
ANTHOLOGY
2023-2024
InfoGraphics Lab
DATA
DESIGN
DIFFERENCE

InfoGraphics Lab

DATA · DESIGN · DIFFERENCE

The InfoGraphics Lab 2023-24 Anthology would not have been possible without the following:

DIRECTOR
Erik Steiner

PROJECT MANAGER
Peyton Carl

PRODUCTION MANAGER
Alethea Steingisser

LAYOUT DESIGNERS
Peyton Carl
Mack Gray

GRAPHIC DESIGNERS
Eden McCall
Atticus Tong
Jenna Witzleben

EDITORS
Alethea Steingisser
Erik Steiner

CREATORS AND WRITERS
Peyton Carl
Mack Gray
Maxim Johnson
Matthew Kauffman
Zoë Kleiner
Lily Lindros
Eden McCall
Joanna Merson
Lauren Nguyen
Clare Otcasek
Erik Steiner
Alethea Steingisser
Atticus Tong
Jenna Witzleben

UNIVERSITY OF
OREGON

Contents

InfoGraphics Lab

DATA · DESIGN · DIFFERENCE

Mission

Our mission is to generate meaning and impact through data and design. We practice, teach, and study creative data-driven design, fostering collaboration across diverse disciplines to transform research, discover and communicate insights, and engage with pressing societal and environmental challenges.

Beliefs

We believe in the power of data and design to reveal insights, spark curiosity, and inspire change. We are committed to advancing academic research, making substantive impacts on the environment and society, and cultivating a diverse and inclusive community of thinkers, learners and creators.

How we work

We are curious generalists driven by a desire to create, discover, understand, and problem-solve. We engage in design practices and design thinking across a broad range of domains. We are particularly interested in cartographic and data visualization and embrace emerging technologies to find meaning and create compelling visual narratives. Our sense of purpose comes from practicing excellence in these pursuits and the desire to discern ways that we can transform research and create societal impact through data and design.

We strive to create an environment for creative and intellectual talent to flourish, where interactions between students, staff, and faculty are generative and transformative. We have high standards for excellence in both process and product, but invest most of our energy in people. We believe putting human relationships at the center is the best way to incubate transformative thinking and stimulate collaborative output. Rather than conceiving of our work as a series of efficient hand-offs and transactions between experts, we envision everyone can bring creative contributions at every step from project conception to analysis to end-product.

Letter from the Director

When I arrived back at the InfoGraphics Lab last Fall after a 15-year detour, I felt a deep sense of being home again, surrounded by like-minded people with common language and values. The familiar map drawers, oak table, and posters on the wall weren't tired with age—rather they reflected the strong and enduring sense of purpose of this place. Forged by Jim Meacham over 35 years at the helm of the Lab, that purpose has changed very little since he described (in 1991) the goals of the Lab to "create high-quality cartographic products, augment GIS instruction, and improve University research." His vision has certainly come to fruition and, while his work is now complete, we continue with this shared purpose.

I am so grateful for being accepted into this community and for the opportunity to help forge a future together. Our team is a dedicated, compassionate, and talented bunch and I'm humbled to witness how many of us have chosen to this place as a home base and believe in its enduring value.

As we reflect upon another year at the InfoGraphics Lab, I am filled with gratitude and pride for the progress we have achieved on so many fronts. This product is one of them—a compendium of Lab identities, features, and perspectives—that reflects the flows of people and ideas that are percolating in the Lab. It also puts student contributions at its center, giving special emphasis to the absolutely central role they play in bringing research, teaching, and practice all together in one place. Through this anthology, we aim to highlight the Lab's collective mission and honor our unique perspectives.

I want to thank our team for their creativity and curiosity across all of our work, and to our partners, collaborators, and supporters for their trust and shared vision. A year from now, projects will have come and gone, but our shared commitments will stay. As we look forward to the coming year, I know we will continue to seek ways to build more connections, reinforce our values, and make meaningful impacts.

Erik Steiner
InfoGraphics Lab Director

Ecosystems

by Peyton Carl

When choosing a theme for the Anthology, our team juggled options that married our knack for design with our culture and dynamic as a Lab. After landing on ecosystems for our theme, we reflected on just how integral our space is for sharing, connecting and learning. As a system, the InfoGraphics Lab fosters growth for students with different disciplines and backgrounds, but without our different parts, we wouldn't have a whole. Together, the students and staff at the InfoGraphics Lab, strive to build upon our foundation, promote teamwork and togetherness, and connect with people beyond.

For this year's design, we weaved the InfoGraphics Lab mission of Data, Design, and Difference into three visual elements that resonate with the theme of ecosystems:

Data: In nature, we observe structured systems of humans through urban landscapes, agriculture, and through roads and highways. We chose a colorful mosaic to represent the human influence on our work. People are fundamental to our work, and we strive to make valuable and long lasting connections and impact on our students, staff, and beyond.

Design: Trees are used throughout this publication to exemplify the Lab's commitment to design and to showcase the value of our collective creativity. We envision that the roots represent the people that came before us, creating a foundation for current Lab members. Branches serve as a symbol of involvement, the varying disciplines and broadening experience of the team. The leaves of the tree serve as a symbol of outreach and growth of our design values beyond the InfoGraphics Lab and receptivity of others.

Difference: We adopted rivers as a symbol to represent the cycle of leadership and interconnectedness of our team and further, how the work of our lab members extends to the support of other efforts. The ebb and flow of intricate river networks mimic the lasting impact of our space which feeds the growth of people who have touched the InfoGraphics Lab in the past, present and future.

Note from the Designers

Peyton Carl:
The overall theme of the anthology is important as it sets the tone and aesthetic for the entire publication. This year, our team wanted to exemplify the importance of connection and collaboration. Landing on *ecosystems*, we decided to embellish this volume with landscape mosaics, trees, and rivers to capture the integral elements of an ecosystem and how their themes connect to our work as a collective.

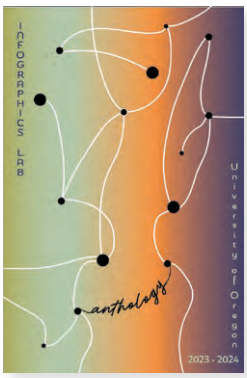
Atticus Tong:
I love how we were able to bring in geographic elements that we map and study every day at UO, and use them to help represent our work in the lab. My favorite part of the peocess was bringing everyones design ideas to the table and brainstorming how we could incorporate our favorite elements from each persons design into our final theme. Our biggest challenge was figuring out how we would connect elements from an ecosystem to our three pillars of data, design, and difference.

Eden McCall:
With a couple of weeks left at the Lab, I focused on developing the cover and inner graphics. However, the product you see is a result of much work before I jumped in as well as a lot of finalizing after. Such a collaborative and synergistic process I think aptly reflects the ecosystem theme itself—symbiotic and adaptable.

Mack Gray:
The collaborative process was very rewarding, from the initial design stage to the end. We had brainstorming sessions where people shared their ideas and inspirations for the cover design. The conversations fostered a holistic understanding of ecosystems from the natural to built environment.

1

2



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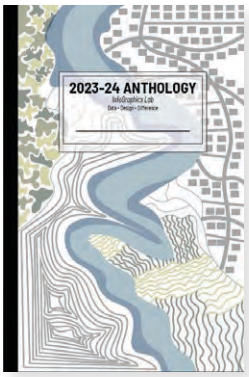

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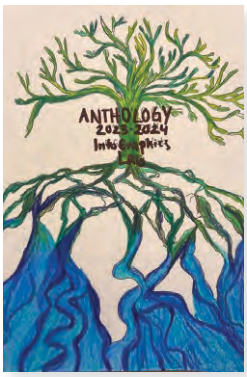


Collective Design Process: Members of the design team each drafted up their own cover idea based on some of the concepts we wanted to incorporate into this year's anthology. We then discussed each of the designs and chose our favorite elements from each of them to include in our next cover draft.

Design 1: Atticus Tong
Design 2: Clare Otcasek
Design 3: Lauren Nguyen
Design 4: Zoë Kleiner

Active Projects, 2023–2024

This "map" reflects the ecosystem of projects that have characterized the InfoGraphics Lab in the last year. The axes use a spatio-temporal framing to relate projects to one another and illustrate the diversity of subjects and methodologies.

Futur

TIME

Past

Local

SPACE

Sustainability Dashboard

is an interactive front-end to the University of Oregon's Comprehensive Environmental Policy, presenting data visualizations of key sustainability initiatives.

Spatial Ecology of Harvester Ants

is a three-decade-long study on the spatial composition and collective behavior of more than 1600 colonies of harvester ants at a field site in New Mexico.

LandTalk

is a digital platform that archives long-term changes in everyday landscapes through crowdsourced conversations between students and elders.

27-30

Wildfire Fuel Reduction Mapping

aims to develop a comprehensive wildfire fuel reduction project map in Lane County. The effort is intended to catalyze cooperation on resilience activities across many agency and public partners.

Indianapolis Racial Equity Report

identifies racial and ethnic disparities across several indicators by visualizing outcomes for racial groups in comparison with other cities, aiming to provide insight for addressing inequities and fostering accountability for progress toward racial equity.

16

Blue Mouse Cinemas

explores how an independent theater chain in the Pacific Northwest influenced Hollywood film culture, exhibition, and distribution patterns. Artistic maps show historic theater locations in Oregon and Washington cities.

32

Nevada Wildlife Corridor Mapping

is a visual report for the Nevada Department of Wildlife mapping ungulate migrations, including an analysis of habitats, ranges, corridors, and wildlife-vehicle collision hotspots.

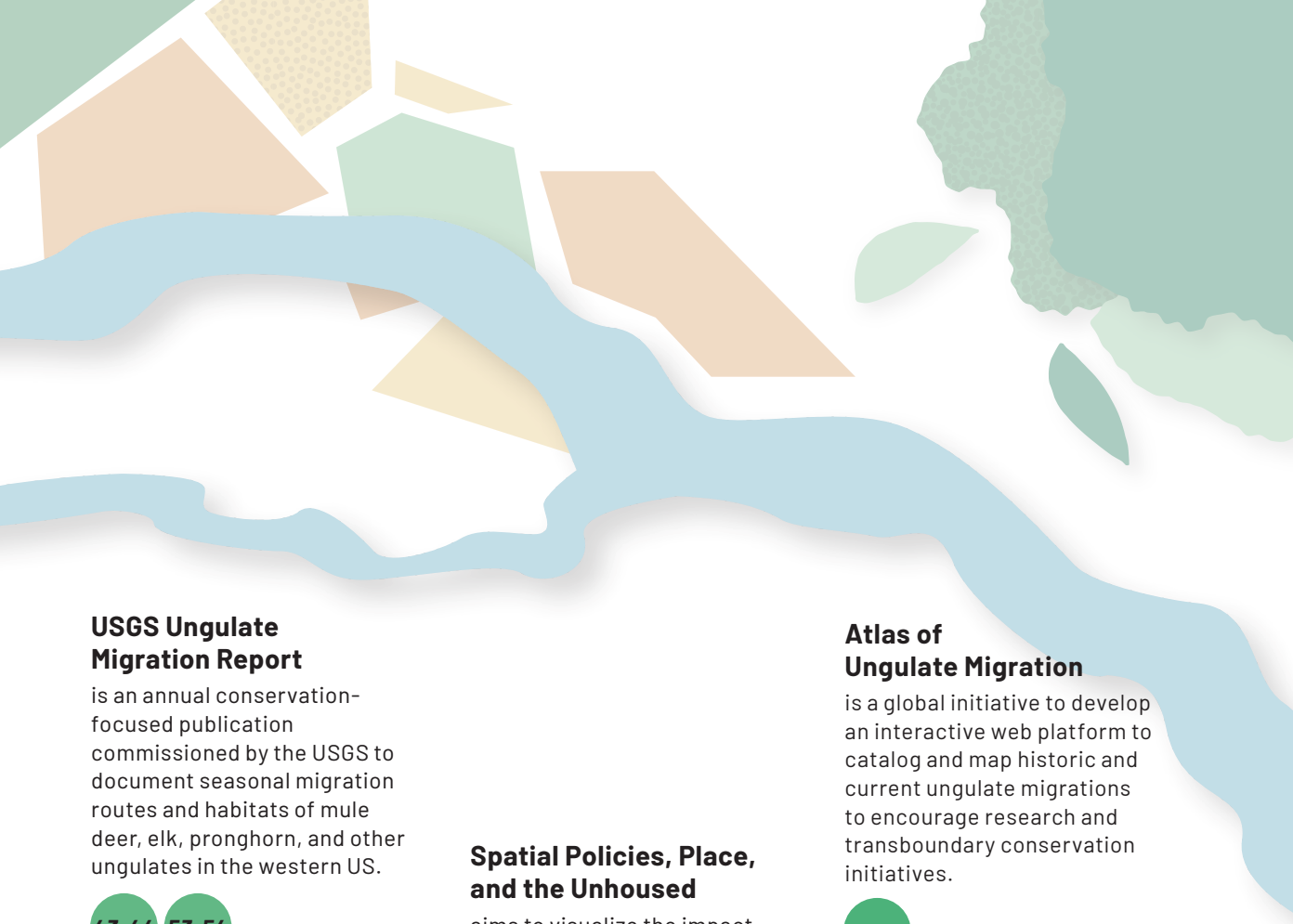
57-58

Carceral Firefighting

investigates the extent and implications of prison firefighting labor in Oregon, highlighting the significance of prison crews in forest fire suppression strategies by the state.

Atlas of Essential Work

is a narrative atlas that explores and makes visible the diversity of essential work in the Pacific Northwest. Through a collection of interactive graphical stories, the project illustrates how labor shapes the region's identity.



USGS Ungulate Migration Report

is an annual conservation-focused publication commissioned by the USGS to document seasonal migration routes and habitats of mule deer, elk, pronghorn, and other ungulates in the western US.

43-44 53-54

Monumental Denial

is a critical atlas project that examines how narratives of colonization and white supremacy are perpetuated through cultural memory, specifically the U.S. National Historic Landmarks program.

34 59-64

Mapping Rome

is a long-term project to capture Rome's rich, layered spatial and architectural history through the documentation and digital reconstruction of key historical visual works, including maps, photographs, and etchings.

Spatial Policies, Place, and the Unhoused

aims to visualize the impact of space-based policy decisions on the unhoused. These mappings fit within a broader goal of understanding the importance of place for unhoused individuals.

Chronographics

reimagines, interprets, and reconstructs the pioneering 18th-century chronological charts of Joseph Priestley through an interactive digital publication.

West African Archaelogy

examines the population movements, technological transitions, and trade networks that facilitated the exchange of goods and resources across West Africa.

Atlas of Ungulate Migration

is a global initiative to develop an interactive web platform to catalog and map historic and current ungulate migrations to encourage research and transboundary conservation initiatives.

52

Internet Infrastructure

is a project that visualizes the global impacts of a 25-year project by the NSRC to train and support Indigenous network engineers in developing regional internet infrastructure.

Global Trade Route Modelling

simulates the impact of the transition in shipping technology (from sail to steam) on global maritime route paths and speeds. The model will enable economic analyses of differential effects on 19th century trade centers.

Global

Meet the Team

We are the cartographers, coders, designers & researchers that call InfoGraphics home.

Peyton Carl

Peyton Carl earned her BS in Environmental Science with a minor in Geography in the summer of 2023. She has been with the Lab since January 2022 and currently serves as Student Lab Manager. She is passionate about wildlife and how cartography can contribute to conservation efforts and tell stories of ecological systems. She's interested in pursuing a career that integrates her love for wildlife and cartography and looks forward to her future as an aspiring environmental scientist. In her free time, Peyton enjoys collecting and listening to records, reading, befriending spiders, and nerding out about Lord of the Rings.

McClean Gonzalez

McClean graduated in 2024 with Master's degrees in Landscape Architecture and Community and Regional Planning. His research focused on making policy and planning documentation more accessible to a broad audience. In the InfoGraphics Lab, he used these skills in his work on the *Pacific Northwest Atlas of Essential Work*. McClean collaborated with researchers across campus to develop storylines and graphics, and to integrate the two into the *Atlas* web interface. McClean now works as a designer and assistant planner at Cameron McCarthy's Landscape Architecture and Planning office in Eugene.

Mack Gray

Mack Gray (they/them) is an undergraduate double majoring in Geography and Spatial Data Science. Their academic interests include cartogrtaphy, data visualization, and glaciology. Mack is passionate about exploring and understanding the relationship between food and geography. Since joining the Lab in April 2024, they have contributed to the USGS Annual Report on Ungulate Migration, and the University of Oregon Sustainability Dashboard website. In their spare time, they enjoy cooking, scuba diving, reading, swimming, and sewing. Upon graduation in Spring 2025, they plan to attend culinary school and pursue a Master's Degree.

Maxim Johnson

Maxim is a recent graduate, receiving a Bachelor of Science in Geography with a minor in Earth Sciences. Maxim's interests include cartography, fantasy world building, and everything geography. He's traveled all over the world which nurtured his passion for geography and motivated continued learning about all aspects of our world. When not in the Lab, Max is usually making fantasy maps and practicing hand-drawn cartography. Maxim has worked on many projects at the InfoGraphics Lab including encoding a timeline of over 2,400 historical figures, mapping languages of the Coastal Salish Tribes, and working with UO Professor Ben Clark on creating a map of wildfire fuels reduction for Lane County.

Zoë Kleiner

Zoe Kleiner (she/her) graduated this spring with degrees in Environmental Studies and Geography, and a minor in Gender Studies. Her passion for conservation began in her childhood growing up on a tree farm where she learned to care for her surrounding ecology. In January 2023 she joined the lab and has contributed to many projects, specifically the USGS report *Ungulate Migrations of the Western United States*. Outside the lab, Zoe works at a non-profit organizing social justice campaigns, mapping methane plumes, and collecting data on pesticide usage across Oregon forests. She is drawn to the intersection of art and science, using map design to tell compelling stories and drive environmental action.

Dylan Legg

Dylan is an undergraduate student studying Spatial Data Science with coursework in GIS, computer science, and geography. Most of his time at the Lab is spent on web maps for the National Startup Resource Center such as the Africa Network History map, which explores the introduction of the introduction of the internet to Africa. Dylan has also contributed to the Atlas of Ungulate Migration, both projects using web programming to enhance the UX/UI across different platforms. Outside of Big Maps, Dylan is really into biking, apples, and wandering around various outdoor spaces.

Lily Lindros

Lily Lindros (she/her) is an undergraduate majoring in Spatial Data Science with minors in Art and Anthropology. She is passionate about exploring the possibilities and the limits of representing data visually. Her wide background in design and the social sciences informs her interest in understanding how people perceive data - and how to use this understanding to make better design decisions. She does research, writing, and design work for the IGL, and her career interest is thematic cartography. In her free time, you can find Lily reading and sometimes taking a stab at art and poetry.

Eden McCall

Eden McCall graduated in spring 2024 with degrees in Journalism and Spatial Data Science, with a minor in Science Communication, She joined the lab in January 2023 and has worked on various projects including LandTalk, a citizen science platform documenting landscape change. She is passionate about utilizing multimedia, including data visualizations and mapping as well as photography, film, and writing, to share narratives with cultural and scientific relevance. Inspired by a participatory exhibit she helped coordinate in spring 2024, Eden began a community mapping project called Mapping (my) UO. In her free time, Eden enjoys traveling, scuba diving, trail running, and otherwise being outdoors.

Kelsey McCravy

Kelsey McCravy earned a Master's in Community and Regional Planning in the spring of 2024. While at the lab, she contributed to the *Atlas of Ungulate Migration*. Kelsey is interested in GIS, cartography, sustainable transportation, and urban design. She hopes to pursue a career that integrates her interests and allows her to be engaged and passionate about her work while also serving a local community. Outside of her career ambitions, she enjoys photography, hiking, reading, and petting her cat, Percy.

Joanna Merson

Joanna Merson (she/her) is the Cartographic Developer in the InfoGraphics Lab. She can often be found touting the power of mapping by giving workshops, guest lectures, and organizing events like GIS Day. With a B.Sc. in Geomatics (Combined Geography and Computer Science) and an M.A. in Geography, her skills include a foundation in geographic principles, data modeling, and user-driven visualization techniques. Joanna also gained experience with web-appt interface design and testing while working within the private sector with GIS industry leaders Esri and its partner Latitude Geographics. Joanna uses this expertise to contribute a balance of user and data-driven visualization techniques to collaborative research projects.

Lauren Nguyen

Lauren Nguyen (she/her/hers) recently graduated with degrees in Spatial Data Science and Planning, Public Policy, and Management. She started working with the Lab at the beginning of 2024 and has enjoyed experiencing an environment that encourages creativity and supports professional growth in cartography and design. Lauren is interested in employing data in visually appealing and impactful ways to create differences in policy and within the community. Post-graduation, Lauren is looking faorward to traveling, having more time to be in nature, and getting to read for fun. She also enjoys re-watching Parks and Rec, listening to music, and spreading her love for Taylor Swift.

Clare Otcasek

Clare (she/her) is a senior at the University of Oregon studying Data Science with a focus in GIS and Cartography. Clare joined the Infographics Lab in spring of 2024, one year after accidentally discovering the world of cartography and becoming hooked immediately. Beyond academics, Clare enjoys spending time outdoors (especially in the beautiful rivers of Oregon), sharing great food and wine with friends, and experiencing live music. After graduation, Clare plans to pursue a career where she can exercise the logic and problem-solving expertise of a data scientist while also continuing to expand on design and creativity skills unlocked through both mapmaking and programming.

Lucy Roberts

Lucy Roberts is a graduate student in geography who has been connected to the InfoGraphics Lab since 2020. Her research focuses on the societal impacts of map-making. Lucy was previously a Rhodes Scholarship Finalist and as an Oxford Fellow in Human Rights. Beyond the classroom, Lucy is an avid outdoor enthusiast and helps to lead backpacking and rock-climbing classes. Lucy aspires to influence both the cartography and public policy, advocating for maps that uphold the dignity and rights of all communities.

Erik Steiner

Erik Steiner is the Director of the InfoGraphics Lab. In past roles he has been an author, artist, cartographer, web developer, and interaction designer on scholarly and other creative works. His interests span a range of academic disciplines in the humanities, social and environmental sciences and sit at the intersection of technology, creative arts, and academic scholarship. Outside of work he enjoys running, outdoor adventures, tinkering on his treehouse and community-placemaking projects. He has three children (Canyon, Jasper, and Sabine) who are his biggest passion and creative muses. His wife Bethany runs a Montessori school at their home in Eugene.

Alethea Steingisser

Alethea Steingisser (she/her) is the Cartographic Production Manager in the InfoGraphics Lab. She serves as lead designer and project manager on a wide variety of cartographic products, most notably atlas projects including: the *Atlas of Yellowstone* (2012, 2022); *Wild Migrations: Atlas of Wyoming's Ungulates* (2018); *Atlas of Design*, Volume 4 (2018); and *Archaeology and Landscape in the Mongolian Altai: An Atlas* (2010). Alethea is drawn to design in all of its variations; she most enjoys design that communicates to a broad audience while motivating readers to care about the subject matter. Alethea loves traveling and taking long walks with her beagle, Cody.

Atticus Tong

Atticus Tong (he/him) is a sophomore double majoring in Spatial Data Science and Geography with a minor in Science Communication. He is passionate about climate change and how data visualization can help communicate pressing climate issues to the public. He has been part of the lab since May 2024 and is grateful for the lab supporting his learning beyond the classroom. Outside of the lab, Atticus is a member of the UO Climbing Team and travels around the West Coast to compete against other schools. He also loves hiking, baking, sci-fi movies, and going to the Saturday Market.

Jenna Witzleben

Jenna Witzleben (they/she) has been a member of the IGL since 2022, first as a graduate employee and now as a research assistant. After graduating with their master's degree in Landscape Architecture from the University of Oregon, she has been pursuing work aligned with her passions for decolonization, biocultural restoration, environmental justice, and food sovereignty. Their primary project at the Lab is working on Laura Pulido's *Monumental Denial,* an atlas on the relationships between National Historic Landmarks and forms of white supremacy. Jenna also works as a food sovereignty planner for the Burns Paiute Tribe and volunteers with the Eugene chapter of Herbalists without Borders, the UO Urban Farm, Solidarity Garden, and Huerto de la Familia, supporting the growth of culturally relevant food and medicine plants in these garden spaces.

InfoGraphics Lab Affiliates

by Erik Steiner

The InfoGraphics Lab is conceived as a creative incubator for informal affiliates from across the University of Oregon and beyond to engage on research which contributes to cognate fields of geography, GIScience, cartography, visualization, and communication. We continue to expand the disciplinary breadth of our collaborative projects and affiliates, expressing a growing interest at the UO, and valuable potential for cross-pollination across research fields.

Who are Lab affiliates?

Affiliates are research and creative partners—faculty, graduate students, post-docs and others—who wish to pursue collaborative projects with the Lab that is informed by spatial data science, design and design thinking, communication theory, and human-computer interaction. These engagements vary in scale from informal exchange to multi-year collaborations on major grants.

Through these creative collaborations—either explicitly product-driven or investigative—affiliates work in partnership with the Lab to explore the intersections between fields and methods. Research affiliates are often partners who simply understand and appreciate the value of enhancing the analysis and presentation of their work through visual and spatial methods. In the most applied and practical terms, these collaborations equip researchers with the tools, skills, and students who can collect, organize, and transform data, conduct spatial data analyses, or create beautiful maps, insightful visualizations, and web experiences.

While known for its high-quality atlases and other public-facing cartographic products, the Lab is an equally rich environment for pursuing exploratory research questions using interdisciplinary methods in data science, visual analytics, and digital humanities. We believe that visualization is transformative to thinking and reasoning and seek out collaborators who share this philosophy.

Affiliate Spotlight: Matt Kauffman

The InfoGraphics Lab has transformed my program—the Wyoming Migration Initiative (WMI)—into an international leader in telling the story of wildlife migrations through beautiful and data-rich maps. At WMI, we use GPS collars to map ungulate migration corridors as a means of advancing their conservation and management. Many of these migrations are increasingly constrained by roads, fencing, or development, and detailed migration maps are powerful tools for communicating science, aligning stakeholders, and finding solutions.

Our collaboration with the InfoGraphics Lab began in 2012 when I cold-called then InfoGraphics Lab director Jim Meacham and pitched the idea of a migration atlas to him. I had seen the *Atlas of Yellowstone*, and was impressed with the lab's ability to tell rich and engaging stories through maps and data graphics. Jim loved the atlas idea, and we spent the next six years creating *Wild Migrations: Atlas of Wyoming's Ungulates*. Our collaboration since that first cold call has persisted for over 12 years. Since then, we've worked with the lab to make stunning maps and infographics of ungulate migrations in Wyoming, the western U.S., and around the world. By working in partnership with the InfoGraphics Lab, we have been able to communicate the magic of migrations to audiences in the millions and to use cartography to inspire action. We are grateful for this creative partnership.

Dr. Matthew Kauffman
Lead Scientist of the Wyoming Migration Initiative, Director of the Wyoming Cooperative Fish and Wildlife Research Unit, U.S. Geological Survey and University of Wyoming

Lab Affiliates, 2023–2024

College of Arts and Sciences

Bruce Blonigen, *Economics*
Mark Carey, *Environmental Studies*
Madelon Case, *Biology*
Carolyn Fish, *Geography*
Lauren Hallett, *Biology*
Ocean Howell, *History*
Leigh Johnson, *Geography*
Stephanie LeMenager, *English, Environmental, Studies, Just Futures Institute*
Laura Pulido, *Indigenous, Race, and Ethnic Studies*
Daniel Rosenberg, *History*
Woan Foong Wong, *Economics*

College of Design

John Arroyo, *Engaging Diverse Communities , Just Futures Institute*
Aniko Drlik-Muehleck, *Institute for Policy Research and Engagement*
Ben Clark, *Planning, Public Policy and Management*
Howard Davis, *Architecture*
Erin Moore, *Architecture, Environmental Studies*
Jim Tice, *Architecture*

School of Journalism and Communication

Peter Laufer, *Journalism*
Ellen Peters, *Center for Science Communication Research*
Cathy Slavik, *Center for Science Communication Research*

School of Law

Heather Marek, *School of Law*

Programs and Centers

Steven Huter, *Network Startup Resource Center*
Karen Hyatt, *Government and Community Relations*
Ken Kato, *Location Innovation Lab*
Steve Mital, *Office of Sustainability*
Sarah Stoeckl, *Office of Sustainability, Just Futures Institute*

External Collaborators

Ellen Aikens, *Wyoming Migration Initiative*
Deborah Gordon, *Stanford University*
Steven Hackel, *University of California Riverside*
Matthew Kauffman, *Wyoming Migration Initiative*
Jerod Merkle, *Wyoming Migration Initiative*
Arthur Middleton, *University of California Berkeley*
Hall Sawyer, *WEST, Inc.*
Cody Shroeder, *Nevada Department of Wildlife*
Joseph Taylor, *Simon Fraser University*

Organizations

Global Initiative on Ungulate Migration
The Polis Center, University of Indiana
Wyoming Migration Initiative

...and You!

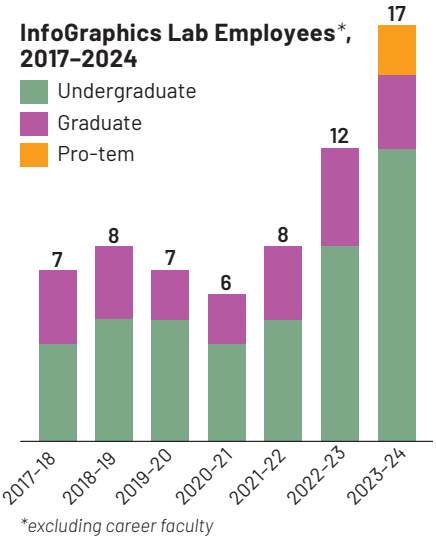
Teaching and Mentorship

by Joanna Merson

Of all the InfoGraphics Lab accomplishments, teaching and mentorship are one of our most sustaining successes. We pride ourselves on being a highly-regarded training center for cartography, visualization, and data storytelling with few comparable programs existing in the US.

Experiential Learning

Experiential learning and comprehensive 1:1 mentorship are at the core of what we do. As a hybrid research and practice facility, we employ, train, and mentor students through project-based learning in partnerships. Students advance their professional, soft, and technical skills through "real world" projects and gain invaluable tools for career readiness. Students work directly with UO faculty and external professionals, participate in mixed teams, and ultimately help manage, lead and co-author academic publications and other products. In 2023-24 the Lab has continued to increase the number of student employees and expanded to include recent graduates as Professional Temporary or "Pro-Tem" employees.



Credit Courses and Classroom Support

While IGL does not offer independent credit courses, Lab staff regularly teach in affiliated departments around campus (e.g., Geography, Architecture, PPPM). Joanna Merson offers a regular course in Geography on Web Mapping is taught every spring and trains students in foundational programming skills and cartographic and user interface design for interactive maps. This year, Erik Steiner co-taught a seminar with Howard Davis in Architecture and IGL staff provided significant support to courses in Advanced Cartography, and PPPM.

GIS day

Each November 15th, GIS Day is celebrated during Geography Awareness Week to extol geography and the applications of GIS that make a difference in our society. The InfoGraphics Lab, supported by the Department of Geography, hosts an annual GIS Day Open House in the Knight Library DREAM Lab to showcase the power of GIS on our campus and in our region. The event is attended by UO GIS researchers and instructors, local and regional government agencies, non-profits, and private businesses. It helps foster connections between professionals in the field, across campus, is a great networking opportunity for current students, and attracts new students into Spatial Data Science majors.

In 2023, students were invited to participate in the *Data, Design, Difference Challenge*. This one-week visualization challenge invited entrants to grapple with a topic and present an insightful story, argument, or solution though data, text, and graphics. We received 15 entries and awarded prizes in four categories:

Data: *Visualizing Food Insecurity*, Victoria Caudill

Design: *Climate Change and Industrial Agriculture in the Americas*, Dylan Blisard

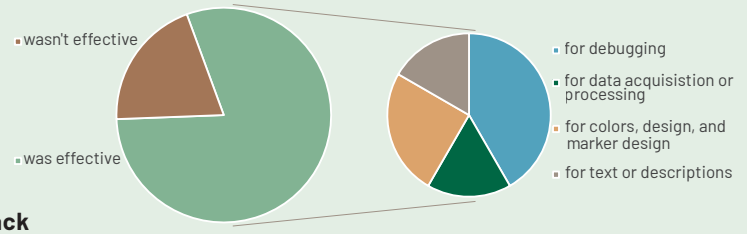
Difference: *The Secret Power of Celsius Unveiled*, Jane Bruckner

Comprehensive Design: *This is Kalapauya Land*, Maxim Johnson

Cartography Meets AI in the classroom

A common question these days is "will AI take over this skill"? While this feels a long way off for Cartography, we discussed this in Geog 490 Web Mapping, Spring 2023. Students were encouraged to leverage AI for web map development and told to cite it as they would other resources. Their final project required an AI disclosure statement: *"Did you use AI tools? If not, say so. It is not expected or required. If so, how and where? Be transparent if/how you leveraged AI to improve your work"*.

For Web Mapping students AI has the potential be an effective learning and devlopment tool. When it came to their projects, more found it helpful than not, and they used it in the following ways:



Student feedback

"I plugged in the code I was already working with from class assignments and would ask, how could I change this code to get something I wanted to happen."

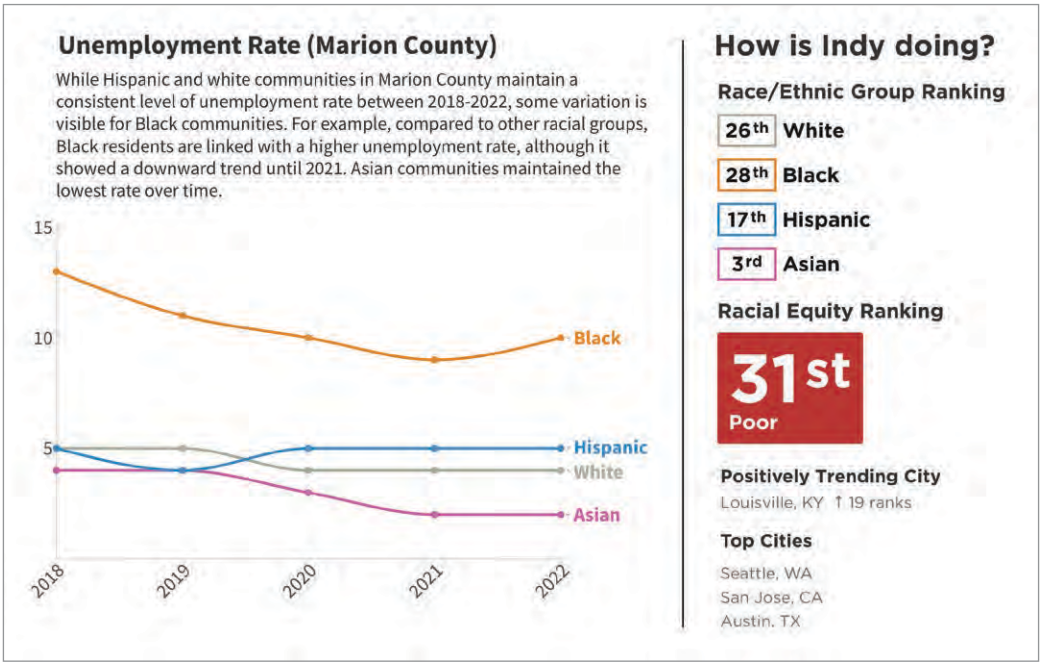
"I think one of the challenges of the lab style of learning in most GIS/mapping courses is that we gain the skills of how to make specific maps by copy/pasting and following very specific instructions. Which is good for learning the basics of how things work but it can make the transition into individual work difficult. I used AI to help me with this transition so that I could make the map than I envisioned and expand on what I had already learned."

""Why is this section of code making my map fail to load?". This made coding the project more efficient as we were able to get through obstacles more quickly than through use of only a typical search engine."

CHAPTER TWO

DATA

We recognize the transformative potential of data as a cornerstone of our work. Our appreciation of data encompasses the collection, wrangling, transformation, analysis, interpretation and archiving of various forms of evidence. Both quantitative and qualitative forms of data—from drone imagery to GPS-collared deer to textual corpora and personal narratives—are foundational to our work. Whether we're uncovering hidden patterns within complex datasets or translating science stories into impactful narratives, we highlight the value of evidence to inform, persuade, and build shared commitments. Finally, through responsible stewardship, we seek to ensure the preservation and accessibility of valuable information for the common good, future explorations, and discoveries.



Difference Project Spotlight:

Indianapolis Equity Report

In collaboration with the Polis Center at the University of Indiana, the InfoGraphics Lab recently released this interactive racial equity study visualizing racial disparity and inequity in Indianapolis. The core of the effort was a broad survey of available data sources and rich discussions about meaningful and ethical ways to represent equity through these data. The resulting report is a complex portrait of inequity in Indianapolis that contributes to public awareness of equity issues in the community. Our novel and extensible method of we developed to rank the focal community against peer cities provides spatial and temporal context for the resulting "grades" - and highlights the relevant and actionable indicators for local stakeholders to make an impact on improving racial equity.

View and interact with the equity report here:
https://www.savi.org/equity-report-card/

Mapping (hidden) Geographies

by Eden McCall

Maps often show place names and directions for navigating there. However, embedded within and between these places are layers of human geography—memory, meaning, and experience. These layers are intangible, but by trying to map them, and by pondering others' maps, can we deepen our understanding of place and our role in shaping it?

Mapping (my) UO, a participatory project at the InfoGraphics Lab, explores the potential of mapping these hidden geographies. By inviting participants to visualize their own memories and relationships with the University of Oregon (UO) campus, the project reveals unique and shared experiences as well as fosters an awareness of how we make—and are made by—places.

Defining Place

Political geographer John Agnew offers a framework for understanding place that begins to illuminate its non-physical layers. In *Place and Politics: The Geographical Mediation of State and Society*, Agnew conceptualizes place as consisting of three dimensions:

1. **Location** refers to the physical space—a fixed geometry on a map. This could be the bounded area of a room or the path of a street.

2. **Locale** encompasses the material and environmental setting as well as the activities that occur there, such as a coffee shop where people gather to socialize or study.

3. **Sense of Place** captures the emotional and symbolic connections people form that transforms a space into something personal or culturally significant. It changes over time, shaping how individuals and communities perceive and relate to their surroundings.

Location anchors us in physical reality, *locale* highlights the social and functional uses of a space, and *sense of place* adds emotional depth, showing why places matter.

Folklorist Kent Ryden expands on the subjective nature of place by describing the human geography aspect as the **invisible landscape**. In *Mapping the Invisible Landscape: Folklore, Writing, and the Sense of Place*, Ryden writes that it is by developing an attunement to sense of place that we can see the "unseen layer of usage, memory, and significance ... superimposed upon the geographical surface".

These unseen layers are often deeply personal. At the University of Oregon, for instance, a student may remember the moment they conquered a fear of heights when they walk by the climbing wall at the gym or think about long nights studying with friends when they enter the library. Recollections are made more impactful by shared culture and experience. College is often associated with personal growth and overcoming fears, and friends may joke about the time they were up until dawn cramming for a final. Such layered stories and associations are integral not only for how individuals understand and interact with a place, then, but also how we understand ourselves and connect with one another.

As geographer Yi-Fu Tuan describes, place attachment or connection to place, built through repeated and impactful interactions in a space over time, helps anchor individuals in the world. Connection can offer a sense of stability and belonging that is vital for navigating life's uncertainties and transitions. Ryden adds that by developing rich invisible landscapes in multiple places, we also foster resilience and a deeper sense of belonging to the world.

Layering the University of Oregon

Understanding what components create place and why the emotional dimension is important, we can now turn to our case study: the University of Oregon campus. Wikipedia describes the University of Oregon as "a public research university in Eugene, Oregon, United States." This description identifies locale and

location; however, it does not capture sense of place. Using Agnew's framework, we can separate the University of Oregon's campus into its component dimensions to begin to understand why sense of place may be harder to define.

As a *location*, campus is a 295-acre space containing more than 80 buildings and numerous green spaces. Its *locale* includes common college settings like classrooms, cafes, and dorms as well as iconic landmarks such as Hayward Field and the Erb Memorial Union (EMU), where significant social and cultural activities take place from the famed Olympic Trials to the congregating of student government. Compared to the location and locale, however, the subjective nature of *sense of place* makes it an ever-changing dimension that defies singular and definitive description. For one person, Pioneer Cemetery might be a quiet space for reflection; for another, it may evoke unease and avoidance. However, through shared experience and culture, like the stress of finals week or the camaraderie of a football game, individual sense of place often comes to embody and reify an evolving collective sense of place. These shared experiences and meanings make a static campus feel like a connected community.

Recognizing this complexity underscores why sense of place and invisible landscapes deserve careful study: by exploring these unseen layers of geography, identifying patterns and pondering outliers, we can better understand how individuals connect with campus. Further, such awareness may be useful to guide efforts to foster connection and inclusivity in environments that may otherwise feel impersonal or fragmented.

Visualizing Place: Mapping (my) UO

Inspired by helping conceptualize and run an InfoGraphics Lab participatory mapping event in March 2024, I sought to document and share how University of Oregon community members experience these multifaceted dimensions of place. The result, a campus-focused mapping project called "Mapping (my) UO," seeks to reveal invisible landscapes on both the individual and collective scale.

Participants were given a postcard-sized paper with a simple basemap of the campus on one side and, on the other, an open prompt to "create your map" by adding "memories, paths, spaces, feelings, and anything else that is meaningful to you." I would hand these cards out to classmates and professors on campus but predominantly to strangers in the EMU.

One Location, Infinite Places: The original campus map (left) includes toponyms, more detailed symbols and color to be used as a reference guide. The minimalist basemap created for Mapping (my) UO (right) removes these elements to offer space for personal interpretation and storytelling.

Bitter-Sweet *(Experience)*

A Collage of Meaning: These sample maps showcase diverse approaches to mapping—some emphasize movement and landmarks, others practical uses or personal memories, and some more abstractly express emotion. How do the different ways of expressing convey place differently? What do the maps reveal viewed together that they wouldn't apart? Explore the growing collection at **MappingMyUO.com**.

Currently, the collection includes about 200 personal maps. The context of each map's creation varies—shaped by my relationship, or lack thereof, with the participant, the time they could dedicate, the materials they had on hand, and their prior artistic experience, among countless other variables. The diversity of circumstances undoubtedly influenced the content and style of the resulting creations; yet with the recognition of the inherently subjective nature of mapping "meaning," these maps can be viewed as glimpses into their creators' invisible landscapes—associations with the campus that even they may not have considered before.

Agnew's location, locale, and sense of place framework provides a useful lens for examining the maps. By standardizing the campus location with the consistent basemap (essentially holding the *location* constant), the project allows for an analysis of the more abstract dimensions of place.

Some participants seemingly concentrated on *locale*, marking specific buildings, pathways, or green spaces tied to their daily routines—studying in the library, working out at the Rec Center, or meeting friends at the EMU. Others delved more directly into *sense of place*, writing about memories or using emojis to convey feelings.

After much time reviewing and trying to make sense of these maps, common types began to emerge:

Physical Navigation: Focuses on paths, routes, and spatial relationships across campus, with a strong emphasis on location.

Functional Use: Highlights the social, cultural, and practical activities that define how spaces are used, grounded in locale and less directly reflects the emotions of the locations.

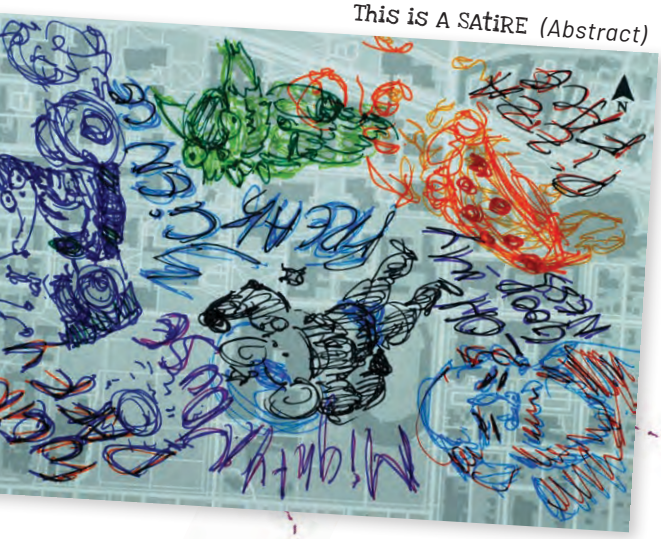
Personal Experience: Reflects emotions, memories and symbolic meanings tied to places, conveying a strong sense of place tied to location.

Abstract Expression: Uses more artistic or ambiguous symbols that relay broader emotions or impressions that are less focused on location and locale.

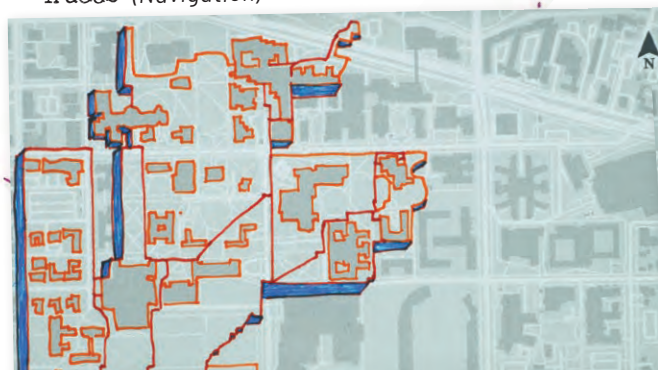
Blended Perspectives (Mixed): Combines elements of navigation, function, and/or experience that depict layered relationships, blending location, locale and sense of place.

While all the maps inherently reflect meaning, the degree to which they seem to convey personal as opposed to perceived collective meaning differs. Further, their intrepetability and depth of meaning varies. Some maps are densely filled with sentence-long narratives, weaving together detailed stories that span across campus and vividly communicate the participants' associations and perspectives. In contrast, other maps are sparsely populated and use highly symbolic markings that might not be decipherable to others.

This is A SAtiRE *(Abstract)*



Traces *(Navigation)*



The Places I go and the Stories they have. *(Mixed)*

Elliott's Tour *(Functional)*

The Sunniest moments at UO *(Mixed)*

"I am graduating this year. I've learned so much, made so many friends, and become someone that I am very proud of. This exercise reminded me of all that. Many of my memories on this map were shared. UO was where I met my partner of the last 2.5 years, and our firstdate was walking around campus. It's amazing how important these physical details become when they are imbued with love.

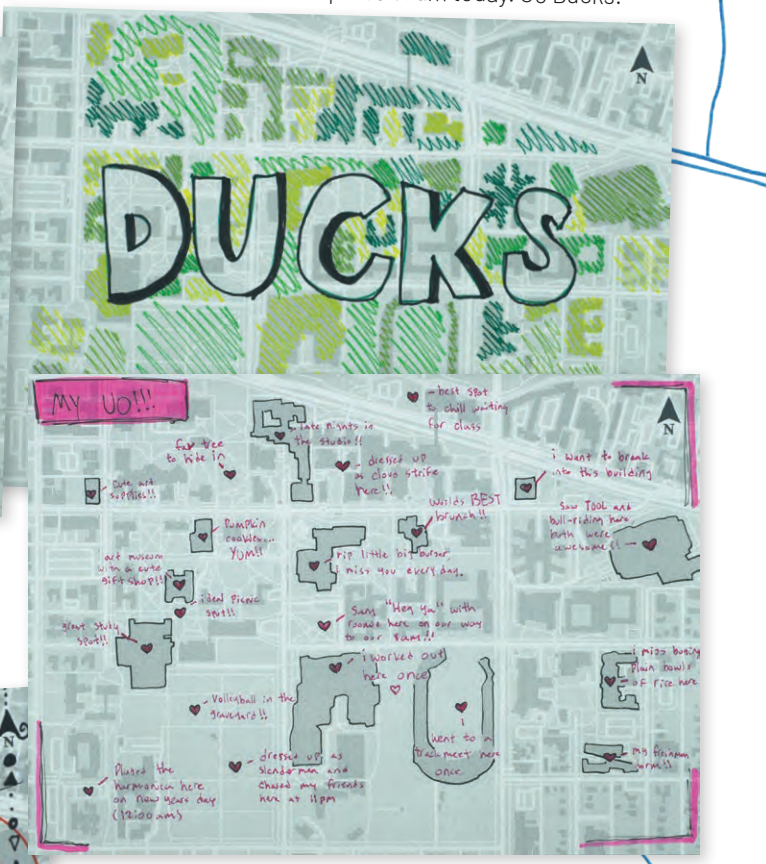
Word Association *(Functional)*

Little Pieces of Me *(Abstract)*

As I approach my senior year, I wanted to color in all of the buildings where I've fallen in love with my major and where I've become the person I am today. Go Ducks!

Cindy's Perspective *(Mixed)*

... I'm a PR major, minoring in business so Allen + Lillis are my main buildings. I go to the gym + emu + library on my free time or meet friends. ♥



Suns *(Abstract)*

Many Memories *(Experience)*

♥ this is important to me as i have many memories with my friends here.

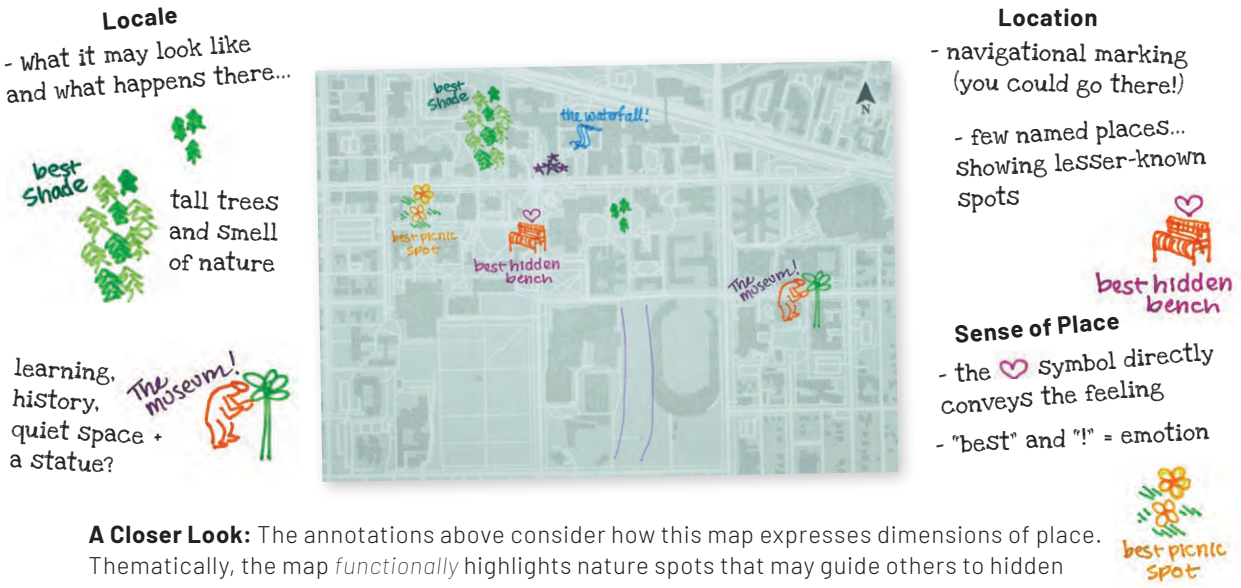
These differences may not only reflect varied ways of expressing experience but may also hint at the level of connection, belonging, or other sense of place the participant felt at the time. A map filled with rich details and stories might suggest a deep awareness of and attachment to spaces, while a map with sparse or abstract markings could point to less familiarity with campus or experiencing it as a mere backdrop. In this way, the map serves as a mirror of the mapper's ties to place.

Ryden extends the idea that the map as an artifact can signify, and thus reflect, connection to place. He writes that **chorographers**—those who map place through storytelling—are "the imaginative allies of oral narrators, restoring to the map that layer of words and experience that was so integral a part of earlier styles of cartography" (*Mapping the Invisible Landscape*, p. 50).

The maps in this project embody the spirit of chorography by visualizing stories of place in diverse and creative ways that push the boundaries of what we consider a map to be.

While many participants utilized traditional cartographic conventions—labeling buildings, tracing paths—others, to varying degrees, treated the map as a palimpset. Sketching and writing over buildings as if atop blank space, they de-center geographic accuracy traditionally associated with maps (see "Suns," "Cindy's Perspective," and "This is A SAtiRE"). These maps demonstrate the potential of unconventional mapping to convey human experience of place.

Beyond expanding conceptions of mapping, another benefit of chorography may lie in the process itself and participants' reflections afterward. Sitting down with a blank basemap prompts one to ponder their own personal geographies, awakening sense of place (see statement below "The Sunniest Moments at UO"). As geographer Yi-Fu Tuan noted in *Space and Place: The Perspective of Experience*: "What begins as undifferentiated space becomes place as we get to know it better and endow it with value." The act of visualizing place can foster reflection and encourage participants to see their surroundings anew.



A Closer Look: The annotations above consider how this map expresses dimensions of place. Thematically, the map *functionally* highlights nature spots that may guide others to hidden gems. It also reveals *personal experience* as the creator likely values outdoor spaces and calming moments provided by less busy places. The absence of communal landmarks like the EMU or Rec Center hints at a preference for less conventional places. Paired with the written reflection (see statement in collage), the map conveys a deep sense of belonging, growth, and nostalgia.

Rediscovering Our Place

Visit the archive online (MappingMyUO.com) and notice how invisible landscapes of campus appear. Uncover new perspectives on familiar places and discover locations you may have never considered before. While it may be unsurprising to find typical college spaces like the student union, library, and main street drawn frequently, nuances within participants' markings suggest deeper ties to the university and to place.

The Unexpected Site: Pioneer Cemetery, while not officially part of campus, is frequently marked. This graphic shows examples ranging from text associations to paths and symbolized area fills.

Some of the most interesting insights arise from the emergence of unexpected places on the maps. These places, not iconic or often notable, appear to influence daily routines and shared experiences in unexpected ways that encourage us to question why places are marked. Pioneer Cemetery, for example, appears on over a third of the maps. What might draw people to this space? Is it the quiet solitude and natural setting or just a shortcut to get to class? The "Moon Tree," grown from seeds carried to the moon in 1971, finds its way onto multiple maps. Does its inclusion reflect just a fun fact or an identification with history and discovery? Coffee spots also feature prominently, begetting the question: Do we love coffee for the drink itself or for the place it represents—a study spot, hub for meeting friends, or space to read or reset?

In addition to visualizing important yet less official places, the maps also make visible contrasting and marginalizd experiences within spaces. For some, the Rec Center seems to represents growth and empowerment. Others mark it as a site of vulnerability or intimidation. The EMU, often marked as a hub for studying and socializing, is critiqued by a few as crowded or expensive. Outlying experiences offer the opportunity to reflect on places' inclusivity and accessibility.

Surprising practical observations, like "death by bike" and "watching out for bikes/scooters" along 13th Avenue, also point to opportunities for campus improvement.

Further highlighting how experiences differ, unexpectedly sparse seniors' and richly detailed freshmans' maps challenge the assumption that locations become places simply over time. This reality invites us to consider what might facilitate a more meaning-filled campus for those who are already "familiar" but feel less connected.

In our increasingly fast-paced and fragmented world, without attunement to the emotional dimensions of places, we risk overlooking a critical aspect of our relationship to our environments and to each other. By asking community members to map their stories, Mapping (my) UO reveals how the University of Oregon is more than simply a backdrop for academia and how maps are more than visual records of where people go; they're reflections of how we live, feel, and connect. Through its living archive, the project invites us all to pause and reflect on places in our own lives.

What would your map—whether of campus or your own familiar location—include?

View more maps (and create your own) at MappingMyUO.com

Slow Data

by Lily Lindros • Peer-reviewed by Zoë Kleiner

Recently, I have been making what I call "slow maps". By this I mean projects that take a great deal of time to complete by hand, as opposed to executing the same concept using more efficient technology. Long hours of stitching and drawing have offered me many opportunities to contemplate what value, if any, this process has for the modern cartographer.

My first encounter with slowing down my engagement time with data was academic research I was conducting with a professor about real estate practice in Washington, D.C.. Before I had even thought about making a map of this research, my job was to go through hundreds upon hundreds of historical deeds in the Recorder of Deeds database and manually record each in a spreadsheet. This was a lengthy and sometimes tedious process, and initially seemed to offer little value in comparison to using what had already been digitized for analysis. But becoming extremely familiar with each and every deed allowed us to make connections and insights that would have never occurred to us otherwise. Names and aliases of individual real estate agents became so familiar to me that I started to see sale patterns that couldn't be found just by analyzing profit and loss, such as real estate agents offering nontraditional home loan options to families. The story we were expecting to write about - profiteering and white flight - instead became a narrative about the complexities of these real estate practices and the diverse ways this affected Black homeowners. The maps that emerged from this research were entirely constructed from this careful "manual" work. From initial data entry to the final product, this simple map took years. But if I hadn't taken the time to work with data entry by hand, it would not have existed in this form at all.

I've also been exploring slowness in my fiber arts work. One project, Tree Chroma, is a quite literal take on a treemap. The process to create this cross-stitch involved decreasing the color gamut of four images of a Japanese maple tree in different seasons, and then writing code to sort pixels by color and produce a count. Rather than utilizing conventional data visualization software, I opted to arrange the color blocks by hand. Does the result look significantly different than if I had asked a computer to do this near-instantaneously? Maybe not, but the hours I was required to spend creating this allowed for deeper insight

Tree Chroma: A small cross-stitch experiment that works with data, nature, and art.

into my artistic practice. Rather than quickly finishing this project and moving onto another one, I was left with a sprawling array of ideas about the relationship humans have to color, about human awareness of color in the natural environment, and how that awareness is mediated through technology. I could also say with integrity that I understood what I was doing to manipulate the data through every step of the process. Because I was able to make slower and more intentional choices about the data, the process gained more meaning and artistic value.

The human effort required for handmade work is a good filter for design that is meaningful (and worth the time to do). I see this in the IGL often. Within projects I've worked on, such as the Racial Equity Report, we make careful choices about what kind of narratives to visualize, knowing it will take some time to "get right". Out-of-the-box maps and charts often don't fully realize these goals, and deeper thought on the design process is required. These thoughts often spawn new narratives and design processes that create a more meaningful end result over time.

What does slowness accomplish? The volume of data available and the ease of obtaining quick results from visualization software have both increased, offering infinite creative options for a designer. But these creative opportunities can often only be unlocked by humans engaging deeply with, or even simply playing with, data. The rewards of this practice show me that a designer's time spent "getting to know" the data is never wasted. I have gradually changed my conceptualization of a designer's role from a somewhat passive presenter of existing data to an active agent of meaning-making. It is not only a privilege, but a responsibility, to make sure that my work makes the effort to interact more deeply with what I am representing. And that will always take time.

The InfoGraphics Lab embodies the spirit of "slow mapping" in a way I have rarely seen elsewhere. Exploration and creative detours are valued, and time spent on detail is encouraged. It is not out of the ordinary to see two or three (or more) Lab members huddled over a few pixels, using a collectively enormous body of knowledge to tell the most meaningful story possible. It is this attitude I hope to embody in my future cartographic projects.

"I really love the concept of this piece and how you used the last paragraph to connect this project to the culture of the lab." -ZK

Meet our "Brother"

The Data of a Highly Productive Printer

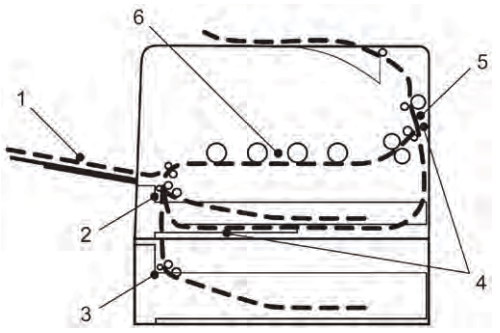
by Joanna Merson • Reviewed by Erik Steiner

HL-4570CDW series
Manufactured Sept 2011
Serial Number=U62500J1J3214595
RAM Size = 128 Mbyte
Main Controller Main ROM Version: 1.15
Local Language: English

Not long ago, one of our longstanding lab members alerted us that it needed attending to: TONER LOW flashed across the Brother printer's little LCD screen. We popped into action and pulled a fresh toner from the drawer and slotted it into place. To check on the status of the other toner cartridges, we selected PRINT SETTINGS, and our hardworking Brother printed out far more data than expected.

We rely on this little workhorse — we print multiple copies of nearly every graphic we create to determine if the font sizes, color, and designs are legible and effective. We mark up those hard copies with feedback and notes and fine-tune our work accordingly. While we know *why* we rely on it, none of us had any idea of the *quantity* of pages that it has provided over the years.

We found out that it, in fact, tracks that data. Manufactured in 2011, the Brother has printed over 40,000 pages in 13 years. Each toner cartridge has been replaced over a dozen times, and by running the numbers, each cartridge has given us 2,400-2,700 pages. It hasn't had a jam in the last 300 pages printed. We've replaced the drum and belt once, and at the current rate we may have to replace the drum after printing about 7,000 more pages. We were impressed enough to want to share the data with you, and we raise a cartridge, to many more years and pages (double sided of course)!



The inner-working of our brother and where to find jammed paper, by error message.
Source: Brother Laser Printer User's guide

"Love it. I kinda can't believe the colored toner cartridges have been used almost equally." -ES

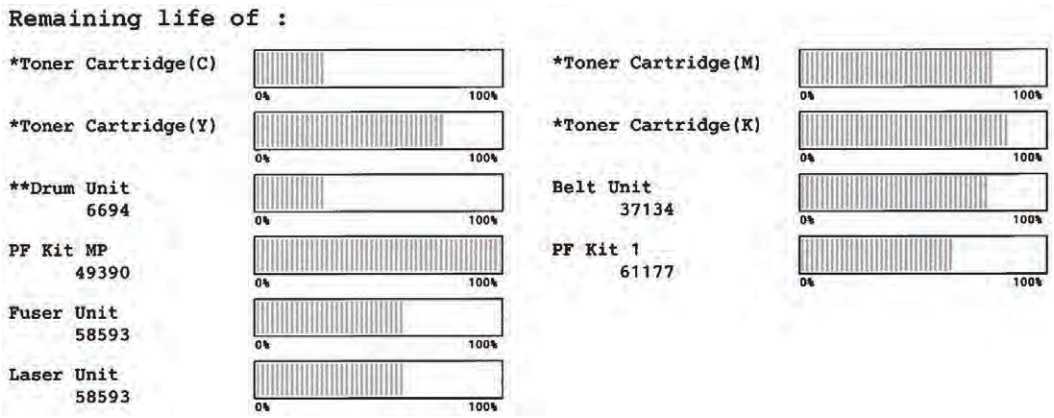
Printer Facts

Brother HL-4570CDW series
Manufactured Sept 2011

Replacement Count:
Toner cartridges:
  Cyan(C): 16
  Magenta(M): 15
  Yellow(Y): 15
  Black (K): 17
Drum Unit: 1
Belt Unit: 1

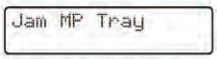
Total Page Count: 41,407
  Color Pages: 26,792
  Monochrome Pages: 14,615
Image Count Total: 118,593

Recent errors:
1: Jam MP Tray Page: 41,134
2: Jam Tray 1 Page: 40,651
3: Toner Low (K) Page: 40,332
4: Toner Low (M) Page: 39,972



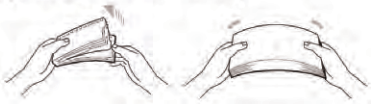
Our Brother estimates the remaining life for its cartridges and parts.

Jam MP Tray (paper jam in the MP tray)



If a paper jam occurs inside the MP tray, follow these steps:

1. Remove the paper from the MP tray.
2. Remove any jammed paper from in and around the MP Tray.
3. Fan the paper stack, and then put it back in the MP tray.



What to do given a multi-purpose try jam.
Source: Brother Laser Printer User's Guide

LandTalk: Conversations of Place

by Eden McCall

Talking Changes on the Family Farm

"We're on my home place, where I grew up," Fred Edward Rengstorf says. Fred is a fourth-generation Minnesota farmer born in the 1950s. Now, more than sixty years later, he's discussing his family farm during an interview for LandTalk, a citizen science project at the InfoGraphics Lab dedicated to documenting how landscapes change over time.

Today, Fred's family farm is covered in a field of solar panels spanning the horizon. But from the stories he shares, Fred enables us to understand this place beyond its current appearance to envision once-standing farmhouses, pigs making a ruckus in the barn, and a medley of different plants dotting the fields.

Fred's knowledge about specific crops, neighborly dynamics and natural disasters brings this plot of land to life. And while Fred describes physical changes, the twenty-minute conversation isn't just a description of the farm's physical transformation but touches on how his family's life changed as well. As agriculture shifted from subsistence to industrialized practices, they became more detached from the soil. Most of the kids, including Fred, have moved away.

While Fred describes the past, the conversation also speaks to the future. Explaining the recent transition from monocropping to solar farming, Fred talks about how his family wants the land to recover from industrialized practices.

"My hope for the future is that ... there'd be more pheasants, more meadow larks, prairie sparrows, hawks and that whole ecosystem," Fred says.

Listening to Fred, the recent history of this Minnesota farmland becomes clearer and its potential future more valuable. By telling the stories of specific places, we can develop an attunement to place more broadly and an ethic to change places for the better–whatever that may mean for the person, the space, and the time. On the individual scale, this process is promoted by conversations about **place**. At the collective level, recording conversations like Fred's enables us to reflect from afar on the importance of places far away, whether spatially-distant or temporally-removed.

A View of the Past Landscape: The Rengstorf family farm during harvest season in 1973. This land would undergo many changes before solar panels installed in 2013 began farming the sun. Image provided by Fred Rengstorf.

Visit the Site: Listen to Fred's story and see more photos on **LandTalk.org**

The Decline of Real Geography

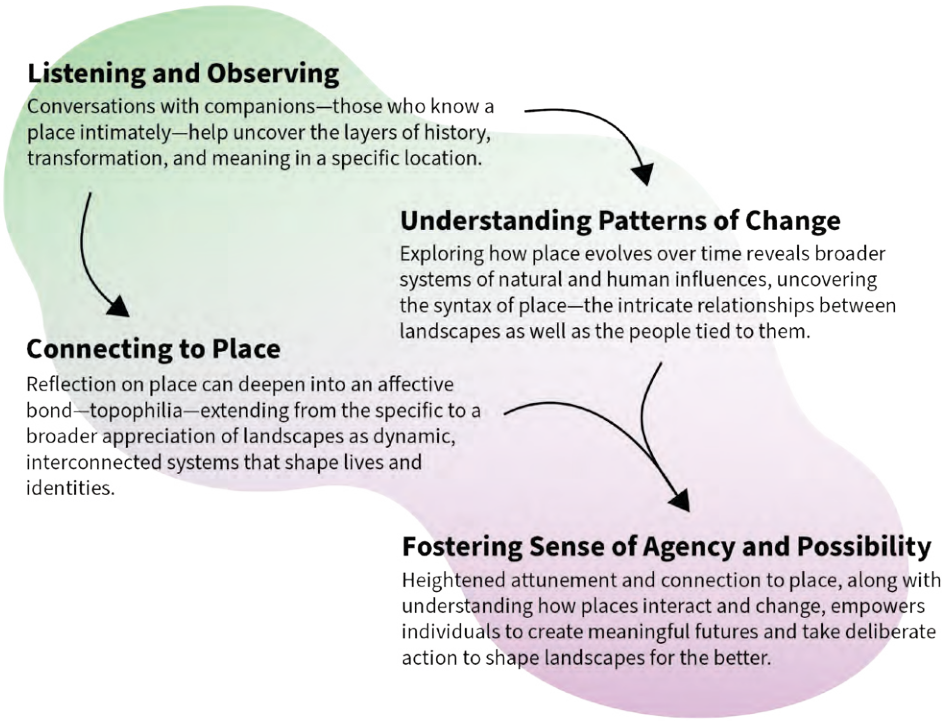
Geographers have long considered how our surroundings affect us. Spaces are not just backdrops or scenes within which life unfolds but, over time, become the dynamic and affective places that impact who we are. Yi-Fu Tuan, a key thinker in human geography, described the importance of the physical environment for people as **topophilia**, the "affective bond" (*Topophilia*, pp. 1-4).

While place affects us whether or not we actively think about it, folklorist Kent Ryden described how certain writers draw our attention to place and its impact on our lives– these people he calls **"essayists of place"** (*Mapping the Invisible Landscape: Folklore, Writing, and the Sense of Place*, p. 254-261).

Barry Lopez, author of *Arctic Dreams*, *Desert Notes/River Notes* and many other nature- and travel-themed works, was one such essayist. Though Lopez's writing can transport readers to faraway places, everyday aficionados and academics like Ryden appreciate his work for its ability to awaken people to the world they're already immersed in, guiding them to awareness of topophilia.

Lopez sought to help people understand the **syntax of place**—the intricate relationships between landscapes and people—and to see how such syntax translated into their own lives, enriching their personal connections to the places they inhabit (*Syntax of the River: The Pattern Which Connects*).

This connection to place offers intrinsic value by expanding our lived experience and grounding a sense of identity, as Yi-Fu Tuan highlighted. Lopez also emphasized its broader societal importance, noting how



Developing Place Attunement: This model shows how learning about the people and stories of one place can foster deeper relationships with place more broadly. In reality, this process is interwoven and non-linear, but it can begin with a conversation and lead to feeling empowered to create change.

Coast Village Road, Montecito, California, USA

Hannah Parrish, a longtime resident of Santa Barbara, California, talks about neighboring Montecito and specifically Coast Village Road. This small stretch of land is the heart of the small...

Avenue Road Estate, Leytonstone, London UK

Premiered as part of Leytonstone Loves Film, curated by the Barbican in September 2021. This film was produced as part of a community engagement programme with the residents of the Avenue Road...

Moana Swimming Pool, Moana Lane, Reno, Nevada, USA

Sandy Schulze (the observer), grew up in Reno, Nevada. She was born in 1962 and has lived there her entire life (until this summer when she will be moving to London). In this video, Sandy describes...

San Luis Rio Colorado, Sonora, Mexico

I am interviewing my mother regarding her time spent in her old house in Mexico. She gives general descriptions about the place, from the time she moved in until present day, even though she does not...

Reading Through LandTalk Entries: These thumbnails are a sample of those found on the site. Entries are added by Interviewers who ask Observers to reflect on changes they've noticed in a place over at least twenty years.

the decline in such connections harms communities. In his essay "The American Geographies" (1989), he observed that the average American has grown increasingly detached from the places they inhabit. When we can fly across the country in hours or eat a fresh berry in winter, the geographical intricacy of the land risks being lost.

Modernity further erodes this connection: local restaurants give way to global chains, distinctive architecture is replaced by fleeting trends, and intergenerational homes are exchanged for singular households. Lopez warned that this "loss of personal and local knowledge"—what he termed **"real geography"**—makes it easier to overlook or accept the exploitation of land. Without intimate understandings and care for land, people may not recognize the long-term consequences of environmental and social degradation. While rejecting modernity is neither desirable nor feasible as a solution, the disconnection confronting us, Lopez believed, can still be addressed by fostering awareness of such real geography.

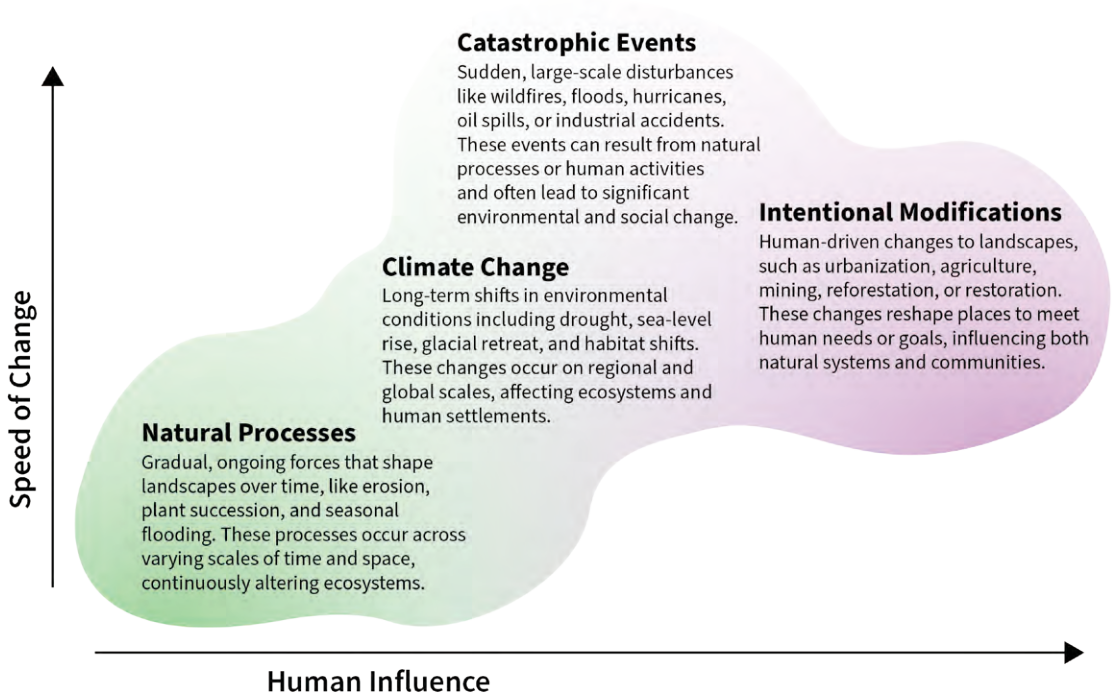
For Lopez, **"local geniuses of American landscape,"** people who carry intimate knowledge and care for places, can facilitate these connections (*Mapping the Invisible Landscape*, p. 915). These people are usually not known outside their community. They may not know the technical names or the specific dates. They often don't write books or have online audiences. Yet, they harbor an understanding of the syntax of place and can be guides to making places visible once again.

Just as Fred made his Minnesota farmland visible, individuals everywhere are attuned to local geographies and are often happy to share their knowledge. These observers (**"companions"** as Lopez also described them) enable us to understand not only a specific place but to appreciate and better relate to place more broadly.

Our Place Through Change

As landscapes change, those who know them intimately best reveal their past, present, and future, helping others see changes and better understand their role in shaping or adapting to them. Understanding how our places change, we also come to understand how we as individuals and society are changing. As folklorist Ryden describes: "As our places have changed, so must we have changed; as our places' identities have altered, so must ours have" (*Mapping the Invisible Landscape*, p. 261).

A sense of nostalgia, loss and sadness, pride and satisfaction, worry and anxiety, or connection and belonging are all tied to places because of change. Fred, perhaps influenced by feelings of regret and worry over the farm's industrialization, sought to restore natural grasses and support clean energy with solar panels. Yi-Fu Tuan explained that by better knowing ourselves we can improve our actions, writing that "without self-understanding, we cannot hope for enduring solutions to environmental problems, which are fundamentally human problems" (*Topophilia*, p. 1).



Mapping Place Change: This chart plots types of environmental and social changes by perceived speed and human influence, from slow, natural transformations, often regional or global, on the bottom left to rapid, human-driven changes, typically localized, on the top right. The labels offer a framework to begin reflecting on how changes occur and overlap and what our role in shaping change can be.

The importance of considering how and why landscapes change may then be a critical avenue for exploring and reflecting not only on our own lives but our collective futures.

LandTalk and Beyond

Despite Lopez's warnings more than three decades ago, access to intimate knowledge of places continues to decline. In the midst of the **Anthropocene**—an era characterized by human-driven environmental and social changes occurring at a rapid, global, and often irreversible scale—the importance of recognizing and reflecting on such trends is paramount. However, with change accelerating, is there a possibility for rapid course correction?

Seeking knowledge and starting conversations about place can become the common ground to know one another. Beyond localism, this syntax forms a shared human connection and curiosity about our surroundings and our histories, starting a conversation that can extend to offer insights into culture, politics, and values. With a turn to the concrete and physical, the root and soil of change, we open the possibility to reflect on the illusion of separations and borders that abstract and divide us. And with "real geographical knowledge," we gain both the responsibility and the agency to create more just and healthy futures.

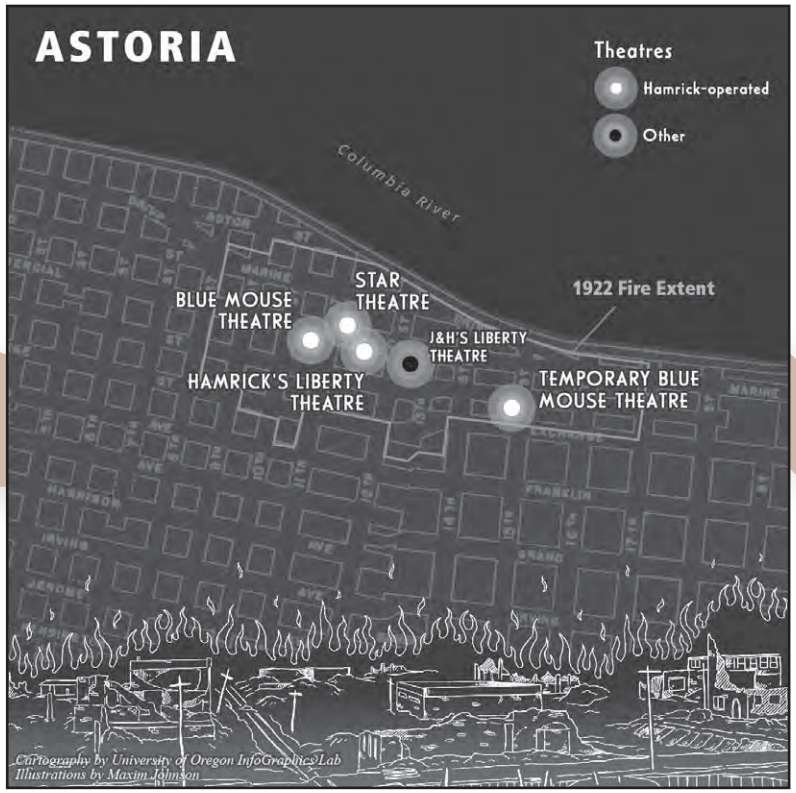
Thus, conversations like those facilitated by LandTalk are necessary now more than ever. These conversations, along with the collective **archive** of place they contribute to, facilitate the everyday essayists of place and companions that can unlock our understanding of potential alternate trajectories.

Browse through the hundreds of entries on LandTalk and discover a living archive with which to reflect on how we relate to place–and to each other. Like Fred's family farm, real geographies are all around us, and so too are companions. Conversations about places and change offer much more than a history lesson, and it can start with an inquiry as simple as: what did this place used to be like?

CHAPTER THREE

DESIGN

We see design as an aesthetic and problem-solving pursuit that can be applied in the academic context as part of a process of discovery, exploration and synthesis with potential to substantively impact knowledge construction and science communication. Design, in our view, is a mindset steeped in empathy, focused on usability, and driven by the desire to create meaningful impact. By approaching challenges from a design perspective, we strive to understand and bring new understandings through an iterative, creative process. We believe that design can help discover and communicate insights and that its creative and empathetic orientation by definition invites cross-disciplinary forms of research and exchange.



Design Project Spotlight:
Blue Mouse Cinema Maps

In a collaboration with film historian Michael Aronson in the UO Cinema Studies Program, IGL student Max Johnson created maps with original hand-drawn illustrations that open each chapter for Aronson's book *"John Hamrick's Blue Mouse Cinemas: Independent Exhibition and Influence in the Studio Era"*, published by University of Exeter Press, 2024. Max's justaposition of map and illustration sets the context for each chapter, answering both the 'what' and the 'where' that capture each chapter's content in visual form. The map above opens the Astoria chapter that focuses on the 1922 fire and its resulting impact of Hamrick's takeover of other town theaters.

Crafting Stories: Lessons from Taylor Swift

by Lauren Nguyen • Peer-reviewed by Lily Lindros

Throughout history, storytelling has been an essential part of human cultures. From cave paintings to publishing books, storytelling is a powerful tool for disseminating information and passing along generational knowledge. Taylor Swift is an example of how storytelling can captivate millions of individuals through art and music. While Swift uncovers complex emotions and life experiences through lyricism, the InfoGraphics Lab (IGL) conveys complex information via data visualizations and analyses. Although the two storytelling approaches differ, the IGL can draw valuable lessons from Taylor Swift's storytelling techniques to make their work more compelling and impactful.

Creating a Cohesive Narrative Arc:

Swift's Technique: Swift's songs and albums often follow a narrative arc with a clear beginning, middle, and end, taking listeners on an emotional journey. This helps keep the audience engaged and provides a memorable experience.

Takeaway: Cartographers can structure its visualizations around a narrative arc, guiding viewers through an introduction, conflict, and resolution. A clear understanding of the story being told becomes a guide to design decisions made in cartographic products in order to create a significant impact.

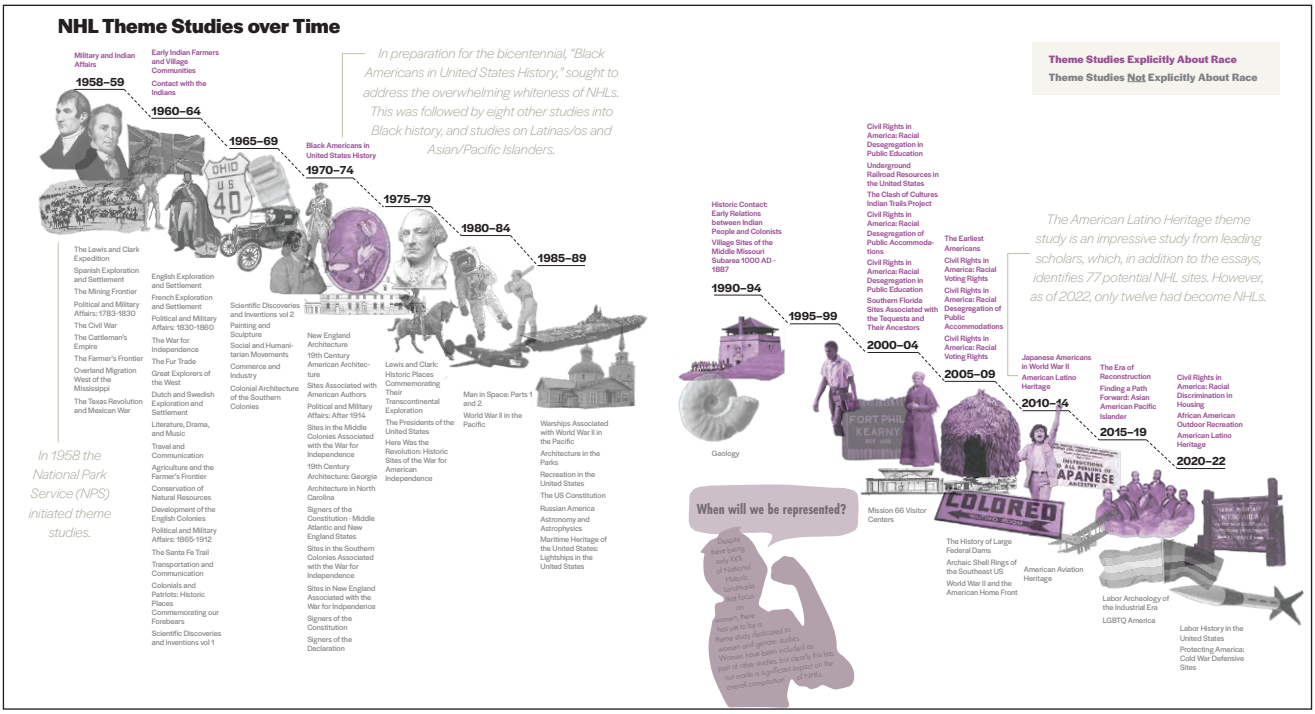
Example of Application: The Atlas of Yellowstone informs park visitors and scientists about its history, contemporary landscape, and possible actions for the future. It also brings to light the work being done to inspire worldwide conservation practices and the struggles the park faces in carrying out their mission, including the threat of wildfires. The story of Yellowstone helps inform and guide structural and design decisions throughout the production of the Atlas, which in turn, enables the reader to comprehend and care about the story of Yellowstone.

Imagery to Evoke Emotion and Understanding:

Swift's Technique: Taylor Swift's lyricism is coated in vivid imagery and descriptive language, which paints scenes in her listeners' minds. For instance, in her song, "All Too Well (Taylor's Version)," Swift reminisces on a past heartbreak and sets the scene with specific places, objects, and moments that make her stories come to life. The cinematic quality of her descriptive lyricism makes it easy for listeners to understand her narrative, and visualize and connect emotionally.

Takeaway: Enhancing visualizations by incorporating more vivid, metaphorical imagery helps make the work resonate emotionally with viewers. Instead of just presenting the data, graphics could use illustrations to create an emotional connection, which has been shown to increase action. Lab affiliate Carolyn Fish discusses this in her research on cartographic storytelling on climate change.

Example of Application: *Monumental Denial: An Atlas of U.S. Cultural Memory and White Innocence* is a new print atlas the IGL is creating in collaboration with Professor Laura Pulido, which investigates how the United States embeds narratives of white supremacy through the commemoration of National Historic Landmarks. It takes on heavy topics that can evoke feelings of pain and rage. Making intentional graphic design choices that help emphasize a statement or an argument helps readers emotionally relate to the content. For example, the atlas dedicates a section showing the racial and gender disparity in selected theme studies done by the National Park Service. The choice of color and graphics helps visualize when theme studies explicitly about race began and highlights that no theme studies dedicated to women have been conducted.



National Historic Landmark Theme Studies: Cartographers and designers can make design decisions to evoke emotion and elevate viewers' understanding about the purpose of the visualization. From *Monumental Denial: An Atlas of U.S. Cultural Memory and White Innocence*, the use of color allows a better understandig of the racial disparity in NHL theme studies. Also, imagery like the silhouette of Rosie the Riveter is iconic and recognizable, helping designers make a visual and emotional connection with their audience more effectively. Design by Jenna Witzleben.

Relatability Through Personal and Universal Themes:

Swift's Technique: Swift tackles universal themes such as love, loss, and resilience, allowing her to connect with a wide audience. The vulnerability and authenticity in her storytelling cultivate a sense of intimacy that keeps listeners engaged. In "Soon You'll Get Better," Swift articulates her journey watching her mom's cancer progress. By sharing her personal stories, she invites listeners into her life and allows them to see reflections of their own lives in her music.

Takeaway: Cartographers can make their maps and visualizations more relatable by framing data in ways that connect to universal human experiences or realities.

Example of Application: The IGL's *Pacific Northwest Atlas of Essential Work* centers the voices of workers whose essential labor goes unnoticed to the world. From prisoners deployed to fight our forest fires to home care workers, it is a collection of stories by community members whose work we depend on. The atlas is exploratory and allows viewers to learn for themselves, through images and interviews, the hidden work that help make up our communities.

"This is an incredibly fun essay! I think it offers such a great overall thematic perspective from a very novel and current framework." -LL

Using Symbolism to Add Depth:

Swift's Technique: Swift frequently uses symbolism to add layers of meaning to her stories, allowing for nuanced interpretations. In "my tears ricochet," she uses a metaphor to explore themes of betrayal and lingering pain, adding depth to the narrative. Swift uses metaphors to deepen the impact of her songs, which elevates the experience that listeners have with her stories.

Takeaway: Incorporating symbolism into maps and infographics can help convey complex themes and messages more effectively and significantly.

Example of Application: Visualizing the impact of school shootings could involve not only data points but also imagery that conveys the human toll and loss. In **"***The American Nightmare: School Shooting Incidents Between 1966-2023,***"** the frequency and extremity of school shootings is displayed on a timeline, using illustrations of human figures, helping the audience grasp the urgency and relevance of the information.

While Taylor Swift and the InfoGraphics Lab take on different approaches to storytelling, they are anchored to similar goals. Swift's techniques offer valuable insights into how to engage audiences more effectively. Data visualizations are not conventional methods of storytelling but continue to be an essential tool for education and making data accessible to all. By incorporating elements of vivid imagery, relatability, symbolism, cohesive narrative arcs, interactivity, and authenticity, the InfoGraphics Lab can enhance its data visualizations, making them not only informative but also deeply engaging and memorable. Storytelling remains a powerful tool for human communication and connection, and these lessons from Taylor Swift can help the InfoGraphics Lab and all cartographers tell stories that resonate more strongly with their audiences.

THE AMERICAN DREAM NIGHTMARE

K-12 SCHOOL SHOOTING INCIDENTS BETWEEN 1966–2023

The American Nightmare: School Shooting Incidents Between 1966–2023: While the data may complex, cartographers can create easy to understand graphics and visuals by incorporating illustrations as a form of symbolism. It makes the message of the visualization clear, while uplifting deeper connotations such as the lives that are impacted by school shootings.

VICTIMS BY YEAR

- 5 victims
- 1 victim
- x No victims

INCIDENTS

- 1970 — Gun Control Act of 1968 enacted to restrict access to firearms and ban access of guns to minors, felons, etc.
- 1975 — 1986: Armed Career Criminal Act enacted to increase penalties of firemarms by persons not qualified to own them under the Gun Control Act of 1968
- 1980
- 1985
- 1990 — The Crime Control Act of 1990 bans the manufacturing importing of semiautomatic weapons in the US
- 1995 — The Federal Assault Weapons Ban became effective in 1994 and ended in 2004
- 2000
- 2005 — The Protection of Lawful Commerce in Arms Act passed in 2005 to protect manufacturers and dealers whose weapons were used in criminal incidents.
- 2010
- 2015 — 2020: nationwide COVID-19 shutdown stopped schools from going into session
- 2020

Lindhurst HS
4 killed, 10 wounded

Thurston HS
2 killed, 25 wounded

Columbine HS
13 killed, 24 wounded

Red Lake HS
4 killed, 10 wounded

Sandy Hook ES
26 killed, 2 wounded

Marjory Stoneman Douglas HS
17 killed, 17 wounded

Santa Fe HS
10 killed, 13 wounded

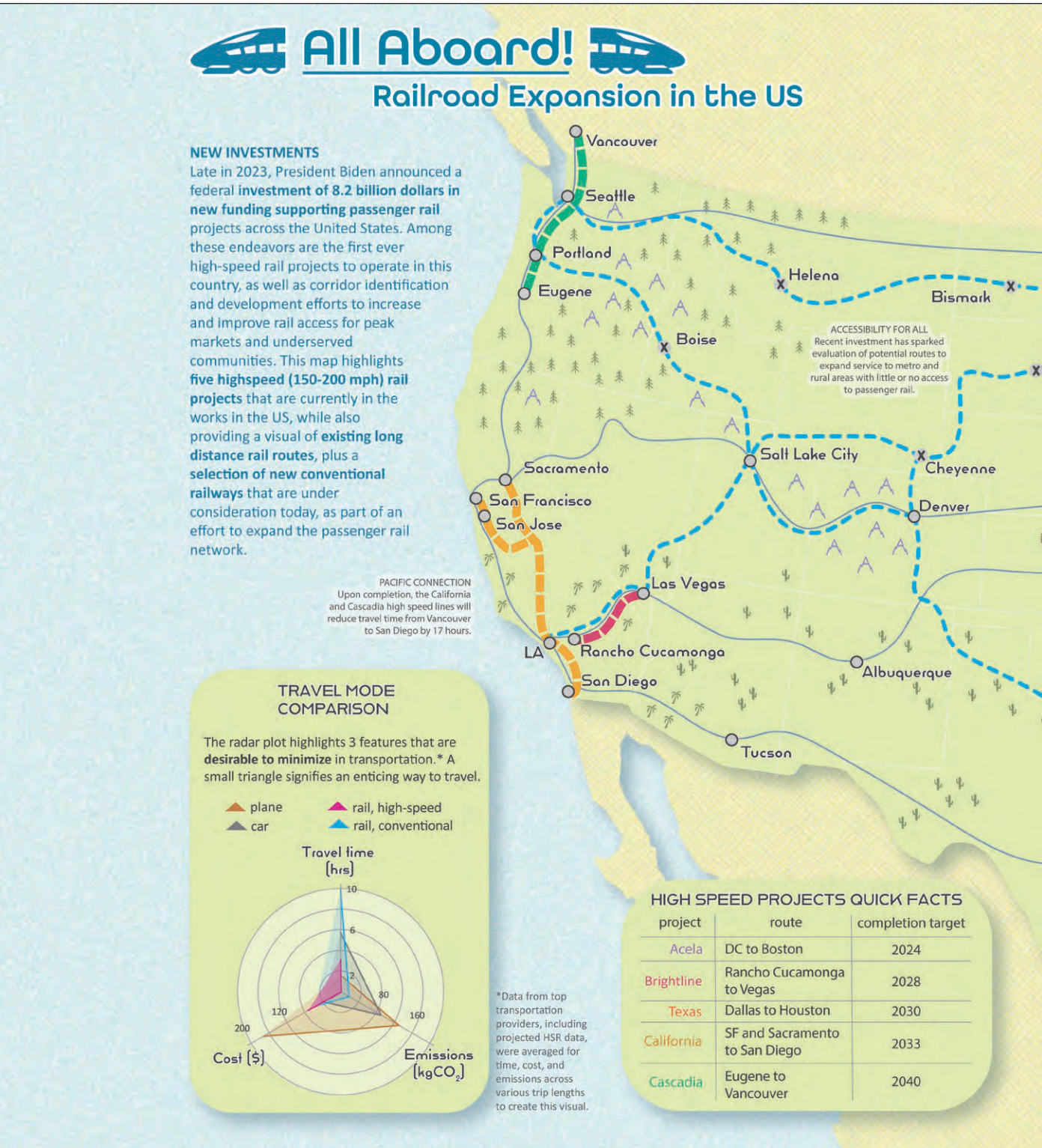
Robb ES
21 killed, 18 injured

To see full map layout, visit https://infographics.uoregon.edu/project/loy-award/

Cartographic Experiences: Making Maps in Advanced Cartography

by Clare Otcasek

As a Data Science major with a concentration in Geography, I had the opportunity to complete three cartography classes: Data Driven Cartography, Web Mapping, and Advanced Cartography. This track of classes ignited my spark for creating maps while introducing a vast new toolkit of things to consider when designing any visual representation of data. Creating the map below as my final project for Advanced Cartography helped me develop essential skills for working in the InfoGraphics Lab.

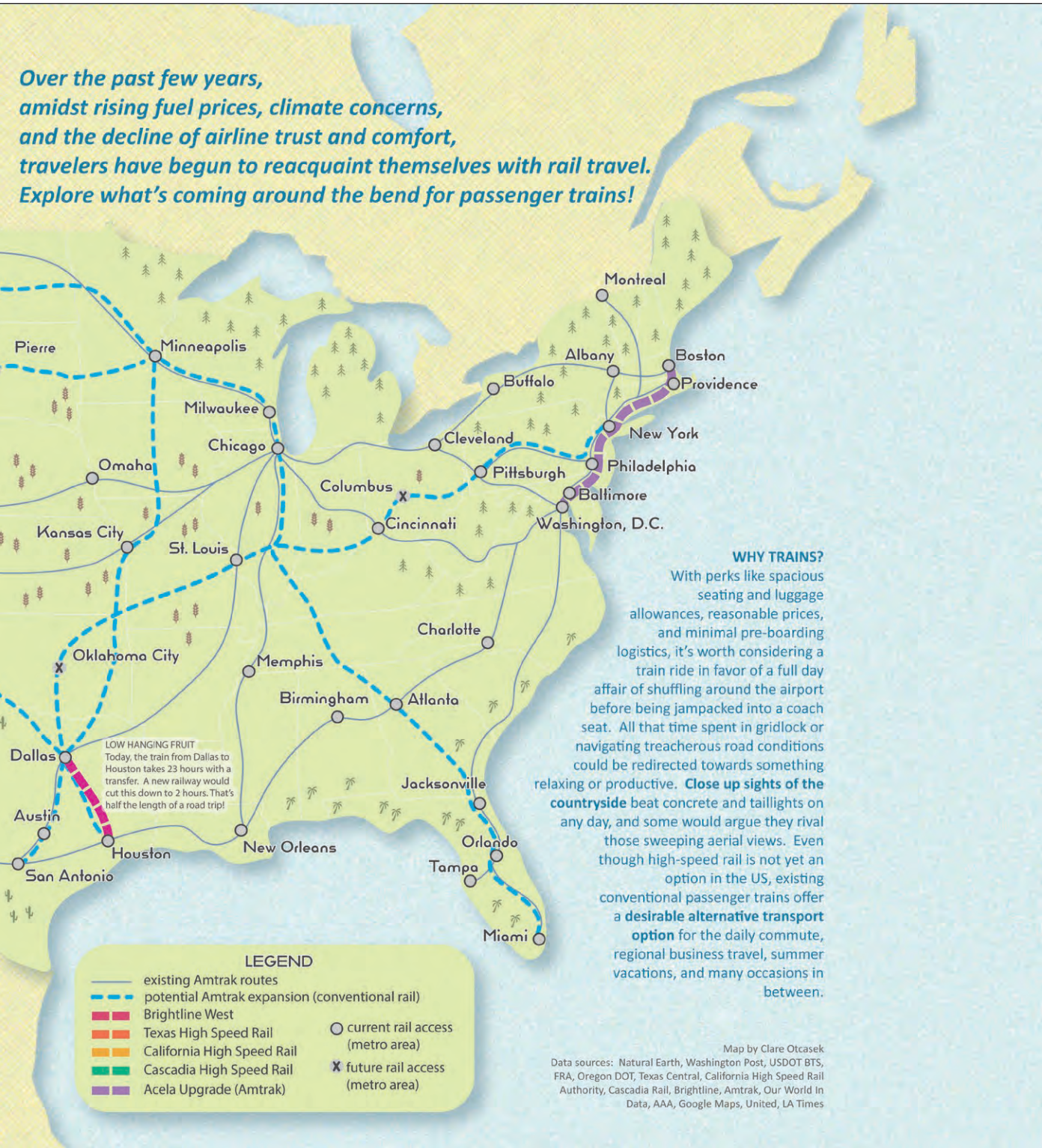


Eye for design: I developed an understanding for how design elements such as visual hierarchy, alignment, and font choice can elevate a map product. I enjoyed the hours spent rearranging elements of this map to create a balanced product. That work leveled up my capabilites in Adobe Illustrator.

The message: A key point from the class was to understand your audience and maintain focus on the story you want to tell. This idea drove design choices for this map, and continues to guide my work in the Lab. There are infinite ways to present data, and making design choices that are guided by your story will make it easier for an audience to interpret that message.

Technical: I decided to create this map with a cartoon-ish feel. One way I hoped to achieve that was by smoothing out the coastlines of North America. I became familiar witih polygon simplification and generalization tools, which were useful to my work in the IGL processing migration data for web hosting.

Constructive feedback: Critiquing maps created by others prepared me to deliver thoughtful and constructive feedback in the workplace. It also informed decision making in my own work. This map went through three formal critique rounds, in addition to countless questions and comments that were critical in shaping the final product.



Realm of Eastern Ebion

by Maxim Johnson

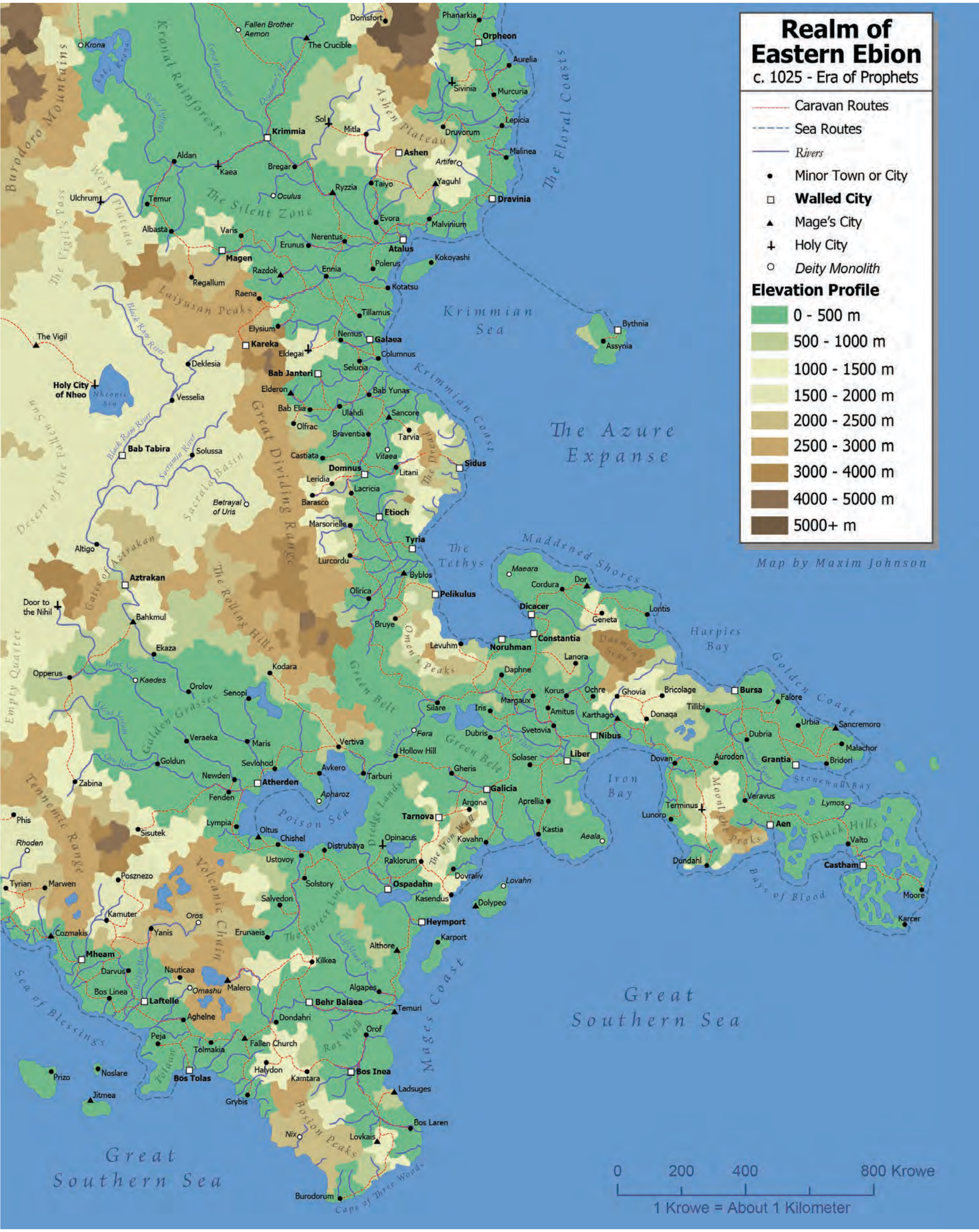
Fantasy mapping is an outlet and tool for understanding and experiencing the world around me. By the time I reached the University of Oregon, I had seen a quarter of the world—traveling from India and Kenya, to Italy and Albania, and many more fascinating countries. My travels gave me a deeper appreciation for understanding how a world is built. By the end of high school, I was inspired to dedicate time to formally study and understand geography.

I had multiple goals by pursuing geography at the University of Oregon. First, I aimed to better understand the world around me, and the broader context under which we live. This includes understanding everything from physical geography and how our landscape is formed, to understanding human geography, history, and how we organize ourselves in this strange world. Second, I wanted to explore parts of the world I hadn't experienced yet and understand major themes we as people experience throughout history. All of this curiosity would lead to my passion in cartography and would ultimately culminate in my own artistic and cartographic projects. Creating a fantasy world, I felt, would be a great way to fully appreciate, research, and understand the world we live in now.

My latest endeavors in creating a fantasy world culminated in my latest project: a map and set of accompanying illustrations. For this map which I called 'The Realm of Eastern Ebion' and the various illustrations throughout these pages, I took many points of inspiration. I began with my favorite media and personal experiences which help inform my goal and vision for my project. I grab inspiration from every aspect of my life, from little symbols I see graffitied on the wall to real historical events. This will often lead me down informational rabbit holes which can be hard to stop. Despite this I have a few sources of inspiration which I consistently come back to and shape my works around.

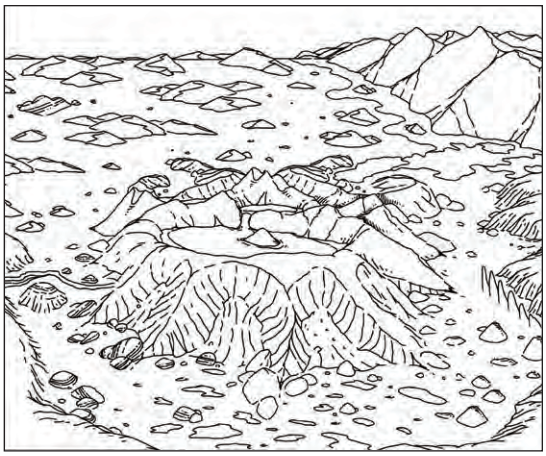
The first source of inspiration is the natural world, in particular the varied landscapes of Oregon. Here deserts transition to mountains where iconic volcanoes and calderas descend into lush valleys and forests and finally into the rocky coasts and the Pacific Ocean. All of these environments make for vibrant settings in any story. Another source which is near and dear to my heart is Studio Ghibli (a Japanese animation studio known for films such as The Boy and the Heron). Throughout each film the studio makes, the settings and world are beautifully explored and expressed. The soft art style paired with the masterfully created soundtracks really help to immerse the audience and pull them into the story. Characters are unique yet relatable, and the worlds are strange yet lived in. My final point of inspiration is 'forgotten' or lesser explored cultures and histories. Fictional worlds are often constructed around western-style medieval fantasies or eastern-style feudal empires. These often miss huge swathes of our history as human beings, most obviously the rich stories, art, and knowledge from Native Americans, Mesoamericans, African cultures, and more. People like the Mayans or the Igbo have a vibrant and rich culture which I believe many would enjoy and relate to. It is a personal goal of mine to take inspiration and learn more about many of these underepresented groups of people.

Map of Eastern Ebion (right): Using the natural world as inspiration, I designed Eastern Ebion with physical features we may see in the spaces around us; Valleys, forests, and lakes serve as the setting for my world building. Other elements like the elevation profile and scale provide a sense of familiarity, while maintaining its uniqueness.


Realm of Eastern Ebion
c. 1025 - Era of Prophets
Caravan Routes
Sea Routes
Rivers
Minor Town or City
Walled City
Mage's City
Holy City
Deity Monolith
Elevation Profile
0 - 500 m
500 - 1000 m
1000 - 1500 m
1500 - 2000 m
2000 - 2500 m
2500 - 3000 m
3000 - 4000 m
4000 - 5000 m
5000+ m
Map by Maxim Johnson
0 200 400 800 Krowe
1 Krowe = About 1 Kilometer
Burodoro Mountains
Kronal Rainforests
Ashen Plateau
The Floral Coasts
The Silent Zone
West Plateau
The Vigil's Pass
Laiyusan Peaks
Krimmian Sea
Krimmian Coast
The Azure Expanse
Great Dividing Range
Desert of the Fallen Sun
Sacrala Basin
Gates of Aztrakan
The Rolling Hills
The Tethys
Maddened Shores
Harpies Bay
Golden Coast
Omen's Peaks
Green Belt
Golden Grasses
Empty Quarter
Tennomic Range
Poison Sea
Dredge Lands
The Iron Wall
Iron Bay
Moonlight Peaks
Black Hills
Stonewall Bay
Bays of Blood
Volcanic Chain
The Forest Line
Sea of Blessings
Rot Wall
Mages Coast
Boston Peaks
Cape of Three Woods
Great Southern Sea
Krona
Fallen Brother Aemon
The Crucible
Domsfort
Phanarkia
Orpheon
Aurelia
Sivinia
Murcuria
Krimmia
Sol
Mitla
Druvorum
Lepicia
Ashen
Malinea
Artifer
Aldan
Kaea
Bregar
Yaguhl
Taiyo
Ryzzia
Oculus
Dravinia
Ulchrum
Temur
Evora
Malvinium
Albasta
Varis
Nerentus
Erunus
Atalus
Magen
Polerus
Kokoyashi
Razdok
Ennia
Regallum
Kotatsu
Raena
Tillamus
Bythnia
Assynia
The Vigil
Elysium
Kareka
Nemus
Galaea
Eldegai
Columnus
Deklesia
Bab Janteri
Selucia
Holy City of Nheo
Nheonic Sea
Elderon
Bab Yunas
Vesselia
Bab Elia
Ulahdi
Sancore
Olfrac
Braventia
Tarvia
Bab Tabira
Solussa
Castiata
Vitaea
Sidus
Domnus
Litani
Leridia
Lacricia
Betrayal of Uris
Barasco
Etioch
Marsorielle
Altigo
Tyria
Lurcordu
Aztrakan
Byblos
Maeara
Dor
Door to the Nihil
Olirica
Pelikulus
Cordura
Bahkmul
Dicacer
Geneta
Lontis
Bruye
Constantia
Ekaza
Levuhm
Noruhman
Lanora
Opperus
Kodara
Daphne
Kaedes
Orolov
Senopi
Korus
Ochre
Ghovia
Bricolage
Bursa
Falore
Silare
Iris
Margaux
Amitus
Karthago
Donaqa
Tillibi
Urbia
Sancremoro
Fera
Dubris
Svetovia
Nibus
Dubria
Malachor
Veraeka
Maris
Vertiva
Hollow Hill
Solaser
Liber
Dovan
Aurodon
Grantia
Bridori
Goldun
Sevlohod
Avkero
Gheris
Newden
Atherden
Tarburi
Zabina
Fenden
Apharoz
Galicia
Aprellia
Veravus
Argona
Terminus
Lymos
Phis
Lympia
Tarnova
Lunoro
Aen
Oltus
Kastia
Aeala
Sisutek
Chishel
Opinacus
Kovahn
Valto
Rhoden
Distrubaya
Ustovoy
Raklorum
Dundahl
Castham
Posznezo
Dovralivr
Tyrian
Marwen
Solstory
Ospadahn
Lovahn
Salvedon
Kasendus
Dolypeo
Moore
Kamuter
Oros
Heymport
Karcer
Cozmakis
Yanis
Erunaeis
Karport
Althore
Mheam
Darvus
Kilkea
Nauticaa
Omashu
Malero
Bos Linea
Laftelle
Algapes
Behr Balaea
Temuri
Aghelne
Dondahri
Peja
Orof
Fallen Church
Tolmakia
Prizo
Noslare
Halydon
Kamtara
Bos Tolas
Bos Inea
Jitmea
Grybis
Ladsuges
Bos Laren
Nix
Lovkais
Burodorum

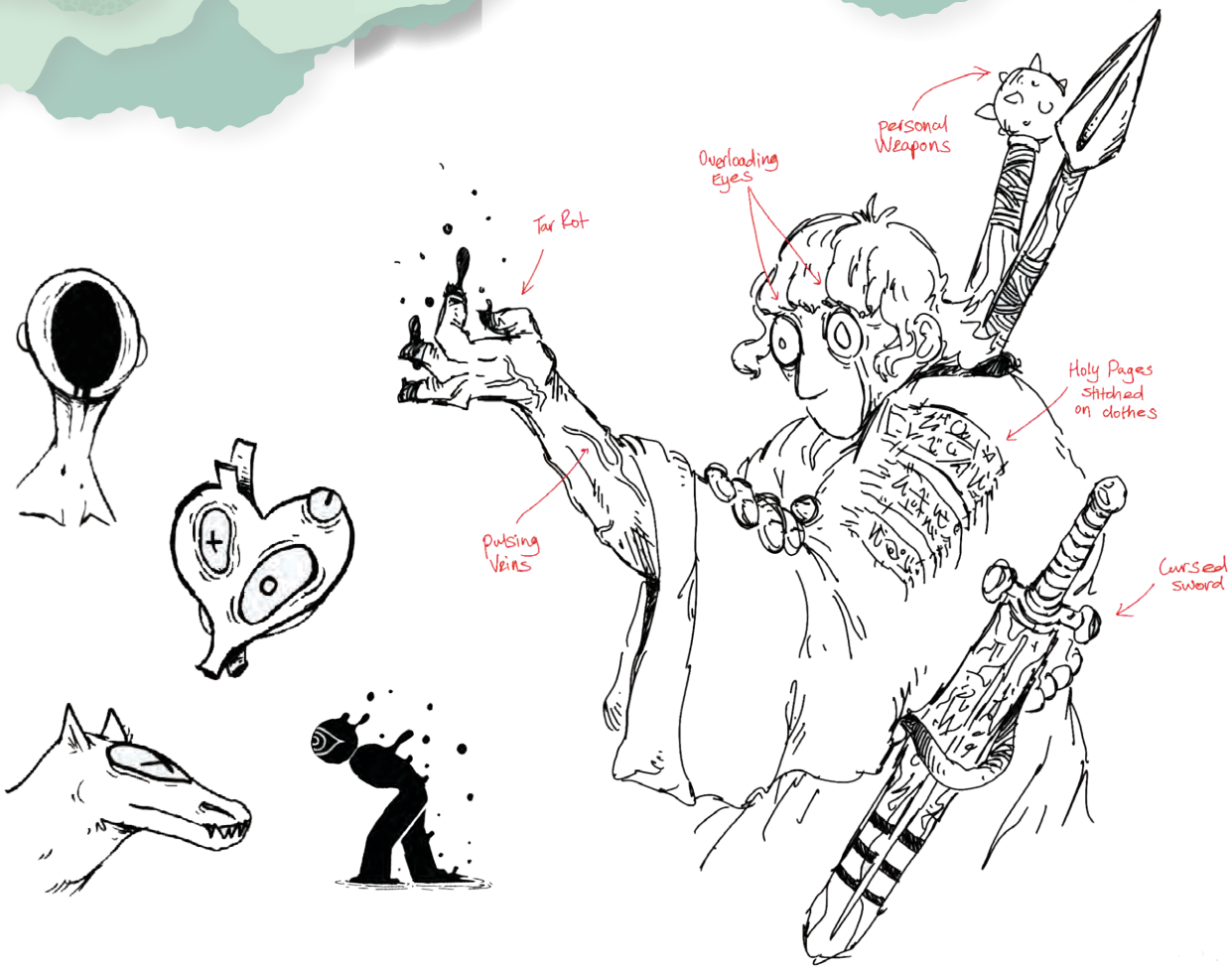
My design process is similar project to project but can vary depending on the programs I want to use. The map displayed with this piece was created in Adobe Illustrator. My first map draft was drawn in Procreate. Then I traced the continents and got an initial generation of the continent features created in Azgaar's fantasy map generator. Azgaar's is a great tool for fantasy map creation as you can easily edit and generate states, cities, routes, topography, and more. Afterwards you can export the information into GeoJSON format, where you can manipulate it further using ArcGIS Pro or QGIS or transition directly to a graphics software package. For this map most of the work occurred in Adobe Illustrator. After exporting from ArcGIS Pro I spent hours carefully labeling and placing cities, water bodies, and more.

Besides creating illustrated or professional-style maps to depict my fantasy worlds, I use illustrations of creatures and characters to further enhance their depth. Just as seeing dragons or dinosaurs sets one's mood and expectations for a fantasy world, creating unique creatures helps me set my own mood and expectations. Often informed by prehistoric animals, the creatures I illustrate are meant to evoke wonder. Their unique physiology allows me to obsess over fossils and research the strange possibilities animals possess. Seeing this unknown helps evoke this sense of wonder, one not usually activated since childhood. The idea of creatures which look bizarre but were once alive and walking engages the imagination like no other. I try to take this unknown into characters as well, using different cultures and ancient history to create unique outfits and faces. It is easy to see only the main cast of characters on the stage, such as France, Britain, China, and more, but as I mentioned earlier, the world is so much bigger than that.



Iterating ideas: My illustrations are typically sketched with a pen or using procreate on a tablet. I find quick drawings to be a great way to create a foundation for world building.

The 'Realm of Eastern Ebion' map (on the previous page) and the accompanying illustrations are a snapshot of my work at this current moment in time. They represent aspects of our real world through an idealized lens, one which highlights the spectrum of vibrant people, cultures, animals, and more. There is still so much more I would like to explore and express, and techniques I want to try for myself. My goal one day is to have more maps than I can count and more stories told than I could ever imagine. I hope the intersection between the science of the natural world and the art of worldbuilding can be married into one, allowing even my make-believe Realm of Ebion to be as vibrant and real as the mountain ranges and forests stretching far across our own continents.



Art imitates life: My illustrations are based on people and landscapes I have seen in real life, mixed with inspirations such as Studio Ghibli and more.

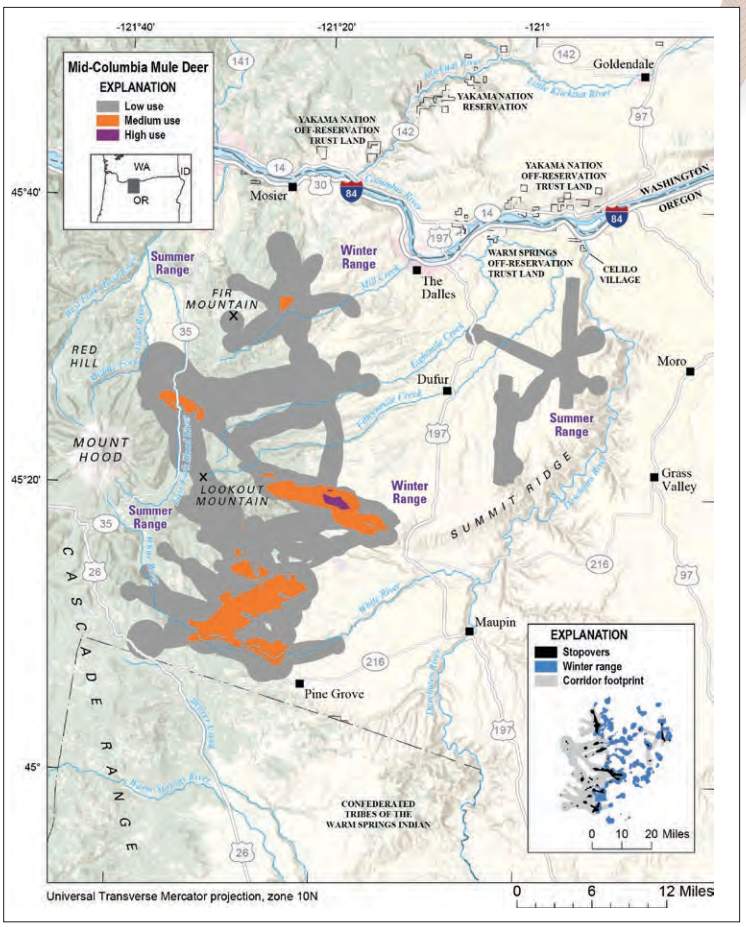
Navigating Creativity

by Zoë Kleiner • Peer-reviewed by Lauren Nguyen

As a visual learner, I fell in love with creating art in my childhood. Drawing inspiration from the organic world around me through painting, drawing, engraving, or relief printing, I found a passion for creativity that is deeply fulfilling. In June, I graduated from the University of Oregon with a degree in Geography: a career where my love for art and my passion for telling stories about the natural world are inseparable.

While earning my degree, I was enrolled in various mapping courses that focused on independent work, encouraging me to turn inward and develop my own sense of cartographic design. It was in these courses that I learned essential mapping software like ArcGIS Pro and Adobe Illustrator, expanding the potential of map-making into the digital world of design. These projects were invitations to explore how my background in non-digital artistry could evolve into a new form of creativity. The open-ended assignments with wide-ranging topics helped me build a strong foundation of cartographic and technological skillsets.

With this foundation, I joined the InfoGraphics Lab with hopes of building my cartographic skillset further. The first project I worked on was the United States Geological Survey's annual report on ungulate migration, which focuses on mapping the movements of hooved mammals in the Western United States. Each year, the InfoGraphics Lab partners with the USGS and the Wyoming Migration Initiative to produce maps using data collected through GPS collars. Our role in the Lab is to convert this data into visually appealing spatial displays for conservation, education, and research purposes.



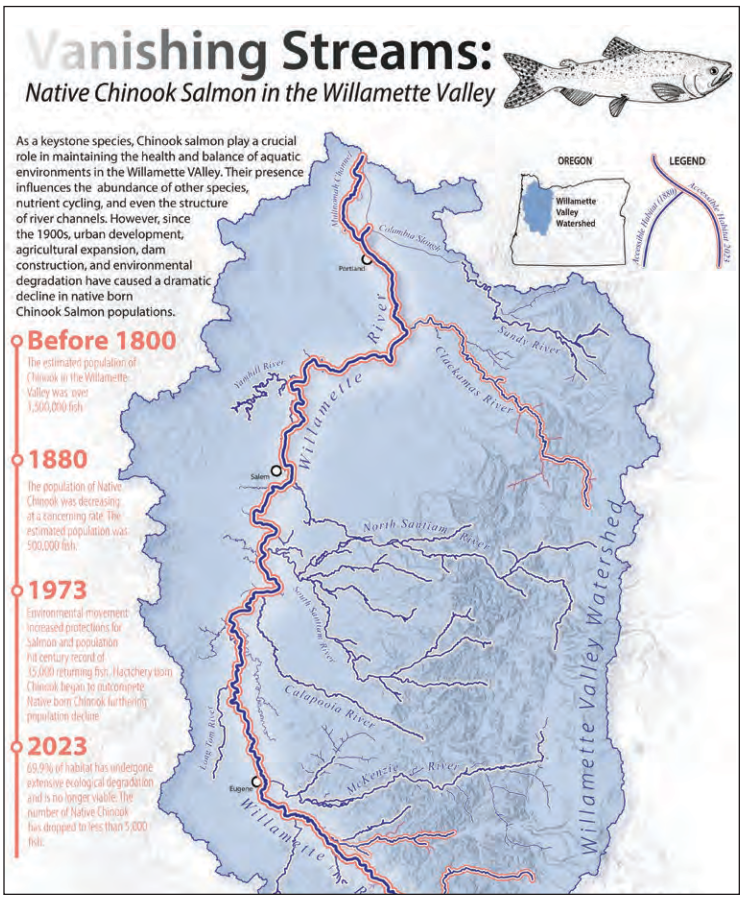
Map from USGS Report: Movement corridors of mule deer in north-central Oregon.

Conversely, the projects I work on for the Lab are more structured than my classroom assignments. There are specific design layouts, font choices, and color palettes to adhere to. This uniformity is vital for producing professional and cohesive maps that multiple students and staff create collaboratively. This professional structure taught me about workflow and the importance of consistency to a degree I had not experienced before. At first, I was curious if the professional style guides would limit my creative expression. However, I quickly learned that this structure

was not a hindrance but a challenge to find subtle ways to inject my personal style throughout the project. I found myself focusing more on details such as the curvature of hydrology labels and the angles of terrain labels. This project taught me that creativity is possible within structured guidelines, which is a piece of knowledge I know will benefit me as I enter the workforce.

Navigating between the structured world of cartography and my unstructured artistic pursuits has been a powerful learning experience. In my personal art, I am free to create without boundaries. When I'm painting or engraving, I let my imagination guide me. My sketchbooks are filled with vibrant color schemes, abstract shapes, and whimsical figures. Each page is different and reflects the dynamic nature that open-ended creativity allows me to express.

Painting and drawing are my gateways to unrestrained creative expression. Each blank canvas is an opportunity to explore new ideas and push the boundaries of my imagination. When I pick up a brush or pen, I release the rules and expectations that so often guide me. In these pages, I can experiment with colors, textures, and forms, allowing my emotions and intuition to lead the way.



Advanced Cartography Final Project: Class project with more open-ended options for design choices of fonts, colors, and style.

This freedom to explore and create without limitations is exhilarating and deeply fulfilling. Drawing is meditative and introspective, allowing me to focus on the present moment and immerse myself in the process.

Bringing this creative mindset into the structured environment of cartography has been both challenging and rewarding. Mapping comes with a certain responsibility—there are ethical ways to display information and integrity to uphold. However, I've found that I can inject my creativity into the small aspects of map-making. By focusing on the details, I can bring a unique touch to each project while still adhering to the important guidelines of map-making.

This balance between structure and creativity has taught me invaluable lessons. The independent-oriented mapping courses of my undergraduate years and the structured, collaborative nature of the InfoGraphics Lab have helped develop my cartographic style and confidence. As I continue in this field, I am confident that I can insert aspects of my passion projects and unstructured creative expression into the more structured workforce of cartography.

"I really enjoyed how you show how your personal and academic experiences can flow directly into to a real-life professional career." -LN

Mapping Coastal Salish Tribes and their Languages

By Maxim Johnson • Peer-reviewed by Erik Steiner

'Coastal Salish Tribes and Languages' is a map I created for Kyles Gemmell, a postdoctoral fellow with the Indigenous, Race and Ethnic Studies Department at the University of Oregon. Their dissertation and research revolves around Suquamish canoeing, the Suquamish being a tribe native to the coasts of the Salish Sea across the sound from Tacoma and Seattle. Through their research one frustrating issue kept arising: The lack of accurate maps depicting the tribes and languages of the Salish Sea. Kyles approached me to create a map using the best available current knowledge to depict all the tribes which spoke Coastal Salish languages, including the Tillamook along the Northern Oregon coast (who have typically been neglected from Salish maps). In total, we mapped the general locations of over forty tribes and nearly twenty languages while also implying fluidity between languages and their regions.

To start this project, Kyles provided a list of every language and tribe in the region, including their native spellings. I then gathered resources and old maps of the Salish and the tribes in order to get a better sense of the region and locations. This ranged from larger research sites all the way to local museum websites here in the Pacific Northwest. After researching locations and old maps, I began locating data. I used an organization called Native Land Digital (native-land.ca) to download shapefiles of tribal lands and languages to add to ArcGIS Pro, ESRI's mapping software. Each shapefile within Native Land Digital is typically accompanied by previously found maps helping to check the accuracy of their data. It is to be acknowledged though that a lot of the mapping of Native lands is done by non-native individuals, contributing to inaccuracies in borders and overlapping territories. Despite this, and drawing on this data, Kyles' knowledge, and my own research, we were able to begin the design process.

My main points of inspiration when creating the map were old maps of Coastal Salish tribes, historical maps I had saved, and a great book called 'History of the World Map by Map' created by DK (Dorling Kindersley) and the Smithsonian. These all helped to lead me to my final product. Each helped me pick design elements best suited for showing off the information.

To accomplish fluidity within the subject, I decided to represent each tribe with a number which could be referenced in the legend. This indicates the area where they were located without restricting them to a hard boundary. For the languages, I used a thick white line to divide their boundaries. The white lines create a softer edge, one which makes it easy to imagine the boundaries fluctuating or transitioning to either side. I am happy with the way this looks artistically, but it also makes me wonder if there were other techniques I could have used to better show a fluid language transition where these cultures mixed over time.

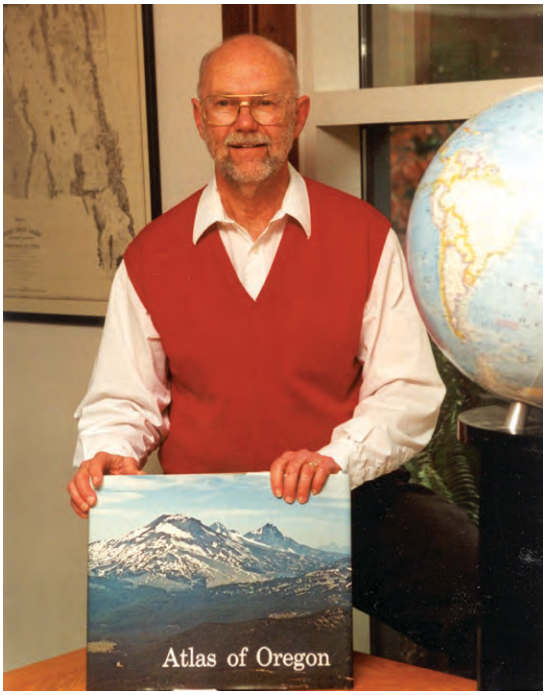
In the end I am happy with the final product. I was able to hit most of mine and Kyles' biggest goals and expectations. I was glad I could include local spellings and create a more accurate representation of the Coastal Salish Tribes and Languages. In the future though, I wonder if I could include better context information for the region, including local geography such as specific landmarks or settlements. Despite my perfectionist critiques this project has made me want to create many more like it in the future. Being able to work closely with Kyles who possess a lot of native knowledge, and create a more accurate map really highlights how valuable it is to protect and revive Native American knowledge. Being able to work directly with someone in the community is vital to the protection and uplift of these cultures and knowledge.

"I appreciate your point about the provenance and future reliability of Native lands data sources." -ES

Mapping Coastal Salish Languages: My goal was to show where tribes are located as well as the general language area. It was important to keep these boundaries fluid as language cannot be contained within modern-day political and state lines.

Bill Loy's Legacy

by Alethea Steingisser



Bill Loy: Geographer, cartographer, and co-founder of the InfoGraphics Lab.

Bill Loy taught cartography from 1967–1997 in the UO Geography Department, sharing his love for and expertise in map design with many students over the course of three decades of classes. In 1988, he and Jim Meacham co-founded the InfoGraphics Lab. Together, they produced the second edition of the Atlas of Oregon (2001), which received numerous awards and is still considered a gold-standard in atlas making today. That foundational work, and the great attention and passion that Bill brought to cartographic design, created the strong foundation of excellence in cartography that the lab is still known for today.

The Bill Loy Award for Excellence in Cartography

Bill established the Loy Award for Excellence in Cartography at the end of his life to recognize and inspire the great cartographic work of UO Geography students. The award is given each year to outstanding cartographic products designed by students majoring in Geography or Spatial Data Science.

2024 Loy Award Recipients

Cartographic Design

Aidan Clark
Fading of the Fairies

Isaac Bell
A Collapsed Giant: Central Oregon's Newberry Crater

Bran Blundell
California's Worsening Wildfires

Cartographic Research

Lauren Nguyen
The American Nightmare: K-12 School Shooting Incidents Between 1966-2023

Anneke Brouwer
Bridging Communities: Connectivity and Food Access in Ammassalik Fjord, Greenland

Juliette Setudeh Nejad
Hot Spots in San Francisco

Left to Right: Bran Blundell, Juliette Setudeh Nejad, Aidan Clark, Anneke Brouwer, and Lauren Nguyen. All are students who took Carolyn Fish's Advanced Cartography course in Winter 2024.

The first Loy Awards presented were in 2005. Since then, 67 students have been recognized for their creativity and execution of cartographic products. Bill continues to inspire excellence, far beyond his time at the University of Oregon.

In the 2023-24 academic year, the Loy Award was expanded to two categories: Cartographic Design and Cartographic Research.

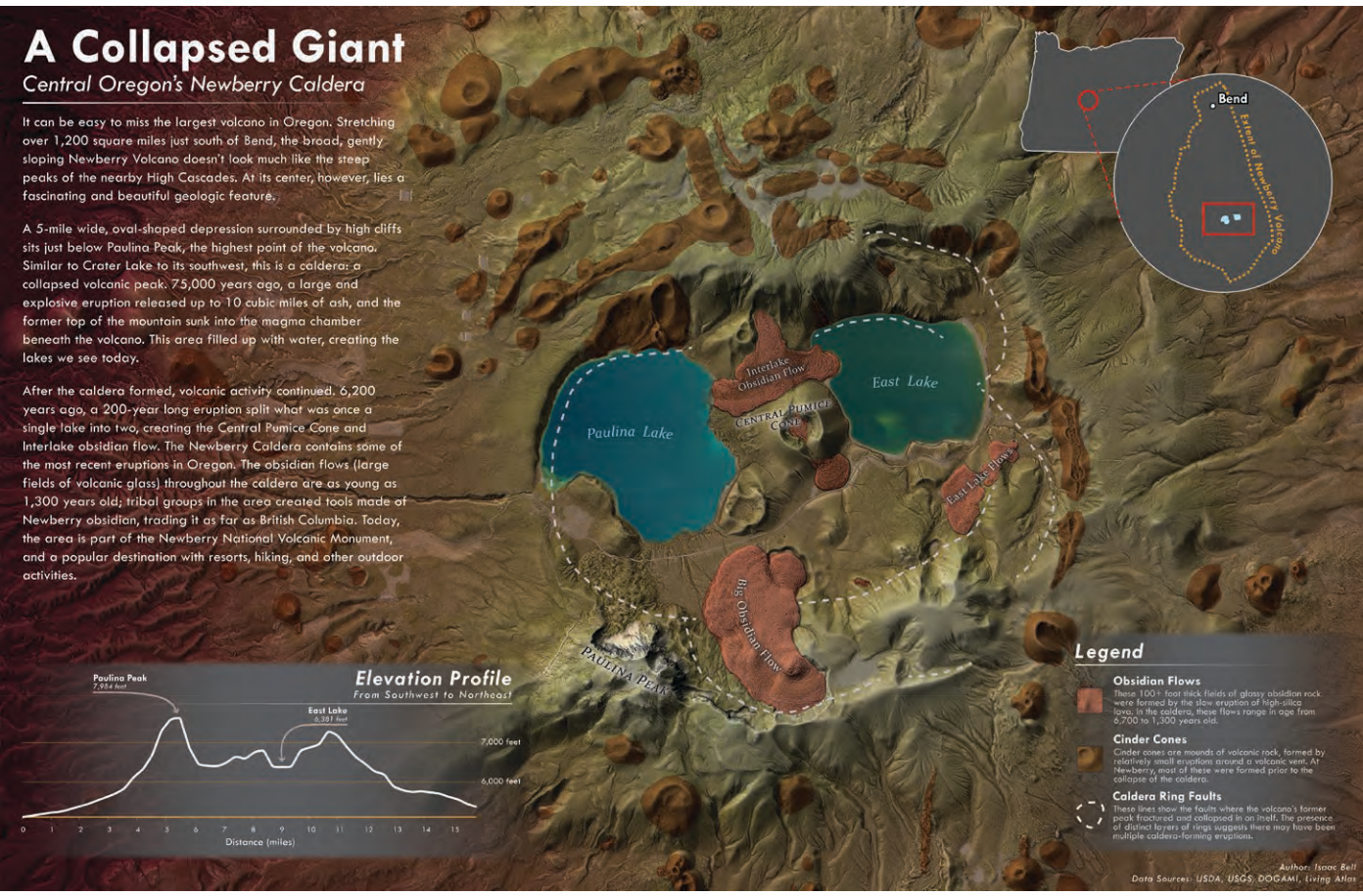
A Collapsed Giant

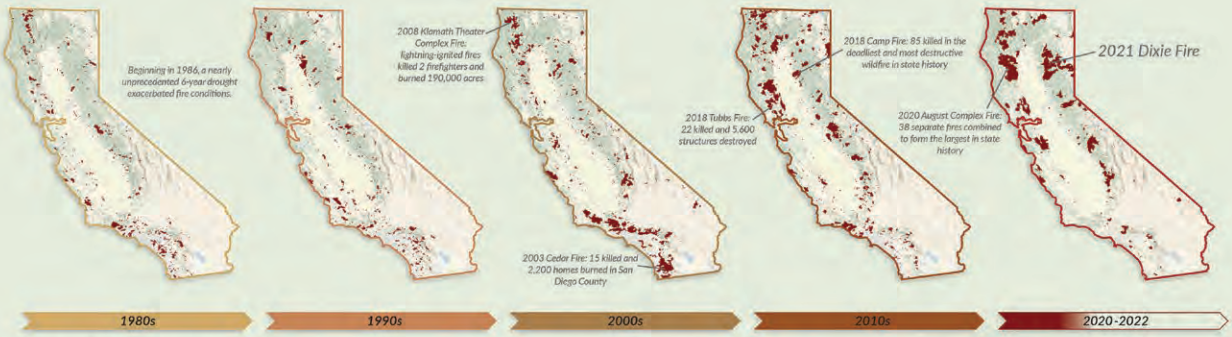
Central Oregon's Newberry Caldera

It can be easy to miss the largest volcano in Oregon. Stretching over 1,200 square miles just south of Bend, the broad, gently sloping Newberry Volcano doesn't look much like the steep peaks of the nearby High Cascades. At its center, however, lies a fascinating and beautiful geologic feature.

A 5-mile wide, oval-shaped depression surrounded by high cliffs sits just below Paulina Peak, the highest point of the volcano. Similar to Crater Lake to its southwest, this is a caldera: a collapsed volcanic peak. 75,000 years ago, a large and explosive eruption released up to 10 cubic miles of ash, and the former top of the mountain sunk into the magma chamber beneath the volcano. This area filled up with water, creating the lakes we see today.

After the caldera formed, volcanic activity continued. 6,200 years ago, a 200-year long eruption split what was once a single lake into two, creating the Central Pumice Cone and Interlake obsidian flow. The Newberry Caldera contains some of the most recent eruptions in Oregon. The obsidian flows (large fields of volcanic glass) throughout the caldera are as young as 1,300 years old; tribal groups in the area created tools made of Newberry obsidian, trading it as far as British Columbia. Today, the area is part of the Newberry National Volcanic Monument, and a popular destination with resorts, hiking, and other outdoor activities.



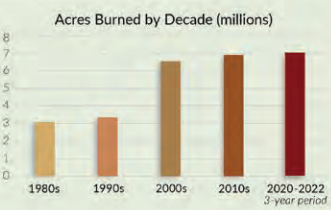


California's Worsening Wildfires

In just the first three years of the 2020s, wildfires burned more California land than in any decade in recorded history. The seven million acres (nearly 11,000 square miles) that burned represent the latest in the state's ongoing trend of wildfires increasing in size and intensity. These massive wildfires are taking lives, destroying homes and ecosystems, and compromising air and water quality. Evidence indicates that the effects of anthropogenic climate change—hotter, drier summers and volatile climate conditions—are the primary cause of worsening fire seasons. The effects of accelerating climate change across the state's varied biomes make mitigating these fires a particularly complex challenge. In forested regions, decades of rigid fire prevention have, paradoxically, increased the risk of fires growing out of control. Small brush fires, whether ignited naturally or by the intentional efforts of Indigenous populations, have been a regular part of the California landscape for millenia, facilitating tree health and species diversity by clearing out dry, dense vegetation and fertilizing soil. Over time, the prevention of these fires has allowed forest floors to accumulate overgrowth, serving as fuel for uncontrollable megafires that ravage ecosystems and kill older trees that would have survived smaller fires. Controlled burning of these natural fuels has returned as an important mitigation method, but worsening climate conditions may be outpacing human efforts—all signs suggest that California will continue to endure massive wildfires into the foreseeable future.

Sources: Esri, USGS, Cal Fire
Map: Brian Blundell, 2024

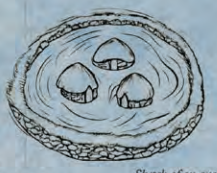
The 2021 Dixie Fire was the largest single-source wildfire in state history, burning 960,000 acres of land in the forests of northern California. On July 13th, the fire ignited when a tree fell onto a power line in Butte County. Fueled by the hottest summer on record and unusually low precipitation in the region, the blaze quickly spread north and east. Despite the efforts of thousands of firefighters, the fire threatened numerous towns, causing thousands to evacuate and destroying the small town of Greenville on August 4th. After over three months, crews achieved 100% containment of the fire on October 25th. Fortunately, the disaster caused no human deaths, though its dense smoke contributed to widespread hazardous air quality across the Western United States. Alongside immense ecological devastation, total damages of the Dixie Fire were estimated at $1.15 billion, after a $637 million firefighting effort.



To see all of the Loy Awards in full resolution, visit https://infographics.uoregon.edu/project/loy-award/

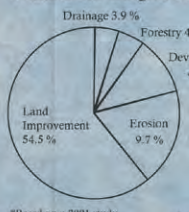
Fading of the Fairies

Ringforts, or fairy forts, are the most common archaeological monuments scattered across Ireland, with heavy concentrations along the coastlines. These ancient structures served as protective homesteads for local communities several thousand years ago, some of them dating back to 3000 B.C. These structures varied in size, with the average size being 100 ft across. Ringforts in the present day appear as circular stone outcroppings, embodying Ireland's deep historical and cultural roots. However, urban expansion and development pose a threat to many archeological sites, risking the erasure of invaluable history. Protecting these monuments is a delicate balance between progress and preservation, demanding heightened awareness and stringent protection measures to ensure Ireland's past remains intact amid the pressures of the present.



Sketch of an ancient Celtic ringfort

Reasons for Ringfort Destruction



*Based on a 2001 study of 154 monuments

In some counties, over 60% of the ringforts have already been destroyed, leading some experts to call for more protective legislation

Part of the issue is a lack of comprehensive documentation and mapping of ringforts across Ireland

Education, documentation, and legislation are the paths to preservation recommended by archaeologists

Scotland

Lisnabulrevey Ringfort
A ringfort that was extensively damaged by local construction in Co. Tyrone

Derry
Belfast
Donegal
Derry
Antrim
Tyrone
Fermanagh
Down
Armagh
Monaghan
Sligo
Leitrim
Cavan
Mayo
Roscommon
Louth
Longford
Meath
Westmeath
Galway
Dublin
Offaly
Kildare
Wicklow
Laois
Clare
Carlow
Kilkenny
Tipperary
Kilkenny
Limerick
Wexford
Kerry
Waterford
Cork
Cork

Hill of Tara
Home to several ringforts, the Hill of Tara was considered the seat of power in ancient Celtic Ireland, the land surrounding the monument was leveled by a motorway

Loughshinny Ringfort
Ringfort that was badly damaged by vandals in County Dublin

Curtuan Ringfort
Traditional ringfort that was partially demolished by motorway construction in County Clare

Tralee Ringfort
1,000 year old ringfort that was demolished by a farmer in County Kerry

Dún Mór Ringfort
An expansive 3,000 year old ringfort that was illegally levelled by a local man

Lissardra Ringforts
Two separate ringforts, both over 1,000 years old were demolished by a farmer in County Cork

Knockhouse Ringfort
Ancient ringfort structure demolished by an American company building a factory in Co. Waterford

Sketch of present day ringfort ruins

Atlantic Ocean
Irish Sea
Celtic Sea

○ Existing Ringforts

✕ Documented Ringfort Destruction

Why are ringforts significant?

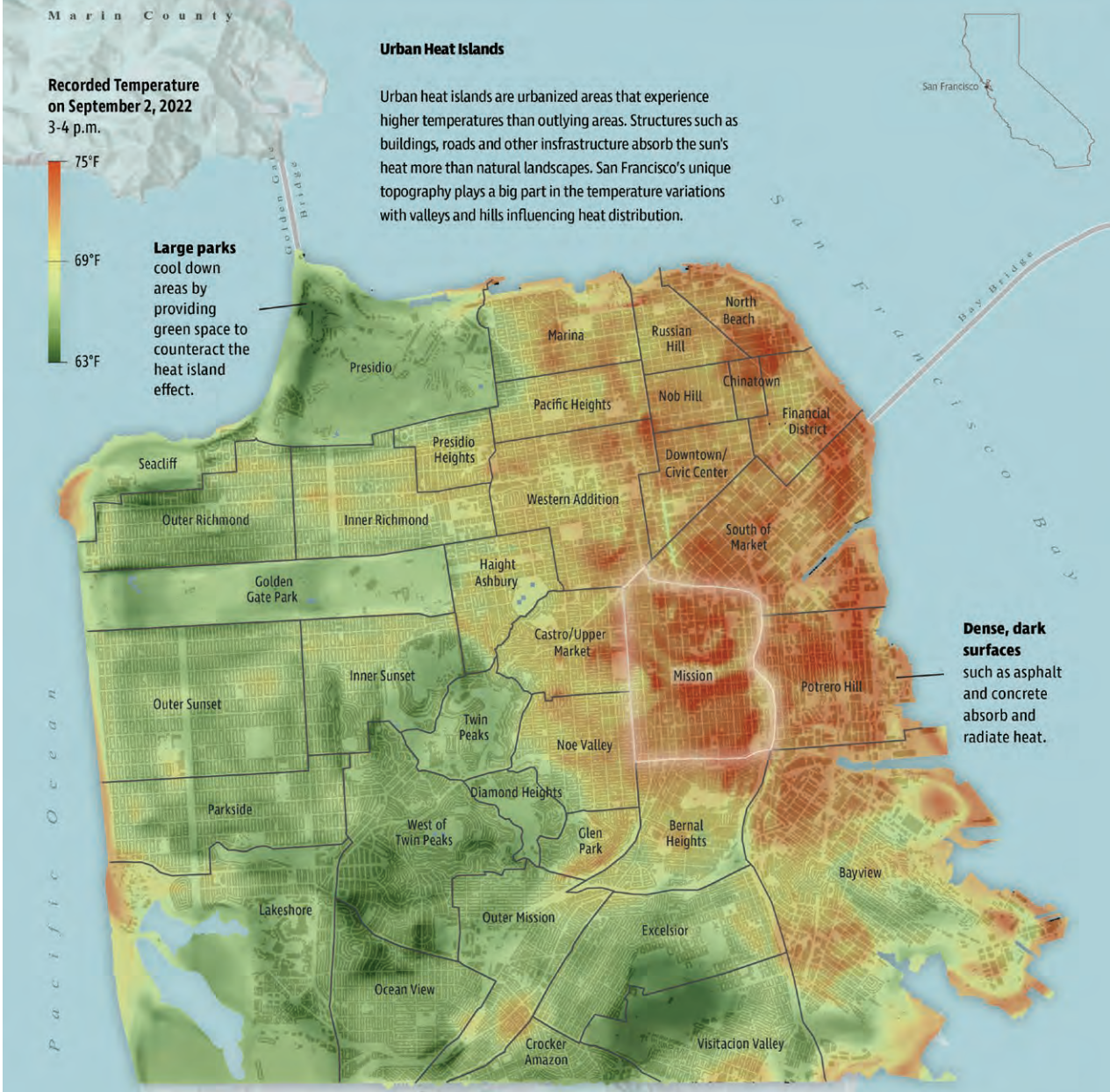
Often referred to as "fairy forts" by locals, the ruins of these ancient structures hold a special place in Irish folklore because many believe they are the dwellings of fairies. The belief in fairies, known as the "Good People" or na Sióga (nah shee-oga) in the Irish language, is woven deeply into the cultural fabric of Ireland, dating back to Celtic Pagan times. In the last few centuries many fairy forts were used as burial grounds for unbaptized infants who were not permitted burial in Catholic cemeteries, leaving heartbroken parents to only hope the fairies would protect the babies in the afterlife. Traditionally, it was a widely observed practice to avoid disturbing or approaching the forts. However, in recent decades, the forces of modernity and development have gradually eroded this long standing custom, resulting in more frequent destruction of ringforts in the name of progress.

By: Aidan Clark Credits: Earthstar Geographics, Esri, CGIAR, USGS, University College Dublin, The Irish Heritage Council

HOT SPOTS IN SAN FRANCISCO

In September of 2022 an atmospheric heat dome formed around San Francisco. The City of San Francisco launched an on the ground effort during this month to understand how factors such as green spaces, buildings and tree canopy can create neighborhood level "heat islands." Volunteers drove arong pre-planned routes at coordinated hour intervals to capture temperature data throughout the neighborhoods.

By : **Juliette Setudeh Nejad**



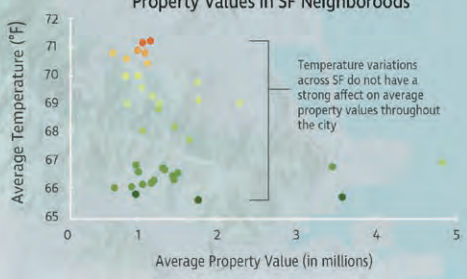
Mission District

The Mission District experienced higher temperatures attributed to various factors, primarily due to its built environment and dense urban layout. Its location within a valley exacerbates the effect by trapping heat and limiting air flow.

Avg property value: **$1.02 Million**

Avg September temperature: **70°F**

Relationship between Average Temperature and Property Values in SF Neighboroods

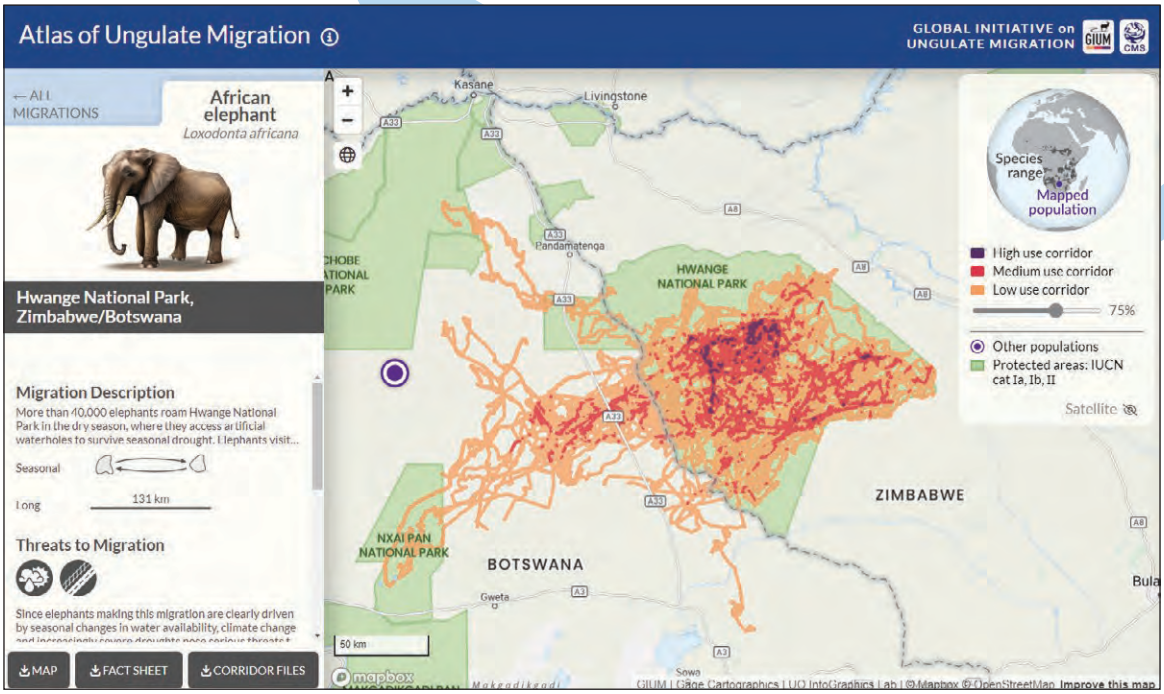


Sources: CAPA, Esri, SF Open Data

CHAPTER FOUR

DIFFERENCE

The term difference is meant to evoke our mission to separate signal from noise to discern what is meaningful and make a substantive impact on society and the planet. This framing provides an impetus for creativity and progress and drives our sense of purpose in how we put our skills to work. This value of difference also manifests in our commitment to fostering an inclusive environment that supports our diverse human needs and executing multidisciplinary projects. By embracing these various dimensions of difference, we challenge ourselves to continually deepen our understanding and engage in design practices that drive positive societal and environmental change.



Difference Project Spotlight:

Atlas of Ungulate Migration

Building on a long history of mapping ungulate migration, the InfoGraphics Lab collaborated with Global Initiative on Ungulate Migration to create the *Atlas of Ungulate Migration*. The atlas is a digital repository and learning tool that showcases a diversity of migratory species around the globe, ranging from the iconic Serengeti wildebeest and African elephant, to the saiga of the Central Asian steppe, and highlights the threats to their migrations. This atlas represents the best available science, with a beautiful digital interface to explore the movements of different species, with downloadable maps accompanied by factsheets that describe the migrations in detail, the data analysis, and specific threats. Importantly, the atlas makes the derived migration corridors and routes freely downloadable so developers and conservationists can incorporate up-to-date ungulate movement data in their spatial planning. The *Atlas of Ungulate Migration* is a living repository, and is continually updated.

View and interact with all of the migrations at:
https://www.cms.int/gium/resources/migration-atlas.html

From Student Employee to Project Manager

by Peyton Carl

In my three years with the InfoGraphics Lab, I've been provided many growth opportunities, not limited to technical skills, but expanding beyond into leadership positions and even further into project management. Facilitating the production of the annual IGL anthology and assisting with internal management of my primary Lab project has added to my expertise as a cartographer and has introduced me to a multitude of new perspectives of cartographic production, team management, and communication. As I reflect on my transition from student cartographer to Lab Manager, and finally into my current position as Student Project Manager, I am excited to share my experiences and the value I have extracted from my time in the InfoGraphics Lab.

My first project was the USGS annual report entitled *Ungulate Migrations of the Western United States*. This report compiles migration data of various ungulate species and translates them into thematic migration maps. The InfoGraphics Lab collaborates with the U.S. Geological Survey Corridor Mapping Team to collect, design, and communicate migration data for dozens of herds before sending to the USGS publication team to finalize and publish. This publication has many management components, with my role serving as the Lab's internal map production manager. Establishing confidence with cartographic and design skills, understanding spatial accuracy and data management, and becoming proficient with applications like ArcGIS Pro and Adobe Illustrator served as the foundation which allowed me to build up to a management role. Now, I am leveraging my foundation as I grow into place of leadership and management.

Following in in the footsteps of IGL student manager emeritus Lucy Roberts, I accepted the task of managing the production of this year's annual Anthology publication. Navigating timelines, wrangling student essays, and designing committees for production provided me with a new perspective of project management. Rather than focusing on the production of map products or teaching students how to navigate Illustrator, I began facilitating meetings and organizing content for publication. The vast array of production elements was a step up from my experience as the student project manager for the USGS annual report. It was a challenge to shift from a standardized, thematic approach with migration mapping to an abstract, and personalized publication. Managing the production of the Anthology highlighted areas of improvement for my communication skills and organization strategies and encouraged me to adjust my approach to design and project management. With the combination of different experiences from USGS migration mapping and the InfoGraphics Lab Anthology, I have developed multi-faceted experience with project management, and feel more prepared to face management roles in my future.

The InfoGraphics Lab is a place of learning and growth. From building professional-level organization and communication skills to establishing confidence to lead others through complex tasks and projects, the InfoGraphics Lab has provided me with opportunities beyond my past professional experiences and the offerings of other organizations. Although my work here is not quite done, I am eager to continue strengthening my skillsets and later reflect on my growth that the InfoGraphics Lab path has paved for me.

Journey to The InfoGraphics Lab

by Atticus Tong • *Peer-reviewed by Lily Lindros*

Global Perspective and Climate Loss

In the summer of 2021, my Aunt Cindy passed away from heat stroke during a record-breaking heatwave in British Columbia. She was a Chinese immigrant, knew little English, and had a limited education. She wasn't aware of the dangers the heatwave posed and she didn't know how to protect herself from the heat. This tragedy drove me to sign up for my high school's Climate Justice class during my junior year. We learned about the science behind climate change, how it affects our most at-risk communities, and the urgent need to work together to find solutions. Understanding how dire the current state of the climate is and how difficult it will be to solve was, and still is, worrying to me, but I see GIS and data visualization as tools that can be used as catalysts for change.

My first exposure to Geographic Information Systems (GIS) was in the eighth grade, where my middle school offered a digital geography class. This sparked my curiosity—and while I didn't revisit GIS until coming to the University of Oregon—that class always stuck with me as it widened my perspective of how I understand the world. Since that time, I've studied abroad in China, Chile, and Spain, and have visited nearly a dozen countries in recent years. Being exposed to different cultures, environments, and ways of life has given me insight into how global issues such as climate change, poverty, and urbanization occur.

The cumulation of these life experiences has led me to pursue a major in Geography and Spatial Data Science so I can develop skills to understand and help overcome complex global challenges. I believe that GIS and data visualization can be powerful tools for good. Through analysis and communication, they can educate, challenge existing assumptions, and ultimately compel people to learn about and change their behaviors. Maybe if my Aunt Cindy had access to multilingual heat advisory warnings, knew about cooling centers in her area, or understood simple heat safety measures like staying hydrated and avoiding outdoor activities during peak hours, she would still be with us today.

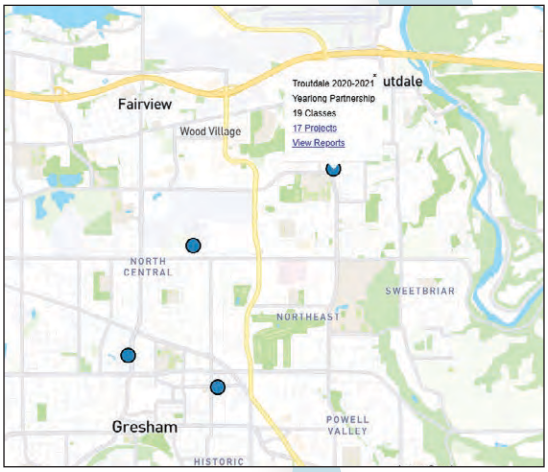
Beyond the Classroom

Joining the InfoGraphics Lab (IGL) for the first time as an employee was scary, but exciting. Despite having never worked on a GIS or information design project outside of the classroom, I was eager to get involved in the various projects the Lab manages. I'm the youngest student in the lab and I've only just begun to grasp the vast field of geography. The lab environment and community are incredibly welcoming, and it is a special place where I get to connect with my classmates and professors outside of class. I am quickly expanding my Photoshop, Illustrator, InDesign and ArcGIS skills. Furthermore, I've gained a 'real-world' perspective on how large-scale projects are managed and completed. I'm excited to continue to develop my design and technical skills, and I look forward to getting more involved with projects such as the Monumental Denial Atlas, which focuses on the racial history of our country as seen through the lens of National Historic Landmarks. IGL also provides an opportunity to collaborate and share ideas with other students, ask for advice from upperclassmen, and gain insight into the spatial data science field. I'm very grateful that the IGL has provided me with an outlet to practice and expand my skills beyond what is taught in my classes. Projects like the Anthology are also rewarding for students as they allow us to showcase our work in a published format.

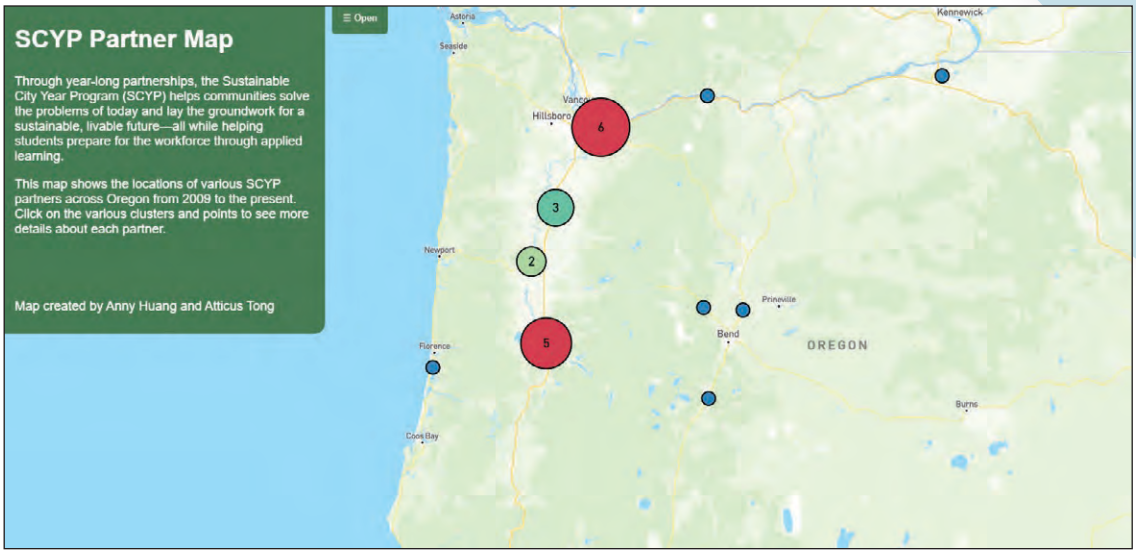
"Your personal stories about your aunt and your activism work are also very impactful to read." -LL

Class Project Spotlight: Web Mapping

My first major term project since starting at the University of Oregon was creating an interactive web map for UO's Sustainable City Year Program (SCYP) in my Web Mapping course (taught by IGL faculty member Joanna Merson). The SCYP connects classes at UO with local governments across the state to help students gain professional experience while helping these municipalities with various social, economic, and environmental projects. I wanted to partner with the SCYP so I could help support a unique program that is improving my local communities. Their values also align with the IGL's mission of experiential learning, something I want more of my peers to be able to experience. Along with another student in my class, Anny Huang, I created a map that displays all the projects the SCYP has completed statewide. The map is a great way to showcase the immense impact SCYP has had and promote the program to prospective students. This project was fun to create, and I am proud of it as I got to use so many new skills I have learned, such as HTML and Mapbox, to create and combine various components and data into a real-world project. I definitely gained an appreciation for the work that goes into creating interactive maps.



SCYP Web Map: Zoomed in view of the web map. The individual points each represent a project that the SCYP has done. When you click on a point it shows the partner name, the year of the partnership, how many classes participated in that partnership, as well as links to detailed project reports.



SCYP Web Map: Zoomed out view of the SCYP web map. I coded the map using HTML, CSS, and JavaScript. I used Mapbox to create the basemap and imported it into my code with the Mapbox API. The clusters on the map represent all the projects the SCYP has completed in past years. The data was made in a spreadsheet and was then turned into a GeoJSON file so it could be refereced in my code.

IGL Project Spotlight: Wildlife Collisions

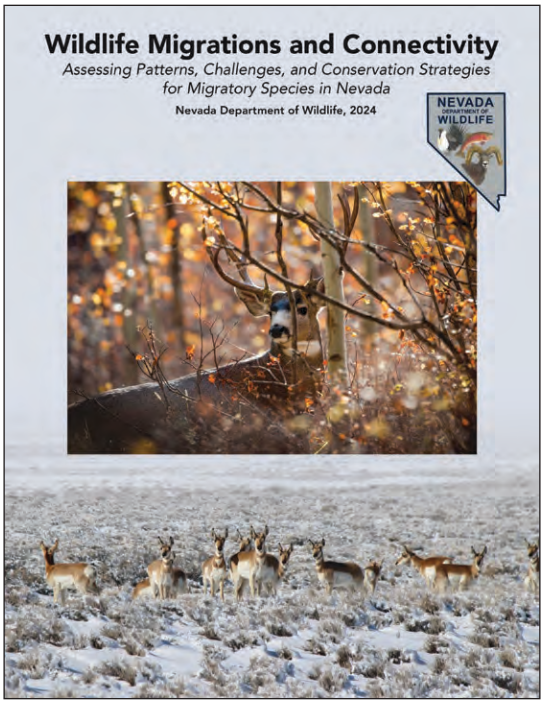
The project I am working on in the InfoGraphics Lab is mapping wildlife collisions for the state of Nevada. The lab partnered with the Nevada Department of Wildlife to create maps and data graphics to highlight Nevada's ungulate species and their migrations, as well as the human and ecological threats that impact their movements. These efforts will be published in both a report and story map assessing the intersection of ungulate migration with urban landscapes to help build understanding of the challenges of wildlife connectivity and the patterns of vehicle-wildlife collisions. These will provide insight on how to protect migration corridors with the goal of reducing the number of accidents with wildlife.

Building upon work started last year by IGL student cartographer Dylan Blisard, I continued design and analysis efforts on a statewide map of wildlife-vehicle collisions as well as four inset maps that highlight the stretches of highways with the highest number of wildlife collisions. Through this process, I'm learning more about both ArcGIS Pro, Adobe Illustrator, Adobe InDesign and the workflow between them. Designing these maps has helped me identify what information needs to be emphasized, and how to incorporate foundational design principles into cartography so that the maps are both meaningful, easy to understand, and have an aesthetic that draws the reader in.

Working on this project has also helped me think about the audience for these maps which ranges from the public to scientists to policy makers. I need to make design choices that satisfies the needs of each of them, communicating key information while also inspiring change. As I enter my sophomore year, I will be continuing to work on this project, including helping to create the story map to present these findings. Working on this project that has a real-world impact has been extremely rewarding and makes me want to further explore the numerous ways scientific information can be presented and communicated.

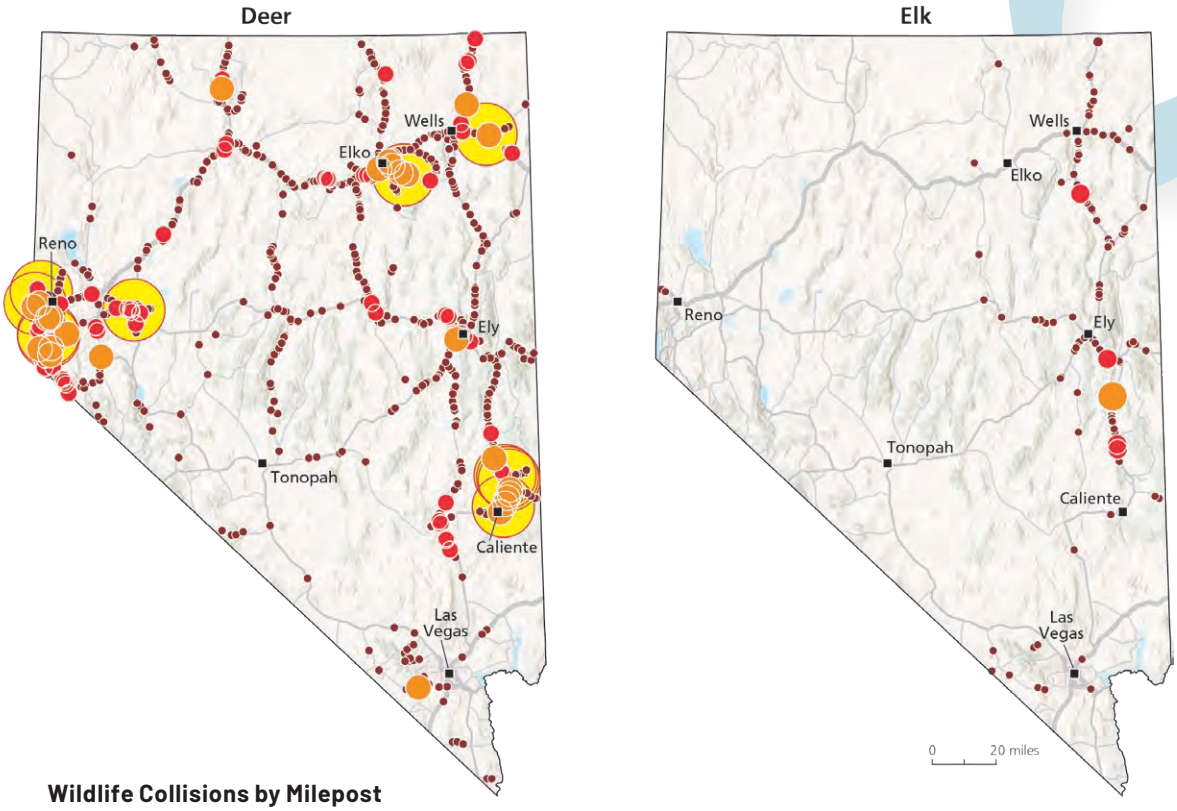
Looking Forward

Reflecting on my journey from a nervous newcomer to an integral team member at the IGL, I'm thankful for the supportive environment that has nurtured my growth and I'm excited for the future projects ahead. The lab offers an unparalleled opportunity for students to get involved outside the classroom, and I encourage all aspiring students to seize chances to grow their skills and make a meaningful impact. In the future, I hope to eventually use GIS to bridge language and cultural barriers to bridge access to understanding complex and important issues.

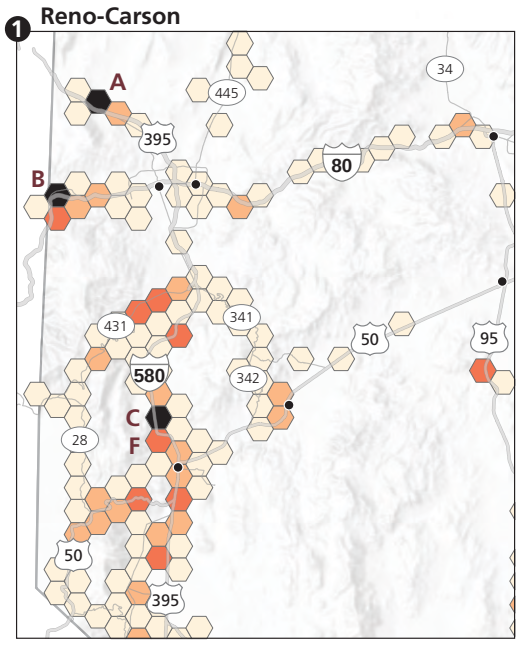


Wildlife Migrations and Connectivity Report: Print publication co-created by the InfoGraphics Lab and the Nevada Department of Wildlife. Maps at right are within the report.

Wildlife Collisions by Species



Wildlife Collisions by Milepost



Route	Milepost	Collisions	Map Location
395	*38*	45	A
80	*45*	33	B
580	*1*	31	C
93	*117*	27	D
93	*120*	24	E
580	*9*	22	F
50	*19*	24	G
80	*9*	22	H
431	*21*	22	I
93	*97*	21	J

Collisions per milepost, 2011–2020

1–5 *6–10* *11–25* *26+*

Wildlife Collision Maps: The statewide maps by species (top) show the number of collisions per 5 miles from 2011-2020. I added labels to the map to identify major cities in relation to collision locations. The inset maps (bottom) show highway stretches in Nevada with the highest rates of wildlife-vehicle collisions. I used Illustrator to design the highways, add highway labels, and add letters to the map to highlight the most mileposts with the highest number of collisions.

Tale of Two Jobs

by Jenna Witzleben • Peer-reviewed by Eden McCall and Atticus Tong

Since March of this year, I have had the pleasure and honor of working at two incredible places: the InfoGraphics Lab and the Burns Paiute Tribe. My role in the InfoGraphics Lab has been an extension of my role as a graduate research assistant. Since graduating with an MA in Landscape Architecture last fall, I have continued to work on *Monumental Denial: An Atlas of U.S. Cultural Memory and White Innocence*, a critical atlas that we have been working with with Laura Pulido to interpret and visualize the ways National Historic Landmarks uphold narratives of colonialism and white supremacy. My role involves research, graphic production, visual narrative creation, map making and more. Meanwhile, at the Burns Paiute Tribe, I have had the honor of working as their Food Sovereignty Planner. My work has ranged from researching water rights to facilitating community workshops to planting seedlings in the garden. I have absolutely loved the variety in activities, team dynamics, working environment, and process between these two roles, along with the ways in which they can inform and inspire each other. Given this year's anthology theme of "ecosystems," I wanted to explore some of the ways in which these positions have cross-pollinated and brought me to new ideas and ways of understanding my work. This is intended to be a set of initial ideas that will continue to expand and evolve.

GIS Everywhere

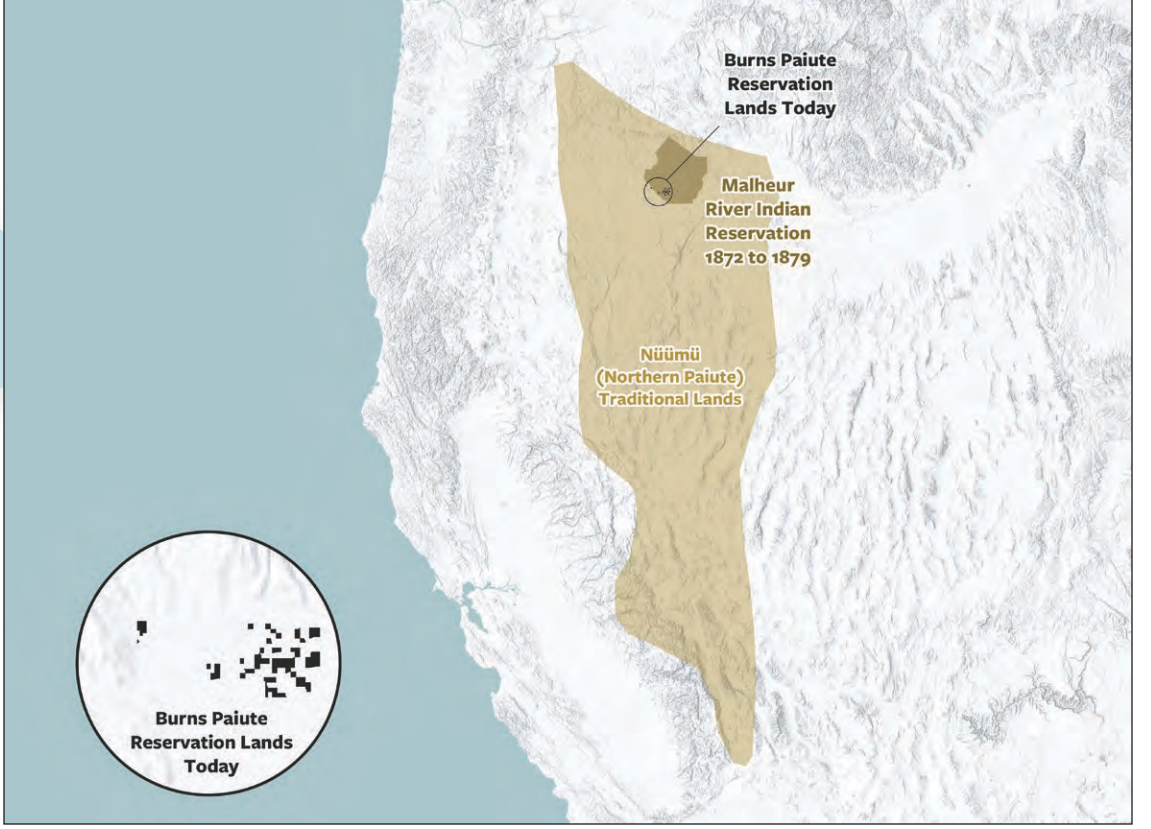
Through the Monumental Denial project, I have had the opportunity to produce maps and spatial diagrams at many different scales, including state spotlights and global landmark distribution. For example, with the Wyoming state spotlight (p. 61), we included the main national historic landmarks described in that essay, along with the "pioneer" trails, railroad routes, and other state landmarks that were also a part of the colonization and settlement of this territory. Through this production process, Alethea, Erik, and I iterated on different layers to include in the map, moving back and forth between ArcGIS and Adobe Illustrator.

I used similar skills focusing on maps of a more local scale in my work with the Burns Paiute Tribe. Like many Tribes in the so-called United States, the Burns Paiute land is fractured and checkerboarded. The Burns Paiute Tribe is not a treaty Tribe and has instead been forced to purchase back most of the land that they currently own. Prior to colonization, the Burns Paiute engaged in a seasonal round across a territory that now spans three counties – Harney, Malheur, and Grant. This all combines such that the lands the Tribe is interested in growing food on are spread across the many locations that they have ownership of and/or relationships with. For example, the Tribe has a community garden and a gathering center on their main reservation land, and are hoping to expand these two resources for the community moving forward. They also have access to property about an hour's drive east of Burns through a mitigation program of the Bonneville Power Administration, where the Tribe is leading ecosystem restoration efforts and planting some of their first foods.

Part of my contribution has been to map these "assets," specify the level of agency the Tribe has on each parcel, and document their desired current and future aims for food sovereignty on each parcel. I have benefitted from the Tribe and the County having solid base GIS data for me to work off of, and then have also either created my own feature classes or brought in data from other sources like the USFS.

False Boundaries

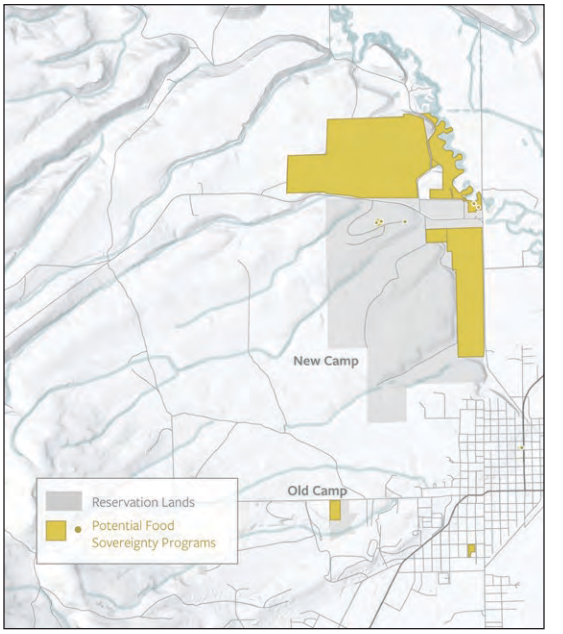
In both positions, I have also appreciated continuing to change my mental models around property and state boundaries. With *Monumental Denial*, we have repeatedly encountered the challenge of determining when to design the maps and visuals within the worldview of the colonial nation-state (in order to depict and critique that worldview) versus when to challenge those white supremacist worldviews and depict an alternative.
Again looking at the map for our section on



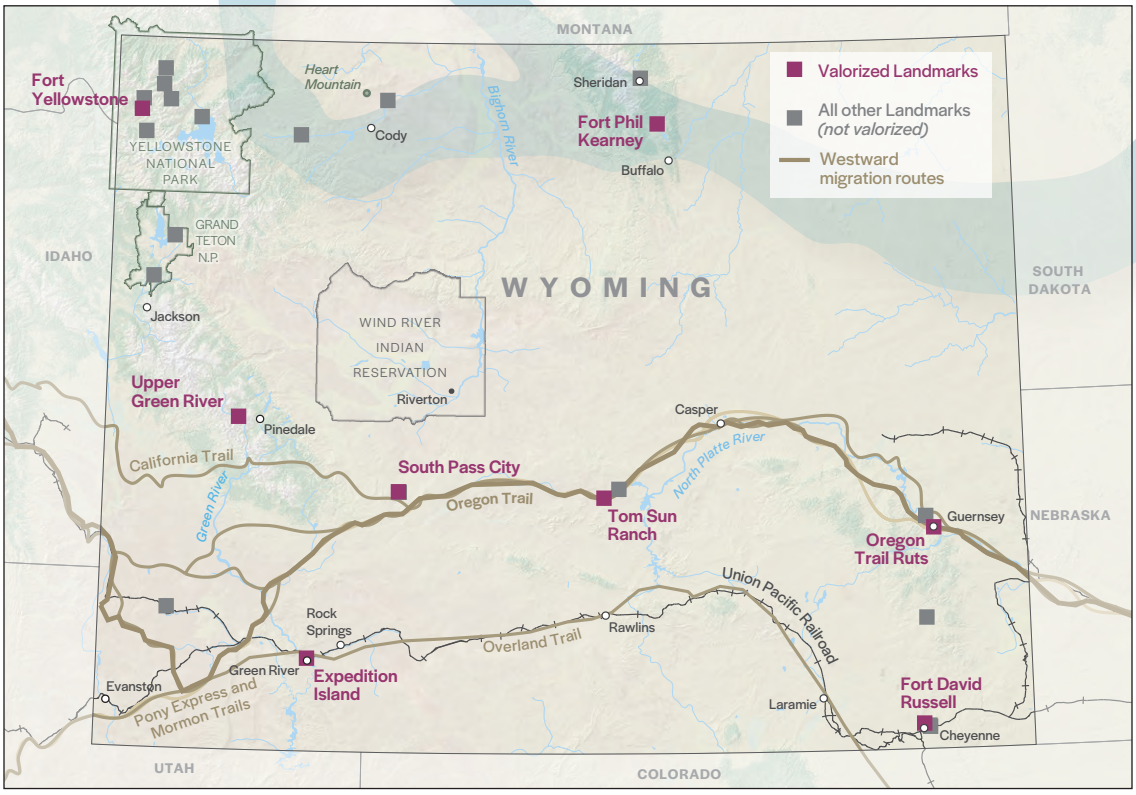
Land Theft over Time: Through several campaigns of forced relocation, imprisonment, and land theft at the hands of the United States government, the territories accessed by the Burns Paiute and other Northern Paiute Tribes became drastically reduced and fragmented.

Wyoming, we debated whether to include state boundaries in the map for this section, as state boundaries are a colonial artifact. But giving that we are explicitly describing how their landmark sites in Wyoming have been part of process of colonization (along with the creation of state boundaries, pioneer trails, and railroads), it made sense to depict all of these colonial cartographic elements on this map.

I have recently appreciated the ways in which Tribal members continues to teach me how their experience transcends reservation and state boundaries. Many of the Burns Paiute have extended family in Warm Springs and Fort McDermitt, among other reservations, and not all of them are within the state boundaries of Oregon. A few weeks ago, some of my coworkers traveled to Idaho as part of the "Return of the Boise Valley People" event where they celebrated their long-held relations with other Native folks across the Great Basin. This event demonstrates how the Oregon-Idaho boundary is not only a recent colonial invention but also an arbitrary one that does not align with the relations and governance structure of the Tribes.



Food Sovereignty Assets: The yellow highlight properties showcase some of the lands the Burns Paiute Tribe intends to use for their food sovereignty program. This map is intentionally unlabeled for the Tribe's privacy.

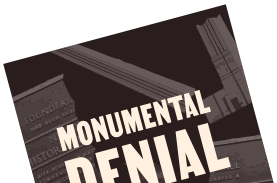


Valorization Sites in Wyoming: In this map for the Monumental Denial project, we decided to include state boundaries, as they are closely linked to the processes of settler colonization that we were discussing in this section of the book.

Graphics are Seeds, Seeds are Prototypes

In my first master's degree at the School of Visual Arts in New York, my department chair had a saying "no prototype, no meeting." In other words, he encouraged (well... sometimes demanded) that we make something – anything – before meeting with teammates or professors to get feedback. By his definition, a prototype can be a 3D model or a scribbled list or anything in between. This approach has been foundational in my design process and has become a natural inclination to produce a series of rough options that can be assessed with others, iterated upon, and gradually polished. Over the past few years, however, I have reflected on the ways in which this method, among other lessons from that department, can be used to further white supremacist hetero-patriarchal capitalism (to quote bell hooks). That being said, I think I have begun to find ways that this generative approach can be utilized in ways that are healthy and respectful for designers and collaborators alike. In many ways, for example, it helps me sidestep some of my perfectionist tendencies (which, by the way, is one of Tema Okun's characteristics of white supremacy culture).

In *Monumental Denial* meetings, I have tried to document the ideas of all team members, as well as my own ideas, and I test them all out. We can look at the rough mockups together and assess the strengths and weaknesses of each concept, as well as how we might hybridize them. I have learned slowly over the 10-year course of my design career to embrace ambiguity and that has been a huge asset in this project. When we are feeling



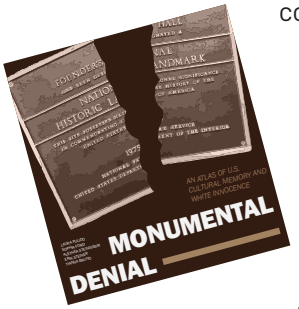
uncertain or only have vague notions about graphic presentations, I try to just do some visual research and sketch some ideas out. Sometimes they work well and sometimes we go back to the drawing board, but they almost always help us move the conversation forward. In this way, the graphics act as seeds – we sow a whole bunch and see what sprouts.

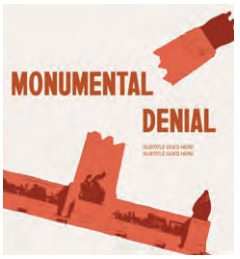
Similarly, I have applied a generative and iterative approach in my work with the Burns Paiute Tribe, leaning into the fact that plants are such excellent representatives of the life-death-life cycle. Plants encourage us to continuously revisit our relationships with them and with land, particularly our annual plants who want to be selected (and reselected) at the start of each season. I want to stress that, in my opinion, this kind of trial-and-feedback approach should not be applied universally, especially when working with Tribes or other marginalized communities. I entered this project assuming that each step I took would be more carefully chosen and the result of slow, in-depth community engagement.

We are doing this to an extent, but we have also received input from other Tribal members and Tribal government staff that many folks within the community are burnt out from talking about ideas and plans that don't lead anywhere. So, in addition to conducting interviews and workshops, and leaning on existing relationships with Tribal members, we are also just testing things out and getting things started; we are embracing the fact that, once we start growing food and getting plants in the ground, interested folks will continue to voice their opinions and ideas. We can pretty easily make changes from year to year moving forward about which plants folks want the Tribe to be growing and what types of programs we should be hosting.

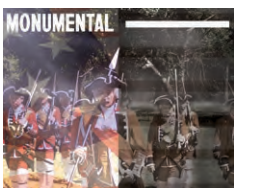
Strategies for Sovereignty

One of the most interesting interactions between my two roles so far has been in learning about strategies for change and for furthering Indigenous sovereignty. Through my supervisor at the Burns Paiute Tribe, I learned about 638 Contracts, which are formal pathways for Tribes to take over the functioning and funding allocated to different federal government departments. In this way, it upholds Tribal sovereignty while also fulfilling the federal government's financial obligations to Tribes (which are a part of upholding treaties and/or conducting reparations).





Graphic Prototypes for Monumental Denial: One example of when we leveraged prototyping as a generative design tool in Monumental Denial was for creating sample cover designs, a few of which are shown to the left.



Currently, tribes can apply for 638 Contracts for any function of Indian Health Services through the DHHS, for any function of the Department of the Interior, or for the IHS or Department of Interior as a whole. As of 2017, "there were 272 Tribes or Tribal Organizations using 638 authority in the DOI and 352 for IHS," (Grogg, 12). This is relevant to our work with food sovereignty, as currently there is a movement to expand the 638 Contract program to also apply to the USDA. Many of the grants we are applying for within the food sovereignty program are run by the USDA. Having a 638 Contract would instead give the Tribe full control over how USDA funding is spent, rather than having to submit applications and seek approval each year from the federal government.

In *Monumental Denial*, we have been discussing the many problems with past and present forms of historic preservation led by the United States government, which has largely erased the history of Native presence, the dispossession of their lands, and the genocide at the hands of colonists. What would happen if Tribes controlled more of the funding for historic preservation and storytelling on and around their lands? This has come up as a specific challenge within the Burns Paiute Tribe. They would like to get funding to create a memorial trail, small museum, and monuments in their Old Camp Reservation site. Getting the site listed on the National Register of Historic Places could allow the Tribe access to additional grants and funding sources. However, it seems unlikely that this site would meet the strict criteria set by the NPS for getting the site listed on the National Register. Generally speaking, many of the sacred sites that Native communities would want to protect do not always have the architectural

Burns Paiute Community Garden: This year we grew basil, rhubarb, tomatillos, and much more despite the intense heat, wildfire smoke, and very short growing season.

component that is such a fixation of the Parks Service. I started to wonder whether a Tribe could nominate and approve their own sites through a 638 Contract and have funding to pay for their own research, documentation, and preservation efforts.

Upon looking further into this question, I realized that NPS (the organization that oversees the national historic landmark program) is a subsidiary of the Department of the Interior, which is the core of the existing 638 Contract program. Most of the examples I have read about for Tribes receiving 638 Contracts for the Department of Interior focus on ecological restoration and conservation initiatives. It is an unanswered question for me whether any Tribes have been able to take over some of NPS' historic preservation functions through a 638 Contract. I am excited to continue to explore this question, however. I have engaged one of our *Monumental Denial* collaborators, Sophia Ford, who will be starting a postdoc at the National Park Service (NPS), and they are looking into this with their network. I am also planning to engage with others within the Tribe to hear whether they know if 638 Contracts can apply to NPS functions. It would be incredible if these two roles could converge into tangible benefits for the Tribe and their access to funding and resources for their historic preservation goals.

As I look forward to another year of working in these two jobs, I constantly find myself telling people how much I love working both of these jobs together. It is an incredible benefit to get to have these two opportunities that are so value-aligned for me personally, and add additional layers of meaning to each other.

Conclusion

Working on the *Monumental Denial* project keeps me anchored in the dark history of colonization, displacement, genocide, and erasure. It helps me to remain cognizant and thoughtful as I work as an outsider for the Burns Paiute Tribe. It helps me keep my technical skills sharp so that I can work quickly and efficiently in a more resource limited context. In *Monumental Denial* I get to be a part of indirect change affecting larger systems and hopefully a product that will be experienced by thousands of readers, complimenting the very local, tangible impacts that getting food in the ground with Burns Paiute Tribe allows me to make.

Meanwhile, it is by working with the Tribe that I have a deeper understanding of the impacts that National Historic Landmark status can have – including on qualification for grant funding. I also get to learn about ways that Tribes are working towards sovereignty across sectors – from food systems to historic commemoration- and the Indigenous epistemologies that inform that work. I am frequently reminded how Indigenous epistemology and geography differs from those within dominant Western academia, and bring those mental models with me to *Monumental Denial*.

When I started dreaming about doing professional work related to Tribal sovereignty, my mentors and I both were unsure of how difficult it might be to find positions that centered on these topics and that I was qualified for. While I am still amazed and surprised by having not one but two roles that fulfill this vision, I am also feel emboldened. In my view, these are the projects and jobs of the future I want to see, and I am so excited for more of these opportunities to keep sprouting up around us.

"The piece incorporates the idea of plants/seeds/growth as an analogy for productivity and impactful design work." -EM

"I really like how you gradually build and weave these two experiences together while providing insight into your professional development." -AT

Alumni Spotlights

Arielle Alferez

BS Geography, Spatial Data Science and Technology (2019)

Arielle Alferez is a cartographer at National Geographic Maps, where she creates topographic guides for major outdoor destinations. Arielle credits her student experience working in the InfoGraphics Lab for opening the door to her career in cartography. There, she worked alongside cartographic professionals to learn both technical skills and how to incorporate her own creative ideas into her maps.

Justin Culman

BS Geography and Environmental Sciences (2017)

Justin works as a Wildfire GIS Specialist with the U.S. National Park Service. The cartographic skills he learned in the InfoGraphics Lab helped prepare him for this role where he needs to create visually-effective print maps in a fast-paced and often stressful environment. Justin creates maps that communicate firefighting operations, where accurately representing and communicating data that is continuously changing is crucial for maintaining the safety of all personnel.

Emily Nyholm

BS Geography and Environmental Science (2014)

Emily Nyholm is a Content Product Manager on the Maps team at Apple, Inc. During her time as a student cartographer in the InfoGraphics Lab, Emily worked on data analysis and visualization for the Wild Migrations atlas. She credits this experience as the model for how to accurately, efficiently, and beautifully represent spatial data— work she's done at Apple for over a decade.

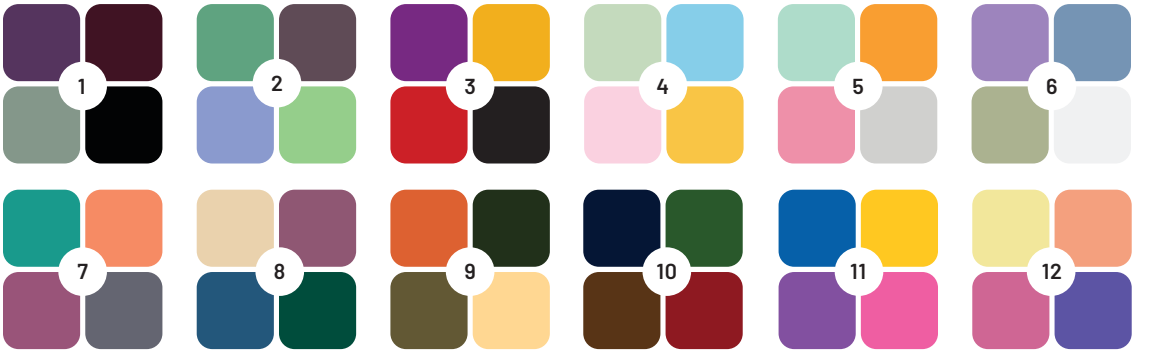
Julia Olson

BS Geography, Spatial Data Science and Technology (2020)

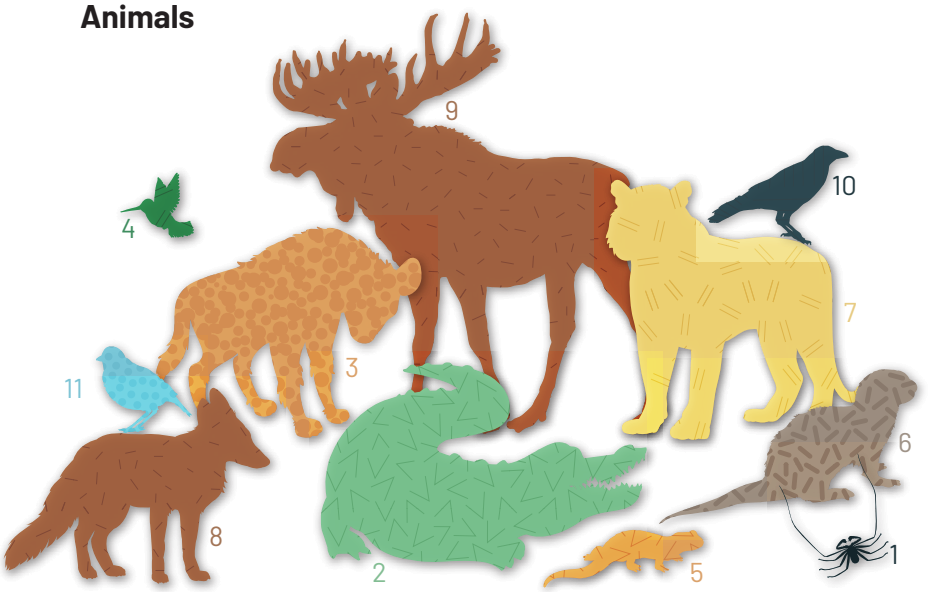
Julia is a Product Engineer at Esri. Her time in the InfoGraphics Lab gave her an intimate knowledge of how cartographers best use GIS software to create cartographic products. Julia now uses that knowledge to help create more effictient and cartographically-focused software.

Our Favorites

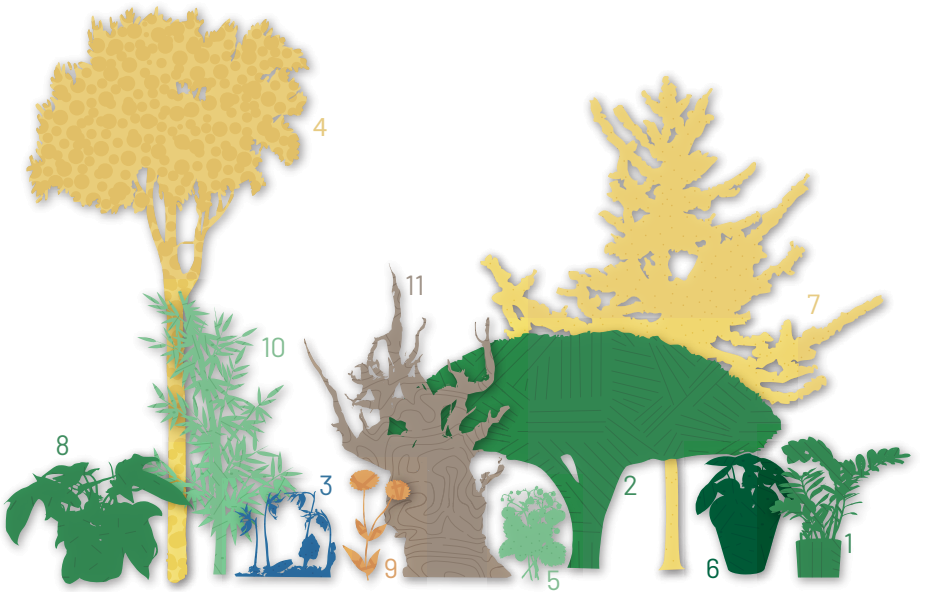
Colors



Animals



Plants



1. Peyton Carl
Tailless Whip Scorpion
ZZ Plant

2. Mack Gray
Alligator
Dragon Blood Tree

3. Maxim Johnson
Spotted Hyena
Calypso Orchids

4. Zoë Kleiner
Hummingbird
Aspen Tree

5. Lily Lindros
Salamander
Strawberry plant

6. Lauren Nguyen
River Otter
Peperomia

7. Clare Otcasek
Tiger
Gingko Tree

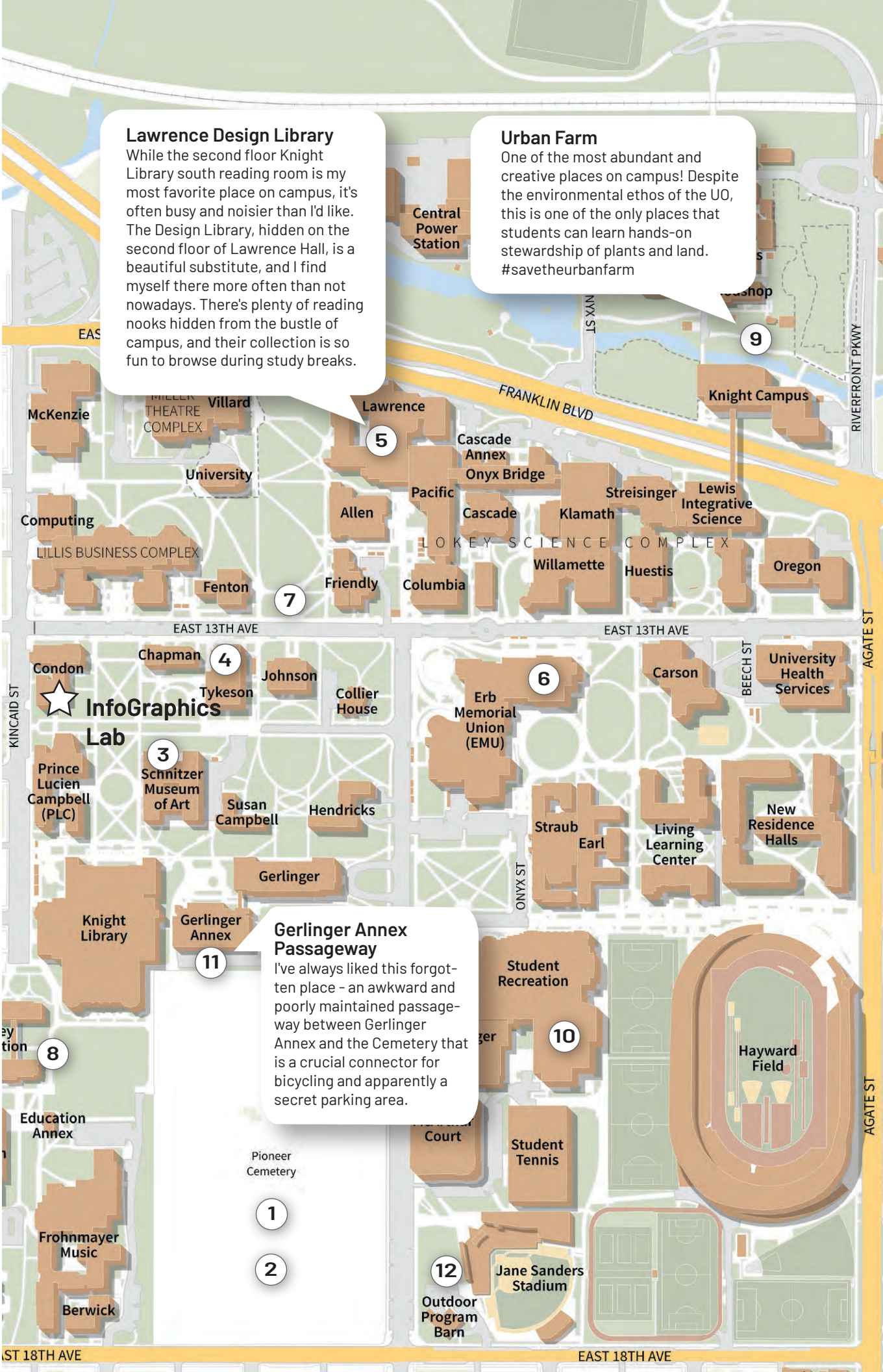
8. Atticus Tong
Red Fox
Philodendron 'Florida Green'

9. Jenna Witzleben
Moose
Calendula

10. Eden McCall
Crow
Bamboo

11. Erik Steiner
Blue Pitta
Bristlecone Pine

12. Joanna Merson


Lawrence Design Library
While the second floor Knight Library south reading room is my most favorite place on campus, it's often busy and noisier than I'd like. The Design Library, hidden on the second floor of Lawrence Hall, is a beautiful substitute, and I find myself there more often than not nowadays. There's plenty of reading nooks hidden from the bustle of campus, and their collection is so fun to browse during study breaks.
Urban Farm
One of the most abundant and creative places on campus! Despite the environmental ethos of the UO, this is one of the only places that students can learn hands-on stewardship of plants and land. #savetheurbanfarm
Gerlinger Annex Passageway
I've always liked this forgotten place - an awkward and poorly maintained passageway between Gerlinger Annex and the Cemetery that is a crucial connector for bicycling and apparently a secret parking area.
Central Power Station
FRANKLIN BLVD
RIVERFRONT PKWY
Knight Campus
McKenzie
MILLER THEATRE COMPLEX
Villard
University
Lawrence
5
Cascade Annex
Onyx Bridge
Pacific
Allen
Cascade
Klamath
Streisinger
Lewis Integrative Science
Computing
LILLIS BUSINESS COMPLEX
LOKEY SCIENCE COMPLEX
Willamette
Huestis
Oregon
Fenton
7
Friendly
Columbia
EAST 13TH AVE
EAST 13TH AVE
Condon
Chapman
4
Johnson
Tykeson
Collier House
InfoGraphics Lab
KINCAID ST
Erb Memorial Union (EMU)
6
Carson
BEECH ST
University Health Services
AGATE ST
Prince Lucien Campbell (PLC)
3
Schnitzer Museum of Art
Susan Campbell
Hendricks
Straub
Earl
Living Learning Center
New Residence Halls
ONYX ST
Gerlinger
Knight Library
Gerlinger Annex
11
Student Recreation
10
Hayward Field
8
Education Annex
Court
Student Tennis
Pioneer Cemetery
1
2
Frohnmayer Music
Berwick
12
Jane Sanders Stadium
Outdoor Program Barn
EAST 18TH AVE
EAST 18TH AVE
9

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