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Ground Maps of an Unknown Prospect

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Journal

Refract: An Open Access Visual Studies Journal, 4(1)

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Publication Date

2021

DOI

10.5070/R74155770

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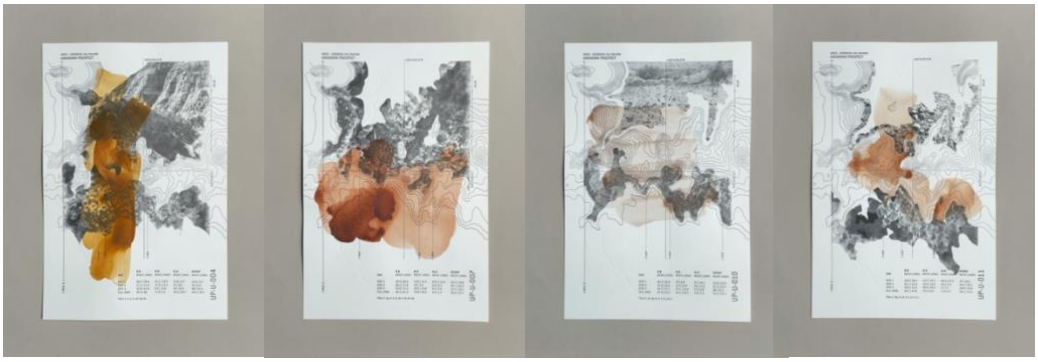
Ground Maps of an Unknown Prospect

Elpitha Tsoutsounakis

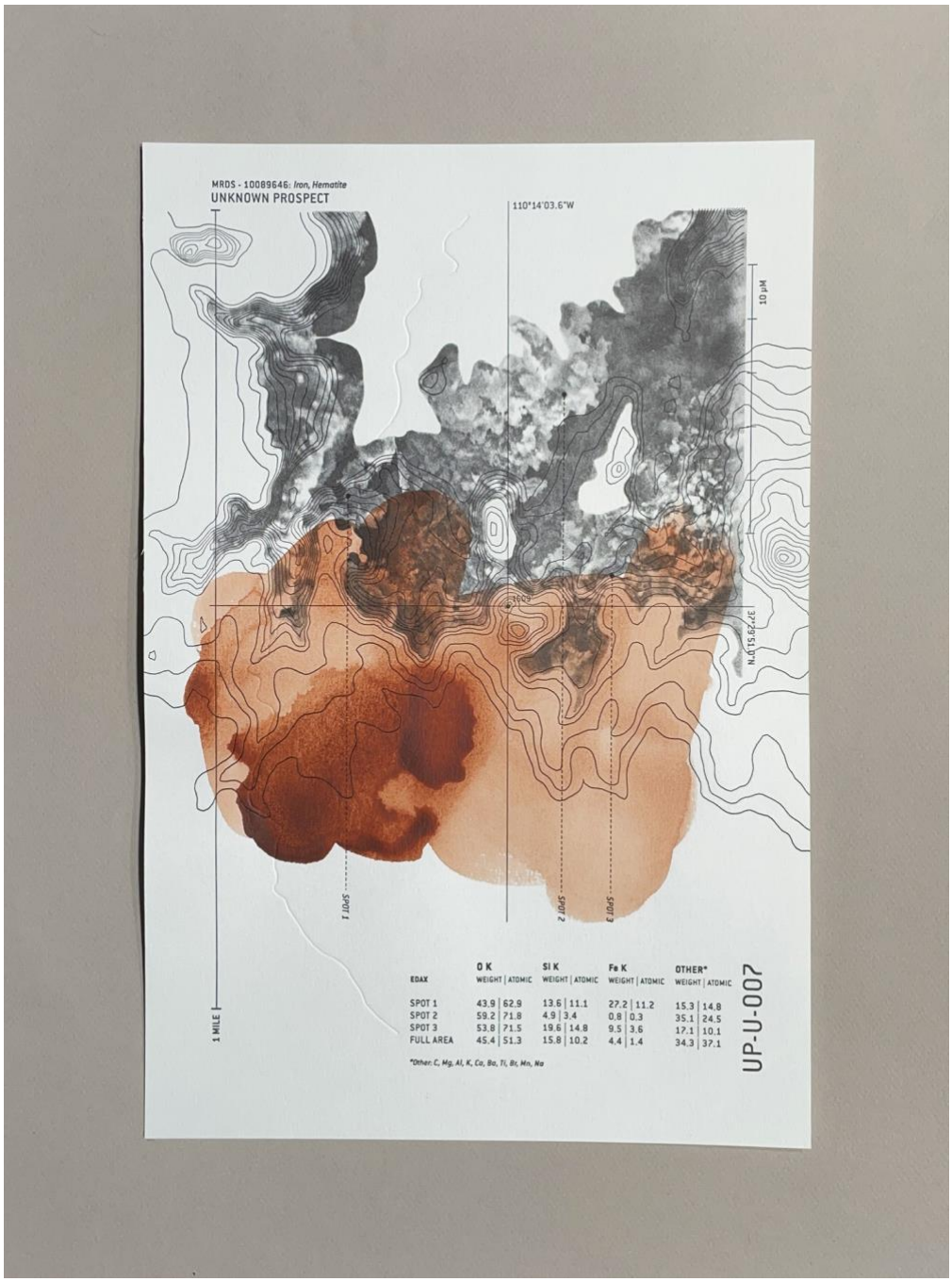


Right to left: UP-U-004, UP-U-007, UP-U-010, UP-U-011

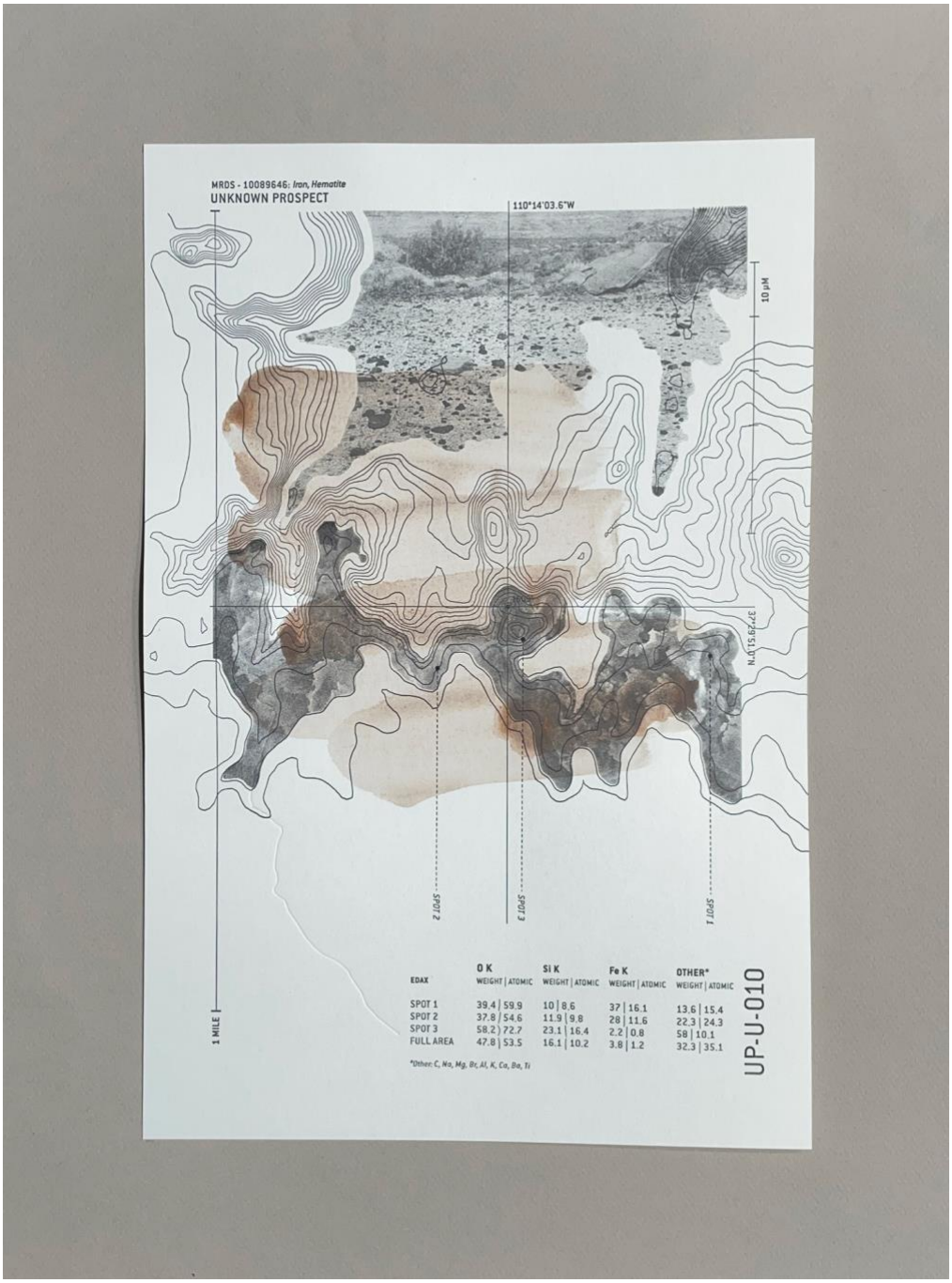
Printed on Coventry Rag (250 GSM) on a Vandercook No. 3 with rubber-based ink. Pigment in gum arabic binder applied in between print runs. Images taken on-site are combined with those generated by the scanning electron microscope in the Utah Nano Lab at the University of Utah. Data for each map were generated in energy-dispersive X-ray spectroscopy of each sample used for pigment. Topography for the site was generated in ArcGIS.[1]

[1] GIFs of Elpitha Tsoutsounakis's *Ground Maps of an Unknow Prospect* (2020) can viewed at https://escholarship.org/uc/refract.

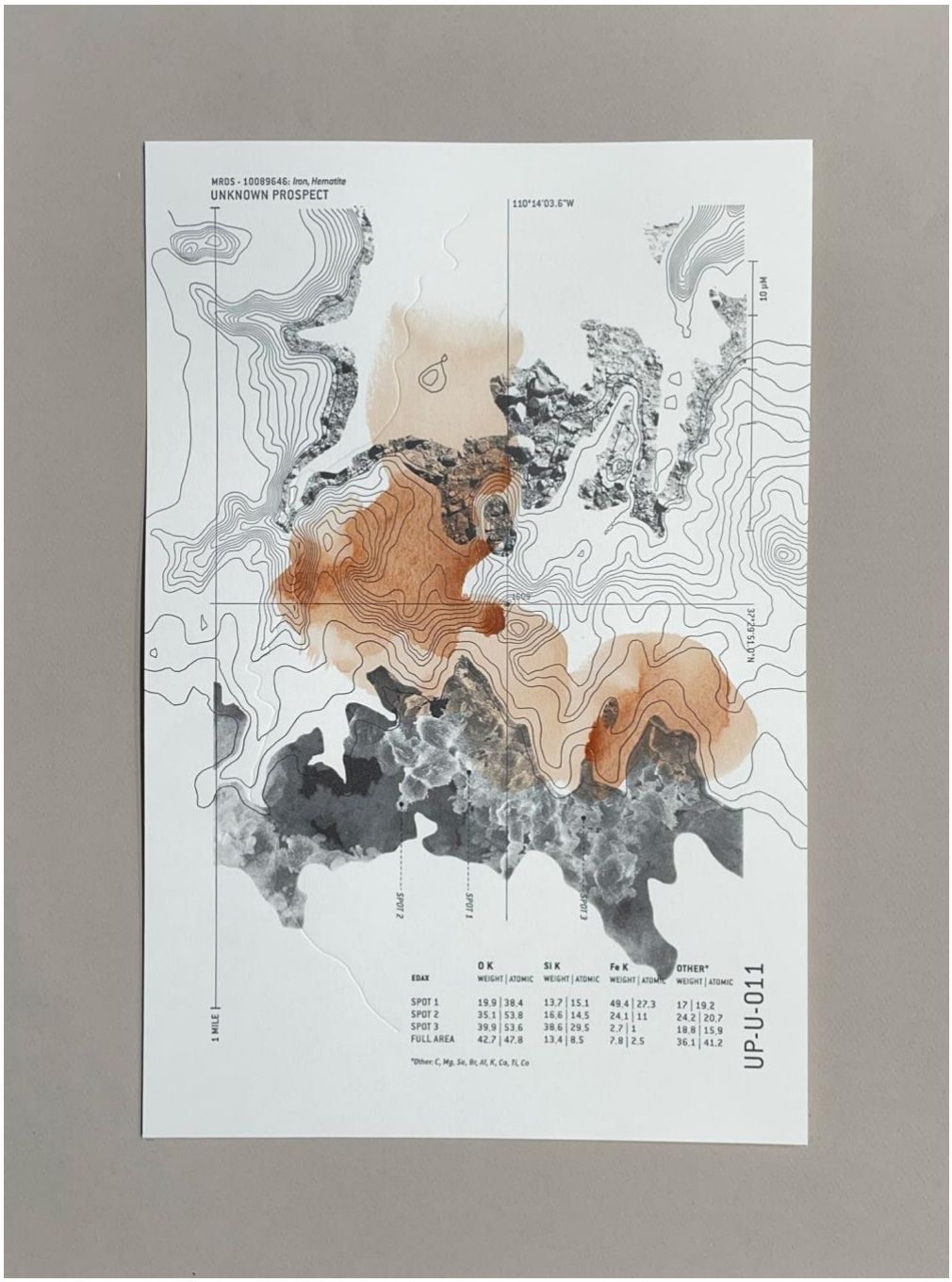
Elpitha Tsoutsounakis, Ground Maps of an Unknown Prospect UP-U-004*, 2020. Image courtesy of the author.*



Elpitha Tsoutsounakis, Ground Maps of an Unknown Prospect UP-U-007*, 2020. Image courtesy of the author.*



Elpitha Tsoutsounakis, Ground Maps of an Unknown Prospect UP-U-010*, 2020. Image courtesy of the author.*



Elpitha Tsoutsounakis, Ground Maps of an Unknown Prospect UP-U-011*, 2020. Image courtesy of the author.*

Unknown Prospect is a particular place on a map, but also a body of work surveying so-called public lands through Ochre pigments, design research, printmaking, and artist's books. *Unknown Prospect* becomes an iterative atlas of mining sites and their geological memory as told through color. I am a printer, formally educated in architecture, teaching in a product design program with an emphasis on studio, design research, and visual strategy. In addition to my studio practice in speculative design, my scholarship addresses community-engaged design. I teach and practice on the ancestral territories of the Ute, Paiute, Dine, Hopi, Zuni, Ute Mountain Ute, and Goshute tribes from the Basin and Range to the Colorado Plateau.

My print work and practice in book binding, combined with architectural training in documents and drawing, have led to an interest in maps and atlases as products of information, communication, narrative, and world-making. I wonder if these products can lead to design ethics and practices that prioritize the relation between human and more-than-human. As an alternative to conventional, colonial mapping practices in the United States, *Ground Maps* are emergent with observations from experience, facts derived and measured by technology, and multiplicities generated by Ochre on the page.

Ochre is a mineral pigment containing various amounts of iron oxide.[1] In her essay *The Geology of Color*, the artist and independent researcher Heidi Gustafson describes the emergence of human cognition as tied to Ochre use:

> According to the archaeological record, human cognition emerged at least 200,000–300,000 years ago, and coincided with the *regular use of earth pigments*, namely iron ochres and their multivalent capabilities as physical and imaginal influencers. Iron-based pigments are primordial collaborators in world-wide human and nonhuman expressions and art forms.[2]

I primarily collect Ochres from sites associated with the mining history of the western United States, with particular focus on tailings piles as a form of renewing matter otherwise deemed "waste" (Fig. 1). Tailings are the leftover fraction of ore at a mining claim that have no "economic value." They are separated from the ore on-site and left in massive piles in the landscape. Sometimes they are left sprawling at the base of the audit or mine, like huge rock carets pronouncing puncture wounds for miles. The mines and prospects I have surveyed are distributed throughout the Colorado Plateau; they all list iron or uranium as the primary ore

Figure 1 Surface view of MRDS 10089646: Unknown Prospect. *Image courtesy of the author.*

body.[3] Some, like the site in these *Ground Maps*, are noted as "potential" by the United States Geological Survey (USGS), but left alone. Others were active at some point in our industrial past, but are now abandoned. Only one remains an active mining operation. As I have learned more about the geological history of the Ochre places I visit, I have become particularly enamored by the Chinle Formation. Formed 250 million years ago during the Triassic period of the Mesozoic era, the Chinle is marked by colorful instances of oxidation or reduction based on fluctuating sea levels and changing water conditions. Throughout the western United States, this formation is often associated with the minerals the USGS desires. I might say my personal interest in mines led me to Ochres through this entanglement, but Gustafson would say the Ochres brought me to them.[4]

Ground Maps of an *Unknown Prospect* are inspired by the Mineral Resources Data System (MRDS) compiled over several decades by the USGS. The USGS website defines the MRDS as "a collection of reports describing metallic and non-

Figure 2 Clockwise from top left: UP-U-010, UP-U-011, UP-U-004, UP-U-007. Image courtesy of the author.

Figure 3 Ochre bodies next to their pigment extensions. From top to bottom: UP-U-010, UP-U-004, UP-U-007, UP-U-011. *Image courtesy of the author.*

metallic mineral resources throughout the world. Included are deposit name, location, commodity, deposit description, geologic characteristics, production, reserves, resources, and references."[5] These maps depict MRDS 10089646 according to four Ochres collected at the site: UP-U-004, UP-U-007, UP-U-010, and UP-U-011. In the maps, I preserve the descriptor, MRDS 10089646, not as a name, but as a marker of a particular encounter between the site and the industrial, capitalist system that has described it as a particular ground for a particular purpose—the extraction of "resources."

MRDS 10089646 (Fig. 1) was identified by the USGS as a potential source of iron ore, but never formally "claimed" or mined. Other than a graded access road for operations farther up the canyon, it remains undisturbed in the desert sun. The site itself barely exists on any conventional maps, but instead switches between the overlaps in separate quadrangles and partially hides under the legend in my road atlas.[6] I collected various forms of the Ochre bodies including hematite rocks and the soft friable edges of erosion in tributary washes (Fig. 2). Later, I grind these bodies into pigment, extending partial dimensions of the original mineral being. I preserve partial fragments of the bodies as archival reference (Fig. 3). The conventions I use to catalog my research are not intended as names for the Ochres but as markers of a design process. They refer to a particular moment on particular ground, organizing and orienting a growing archive of pigments.[7] The significance of the archive is twofold: on the one hand, it is produced through a practice of design research to gain an understanding of the materiality of Ochres; on the other, the archive is an assemblage of Ochres as collaborators in their transformation into design objects/products.

These *Ground Maps* juxtapose images of the Ochres at a land scale and at a nanoscale. I was inspired to scan the samples by conversations with pigment researcher Melonie Ancheta, who uses the scanning electron microscope (SEM) in her analysis.[8] The SEM produces images of the Ochre by scanning the sample surface with a focused beam of electrons in a vacuum chamber. Energy-dispersive X-ray spectroscopy (EDAX) provides elemental analysis of each Ochre (Fig. 4).[9] These maps are an initial exploration of the various observational methods available through the body in addition to simple tools like mortar and pestle or complex technology like the SEM and EDAX. Each method reveals a glimpse into the multiple realities materialized by Ochre. I am compiling a pluriversal data system informed by field visits, Ochre practice, imaging and analysis, and publication in

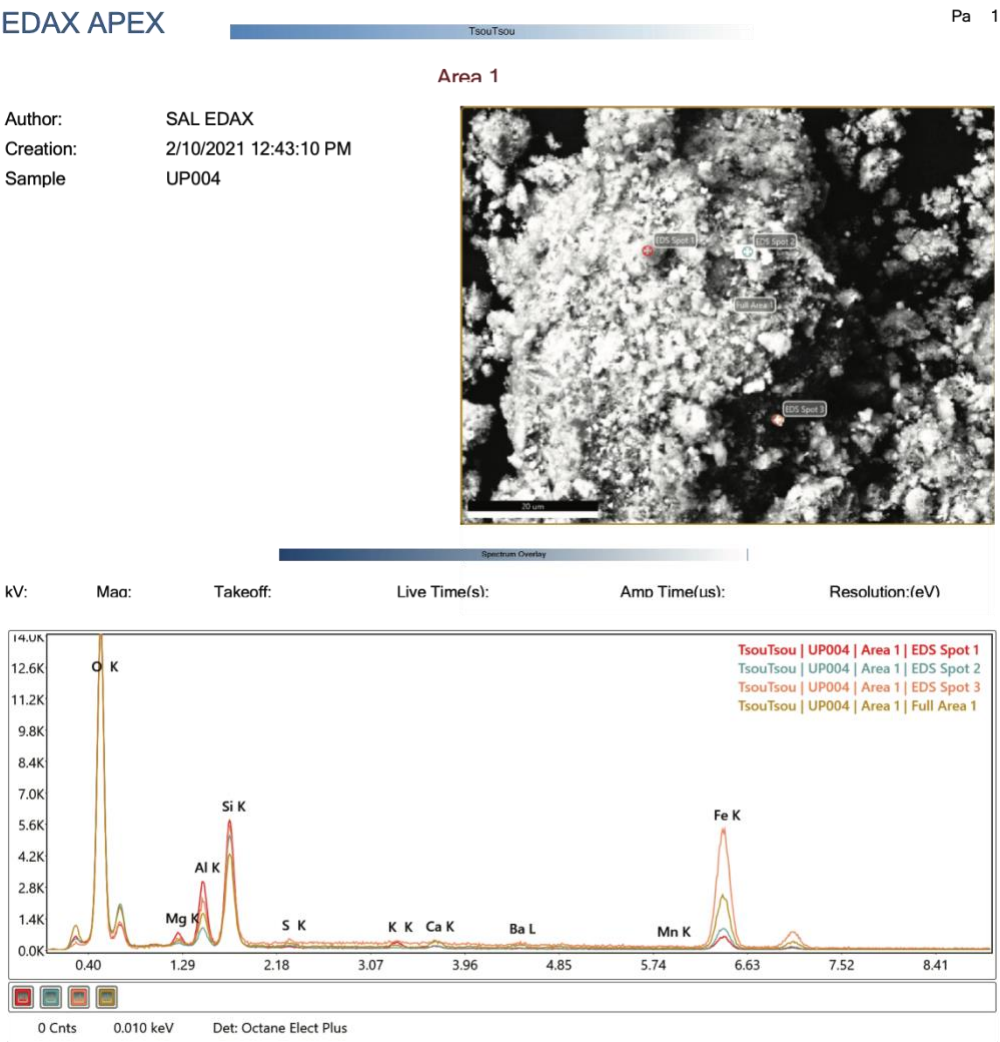


Figure 4 Elemental analysis of UP-U-004 *using energy-dispersive X-ray spectroscopy. Image courtesy of the author.*

print and book form.[10] This data system is not only useful for the account of scientific fact or economic potential, as in the case of the MRDS. This data system extends relations between the products of knowledge and the maker/designer. In design disciplines it is commonly understood that craft and material intelligence produce a knowing about the world that influences designer, producer, and user. But we can also find a means to extend our relation to the nonhuman through design practice/process when we acknowledge that "the form or technique of knowing, the means to knowledge, is surely an actor as well."[11]

The maps are printed on cotton rag using photopolymer plates on a Vandercook No. 3 printing press. The landscape images of the actual site are

Figure 5 U-UP-011 pigment being mulled with gum arabic. Image courtesy of the author.

phone snapshots from field excursions that I used to create line screens in Photoshop for the printing plates.[12] The vector data were generated from GIS and edited in Illustrator.[13] After grinding and sifting the Ochre bodies, the resulting pigment is mulled with a gum arabic binder and applied to the maps in between print runs (Fig. 5). Each print, in an edition of ten for each Ochre, results in a new map due to the movement of mineral pigment on the page.[14] Contradicting the traditional desire in printmaking for consistency across the editions, the Ochre emerges as a new territory in every individual map iteration. I am not fully satisfied with my ability to distribute the Ochre on the page using various paintbrushes. I'm not a painter. Instead, my intent is to allow the Ochre to move as it will. Each material has incredibly rich and unique properties that create movement, texture, and tone to map territories through material agency. My next investigation is to explore other means of embedding paper with Ochre, or making paper out of Ochre, for use in printmaking and artist's books. I have also begun experiments in soaking photographs in Ochre solutions as a way of "developing the image further" through the extensions of Ochre bodies (pigment).

These maps ask if we can read alternate futures on the site, if they can lead us to alternative beliefs and actions from the "one-world world" that John Law articulates.[15] Ochre invites us to understand our own relation to the other-than-human beyond "resource" and "claim." In extractive practices, nonhuman beings are framed as separate—less than—the humans who seek to remove and profit from them as resource. My practice with Ochre presents another option, albeit on a very different scale. I don't pretend not to be reliant on extraction; I use a mobile phone and get my water from the tap. In some ways, collecting pigments from the desert is no different from collecting heavy metals for my devices. Where these collections differ is in the politics of who is doing the labor, who profits, and how

we relate to the context and impact of the removal. As a discipline, design has been complicit in concealing this manipulation and ignoring our responsibility to "raw material." I don't regard iron, or any terrestrial beings, as neutral objects to be molded by/for human will. I position myself in a dialogue with Ochre as a world-making agent. I search the products of *Unknown Prospect* for paths to understand the divergence between humans and geology so that we might "dismantle dualisms through reconstruction of relationship and identity," as ecofeminist Val Plumwood suggests.[16] What if instead of prioritizing the "human user" and means to profit, we positioned ourselves in dialogue with carbon as world-making agent? With timber or water, as world-making agent? What might become of design and production? This is hardly a novel concept, as indigenous people and the global majority have been practicing this ethic all along.

The conversations describing so-called public lands in the western US oscillate between various forms of extractive industries including mining, grazing, and recreation. The land has been restricted to "one world" in which it becomes either mine or pasture, campsite or "insta-square." This "dualism of use" prioritizes colonial notions of "wilderness" at the expense and erasure of indigenous knowledge and practices, and compromises alternative futures of reciprocal interaction with the more-than-human. I believe design can offer methods for dismantling this one world and reconstructing a multiplicity of worlds in its place. This potential is not limited to research or speculative practices. All design disciplines, especially those that lead to practical design products—industrial, digital, service, architecture, and so forth—must be affected by this shift in consciousness as well.

* * *

Elpitha Tsoutsounakis (she/her) is a Cretan American designer, printer, and educator based in so-called Salt Lake City, Utah. She is assistant professor and founding faculty in the Multi-disciplinary Design program at the University of Utah, where she teaches design studios, research methods, and visual strategy. As a first-generation college student raised in an immigrant family, she completed her BS in architecture at the University of Utah and her master's in architecture at the University of Texas at Austin. Her education in architecture informs design research and creative practice in printmaking, book arts, and Ochre's engaging issues of design ethics, materiality, ecofeminism, and the human relationship to the more-than-human. She established the Fieldwork Platform to bring together diverse community partners involved in so-called public lands through interdisciplinary design research, education, and publication.

Notes

[1] While I focus my Ochre work on iron oxides, different cultures and practices around the world define various minerals and earth materials as Ochre as well.

[2] Heidi Gustafson, "Dust to Dust: The Geology of Color," *The Side View* 1, no. 2 (2019), https://thesideview.co/journal/dust-to-dust/.

[3] US Geological Survey, Mineral Resources Data System, 2005, https://www.USGS.gov, accessed August 2, 2021.

[4] earlyfutures.com is the artistic research site of Heidi Gustafson (and collaborators). Current projects focus on ochre, iron oxides, land pigments, and subtle earth activism. Heidi's Pacific Northwest cabin/studio houses the Ochre Sanctuary, a counsel of ochres and pigments from contributors worldwide.

[5] US Geological Survey, Mineral Resources Data System.

[6] See "National Geospatial Program," Topographic Maps, accessed August 2, 2021, https://www.usgs.gov/core-science-systems/national-geospatial-program/topographic-maps. "The USGS was entrusted with the responsibility for mapping the country in 1879 and has been the primary civilian mapping agency of the United States ever since. The best known USGS maps are the 1:24,000-scale topographic maps, also known as 7.5-minute quadrangles. From approximately 1947 to 1992, more than 55,000 7.5-minute maps were made to cover the 48 conterminous states. The 7.5-minute series was declared complete in 1992, and at that time was the only uniform map series that covered the United States in considerable detail. Map revision continued, though in decreasing quantities, through the 1990s. The last printed USGS topographic maps were published in 2006."

[7] I would clarify that I don't formally name the Ochres—or hues/pigments—in the products I'm generating, but I do have personal " nicknames" for various Ochres and Ochre places. Sometimes these monikers are dreamt up in collaboration with other humans in shared experience in the field. I've erred on the side of not naming in order to avoid dominating the Ochres and because the Ochre bodies I collect are not whole subjects but dimensions of larger beings without discrete boundaries in time and space. This issue of naming and the meaning/outcome of naming requires further exploration in future works.

[8] Melonie Ancheta's work and research can be found at her website, www.nativepaintrevealed.com.

[9] I acknowledge the privilege of working at a public research university with access to this technology. Thank you to Dr. Paulo Perez and Alayna Thorstensen for their assistance with the SEM and EDAX at the Utah Nanolab.

[10] My thinking on this has been informed by many scholars, specifically Marisol de la Cadena, Mario Blaser, Arturo Escobar, and Eduardo Kohn, but also more broadly Gilles Deleuze and Félix Guattari, and Manuel Delanda.

[11] See Marilyn Strathern, "Opening Up Relations," in *A World of Many Worlds*, edited by Marisol de la Cadena and Mario Blaser (Durham, NC: Duke University Press, 2018), 23–52, https://doi.org/10.1215/9781478004318-002. Strathern elaborates on Haraway "recognizing the agency of the world and objects of knowledge as actors."

[12] Thank you to research assistants Lucy Allen and Kit Stanworth for their company on-site.

[13] Thank you to research assistant Megan Pettit for her genius in GIS, and continued support and collaboration in *Unknown Prospect* at large.

[14] GIFs showing the shift in pigment between each edition can be seen at https://escholarship.org/uc/refract.

[15] John Law, "What's Wrong with a One-World World?," *Distinktion: Journal of Social Theory* 16, no. 1 (2015): 126–39.

[16] Val Plumwood, *Feminism and the Mastery of Nature* (United Kingdom: Taylor & Francis, 2002), https://doi.org/10.4324/9780203006757.