the California Department of Corrections and Rehabilitation

This map is an attempt to visualize how California's changing landscape in the 1980s shaped the prison system we see today. While many factors influenced this system, this map only looks at the loss of agricultural land, with relation to this subject.



Degraded Farmland refers to the percentage of prisons built that are located on degraded farmlands. Low% is 0-33%, Medium% is 34-66%, and High% is 67-100%. Prison Growth refers to the number of prisons built. Values were assigned based on prison data for every 4 years. For example, the color value for 1994 was based on prisons built from 1991-1994.

Main Stacks Library Web Map

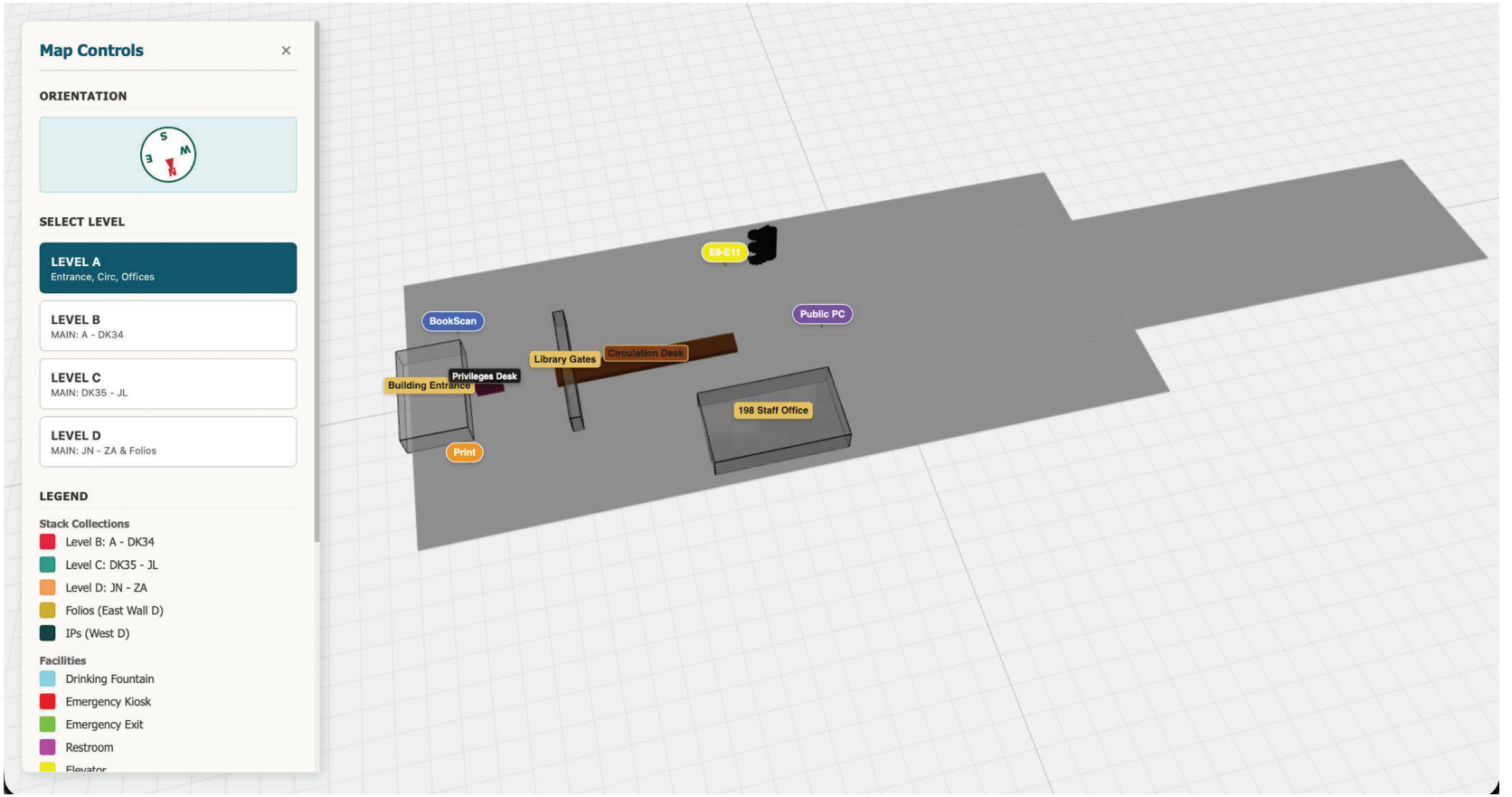
Evelyn Arroyo Valdez

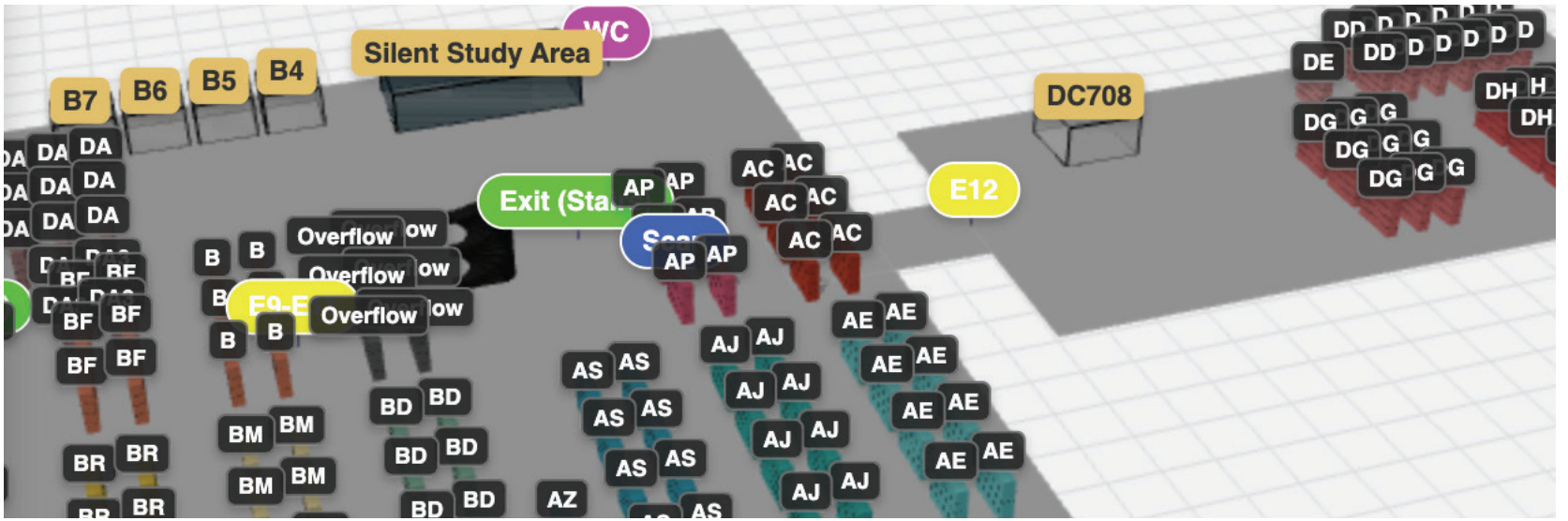
Since starting at UC Berkeley in 2021, I heard many stories of frustration with the Main Stacks.

I wasn't alone: I surveyed 1,773 students, and 58% said they got lost in the library maze. This problem has lingered for years, with the only guidance being abstract, hard-to-read floor plans. I wanted to solve this by creating an interactive map directory that shows walls but places seats, sections, and services. Its goal is to ease the student's search for information on this map. And if you are looking for a book or just a place to study, you don't need a cartographer's degree to know where you are. By categorizing the library by content and creating a navigable visual aid, I wanted the space to be less intimidating and easier for students and visitors to use.

To start, I built a 3D model of the Main Stacks using the official building floor plans as a structural template. To ensure the map reflected actual use of the space, I collected information on areas such as study zones and collection ranges by cross-referencing the library's seat availability website. Once I had a complete dataset, I ran the model through the mapping software to process the spatial relationships. I then assigned placement codes to locations and used a different color palette to identify sections of the library.

The finished map is a vast improvement over static tools. I used specific style choices for readability, like a "Creme" light mode background that is easy on the eyes and bright, non-repeating colors for the stack ranges so they stand out. A 3D perspective makes the layout clearer than a flat 2D schematic— users can quickly understand the relationship between the East and West buildings. Critical wayfinding features, such as emergency exits, are labeled, making the environment easier to navigate.


Map Controls
ORIENTATION
SELECT LEVEL
LEVEL A
Entrance, Circ, Offices
LEVEL B
MAIN: A - DK34
LEVEL C
MAIN: DK35 - JL
LEVEL D
MAIN: JN - ZA & Folios
LEGEND
Stack Collections
Level B: A - DK34
Level C: DK35 - JL
Level D: JN - ZA
Folios (East Wall D)
IPs (West D)
Facilities
Drinking Fountain
Emergency Kiosk
Emergency Exit
Restroom
E9-E11
BookScan
Public PC
Library Gates
Circulation Desk
Privileges Desk
Building Entrance
198 Staff Office
Print


Silent Study Area
B7
B6
B5
B4
DC708
E12
Exit (Sta
Overflow
Overflow
Overflow

Research and Recovery Efforts of Sunflower Sea Stars in California

Kiani Bastele

How much do you know about animals, specifically the ones impacted by a changing climate?

Popular science tends to tell stories of larger organisms but, oft-overlooked yet as much impacted, are invertebrates. More specifically a certain species which resides in our oceans, and are unfortunately listed as critically endangered– the Sunflower sea star, Pycnopodia helianthoides.

Beyond the informational text on the map itself, this project is meant to be an amalgamation of information and visualizations to present the story and life of this species, affectionately called the sunflowers of the sea. I wanted to meld the love I have for science communication, interest in cartography, and a desire to explore art mediums on one surface. To dissect this map, you begin in the top left corder where you see Bull kelp (Nerocytis luetkeana) floating, its blades drifting as if on the ocean surface. Below is information about why this particular sea star was chosen. Its importance as a keystone predator within rocky intertidal ecosystems is emphasized, with their presence spanning much of North America's western coast.

Their beauty and value is only mentioned for so long, as you then learn of its decimation due to various factors. This text is partially in between jutting rocks from the sea floor with the star of the sea– our Pycnopodia resting on its habitat. Focusing on the visuals, you can see their main prey, sea urchins, present. However, the more towards the right you go, the more you see of this specific purple sea urchin species (Strongulocentrotus purpuratus) dominating this habitat, signifying urchin overgrowth from the decline of its predator populations. In the corner you see a dead sea star, wasted away from the Sea Star Wasting Disease which was the main factor of their population decimation. Embedded within these illustrations is a more hopeful set of text describing research advances and efforts for species recovery– much of which is happening in the state of California.

The main map-aspect of this project can be seen in the right half, with California as the center of your view. This basemap was traced over the Google Earth Pro globe, focused in on California with an eye altitude of 451.05 miles. Points of the key institutions in this effort towards Sunflower sea star rescue can be seen, many of which are working collaboratively. Two institutions, Friday Harbor Laboratories and Oregon Kelp Alliance, are not based in California, but are included due to their instrumental contributions to this shared goal of restoration. In the upper right corner is a graph obtained from Graven et al[1] from which I selectively included information on regions in California.

Although Sunflower sea stars are still listed as Critically Endangered, and populations in certain areas are still entirely absent, I hope that the information carried here can provide someoptimism– and even spark some curiosity– among those of you pausing to view this work of pen and watercolor on paper.

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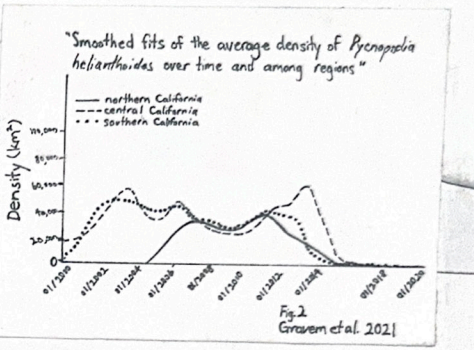
1 Gravem, S.A., W.N. Heady, V.R. Saccomanno, K.F. Alvstad, A.L.M. Gehman, T.N. Frierson and S.L. Hamilton (2021). Pycnopodia helianthoides. IUCN Red List of Threatened Species2021.

Kiani Baetsle
December 2025

Research and Recovery Efforts of Sunflower Sea Stars in California



Why *Pycnopodia*?

Sunflower sea stars (*Pycnopodia helianthoides*) are found in the northeast Pacific, with sea urchins comprising 21-98% of their diet.[1] They are a keystone predator via top down pressure on urchin abundance, especially within the biodiversity hubs of kelp forests.[1,2] However, a Sea Star Wasting Disease outbreak that began in 2013 reduced populations by 99-100% along the coasts of California, Oregon, and Washington, listing the species as Critically Endangered.[3,4] As a result of urchin overgrazing and a severe 2014 marine heatwave, kelp populations have declined up to 95% in some regions in California, resulting in losses of critical ecosystem functions.[5] Natural recovery of Sunflower sea stars is occurring gradually in the wild, but assisted recovery and further studies are needed for greater population growth.[4,7]

Research and Recovery Efforts

Several institutions across the West Coast, particularly in California, are working towards natural species research and methods of reintroduction to assist in population recovery of Sunflower sea stars and, in turn, kelp ecosystems. Efforts such as laboratory spawning, aquaculture technique advancement, genetic variance and disease resilience testing, and potential wild outplanting span across these institutions,[6,8] including the Steinhart Aquarium in San Francisco, Sunflower Star Labs in Monterey, and Birch Aquarium in San Diego. All advancements in research and reintroduction have been critical towards the recovery of the Sunflower sea star, emphasizing the need for stewardship of our coasts and oceans amidst a changing climate and world.

Friday Harbor Laboratories
Oregon Kelp Alliance
Cal Poly Humboldt
Steinhart Aquarium at the California Academy of Sciences
Sunflower Star Laboratories
Aquarium of the Pacific
Birch Aquarium at Scripps
San Diego Zoo Wildlife Alliance
N

Nereocystis luetkeana
Pycnopodia helianthoides
Strongylocentrotus purpuratus

Habitual Preparedness

Sariyah Benoit

Habitual Preparedness is a digital and interactive portrait of the Harbor Street neighborhood in the San Rafael Canal District in California. This map features three raster images on top of a Mapbox basemap. There are also six points on the map that demonstrate key locations for proposed design interventions within an evacuation route. A red line demonstrates an intended evacuation route. These images describe how everyday objects and mechanisms within those locations, along with urban ecological interventions, can protect people both before and after an earthquake. Navigating the map allows users to explore key landmarks, see existing conditions, and compare them with proposal images that strengthen emergency readiness at those exact locations.

At the southernmost point sits a solar-powered forebay and marsh. Scrolling north, in the northeast you see modular seating and recreational spaces that double as evacuation zones, and in the northwest you see floating housing that adapts to sea level rise and absorbs shocks from earthquakes. Each intervention sits on a real-world coordinate. Each point connects these design proposals and objects to existing landmarks and precedents so viewers can understand how infrastructure and ecosystems work together to support resilience before and after a crisis. Clickable points and popup windows allow users to see how everyday spaces and objects double as emergency assets rather than isolated “disaster infrastructure.”

The map is built with Mapbox using the GL JS library database for the basemap, panned & zoomed navigation, and styled circle points outlined by a GeoJSON dataset. A custom Mapbox “custom layer” integrates Mapbox GL JS Three.js into the map. In this way, georeferenced GLB models (bench, pond pack, closet) are loaded with GLTFLoader and placed using MercatorCoordinate transforms, which anchor each 3D object to its longitude and latitude. Popups use HTML composed from the GeoJSON attributes. Popup information includes landmark names, proposal text, links, and an embedded image. The boxes are styled with CSS so the popup becomes a wide panel for quick visual comparison of before/after conditions.

The monochrome basemap and simple red point symbology call attention to different aspects of the site proposal rather than background cartography. This decision aligns with best practices for crisis and preparedness maps where clarity matters more than decorative detail. Using 3D models at specific coordinates helps people read the interventions as physical objects in space. Even though the objects are not identical to what is proposed in the design, they are representative of what you might find in the area where the interventions are located. For example, the pond pack shows aquatic plants, and that is where you will find the forebay, oysters, seagrasses, and macroalgae.

The models allude to what the interventions look like and where they sit relative to homes, water, and streets. Finally, the popups are mostly visual with concise text that offer brief descriptions, in an effort to be accessible, and support fast scanning during presentations or community workshops, where stakeholders need to grasp ‘what changes, where, and why it matters in an emergency’ without wading through dense narrative.

Habitual Preparedness.

revealing the urban ecology that protects us

project designed by Peak Bamroongsuk, Sariyah Benoit, Erin Cain

What Will Last

Abby Biagtan

In light of the growing threat of climate change and rising sea levels, this map examines the Philippines through the lens of a hypothetical 180-meter sea level rise (SLR) landscape. While the SLR scenario is not scientifically possible, the distortion is intentional.

By exaggerating sea level rise, the fragility of coastal cities and loss of cultural connections are visualized. Sea level rise maps can represent transformation, vulnerability, and the persistence of memory. Distorting the shape of the islands also conveys the lived realities of people experiencing worsening typhoon conditions alongside the looming threat of rising seas. The visual transformation of the Philippines thus underscores the symbolic weight of what could disappear.

The map asks what will remain when familiar landscapes are submerged, along with the memories those places held. Here, cartography is reframed as a medium of archival and symbolic memory. Maps preserve fragments of place, and can also serve as a warning or call to action. The title, “What Will Remain,” parallels previous explorations of cartography and memory. It was a reflection of a desire for cultural reconnection, and the emotional and physical distance I personally feel from my heritage. This map extends that exploration by tying memory to environmental vulnerability; even as landscapes transform, the memories attached to them endure. In this way, the work becomes an act of preservation and an embodiment of how personal and cultural memory persists despite physical change.

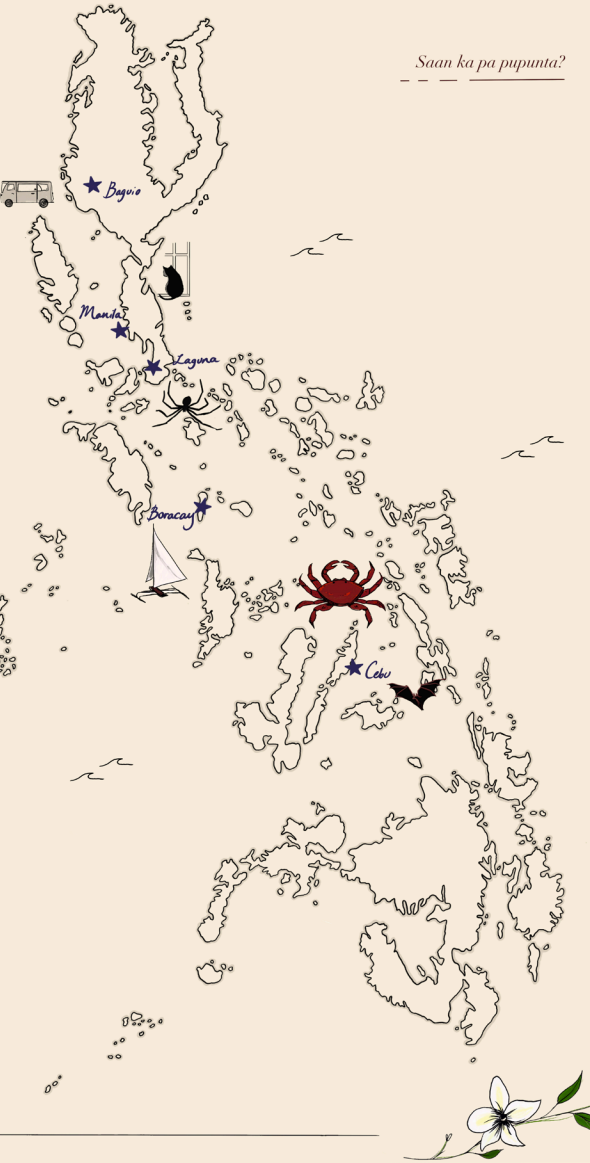
This map is entirely hand drawn using Procreate. I traced an exisiting visualization of 180-meter SLR (see map sources) to create the base outline of the country, then highlighted the places I’ve visited: Manila, Cebu, Boracay, Baguio, and Laguna. These sites carry distinct memories in my mind, becoming anchors of personal geography within a distorted national landscape. The choice to let beige tones dominate the map was deliberate, evoking vagueness and fading. Against this muted background, colored icons mark memory fragments and snippets of my lived experiences that resist erasure. The contrast emphasizes how memory persists even as landscapes transform; although changed physically it will still exist as it was in my head.

The inclusion of the Bakunawa dragon was to represent the power of nature and the cosmos: vast, uncontrollable, and transformative forces, and the inevitability of change. In contrast, the sampaguita flower embodies strength and hope, perseverance in the face of hardship despite worsening conditions. Together, these symbols highlight the tension between vulnerability and resilience. Even amidst bleak realities, there’s still time and hope, and the very existence of the memories I hold brings strength, optimism, and moments of happiness to carry forward into the uncertain future.

In this way, cultural and emotional resonance is preserved, archiving fragments of memory and offering a vision of endurance.

What Will Last

Saan ka pa pupunta?



Philippines under 180 meter Sea Level Rise (Conceptual Visualization)

Adapted from Worldcosts, YouTube, 2021

Abby Biagtan, 2025

Sulphur Springs

Addie Bugas

White Sulphur Springs, West Virginia is the small rural town where my Dad, Gerald Bugas, was raised. The town has always been a distant place to me, a place I had only understood through stories he occasionally shared or we infrequently visited. Following the recent passing of my Grandpa, Fritz Bugas, I have been especially interested in learning more about my dad's childhood and the significance of his hometown. I wanted to challenge myself with the task of mapping memory, trying to capture a sense of home in 2D form. My goal was to create something unconventional and challenge myself to break out of the cartographic confines I am accustomed to.

To do this, I took a sort of participatory mapping approach. Rather than relying solely on existing spatial data, I asked my Dad to write down distinct memories he has of his hometown. He was asked to list as many sensory details as he could, such as touch, smell, and taste, in an effort to encourage him to dive deeper into the details. This process not only gave me incredible insight into his mind, but also gave him an opportunity to reflect on a place currently fogged with grief.

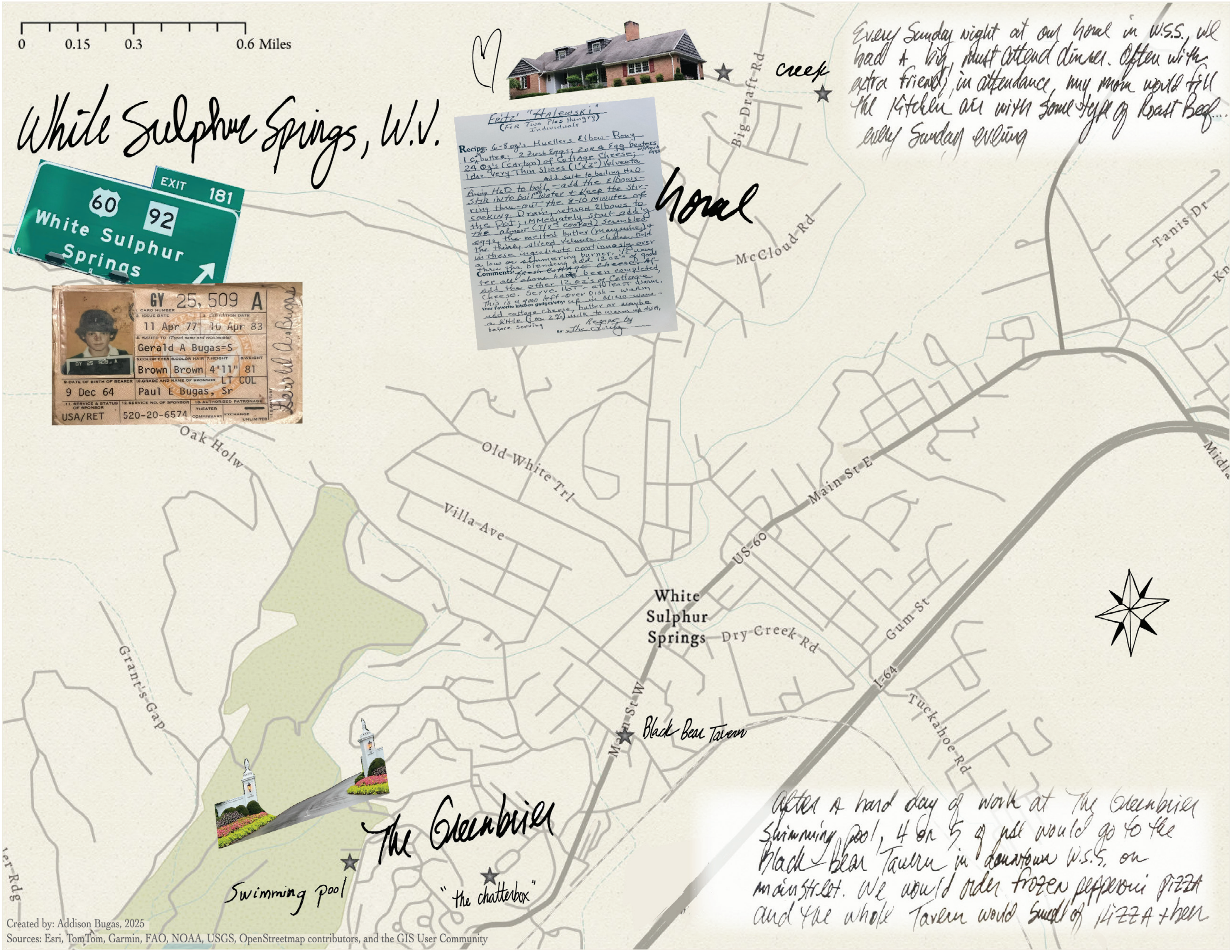
Using these notes, I built a simple base map with point features in ArcGIS Pro for the specific locations he listed throughout the town. I selected a vintage-looking basemap and altered the point feature symbology to black stars because they appeared neutral yet more eccentric than a simple point. From there, I collected various elements, such as photographs and a childhood recipe, and traced his handwriting to add to the map in Adobe Illustrator.

I chose to include two stories, one from his home and one from the Greenbrier, two places that deserve to be highlighted and honored. Including these narratives helps anchor the map in the specificity of his lived experience, helping enhance the storytelling experience.

The highway sign, his first ID, the picture of his house, and the recipe cutout were all scattered throughout to help tell the story of his childhood. I chose to tilt, layer, and spread them out to create a patchwork, collage-like design that builds upon the sentimental and fragmented essence of memory. I chose to label the marked locations with the titles my dad uses rather than their official names, such as "the chatterbox" or "creek". I chose to do this, although it may be vague to someone first viewing the map, I think it preserves the authenticity of perspective. I created these custom labels by tracing his notes with a pencil, going over them in thick black marker, scanning them, rasterizing them in Adobe Illustrator, and then using Illustrator's Image Trace tool to detach the text from its background.

Because there were so many various layers at play, I removed unnecessary features from the basemap using a color-matching approach and manually removed features that added clutter. The intentional scatteredness, inclusion of vivid details, and personal imagery make this map something special. This approach revealed stories that my dad would have never remembered to tell, including details that are often overlooked, such as the smell of the kitchen when his mom held family dinner on Sunday evenings.

Maps can be tools of remembrance and can hold more than spatial information; they can showcase hard-to-capture memories and emotions.


0 0.15 0.3 0.6 Miles
White Sulphur Springs, W.V.
EXIT 181
60 92
White Sulphur Springs
GY 25,509 A
11 Apr 77 10 Apr 83
Gerald A Bugas=S
Brown Brown 4'11" 81
9 Dec 64 Paul E Bugas, Sr LT COL
USA/RET 520-20-6574
Fritz' "Halewski"
(For Two Plus Hungry Individuals
Recipe: 6-8 oz's Muellers Elbow-Rony
1 C. butter; 2 Fresh Eggs; 2 or 4 Egg beaters w/ fresh eggs
24 Oz's (Carton) of Cottage Cheese;
1 doz Very Thin Slices (1"x2") Velveeta
Add salt to boiling H2O
Bring H2O to boil, add the Elbows - Stir into boiling water & keep the stirring thru-out the 8-10 minutes of cooking. Drain, return Elbows to the pot; immediately start add'g the almost (7/8th cooked) scrambled eggs, the melted butter (margarine) & the thinly sliced Velveeta cheese. Fold in these ingrediants continuosly over a low or simmering burner. 1/2 way thru the blending add 12 oz's of good fresh cottage cheese. After all above have been completed, add the other 12 oz's of Cottage Cheese. Serve Hot - at least warm.
This is a good left-over dish - warm up in Micro-wave - add cottage cheese, butter or maybe a little (1 or 2%) milk to warm up dish, before serving
Recipe by The Fritz
home
creek
Big-Draft-Rd
McCloud Rd
Tanis Dr
Every Sunday night at our home in W.S.S. we had a big, must attend dinner. Often with extra friends in attendance, my mom would fill the kitchen air with some type of Roast Beef... every Sunday evening
Oak Holw
Old White Trl
Villa Ave
Main St E
US-60
White Sulphur Springs
Dry Creek Rd
Gum St
I-64
Tuckahoe Rd
Grant's Gap
Main St W
Black Bear Tavern
The Greenbrier
Swimming pool
"the chatterbox"
After a hard day of work at The Greenbrier swimming pool, 4 or 5 of use would go to the Black Bear Tavern in downtown W.S.S. on main street. We would order frozen pepperoni pizza and the whole Tavern would smell of pizza + beer
Created by: Addison Bugas, 2025
Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, OpenStreetmap contributors, and the GIS User Community

Living Language

Anette Brecko

The goal of this project is to explore how individuals' psychological, cultural, and lived experiences of language can be integrated with cartographic representations to communicate linguistic information. And thinking of way to honor personal connections to one's language and culture.

Aside from orthography, there have historically been a few ways of visually depicting language; two of these methods have been geographic mapping and body mapping. The subfield of geolinguistics aims to map languages by the geographic distribution of their speakers, or to map the distribution of particular linguistic features that are shared among languages (e.g. the areal presence of definite articles, grammatical gender, tone, etc. crosslinguistically). However, through this method, the massive complexities and nuances of spoken language are reduced to points on a map, with so much cultural meaning being lost. When mapping language on the body and describing where sounds are articulated, mid-sagittal diagrams of the human vocal tract are typically used. Specific sounds are displayed on these diagrams by shading the area where they're articulated, areas which include the teeth, alveolar ridge, palate, the pharynx, etc. But depicting a language's sound inventory doesn't communicate which sounds are most common within that language, what it actually feels like to speak that language, or people's personal embodied feelings of their language.

Both of these existing methods of visual language depiction fall short of a full linguistic picture. Therefore, by combining areal and embodied approaches to language depiction, as well as incorporating speakers' personal experiences and anecdotes, I hope to create a multifaceted depiction of language that focuses on both the miniscule and the broad aspects of linguistics, treats language as a living, fluid entity, and honors people's personal and cultural attachments to their languages.

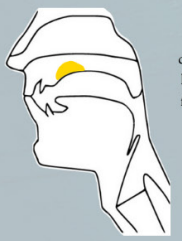
Because language is a deeply personal thing that people have varying relationships with, I wanted my data collection questions to be as open-ended as possible in order to get people to reflect on all of the roles that their language plays within their life. I encouraged people to answer as many or as few of the questions as they wanted to, and to talk about what they felt was most important when describing their language. People ended up having very interesting reflections on their languages, so it was a bit of a struggle to find a way to include as much information on the map without having it feel cluttered by text.

It was really special to read through everybody's thoughts and sentiments on their language, and actually creating this map was a really stimulating exercise in attempting to bring together large-scale and small-scale data in one cohesive image. I want to extend a massive thank you to Maicol Della Chiesa, Evan Anderson, Harry Jiang, Victor Gaspar-Flores, Benny Szeghy, Lila Pilar Careaga, Celeste Basken, Mahima Shyno, Mili Shyno, and several contributors who asked to stay anonymous for taking the time to reflect on their language and provide data for this project.

Living Language: Embodied and Geographic Linguistic Mapping (Latin America)

Language: Spanish
Dialect: Baja California, Mexico
Speaker: Lila Pilar Careaga

Defining sounds:
The type of "a" found in "para", "manteca", and "California"
Short and long r's (r, rr), where the short r is like slapping the roof of your mouth with your tongue, while the long r involves pressing the tongue to the roof of the mouth and breathing out
The rolled r's, eñe (IPA: ɲ), and "l" are all articulated at the top of the mouth



Relationship to the language:
Lila began learning Spanish in an academic setting in 1st grade, and she says that she's constantly fluctuating between feeling confident and insecure in her Spanish abilities. She feels that she knows a lot of the culture of the language, but by not speaking it at home she didn't learn normal words like blueberries.

Favorite poems:
"Hombres Necios" by Sor Juana Ines Inés de la Cruz and "Soneto CLXVI" by Luis de Argote y Góngora

Geographic influence on language:
Lila grew up a 15 minute drive away from the Mexican border, and would go to Mexico monthly. Her dad and at least half of her friends are Mexican, and she says that she uses a lot of Spanglish.

Language: Spanish
Dialect: Acapulco, Mexico

Defining sounds:
Rolled r's, accented vowels, gender-based words

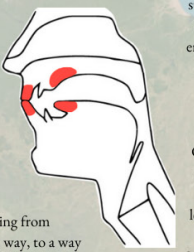
Relationship to the language:
This person grew up speaking Spanish, which was necessary in order to communicate with their mother and grandparents who speak little to no English

Geographic influence on language:
They grew up in a Latino/Black neighborhood, where Spanish was ubiquitous. There's also generally a large Hispanic population in their hometown of Los Angeles, where they feel Latine culture is very much alive, from food to people to street signs

Untranslatable terms: "Aguas!", which means to watch out but it literally translates to "waters"

Language: Spanish
Dialect: Santiago, Chile
Speaker: Celeste Basken

Defining sounds:
Chilean Spanish feels really front of mouth, with lots of p, b/v, -oy sounds, and a lot of "oh" and "ah" sounds in Chilean slang
The language has somewhat of a pinched sound, partially because native speakers talk so fast. Because of this fast speech, a lot of words get rolled together and shortened, and it sounds like the language is being pushed out of the mouth



Favorite word:
"Weon", which means everything from buddy/dude in a friendly and casual way, to a way of addressing someone that you actively hate or want to physically fight

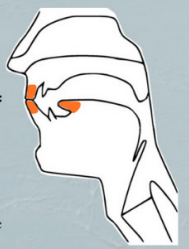
Relationship to the language:
Celeste says that she really loves Chilean Spanish because it's been sufficiently isolated from the rest of Spanish by the Andes, so it's ended up very distinct from other regional dialects

Geographic influence on language:
Celeste learned Chilean Spanish during a semester abroad at the University of Chile. She had learned Central American/Spain Spanish before, but Chilean Spanish felt like a foreign language to her

Language: Spanish
Dialect: Mixture of dialects from California and Jalisco, Mexico
Speaker: Victor Gaspar-Flores

Defining sounds:
Trilled r, soft "th" sound (IPA: θ), hard "th" sound (IPA: ð), words ending in -o, -a, or -d

Favorite word:
"Bambolear", meaning "to wobble", because of how bouncy it sounds



Geographic influence on language:
Growing up in an area with not many English speakers made Victor cognizant of his accent in both Spanish and English, so in conversation he tends to enunciate his words or subconsciously emulate the other person's accent

Relationship to the language:
Spanish feels emotionally deeper, and Victor says that it lets him to convey his emotions more easily. However, he feels that English is better for talking about more complex topics as it allows him to articulate himself better

Untranslatable terms:
Querer/Amar: Both words mean love, but querer is a strong romantic love that might not be related to how long you've known someone, but is less deep than amar

Participants were asked to mark on a midsagittal vocal tract diagram where they feel their language is primarily articulated, and reflect on their experiences with their language

Anette Brecko
Geography C183

Basemap: Earthstar Geographics
Projection: WGS 1984
Scale: 1:33,000,000

Antioch Youth and Community Map

Dominic Ceja

I constructed my final project, the Antioch Youth & Community Map, to work as a space where geography can alter social perception. Throughout the course, I've learned that by focusing on cartographic elements — including but not limited to color, typeface, and dot density — you have the power to convey a specific history, and in some cases, shape the epistemologies through which people come to "know" a place. With this project in particular, I wanted to re-map Antioch, California's community infrastructure through the lens of its residents, translating a network of twelve youth centers into an empathetic and coherent story.

The foundation of the project came from cartographic research into prior precedents. Many articles about Antioch focus solely on its weak education, limited healthcare, and economic instability (e.g. the widely publicized misconduct within its police department). As a result, numerous media platforms produce a limited ontology of the city, one in which public disorder and civic failure are centered as its definitive features. In response to this depiction, I wanted my cartography to shift that framework. By relying on publicly available data from the City of Antioch's Parks & Facilities directory, I built a platform that positions youth-centered services as visible, integral components of the city. In this way, my project combats a meaningful discrepancy in how media outlets routinely portray Antioch.

From a technical perspective, the map was constructed with Mapbox GL JS and a custom GeoJSON dataset that I compiled from the city's documentation. Throughout my design, I relied on the principle "warmth," a self-defined benchmark that ensured my work remained intuitive, empathetic, and user-friendly for any potential visitors. This benchmark doubled as a critique of cartographic authority in the project, as it drove me to avoid the convoluted and often insular lens used by governmental maps, and to opt instead for a perspective grounded in simplicity. In my visual methodology, I built a framework characterized by gentle contrasts, clear symbolization, and a minimal interface — that way, potential users could easily interact with my cartography. Altogether, my "warmth" ideal helped me produce a map that's open and user-forward, welcoming viewers to click and explore at their own pace.

My language for the pop-ups also became a focal creative point as I built this project. For example, the official description for the Antioch Youth Sports Complex (AYSC) destination, reads: "Serving the city for over 25 years, AYSC is one of the largest privately owned sports parks in Contra Costa County." Instead, I chose these words: "Large sports complex dedicated to providing safe, affordable athletic spaces for youth." Through my language, I wanted the map to specify how it aids the youth, whether that be through daycare, tutors, or physical activity. This choice rivals Candance Jackson's depiction of Antioch as "[an] area with...high crime" and "weak [education]," and centers the alternative truth that, like any other suburb, Antioch invests in its children. As a result, the pop-ups also push against the power-laden diction that often determines how low-income cities — like Antioch — are publicly viewed.

My hope is that readers of the Atlas understand this project as an honest, careful map of the city, its ontology, and more importantly, its infrastructure. Beyond Antioch's negative stigma, I encourage you to consider how the city actively fights these problems through its youth-centered resources.


Antioch Youth & Community Map
Charting the quiet places where young people gather, grow, and belong — honoring Antioch as a community-first town.
Youth Center
Park
School
Recreation
Community Hub
Welcome to the Antioch Youth & Community Map
This map explores the places where young people gather, grow, and form communal memories across Antioch.
Enter Map
Antioch Landmarks
Communal Place
Cartography by Dominic Ceja • 2025
Data © Mapbox, OpenStreetMap,
Candace Jackson, Orlando Mayorquín, & City of Antioch Parks & Recreation
Montezuma
Toland Landing
Noverd
Emmaton
Sacramento River
Lower Sherman Island Wildlife Area
San Joaquin River
Franks Tract State Recreation Area
Nichols
Shore Acres
Military Ocean
Bay Point
Pittsburg
Bethel Island
Thurgood Marshall Regional Park
AYERS RANCH
Cowell
Clayton
Black Diamond Mines Regional Preserve
Kaiser Permanente Antioch Medical Center
Knightsen
Brentwood
Werner
Orwood
Clayton Ranch
Deer Valley
Marsh Creek
Marsh Creek Springs
North Peak
Woodward
© Mapbox © OpenStreetMap Improve this map

Layers of Living

Jack Connell

Just outside of the village of Petroto, Greece, tucked between a quarry, a pear orchard and a major highway lies the archaeological site of Asvestaria. The excavation began as an initiative by the Greek Ministry of Culture by archaeologist and head of the Ephorate of Antiquities of Karditsa, Dr. Maria Vaiopoulou. The site has hosted many Bronze Age archaeological and architectural findings that date between 3200-1100 B.C. with hypothesized continuous habitation. I had the pleasure of working on the excavation team in the summer of 2025 at Asvestaria under the guidance of Dr. Angelos Gkotsinas, an experience that inspired this map layout's creation.

Due to the differential concentration of "other features," or rock masses surrounding the walls, I would conclude that the Eastern sector of the map was inhabited more recently than the Western sector by its Bronze Age inhabitants. This is likely due to the fallen rocks surrounding the Western, earlier sector being stripped and used for the development of the newer, Eastern sector during its later habitation, which would explain a higher concentration of fallen rocks within close proximity to walls on the Eastern sector when compared to the more stratified West. It is additionally worth noting that the graves that fall between the Western and Eastern sectors had remained untouched prior to excavation, which could indicate a short migration of the same, continuous group of descendants from West to East; considering if a new group of settlers had built the Eastern sector, it is likely they would have disregarded the burial intentions of past inhabitants for the sake of utilizing the premium stones seen in the graves for their own, newer construction.

Layers of Living: An Archaeological and Architectural Analysis of the *Asvestaria* Site in Petroto, Trikala, Greece.

By Jack F Connell

MAP 1

MAP 2

OVERVIEW:

Just outside of the village of Petroto, Greece, tucked between a quarry, a pear orchard and a major highway lies the archaeological site of *Asvestaria*. With excavation beginning in 2011 through the Greek ministry of culture by archaeologist and head of the Ephorate of Antiquities of Kerditsa, Dr. Maria Vaiopoulou, the site has hosted many Bronze Age archaeological and architectural findings that date between 3200-1100 BC with hypothesized continuous habitation. I had the pleasure of working on the excavation team in the summer of 2025 at *Asvestaria* under the guidance of Dr. Angelos Gkotsinas, an experience that inspired this map's creation.

MAP 1:

An unlabeled rendering of visible features within the site, including walls, graves, loose stones and other debris. This map was fabricated using aerial photography courtesy of the Petroto Archaeological & Palaeoenvironmental Program (Pe.Ar.Pe.P.) and is oriented Northwards.

MAP 2:

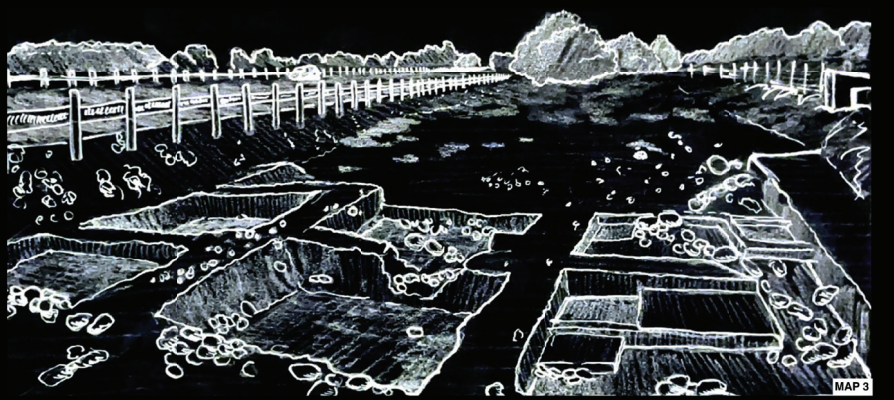
A labeled rendering of different features within the site using aerial photographs portrayed in MAP 1, also oriented Northwards. Because my research is limited to the architectural components of the site, this map primarily focuses on the orientation of walls, graves and other features (which consist of rock masses, either strewn at random or representing a fallen wall). The identification of walls is isolated from "other features" through both ground survey and experience in recognizing geometric consistencies from aerial photography. Wall features span from the Northwest to Northeast portions of the map, accompanied by fallen rocks surrounding them. Between the two lie four individual grave sites created out of large slabs of stone.

MAP 3:

An oblique aerial, hand-drawn rendering of the site in present day during the excavation season in 2025, portraying several excavation pits. This map is oriented Westwards.

HYPOTHESIS:

Due to the differential concentration of "other features," or rock masses surrounding the walls, I would conclude that the Eastern sector of the map was inhabited more recently than the Western sector by its Bronze Age inhabitants. This is likely due to the fallen rocks surrounding the Western, earlier sector being stripped and used for the development of the newer, Eastern sector during its later habitation, which would explain a higher concentration of fallen rocks within close proximity to walls on the Eastern sector when compared to the West. It is additionally worth noting that the graves that fall between the Western and Eastern sectors had remained untouched prior to excavation, which could indicate a short migration of the same, continuous group of descendants from West to East; considering if a new group of settlers had built the Eastern sector, it is likely they would have disregarded the burial intentions of past inhabitants for the sake of utilizing the premium stones seen in the graves for their own, newer construction.



MAP 3

Napa Valley Wineries

Luis Cortez Lara

I designed this map as a way for people who are looking to plan a trip to Napa County in order to have a taste of its wine or tour the number of wineries it has to offer. I decided to have this project expand one of my previous print maps that focused on the same idea, but solely focused on the City of Napa. I chose a web map because an expanded map would give me an opportunity to add more information to my map and it is better at removing potential clutter due to the vast amounts of points that a print map would produce. A web map also allows me to include features such as filters, popups, and other clickable features for user interactivity.

The first thing I did was import the points data called “Wineries_Public from Napa County GIS and put them in a google spreadsheet as well as adding my own data such as Business Hours, Business Days, Area, links to the wineries website, and Tours and Tasting. After that I used the addresses from the table to add the points on the map. For the basemap I used mapbox with a monochrome color theme. I also included a layer of the county boundary from GIS online and adjusted the transparency in order to show the other features on the map. To fit the theme of wine I gave the color a subtle tint of purple to have it stand out on the base map. I also adjusted the transparency because I wanted the readers to be able to understand what is considered Napa County and keep the focus on the colored points.

The last section I worked on involved using visual studio code to work on the interface of the map and the color for the points. The first thing I implemented was a popup which included the name of the wineries, address, business hours, business days, and tasting and tours. I followed this by adding a filter in order for people to search for wineries in certain areas, what days they would want to visit and what they want to do at the wineries. The filter is able to collapse or be brought back in order to make the map more readable and a clear filter button to the default view of the map. The side panel also includes a listing of the wineries that zooms to the selected winery for an easier search. Another thing I added was a legend of what colors represent which area the wineries are located in for those that are not familiar with the names and where they are located. The last thing to be added was a banner on the top right of the map in order to show its intended purpose.

Filter By Catagory

- [ ] Angwin
- [ ] Calistoga
- [ ] Deer Park
- [ ] Napa
- [ ] Oakville
- [ ] Pope Valley
- [ ] Rutherford
- [ ] St. Helena
- [ ] Yountville
- [ ] Zinfandel

Business Days

- [ ] By Appointment
- [ ] Fri - Mon

Listings

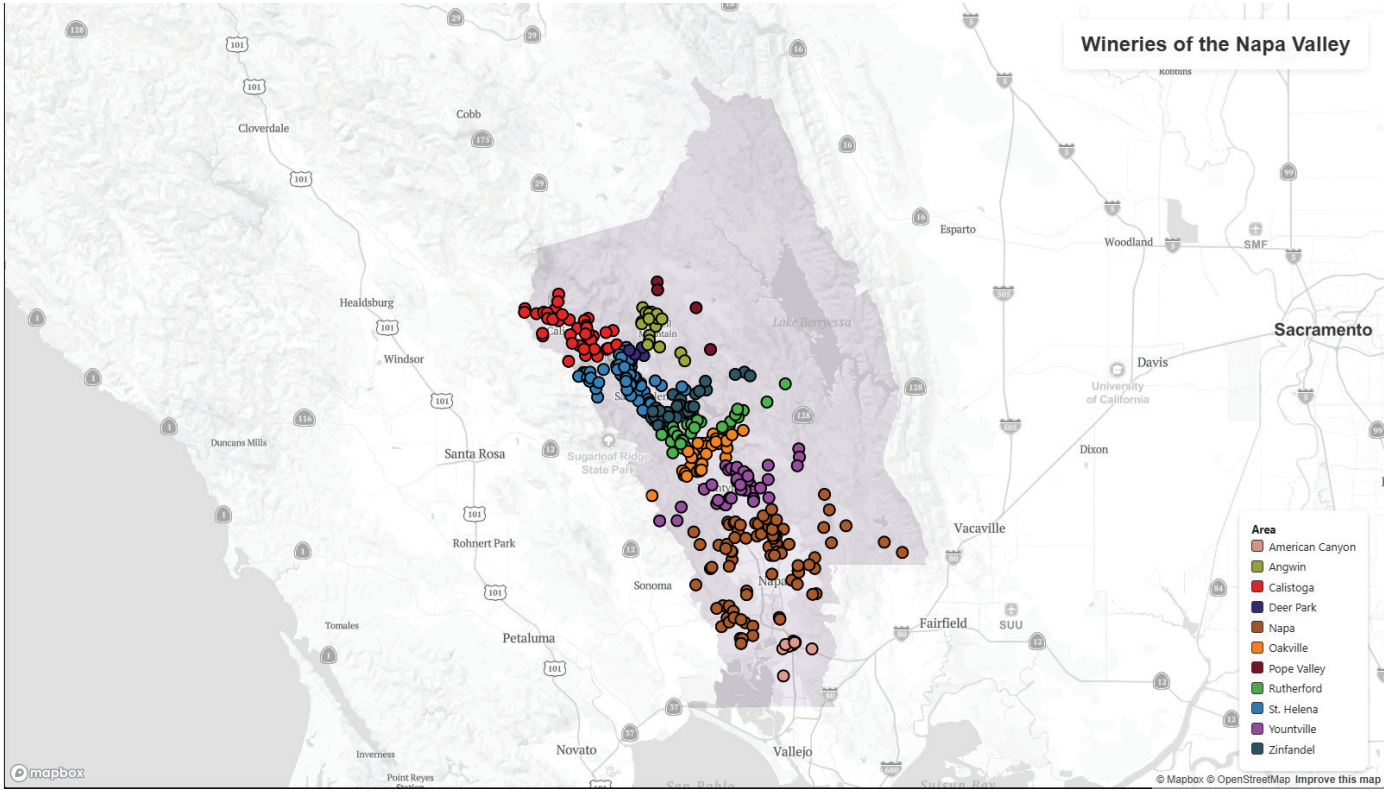
ADAMVS
Angwin

ALLORA WINERY
St. Helena

ALMACERRO
Angwin

ALPHA OMEGA WINERY
Rutherford

ALTA NAPA VALLEY
Napa



Chemical Routes of Early Photography

Avery Davis

Photography and Cartography are ways we connect with and see the world. With its use of scale and projection to frame what we want in focus. I decided to map the movement of early photographic chemicals across the world, which would inevitably reveal which countries possessed the resources to purchase, create, and commission works for global influence. For this project, I chose to work at a global scale using the Gall-Peters projection, which attempts to represent countries more equally in area. This decision felt crucial given that photography is fundamentally rooted in colonial practice. As Jesse Van't Hull states:

> "[...]people in front of the camera are often referred to as subjects, a term that carries connotations of subjugation, of oppressive powerlessness. Even exposure—a photographic term that refers to the amount of light that reaches the camera's sensor—suggests vulnerability and risk."[1]

I wanted to use analog-based methods to ground myself in the materiality of my subject matter. I used a cyanotype background (one of the earliest photographic processes) which requires two chemicals: ferric ammonium citrate and potassium ferricyanide. Creating this way became an exercise in engaging with the intricate, laborious nature of early photography and cartography. My method involved several steps: inverting my base map image into a negative and printing it on transparency film, mixing cyanotype chemicals on watercolor paper and leaving them to dry, placing the film on paper and exposing it to light, then developing and fixing with hydrogen peroxide before a final drying period. It is a lengthy and meticulous process, forcing one to slow down and be present. After the cyanotype developed, I used watercolor to fill the remaining canvas, adding texture and variance to continents. Drawing on the imperfections inherent to early processes such as the darkroom, I added splatter-like marks across the ocean background, mimicking how chemicals might drip or move during development to create a tactile effect.

The content of the map focuses on the origins and flows of chemicals and materials used in early photographic processes and what these were used for. I marked locations of known innovation hubs in photography by adding thin white radiating lines extending outward of geographic regions to visualize their scale of influence, mainly in Europe and the eastern United States. I made special note to include Brazil, where Hercule Florence had discovered light processes for the daguerreotype years before Louis Daguerre although he has never been credited. I used variation in color to distinguish different materials, and the included key helps viewers identify specific chemicals included on the map along with a timeline of the inventions in photography to provide more context.

Ultimately, I hope this map evokes the same sense of curiosity that early photographs once did, raising questions about how it was made and who holds the power to create such images. By foregrounding process and materiality, the map becomes not just a representation of photographic history, but a physical embodiment of it.

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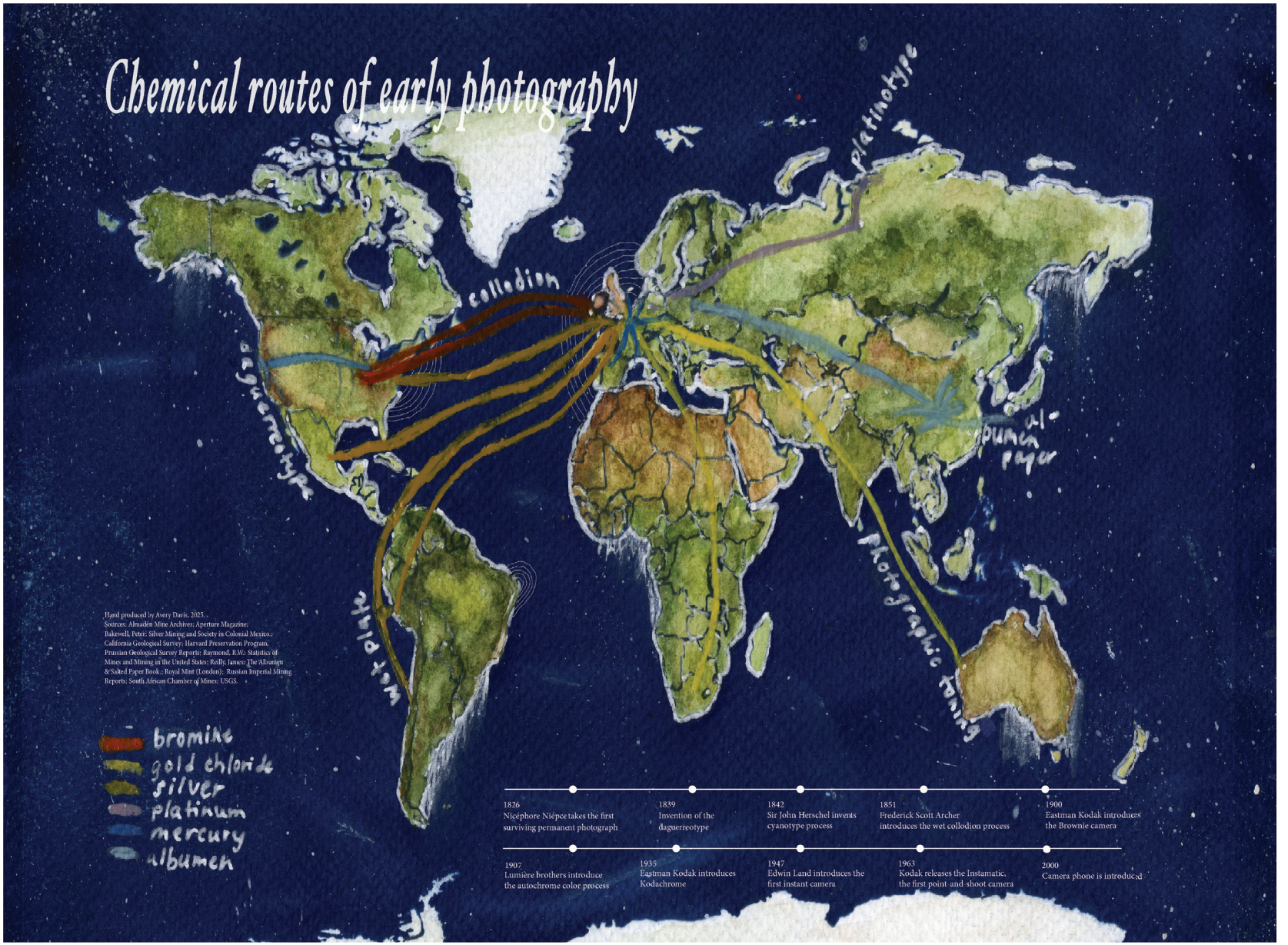
1 Van't Hull, Jesse. (2022) "Colonization's Lasting Impact on Photography." Atmos, 5 July 2022, atmos.earth/art-and-culture/colonization-indigenizing-photography-breaking-free

Chemical routes of early photography



Hand produced by Avery Davis, 2025. ,
Sources: Almaden Mine Archives; Aperture Magazine; Bakewell, Peter: Silver Mining and Society in Colonial Mexico.; California Geological Survey; Harvard Preservation Program, Prussian Geological Survey Reports: Raymond, R.W.: Statistics of Mines and Mining in the United States; Reilly, James: The Albumen & Salted Paper Book.; Royal Mint (London); Russian Imperial Mining Reports; South African Chamber of Mines; USGS.

1826
Nicéphore Niépce takes the first surviving permanent photograph

1839
Invention of the daguerreotype

1842
Sir John Herschel invents cyanotype process

1851
Frederick Scott Archer introduces the wet collodion process

1900
Eastman Kodak introduces the Brownie camera

1907
Lumière brothers introduce the autochrome color process

1935
Eastman Kodak introduces Kodachrome

1947
Edwin Land introduces the first instant camera

1963
Kodak releases the Instamatic, the first point-and-shoot camera

2000
Camera phone is introduced

The Death Bloom of Immigration

Mariel Del Rosario

My project surrounds the experience of losing your cultural identity and language over time as you settle into your new country. It specifically represents the immigration journey my family took from the Philippines, beginning in 2003, and all the major milestones that led up to us finding our forever home in inland Southern California.

The main focus of my map is the agave death bloom, which blooms from the Pacific Ocean (from the direction of the Philippines) into inland California. As my family now resides in a desert environment, the agave plant has been ever-present in my childhood, with my parents growing the plant in our backyard. Typically, the plant appears as only the leaves in the bottom left corner of the map, but it blooms into a stalk with numerous flowers through the death bloom. When an agave plant experiences a death bloom, its death becomes inevitable, with the blossoms helping create new agave plants.

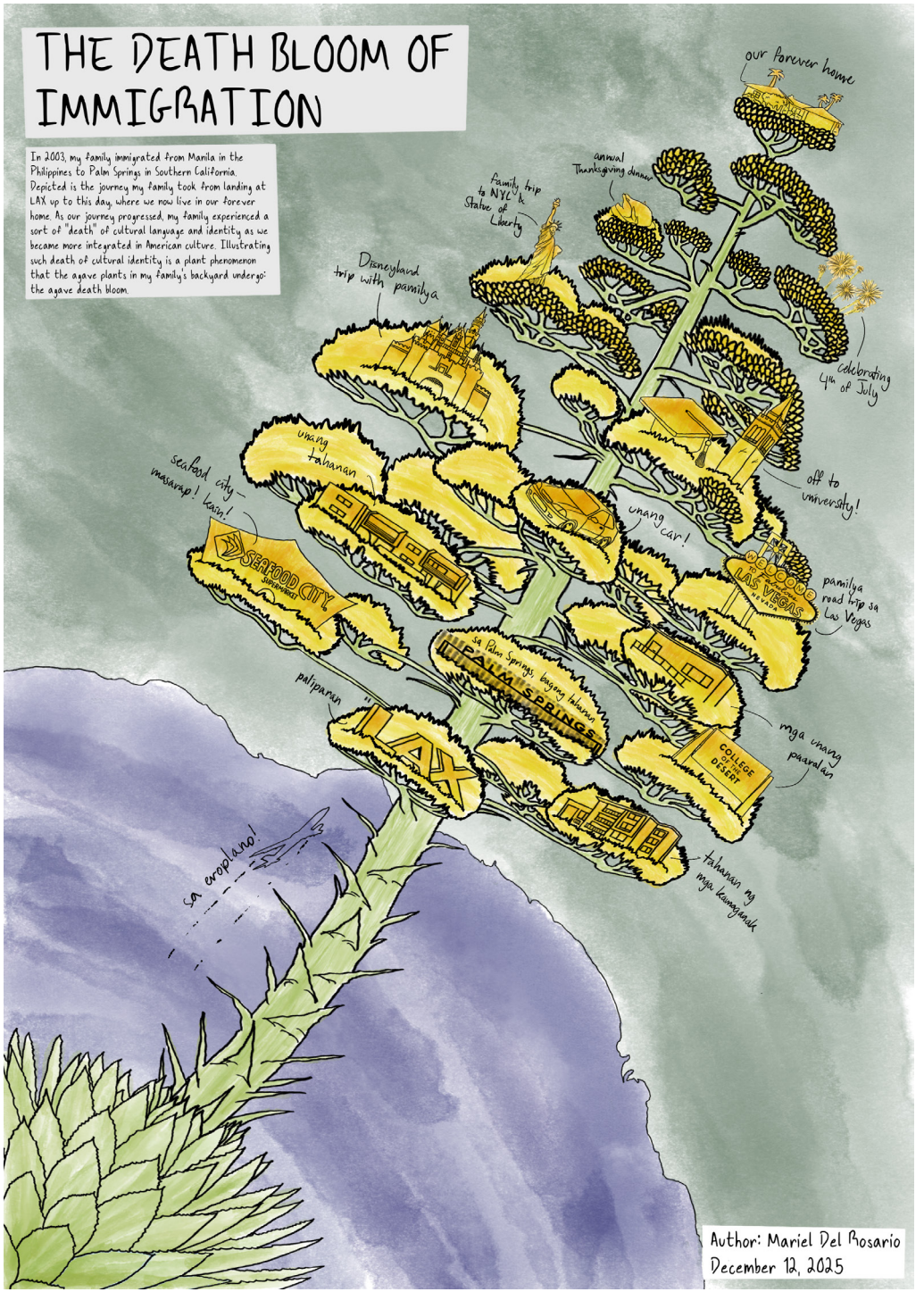
Over time, my family stopped speaking Tagalog and adopted more “American” traditions each year. My parents ultimately made the choice of never teaching me Tagalog, in fear that I might face the discrimination that they did when they first moved here. Something I struggled with when thinking of this map was how I could possibly represent such deep loss over time in one print map. So, I looked to the agave death blooms in my yard. The vibrant yellow blossoms of the plant, countered by the underlying story of loss joining fate, perfectly represented this story – the beauty of the new life my family built, juxtaposed with the death of the life we knew.

So, the agave death bloom illustrates this journey, symbolizing the loss of language and cultural identity over time as we become more deeply rooted in the U.S. Illustrating this loss further is the transition from Tagalog (shoutout to my mom for helping me translate!) to English as you move up the stalk for each milestone in our journey. Emerging from each blossom is a milestone, which moves from being more Philippines-oriented to classic American activities like road trips or celebrating the Fourth of July. Every component of this map is handwritten and hand-drawn to symbolize the fact that upon immigrating here, my family had to build their understanding and experience of the land from scratch. As for color, I chose a watercolor effect to have a cohesive texture for the landscape and plant. Pictured against the darker background of land and sea are the vibrant colors of the agave death bloom, drawing readers’ eyes to the bright yellow blossoms just as my eyes were drawn to them when I first thought of this map.

Overall, I hope for this map to not only represent my family’s story and the loss that my own life is rooted in, but to capture a new, more personal perspective of the land one might be so used to seeing on Google Maps.

THE DEATH BLOOM OF IMMIGRATION

In 2003, my family immigrated from Manila in the Philippines to Palm Springs in Southern California. Depicted is the journey my family took from landing at LAX up to this day, where we now live in our forever home. As our journey progressed, my family experienced a sort of "death" of cultural language and identity as we became more integrated in American culture. Illustrating such death of cultural identity is a plant phenomenon that the agave plants in my family's backyard undergo: the agave death bloom.



Author: Mariel Del Rosario
December 12, 2025

Between Armenia and Artsakh

Hasmik Djoulakian

A nontraditional approach to a map of Armenia and Artsakh, this map depicts the stories and symbols that displaced people from Artsakh have carried with them to Armenia since the start of the 2020 war with Azerbaijan. It stresses the non-linearities of memory, grief, and trauma by making many of the "story-lines" indiscernible by overlapping them, turning them upside down, repeating them, and cutting them off both within the map and at the edges of the page. This suggests that not every story is meant to be known, able to be conveyed, or easily recalled by the people who lived them. The story-lines also traverse in both directions, suggesting that not only did people travel right to left during their displacement, but so too do their stories link them (left to right) back in space-time to their homes in Artsakh.

The story-lines coalesce, converge, and become inscrutable at the Lachin Corridor just south of Berdzor, the one road where 120,000 people were forced to flee in 2023 during the forced exodus. A road of only a few miles took people several days to drive through due to congestion, a space-time which is reflected here by stretching people's stories across this space. In line with van Houtum's[1] arguments, this map does not use lines and arrows to depict people's movements, to avoid suggesting an "invading" presence. Drawings of plants also mingle with the story-lines, many of which describe relationships with plants and soils which were shared with Hasmik during her Master's research interviews in 2024. In some instances, the woven story-lines converge into braided sorrel, suggesting that stories are enlivened in the present with human-plant relationships.

This map avoids binaries of past, present, and future, reflecting stories and processes happening at different moments in time. This is aligned with the liminal manner in which people used past and present tense during interviews—Artsakh was, Artsakh is. The plastic soda bottles filled with seeds represent the stories people shared during interviews about the seeds, plants, soil, and animals that they brought with them during displacement. In the top right, an image of the mountains in Tavush overlaps in the middle with mountains in Martuni, suggesting a simultaneity of being, and an impossibility of separating people's current surroundings from the memories that also live in their bodies.

There are multiple points where it is possible to begin reading the title with slight shifts in meaning. The circularity reflects people's ongoing relationship to home. The map's basemap was made using QGIS, a Copernicus DEM plug-in and a rugged terrain analysis, and with data from Geojson. The opacity has been reduced for readability, and an elevation scale is not included because the coloration and texture convey the topographic relationship between areas. A compass and other markers of spatial orientation are not provided to emphasize the circuitous nature of the stories and places on the map.

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1 van Houtum, H. (ed.). (2024). Free the Map: From Atlas to Hermes — A new cartography of borders and migration. Nai010 Publishers: Rotterdam

Plants & soils across geographies of displacement, grief, & memory between Artsakh and Armenia & people's relationships with place

Bungalow Courts of Berkeley

Elizabeth Fiske

Bungalow Courts of Berkeley attempts to map all of the bungalow court houses in Berkeley. Bungalow courts are a style of multi-family housing that consists of a collection of detached cottages that are positioned in a U-shape around a central landscaped space that faces the street. Their small scale and open configuration creates a living space that feels inherently communal. Bungalow courts provide high quality, affordable housing for their residents while remaining seamlessly integrated into their surrounding neighborhood.

In 2023, the architectural tour company Esoteric created a crowd-sourced google map documenting bungalow courts in the city of Los Angeles because of growing concerns that courts were being demolished or neglected by property owners. There is no evidence that this is happening in Berkeley, and a lack of centralized information about this housing type. This map is the first step in understanding the Berkeley landscape in order to build understanding and appreciation about bungalow courts.

I started my search for bungalow courts by reading several articles by Tom Dalzell in Berkeleyside and his personal blog Quirky Berkeley. Dalzell has kept a running list of all the courts he or his acquaintances encounter while walking around Berkeley. I spent some time methodically searching through Sanborn maps and haphazardly scanning Google Maps searching for the trademark U-shaped building footprint of the bungalow court. When I had compiled a sizable list of potential sites, I set out on a walk to ground-truth by observations. I decided to showcase both bungalow courts and adjacent housing styles such as apartment courts, which share the general form of a bungalow court but feature units that are attached to each other. The data about each location of interest was gathered through various local government open data portals, Dalzell's articles, and from real estate websites Zillow and Redfin.

Inspired by the Sanborns I used for research and panoramic mapping that was popular for promoting North American cities in the late nineteenth and early twentieth century, I wanted to give my web map a historical design. I also felt that the well-worn look would bring a sense of materiality to the digital space. The sketchy point symbols showing building locations act as both a continuation of the historic look and a representation of my exploratory and imperfect process of gathering location data. The overall effect is meant to emulate scratching out points of interest on an old city map. As you zoom in, the map shows parcel boundaries and highlights building footprints of the bungalow courts. This way the viewer can see for themselves that these property provided in the pop-up. This web map is meant to inspire viewers to look up from the computer and into the city, looking more closely at the beautiful details hiding in the landscape.

What is a Bungalow Court?

Bungalow courts are a style of multi-family housing that consists of a collection of detached cottages that are positioned in a U-shape around a central landscaped space that faces the street. Their small scale and open configuration creates a living space that feels inherently communal and connected to the surrounding neighborhood. Bungalow courts were popularized in the early 1920s, and are a prominent, but under-appreciated feature of the Berkeley landscape.

This map is not an exhaustive list of bungalow courts in Berkeley. More of them are tucked into the city, so get out onto the streets of Berkeley and keep your eyes peeled!

Image source: "Missing Middle Housing Close Up: Bungalow

Napa Divisions

Alondra Garcia Sifuentes

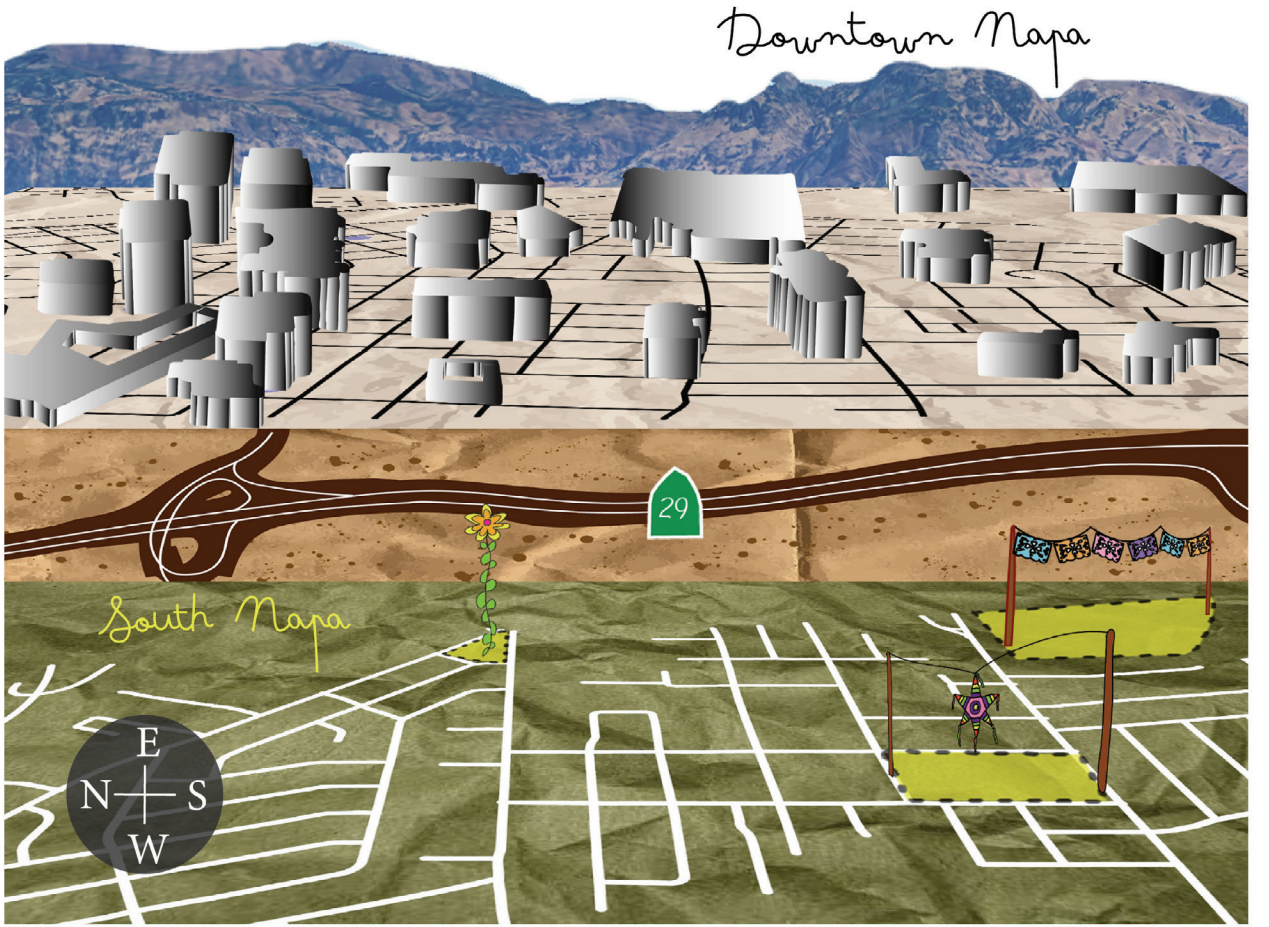
In this map, I attempted to visually represent the two distinct realities of my hometown: Napa, California. When asked about my experience growing up in the world renowned wine country, my response highly differs from the marketed image of the area. My memories of Napa do not include luxury high rise hotels or wine tasting rooms, they include engaging with my Mexican community and culture in South Napa. The divisions of class and race are persistent throughout Napa and are intensified by the growing amount of hotel redevelopment projects downtown for tourists and the lack of visibility towards the Latine population in South Napa. Because of this, I have never related to any of the maps that depict my home as all of them solely highlight the wine industry.

My map is modeled after traditional destination postcards of the Napa Valley but instead of pictures of vineyards it represents a collage of my community's shared feelings of frustration, invisibility, and joy. I combined three different basemaps areas to create a 3D elevated perspective of Napa facing east instead of north with the downtown area as the highest and Highway 29 connecting the lowest map, the South Napa area. Each basemap has a different aesthetic that represents the overall mood of each area.

The downtown basemap is bleak in its color palette to represent the static and out of touch nature of the area. I distorted the height of all 22 hotels and inns to intensify the looming presence of the wine and hospitality industry. The basemap for Highway 29 mirrors the rustic aesthetic of the Napa Valley countryside. Since most of the vineyards and larger wineries are located further away from the central area of the City of Napa, I found it fitting to represent the highway in this way.

Lastly, I made the basemap of South Napa the most colorful, by representing the lush vegetation of the area and my own fond memories with my community. I highlighted the three main areas that serve as informal community gathering areas in south Napa. They are the places where I've felt the most comfortable and represented. I decided to use icons of Mexican culture like a piñata, papel picado, and flowers.

I hope my map makes people feel comfortable and uncomfortable.



Legend

3

Informal Community Gathering Areas for Latine Population

22

Hotels in Downtown Napa

Alondra Garcia Sifuentes 2025

Visit Napa !

Los Angeles 1939

Lauren Gonzalez

The purpose is to utilize perspective and historical imagery to understand how highways, such as Hwy 101, have disrupted neighborhoods and the urban fabric of Los Angeles. By emphasizing the scale, verticality, and spatial orientation at a more personal scale, this highlights the impacts of 15 feet high Hwy 101 infrastructure that destroyed communities, segregated neighborhoods, and racially displaced historically redlined populations. Specific to this project are the use of inset maps at various spatial orientations used to uplift impacts of highway infrastructure including top-down perspectives of the redlined built environment existing before highway construction as well as human-level perspectives of non-pedestrian friendly overpasses that have further contributed to the disruption and segregation of communities.

In order to create this map, historical imagery from 1860-1960 was pulled from the California Historical Society Collection which focused on imagery at the crossroads of N Vermont Avenue and Melrose Avenue during 1939. The temporal period of 1939 allowed me to capture a critical built environment moment as redlining was introduced to Los Angeles, and as highway construction started in the mid 1940s. The highway was hand-drawn in Adobe Illustrator in a 3D aspect, utilizing both crosshatching and line shading, to capture the angle, scale, and height of Highway 101. Different design choices were made including bright orange being used to direct the reader's attention to areas of significant destruction associated with automobile infrastructure. Moreover, coloring of streets intersecting with Highway 101, labeling, and creating of symbols to identify which streets were blocked by highways were utilized to demonstrate the changes in connectivity and accessibility of neighborhoods after Highway 101 was built.

Multiple inset maps were created to further portray this map's message of highway infrastructure segregation of communities. To highlight what kind of infrastructure was destroyed after highway construction, Sanborn Fire Insurance Maps of Los Angeles from 1919 were downloaded, georeferenced in ArcGIS Pro with control points, and overlaid with redlining and highway vector data taken from the Los Angeles County GIS Portal as well as University of Richmond's Mapping Inequality Project. As a result, these inset maps emphasized that a majority of infrastructure destroyed after Highway 101 construction were single-family homes in historically C and D-graded redlined neighborhoods. These neighborhoods were labeled by the Home Owners' Loan Corporation, an agency whose redlining maps created the criteria for exclusionary lending practices carreid out by the Federal Housing Administration[1]. In this way, Highway 101 construction led to the displacement of many homeowners in the Los Angeles region. In another inset map, Illustrator was used to also hand-draw the human-level perspective of two overpasses from Highway 101 back to back on Heliotrope Drive, demonstrating dark, constrained pedestrian environments.

Taken together, these perspectives and historical layers reveal highway construction not as a neutral transportation intervention, but as a spatial mechanism that reshaped Los Angeles through segregation, disconnection, and displacement. These are the impacts that continue to disrupt neighborhood connectivity and lived experiences to this day.

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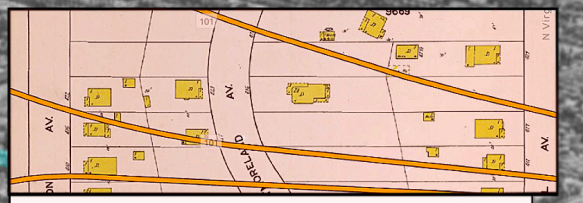
1 Nelson, Robert K., LaDale Winling, et al. "Mapping Inequality: Redlining in New Deal America." American Panorama: An Atlas of United States History, edited by Robert K. Nelson, 2023, dsl.richmond.edu/panorama/redlining

Los Angeles 1939: Mapping Disruption from Hwy 101

Hwy 101 crosses over where hundreds of historically redlined homes used to stand, displacing many, and splitting neighborhoods by large grade separations.

By: Lauren Gonzalez
Produced: 2025



Hwy 101 destroyed single-family homes in redlined HOLC-D graded regions (represented in red overlay).

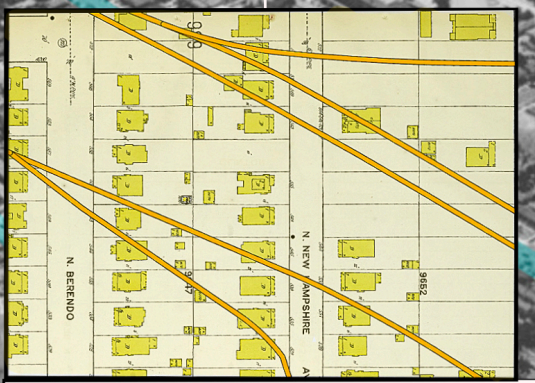
END

Heliotrope Dr.

N. Vermont Ave.

Hoover St.

Two 15 ft tall overpasses from Hwy 101 on Heliotrope Dr. Overpasses create dark corridors, narrow crosswalks, and non-pedestrian friendly infrastructure,



Hwy 101 destroyed single-family homes in redlined HOLC-C graded regions (represented in yellow overlay).

Legend

- Hwy 101
- Demolished infrastructure for highway
- Streets crossing highway
- END Highway-blocked street

Data sources: California Historical Society, University of Richmond Mapping Inequality, Sanborn Insurance Maps of Los Angeles, LA County GIS

0 0.04 0.07 0.15 Miles

N E S W

Green Routes to Oakland Public Schools

Laila Hamidi

I first became interested in school commutes in Oakland when I began commuting to the city myself. While the AC Transit 6 bus I rode carried lots of downtown commuters, it was also an essential resource for families with young children as well as young adults, many of whom would disembark at 45th & Telegraph Street to walk to Oakland International High School. This commute model differed greatly from the one in my hometown and inspired me to explore how public transportation in Oakland serves K-12 students.

Many Oakland K-12 students rely on public transit systems designed around commuters to get to school, but most schools are located in residential areas. Access to public schools has been further impacted by AC Transit's Realign Plan, which increased service frequencies at the expense of coverage. This map attempts to address the gap in transit information and visual aids geared toward student commuters by displaying AC Transit, BART, and bike lane connections to all TK-12 public schools in Oakland.

I began my map with a point layer for public schools, which I filtered to include only those that serve grades TK-12. Representing the schools on the map proved a challenge since many were close together and would overlap. While scrolling the OUSD webpage, I had the idea to use the City of Oakland oak tree to symbolize schools. This choice adds local identity to the map and highlights areas with multiple schools even at a quick glance. Instead of crowding the central map and school labels, I numbered each school symbol and created an index on the right side listing schools with corresponding bus routes.

I mapped bus coverage and connectivity using the AC Transit General Transit Feed Specification, which I converted into a Public Transit Data Model in ArcGIS Pro. Using the Calculate Transit Service Frequency Tool, I added fields to each route for bus frequency between 8 and 9am on Monday morning, during school drop-off hours. Finally, I exported all the routes with a stop within a quarter-mile of a K-12 frequency by stroke thickness but I quickly found that the layout became too messy, so I instead used colors modeled off the AC Transit Service Area Map.

I designed my layout to be a convenient reference while providing detailed information. The central map provides an overview of green transportation connections across OUSD and the index allows students and parents to identify bus route connections and service frequencies for specific schools. On the left-hand side, an inset map shows connections to the 12 schools in the Downtown, Uptown, and Lakeside neighborhoods, which have the highest density of transportation connections. The legend is designed with minimal text to be accessible to young children and non-English speakers.

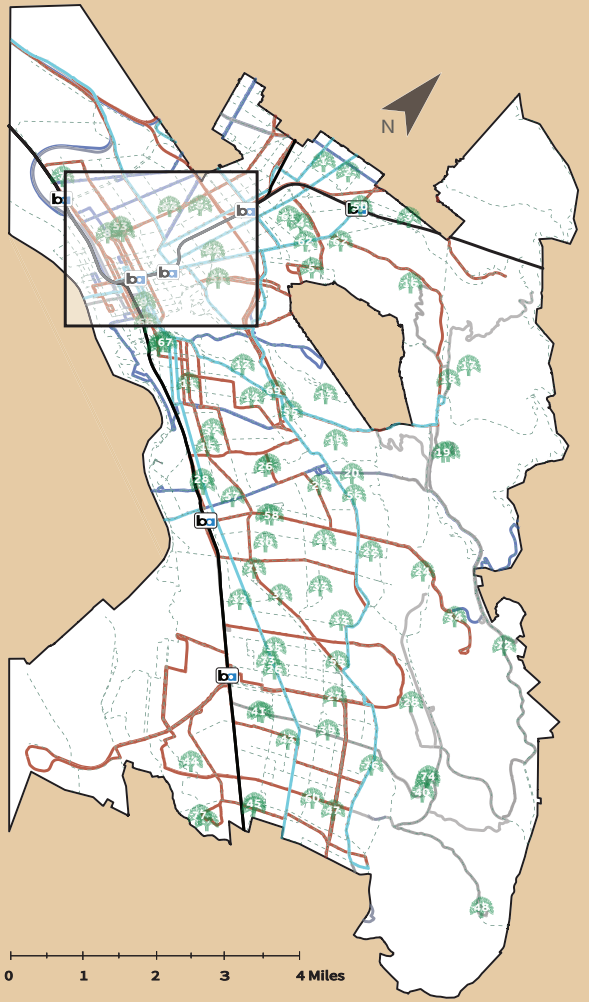
Through this map, I hope to spark conversation about how transportation maps can be redesigned with children and non-traditional commuters in mind.

Laila Hamidi
Geography C183
Fall 2025

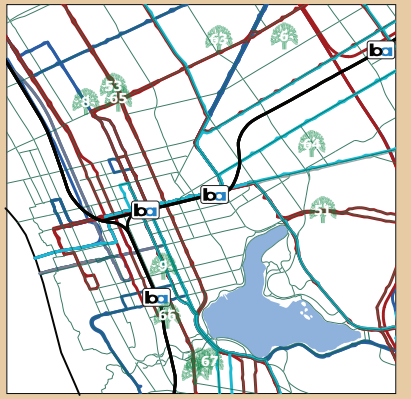
Green Routes to Oakland Public Schools

AC Transit Bus Routes

1 Sankofa 6, 18, 22, 688, 800
2 Peralta 6, 22, 688, 800
3 Chabot - No routes
4 Emerson 12
5 Piedmont Avenue 12
6 Hoover 18, 72, 88, 802, 72L, 72M
7 Prescott 14, 22, 800
8 Martin Luther King Jr 14, 22, 62, 88, 800
9 Lincoln ..... 1T,14, 18, 19, 22, 30, 40, 51A, 62, 96, 633, 840, 851, O, W
10 La Escuelita 1T, 14, 18, 22, 40, 62, 633, 840
11 Franklin 1T, 14, 40, 62, 840
12 Cleveland ..... 18, 57, 633, 653, 657, 658, 680, 688, 805, NL, NX
13 Crocker Highlands 606
14 Bella Vista 18, 62, 633
15 Garfield 1T, 40, 62, 840
16 Hillcrest ..... 605, 660, 662, 682, 688, 696, V
17 Thornhill - No routes
18 Montclair ..... 605, 660, 662, 677, 682, 688, 696, V
19 Joaquin Miller 642, 646, 649, 650, 653, 655, 660, 662, 677, 682, 696
20 Glenview ..... 18, 688, V
21 Sequoia 31, 57, 639, 653, 657, 658, 680, 805
22 Allendale 14, 54, 654, 655
23 Laurel ..... 14, 54, 57, 654, 655, 657, 680, 805, NX
24 Redwood Heights 54, 654, 655, 682, 683, 696
25 Manzanita Community 14, 62
26 Manzanita SEED 14, 62
27 Fruitvale 14, 30, 31, 57, 96, 639, 657, 658, 680, 805
28 International Community 30, 31, 62, 1T
29 Think College Now 30, 31, 62, 1T
30 Global Family 40, 840
31 Horace Mann 40, 840
32 Bridges Academy 1T
33 Melrose Leadership Academy (TK-8) ..... 57, 638, 657, 680, 805, NX, NX3
34 Carl B Munck 54, 638, 648, 654, 655, 696
35 Greenleaf 1T, 45, 617, 650
36 Lockwood STEAM Academy 1T
37 Markham 40, 73, 638, 657, 805
38 Burckhalter 45, 617, 650
39 East Oakland PRIDE 40, 646, 46L
40 Oakland Academy of Knowledge 46L, 646
41 ACORN Woodland 46L, 90, 646
42 EnCompass Academy 46L, 90, 646
43 Highland Community 1T, 90
44 Brookfield 45, 98
45 Fred T. Korematsu Discovery Academy 45
46 Esperanza 45
47 REACH Academy 40, 57, 90, 98, NX3
48 Grass Valley 649, 46L
49 Madison Park Academy Primary 45
50 Claremont ..... 36, 51A, 51B, 605, 688, 851, E
51 West Oakland 14, 22, 88
52 Westlake ..... 12, 88, 633, 651, 805, 851, 51A, NL
53 Roosevelt 14, 40, 840
54 Montera 642, 646, 649, 650, 653, 655, 660, 662, 677, 682, 696
55 Edna M Brewer ..... 18, 57, 62, 96, 633, 653, 657, 658, 680, 688, 805, NL, NX, V
56 Bret Harte ..... 57, 657, 658, 680, 805, NL, NX
57 Urban Promise Academy 30, 31, 40, 639, 840
58 United for Success 40, 54, 654, 655, 840
59 Frick United Academy of Language ..... 40, 57, 638, 657, 680, 805, 840, NL, NX3
60 Elmhurst United 98
61 Oakland International 6, 12, 800
62 Oakland Technical 12, 651, 657, 660, 662, 682, 696, 851, 51A
63 McClymonds 72, 88, 802, 72L, 72M
64 Street Academy 6, 51A, 651, 800, 851,
65 Ralph J Bunche 14, 22, 88
66 Gateway to College 18, 22, 40, 62, 96, 633, 840, 1T
67 Dewey Academy 14, 18, 22, 40, 62, 633, 840, 1T
68 MetWest 62, 1T
69 Oakland High ..... 18, 57, 633, 653, 657, 658, 680, 688, 805, NL, NX, V
70 LIFE Academy 40, 54, 654, 655, 840
71 Fremont 14, 40, 648, 840
72 Skyline 617, 638, 639, 646, 648, 649, 650, 652, 654, 658, 662
73 Coliseum College Prep Academy 1T
74 Sojourner Truth 46L, 646
75 Rudsdale 46L, 647
76 Castlemont 57, 46L, 98, 646, 680
77 Madison Park Academy 45



Downtown Oakland & Lakeside



Green School Commute Modes in Oakland

Mode — BART

Symbol

8am Weekday Bus Service Frequency

- Every 14 minutes or less
- Every 15-29 minutes
- Every 30 minutes
- Every 31-60 minutes

Data Sources: Oakland Unified School District, AC Transit General Transit Feed Specification, Oakland Department of Transportation, Stanford EarthWorks

London Tube Temperatures

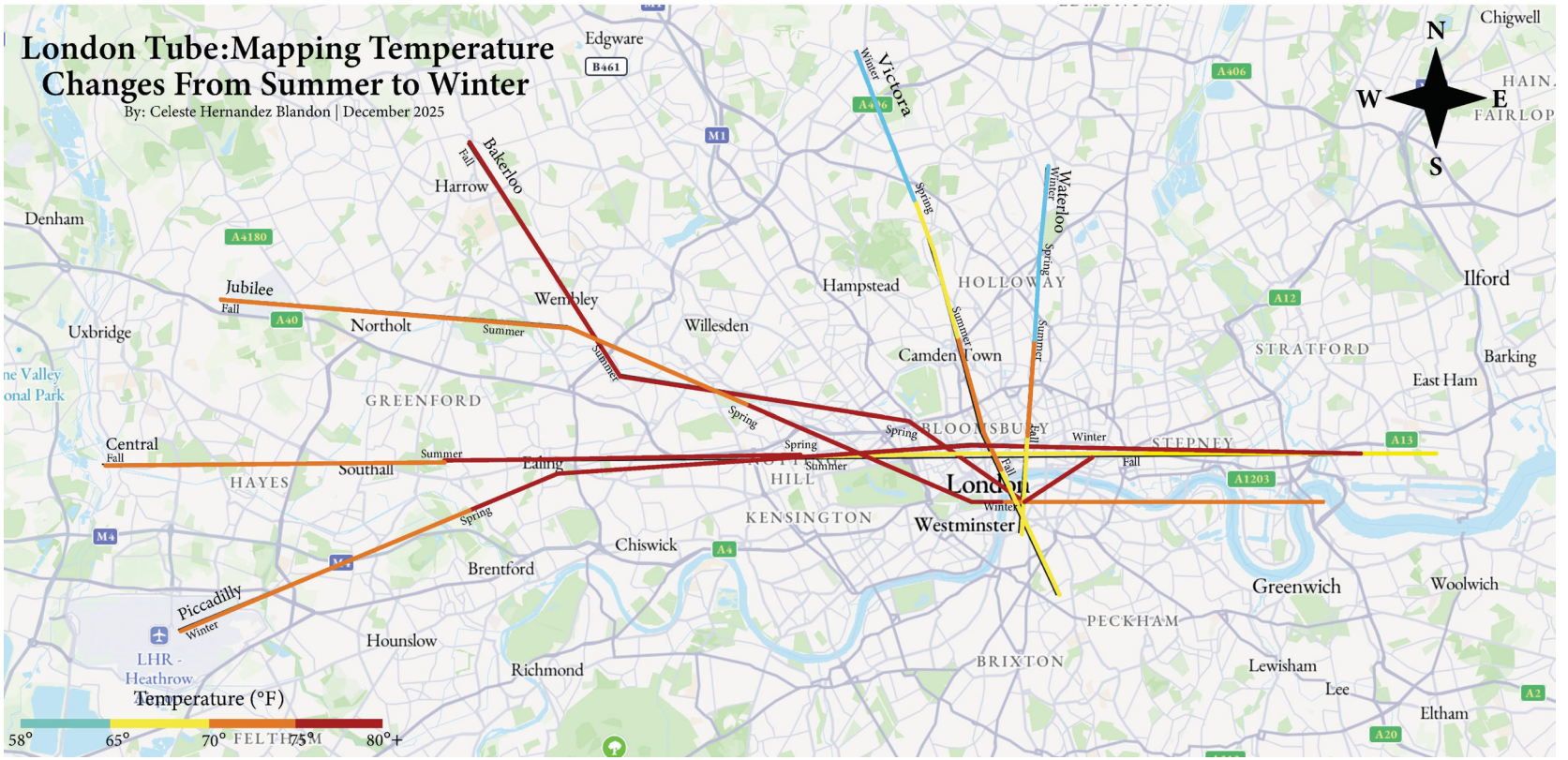
Celeste Hernandez Blandon

This map takes London Underground lines maximum predicted temperature for 2025 to demonstrate how temperature shifts across London from summer to winter. The goal of this project is to make the seasonal patterns in temperature more understandable to the general public.

Rather than using a regular geographic map or charts, I wanted to connect the climate data to something people already know and use. The Tube map felt like the right choice because it is how many people already visualize the London Underground. Instead of showing either exact distances or locations, the map is drawn schematically, like the official Underground map. Because the lines have been reduced to this schematic style, the focus can remain on patterns and overall temperature. The lines act as visual pathways through the city, guiding viewers through changes in temperature. The map remains clear and readable by only using the main lines and does not overwhelm the viewer with too much detail. Temperature is also represented through different colors down each line. Warmer colors such as red and orange reflect higher temperatures, while cooler colors such as blue and yellow reflect lower temperatures. Showing the data through color instead of heavy text or numbers lets the viewer understand the data quicker and at a glance.

On the bottom left corner the map contains a legend with degrees Fahrenheit so that the information has real context, but it does not dominate the map. The changes of color exhibit how temperature changes over time, which helps in communicating the fact that climate itself is always changing. The background is intentionally very simple on the map. This helps make the Tube lines and temperature colors stand out.

Small design choices like line thickness and label placement were made to help keep the map clean and readable. A title, a legend, and a compass were added to help with the orientation of the viewer. Everything was designed to support the data rather than compete with it. But this map does more than present information; it asks the viewer to consider a point at which climate intersects with their everyday life. Many people experience London through commutes, travel, and movement across the Underground. Adding an easily understandable temperature map to this system helps the viewer relate the weather and commute with their everyday life. The goal of this project was to take a well known transit system and bring environmental data a little closer to the viewer. Bringing the London Underground and adding seasonal temperature shifts tells a story about many people’s lived experience rather than physical space alone.


London Tube:Mapping Temperature Changes From Summer to Winter
By: Celeste Hernandez Blandon | December 2025
N
W
E
S
Edgware
B461
M1
Chigwell
A406
Victoria
Winter
Spring
Bakerloo
Fall
Harrow
Waterloo
Winter
Spring
Summer
Denham
A4180
Jubilee
Fall
A40
Northolt
Summer
Wembley
Willesden
Hampstead
HOLLOWAY
Camden Town
Ilford
A12
STRATFORD
Barking
East Ham
Uxbridge
GREENFORD
Central
Fall
Southall
Summer
Ealing
Spring
BLOOMSBURY
Winter
STEPNEY
A13
HAYES
HILL
London
Westminster
A1203
KENSINGTON
M4
Chiswick
A4
Brentford
Piccadilly
Winter
Hounslow
LHR - Heathrow
Richmond
Greenwich
Woolwich
PECKHAM
BRIXTON
Lewisham
Lee
Eltham
A2
A20
Temperature (°F)
58°
65°
70°
75°
80°+

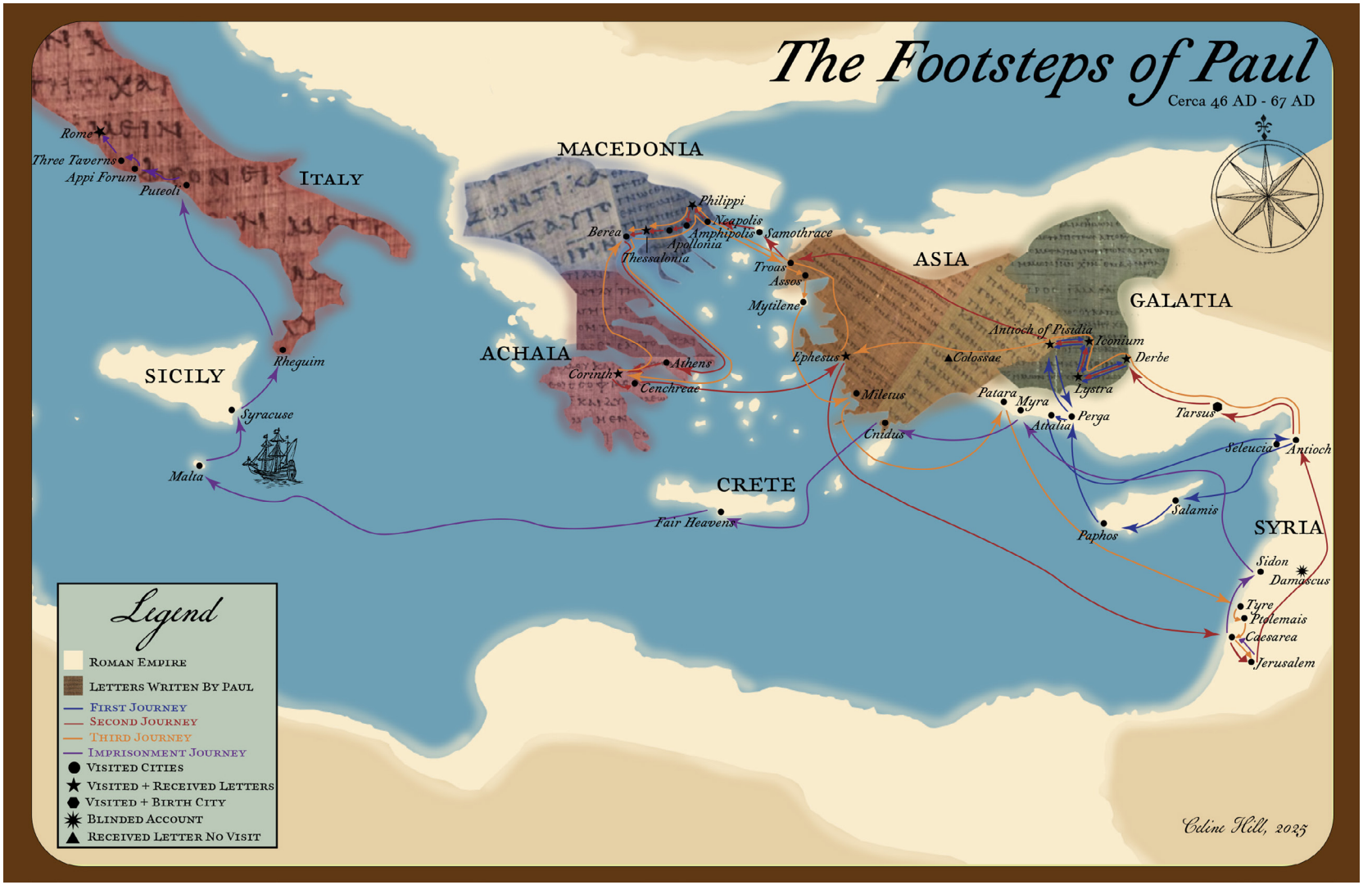
Footsteps of Paul

Celine Hill

This map depicts the journey Apostle Paul took after he encountered God. These routes have been recorded in the Acts of the Apostles and the Pauline epistles. This aims to contextualize Paul's travels geographically and to encourage historical curiosity about early Christianity.

Mapping ancient times can be difficult, as there is no exact data recorded on locations, as well as people, and land constantly changing. The borders of the Roman Empire and Provinces are blurred to show ambiguity. I wanted to implement Paul's letters into the map, so I decided to make the letters into the shape of the provinces that had many cities Paul visited. Each color represents a different province and letter. For example, in Macedonia, Paul wrote to two churches there, Philippi and Thessalonica, so that province in the map is half split in half with two shades of blue, one part being the letter, Thessalonians and the other Philippians.

The apostle Paul came from a Jewish background with Roman citizenship and was a Pharisee. He originally prosecuted Christians, but on the road to Damascus, he encountered Jesus through a bright light and became blind. Three days later, a disciple laid hands on his eyes, and scales fell off, regaining his vision. After this, he got baptized and became filled with the Holy Spirit. He gave his life to Jesus and started mission trips, sharing the gospel and planting churches throughout the Roman Empire. The fourth journey, he was imprisoned by the Romans because a mob of Jews didn't agree with his beliefs. In Rome, he was imprisoned for two years and wrote several of the letters that are shown on the map and are books in the Bible. These letters were written for guidance to the churches he planted and other Christians needing counsel.


The Footsteps of Paul
Cerca 46 AD - 67 AD
Rome
Three Taverns
Appi Forum
Puteoli
ITALY
MACEDONIA
Philippi
Neapolis
Berea
Amphipolis
Samothrace
Apollonia
Thessalonia
Troas
Assos
Mytilene
ASIA
GALATIA
Antioch of Pisidia
Iconium
Derbe
Lystra
Ephesus
Colossae
ACHAIA
Athens
Corinth
Cenchreae
Rheguim
SICILY
Syracuse
Malta
Miletus
Patara
Myra
Perga
Attalia
Tarsus
Seleucia
Antioch
Cnidus
CRETE
Fair Heavens
Salamis
Paphos
SYRIA
Sidon
Damascus
Tyre
Ptolemais
Caesarea
Jerusalem
Legend
Roman Empire
Letters Writen By Paul
First Journey
Second Journey
Third Journey
Imprisonment Journey
Visited Cities
Visited + Received Letters
Visited + Birth City
Blinded Account
Received Letter No Visit
Céline Hill, 2025

Angel Island Migration

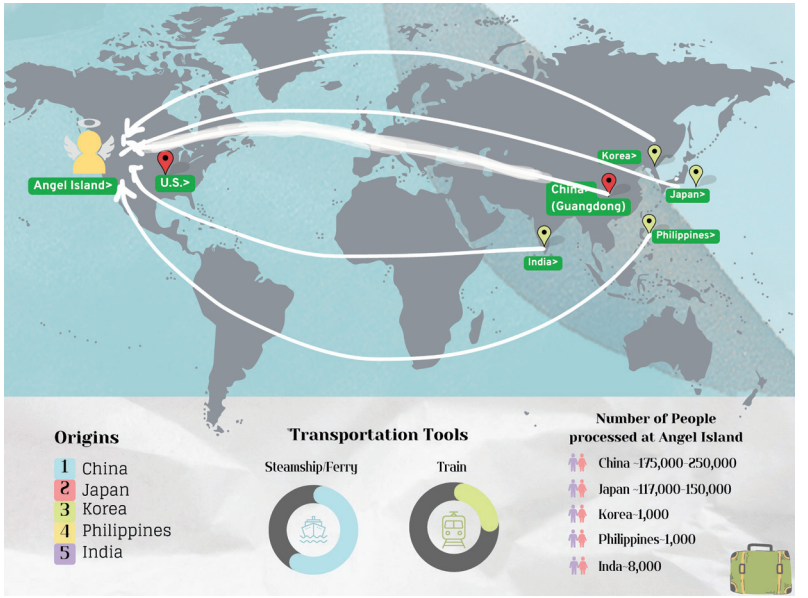
Canita Huang

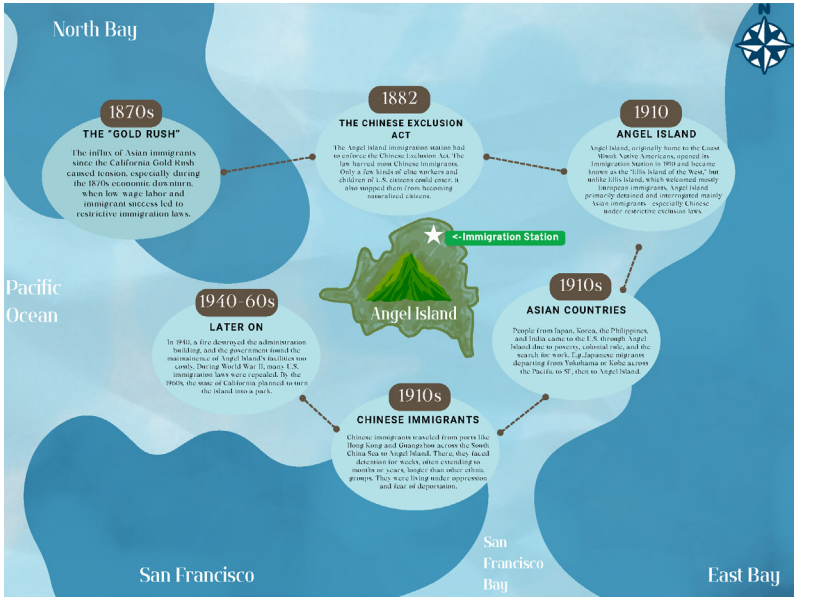
This map explores Asian migration, especially Chinese migration to Angel Island during the U.S. exclusion era. It includes the lived experience of detainees under racially discriminatory immigration policies. Rather than treating migration as a neutral movement of people, the map frames Angel Island as a physical and geographical space that embodied or symbolized institutionalized racism. As both a historical landmark and a former detention site, Angel Island invites viewers to remember, feel, and critically reflect on how past immigration policies continue to shape contemporary debates about race, belonging, and national identity.

By combining visual geographic flows with storytelling, the map illustrates migration as movement across space and an emotional and political experience. Beginning in the 1870s, large numbers of Asians migrated to the United States seeking economic opportunities created by the Gold Rush. These groups included Chinese, Japanese, Korean, Filipino, and Indian migrants, with Chinese immigrants forming the largest population. Angel Island, established as an immigration station in January 1910, became a primary site of entry and detention. It particularly targeted Chinese migrants according to the Chinese Exclusion Laws. Historically, approximately 175,000 Chinese immigrants were processed at Angel Island, compared to 117,000 Japanese, about 1,000 Koreans, 1,000 Filipinos, and 8,000 Indians. Most Chinese migrants originated from Guangdong province—such as Kaiping, Enping, and Taishan—and departed from ports such as Guangzhou and Hong Kong. Their travel routes were by steamship across the South China Sea and the Pacific Ocean to San Francisco, then by ferry to Angel Island.

The first page of the map presents a large-scale world view highlighting departure points in Asia and the U.S. entry point at Angel Island. It is marked with a distinct angel icon to emphasize its significance. Migration flows are drawn from Asia to the United States, with the line from China rendered thickest to reflect both the scale of migration and the severity of exclusion that Chinese migrants faced. There is a bottom information bar that includes transportation icons (steamship and train) and key demographic statistics. The visual language utilized transparent blue tones to evoke the surrounding ocean and a crumpled paper texture to suggest distance and historical memory.

The second page narrows the scale and focus. It explains the flow of the motivations for migration, the establishment of the Chinese Exclusion Act, Angel Island's role within exclusionary systems, and the introduction of the Chinese people's experience. I included my hand-drawn Angel Island, which sits at the center, surrounded by simple continental shapes in a minimalist style. Inspired by montage techniques, the third page incorporates archival photos, stickers, calligraphy with translations, and short texts to convey individual stories and emotional experiences(e.g., fear, frustration, and hope). A contemporary image of Angel Island is included to encourage comparison betvween past and present. I chose a static map to maintain narrative control over sequencing and interpretation, prioritizing storytelling over interactivity. I used Canva as the design platform because it allowed for efficient and creative layering and an aesthetically engaging presentation that supports the map's emotional and historical aims.


Angel Island>
U.S.>
Korea>
China (Guangdong)
Japan>
Philippines>
India>
Origins
1 China
2 Japan
3 Korea
4 Philippines
5 India
Transportation Tools
Steamship/Ferry
Train
Number of People processed at Angel Island
China -175,000-250,000
Japan -117,000-150,000
Korea-1,000
Philippines-1,000
Inda-8,000


North Bay
1870s
THE "GOLD RUSH"
The influx of Asian immigrants since the California Gold Rush caused tension, especially during the 1870s economic downturn, when low wage labor and immigrant success led to restrictive immigration laws.
1882
THE CHINESE EXCLUSION ACT
The Angel Island immigration station had to enforce the Chinese Exclusion Act. The law barred most Chinese immigrants. Only a few kinds of elite workers and children of U.S. citizens could enter; it also stopped them from becoming naturalized citizens.
1910
ANGEL ISLAND
Angel Island, originally home to the Coast Miwok Native Americans, opened its Immigration Station in 1910 and became known as the "Ellis Island of the West," but unlike Ellis Island, which welcomed mostly European immigrants, Angel Island primarily detained and interrogated mainly Asian immigrants - especially Chinese under restrictive exclusion laws.
<-Immigration Station
Angel Island
Pacific Ocean
1940-60s
LATER ON
In 1940, a fire destroyed the administration building, and the government found the maintenance of Angel Island's facilities too costly. During World War II, many U.S. immigration laws were repealed. By the 1960s, the state of California planned to turn the island into a park.
1910s
ASIAN COUNTRIES
People from Japan, Korea, the Philippines, and India came to the U.S. through Angel Island due to poverty, colonial rule, and the search for work. E.g. Japanese migrants departing from Yokohama or Kobe across the Pacific to SF, then to Angel Island.
1910s
CHINESE IMMIGRANTS
Chinese immigrants traveled from ports like Hong Kong and Guangzhou across the South China Sea to Angel Island. There, they faced detention for weeks, often extending to months or years, longer than other ethnic groups. They were living under oppression and fear of deportation.
San Francisco
San Francisco Bay
East Bay


Their Living Environment
-Detention Barracks
There were about 200 poems carved by Chinese immigrant anonymously in the walls of the detention barracks-evidence of their oppressed experiences
Individual Narratives
Lee Puey You, an educated woman, she migrated in 1939 under an arranged marriage. She was denied entry and detained for twenty months —far longer than the typical three weeks faced by others. Her pain involved multi generational interrogations where she was forced to memorize details about her family, home village, and more.
She described the experience as the opposite of "going to heaven," feeling like a criminal who cried "a bowlful of tears" in frustration. Her oral history is a powerful testament to the fear, hope, and resilience required to endure such prolonged detention and systematic racism.
Today's Angel Island- A State Park >

Ventura Oil Sites

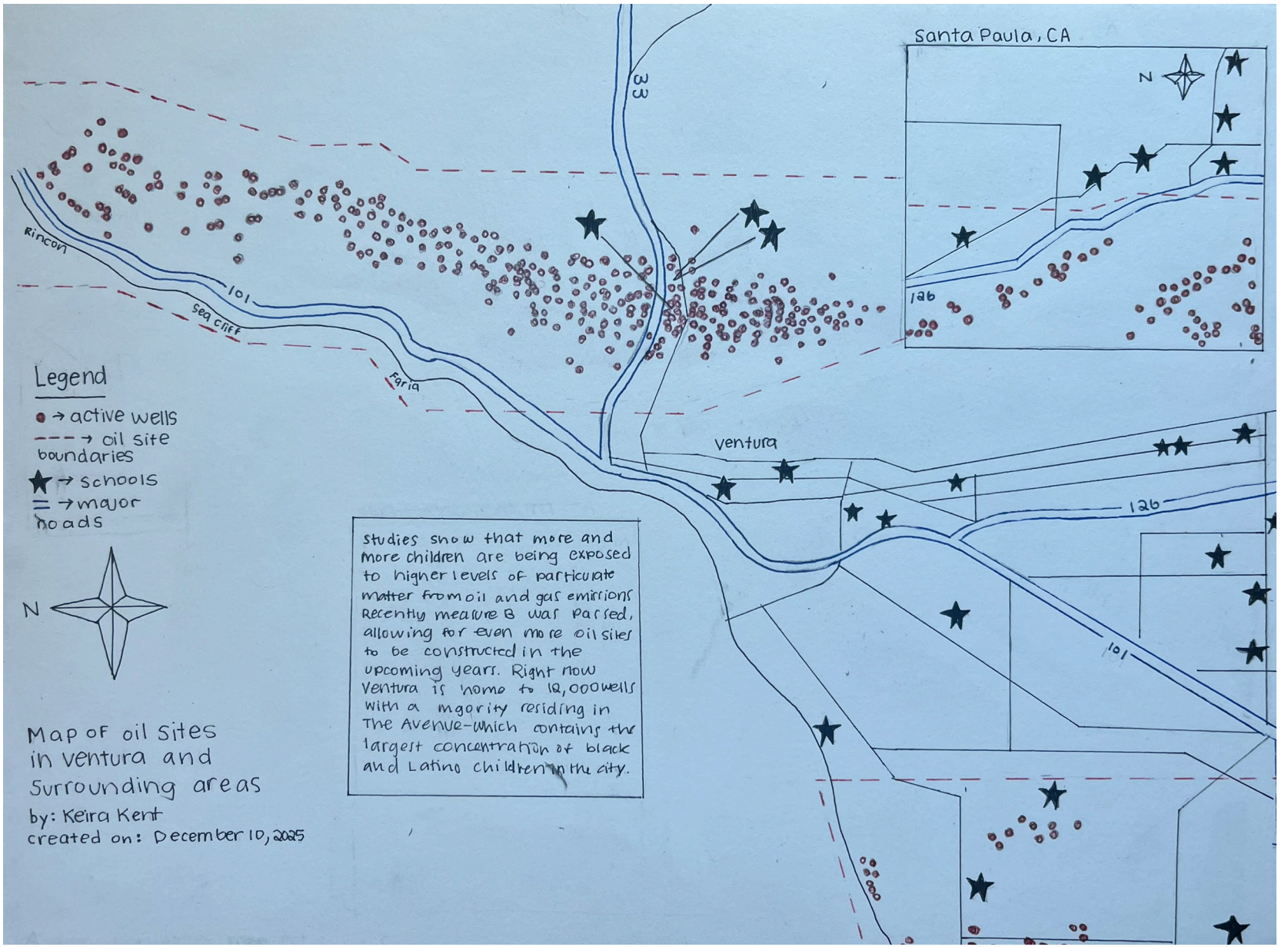
Keira Kent

This is a map of my hometown: Ventura, California. It's a town demarcated by its stunning beaches to the west, and the sprawling hills to the east. But ask anyone who has driven through Ventura and they can tell you another one of its defining features are the oil wells that surround it. I always knew I was getting close to home once I saw the hundreds of pumps on the sides of the freeway. To many people these oil wells represent industry, tradition, and commerce. Ventura has always been an oil town and it will most likely continue to stay that way. However, there are a select few who acknowledge and fight back against the negative impacts oil has on the community and the environments health.

That is what I wanted to show with this map. I wanted to bring attention to the sheer concentration of oil wells in Ventura (around 12,000) and their proximity to community spaces, especially schools. To do this I used the Department of Conservation's oil and gas interactive web map. Here I was able to filter and find just the active oil wells, place them upon my map and then show in tandem the schools in the area- which I had found through Google Earth.

As for why I made the map in the form it is, I wanted to make it as simple as possible.I intended for the sheer amount of red dots to stand out against the relatively minimalistic background. I thought it was really important that the viewer would look at the dots in contrast with the schools and neighborhoods around the area and get a sense of what this community is subjected to.
I did feel like it was relevant to create a small inset map and textual context to the map as well. The inset shows Santa Paula, a neighboring town to the south east. They too have many oil wells as well as a high Latino population. Which leads me to why I wanted to add the textual information. I wanted to highlight that the communities which have the highest amounts of oil wells in them are predominantly communities of color. So their children end up being disproportionately affected by the negative effects of the toxic particulate matter.

In the end I hope that people can look at this map in all its simplicity and rethink the ways we view the fossil fuel industry due to its effects on the people as well as the environment.


Santa Paula, CA
N
126
33
Rincon
101
Sea Cliff
Faria
Ventura
126
101
Legend
→ active wells
→ oil site boundaries
→ schools
→ major roads
N
studies show that more and more children are being exposed to higher levels of particulate matter from oil and gas emissions Recently measure B was passed, allowing for even more oil sites to be constructed in the upcoming years. Right now Ventura is home to 12,000 wells with a mgority residing in The Avenue-which contains the largest concentration of black and Latino children in the city.
Map of oil sites in ventura and surrounding areas
by: Keira Kent
created on: December 10, 2025

West Oakland Coal Sites

Lauren Kim

The map I created is a visual representation of how historic redlining practices have shaped present-day air pollution disparities in West Oakland. The predominantly Black and Latino low-income community is burdened with higher levels of air pollution than those outside the redlined zone[1]. I wanted to create a map that shows this stark contrast using color and texture to display the inequality. Red yarn as the redlined zone represents a physical boundary that traps pollution, acting as a wall, and embodying the metaphor by being raised on the map. These original lines from the Homeowner's Loan Corporation (HOLC) were not just cartographic—they are embedded in the current fabric of society and felt by marginalized communities, exemplifying key ideas in critical cartographic research which challenge the supposed neutrality of maps[2].

The pollution entrapped is shown as gray and black scraps of paper with a grainy, fuzzy texture, representing emitted smoke and pollution. It visually illustrates how structural inequality traps disadvantaged communities under environmental burdens. This is contrasted by the cleaner air outside the boundary, represented by blue, green, orange, and yellow hues found in thriving nature, to highlight the uneven distribution of environmental health. Despite pushback from the community, Oakland has recently decided to move forward with installing a coal plant in West Oakland[3]. The map shows point data as red scraps of paper, mirroring the red boundary of where the proposed coal plant will be located, as well as current sources of pollution at the Port of Oakland. Overall, this map visualizes structural racism as a physical, material barrier through a mixed-media collage.

I first began in Adobe Illustrator by tracing an outline of the West Oakland redlined zone from the original HOLC map created in 1937. I then overlaid two other maps, one from the Bay Area News Groups and another from CalEnviroScreen, to place the proposed coal plant and Port of Oakland point sources in West Oakland, respectively. I scaled it up, printed it, cut it out, and used it as a stencil on my poster board. Once I had an outline of the zone and points of pollution, I filled it with torn-up scraps of black and gray paper from vintage magazines, keeping the pollution source areas clear. I tried to create a visual balance by evenly distributing the various shades.

Then, I tore red pieces of paper to represent potential and current pollution sources in West Oakland. I looked through my vintage magazine collection for photos of nature that contained hues of green, blue, orange, and yellow. Initially, I wanted to keep the colors muted and pastel, so as not to overpower the "pollution" collage. I then realized that the visual weight would not be too intense if I included some jewel-toned papers to add dimension to the "nature" scene. After laying down all the magazine collage pieces, I glued red yarn as the redlining boundary itself, tracing the shape of the black-and-gray collage.

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1 Carrillo, S. 2021. "West Oakland air pollution disproportionately affects Black, Latino residents, report finds" ABC7 News. https://abc7news.com/post/west-oakland-air-pollution-disproportionately-affects-black-latino-lower-income-residents-report-finds/11058102/

2 Mesquita, A. 2018. "Counter Cartographies: Politics, Art, and the Insurrection of Maps". This Is Not an Atlas: A Global Collection of Counter-Cartographies, pp. 26-36. https://doi.org/10.1515/9783839445198-002

3 Karlamangla, S. 2025. "A Stand Against Coal Could Push Oakland Toward Bankruptcy". The New York Times. https://www.nytimes.com/2025/11/24/us/oakland-coal-port-budget-bankruptcy.html

Santa Barbara Energy Infrastructure

Isaac Klein

I made this map to analyze the current energy infrastructure situation in and around Platform Holly in Santa Barbara, California. The primary purpose is to visualize the current landscape of operational and non-operational energy systems. This includes power plants, transmission lines, pipelines, offshore oil platforms, and supporting transportation networks. My goal is to understand what infrastructure exists and where future transformation toward renewable energy might occur.

I created this map because I am working on a larger project exploring how California's oil infrastructure could be transformed into green energy systems. This region is particularly significant due to its concentration of decommissioned infrastructure and offshore oil platforms. This represents both the legacy of California's energy past and potential sites for renewable energy development. By mapping what currently exists, I am establishing a baseline for understanding transformation possibilities.

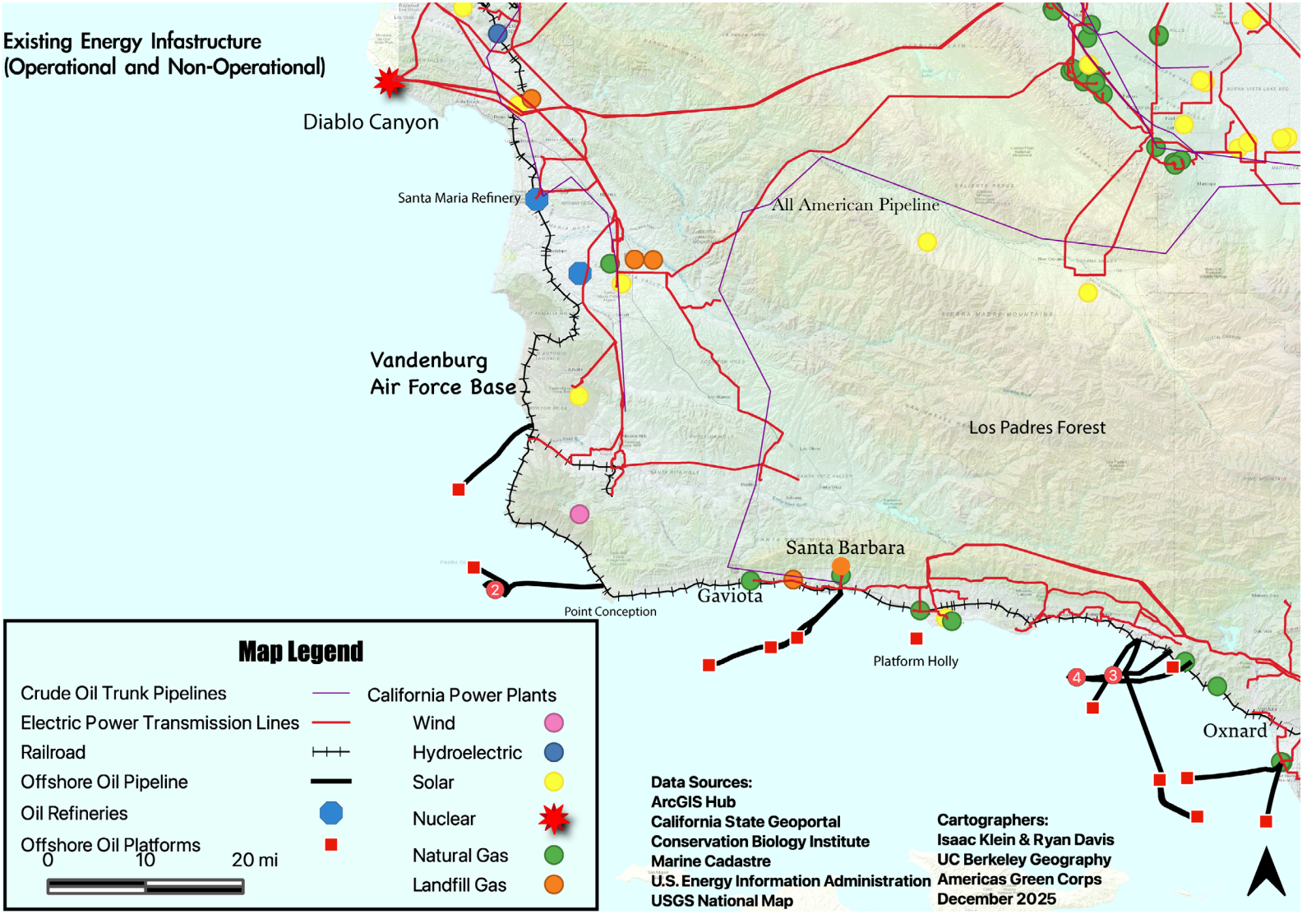
Several technical processes shaped the final map. For the offshore oil platforms, I implemented point clustering to prevent visual clutter when zoomed out while maintaining detail at closer scales. This was essential given the density of platforms near Santa Barbara and Ventura. I categorized power plants by primary energy source (wind, hydroelectric, solar, nuclear, natural gas, and landfill gas) using distinct symbols and colors to reveal the current energy mix. The nuclear plant at Diablo Canyon uses a red star symbol for loud visual recognition given its significance.

The most critical design decision was constructing a basemap that shows how the landscape interacts with the infrastructure. I layered ESRI Topo for geographic reference over a refined DEM I created with hillshade and subtle contours. This approach provides essential terrain context showing: the steep Santa Ynez Mountains, the coastal plain, and offshore bathymetric features. I made sure to keep the basemap muted enough that infrastructure data remains visually prominent.

The terrain reveals why infrastructure is located where it is: platforms, transmission lines following topographic corridors, power plants near population centers.

I chose to display both operational and non-operational infrastructure because decommissioned sites represent transformation opportunities. Abandoned platforms, closed refineries, and deactivated pipelines are not just historical artifacts, they are potential foundations for renewable energy systems, whether repurposed as offshore wind platforms, converted to energy storage facilities, or replaced with clean infrastructure using existing transmission networks.

This map is the first step in a larger project exploring how California could systematically transform its energy infrastructure toward renewable systems while maintaining and enhancing grid reliability.


Existing Energy Infastructure
(Operational and Non-Operational)
Diablo Canyon
Santa Maria Refinery
All American Pipeline
Vandenburg
Air Force Base
Los Padres Forest
Santa Barbara
Gaviota
Point Conception
Platform Holly
Oxnard
Map Legend
Crude Oil Trunk Pipelines
Electric Power Transmission Lines
Railroad
Offshore Oil Pipeline
Oil Refineries
Offshore Oil Platforms
0 10 20 mi
California Power Plants
Wind
Hydroelectric
Solar
Nuclear
Natural Gas
Landfill Gas
Data Sources:
ArcGIS Hub
California State Geoportal
Conservation Biology Institute
Marine Cadastre
U.S. Energy Information Administration
USGS National Map
Cartographers:
Isaac Klein & Ryan Davis
UC Berkeley Geography
Americas Green Corps
December 2025

Mapping California's Wildfires

Matthew Leeflang

This map, Mapping California's Wildfires: From Past and Present visualizes the patterns of wildfire activity across California and highlights the state's long-standing relationship with fire.

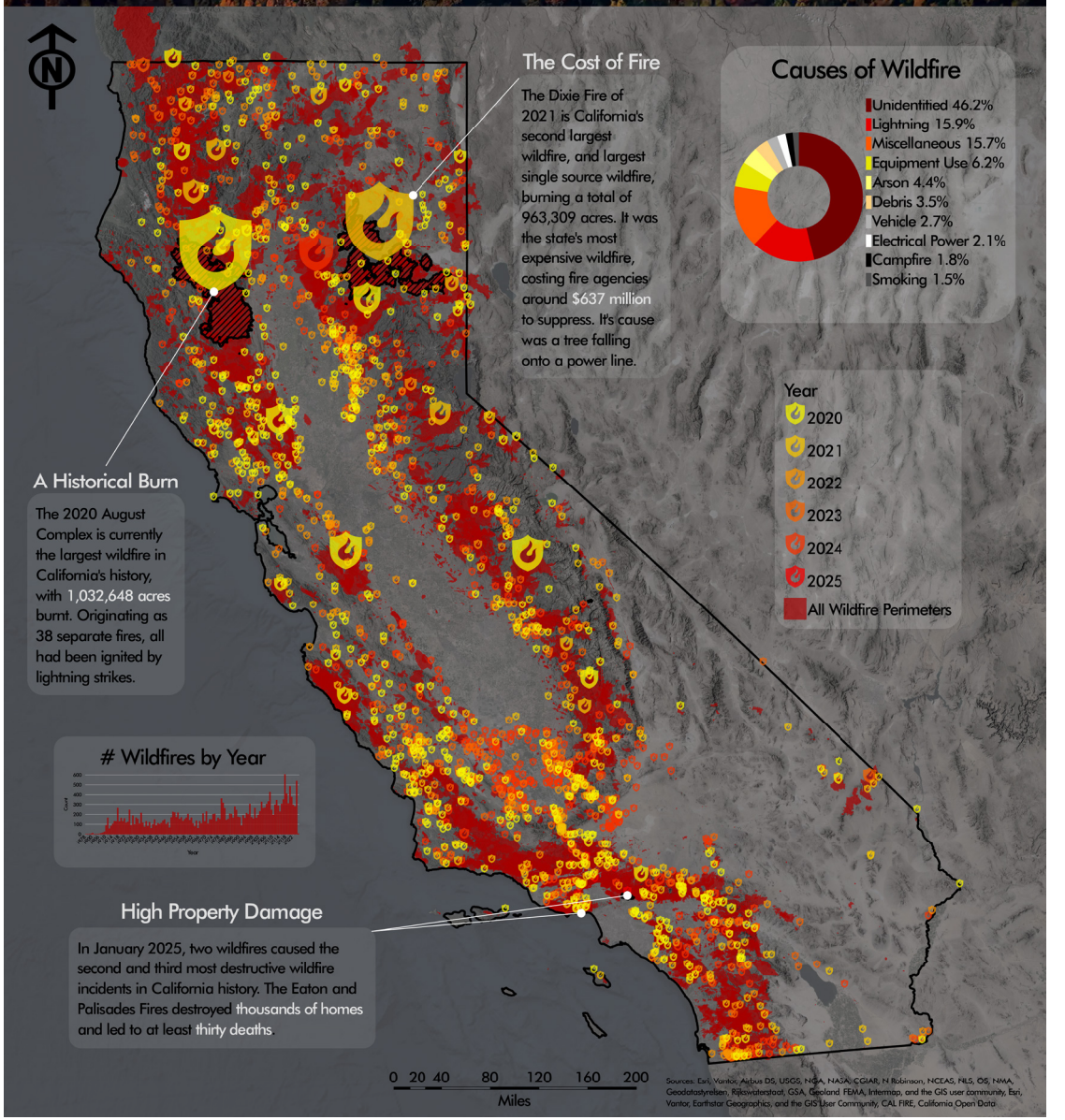
The map depicts the perimeters of all recorded wildfires from 1878 to 2025 in dark red, establishing a historical backdrop of statewide fire occurrence. Overlaid on this are icons representing wildfires from the past six years (2020–2025). These icons communicate year and size simultaneously: color distinguishes the year, and icon size corresponds to acreage burned. By exaggerating the differences in icon sizes, the map draws attention to larger fires and creates a strong visual hierarchy. This approach allows viewers to quickly compare magnitudes without relying on the legend, making annual variation and recent extremes especially noticeable. These events are explained through text boxes, and their boundaries are emphasized with borders and crosshatching to make their spatial extent more legible. Two accompanying charts show the primary causes of California's wildfires and the number of fires per year, the latter highlighting the sharp rise in wildfire activity in recent decades. Together, these contextual elements help viewers link spatial patterns with trends through time.

This project's primary goal was to create an effective, well-balanced layout grounded in the principles of cartographic design. Produced mainly in ArcGIS, the map draws inspiration from Hypoxia Season by Michala Garrison for its layout and from 100 Years of Wildfire by John Nelson for its color scheme and relation to the topic. Because of California's tall, narrow geography, I envisioned the map in a vertical orientation, which allowed ample room around the central map for text and graphics. Following the design approach of Hypoxia Season, I incorporated a thematic image into the title background to reinforce the map's subject matter. The theme of wildfire strongly influenced the color palette as well. Warm reds, oranges, and yellows communicate the intensity of fire, while gray basemap tones evoke ash and burned landscapes. This combination sets an appropriate mood while keeping the map readable. When arranging the elements, I aimed to include substantial information while avoiding clutter. Charts and text boxes are purposefully separated so that no single area is visually overloaded. This layout guides the viewer's eye from the title to the map, then to the upper-right explanatory elements. The legend leads the viewer back to the main map before moving downward to the remaining chart and text, creating a clear visual flow.

Overall, this map illustrates the scale and pervasiveness of wildfire across California. Viewers can see that wildfires have occurred throughout most vegetated regions of the state and across nearly 150 years of history. Through thematic layering, symbolic design, and supporting graphics, the map communicates not only the widespread nature of wildfire but also the factors that shape where and why fires occur. In this way, it serves as both a spatial document and a storytelling tool, not just a map.

Mapping California's Wildfires
From Past to Present

This map's data covers all wildfires that have occurred in California since 1878. Recent wildfires are highlighted, and their relative size corresponds to their acreage.



The Care Map

Emily Ma

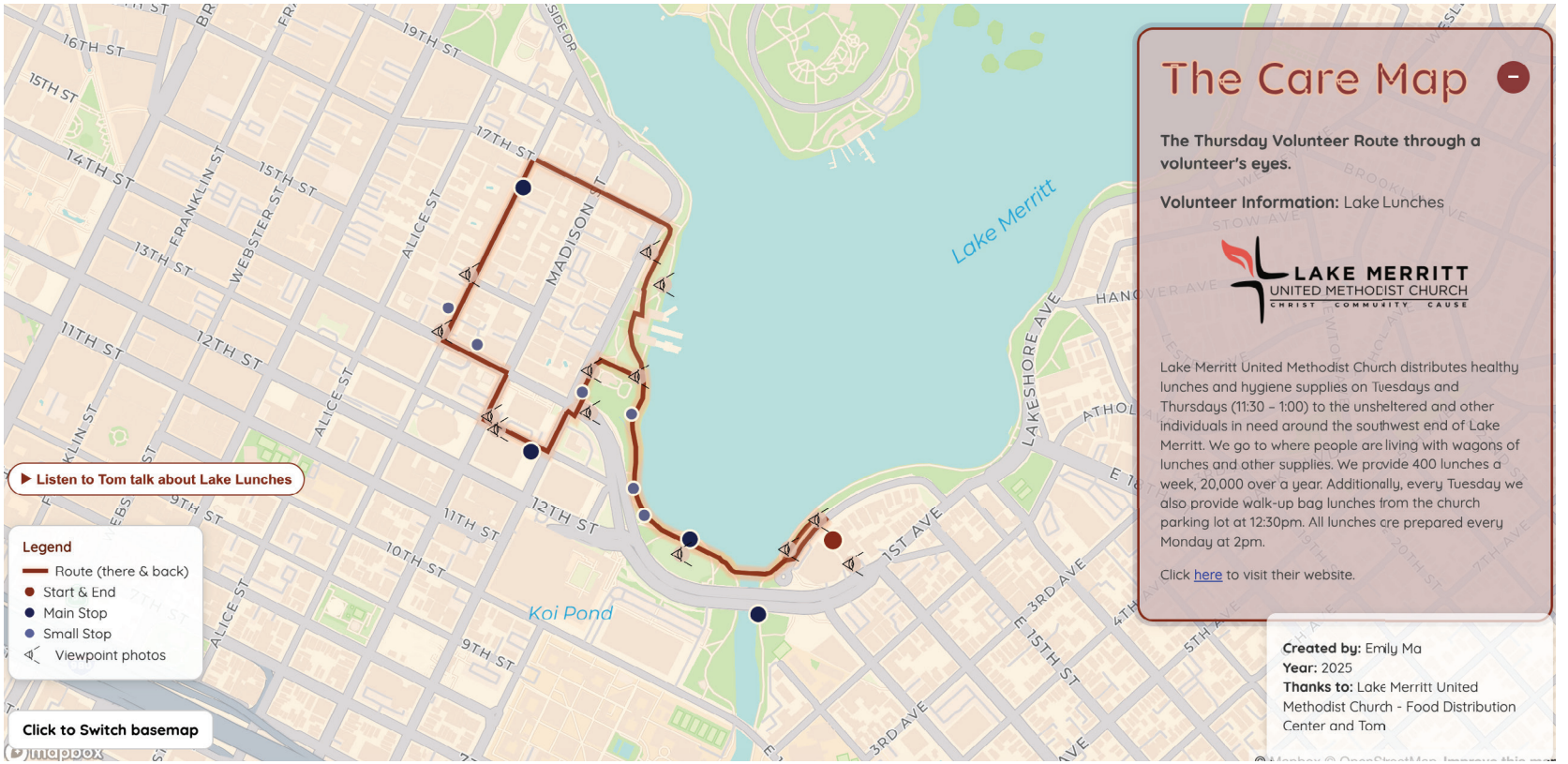
The Care Map's core purpose is to visualize the Thursday Lake Lunches volunteer route around Lake Merritt. Hosted by the Lake Merritt United Methodist Church, this program has supported the homeless community around Lake Merritt for over 10 years. This map hopes to serve as an informative map for the new volunteers to familiarize with the route and feel less intimidated navigating the area.

The route data is traced through google maps which is then converted to Geojson. The dual-line structure (blur + crisp) gives the route a slight glow effect, emphasizing the route and emitting a warmth feeling. Stop locations were documented through two months of volunteering and conversations with the program organizer, Tom. I categorized them by Start&End, Main stop and Small stop which are reflected in the different styling. There is also a viewpoint layer which is based on the pictures I took along the volunteer route. A separate viewpoint layer draws from photos I took along the route, later mapped using their recorded locations.

In this map, the storytelling element is highlighted through the Popups. For the volunteer stop popups, I displayed the name of the stop (often named by the volunteers or Tom), short description of the stop, long description of the stop detailing some background information and up to 2 images of the stop. The viewpoints Popups are hover base instead of being clickable, signifying that the views of the Lake will always show up even if you didn't ask for (clicking it). The popups are dynamically sized based on the number of images.

The map interface is structured to guide users and then get out of the way. A retractable information panel in the upper corner introduces the program and links to the church's website; once read, it can be collapsed so it doesn't obstruct the map. There is a basemap toggle button at the bottom left, with the choice to change it into satellite images, giving them more details of surroundings. Legend on top of the basemap-toggle to show what each symbol/color represents. On top of that is the "play interview" button which users can click on to listen to the interview with the main organizer Tom. Important to note that I made sure that this map is workable on mobile as well, meaning that the panels are adjusted for smaller screens, and the hover viewpoint popups become clickable. Last but not least, the color palette I choose for the map and the panels are based off of the Church's main color on the website, highlighting their importance in this program. I also choose all the colors of the symbols to be within the same color palette of a warm earthy tone. The typography (QuickSand and Fredoka) is chosen because of its soft and approachable look. The images' corners are rounded to also give that soft-warm vibe.

This map also reflects the limits of what could be done ethically in one semester. I originally intended it to be a participatory map that aims to underscore relationships between volunteers and unhoused neighbors through interviews and informal conversations. As a relatively new volunteer, however, I found that people were understandably cautious about opening up, and I am aware of the potentially extractive nature of asking for stories. For now, the map centers my observations and Tom's perspective. Looking ahead, I hope as I continue to volunteer and build trust, I can return to the participatory aspects of this project in ways that feel accountable and respectful


The Care Map
The Thursday Volunteer Route through a volunteer's eyes.
Volunteer Information: Lake Lunches
LAKE MERRITT UNITED METHODIST CHURCH
CHRIST COMMUNITY CAUSE
Lake Merritt United Methodist Church distributes healthy lunches and hygiene supplies on Tuesdays and Thursdays (11:30 – 1:00) to the unsheltered and other individuals in need around the southwest end of Lake Merritt. We go to where people are living with wagons of lunches and other supplies. We provide 400 lunches a week, 20,000 over a year. Additionally, every Tuesday we also provide walk-up bag lunches from the church parking lot at 12:30pm. All lunches cre prepared every Monday at 2pm.
Click here to visit their website.
Created by: Emily Ma
Year: 2025
Thanks to: Lake Merritt United Methodist Church - Food Distribution Center and Tom
▶ Listen to Tom talk about Lake Lunches
Legend
Route (there & back)
Start & End
Main Stop
Small Stop
Viewpoint photos
Click to Switch basemap
Lake Merritt
Koi Pond
16TH ST
15TH ST
14TH ST
13TH ST
12TH ST
11TH ST
10TH ST
9TH ST
19TH ST
17TH ST
FRANKLIN ST
WEBSTER ST
ALICE ST
MADISON ST
LAKESHORE AVE
1ST AVE
3RD AVE
15TH ST
mapbox

Historic Mining Towns in Owens Valley, CA

Lily McGlaughlin

This map titled Historic Mining Towns in Owens Valley, CA integrates historical cartography with modern GIS techniques to illuminate the spatial relationships between historic mining sites and the topography of the Eastern Sierra and Owens Valley.

The foundation of the project is a georeferenced USGS historic topographic map of the Mount Whitney Quadrangle made in 1937. This area was surveyed by USGS geographers in 1905 and uses the North American 1927 datum. Retaining the historic projection along with the colors, fonts, and other characteristics common at the time adds an authentic visual character that is emblematic of early 20th century mapping practices, and geologic & topographic efforts that coincided with peak mining activity in California.

A key component of the map's interpretive purpose lies in the use of four separate hillshade rasters. Each hillshade was generated with a different azimuth, altitude and z-factor, enabling varied illumination effects that highlight the rugged topography of the Eastern Sierras and the low lying Owens Valley. By overlaying the hillshades and playing around with blurring features, colors and gradients, transparency modes, and other features in ArcGIS Pro, the final visualization has really dramatized topographic features that allow the geologic texture of this region to pop out to the viewer's eye. Shadow features and border gradients helped to also give this map a historical, dramatic feel.

The placement of the mining towns in relation to topography becomes especially apparent through this topographic, terrain enhanced, visualization. Four of the identified mining sites, Chrysopolis, Bend City, San Carlos, and Manzanar, lie along the Owens River and/or the railroad tracks, adjacent to the Eastern foothills. Viewing this spatial pattern reflects on the needs of the nineteenth/twentieth century miners: access to water, relatively gentle terrain, and proximity to the mines. The fifth town, Kearsarge, sits higher in the mountains on the west side of the valley, similar in longitude to Mount Whitney. Its placement illustrates the vertical reach of mining exploration in the Eastern Sierra. A point dataset was made with the geographic coordinates of these towns, as well as a point for Mount Whitney for additional reference. The labels from the original historical map are small and hard to see without zooming in, so I added a bigger label for the peak that viewers would know the most and would be interested in.

By visualizing these sites through a historically grounded map, this map serves both educational and recreational purposes. Travelers driving along Highway US-395 can use it to locate ghost towns along their journey, whether they go out of the way to visit the site or visualize it in the distance. This map serves as a way to imagine what life was like during the Gold Rush and how geographic features affected settlement. History and topography blend together in this map to visualize a story of the past, admire the grand geologic features of the Sierra Nevada mountains, and gain a useful understanding of historic mining towns in Owen's Valley, CA.

Historic Mining Towns in Owen's Valley, CA

Modeling Bay Topography & Bathymetry as Continuous Space

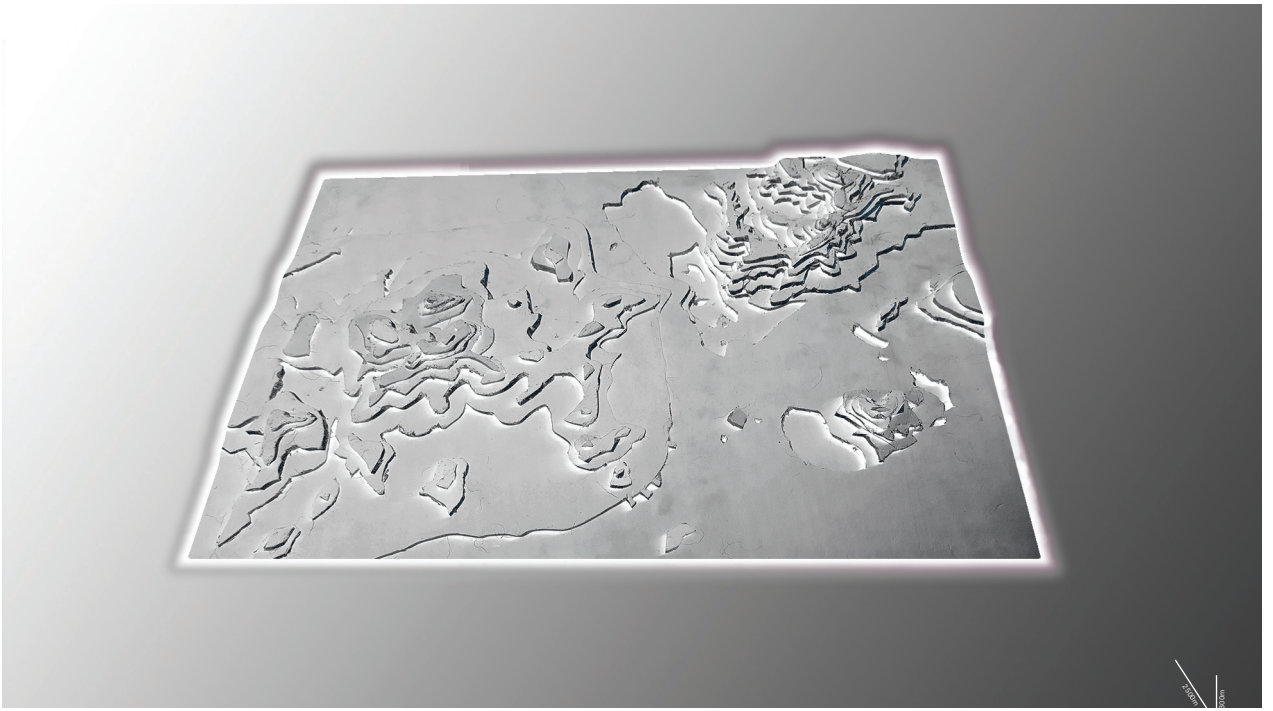
Sophia Meyers

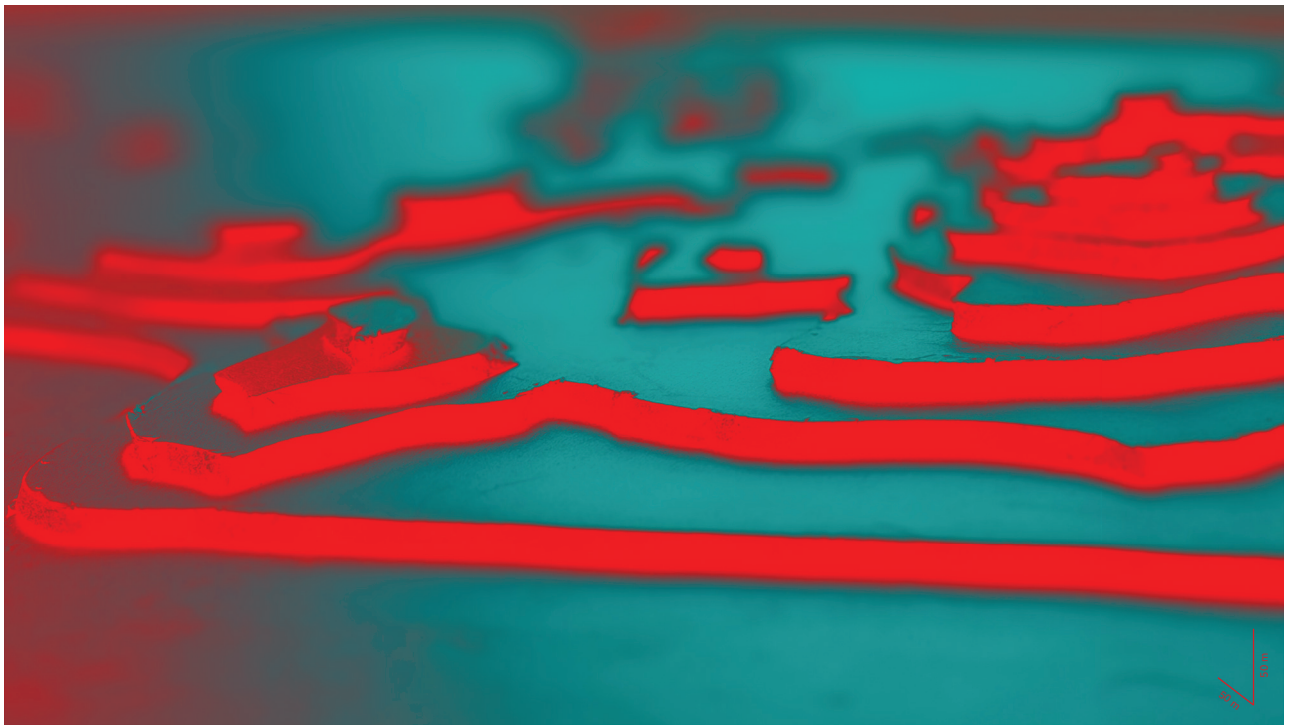
This project reimagines the relationship between land and water in cartographic representation by modeling the San Francisco Bay's topography and bathymetry as a continuous geomorphic surface. Traditional basemaps depend on a binary between land as the primary space, while water is represented as a flat, empty background. This distinction reflects common anthropocentric geography and obscures the physical processes that shape the Bay as one interconnected system.

By collapsing this conceptual divide into one continuous model, the project also asks a larger question, can an objective basemap even exist, or are all maps shaped by the assumptions embedded in their construction?

To construct the model, I merged LiDAR sensed topographic and bathymetric rasters into a single elevation surface. This collapses the conventional separation between these datasets into one continuous raster. After determining the dimensions of my physical boards, I translated the real world elevation range (~1600 ft) and geographic extent of the Bay that I was investigating into a vertical scale that would fit the model without applying a Z-factor. This decision generated contour intervals of 24 feet, meaning each ⅛ inch board represented a 24 ft elevation change. This was used consistently for both topography and bathymetry, and ensured that both forms were represented through the exact same metric. By omitting any form of vertical exaggeration, which is commonly used to dramatize the terrain and make landforms more legible, the model preserves the true geomorphic proportions between the steep ridges that identify San Francisco and the subtle gradients of the Bay floor that are commonly obscured. These choices foreground how data treatment can actively shape perception which begins to reveal that even attempted "objective" basemaps are constructed through selective decisions regarding emphasis. The production process itself becomes part of the project's argument, and thus the map is not a neutral representation of the world but a product of intentional methodological choices driven by bias.

My topographic model draws from historical cartographic traditions and from data produced through geological survey mapping. These tools have historically been used to delineate ownership and quantify land for extraction. By adopting these methods of representing elevation while actively rejecting their territorial function, the model attempts to reclaim geologic mapping as a means of showing relational geographies rather than reinforcing boundaries. This model argues that maps shape the conceptual worlds they depict. By treating topography and bathymetry as continuous and questioning the bias within the common uses of a basemap itself, the model challenges the hierarchy embedded in basemaps that privileges land over water and asks viewers to reconsider what is "objective" in cartographic practice.





Sounds of Berkeley

Arfa Momin

I turned Berkeley into a soundscape—a collection of sound stories that define the space I interact with in this moment of my life. Rather than representing geography solely through its physical form, I move into the temporal, emotional, social, psychological, and even imaginative. This soundscape is rich, created from snippets of conversations with friends, live music, nights out, bike rides, and walks I collected personally through audio recordings on my phone over four weeks. It is meant to capture the loud declarations and quiet murmurs of the atmosphere in Berkeley.

Soundmaps can reveal what traditional maps erase by omission. As Wilmott and Wood[1] have argued, the cartographic tension between fixity and ephemerality conceals the material conditions of those who live on the land. Urban sounds are lived experiences. The waves in the air are manifestations composed of everything that has ever existed, exists, and will come to exist. It captures both the fleeting and permanent. It cannot and does not hold still.

The sound experience begins on what I call the imprint stage, a digital landscape with no represented dimension, scale or geography. The user is only able to interpret that a larger marking is left by a louder sound. As the user moves their mouse, a sound from the collection is selected at random, represented visually, and played. To begin a new sound (or to fade out the existing one), the user must move to a new location. Every interaction leaves a mark.

The user navigates to produce the sound through their varying motion. In the process and by the end, they've created a unique visual rendering, an abstract mapping, composed on concentric circles of what they just listened to. No two users will have the same result.

The second portion is an interactive map, built on a Mapbox-rendered basemap and stylized with custom scalable vector graphics that I designed. Here, the user can explore sonic relationships and see where each was geographically recorded. The user has control to play multiple sounds at once, creating a generated mix that can help fill in what was missed in the empty spaces I didn't capture a recording.

The marker design consists of concentric circles, where the number of rings represents the sound's loudness in decibels. This final design emerged from a short period of experimentation focused on how to capture overlap using a single color, as I did not want to categorize sounds into discrete bins. Thus, the opacity of the rings increases outward, allowing overlapping sounds to accumulate visually. The whole map is only composed of just three colors. The two primary tones create contrast that, together with the grain effect, allows the map to feel archival yet vibrant without distracting the user from the sounds.
This map insists geography is personal and sound is not just an annotation to space but itself a cartographic language. It is made and re-made through movement, memory, and presence.

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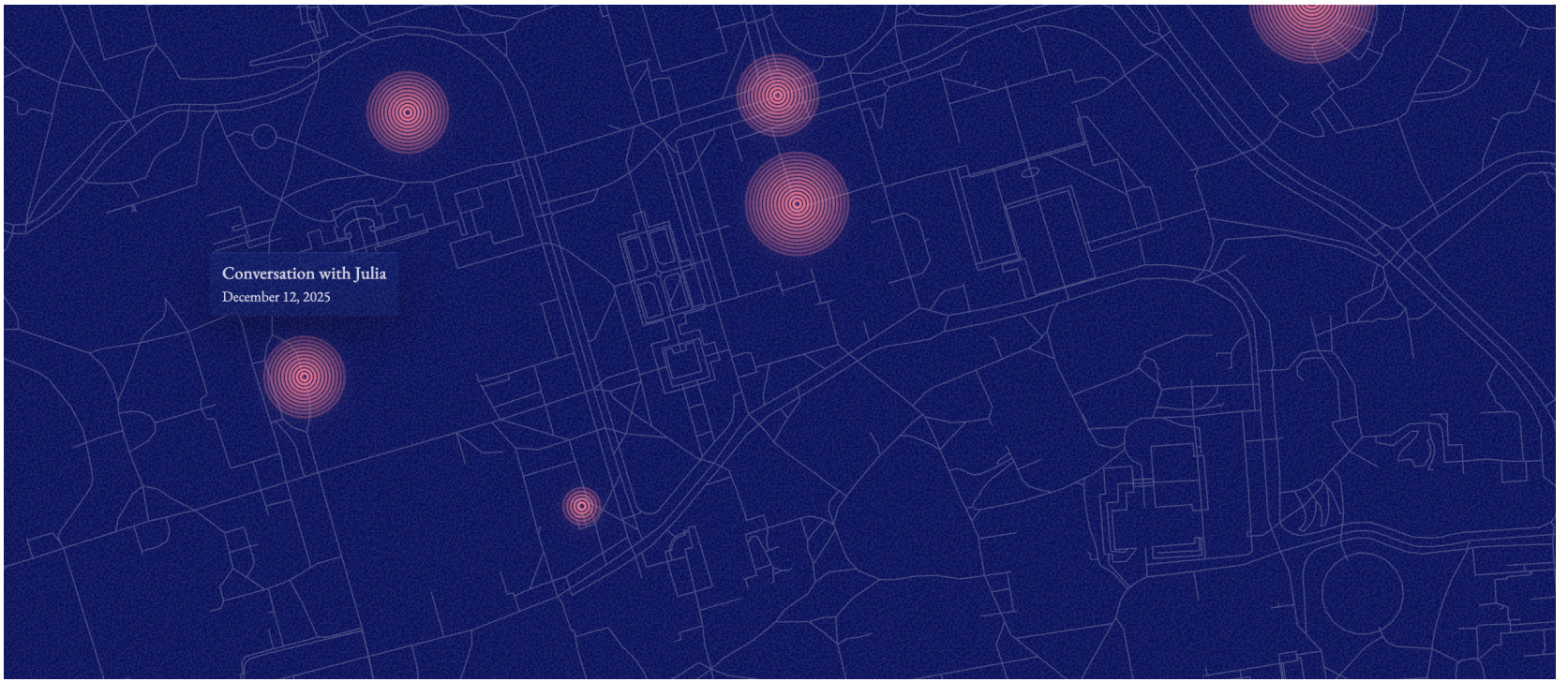
1 Wilmott, C and Wood, A (2024) 'Terra Infirma: On the Base Map in Cartography and GIS' Environment and Planning D: Society and Space. 42(5-6): 734-757

Sounds of Berkeley



My Map Of Doom

Rebekah Murphy

This map went through many different drafts, some with bubbles beneath the surface, and other with impeding red doom. I decided on this final version in hopes to communicate a clear vision of Apocalyptic theory. This map is largely inspired by Benjamin paragraph from Concept of History regarding the state of emergency. He states, "The tradition of the oppressed teaches us that the 'state of emergency' in which we live is not the exception but the rule…our task to bring about a real state of emergency, and this will improve our position in the struggle against Fascism…"[1]. I opted to use the term "Apocalypse" instead of "state of emergency" because it feels more American, in our secular media culture as well as in the Chrisitan ethos of our country.

The map I am turning in takes a forceful worldview upon the audience and forces them to see particular parts of the UC Berkeley campus. It spotlights highly invested and respected institutions within the University, such as: Lawrence Berkeley Laboratory, College of Engineering, HAAS School of Business, and the emerging Data School. I felt they were provocative representations of what Benjamin was conveying within his writings regarding the dangers of endless progress without acknowledging the destruction already existing. These institutions representing progress are supposed to be "bubbling up", providing an alternative texture to the map. Today it feels as though these institutions are being uplifted and supported amidst increasing signs of Fascism, and although I don't disagree with the research entirely I wanted to create a map that questions at what cost they are continuously inflated.

The smaller black circles are attempting to represent sinking black holes as a consequence to the erupting bubbles surrounding them. I put titles around them representing institutions such as the Slavic Department, the Zellerbach Playhouse, DSP Services, and Public Transportation. These institutions within the University: language, arts, services, and equitable transportation are important points within our physical and our metaphysical surroundings. Although not all of these have factually lost money (I believe almost all are at risk besides Public Transportation), they are intended to serve as provocative calls to action for the reader.

The lightning strike also calls upon a Benjaminian topic, one I am not familiar with, but came up a few weeks ago in my research, as a site of "simultaneous recognition", and I felt that similar to the terminology of the Apocalypse, a reader would understand a call upon destruction. This map is trying to eradicate the concept that the Apocalypse has "potentially" arrived – instead insisting upon it, as Benjamin does himself. Even though I created an Apocalyptic map, I believe that the rupture that the lightning bolt represents serves as a "call to action" function, creating physical fissures within the map, representing hope. The black holes are meant to only just be emerging, and are intentionally smaller than the bubbles of progress, to evoke a visual appeal that they could soon be the same size again. The Apocalypse does not need to remain, and if we recognize the arrival, we can start to identify the departure from it as well.

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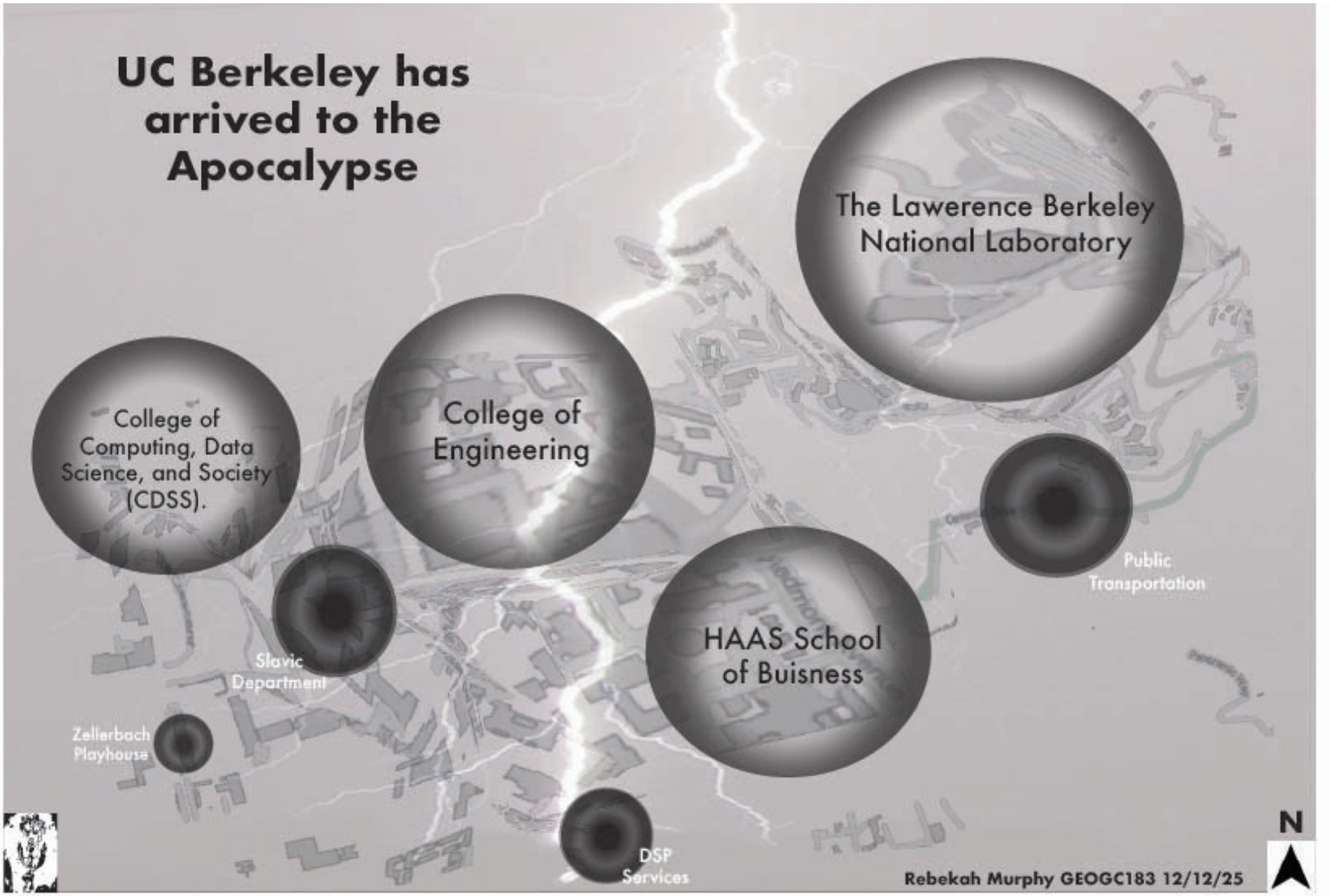
1 Benjamin, W. (1996) 'Theses on On the Concept of History' in Benjamin, W., Eiland, H., & Smith, G. (eds). *Selected Writings: 1935-1938* (Vol. 3). Harvard University Press. Section VIII


UC Berkeley has arrived to the Apocalypse
The Lawerence Berkeley National Laboratory
College of Computing, Data Science, and Society (CDSS).
College of Engineering
Public Transportation
HAAS School of Buisness
Slavic Department
Zellerbach Playhouse
DSP Services
N
Rebekah Murphy GEOGC183 12/12/25

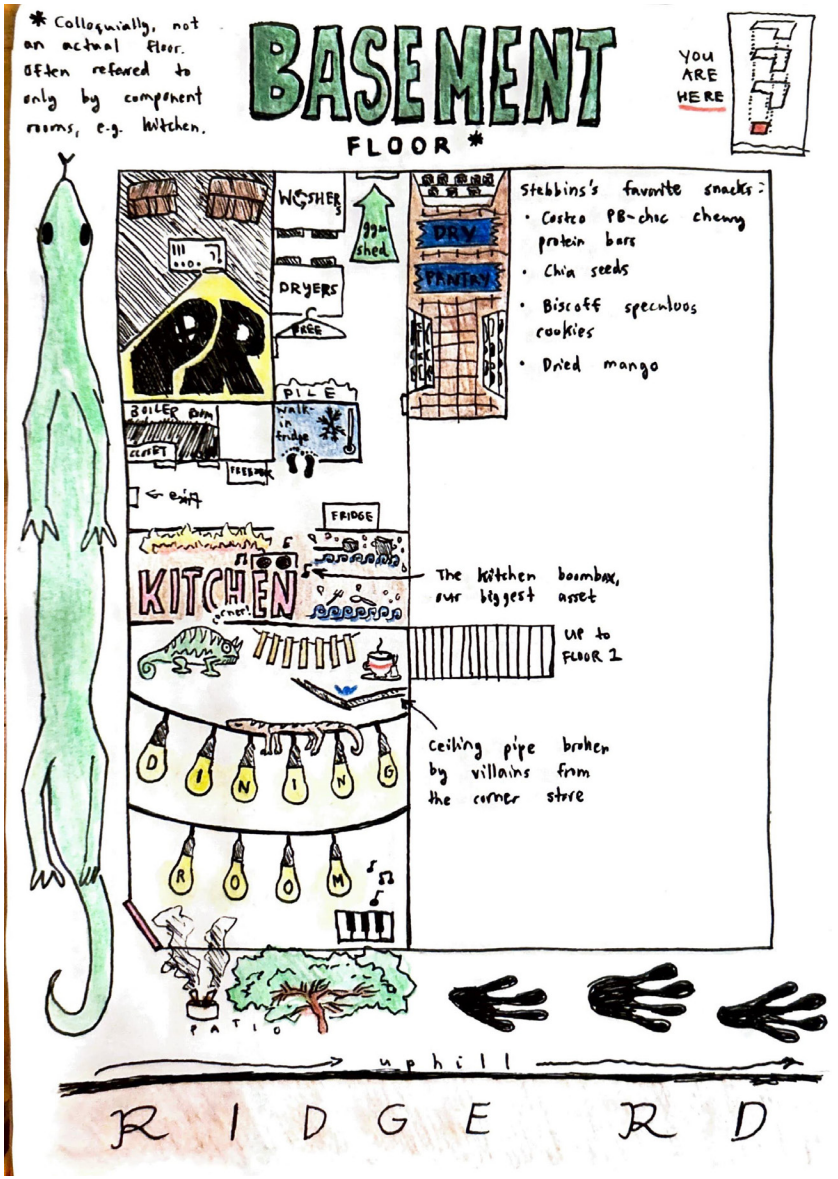
Stebbins Hall

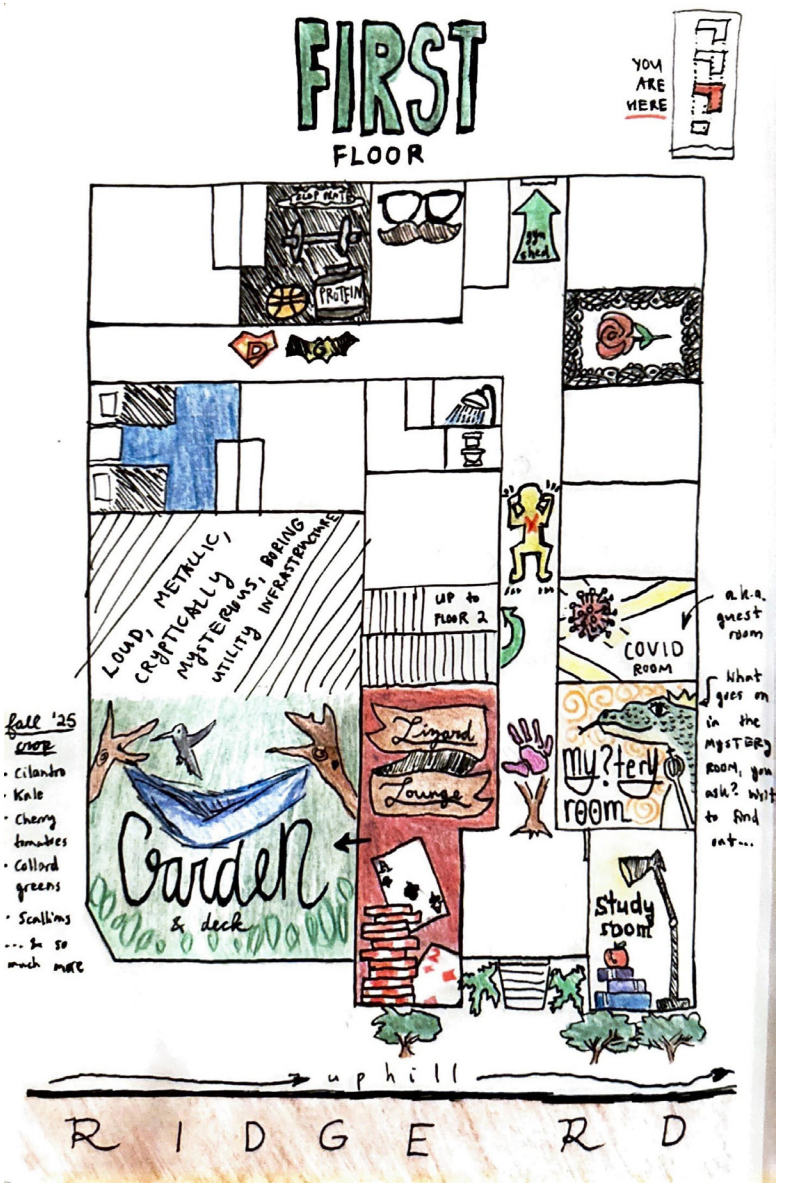
Vincent Nghiem

This map depicts Stebbins Hall in the Northside neighborhood of Berkeley, California. Established in 1936 as part of the Berkeley Student Cooperative, Stebbins is one of the system's twenty facilities that provides affordable housing and board to local students. The cartographer has resided at Stebbins since the beginning of Fall 2025.

Stebbins itself is structurally unique. Each of the building's three residential floors are in the same L-shaped form. The basement floor, however, is roughly rectangular and, when looking through from above, is nestled within the "arms" of the three L-shaped floors above. Furthermore, Stebbins exists on a west-east incline, such that there are technically two ground floors—the first and basement floors—separated by an interior staircase. The few existing maps of Stebbins that do exist are disparate floor plans for reference during emergency evacuation that are not intended to account for these complications of representation. Furthermore, these rather plain preexisting maps do not reflect the actual intricacies of the house (for example, the purpose of certain rooms) and the quotidian experience of living in the co-op, a heritage that is defined by and built upon day-by-day by its residents. The cartographer's two main goals with this map, therefore, are first to address the spatial constraints of mapping Stebbins through a cohesive, interactive medium, and subsequently to imbue this work with visual details that reflect Stebbins's cultural identity. This map compiles all four floors into a single bound paper flipbook that allows for the user's ease of transition and comparison among floors. Iconography corresponding to distinct features of the house—a small painting of a chameleon above the kitchen entrance, the blue hammock in the garden—and written annotations providing definitions and contextual information—the identification of the kitchen boombox, the list of housemates' favorite snacks—inscribed in ink and color pencil color the map. Furthermore, the cartographer gave housemates the opportunity to map their own rooms: housemates filled in the small rectangle corresponding to their room with whatever they felt best represented themselves and their living space. Finally, to address Stebbins's topographic and architectural idiosyncrasies, the cartographer drew inspiration from Frampton et al.'s Cities Without Ground, a collection of maps visualizing overlapping networks of urban space in Hong Kong, and inserted a small inset map with each floor highlighting its location within an extruded representation of the entire house.

In creating this map, the cartographer used a mechanical pencil to draft the outlines of the floor layouts primarily from copies of each floor's evacuation plan, provided generously by the house manager. The spatial data referenced from these maps were further supplemented through the cartographer's independent navigation of the house, in which their own body—through steady pace and field of vision—was used as a method of measurement. Consequently, the map allows for a uniquely embodied experience of Stebbins, through which a user of the map can navigate the house using a corporeal frame of reference as if they too were a resident walking through their own home.


* Colloquially, not an actual floor. Often refered to only by component rooms, e.g. kitchen.
BASEMENT
FLOOR *
YOU ARE HERE
WASHER
DRYERS
FREE
PILE
gym shed
DRY
PANTRY
PR
BOILER ROOM
CLOSET
walk-in fridge
FREEZER
exit
FRIDGE
KITCHEN
CORNER
Stebbins's favorite snacks:
• Costco PB-choc chewy protein bars
• Chia seeds
• Biscoff speculoos cookies
• Dried mango
The kitchen boombox, our biggest asset
up to FLOOR 2
ceiling pipe broken by villains from the corner store
DINING
ROOM
PATIO
uphill
RIDGE RD


FIRST
FLOOR
YOU ARE HERE
gym shed
PROTEIN
LOUD, METALLIC, CRYPTICALLY MYSTERIOUS, BORING UTILITY INFRASTRUCTURE
up to FLOOR 2
COVID ROOM
a.k.a. guest room
What goes on in the MYSTERY room, you ask? Wish to find out...
Lizard Lounge
my?tery room
Garden
& deck
Study room
fall '25 crop
• Cilantro
• Kale
• Cherry tomatoes
• Collard greens
• Scallions
... & so much more
uphill
RIDGE RD

Revealing Micro-Barriers in Golden Gate Park

Asmaa Osman

Conventional maps flatten or neutralize space, while the goal of this map is to unflatten the terrain for mobility-disabled users. My map asks the question: how can a printed map reveal the hidden, uneven spatial relationships of accessibility in the Music Concourse? Specifically the micro-barriers such as steps, slopes, paving, and circulation patterns, that are invisible in current park maps.

When making this map, I figured that if I wanted to show how a map can reveal the uneven spatial relationships of the site, then I would have to go visit it myself. I visited the site three days in total and took pictures of what I noticed while physically being there that may not be apparent on a map. For instance, on one day, there was an art installation happening around the fountain and it blocked circulation because it was busy. Events like these do not always show up on maps, and so when making the map, I wanted to allocate space to include real images of events and what the site actually looks like. Moreover, I decided to add some historical context in the top right, showing both how the Music Concourse was and why it was designed the way it was. Understanding its historical context is crucial since it will allow users to gain deeper knowledge about what was prioritized during that time when designing public spaces.

In terms of my design choice, I included call-outs of notable spaces on the site, accessible and inaccessible areas, circulation and texture, and 1-ft contours as well. For the call-outs, I specifically wanted to highlight the location of the parking lot and the nearest ramp to it. While there is an accessible ramp, it is way too far from the parking lot, and a lot of the other ramps are also located in certain locations that limit comfortable accessibility into the Music Concourse. In regards to circulation and texture, I wanted to highlight those with a color similar to the existing, but so that it becomes more visible and easy to read on a map. The 1-ft contours are something I found important to include in this map since it allows users to better visualize the topography of the site

Access in the Music Concourse

Revealing **Micro-Barriers** in Golden Gate Park

Created in 1893 for the California Midwinter International Exposition, the nine-acre space showcased the arts and architecture of different cultures around the world. Originally designed as a formal spectacle ground, inclusive circulation was never central to its design, embedding subtle barriers that unevenly distribute access across the site.


Art Installation


Ramp Access


Movable Seating

Incisions

Spencer Owen

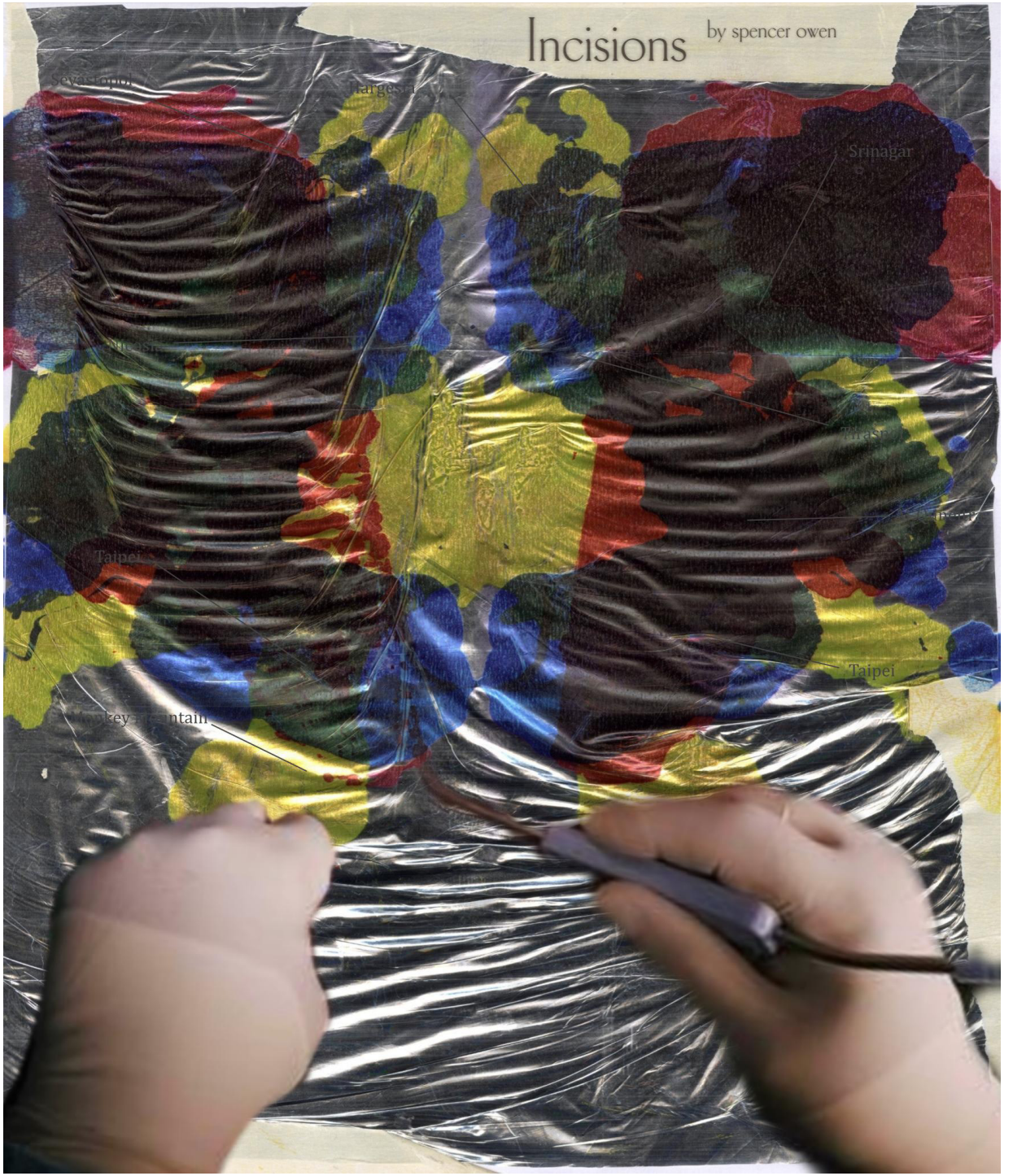
The course allowed me to engage with the inherent complexities and power struggles embedded in symbols, mapping, and territorial representation. I set out to confront the attribution of meaning assigned to human-made lines and borders. Maps present themselves as neutral tools of understanding, yet their symbolic function makes them powerful instruments of control. Maps are able to claim land, identity, and authority through legibility alone. This project attempts to turn that power against itself. The work consists of painted representations of multiple disputed territories, compressed and mirrored into a single form resembling a Rorschach inkblot. By smushing the sides together until individual borders dissolve, the piece resists readability and refuses to privilege any one territory or narrative. Meaning is no longer located in the map itself, but in the viewer's invitation and impulse to recognize, interpret, and assign significance. In this way, the power dynamic of mapping is inverted: the viewer becomes responsible for projection, judgment, and uncertainty, rather than the map acting as an authoritative source.

This ambiguity emphasizes the inherent meaninglessness of precise borders. They are just arbitrary lines that nevertheless continue to function as weapons, obligations, and justifications for violence. Though the shapes resist clarity, they still carry weight, echoing how territorial boundaries persist in governing lives despite their constructed nature.

The inkblot is painted then printed onto an emergency blanket, a material simultaneously associated with crisis, displacement, and survival. Emergency blankets are products of conflict and tools of protection from it, embodying both vulnerability and control. The surface is wrinkled, reflective, and taped together, barely holding its form. Something has tried to be fixed, or perhaps examined, repaired, and contained. The gloved hands hovering above evoke clinical observation or intervention, reinforcing a tension between care and detachment.

Visually, the masses of color evoke organic forms on the industrial metal of the background. Land is treated as something living, ephemeral, and mutable. Yet the sterile material of the blanket arrests this vitality, freezing it into an object of emergency and control rather than continuity. Like borders advancing in and out of discernibility, the land oscillates between solidity and instability, presence and abstraction.

Ultimately, this piece seeks to expose mapping as a constructed system rather than a natural truth. By obscuring legibility and redirecting interpretation, it interrupts claims of neutrality and reveals the fragile, imposed nature of territorial power. Ask not what the map shows, but why we feel compelled to believe it.


Incisions
by spencer owen
Srinagar
Taipei
Taipei

Greater UC Berkeley Inaccessibility Due to Active Construction

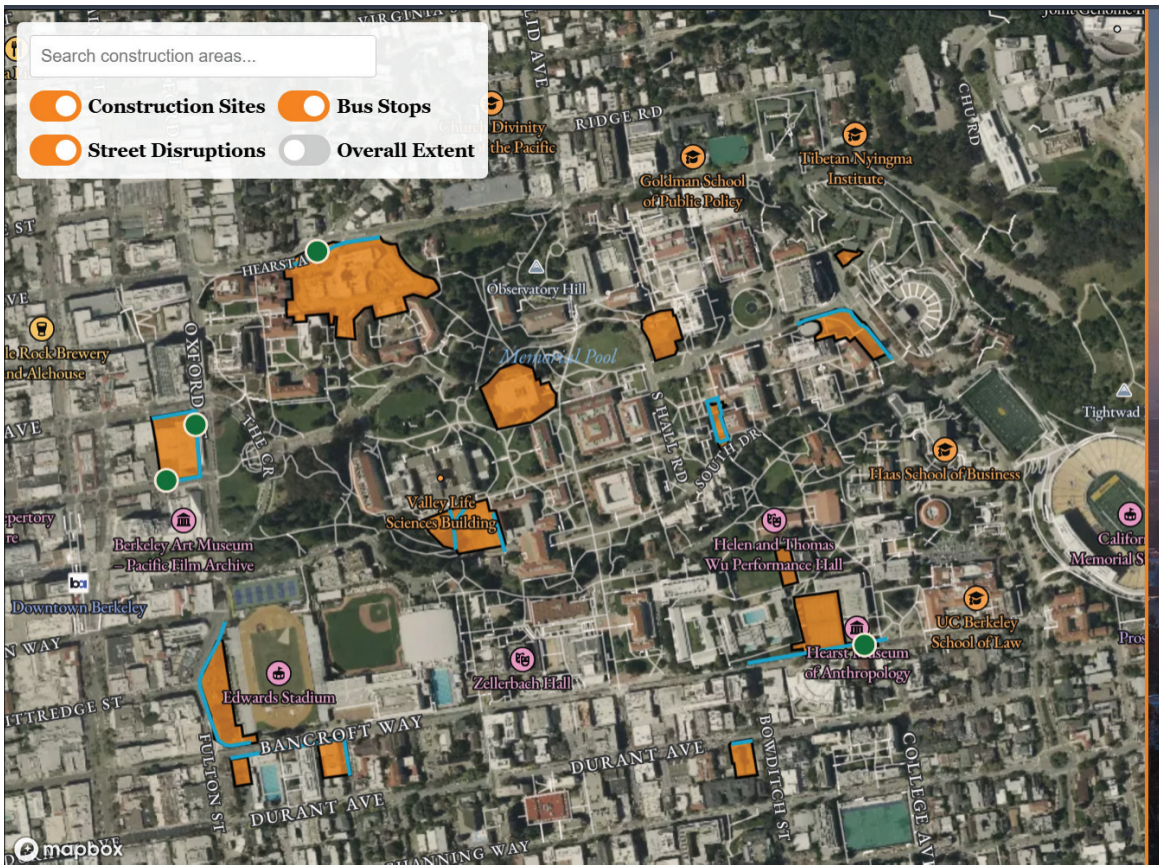
Ariana Olvera Torres

Every year, UC Berkeley is home to many construction projects, and in an urban setting such as Berkeley, these projects often require space beyond the actual construction area for material laydown, garbage, equipment storage, and even employee parking. Oftentimes, there isn't enough space within the property, which necessitates parts of the road to be blocked off. This can cause significant disruptions, including sidewalk and path closures, bus rerouting, and taking longer to get to class.

Therefore, this map aims to serve as an informative aid to pedestrians so they are aware of possible interruptions.
The basemap was designed with the idea that in order for people to fully understand where they are looking, it would be best to see a satellite view with all the markers available. Additionally, paths and streets were toggled on since that is the main focus of the map and would help the user in understanding smaller affected routes.

The orange polygons represent the fenced out areas, which are either construction sites or material/equipment storage areas. When you click one of these areas, a new sidebar slides in with information pertaining to that specific project and a slideshow of images (taken by me) you can scroll through for visual context. There are also additional links you can go to to learn more about the project through a variety of articles and websites. To leave this project page, there is a close button at the bottom, but alternatively, you can click the escape key.

The search bar on the top left corner allows you to search any of the point or polygon features if you know the name. The blue lines represent street closures, and the green dots represent affected bus stops, for which information is included in the corresponding orange polygon's information panel. The overall extent layer simply shows the locations considered for this project. Additionally, you can toggle any feature layer on and off to improve clarity and customize your view of the map. To reduce clutter, a legend was omitted as the toggle options allows you to see which features pertain to which toggle.



Greater UC Berkeley Inaccessibility Due to Active Construction

Every year, UC Berkeley is home to numerous construction projects. These projects require space beyond the actual project for material laydown, garbage, equipment storage, employee parking, etc. In Berkeley's urban setting, oftentimes, there isn't enough space within the property necessitating parts of the road to be blocked off. This can cause sidewalk/path closures, bus rerouting, and taking longer to get to class.

This map aims to inform the public about those obstructions.

Click each orange polygon to explore current construction projects in and around the UC Berkeley campus. Click on a green point to see the affected bus stop. The red lines are streets that are impacted by the construction project it is on.

By Ariana Olvera Torres - 2025

Three Claims On The Land

Antonio Pacheco

My map is countering what J.B. Harley[1] describes (in The New Nature of Maps) as the weaponization of maps, and this historical mapping specifically, in the colonialist project that is Puerto Rico, the name given to the island when it was first dispossessed from the Taíno people by the Spanish in 1521. By challenging this territorialized and imperialistic idea of Puerto Rico placed upon Borikén, I sought to create a map that rejects a legacy of mapping that has been used to "anticipate empire… as a tool of pacification, civilization, and exploitation." Namely, my map is about rejecting a history of Western-based mapping "used to legitimize the reality of conquest and empire" (57).

I created my map by recentering Indigeneity, as advocated by Elizabeth (Dori) Tunstall[2] in Decolonizing Design: A Cultural Justice Guidebook, by rejecting typical norms and principles of Western-based cartography, including leaving out the inclusion of a compass, scale bar, or a legible and formal title. For me, this also meant incorporating hand-drawn elements in the design of my map and distorting the shape of a typical work to challenge dominant cartography thought in the West that mandates formality and (typeface) hierarchy. Finally, I sought to highlight Puerto Rico's pre-Columbus name, Borikén, in an effort to focus on "native positionality," as in the system of settler colonialism, "native bodies and cultures must be eradicated in order for the settlers to impose their own order on the land, which is now seen as property" to conquest and exploit to serve colonial and imperial goals of empire (17).

With decolonial design contextualizing my work, I also drew from philosophical thought to further challenge what Western cartography would demand and expect in the production of a map of Puerto Rico. Perhaps Michel Foucault[3] described this phenomenon that I seek to disrupt best as a discursive formation, "a regularity (an order, correlations, positions and functionings, transformations)" that is produced into such by "the rules of formation [which]... are conditions of existence (but also of coexistence, maintenance, modification, and disappearance) in a given discursive formation" (38).

French Caribbean author Édouard Glissant[4], a philosopher whose work I have consulted heavily for this project, seems to counter such attempts of Western thought to categorize, understand, or create a "regularity" that is the Caribbean in his seminal work, Poetics of Relation. Within, he writes that it is "Only by understanding that it is impossible to reduce anyone, no matter who, to a truth that he would not have generated on his own. That is, within the opacity of his time and place" (194).

Therefore, with this map and work, I seek to "clamor for the right to opacity for everyone" with roots to Borikén (especially diasporic) as an act of resistance to centuries of the pain, trauma, and destruction caused by the West's exploitative and genocidal project on the island.

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1 Harley, J. B. (2002). The new nature of maps: essays in the history of cartography (No. 2002). Baltimore: JHU Press.

2 Tunstall, E. D. (2023). Decolonizing design: A cultural justice guidebook. Cambridge, MA: MIT Press.

3 Foucault, M. (1969). Michael Foucault Archaeology of Knowledge. Translated by AM Sheridan Smith. London and New York: Routledge.

4 Glissant, É. (2024). Poetics of relation. Ann Arbor: University of Michigan Press.


Militarization, Toxicity, and Contestation in Puerto Rico
STOP KILLING US. ¡EL GRITO DE LARES SE HA DE REPETIR! ¡VIVA BORIKÉN!
Three claims on the land
=
military
superfund
"protected"
AP, 2025.
Sources: DoD, EPA, NOAA, DNER

Re-Imagining The Future of Oakland's I-980 Freeway

Rachel Park

My final project cartographically explores how freeway infrastructure is an active and ongoing means to separate communities, but also can involve opportunities through re-design to reconcile histories of displacement.

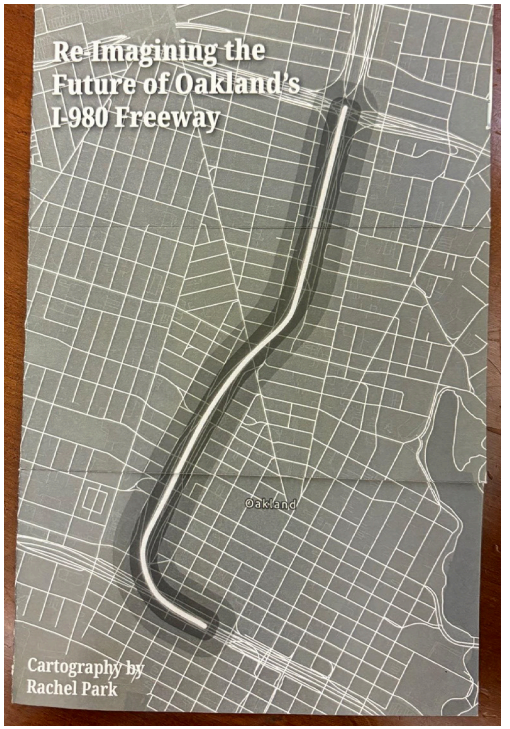
Today, Oakland's I-980 freeway runs along the edge of West Oakland to connect the I-580 and I-880 freeways. It began construction in the 1960s to connect to a proposed second Bay Bridge. Despite halted plans for the second bridge, the I-980 became a critical alternative route after the collapse of the nearby Cypress freeway (located a few miles west) during an 1989 earthquake. Its construction led to a physical division that largely cut off West Oakland from the rest of the city. The existing commercial heart of the region on 7th Street was no longer connected to Downtown, and West Oakland residents and businesses in the freeway's corridor were displaced.

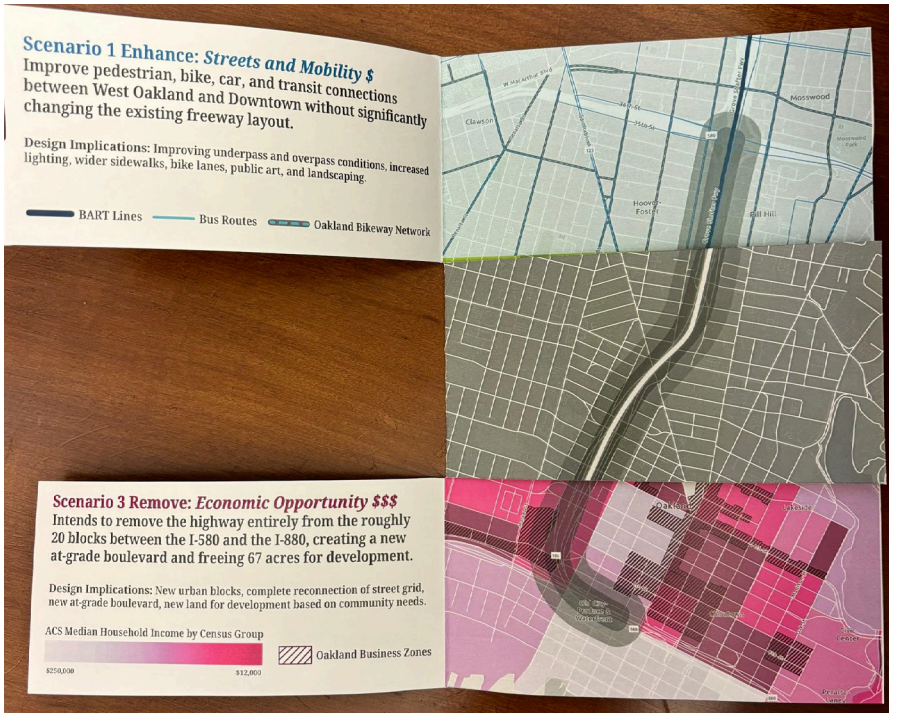
Today, the freeway has a relatively light traffic volume, with commuters and residents often using larger, nearby arterial streets, BART, or the I-880 to move north and south. With a heightened focus on improving mobility and socioeconomic outcomes for Oakland, Caltrans has undertaken a study, Vision 980, for the freeway's removal. My spliced and interactive analog map was created using ArcGIS Pro and Illustrator, and seeks to explore the I-980's lasting division of Oakland even with Caltrans' three scenarios for removal. The static "scar" of the freeway includes a 500-foot buffer to highlight the widespread impact of the freeway and runs through the map at all times.

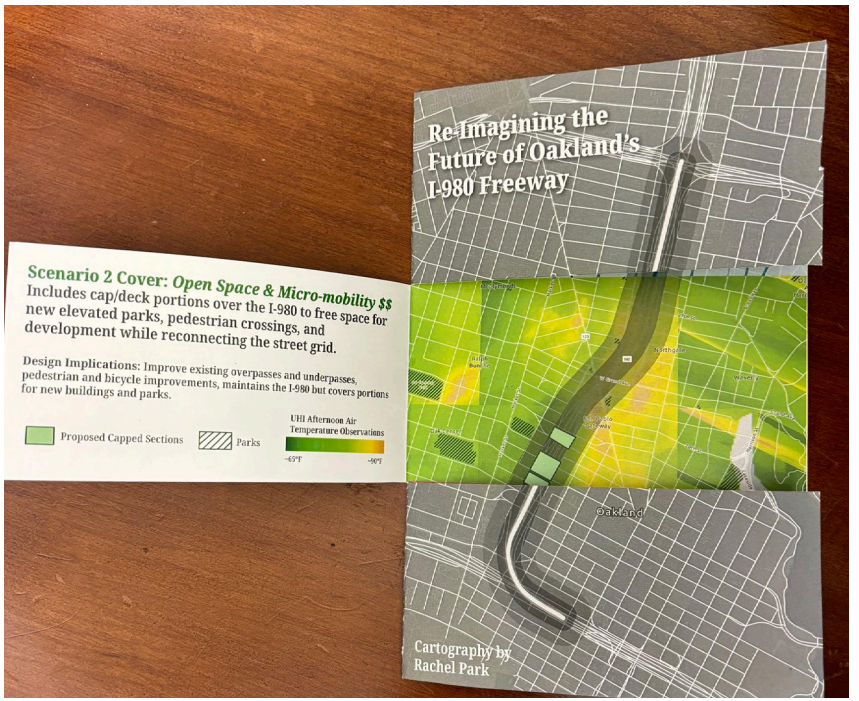
Different maps for each scenario highlight the key opportunities and concerns that scenarios could address:
The ENHANCE scenario includes keeping the freeway and improving car, pedestrian, and bike connectivity. It is mapped with the existing BART, bus, and bike routes to highlight where these improvements could be needed.

The COVER scenario would cap certain segments of the freeway to reconnect the city grid while adding new amenities like parks, businesses, and more. This scenario is mapped with some of the proposed capped sections, nearby green spaces, and Urban Heat Island temperatures to show how the addition of new parks could reduce high ambient temperatures along popular corridors. Lastly, the REMOVE scenario involves complete removal to create an at-grade boulevard to drastically revitalize the region with new economic opportunities. This scenario is mapped with the economic status of nearby residents and the existing business zones to highlight which surrounding areas could benefit most from new potential development.

The spliced layout of the map is not intended to highlight which scenario fits which segment of the map. Instead, it depicts the division that remains in Oakland's urban and social landscape, allows the user to flip between different possibilities, and explores whether a future involving the goals of all three scenarios is possible. As Caltrans enters the second phase of its Vision 980 study, we have yet to see if the removal of the freeway will bring new or limited opportunities to the neighborhoods that need it most.



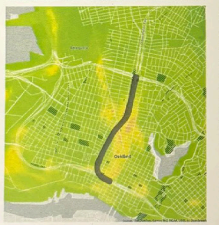




Regional Vicinity Maps

The spliced map layout seeks to explore the I-980's lasting division of Oakland even with future plans of removal, and questions whether a future involving all three scenarios is possible.

How does each scenario target new opportunities to re-connecting West and Downtown Oakland? Will the removal of the freeway bring new opportunity to the neighborhoods that need it most?



Sources and Resources

- U.S. Census Data, American Community Survey
- City of Oakland Open Data Platform
- SFMTA and AC Transit Routes
- Afternoon air temperature for U.S. cities for use in urban heat island mapping from NOAA/CAPA Strategies
- Caltrans Vision 980 Survey

Learn more at:
https://dot.ca.gov/caltrans-near-me/district-4/d4-projects/vision-980

Project Timeline: According to Caltrans, the Vision 980 Study for the removal of the I-980 freeway completed its first phase in July 2025. This phase included collaboration with study partners, community organizations, and the public to bring awareness, gathering input, and identify a new vision for transportation and land use along the corridor.

The project is now in Phase 2, which includes similar collaboration with stakeholders to conduct a more detailed feasibility & technical analysis of the vision.

Berkeley Little Free Libraries

Nori Quist

My map attempted to investigate the relationship between Little Free Libraries (LFLs) and property. As the place that invented single-family zoning, as well as a city with a lot of LFLs, Berkeley was the ideal location for putting information about property and wealth in conversation with information about the locations of these little house-shaped boxes of books.

LFLs are uniquely associated with space, where actions that might otherwise have similar intentions, like donating to an organization that focuses on literacy, are not as spatial. One of the reasons to spend $50 on an official charter number for an LFL is that it then gets put on LFL's geographic index of registered LFL locations. This map had the data I was pulling from for LFL locations, as the people whose book-sharing boxes were on that map had consented more to being mapped than the people who had unregistered lending libraries.

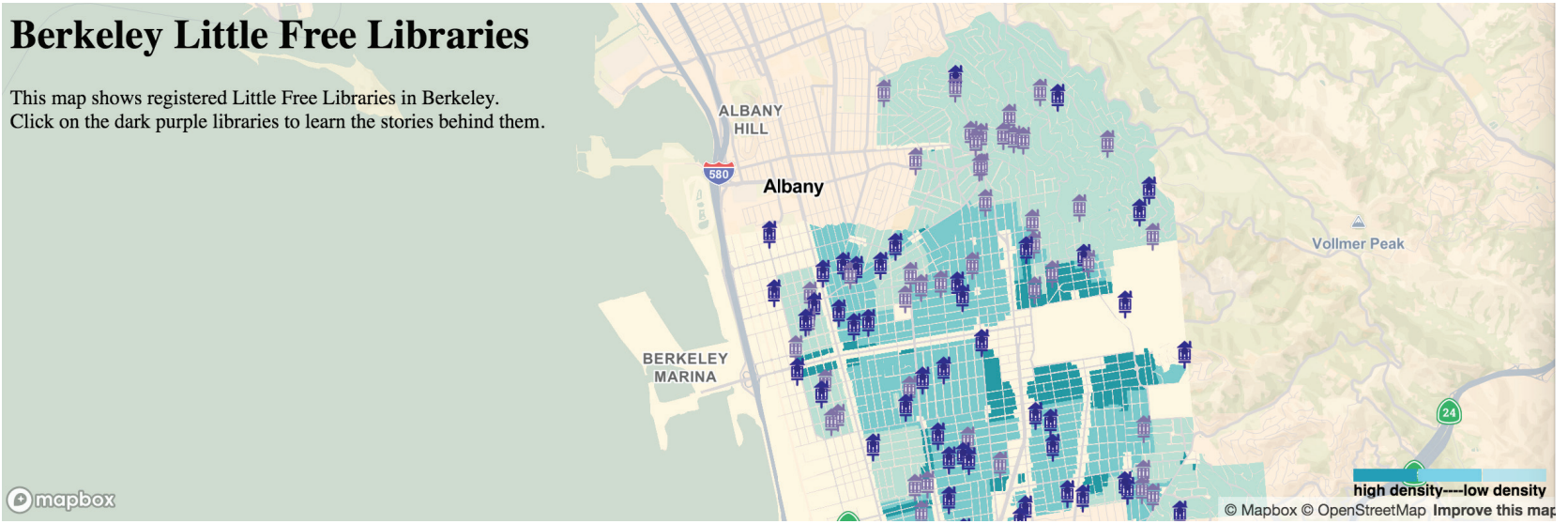
I put the locations of official LFLs in Berkeley over zoning data from the City of Berkeley website. This deliberately distorted cause and effect, in that zoning does not always directly influence people's decision to put up LFLs, but the concentration of wealth that Berkeley's history of single-family zoning enabled makes people in some areas more able to afford books and book paraphernalia like LFLs. Of course, in some cases zoning does have more of a direct effect on the possibility of establishing an LFL, as people living in apartments do not have control over what they put in the space in front of their apartment complexes, so they cannot put up an LFL at all. I also found it humorous that a lot zoned for fewer residencies might be more likely to have a fake house full of books in front of it.

I anticipated that LFL locations would be more common in the areas with the lowest density of residencies per lot, but this was not actually the case. It turned out that the people in the middle zones had a lot more LFLs than I was expecting. In hindsight, this makes sense, as people deep in the Berkeley Hills, where a lot of low-density zoning is, do not live in a place where they would expect a lot of people to walk by their house, thus rendering the LFL pointless.

The combination of control over property and sidewalk traffic in the middle-density zones may motivate people to put up a large number of LFLs there. I tried to use colors that contrasted enough for visibility while also being cohesive. I avoided warmer colors because the high-density housing looked too close to red, which is associated with badness. I used indigo for the clickable houses because it looked good against the teal, and also evoked the color of a link. I used a lilac for unclickable houses, like a link that has already been clicked. The pop-ups are people's stories about why they have LFLs, which shows the human side of LFLs without distracting from the map's main argument.

Berkeley Little Free Libraries

This map shows registered Little Free Libraries in Berkeley.
Click on the dark purple libraries to learn the stories behind them.



Swenson Community Garden

Rianna Samson

Most modern urban and suburban areas lack sustainable land-use design. Permaculture, a design philosophy that models human spaces after natural ecosystems, can create self-sustaining landscapes that support both ecological health and human needs.

I took a Permaculture Design Course taught by Sustainable Solano, a non-profit organization that promotes environmental justice and sustainability in Solano County. My team of four is planning a project to enhance and expand the Swenson Community Garden in Benicia, California using permaculture principles to keep Dr. Swenson's mission alive.

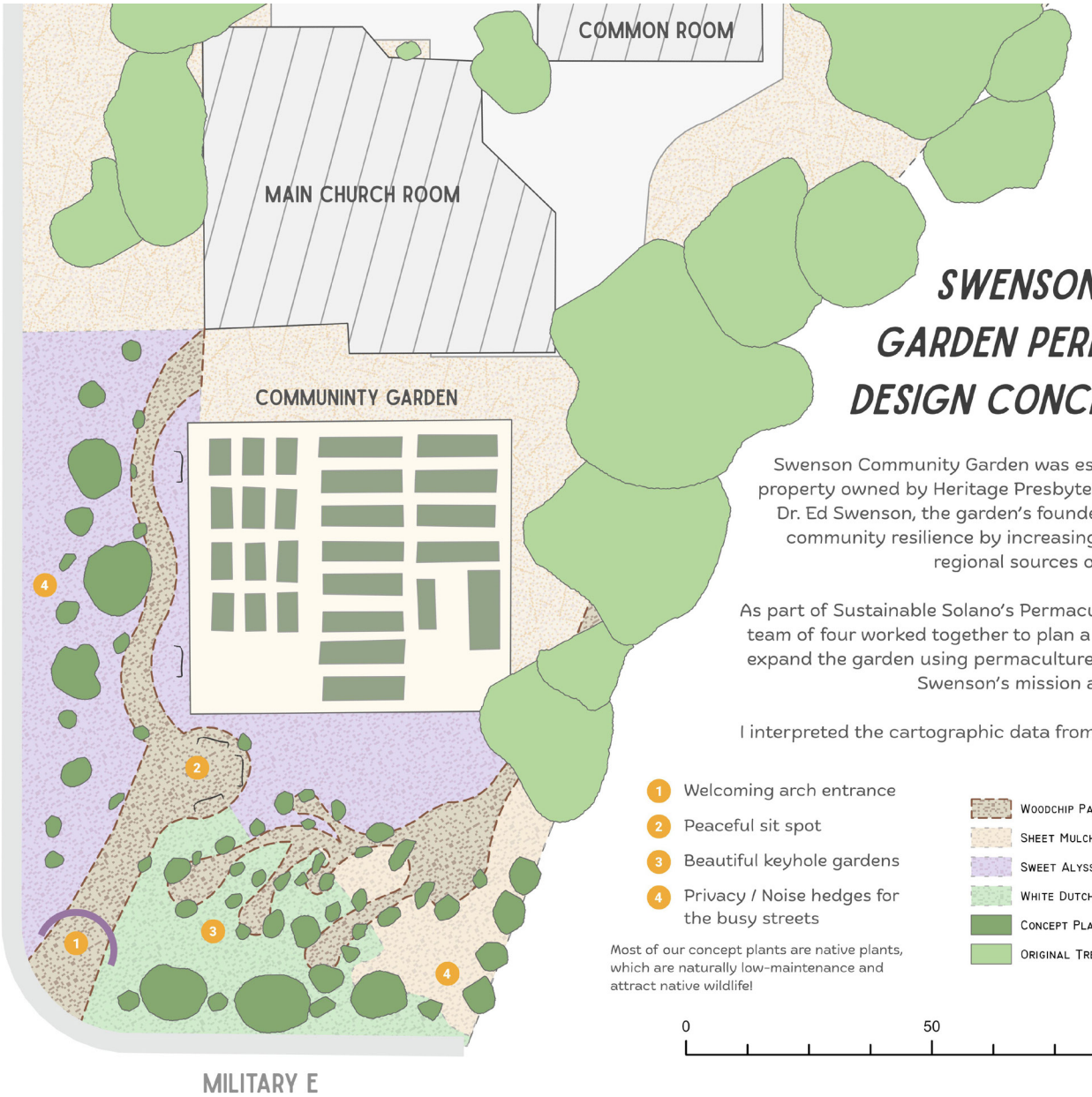
Swenson Community Garden was established in 1999 on a property owned by Heritage Presbyterian Church on 1400 E 2nd St, Benicia. Dr. Ed Swenson, the garden's founder, wanted to strengthen community resilience by increasing access to sustainable, regional sources of food. Community gardens like this face pressure from water scarcity, soil degradation, and especially limited community engagement – challenges that permaculture principles can help address.

The goal of my project is to visualize how permaculture principles can apply to a specific site, and more importantly, how cartography can support site analysis and design decisions. Without cartography, it would have been nearly impossible for my team to collaborate effectively on a shared design concept. Mapping our site allowed us to communicate clearly about our design ideas and how our final design would look in the end.

We initially drew our site analyses and designs on paper, so this project was an opportunity for me to digitize them and make them shareable to a bigger audience. I started this process in ArcGIS Pro where I used the most recent Google Satellite Map to trace the property and all of its features, from the sidewalk to the trees. I played around with the features' symbologies until I felt satisfied with how my maps looked, and then I imported the maps into Illustrator where I added text, symbols, and finalized the whole layout.

Using scale, orientation, and visual hierarchy, I intentionally emphasized the most important site elements. The scale and orientation allows viewers to easily focus on the site and proposed design, while the color palette prioritizes the plants and garden expansion, making them feel more prominent than the surrounding Church buildings. Additionally, I chose to use dashed lines to symbolize uncertainty and possibilities in our design. A base map of the site is given so that viewers can see the transformation our design gives.

Ultimately, I was able to turn our design from an abstract idea into a clear, accessible vision for the future of the Swenson Community Garden. By making the design readable to a wider audience, it may increase the likelihood that our permaculture-based proposal can move beyond the planning stage and into real implementation.



SWENSON COMMUNITY GARDEN PERMACULTURE DESIGN CONCEPT MAP

Swenson Community Garden was established in 1999 on this property owned by Heritage Presbyterian Church in Benicia, CA. Dr. Ed Swenson, the garden's founder, wanted to strengthen community resilience by increasing access to sustainable, regional sources of food.

As part of Sustainable Solano's Permaculture Design Course, my team of four worked together to plan a project to enhance and expand the garden using permaculture principles and keep Dr. Swenson's mission alive.

I interpreted the cartographic data from Google Satellite (2025).

1. Welcoming arch entrance
2. Peaceful sit spot
3. Beautiful keyhole gardens
4. Privacy / Noise hedges for the busy streets

Most of our concept plants are native plants, which are naturally low-maintenance and attract native wildlife!

- Woodchip Path
- Sheet Mulch
- Sweet Alyssum
- White Dutch Clover
- Concept Plants
- Original Trees
- Sidewalk
- Buildings
- Concrete
- Dry Grass
- Garden Beds
- Community Garden

0 50 100 FT

RIANNA SAMSON 2025

Tree of Life

Nicole Shkurovich

The symbol of the tree of life nods to the mish-mash of my cultural, spiritual, and political story. The tree of life as a base map helps me locate questions and stories throughout different points of my family's immigration. It becomes a medium through which I can connect threads of my family's personal history, trace their movements, and interrogate how my positioning in the world has come to be. Each of the 18 elements, whether that be a relief sculpture, a photograph, or a document, pinpoints a certain time, place, and experience.

I draw on Doreen Massey's "Traveling Time" to understand places, and similarly maps, as "simultaneous." As inhabitants of homes or foreign places, each place is a "a momentary coexistence of trajectories, a configuration of a multiplicity of histories all in the process of being made."[1] In my map, the nonlinear timeline disrupts conventional understandings of time and place. Tree roots and branches become less hierarchical and arrowlike. I seek to think of them as rhizomes: "an enmeshed root system, a network spreading either in the ground or in the air, with no predatory rootstock taking over permanently."[2] The map dissolves the binaries of exile/belonging, nation/nationless, and rooted/rootless, and rather, reinforces a newer understanding of belonging in politics, like that of Judith Butler's "non-homogenous and plural political formations" and "cohabitation."[3] Putting myself on the map helps create a sense of rootedness, showing how rather than being "placeless," I have many geographical, and thus social, connections. The rhizomes bring me closer to the idea of Daniel Boyarin's "diasporism":

> "I propose diaspora as a kind of cultural situation in which a group of people—the Jews, for instance—are doubly situated (culturally) at home and abroad, located in their doikayt—here and now—but also culturally and affectively bound to similar collectives that are in other places, and perhaps others times as well, which we could name their Yiddishkayt, their Jewishness, or, in order to avoid Ashkenazocentrism, their Judezmo or Judaïté."[4]

As a person of Diaspora, I can morph and exchange, while maintaining the integrity of my identity. It is a paradox: to survive, my family has both stayed rooted to one people and culture—Jewishness— yet distant from absolute devotion to a place and nation. Jewishness transcends nations, boundaries, and empires. In another sense, being speculative of getting too comfortable in just one place creates generational anxieties. The map points to the tension in having these perspectives. It could also showcase the tradition of solidarity through cosmopolitanism. In mapping memory, I depict Michael Rothberg's theory on "multidirectional memory,"[5] and how "memories are mobile; histories are implicated in each other…The only forward is through their entanglement." For generations, my family, among those who have faced displacement, have tried understanding who we are. This impossible task seems just too large to even begin unpacking. And yet, this map gives us a means to come closer to that. What unfolds if we take the time to travel through the contours of our memory?

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1 Massey, D (2000) Travelling Thoughts.: In L Grossberg, A McRobbie and P Gilroy (eds) Without Guarantees: Honour of Stuart Hall, London: Verso. 209.

2 Glissant, E. (1997) Poetics of Relation. University of Michigan Press. Ann Arbor. 11

3 Butler, J. (2013) Parting Ways: Jewishness and the Critique of Zionism. Columbia University Press: New York

4 Boyarin, D. (2023) The No-State Solution: A Jewish Manifesto. Yale University Press: New Haven.

5 Rothberg, M. (2009) Multidirectional Memory: Remembering the Holocaust in the Age of Decolonization. Stanford University Press: Stanford.


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Tree of Life/Árbol de Vida/עֵץ חַיִּים
By Nicole Shkurovich
1810
Home
Leaflet

Le Havre: Palimpsest

Saankya Suresh

For my final project, I took inspiration from my own life, historical knowledge, and resources from this class to construct a hand-drawn multidimensional map, akin to an interactive palimpsest, of Le Havre, a Normandy city in Northern France. It is made of three layers: the current city layout derived from web maps, the historical urban plan from before WWII, and the final elements like the title and markers identifying pre-war spaces still standing, that viewers flip down to lay on top of each other.

This map was inspired by my first two years of college growing personally while exploring the historically complex Le Havre, like celebrating graduation with friends on a cliffside WWII bunker. Le Havre was bombed horrifically during WWII, decimating the landscape to rubble, at which point August Perret had to redesign the city quickly. While it is a UNESCO World Heritage Site, it is also a brutalist anomaly among the quaint Normandy villages. Since it was rebuilt rapidly, there are a handful of surviving buildings, which I saw when I would go on nightly walks.

I chose to draw this map by hand, as I wanted to explore it more and emulate archived plans, carefully drawn using rulers and grids. After preliminary research to confirm there was enough publicly accessible historical data, I chose a zoomed Mapbox web capture of Le Havre as the layout for the current city plan. Then, I used a map of the city's port area by W & A.K. Johnson from their 1923 travel guidebook to narrow my focus and trace, depicting the landscape before WWII bombing. To line up the two layers when drawing, I digitally made them transparent and overlayed them to see common points, like Bassin du Commerce and Boulevard de Strasbourg.

To accurately present the final layer, I sourced information from French Moments, Nutrisco, the digital heritage library of Le Havre, Un Ete Au Havre, Archives, and See Beautiful Places to gather the address and information about remaining pre-war buildings to load into Geojson and visualize markers. Then, I transposed this onto the drawn final layer with the title and project description. I colorcoded buildings based on their survival status, chose a gothic, serif font typical of archival maps, but with a sans serif description to blend the eras. The base layer was muted and simplistic, resembling online navigational maps, while the pre-war map has more shading and brighter colors, to imitate early 20th-century archival sketches. I used arrows to guide readers to inserts with information about the buildings, with a legend of the color coding to distinguish the level of survival and restoration tactics.

Le Havre's disconnection with their history attributed to limited preservation tactics post-war in the hopes of rebuilding have led to political and cultural trauma. Through these layers, the map visualizes the remnants of trauma within a city, from the bombing and what was left behind, to the striking modernity. This map links pre-war and post-war Le Havre, allowing the viewers to time travel, interact with the city, and confront the absence and destruction caused by war.

LE HAVRE: A PALIMPSEST

This is a tri-layer map with the current city plan, the 1923 city plan with historic buildings, and informational markers to depict the evolution of Le Havre through Wond War 2.

By Saankya Suresh.

— Legend —
→ : survived, with restoration
→ : survived fully

Hotel du Ville:
While designed by Auguste Perret, it was constructed to maintain the same layout and location post-war.

Bassin du commerce:
Dug in 1792, it was for commercial trade and bartering. It was restored/repaired in 1946.

Palais des Justice:
This is the judicial institution of the city, designed by Jules Bourdais in 1876.

Gare du Havre:
The main train station of the city was built in 1932 by Henri Pacon with minor repairs after bombing.

Monument aux morts:
constructed in 1924, this sculpture honored WWI, and now WWII, fallen soldiers, remaining unscathed through WWII.

Natural History Museum:
Founded in 1837, the museum housed extensive scientific collections, many destroyed in the bombings. The facade survived, but the rest was restored by Perret in an identical structure.

Cathédrale Notre-Dame du Havre:
This is the oldest building in Le Havre, as it was built in 1820 (belltower) and survived the bombings of WWII. It was bestowed cathédrale status when the decese of Le Havre was confirmed.

Quai de l'Ile (street):
Bordering the port, many of the houses survived the war, resembling those of nearby Normandy villages. It also has a long-standing fish market.

Fuel Cycle Atlas

Benjamin Szeghy

The Fuel Cycle Atlas challenges the reader to grapple with tangibility in a subject inherently intangible, and focuses on bringing previously under-platformed perspectives into the broader conversation of the future of energy in America.

As energy needs have skyrocketed, attention has returned to Nuclear as a clean, safe, and reliable way for America to power its future. While flashy headlines advertise ventures in new advanced reactors, another sector of the industry is quietly growing to accommodate: the Fuel Cycle, or the mining, milling, fabrication, and storage of Uranium Fuel. Unlike reactors, which fail so rarely that there is not even enough data to create a model that predicts the ramifications of a meltdown, the fuel cycle is a messy, dangerous, and largely unregulated business. This project critically explores this, not to hamper progress, but to participate in a practical and sober discussion about risks and tradeoffs given the lessons we can learn from past mistakes.

To start, accessible uranium resources are not distributed evenly. Proven reserves are clustered in the Rocky Mountain area, extending down to the Southwest/Four-Corners region. This means that uranium extraction tends to interact with indigenous territories. This has led to a messy history, most notably with the event of the Church Rock Uranium Mill Spill in 1979, where thousands of tons of radioactive mill tailings broke through a faulty dam and contaminated a Navajo Community. There is still contamination present to this day. On the other hand, a DOE program called the Collaboration Based Siting Consortia seeks to involve tribal groups in the process of nuclear development and concentrate the economic benefits of energy transition around these communities. In order to center this nuance, the first map in my atlas begins by intersecting the uranium geological resource areas with tribal territory. As a whole, it serves as a spatial index by locating every site associated with the Uranium Fuel Cycle in America.

The booklet features 3-dimensional, shadow-box style popout maps of two abandoned open pit uranium mines, both on or near tribal territories. The first is the Midnite Mine, located on Spokane Territory in the state of Washington. The second is a few of the pits in the Gas Hills Uranium Exploration District in unincorporated territory in Natrona County, Wyoming, adjacent to the Wind River Reservation.

“Energy” is such an inherently intangible subject, that it can be nearly impossible to discuss in practical terms. We can learn about fossil fuels, climate change, and large-scale infrastructure, but it is so impractical and distant that when we flip on a light switch, we never think about what went into producing that power, and what the true cost of it is. These maps display the scars in the Earth left by the uranium mining industry in a minimalist architectural papercraft style. They are arranged in a booklet as 3d-popouts explicitly to require physical interaction, so the viewer must get hands on with the source of the energy they consume. The “atlas” features a final page that is intentionally left blank, as there are many sites that remain to be featured, and uranium mining is an industry that is set to continue growing. My hope is that someone who sees interacts with the Fuel Cycle Atlas leaves excited about the future, but aware of the costs.

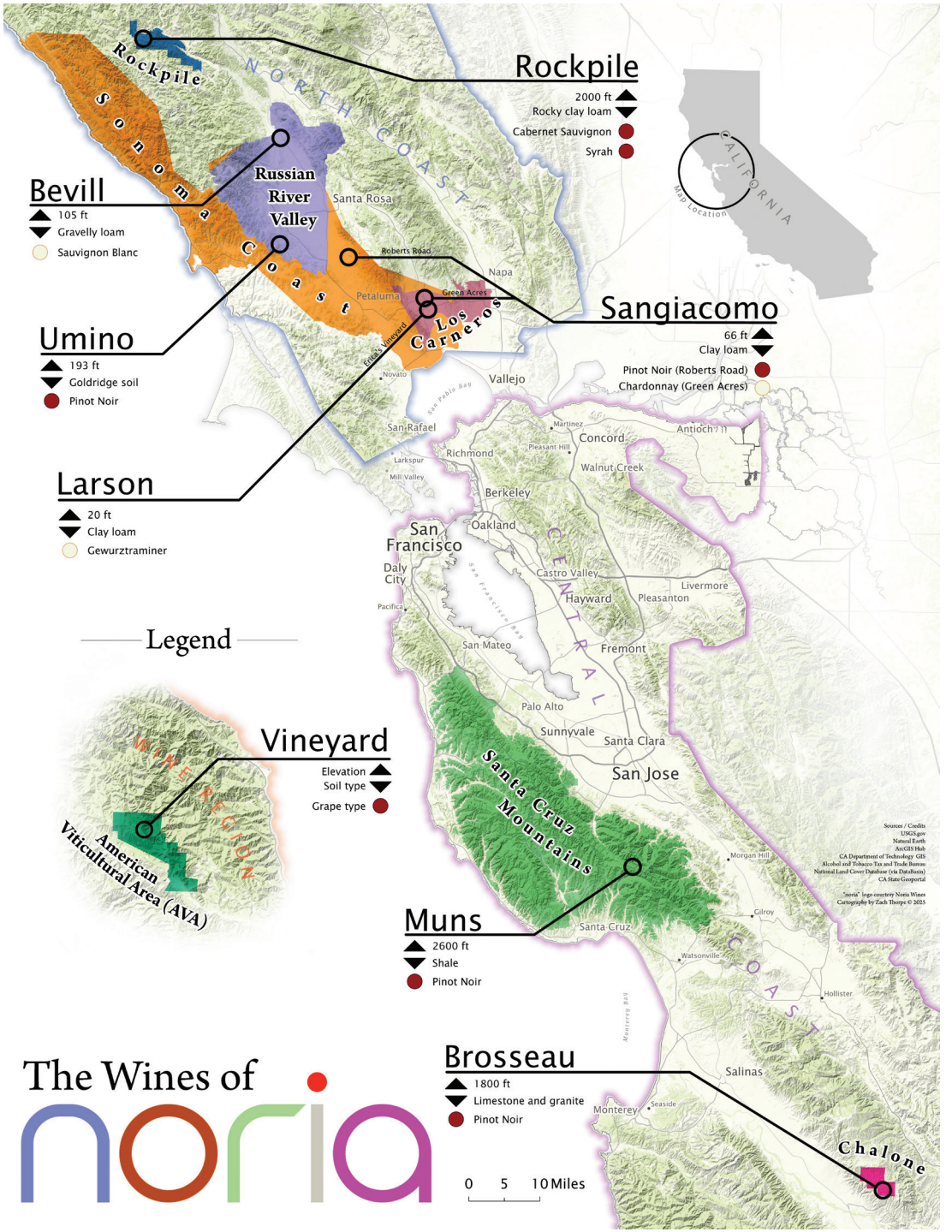

GAS
HILLS
NATRONA, WYOMING
0
0.17
0.35
0.7 Miles
N

The Wines of Noria

Zach Thorpe

The Wines of Noria is a map that shows the vineyard locations and characteristics, American Viticultural Areas (AVAs), and broader wine regions associated with the wine-making process of Noria Wines, a local winery and tasting room in Berkeley, CA. This map came about while visiting their tasting room and noticing the maps they used to show where their grapes come from contained unnecessary (and even an overwhelming amount of) information, making the map difficult to interpret for those who may be new to Noria or even to the world of wine. I approached them to offer a map redesign, beginning a collaboration to make a map that would focus not only on the specific vineyards and areas associated with their work, but to also explore new definitions of what a wine map could entail through a clean, contemporary look to match the visual aesthetic of their branding and tasting room. This process began an exploration into what new elements could be added to a traditional wine map that pertain to the wine-making process: how could one cartographically represent climate, temperature, geology, elevation, proximity to water and fog, and other factors that influence the wine-making process and the place of a vineyard itself?

I began exploring this by constructing a basemap inspired by classic topographic maps to focus on elevation, a key factor the winemakers wanted to represent. After combining hillshades generated from DEMs from USGS with a tree canopy layer classified from a broader land use dataset from the NLC Database, I added further visual elevation enhancement by blending a very subtle "mist" effect via an inverted DEM color gradient that lightens lower elevations to introduce the idea of fog and how it may interact with certain vineyards. The AVAs were colored according to Noria's branding guidelines and blended into the basemap in such as way as to "bake" them into the Earth, suggesting that the AVAs are part of the land itself. The broader wine regions where "magnified" through a combination of boundary gradients and a subtle lightening of the negative space surrounding these regions, creating greater visual dimension and focus. To prevent overcomplicating the information of the map, the soil and grape types were added as labels to each vineyard which maintains the clean, modern aesthetic to match Noria's environment. The overall balance and and focus of this map was achieved through consideration (and compromise) of intentionally adding, omitting, or transmuting how certain wine-making characteristics could be represented cartographically, thereby making a more robust map that accessibly provides context the story of Noria and the wines they produce, as well as educating about the world of wine more broadly.


Rockpile
2000 ft
Rocky clay loam
Cabernet Sauvignon
Syrah
Bevill
105 ft
Gravelly loam
Sauvignon Blanc
Umino
193 ft
Goldridge soil
Pinot Noir
Larson
20 ft
Clay loam
Gewurztraminer
Sangiacomo
66 ft
Clay loam
Pinot Noir (Roberts Road)
Chardonnay (Green Acres)
Vineyard
Elevation
Soil type
Grape type
Muns
2600 ft
Shale
Pinot Noir
Brosseau
1800 ft
Limestone and granite
Pinot Noir
Chalone
Legend
Wine Region
American Viticultural Area (AVA)
Sonoma Coast
Russian River Valley
Los Carneros
Santa Cruz Mountains
NORTH COAST
CENTRAL COAST
CALIFORNIA
Map Location
Rockpile
Santa Rosa
Roberts Road
Napa
Petaluma
Green Acres
Ehlers Vineyard
Novato
Vallejo
San Pablo Bay
San Rafael
Martinez
Concord
Antioch
Pleasant Hill
Richmond
Walnut Creek
Larkspur
Mill Valley
Berkeley
Oakland
San Francisco
Daly City
Pacifica
San Francisco Bay
Castro Valley
Livermore
Hayward
Pleasanton
San Mateo
Fremont
Palo Alto
Sunnyvale
Santa Clara
San Jose
Morgan Hill
Gilroy
Santa Cruz
Watsonville
Hollister
Monterey Bay
Salinas
Monterey
Seaside
0 5 10 Miles
Sources / Credits
USGS.gov
Natural Earth
ArcGIS Hub
CA Department of Technology GIS
Alcohol and Tobacco Tax and Trade Bureau
National Land Cover Database (via DataBasin)
CA State Geoportal
"noria" logo courtesy Noria Wines
Cartography by Zach Thorpe © 2025
The Wines of
noria

Chongqing: Pictorial City, Measured City

Zhexin Tong

This project visualizes the development and resilience of Chongqing through historical cartographic representations, tracing how the city has been imagined, structured, and navigated across time. Rather than presenting a single authoritative map, the project juxtaposes four historical maps from 1735, 1886, 1943, and 1990 to reveal how shifts in geography, governance, infrastructure, and mobility reshaped the way Chongqing was understood and represented, and how that progress has been presented by Chinese Cartographers. The map is less about precise spatial accuracy and more about how mapping itself reflects changing priorities and worldviews.

Creating this map was technically and conceptually challenging. Each historical map differed in scale, orientation, projection, making direct comparison difficult. I georeferenced the later maps where possible and manually aligned earlier ones that lacked consistent spatial reference, and are far from geographically accurate. These imperfections were also intentionally left in to highlight the subjectivity of Chinese historical mapping conventions. The project was built as a web-based scrollytelling map using Leaflet, with layered image overlays, custom feature layers that singled out major focus of that map and left on for its following one for visual comparisons in the priority difference.

The design emphasizes visual narrative over textual explanation. Chinese map titles are retained, while explanatory text is provided separately, avoiding direct translation of map labels. This choice resists an “English-first” interpretation and invites viewers to engage with unfamiliar symbols, spatial cues, and visual hierarchies. “Making people confused” was one of my main purposes, when you don’t understand a language, the visuals become much more important and people will pay more attention to it. Cropped feature elements, such as city walls, boats, and roads, persist across maps to act as visual anchors, reinforcing continuity even as the surrounding cartography changes. These elements fade in and out deliberately, mirroring how different urban features receive more focus during different ages.

The landing page foregrounds a 1735 pictorial map that fills the entire frame, immersing viewers in a terrain-defined Chongqing shaped by mountains and rivers. As the viewer scrolls, this image dissolves into later maps where administration, circulation, and modern infrastructure increasingly dominate. The left–right layout of narrative text and map balances interpretation with observation, while opacity controls allow users to have full control and freedom to explore overlap and tension between layers.

Ultimately, this map is about urban resilience not as a static quality, but as an ongoing process of adaptation. Chongqing’s development emerges through changing representations of access, movement, and urban life, demonstrating how cities are continually redefined.

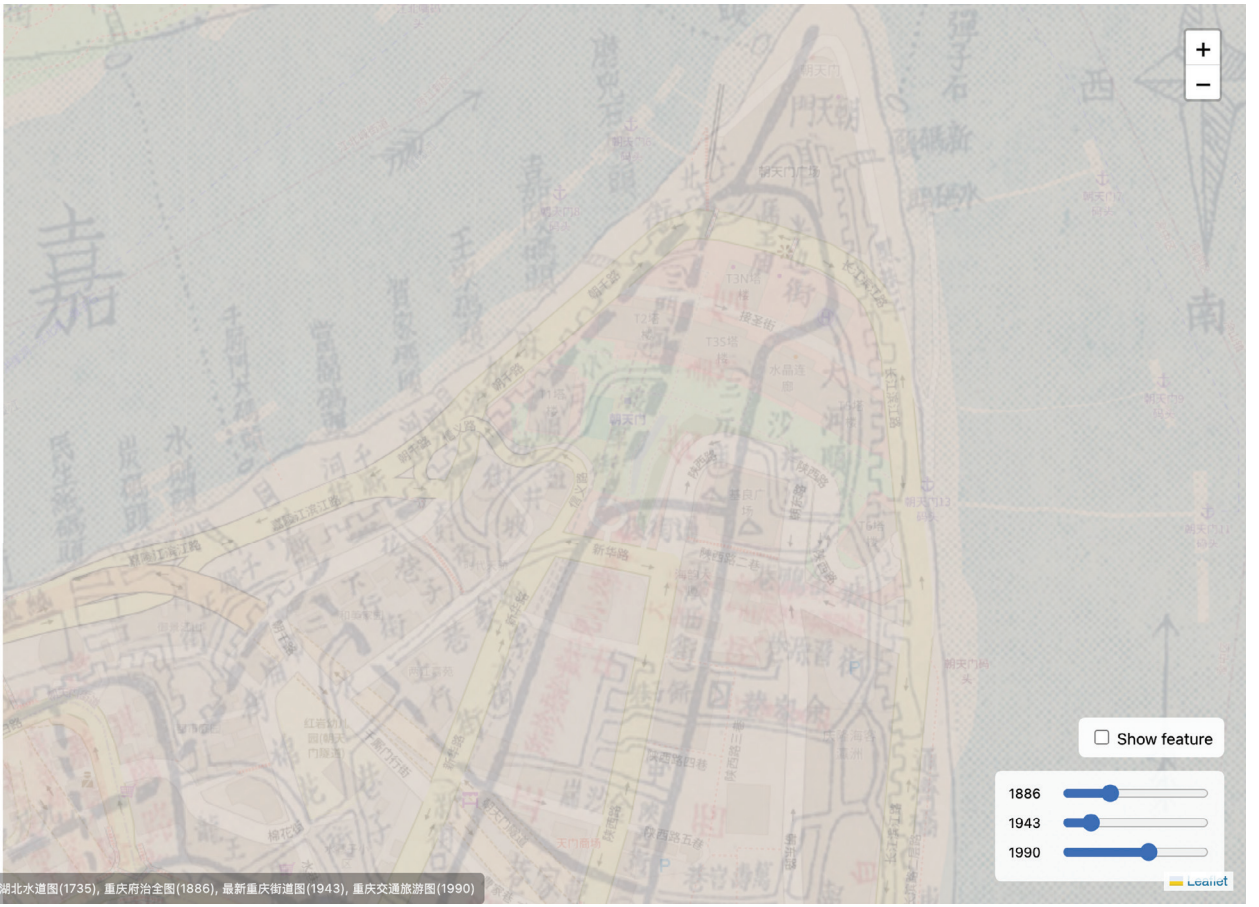
1943

最新重庆街道图

Latest Street Map of Chongqing

REPUBLICAN ERA

Produced toward the end of the wartime bombing of Chongqing, this map reflects a city increasingly shaped by circulation, infrastructure, and movement under crisis conditions. As Chongqing served as China's wartime capital, rapid population growth, administrative expansion, and logistical demands required a more legible and connected street network. Roads, intersections, and routes become the dominant organizing structure, redefining urban space through connectivity and mobility rather than territorial boundaries or symbolic landscape.



Mapping the Pacific

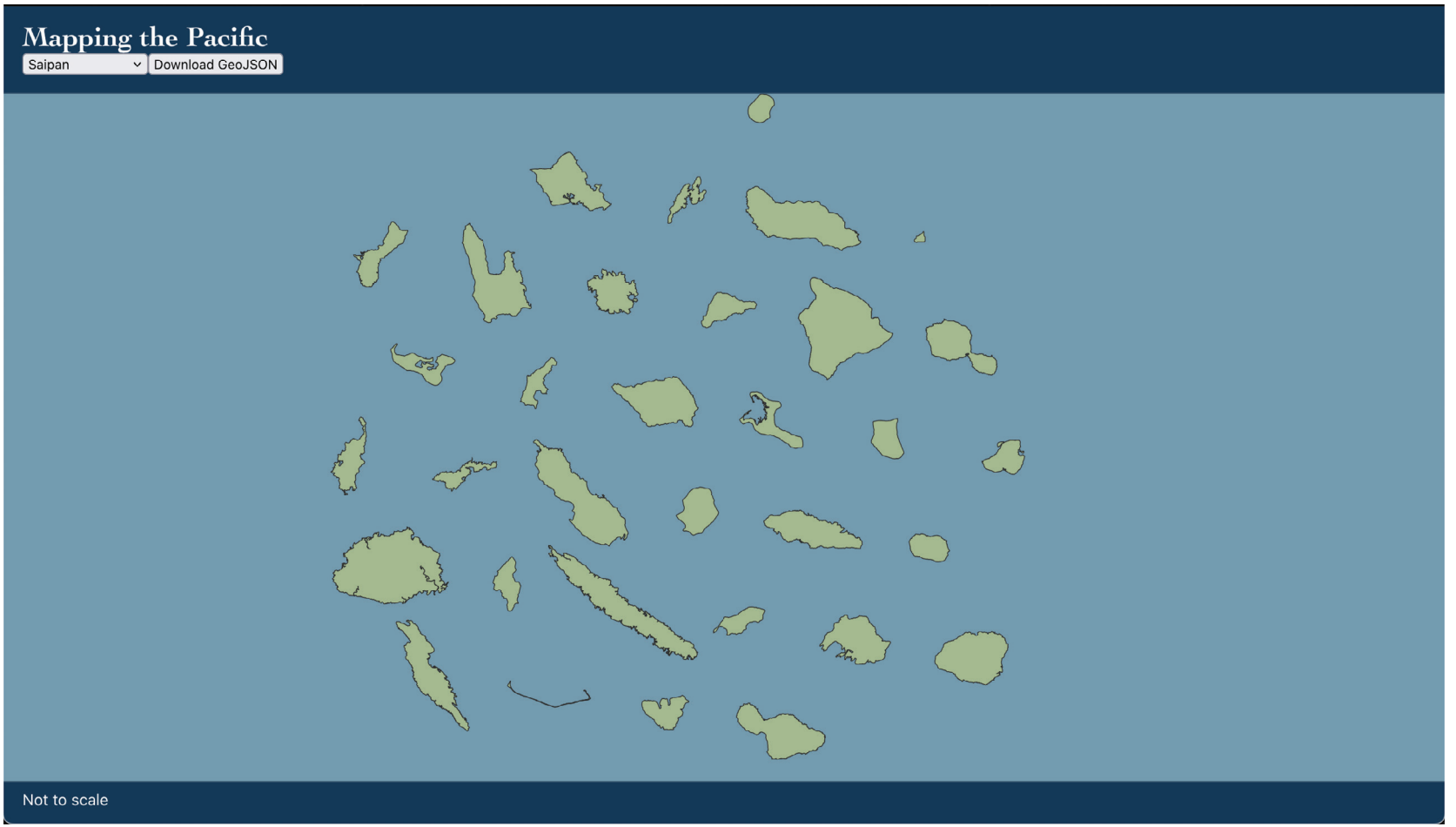
Richard Villagomez

My cartographic project is a web map of the Pacific Islands. For scalability, it is currently a map of only around 30 GeoJSONs of individual islands. This project stemmed from my URAP work, focused on making geospatial data on the Pacific Islands more accessible. The professor helped me brainstorm, and helped me realize one of the biggest issues with maps on the Pacific Islands: it is difficult to find maps that truly focus on the Pacific Islands. Many islands are small, and most commonly used world maps are not centered on the Pacific, making the region harder to see and leading fewer people to engage with it on a map.
As a Pacific Islander, one of my main motivations for wanting to create this is that many maps group the Pacific Islands into Micronesia, Polynesia, and Melanesia, but to many of us, those classifications don't mean much at all in everyday life. At the same time, growing up in the CNMI, I admittedly did not know much about island groups outside of Micronesia. It was through conversations with the professor that I began to question whether I even wanted to use a traditional map projection at all. Many projections make Pacific islands appear small, distant, and difficult to locate, reinforcing the idea that the region is marginal or empty.

Instead of using a standard projection, I used D3.js, a JavaScript library for data visualization, to display the raw GeoJSON geometries with a custom approach. My intial goal was to preserve relative geography—for example, ensuring that Saipan would still appear north of Guam— by computing the geographic centroid of each island and mapping those centroids into a custom coordinate system. However, I ran into significant technical challenges when trying to project and render those centroids directly into the SVG, and I was ultimately unable to get the GeoJSONs to display correctly within that framework.

As a result, I took a different approach. I assigned each island a deterministic but 'arbitrary' starting position using a hash function and used d3.forceSimulation to gently pull the islands together while preventing overlap. While this approach does not preserve strict geographic positioning, it allowed the islands to be displayed larger and more legibly. In some ways, this shift became conceptually meaningful: seeing the islands enlarged and freed from a rigid projection made me pay closer attention to their actual shapes and spatial relationships, rather than treating them as tiny points on a world map.
I also implemented GeoJSON downloads, allowing users to click on an island and automatically select it from a dropdown menu, making it easier to access and reuse the underlying data.

While I was not able to scale this version of the map to include all 9,000+ GeoJSONs I currently have due to performance and scalability constraints, I am excited to continue exploring ways to visualize Pacific Islands data at larger scales. I also recognize that choosing a subset of islands to display is itself a consequential design decision: deciding which islands appear reinforces hierarchies of importance and visibility. In future iterations, I hope to add features that better surface Indigenous knowledge, support multiple ways of organizing islands beyond colonial groupings, and more meaningfully "center" the Pacific, both visually and conceptually.


Mapping the Pacific
Saipan
Download GeoJSON
Not to scale

This is a Time Machine

Cory Wack

This map emerges from a central problem: as human beings, we live sealed inside the interiors of our own minds. Our private consciousness is the limit of our experience, and because of this we remain fundamentally divided. But what if there were a way (however partial) to access the inner landscapes of others? To hear memories not as abstract stories but situated in physical space? This map is a step toward what a collective human consciousness might feel like: a medium through which individual experiences become collective, layered, and spatially navigable.

In its long-term vision, The Time Machine is an embodied, spatial experience. The ideal form of this project is not a website but a walk: as you move through the world, memories begin to speak to you. Audio reflections are tied to specific locations, revealing the past lives of the very places you are standing in. Physical space becomes layered with emotional and historical depth; through the interface of the map, time and perspective accumulate in the landscape itself.

For this current stage, the experience is intentionally simple. Rather than implementing audio, memories appear as text, listed when you enter their radius. The interface is pared down to “Input” and “Output”—and, for development and grading transparency, a “Map” view. This simplicity is deliberate: the goal is not to draw a user into a screen but to push them outward, into the world. The interface is not the experience, the world is.

Building this prototype involved several technical challenges that became deeply intertwined with the conceptual goals. I implemented persistent storage through Firestore so that memories contributed by one person become part of the shared archive accessible to everyone. Each memory stores geographic coordinates and a user-defined radius, visualized through dynamically generated circles on the map. I also restricted memory creation so that users may only upload a memory from their current physical location. This constraint revealed itself as one of the most profound aspects of the project.

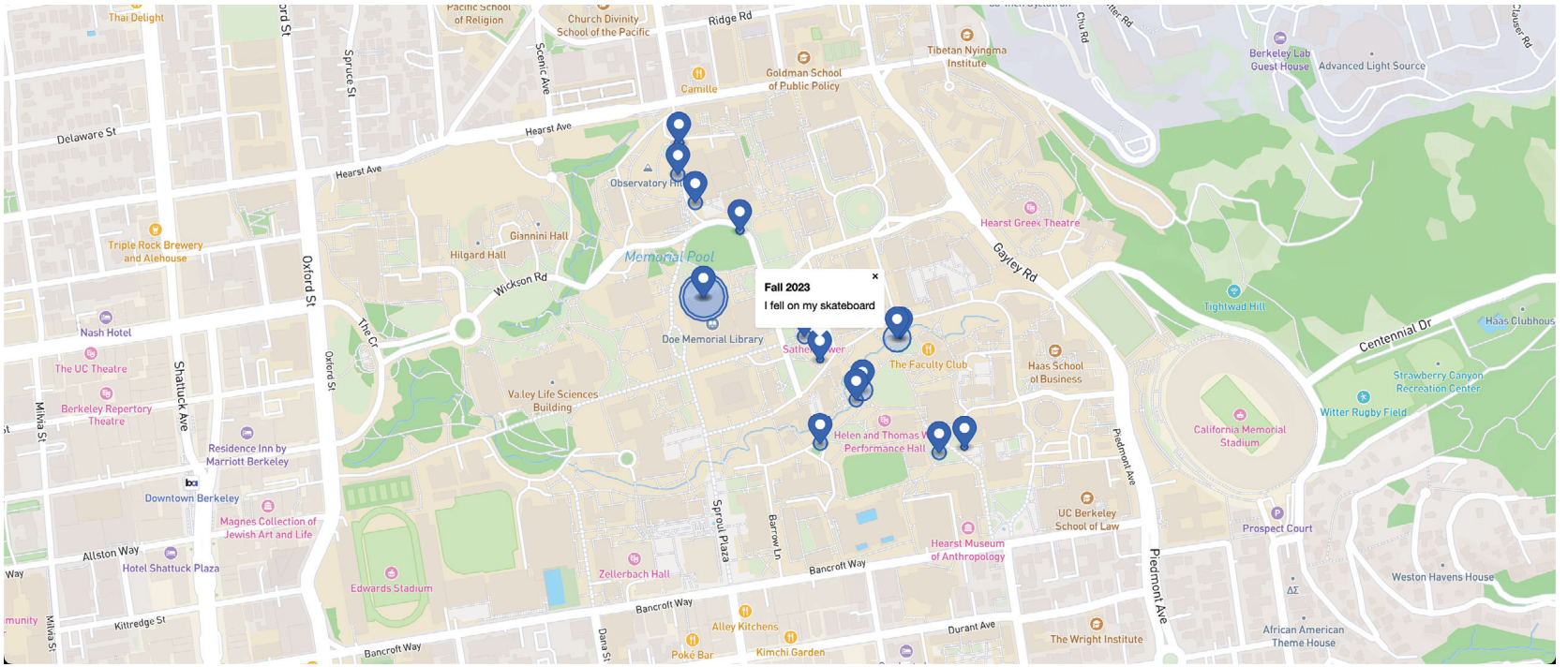
In fact, the most enjoyable part of creating The Time Machine was walking around campus and adding memories live. The restriction to on-location input unexpectedly shaped the experience: as I walked, trying to recall moments that belonged to each space, forgotten stories surfaced. The project became not just a tool for collecting memories but a prompt for rediscovery. It made me experience my environment differently, more attentively, more reflectively. This constraint improved the project by reinforcing its core idea: memories belong to places, and by revisiting those places we revisit parts of ourselves. Now the map serves the purpose of allowing us to experience our own recollections as we upload them, as well as the memories of others as we travel through space

This Is A Time Machine

Input

Output

Map



Ski Run Rating and Map Redesign

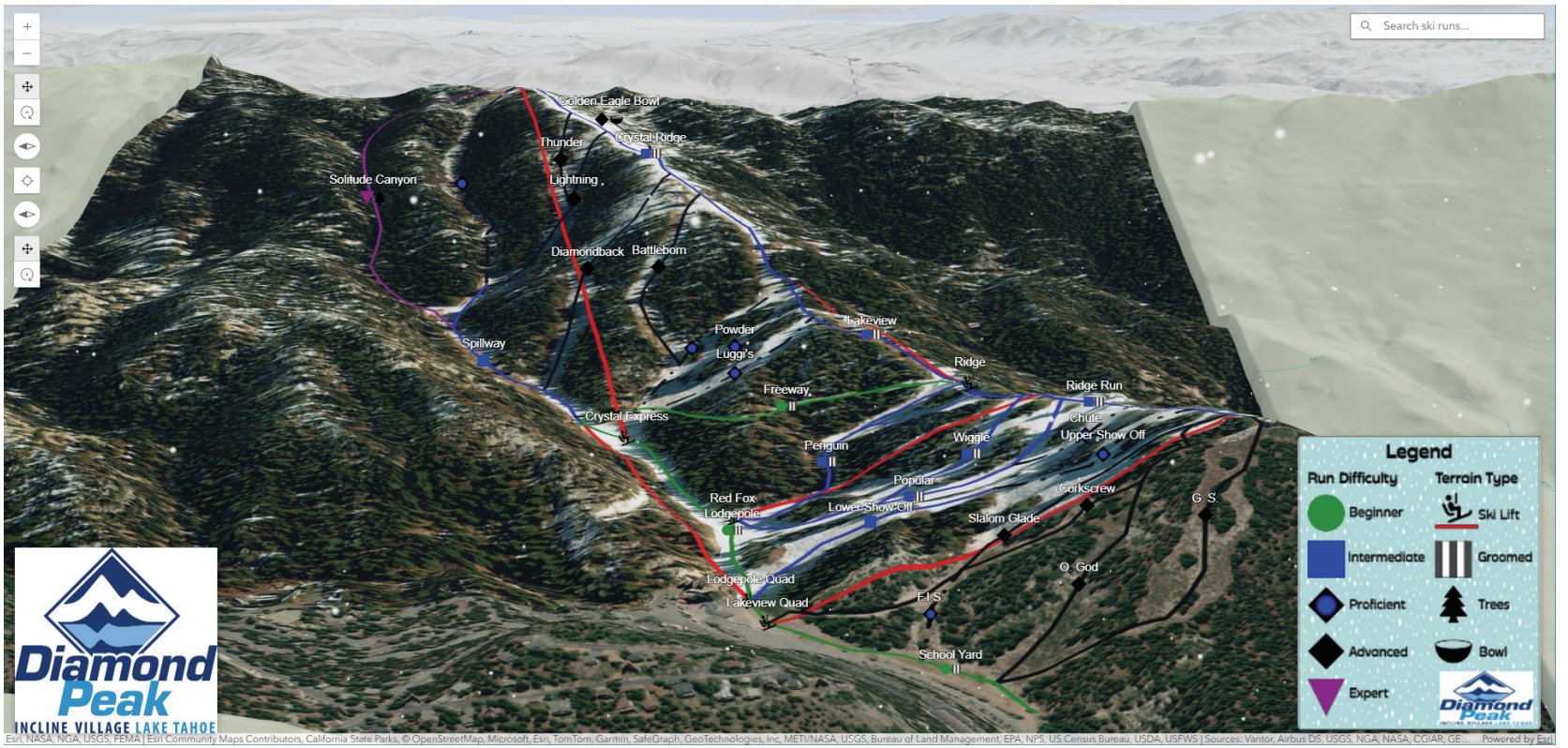
Evan Wiersma

Most North American ski resort maps are static prints, providing condensed and confusing information. Additionally, these maps contain a historically unchanged rating system, which can often be confusing or misleading to beginners and to those looking to improve. The goal of this project was to create a digital ski map that uses detailed satellite imagery to better represent the physical mountain and resort area and, by using existing symbology, make slight adjustments to improve the true difficulty of ski runs. The hopeful end result would be a ski map that any skier can access from their phone (a tool that most skiers have), be able to see their live location on the mountain, and have a better understanding of run difficulty and terrain type.

The main issue I have with the ski rating system is the jump from intermediate (blue square) to advanced (black diamond). This is the level where most casual skiers fall in between, and oftentimes the only difference between a wide, gently sloped, forgiving intermediate run and a narrow, steep, mogul-covered advanced run is a blue square and a black diamond. I first thought of adding sub-levels to each difficulty level, but I found the most adaptable solution would be to just add a single rating in between intermediate and advanced, which I named “proficient.” The symbol for a proficient run is just a blue circle inside a black diamond—signifying it is in between the two preexisting difficulties.

Another issue I wanted to solve within the ski rating system was the advanced (black diamond) to expert (double black diamond) rating. The jump from advanced to expert is usually well marked on the actual mountain with skull and crossbones and “may die” signs, but on the map it appears as the same black color, with just an extra diamond symbol. I feel that this rating should be clearly distinguished from advanced because of the high consequences that can be associated with expert runs. I decided on a purple upside-down triangle, a new symbol and color for the system, but one that clearly distinguishes itself from the other runs.
My last addition to the ski rating system includes an optional additional symbol for terrain type—groomed, trees, or bowl. By providing clear information about the type of terrain, skiers can confidently choose runs they are comfortable with or look to challenge themselves with.

By choosing a digital web map, I felt that there was a huge opportunity to display the mountain and its runs in the clearest way possible—a realistic 3D render of the mountain. With the ability to consent to location permissions, skiers would essentially be able to see exactly where they are on the mountain, from any perspective. Lastly, by adding click and popup functionality, skiers can get detailed information such as run/lift name and difficulty, and while out of scope for this project - updatable terrain conditions and user rating abilities for each individual run.


Search ski runs...
Golden Eagle Bowl
Thunder
Crystal Ridge
Solitude Canyon
Lightning
Diamondback
Battleborn
Spillway
Powder
Luggi's
Lakeview
Ridge
Freeway
Ridge Run
Chute
Upper Show Off
Crystal Express
Penguin
Wiggle
Popular
Corkscrew
G. S.
Red Fox
Lodgepole
Lower Show Off
Slalom Glade
O. God
Lodgepole Quad
Lakeview Quad
F.I.S.
School Yard
Legend
Run Difficulty
Beginner
Intermediate
Proficient
Advanced
Expert
Terrain Type
Ski Lift
Groomed
Trees
Bowl
Diamond Peak
INCLINE VILLAGE LAKE TAHOE
Esri, NASA, NGA, USGS, FEMA | Esri Community Maps Contributors, California State Parks, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS | Sources: Vantor, Airbus DS, USGS, NGA, NASA, CGIAR, GE... Powered by Esri

Cartotopologies

Alexis Wood

Cartotopologies is a first attempt at visualizing the flows of space in a landscape of extraction and resiliance in Northern California.

This map reworks contour lines as annual growth rings (Fig. 1), utilizing the elevations of Mount Shasta to mark particular moments of extraction as spatiotemporal inscriptions. These contours, accumulating outward from each event, display the uneven formations of space. In other words, this map attempts to depict these moments of extraction not as discrete events, but as a process that reorganizes spatial relations - (re)folding the terrain around it.

Each line of a topographic map is already a mathematically-derived surface, but, in this map, these preexisting measurements are reoperationalized. Using a nonlinear spatial reparameterization, uniform time is redistributed into uneven space. Using a monotonic nonlinear function, the piecewise parameters (i.e., how much space time compression and where) can be set based on the needs of the visualization. In this case, the outer rings contain less time than those towards the center. Like dendrochronological records, these new contours index successive moments of transformation, rendering extraction legible as a layered process within a structure (physical and socioeconomic).

Importantly, space never terminates at the moment of extraction; instead, space, like the material of a tree, folds, resisting linear determination. Emphasizing a relational topology in which space is continually reconfigured through processes of removal, accumulation, displacement, and resistance - widely construed - provides a method of mapping the landscape created by and through the landscape itself.

Cartotopologies: Northern California

Alexis E. Wood

This map integrates the topology of Mount Shasta with a spatiotemporal record of extraction of the land and people in rural Northern California. The ground is not a stable surface, but forms through accumulation: debris of colonialism and empire, persistence and resistance. Accumulation enters terrain through the concept of dendrochronology (fig 1), where rings fold duration into form. Here, texture and density operate as both evidence and metaphor, allowing the cartography to act as a record of persistence rather than precision, and, fundamentally, the politics of spatial production.

time immemorial | 14,000 ft
This map is situated on the unceded lands of over 100 Indigenous nations in Northern California. Indigenous peoples are the original and continuing stewards of this land, and this work commits to confronting the interwoven systems of colonial and environmental exploitation that have sought—and continue to seek—their erasure.

1493 | 11,500 ft
Papal Bull "inter Caerera" issued by Pope Alexander VI, stating that any land not inhabited by Christians one hundred leagues west of the Azores was available to be claimed: "the Catholic faith and the Christian religion be exalted and be everywhere increased and spread, that the health of souls be cared for and that barbarous nations be overthrown and brought to the faith itself."

1579 | 11,030 ft
Sir Francis Drake makes landfall in what is known as Point Reyes, CA claiming the land for Queen Elizabeth I under the name New Albion.

1769 | 10,020 ft
Spanish priests establish a series of 21 missions in pursuit of colonization. More than 87,000 Indigenous peoples are abducted, enslaved, and murdered.

1823 | 9,900 ft
The Papal Bull is used in U.S. Supreme Court case *Johnson v. McIntosh* to declare "that the principle of discovery gave European nations an absolute right to New World lands."

1848 | 9,400 ft
Gold is discovered at Sutters Mill on the bank of No'to-mom (*Maidu-Nisenan*) or the South Fork American River, setting off the California Gold rush. This triggers rapid urbanization, a genocide of California Native peoples, mercury pollution, destructive hydraulic mining.

1850 | 9,000 ft
In response to the population influx into the region due to the Gold Rush, California is claimed as a state of the US and a civil government is instituted.

1872 | 9,200 ft
The first land agent for the Central Pacific Railroad bought property in Poverty Flats, CA, now called Redding, so the railroad could build its northern terminus.

1875 | 9,100 ft
A geodetic monument is erected to determine the measurements of the area comprising Northern California: "And the glory is ours; for America, and not Europe, can boast of the largest trigonometrical figures that have ever been measured on the globe."

1910 | 8,900 ft
A fire called the "Big Burn" scorches 3 million acres after forests are rapidly "preserved" without fire management policies. The Forest Service formalizes a fire suppression stance through the "10 a.m. rule," requiring the nearly impossible task of putting out every single wildfire by 10 a.m. the day after it is discovered, producing denser forests and a century-long fuel build up.

1912 | 8,800 ft
Last Chinook Salmon spotted in the Klamath River, after the Klamath River Hydroelectric Project began in 1903.

1930 | 8,600 ft
With the development of internal combustion engines, the timber industry devastates old growth forests along the North Coast and the Sierra Nevada.

1945 | 8,500 ft
Shasta Dam completed to provide water to the Central Valley's agricultural industry, flooding the homes and sacred sites of the Winnemem Wintu.

1956 | 8,400 ft
The Empire Mine, one of the largest, oldest, and richest gold mines in California shuts down over inflation costs and miners' strikes. The mine leaves heavy metal contamination.

1963 | 8,300 ft
Whiskeytown, one of the region's first gold mining settlements, is flooded by the Whiskeytown Dam in service of the Central Valley Project.

1964 | 8,200 ft
Tribes along the Nisqually River begin peaceful "fish-ins" to protest the removal of tribal fishing rights. Law enforcement respond aggressively:
"We had the power ... to exterminate these people from the face of the earth, instead of making treaties with them. Perhaps we should have! ...We certainly wouldn't be having all this trouble with them today."

1973 | 8,200 ft
US Supreme Court Case *Mattz v. Arnett* reaffirmed Yurok land and fishing rights after Yurok fishermen were illegally arrested for fishing.

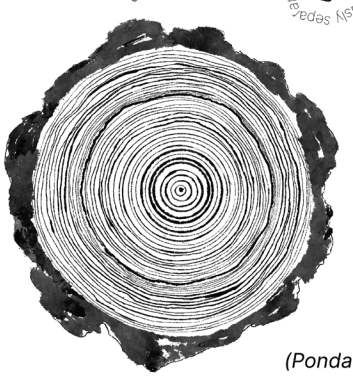
2002 | 7,900 ft
Federal redirection of water from Klamath to farmers causes the largest fish kill (34,000 adult salmon) in the region's history.

2011 | 8,900 ft
Northern CA is classified as a new high poverty area.

2018 | 7,700 ft
The most destructive wildfire in CA history, the Camp Fire, is ignited by PG&E infrastructure mismanagement. Killing 85 people and displacing 50,000.

2021 | 7,700 ft
The second largest wildfire in CA history, the Dixie Fire, is ignited by PG&E landscape mismanagement.

2025 | 7,700 ft
Klamath River Dams removed in largest dam removal project in US history following an arduous campaign by tribal communities. For the first time in 100 years, Salmon return to the Klamath River.



Dendrochronology is a system of fluidity and reaction. Light colored rings grow in the Spring and early summer; the dark rings, late summer and fall. Growth and dormancy.

Fig 1. Pinus ponderosa
(Pondarosa Pine) cross section

Wakanunee-Tuki-wuki *(Shasta)*
Úytaahkoo *(Karuk)*
Bohem Puyuik *(Wintu)*
Mount Shasta, CA

Argonne Community Map

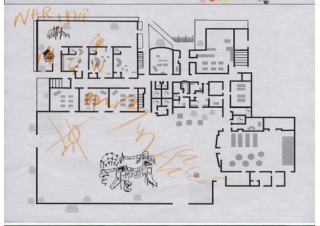
Dasha Yurkevic

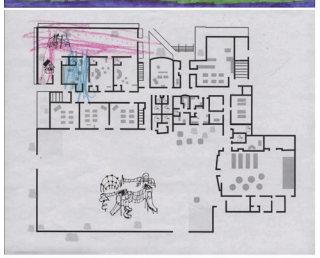
This map is a product of two years of ethnographic research working as a para educator in the Special Day Classrooms (SDC) of a public elementary school in San Francisco. The school has two SDC's with 14 students in each; one 3rd-5th grade classroom with students that are 7-11 years old, and one Kindergarten-2nd grade classroom with students that are 5-7 years old. I had the opportunity to work in each classroom for about a year.

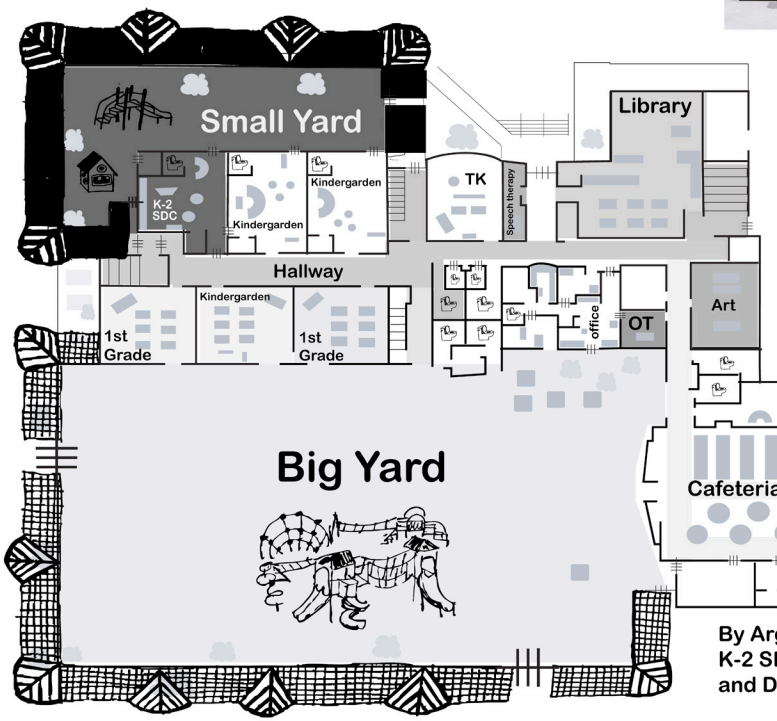
The students within the classrooms fall into a wide range of classifications of neurodiversity, which are then written into their Individualized Learning Plan (IEP). A legal document- which legalizes the segregation of neurodiverse students into SDC classes. Although the legal language of IEPs mandates that all students have access to least restrictive learning environments, with each having mandated "integration" time in general education classrooms, this map shows how this meager language of desegregation is rarely enacted in SFUSD public schools. Integration into general education classrooms requires one of the paras to accompany the student in the classroom, which is rarely possible with how SFUSD SDC classrooms are staffed. Often during the half hour to hour that they spend in general education during academic time, the SDC students are segregated by seating arrangements. Segregation of neurodiverse students teaches ableism to everyone, even educators. I observed the amount of students who were integrated into general education classrooms, and how many were allowed to leave the classroom, where they could go, and how many K-2nd SDC students were confined to the classroom and the small yard for the full 7 hours of school over a 9 month period.

I first drew a base map, outlining a fire map of the school's layout, then I printed out the base map and passed it out to my students with the prompt to color in where they where they go within the school. Some of the students had never seen a fire map, so I made a slideshow with three points of reference: the big yard (colored orange), the small yard (colored green) and the bathrooms (colored red). A few of the students chose to copy the colors I used in the slide show in their own maps. If I was to do this project again I would show a slideshow without any colors in it, so as to not influence the students' coloring choices. The maps of the students who chose to participate sit alongside the grey scale movement map, so those that read the map can compare the opacity that shows the students restricted movements, side by side with the students own interpretations of their space.

Mapping School and Space with K-2nd SDC Students







LEGEND

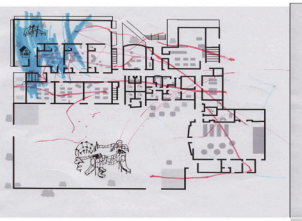
14 Number of students who have access to this space 0

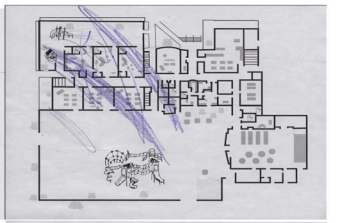
Door which students cannot go through without an adult with them

7 foot tall fence

7 foot tall cement wall

Students interpretation of their school





By Argonne Elementary K-2 SDC students and Dasha Yurkevich 2025

California Water Equity

Alondra Zamora-Olivares

This is a print map that attempts to tell a story about inequality, complication, and representation of California's water system. The truths this map contests with is affirming the existence of inequalities within the California water system, especially amongst 'disadvantaged communities' (DACs), while acknowledging that water management in California is flawed and Indigenous communities may offer an alternative way of thinking about water.

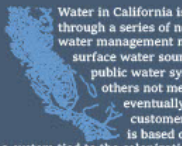
Using ArcGIS Pro, layers including California's water sources, Public Water Systems' (PWS) location and DAC status, and Drinking Water Percentile from Cal Enviro Screen were pulled together to describe how inequalities persist amongst different communities. Case study 2 and 3 are highlighted to illustrate these inequalities. Case study 2 hones in on a pattern seen across California where PWS with a DAC or severely DAC status are more likely to experience higher percentiles of poor water quality. Case Study 3 emphasizes the absence of PWS amongst DACs, while also demonstrating that simply because an area may be surrounded by water sources it doesn't necessarily mean it will source water from these locations. The second part of the truth and attempted re-integration is Indigenous thought. No map labels were included other than the historic Native American territories of California. The inclusion of Tulare Lake on the map is another form of re-inserting Indigenous thought. Case study 1 draws light on this lake, a body of water that had previously been drained out in the 1800s for agricultural purposes, but returned in 2023 after heavy rain. Today, Indigenous groups are fighting to preserve Tulare Lake.

The layout of the project includes the main map with all the layers on California, three inset maps to highlight case studies, and background information on water management and inequality in California. If a viewer feels overwhelmed, confused, and left with questions after reading through and analyzing the inset maps, the map achieved its goal. Water in California is confusing and overwhelming, but understanding how water arrives at our homes is important to understand. Having this knowledge is a powerful tool to advocate for a better water management system that serves everyone in California equitably, especially groups historically marginalized. This map stemmed from personal reflection on conversations of environmental justice, water equity and Indigenous sovereignty. Based on my experiences and discussions, people often feel compelled to prioritize either DACs or Indigenous sovereignty, even though these conversations should take place alongside one another. This project puts these topics on the same page and affirm that one doesn't have to come at the expense of the other.

Cartographically representing multiple truths:

A mapping project on water equity and re-inserting Indigenous thought

How is water distributed in California?

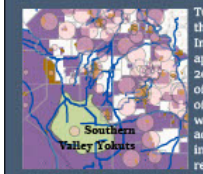


Water in California is distributed through a series of networks. This water management network includes surface water sources, wholesalers, public water systems, utilities, and others not mentioned, but eventually reaches cities and customers. Water distribution is based on "water rights", a system tied to the colonization of California and prioritizes those with the most senior rights, negatively affecting communities who don't have these rights, especially during droughts.

Water inequalities persist across disadvantaged communities

Water quality and water access issues disproportionately burden low-income and BIPOC communities. Acquah et al. describes that disadvantaged communities (DAC) and severely DAC systems have higher rates of total violations compared to higher-income systems. These differences also exist across race and ethnicity, Latino and African American communities experience more violations and are burdened with specific toxins. Another impact is felt across Indigenous communities. The California water system removed rights and access to water from Indigenous people, the water system was meant to displace and continues to harm Indigenous nations.

Case study 1

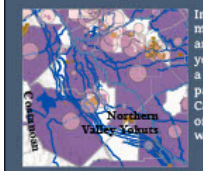


Tulare Lake is an example of the re-insertion of Indigenous thought. Its re-appearance during heavy rain in 2023 resurfaced conversations of Indigenous reparations and offers an alternative way of viewing water. For years Indigenous people lost access to Tulare Lake after it was drained in the 1800 for agricultural purposes, but restoring and protecting this lake, while expanding drinking water sources for people in the Central Valley could prioritize both Indigenous sovereignty and expand equity for DACs.

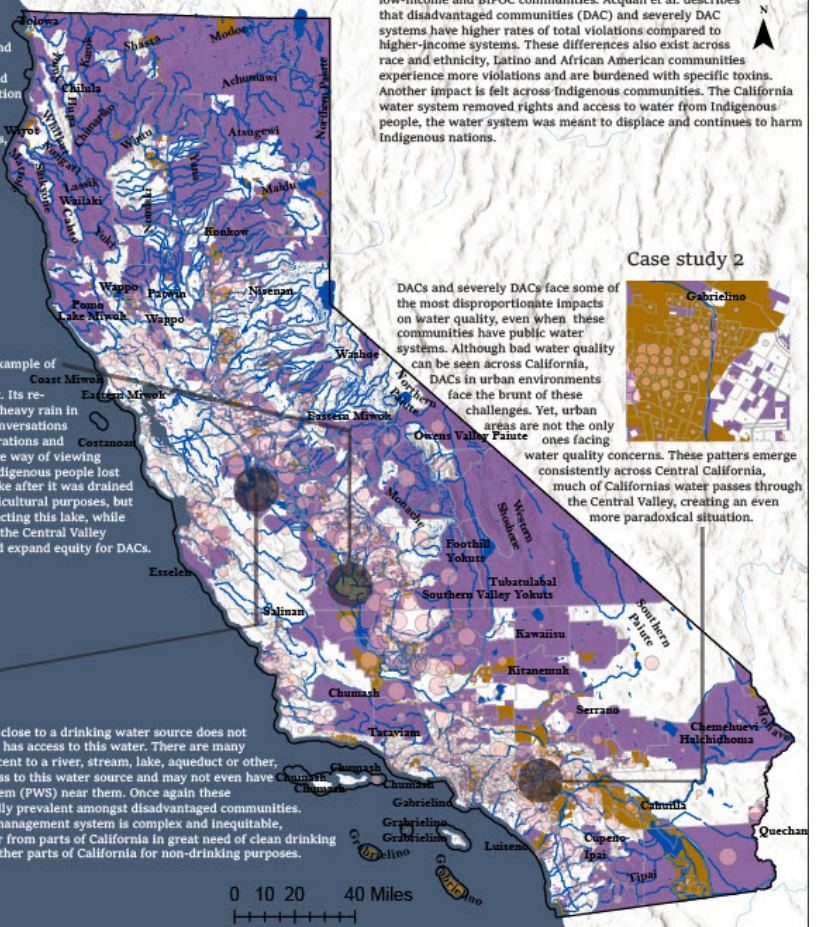
Case study 2

DACs and severely DACs face some of the most disproportionate impacts on water quality, even when these communities have public water systems. Although bad water quality can be seen across California, DACs in urban environments face the brunt of these challenges. Yet, urban areas are not the only ones facing water quality concerns. These patters emerge consistently across Central California, much of Californias water passes through the Central Valley, creating an even more paradoxical situation.

Case study 3



In California being close to a drinking water source does not mean a community has access to this water. There are many areas that are adjacent to a river, stream, lake, aqueduct or other, yet don't have access to this water source and may not even have a public water system (PWS) near them. Once again these patters are especially prevalent amongst disadvantaged communities. Californias water management system is complex and inequitable, often moving water from parts of California in great need of clean drinking water sources, to other parts of California for non-drinking purposes.



Legend

Water Quality
Drinking Water Percentile
- 50 - 59
- 60 - 69
- 70 - 79
- 80 - 88
- 89 - 100

California Water Sources

State of CA Boundary

Historic Tulare Lake

Public Water Systems
DAC & severely DAC

State assigned DAC

Data from ESRP.org, CA Open Data Portal, CNRA, Community Water Center, CA Hydro, CalEnviroScreen
Historic Native American Territories in CA
Projection in NAD 1983 CA (Teale) Alberts (Meters)
Cartographer: Alondra Zamora-Olivares, 2025

Off the Rails

Chayne Zavisza-Hollis

In many traditional maps, roadways and human territory boundaries mark the recognizable landscapes of our basemaps. These reflect the anthropocene, where human travel and borders mark our world with a factual authority.

I reimagined an urban zone through the perspective of stray cats, acting as a speculative example of how non-humans may interact with our boundaries. The Richmond, California BART station houses a small colony of stray cats, likely attracted by the food and water often left by the station entrance. I've long been a fiber artist, and desired to use the unique texture of this medium to portray this speculative territory of the cats who greet me on my morning commutes.

A reimagining of roads and human territory lines is central to the single-crocheted basemap, with property lines nearly dissolving completely and roads being represented with varying symbology to both deemphasize them as main pathways of travel and denote their danger as obstacles. Variegated yarns and beads portray the mix of sidewalks, minor roads, green patches, and structures that merge together in neighborhood zones. The major road becomes an impassable barrier– the territory of monstrous vehicles, as suggested by Lauren van Patter's study on urban coyotes[1].

The upper left corner represents the parking lots and vacant, grassy region surrounding the station. This zone has been distorted to magnify its importance, with a more literal green and grey symbology being taken to show the different terrains. Stemming from the station is the BART rail itself, which supersedes the map and uses the major road's blue to signify impassability. The sewed-on elements of the grassy hill and BART rails highlight the experience of existing within and traversing this space rather than simply viewing it from a top-down perspective.

Rather than roads as central navigational tools, magnetic fields (chain stitched in blue) are one alternative cats can use, as proposed by Lohmann et al[2]. The cat's routes (sewn in yellow) pivot at these lines. These routes additionally triangulate in and out of the central territory near the station, echoing observed patterns in GPS cat tracking maps. Furthermore, they showcase a pattern of movement that ignores human territory lines and minor roads while other obstacles become impassable.
This map calls into question the assumptions we make about our urban landscapes when we map them. They are often purely focused on the anthropocene– how we as humans navigate and use the space. This neglects the myriad of autonomous creatures that exist alongside us, even in urban regions. This map especially challenges roadway-centric landscapes, both in maps and reality. Though they provide motorists with easy transportation, what facets of life do they destroy for animals?

At the bottom, this map was intentionally frayed as if clawed by a cat. My own cat Brad may as well have caused these damages, as he was constantly treating it as a plaything during its making. This reminds us that at the end of the day, this map that tries to capture a cat's perspective is ultimately useless to them.

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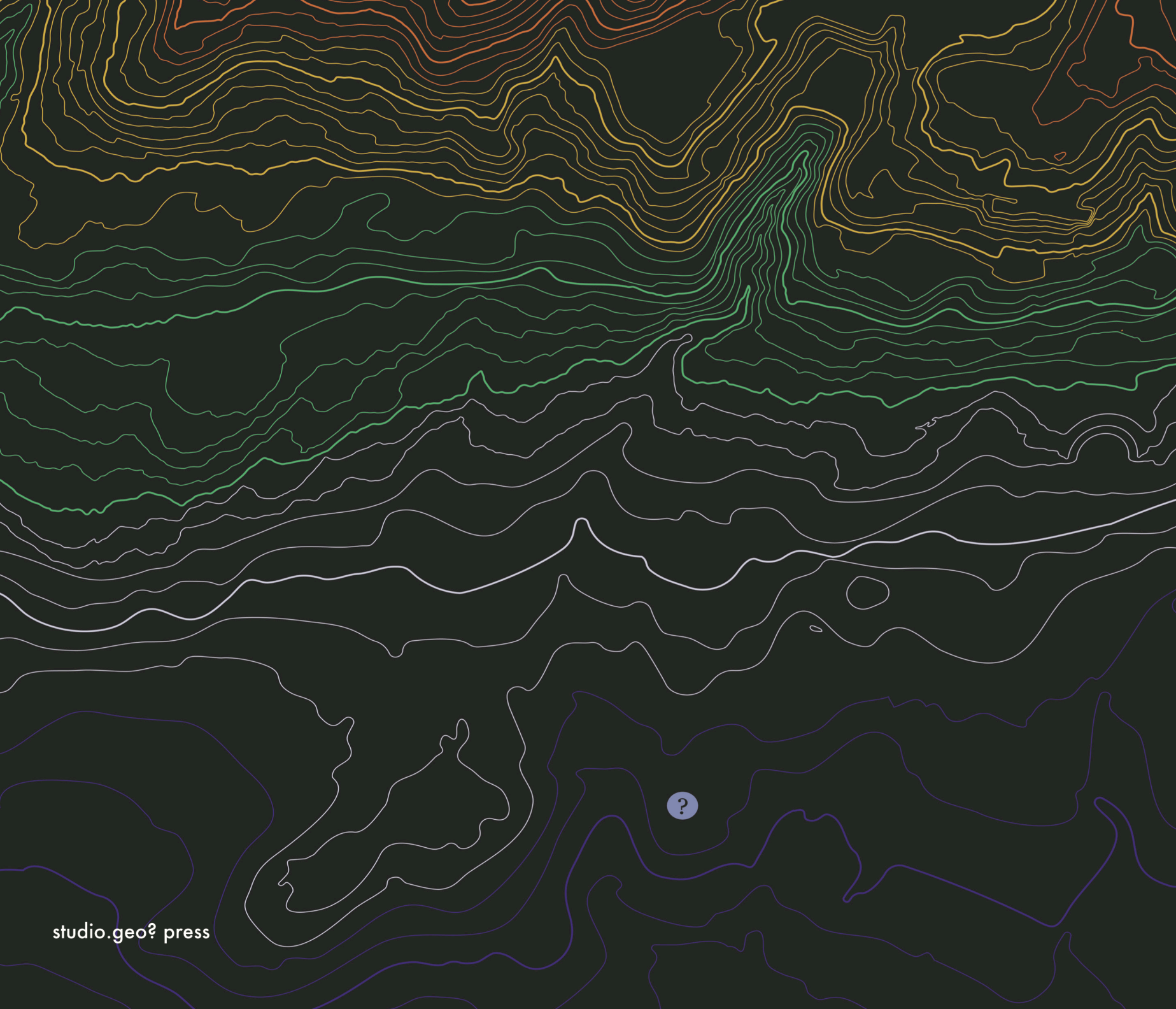
1 Van Patter, L. E. (2023). Toward a More-Than-Human Everyday Urbanism: Rhythms and Sensoria in the Multispecies City. Annals of the American Association of Geographers, 113(4), 913–932.

2 Lohmann, K. J., Lohmann, C. M., & Putman, N. F. (2007). Magnetic maps in animals: nature's GPS. The Journal of experimental biology, 210(Pt 21), 3697– 3705. https://doi.org/10.1242/jeb.001313



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