

CREATIVE GEOGRAPHIES AND ENVIRONMENTS:  
GEOPOETICS IN THE ANTHROPOCENE

by  
Eric Magrane

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As members of the Dissertation Committee, we certify that we have read the dissertation prepared by Eric Magrane, titled Creative Geographies and Environments: Geopoetics in the Anthropocene, and recommend that it be accepted as fulfilling the dissertation requirement for the Degree of Doctor of Philosophy.

\_\_\_\_\_  
Sallie Marston Date: 4/11/2017

\_\_\_\_\_  
Diana Liverman Date: 4/11/2017

\_\_\_\_\_  
John Paul Jones III Date: 4/11/2017

\_\_\_\_\_  
Alison Hawthorne Deming Date: 4/11/2017

\_\_\_\_\_  
Harriet Hawkins Date: 4/11/2017

Final approval and acceptance of this dissertation is contingent upon the candidate's submission of the final copies of the dissertation to the Graduate College.

I hereby certify that I have read this dissertation prepared under my direction and recommend that it be accepted as fulfilling the dissertation requirement.

\_\_\_\_\_  
Dissertation Director: Sallie Marston Date: 4/11/2017

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SIGNED: Eric Magrane

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DEDICATION

for Wendy

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## ABSTRACT

Drawing on traditions of cultural geography and creativity, the environmental humanities, and critical geographic theory, this dissertation includes five articles that develop geopoetics as a sub-field of the geohumanities. It sketches the contours of three modes of geopoetics: as creative geography, as literary geography, and as geophilosophy. Through site-based projects at three Sonoran Desert ecological research and tourism sites, it furthers the use of artistic and literary practice in geohumanities research, employs that practice to interrogate climate change and Anthropocene narratives, and addresses the role of art and literature in environmental issues. In addition, it utilizes the development and teaching of a community course on climate change and poetry as an additional “site” of research, to illustrate the role of arts and humanities approaches to global environmental change. Drawing on the content of the climate change and poetry course, it also includes a close reading of the work of five contemporary Indigenous ecopoets in relation to climate narratives. This dissertation proposes that geopoetics, literally “earth-making,” is broadly relevant to questions of socio-ecological futures and is a means to imagine and enact other ways of inhabiting the world.

## KEYWORDS

geopoetics, geohumanities, Sonoran Desert, environmental narratives, climate change and poetry, Biosphere 2, Arizona-Sonora Desert Museum, Tumamoc, ecopoetics, Anthropocene, more-than-human geographies

## INTRODUCTION

### **Working the Edges**

In ecosystem sciences, an ecotone is a region of transition between two biological communities. These edge habitats often contain great biodiversity. They can be considered meeting places.

I have always been drawn to the edges of disciplines, as I find that they, much like biodiverse ecotones, are often the places that are richest in new ideas and insights into some of the most pressing issues in the world. Poet Muriel Rukeyser ([1949] 1996) described poetry—and the correspondences between art and science—as a “meeting-place” (162). I’ve come to think of geography as also a “meeting-place,” in which the physical and social sciences rub shoulders, critical theory meets environmental research, and a tradition of cultural geography and creativity runs through the DNA of the discipline: what Domosh (2014) has termed the “intra-disciplinarity” of geography.

As an intra-disciplinary practitioner, I find myself sometimes inhabiting the role of human geographer, social scientist, or critical theorist; at other times that of environmental researcher; and still other times that of poet or artist. More and more, I think about how those roles can merge within an overall transdisciplinary approach. That is what this dissertation attempts to build. It draws on critical and cultural theory, geographic work on environmental narratives, literary criticism, and site-based arts practices to develop geopoetics as a sub-field of the emerging geohumanities.

Two overarching questions guide this dissertation and my research practice:

- How can the arts, humanities, and creative practices respond to and communicate environmental challenges to broad publics in order to catalyze change?
- Methodologically, what opportunities and challenges do the geohumanities offer to geographic knowledge and understanding?

To approach these questions, this dissertation draws on specific site-based projects at three Sonoran Desert ecological research and tourism sites: the Arizona-Sonora Desert Museum, Tumamoc Hill, and Biosphere 2. In addition to the three physical sites, the dissertation also uses a community course on climate change and poetry that I designed and taught for the University of Arizona Poetry Center as another “site” of my research. Brief descriptions of the three primary sites are included below, and are introduced in more detail in the articles that follow in the appendices.

- The *Arizona-Sonora Desert Museum*, a world-renowned zoo, natural history museum, and botanical garden, receives 400,000 visitors each year. In collaboration with the Desert Museum and the University of Arizona Poetry Center, I have curated poetry installations throughout the museum grounds in a multi-year project whose goal is to use poetry to engage and surprise visitors and encourage a conservation ethic. Appendix B, “A Poem Is Its Own Animal: Poetic Encounters at the Arizona-Sonora Desert Museum,” which was published in the literary journal *Ecotone*, addresses this work.
- An important site of long-term ecological research, *Tumamoc: People and Habitats* includes reservation ecology, restoration ecology, and reconciliation ecology as the three pillars of its mission. A reserve in the middle of urban Tucson, it is managed jointly by the University of Arizona College of Science

and Pima County, Arizona. Tumamoc’s mission also includes the arts: an artist in residence has worked at Tumamoc since 2011, and I have collaborated with that artist, as well as with local poets, to create place-based work at Tumamoc (Mirocha et al. 2015). In this dissertation, a poem I wrote on the site of Tumamoc opens the article “Situating Geopoetics” (Appendix A).

- *Biosphere 2* (B2) is a site with a fascinating history; many are aware of the initial ‘mission’ in which eight people lived for two years under glass as a systems-science experiment in the early 1990s. Today, under the management of the University of Arizona College of Science, B2 hosts ‘big science’ climate modeling research projects. In 2014, I designed the Poetic Field Research Performance Piece at B2, a project that brought a group of poets to B2 to interact with researchers and then to write poems and prose on site. Appendix C, “The Wave Machine Churns: Geopoetics, Site Ontology, and the Anthropocene at Biosphere 2,” develops the methodological orientations and possibilities of creative-critical geopoetic research practice, with the Poetic Field Research Performance Piece as a framework.

Hawkins (in her introduction to Hawkins et al., 2015) writes that the geohumanities “unsettle relations among theory, praxis, scholarship, practice, and application” (216). Each article in this dissertation works in its own way to unsettle some of these relations. Why does this matter? First, producing research that takes multiple forms can reach different and numerous audiences. Second, this relational unsettling can upend normalized forms of (re)presentation. The geohumanities open up space for outputs that blend theory and praxis, going into the world as much in a

catalytic, expressive (i.e., literary or artistic) mode as in an analytic mode. In doing so, they radically add to the forms that geographic work takes in the world; they also encourage the discipline to seek rigorous ways of understanding how to read, view, evaluate, and approach such forms.

Poet Robert Creeley's mid-20th century assertion that "form is never more than an extension of content," as quoted by poet Charles Olson ([1950] 1997, 240) in his canonical essay "Projective Verse," often echoes in my mind. In the context of scholarly work such as this dissertation, Creeley's words lead me to a seemingly simple question. Do certain routinized forms prefigure a certain mode of thought, limiting what can be expressed in content? That is, if the form is already known, is there room to do anything different with content? My question is about patterns of thought as much as thought itself. Or, as Guattari (2000) argued, "we must learn to think 'transversally'" (29).

I recall two sections of a poem that I wrote, sandblasted into mirror, and installed at the Tucson literary organization Casa Libre en la Solana:

in the day's recess  
clocks revolt

and i'm not certain  
why we conceived the world

in this order

~~~~

we need a new language  
its letters made of what  
we don't understand

Perhaps the geohumanities, in their radical relational unsettling, can help to re-work some of our naturalized symbolic systems, helping us to find a new language. This dissertation, in developing geopoetics, attempts to point a way forward.

### **Geography and Poetry: Productive Tensions in Geopoetics**

By bringing geography and poetry together, geopoetics develops multiple senses of place and care, drawing on the strengths of each discipline. The depth of thinking on space and place within geography, as well as the critical apparatus to approach how power writes itself on landscape and in human-environment relations, brings increased critical depth to poetic practice. While a strong tradition of place-based literature and recent critical-creative work in fields such as eco-poetics is clearly attuned to “systemic analysis and critique” (Spahr 2003, 29), the rich and varied ways of thinking about how place and space matter within critical geography offer important critical approaches to me as a poet. For example, in “Place-Relation Eco-poetics: A Collective Glossary,” curated by poet Linda Russo for the literary journal *Jacket 2*, I offered this entry for geopoetics, in which I reference both geographic and poetic thought:

**geopoetics:** From the Greek: ‘geo’ (earth) and ‘poesis’ (making).

Literally, earth-making. Critical human geography helps one think about scale. Geopoetics might be mulch or compost or the building of earthworks to collect stormwater runoff and plant the rain in the desert.

Consider land art, new environmental art, permaculture practices, gardening. Or, consider the Anthropocene and climate change as geopoiesis—and hence, to return to scale, geopoetics is a means to

consider appropriate technology and political ecology, and poetry is technology as well. A “quest for wiser ways of dwelling” wrote Anne Buttimer (2010, 35). “What we’re concerned with is a new world-sensation,” wrote Kenneth White (1992, 165). Also, speculative more-than-human geopoetics: a reflective and refractive earth-making that imagines and speculates on alter-subjectivities. (Magrane 2015)

Geopoetics changes the field of geography conceptually, methodologically, and practically. Conceptually, geopoetics conceives of the discipline of geography as an art as well as a science. Within geopoetics, geographic knowledge is produced and (re)presented through poems, essays, and other creative literary works, as well as through traditional scholarly means and critical-creative blends.

As noted earlier, the conception of geography as an art as well as a science is not new: a tradition of creativity runs through the history of the field. One precursor of the current flourishing of creative geographies (Hawkins 2017; Marston and de Leeuw 2013) is Meinig’s (1983) assertion that “We shall not have a humanistic geography worthy of the claim until we have some of our most talented and sensitive scholars deeply engaged in the creation of the literature of the humanities” (325). Through new outlets for work, such as AAG’s *GeoHumanities* journal; public-facing (rather than scholarly) online magazines, such as *Coordinates Society Magazine*; and established outlets, such as the University of Arizona’s *you are here: the journal of creative geography*, the channels for expressing creative geography continue to grow.

Methodologically, bringing poetry to geography as part of a geographic practice offers openings for new ways of thinking and (re)presenting geographic concerns. As

the social sciences increasingly consider the role of affect and emotion in shaping and re-shaping relationships in the world—and as important levers of social reproduction—the orientations and tools of poetry offer opportunities for (re)presenting affective and emotional juxtapositions. Poet Marcella Durand (2010) wrote that

Association, juxtaposition, and metaphor are tools that the poet can use to address larger systems. The poet can legitimately juxtapose kelp beds with junkyards, or to get more intricate, she or he can reflect on the water reservoir system for a large city by utilizing the linguistic structure of repetitive water-associated words in a poem. Most other disciplines, such as biology, oceanography, mathematics are usually obliged to separate their data and observations into discrete topics. (123–24)

In Durand's ideas about poetry, I find promising connections with assemblage theory as it has been taken up in geography (see, for example, Anderson and McFarlane 2011; Robbins and Marks 2010). In (re)presenting assemblages (the multiple and heterogeneous bodies, processes, and actors that make up the world), the ability to write in forms that work in an associative and juxtapositional register may allow for new perceptions to arise, in both writer and reader. Through geopoetics, I approach assemblage theory as both an analytical tool and as a creative methodology (Magrane and Johnson 2016).

Practically, geopoetics as applied in this dissertation places poetry within scholarly geographic work. While the content of the poems interacts with the content of the articles, another aim of this practice is to encourage the reader to slow down. I don't think of the text as a transparent representation, but rather as a lively conversation, one



that often yields multiple resonances and interpretations. This leads to a key tension in doing this kind of work. While the aim of critical scholarly work is often analytic and explanatory precision, the goal of poetry and art is often (though not always) the opposite. Poetry and art are modes where interpretive excess is valued, in which the reader, audience, or viewer is expected to bring their own interpretation.

As growing numbers of geographers call for creative, literary, and artistic approaches to the field, I believe that this productive tension will continue to raise important questions of knowledge production and (re)presentation. The questions are epistemological, political, and practical. How do we (re)present and create the world ethically, with empathy and care? Which narratives do we want to replicate, and which do we need to change? Practically, and particularly within the academy, how do we evaluate work that stretches the forms that scholarly research can take?

Perhaps most importantly, geopoetics and creative geography serve as hybrid practices that respond to the grand environmental challenges of our day. In the face of climate change and multiple planetary boundaries to the “safe operating space for humanity” (Rockström et al. 2009), appeals to emotion as well as to reason are necessary to catalyze the social and cultural momentum for effective action. By producing creative, poetic, and artistic work that meets the world in multiple forms, we open up possibilities of reaching multiple audiences with the geohumanities (Kitchin 2013; Wilson 2013).

People engage with place and environment through emotion and affect, as well as through reason: “To live in a place is to experience it, to be aware of it in the bones as well as with the head,” wrote Tuan (1975, 165). Deep caring for environments often

comes through storying relationships in and with place. In fact, recent work has examined the role that narrative plays in environmental networks (Lejano, Ingram, and Ingram 2013), arguing that stories are the glue that hold networks together.

Geographers have also argued for the role that the discipline should play in helping to shape the narratives of climate change and the Anthropocene (Castree 2014). The Anthropocene, proposed as a new geologic epoch in which humans have literally written ourselves into the strata and atmosphere of the Earth, has been taken up by humanists, artists, and social scientists, as well as by geologists and systems scientists. Its ability to serve as a kind of “boundary object” (Star and Griesemer 1989) makes it a ripe concept for interdisciplinary thought and practice. Geopoetics and creative geographies are particularly well suited to do this work: they can approach climate and Anthropocene narratives with the critical toolkit of human geography, and can also embed that critique within poems, artworks, and creative installations.

## PRESENT STUDY

This dissertation is composed of five articles. The first article, “Situating Geopoetics,” sets the agenda of the dissertation: in the abstract, I write that it is “a groundsetting for and statement on geopoetics that intends to both situate and to break open the field.” By this I mean that it sets the groundwork for the practice of geopoetics, identifying and opening up areas for future work. As I began my geographic research, I found that while growing numbers of geographers were citing the importance of creative and poetic approaches to geography, there was not a foundational text within geography that outlined different approaches to geopoetics. When I told people that I was working on geopoetics, they asked, “What is geopoetics?” The article is an answer to that question. It was published in the first issue of *GeoHumanities*, the new flagship journal of the American Association of Geographers, and I am gratified that it is one of the most read and cited articles in the journal, and has indeed helped to situate the field.

The article serves as both a literary review—historicizing and placing geopoetics within a cultural geographic tradition, as well as connecting that tradition to current work in ecopoetics, feminist, and literary theory—and an agenda for the development of geopoetics. In doing so, it addresses the politics of geopoetics, drawing on poet Audre Lorde’s ([1984] 2007) argument that “poetry is not a luxury” (36) to argue that geopoetics and the geohumanities are likewise not a luxury. I want to make it clear that practicing geopoetics is neither window dressing nor apolitical.

“Situating Geopoetics” outlines three modes of geopoetics:

- “Geopoetics as Creative Geography: Geographer-Poets and Poetry as a Research Method,” in which geographers *create their own poetic work*, whether as literature or as a research method within geographic research.
- “Geopoetics and Literary Geographies of Poetry,” in which critical geographers *interpret the work of poets*, blending the insights of critical geography with literary criticism to analyze and engage poetic texts.
- “Geopoetics as Geophilosophy,” in which geopoetics (earth-making) does not necessarily imply that a thing directly understandable as a ‘poem’ is its object or outcome, and where geopoetics as geophilosophy can offer methodological advances within geography, particularly in relation to critical theory.

The succeeding four articles in this dissertation build on the three modes—often in combination—to further develop geopoetics.

The second article of the dissertation, “A Poem is its Own Animal: Poetic Encounters at the Arizona-Sonora Desert Museum,” was published in the literary journal *Ecotone*. This literary essay reflects on the poetry installations that I developed at the Arizona-Sonora Desert Museum, where I am the inaugural poet in residence. Through descriptions of some of the installations (such as a poem I wrote using language composted out of water policy documents, poems installed inside of sculpted animal masks, and a poem written in black-light paint to interact with scorpions), the essay addresses how creative interpretations at natural history sites can communicate environmental issues in effective and innovative forms. The article blends close readings of poems with techniques of the personal essay to engage with poems in the widest sense: as stored energy (Rueckert [1978] 1996) and energy transfer. By narrating

specific encounters facilitated by the Desert Museum's poetry installations, the article also implicitly argues for the role that artistic and literary approaches to environmental interpretation can play in communicating and instilling environmental ethics to different publics.

The third article, "The Wave Machine Churns: Geopoetics, Site Ontology, and the Anthropocene at Biosphere 2," takes as its center the Poetic Field Research Performance Piece that I designed at B2 in 2014. In the article, I explore B2 as an embodiment of many of the dreams and anxieties of the Anthropocene, and as rich ground for site-based geopoetics. I write in the abstract that

methodological work on *how to do* creative geography informed by geographic theory is still under-developed. To address this gap, in this article I argue that bringing a site-based arts practice together with the methodological orientations of a site ontology offers a rich area for methodological invention. I propose a *site-based geopoetics* as an experimental critical-creative practice that intervenes in sites through research that is designed to generate literary and artistic works.

The final two articles arose from my experience designing and teaching a community course titled "Climate Change & Poetry," which I developed with the support of the Climate Assessment for the Southwest (CLIMAS) Climate and Society Graduate Fellows Program. Taught at the University of Arizona Poetry Center, the Climate Change & Poetry course was among the first of its kind offered anywhere. My students and I discussed social, scientific, and popular readings on climate change in conversation with climate-focused contemporary poems. As community practice, the

course fees generated a donation for Watershed Management Group, a local NGO that works on green infrastructure.

The first of these two articles, and the fourth of the dissertation, is titled “The Poetry of Climate Change.” Responding to calls for social science and humanities approaches to global climate change, this short piece uses the example of the community course to demonstrate poetry’s role in shaping responses to climate change. The article also enumerates recent anthologies and single-author poetry collections that engage with climate change. Building on my students’ expressed understandings of climate change before and after the course, I argue that failure to adequately act on global change is as much a crisis of the imagination as it is a problem of physical science.

The second article related to the Climate Change & Poetry course, and the final article in the dissertation, takes the mode of literary geography. In the article, “‘Healing, Belonging, Resistance and Mutual Care’: Reading Indigenous Eco-poetics and Climate Narratives,” I look to the work of five contemporary Indigenous eco-poets (Craig Santos Perez, Kathy Jetñil-Kijiner, Allison Adelle Hedge Coke, Joy Harjo, and Linda Hogan) and connect a close reading of specific poems to alternative narratives of climate change.

One of the possibilities and challenges of working on the edges of disciplines is the opportunity to write to different audiences. Each of the articles of this dissertation is geared toward a different target audience, and hence, each article takes a slightly different form. The five articles were also influenced by a number of concurrent projects that I worked on while completing the dissertation:

- *The Sonoran Desert: A Literary Field Guide*, a co-edited book that blends the genres of field guide and literary anthology (Magrane and Cokinos 2016);
- “What Will Stand: Songs from (*F*)light, a Collaborative Borderlands Song Cycle”, an article on a collaborative borderlands song cycle that was premiered by a 60-member women’s chorus, which included scores and sound files in addition to critical writing (Magrane, Burk, and Quin-Easter 2016);
- *Bycatch*, a co-produced art-science project that addresses the Gulf of California shrimp trawler fishery (Magrane and Johnson 2016).

The processes and multiple forms of output for these collaborative projects has helped to refine the ways that I think about the practice of geopoetics in this dissertation.

What do we gain by linking geography and poetics? Geography, as a social science, gives us theories and conceptual framings to think through socio-ecological relationships. It helps us to understand and critique how environmental narratives are (re)presented and what they do in the world, and how subjects are formed and reproduced in relation to those narratives and in relation to power. For me, this critical and theoretical apparatus of geography adds to the richness and depth of my poetic practice; geographic thought becomes embedded in my writing and reading of poetry.

Traditionally, theory is approached by applying a theoretical framework to an object of study, in order to better understand that object of study. While I understand the appropriateness and uses of this approach, in geopoetics I propose that we also think about the relationship between theory and objects of study as having multiple directions. Just as theory can be used to “think through research” (Pryke, Rose, and Whatmore 2003), it also can be approached as another object interacting with the matter that is all

around us and that includes us. A poem, for example, can be used to think through and with theory.

Linking geography with poetics puts our focus on the act of making and leads to multiple forms of expression and output. We can approach geography and poetics as verbs: as continually in the process of becoming. Geography, at its etymological root, is “earth writing” and poetics is “making.” Geopoetics, then, becomes a practice of re-making, re-enchanting, and re-imagining our relationship with each other, with the Earth, and with all of the creatures, bodies, and materialities with whom we share the planet.



## CONCLUSION

### **Geopoetics within the Geohumanities and Environmental Humanities**

The conceptual and practice-based frameworks of geopoetics that I outline and demonstrate in this dissertation, while centered on poetics, also have implications for the broader development of geohumanities and environmental humanities. Poetry is only one manifestation of the wealth of humanities-based practices and approaches to environmental issues. I myself go to poetry and poetics as one of the primary ways that I know how to apprehend the world. As I have argued, both geography and poetry are relational practices that can communicate and discern questions of how we organize ourselves and are organized within the world, particularly in relation to the grand environmental challenges that we face in the current moment.

Geopoetics, as I approach it in this dissertation, is also about building community. It is social practice that engenders an ongoing conversation. As an example, in August 2016, poet Brian Blanchfield invited me to be a guest host on his community radio show, “Speedway and Swan,” which mixes poetry readings and music. Both Brian and I selected poems for the show, and our choice of works led our on-air conversation to themes of geography: place, maps, borders, the pastoral, and the political. One of the poems we read and discussed was by poet and translator John Pluecker. Several months later, Pluecker (2017) wrote about listening to the show in an open letter published on his blog. “Maybe poems are signposts on a path out of the disaster all around us,” he wrote. His comment also embodies my understanding of the practice of geopoetics, as well as geohumanities and environmental humanities more broadly. Environmental

challenges like climate change are primarily social and cultural challenges; the more signposts out of the disaster, the better.

You may find that this dissertation works in a different manner than many. Rather than analyzing a single topic or object of study from all possible angles and from specific theoretical frameworks, this dissertation helps to open a field. Because geopoetics, as I outline it here, represents a new area of study within the discipline of geography, this dissertation is as much concerned with probing the many possibilities of a geopoetic approach as it is with concretizing a form or definition for geopoetics. While I do offer definitions of geopoetics in the Introduction and Appendix A of this dissertation, my goal is to refrain from prematurely closing down, freezing, or capturing a singular understanding of what geopoetics is and can be. Instead, my text deliberately leaves many openings, many possible paths for future work. It is as much a setting of the stage and a methodological exemplar as it is a final treatise.

As a reader of texts and a viewer of art, I am drawn to texts, pieces, and performances that leave room for me to move around, inspiring me to either see the world in a new way or to make something in response. I hope readers of this dissertation will do the same—that they will think differently about geography and poetry, and that they might be inspired to develop their own geohumanities practices, as a result of reading my work. While my focus in this dissertation is on poetry, I reiterate that I consider poetry—and poetics, ‘making’—in the widest sense; poetry is not limited to words on a page. The geopoetic practices and projects that I include here may be translated to many other approaches to geohumanities and creative geographies, such as

visual art, graphic novels or comics, performance, or critical-creative practices, to name just a few of the outputs emerging in the nascent geohumanities.

In developing the practice of geopoetics, I think back to the concept of the ecotone with which I opened my introduction. Imagine yourself standing on the periphery of a field, edged by brambles, forest, perhaps a stream; imagine turning back and forth between two views, one of the forest, one of the field. Or, to return to Tucson, Arizona and the Sonoran Desert, a place that is central to many of the projects described in this dissertation, imagine yourself driving up the Santa Catalina highway or hiking into the Santa Catalina Mountains that fringe the desert city of Tucson. These mountains, called sky islands, lift up from the desert floor at 2,600 feet of elevation to alpine forests at more than 9,000 feet above sea level. At a certain point, between 4,000 and 4,500 feet of elevation, the saguaro cactus—a keystone species of the Sonoran Desert—reaches the edge of its range. You can stand at this edge and look down into desert habitat, or up into what will eventually shift to forest.

mountains sing of stone and ash

the desert, then, is the sea

lift up metamorphic  
core

before  
douglas-fir

before  
a painted redstart

flitting  
time

when one ecotone slides  
into another

where ponderosa pine  
where columbine

the forest calls  
dream song

a hermit thrush in the wood (Magrane 2013)

I have largely focused on the associative realms and juxtapositions that poetry offers to the discipline of geography when it is considered within a geographic frame. Yet the spatial geography of the page, as well as poetry's musical register, its rhythm and its sounds—as discussed at length in Appendix E—likewise convey meaning: a meaning that affectively lodges itself within the body. While the traditional diction and form of scholarly work may be described as taking root in the reader's *mind*, the shift into poetry, with its white space bracketing lines of verse and its cadenced, rhythmic language, may be described as taking root within the *body*: the gut, for example, or the throat. Or, it may reach out and mirror the rhythm of the heartbeat.

When the presentation of language on the page shifts from paragraph to poem, your sudden experience of rhythm, cadence, and expansive white space (fresh air, if you will) lets you know that you are now in an ecotone. The same is true when the language shifts back from poem to prose. It is precisely that moment, “where one ecotone slides/into another,” that I believe to be an intensely productive space. Thus, this dissertation attempts to locate itself on the edge between geographic and poetic—as well as between scholarly and creative—habitats. To extend the metaphor further, those different habitats include multiple publics, which I will turn to next.

## **Publics**

One of the promises of the geohumanities and creative geographies broadly is the possibility of engaging with multiple publics. I demonstrate in this dissertation that publicly engaged research and scholarship can take multiple forms, including poetry or art installations, or a community class that blends research and pedagogy, such as the Climate Change and Poetry class discussed in Appendix D. My experience developing geopoetic practices is expressly designed to speak to multiple publics, which I will for heuristic purposes delineate into three ‘kinds’ of publics: 1) Scholarly and disciplinary publics; 2) ‘Public’ publics; and 3) Expanded (more-than-human) publics.

### *Scholarly and disciplinary publics*

When ‘the public’ is discussed in the academy, it is often taken to mean those people outside of the academy. However, multiple scholarly publics exist within the academy itself. Different disciplines, of course, have their own conventions of how research is done and how it is presented. The geohumanities and environmental humanities hold much promise for providing a space in which hybrid work can reach across and speak to multiple disciplinary publics. I wrote the articles in this dissertation with the goal of communicating to multiple scholarly audiences. For example, “Situating Geopoetics” (Appendix A), which blends geographic theory, literary theory, and poetry, is geared to both geography and humanities audiences: the intended readers of *GeoHumanities*, the journal in which it is published. Appendix B, “A Poem is its Own Animal: Poetic Encounters at the Arizona-Sonora Desert Museum” is geared to readers of literary nonfiction and place-based literature, and hence takes a different form, that of a literary essay. Published in *Ecotone*, a well-known place-based literary journal,

Appendix B reaches a different disciplinary audience and readership of creative writers and literary readers. As a third example, Appendix D, “The Poetry of Climate Change,” is directed to an audience of climate scientists and is intended to be published in a journal of climate research.

My experience has been that publishing along the ecotones within the academy challenges me to stretch myself in speaking to multiple disciplinary audiences. In the best of cases, such work can bring multiple scholarly and disciplinary publics, with their attendant disciplinary epistemologies, into conversation with one other.

### *‘Public’ publics*

When we speak of ‘the public,’ we typically mean ‘people in general.’ As I have stated above, within the context of academic discourse, ‘the public’ or ‘people in general’ largely means people outside of the academy—what I will here term ‘public’ publics. This public is a key audience of geopoetics as practiced in this dissertation. It includes, for example, the 400,000 annual visitors to the Arizona-Sonora Desert Museum who may encounter poems installed throughout the museum grounds, as described in Appendix B. It also includes the students of my open-enrollment, community-focused Climate Change and Poetry course, discussed in Appendix D. Part of the promise of the geohumanities and environmental humanities is this opening to reach audiences outside of the academy. The potential to develop work with multiple forms of output, including literary/artistic and scholarly outputs, will distinguish the public geohumanities as they move forward.

### *Expanded more-than-human publics*

The orientation that I take in this dissertation further expands the notion of ‘public’ to include non-human publics, such as scorpions walking through a poem that is inscribed on a wall in black-light paint, or an otter who plays with blocks inlaid with words, spinning the blocks to ‘make’ poems. These expanded more-than-human publics also include the built structure of Biosphere 2, a Buckminster Fuller–like dome in the foothills of the Santa Catalina Mountains, which I approach in Appendix C as a collaborator in the design of a site-based geopoetic practice. My notion of more-than-human publics also includes poems themselves, as I argue in Appendix E, “‘Healing, Belonging, Resistance, and Mutual Care’: Reading Indigenous Ecopoetics and Climate Narratives.” To borrow a phrase from Latour (1993), expanded more-than-human publics might be considered a convening of “The Parliament of Things” (142).

### *Collaborating with publics*

In addition to *speaking to* multiple publics, doing public geohumanities work entails *collaborating with* multiple publics, and bringing new publics into being (Hawkins, in Hawkins et al. 2015, 215). This is where the concept of boundary objects, which “act as anchors or bridges” (Star and Griesemer 1989, 414) between different collaborators or publics, is of great practical use.

Let me share an example. In my work as the poet in residence at the Arizona-Sonora Desert Museum, I wondered if it would be possible—and, if so, what it might look like—to co-create a poem with an otter. This question was, in part, based on theory: I had been considering whether poetry and art could be something produced by creatures other than humans. I wanted to push against the assumption that a sense of aesthetics

and creation is a uniquely human trait, something that separates humans from other beings. Early in my collaboration with the Desert Museum, in a meeting with the curator of mammalogy and ornithology, I decided to bring up the idea of a poem co-created with an otter as a possible installation on the museum grounds. I felt nervous: would she think the idea was preposterous, and dismiss it outright? However, the curator immediately expressed enthusiasm for the idea, noting that it would also serve the purpose of animal enrichment.

While my initial impulse was to think through theory, in relation to de-centering the ‘anthro’ in anthropocentrism, the idea that a poetry installation co-created with an otter could provide animal enrichment, and could be described as such within the museum’s institutional structure, positioned the installation as a boundary object. In turn, awareness of the installation’s function as animal enrichment informed the design that would eventually be placed in the otter’s habitat, a string of blocks inscribed with words that the otter could spin as she played. One insight that I gained from this interaction, as well as from other collaborations, is that it is not always necessary for collaborators to have the same precise understanding of what a collaboration entails or means in order for the collaboration to go to work in the world.

### **Challenges and Implications for Future Work**

#### *Challenges*

One of the challenges that I face within my geopoetic projects is to think carefully about how the things that I make—the texts, objects, and encounters produced—can do justice to both geographic and poetic practices. How can I make something that can stand as both poetry (and/or art or literature) and geographic



scholarship? Is it necessary that different texts or makings, for different audiences, prioritize one disciplinary approach over the other, or is there a smooth spot where geography and poetry meet? This smooth spot would be called transdisciplinarity. Dear (2015) addresses the spectrum of terms that have emerged to describe gradations of such work, positioning the different levels “from the weakest to the strongest integration” (25) in the following order: cross-disciplinary, multidisciplinary, interdisciplinary, and transdisciplinary. Dear describes transdisciplinarity as “the strongest degree of integration, which seeks a fusion of diverse disciplinary approaches and the invention of novel hybrids distinct from parent disciplines” (25).

In a sense, geopoetics itself becomes something of a boundary practice, a distinct hybrid positioned between geography and poetics. One of the risks in doing this work is that by bringing the two fields together—by collaging or assembling what I know as a geographer and what I know as a poet—into an onto-epistemological geopoetic practice, the results might not do justice to either geography or poetry. That is, the work arrived at by fusing two disciplines together might be underdeveloped and fail.

This leads to an important and ongoing question for the geohumanities broadly, particularly for those who are fusing creative and artistic practices of making with geographic practices. Doing this work means taking seriously the skillsets of artistic, creative, and literary production, as well as the skillsets of geographic scholarship. Throughout my dissertation, I have aimed to take both skillsets and approaches seriously, drawing on my prior background, practice, and training as a creative writer with a Master of Fine Arts degree in poetry, as well as my studies and research as a geographer.

Geopoetics is a kind of deforming of both geography and poetry. To break this down, it's useful to return to the question of form and content noted in my introduction. In response to Olson's ([1950] 1997) statement, quoting Creeley, that "form is never more than an extension of content" (240), poet Denise Levertov (1965) offered, in an essay on organic form, that "form is never more than a *revelation* of content" (424, emphasis in original). While Levertov's assertion alludes to a visionary and spiritual register, she considers content to be primary; it is content, for Levertov, that is connected to perception and experience. I read both of these statements by canonical 20th century poets as produced by an orientation in which form follows from content, in which there is radical possibility for the creation of new 'open' or 'organic' forms. One writes into form. In this conception of content and form, each time you compose a poem, you have the opportunity, by following its content, to re-order—or re-form, or de-form—the world.

While I have invoked Olson, Creeley, and Levertov as examples of poets thinking about form and content in relation to creating/making, historical-literary scholars have a different perspective on how form itself disciplines content. If, as White (1987) argued, "narrative... already possesses a content prior to any given actualization of it in speech or writing" (xi), then I would posit that this transdisciplinary deforming is also a political and imaginative act of resistance to an a priori disciplining and structuring of thought. Through my perspective as a geographer, I turn to the postcapitalist politics of Gibson-Graham (2006), a politics that does not take the narrative of capitalism as an a priori given, and to the potential politics of situated research orientations to geographic inquiry (Woodward, Jones, and Marston 2009) in an

immanent rather than transcendent vein. Being cautious of a priori categorical abstractions in geographic research, such as scale or capitalism, is akin to being cautious of forms that preconfigure certain modes of thought and content.

Poet Brian Teare (n.d.) has said that “the immense pressure we put upon our rhetoric and activism is both noble and insane because I’m not sure what local good can be done against widespread environmental destruction sanctioned by our most basic symbolic systems” (7). Teare’s admission may strike the reader as disheartening at first, but I believe it also speaks to the power of poetry and art, to immanent approaches, and to the idea of deformance. Poetry and poetics, as well as artistic and creative practices broadly, have the power to push against and resist our most basic symbolic systems. Perhaps they can push us through loss and disaster into new forms of relation and other, less destructive symbolic systems.

#### *Implications for future work*

This dissertation develops geopoetics as a sub-field of the geohumanities, outlining three modes of geopoetics: as creative geography, as literary geography, and as geophilosophy. As I argue in “Situating Geopoetics” (Appendix A), each of these modes has room to spare for further creativity and scholarship. Within geopoetics as creative geography, future work includes the further development of transdisciplinary geopoetic texts and practices in multiple forms, such as critical-creative scholarly pieces, works of literature, and artistic installations or objects. Within literary geographies, I believe that an increased engagement between critical geographers and contemporary poets, particularly those associated with the emerging field of eco-poetics, will help build further ground for geopoetics. The tools of critical geography—and the multiple ways of

thinking about space, place, landscape, scale, and environmental narratives within geography—hold promise for future work and conversations. That the journal *GeoHumanities* has recently begun hosting a sponsored poetry reading at the annual American Association of Geographers conference bodes well for such work. In the third mode of geophilosophy, in which geopoetics is approached as ‘earth-making,’ trajectories of more-than-human and new materialist thought, as well as feminist geophilosophy, offer important opportunities for future work.

Along with further developing each of these modes of geopoetics, I would like to note two additional future directions that geopoetic practice can contribute to the geohumanities and environmental humanities. The first is the integration of geohumanities and environmental humanities approaches with political ecology, drawing on calls within geography for arts and humanities approaches to global environmental change (Castree et al. 2014). Such an integration offers critical and creative approaches to Anthropocene and climate narratives that are attuned to political economy, power, and difference, but that do not subsume creative approaches to an a priori economic, cultural, or social ordering. In addition, taking Robbins’s (2012) metaphor of political ecology as a “hatchet and seed” (98), in which the hatchet is critique and the seed reclaims and posits alternatives, the geohumanities and environmental humanities, particularly when expressed in literary and artistic outputs, offer new varieties of seeds to political ecology as a progressive or transformative practice.

The second direction involves increased work on the publics that are produced through geohumanities and creative geographic practice, and the development of new

ways to measure the role that arts and humanities practices play in catalyzing positive change for environmental challenges. For example, my methodological work at Biosphere 2, as outlined in Appendix C, helps set the groundwork for the development of geohumanities-based collaborative event ethnographies at environmental arts events. On a pedagogical and curricular level, teaching climate change through arts and humanities approaches is also an area for future work. For example, I am currently collaborating with a Tucson high school to adapt the curriculum I developed for the Climate Change and Poetry class for a secondary school audience. A key question for the burgeoning geohumanities and environmental arts and humanities is how to measure and document the impact of such approaches. Throughout this dissertation, I take the stance that impact can be communicated through stories, and that embodied encounters matter.

Finally, in an attempt to use this conclusion as an opening, rather than a closing down or capturing, I will finish with an excerpt of my writing as published in the new book *Creativity* (Hawkins 2017). The excerpt includes images of language reflected on desert earth. I made the images by placing letters on clear acrylic, and then taking the acrylic outside to cast the shadows of the letters momentarily on the Earth. I close in this way to reinforce the idea that my dissertation is as much *a presentation of geopoetic practice* as it is *about* geopoetics.

## Writing the Desert<sup>1</sup>

*of course a poem is not human  
a poem is its own animal*

~~~

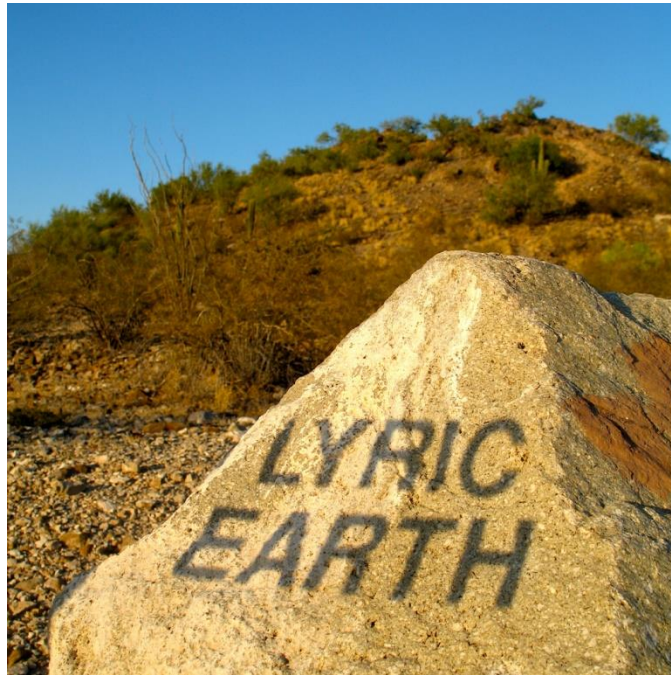


Figure 1: Lyric earth

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These poems are ephemeral. A certain assemblage of light, earth, and language. Collaboration with landscape. The site is distributed—from the rock to the language/referent to the earth to the documentary still image of the poem on this page. It is literally geography in the sense that it is earth-writing.

As geopoesis (earth-making) it is minor in scale, more immanent than transcendent. No longer there on the landscape. Momentary. It makes nothing happen but captures time and place, then lets them go, impermanent.

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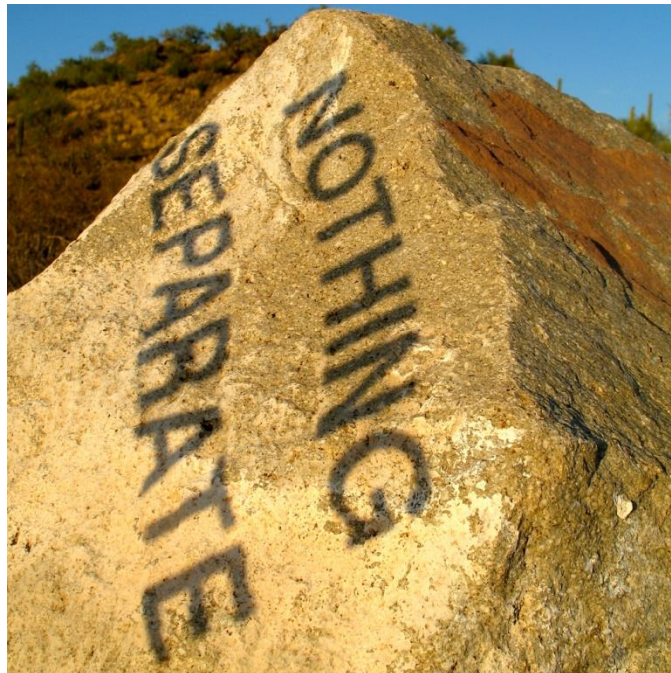
<sup>1</sup> Excerpt (slightly adapted) from “Writing the Desert” (Magrane 2017), published in *Creativity* (Hawkins 2017).

In contrast, geopoetics in a major scale is a further distance from ephemeral. Climate change and the Anthropocene are examples of geopoetics writ large. “We have literally written ourselves into the strata and atmosphere of the earth,” as I put it elsewhere, on the Anthropocene. Here in the desert southwest of the U.S., one might think of the Glen Canyon Dam as an instance of embodied geopoetics writ large.

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Symbiosis is a term for ecological relationships between species. In mutualism, both species benefit; in parasitism, one benefits and the other is harmed; in commensalism, one benefits and the other isn’t affected. Commensalism may slide over time into mutualism, which may slide over time into parasitism, which may slide over time into commensalism, and so forth. In other words, relationships are not necessarily static.

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*Figure 2: Nothing separate*

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The desert's palo verde tree has very small leaves as an adaptation to the dry climate. Bigger leaves would cause it to lose more moisture. The tradeoff is that it then has less leaf-space to photosynthesize. To compensate for that, it makes energy through its green bark: green tree photosynthesizing through green bark! Imagine if humans could do such a thing and make energy through their skin.

Thermodynamics, energy transfer, entropy, decomposition, successional pathways and regrowth... these are all aspects of geopoetics.

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In *Desert Water, Desert Light*, a poetry project in which I sandblasted short poems onto mirrors and installed them in a Tucson gallery—so that entering the gallery you walked into a poem—I wrote:

not the mind's desert  
the green desert  
after rain

out here  
distinctions blur

against blue sky  
morning moon  
desert rock  
against desert rock

Within this poem I imagine philosophy coming from the desert earth. It is naïve about the elemental qualities of water and of light. Geopoetics may be a way to do something else with subject-object. It may also be a means through which to consider appropriate technology.



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## APPENDIX A: SITUATING GEOPOETICS<sup>1</sup>

Eric Magrane

Published as

Magrane, E. 2015. Situating geopoetics. *GeoHumanities* 1 (1): 86–102.

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<sup>1</sup> Formatted for publication in *GeoHumanities*.

## ABSTRACT

The form of the ars poetica is one in which the poet makes a statement on the art of poetry. Consider this a kind of ars-geo-poetica, a groundsetting for and statement on geopoetics that intends to both situate and to break open the field. This is an invitation for geopoetic texts and practices that draw on the work of poets as well as geographers, for an enchanted, earthy, and transaesthetic approach that moves to juxtapose contemporary poetics, particularly in the realm of ecopoetics, with critical human geography. Looking to geographers, poets, literary scholars, and poems themselves, this article aims to help situate and historicize geopoetics, provide a brief inventory of the current field, and carve out sites for future work. **Key Words: creative geographies, ecopoetics, geohumanities, geopoetics, site-based poetics.**

## INTRODUCTION

*we who are artifacts*

who are the site  
of rock, of stone, of sediment  
of earth falling into earth

no such thing as history  
no such thing as culture

but there are ancestors  
grandparents and grandchildren  
and stories

ways to be in this world  
outside of our knowledge

I wrote the opening poem (Magrane 2013b, 10) at Tumamoc Hill, an ecological research site in Tucson, Arizona. Tumamoc is a place where saguaro and palo verde and creosote bush dot the hillside, lizards scurry about (Tumamoc gets its name from the O’odham word for “horned lizard”), and hundreds of people walk the hill every day. I was thinking of poetry as geographic practice and geography as poetic practice, about geology and time, rock art, spatial theory, narrative, scale, and my grandmother. This is not to say that the short poem is about any of those things. Rather, it may reflect and refract them in certain times and places; stories and poems can be considered actors in the world, adaptive organisms themselves. A poem works largely by allusion and juxtaposition, in associational or intuitive means; it acts between its lines, by what it points toward.

Taking this poem as brief groundsetting, the goal of this article is to help situate and historicize geopoetics, provide a brief inventory of the field, and carve out sites for future work. The form of the *ars poetica* is one in which the poet makes a statement on the art of poetry. Consider what follows a kind of *ars-geo-poetica*, a statement on the art

of geopoetics that intends to both situate and break open the field. After briefly historicizing geopoetics, I will sketch the contours of three particular modes of geopoetics: first, as creative geography, including discussions of geographer-poets and of poetry as a research method; second, as literary geographies of poetry; and third, as geophilosophy. The article will then consider the politics of geopoetics, in form, practice, and content. Taken together, this is an invitation for geopoetic texts and practices that draw on the work of poets as well as geographers, for an enchanted, earthy, and trans-aesthetic approach that moves to bring together contemporary poetics, particularly in the realm of ecopoetics, with critical human geography.

#### GEOPOETICS AND TRADITIONS OF GEOGRAPHY AND CREATIVITY

Sitting in front of Frederick Church's 1859 painting *Heart of the Andes* in New York's Metropolitan Museum of Art in summer 2014, I wanted to walk into the painting and take a nap under the tree leaning over the stream-carved right bank, hear the water flowing into the foreground. The scale of the painting (ten feet wide and five feet high) as well as the idealized landscape drew me in, but it was also its historical context, and particularly the influence of Alexander von Humboldt on Church, that I found inviting. Geographers have repeatedly looked to Humboldt for an aesthetic landscape tradition and as an important bridge in thinking and doing art-science (Bunkse 1981; Buttimer 2010; Dixon, Hawkins, and Straughan 2013b). Buttimer (2010) looks particularly to a "geo-poetics" that "involves poetics, aesthetics, emotion and reason in the quest for wiser ways of dwelling" (35). In the realm of aesthetics, the Kantian sublime is invoked as "an invitation to thought" (Dixon, Hawkins, and Straughan 2013b, 232), and connects

geoaesthetics to philosophical considerations of subject, object, and body, and questions of where the qualities of aesthetic experience reside. While Humboldt influenced landscape painters, he also influenced writers of the period such as Thoreau and Emerson and Whitman. My own aesthetic experience of *Heart of the Andes* included my embodied experience of viewing the actual content, as well as its context.

From Humboldt's natural history aesthetics all the way up through the current manifestation of creative geographies in the "creative (re)turn" (Hawkins 2013b), the connections between geography and creativity cut to the heart of the human imagination of how we live on and with the Earth. At its root, geography—from the Greek 'earth-writing' or 'earth-description'—speaks to both how we represent and create our place on the Earth, a calling that is at once empirical, scientific, aesthetic-creative, and political. The ongoing play between art and science in the discipline of geography—between the idiographic humanities and the nomothetic natural sciences, between the subjective and the objective—is itself the realm of geopoetics, and we find this thread woven through the fabric of geographic thought. Listen to J.K. Wright's (1947) mid-twentieth century mobilizing of the metaphor "Terrae incognitae"—lands unknown—that called for a "geosophy" that took "the study of geographical knowledge from any or all points of view" (12). Within Wright's geosophy was an "aesthetic geosophy, the study of the expression of geographical conceptions in literature and art" (15). Or, look to Lowenthal's (1961) pointing to experience and imagination as keys to geographic inquiry, bringing the human body and its sensory experiences to the forefront. This subject-based phenomenological approach carried through to the humanistic geographies of Tuan (1975) and Buttimer (1976) as picked up in the 1970s, and aspects of this



humanistic and phenomenological tradition continue through today's creative geographies, particularly in the realm of performance, nonrepresentational theory, and new materialisms.

Much like Humboldt's influence on Church, the relationship between geographer Carl Sauer and poet Charles Olson is a touchstone for geopoetics. Olson's historical morphological poetics (Ford 1973) looks to history and place, particularly that of Gloucester, Massachusetts in his iconic work *The Maximus Poems*. The literary scholar Lytle Shaw (2013) describes Olson's poetics as developing "a historiography that not only revalued canonical figures but also challenged *narrative itself* as the untranscendable frame for historical understanding, the ultimate measure of historicity" (48). This postmodern sensibility of Olson's work also comes through in his prolific prose-writing, of which his essays "Proprioception" and "Projective Verse" stand out. His idea of the kinetics of poetry, in which "the poem itself must, at all points, be a high energy-construct and, at all points, an energy-discharge" (Olson [1950] 1997, 240)<sup>1</sup> is a forerunner to conceptions of ecocriticism and ecopoetics (Magrane 2013a) and his "composition by field" did much to open up poetics to the geographical spatial resonances of the page. Sauer's writings on cultural geography and environmental history were a very important influence on Olson, though Sauer seemed to receive Olson's interest in his work with some trepidation and reluctance (Parsons 1996). Whether that reluctance may have arisen from the difficulty of approaching Olson's work or from Olson's personality, it is an instructive case study for the challenges posed to geography by creative and experimental forms. This is especially true as the discipline addresses the question of how to evaluate and note the outputs of creativity, when "it is a

risk for a geographer to maintain creative practices outside or even in tandem with the production of more standard geographical scholarship” (Marston and de Leeuw 2013, xi).

The idea of artistic endeavor as finding and expressing truth—a sort of positivist objectivism (see “New Criticism” in literary theory)—gets turned on its head through postmodernism and poststructuralism, which help open up the gates for geographers to interpret creative works not as static representations of the world but as cultural products and actors that work contextually and intertextually. Questions of representation in geography’s textual turn have approached, historicized, and critiqued landscapes—as well as landscape paintings—as texts (Cosgrove and Daniels 1988; Wilson 1991; Barnes and Duncan [1992] 2013; Daniels 1993) that both situate and reflect power; and have also bridged spatial and literary theory (Natter and Jones 1993, 1999; more recently, see Balasopoulos 2008 for postcolonial geopoetics in literary theory).

The complications of metaphor—here, one thing standing for another—are never far from questions of representation, abstraction, and the potential politics of geopoetics. A key Marxist critique of postmodernism (Harvey 1991), which itself was critiqued for its lack of nuance or acknowledgment of difference in the politics of representation (Deutsche 1991; Massey 1993), brought together economic and cultural analysis (Woodward and Jones 2008). In taking the politics of creative geographies seriously, this work, as well as cultural studies and the Frankfurt School (see Gandy 1997; Kellner 2002) helped set a geographical precedence for paying close attention to the production, circulation, and distribution of creative works (see Marston and de Leeuw 2013; Hawkins 2013a, 2013b). That does not mean, however, that creative geographers have to

subsume aesthetics and creativity to political economy, or that they must succumb to an aesthetics-ethics binary. Through juxtapositions and awareness of the politics of representation, works in geopoetics, as well as in other art forms, can make aesthetic-ethical critiques themselves, ones that may work in a catalytic expressive mode rather than a reactive analytic mode.

After we have turned all the mountains into ideas  
and all the birds into metaphor  
will there be an echo to follow back? (Magrane 2007)

We might go to Deleuze and Guattari's (1986) reading of Kafka's work and conceptualization of a "minor literature" that is a political and deterritorializing practice. Drawing on this piece, as well as on the feminist poetics of Adrienne Rich and Audre Lorde, Katz (1996) developed a "minor theory" within geography drawing on both feminist and Marxist politics that may "produce renegade cartographies of change" (487), echoed in Gibson-Graham's (2006) "weak theory." Minor and weak here, to be clear, do not mean inconsequential, but rather indicate a different register or key. Coupled with the spatial politics coming out of the textual turn in geography that problematized the reification of absolute space through metaphor (Smith and Katz 1993), the potential politics of geopoetics is also entwined with another approach to material, one where poetry can help us back to the physical world. Poetry is a "meeting-place," as Muriel Rukeyser ([1949] 1996) would remind us. To further traverse that meeting-place, I will turn next to a consideration of geopoetics as creative geography.

#### GEOPOETICS AS CREATIVE GEOGRAPHY: GEOGRAPHER-POETS AND POETRY AS RESEARCH METHOD

In 1983, D. W. Meinig wrote that "We shall not have a humanistic geography

worthy of the claim until we have some of our most talented and sensitive scholars deeply engaged in the creation of the literature of the humanities” (325). Thirty years later, we seem to be well on our way, if we take recent collections (Dear et al. 2011; Daniels et al. 2011), special journal issues, and new journals such as *GeoHumanities* as an indication. Hawkins (2011) has usefully noted two different methodological approaches to geography and art: “‘dialogues’ whereby geographers interpret and analyse art works, and ‘doings’ in which geographers become exhibition curators, collaborate with artists and even become creative practitioners in their own right” (464). This framework is also instructive for thinking through geopoetics, in which the work of geographer-poets is more akin to doings, while the work of literary geographies of poetry is more akin to dialogues. I will turn to these different modes next, beginning with the doings of current geographer-poets, to work through some of the potentialities of geopoetics as practice.

### *Geographer-Poets*

Using creative writing in geography often rests on process- and subject-based accounts of writing (DeLyser and Hawkins 2013). While acknowledging work being done within the discipline that brings personal narrative and description into what would be most associated with the creative nonfiction genre—see as an example Wylie’s (2005) piece that works by “deploying a fragmentary and narrational rather than thematic or schematic structure: the story of a single day’s walking” (235)—and while noting that literary genres are fluid, in this section I will limit my discussion to work that presents itself as poetry.

Tim Cresswell and Sarah de Leeuw are examples of geographer-poets whose

work circulates in both literary and geographic circles.<sup>2</sup> Cresswell's first collection of poetry, *Soil*, came out in 2013, and de Leeuw, who is also known for her creative nonfiction, won the 2013 Dorothy Livesay Award for British Columbia poetry for her book *Geographies of a Lover* (2012).

Cresswell's poetic work takes up themes that he also approaches in his geographic work on place and mobility (2006; 2015) and he has written on the process of becoming a poet (2013a). His collection *Soil* is centered around a serial title poem that blends an approach to soil that is geological and mythical, and in places has both contextual and formal resonances with the geologically-framed work of the poet Lorine Niedecker. For example, compare this excerpt from Niedecker's (2002) "Lake Superior":

In every part of every living thing  
is stuff that once was rock

In blood the minerals  
of the rock

with this from Cresswell's (2013b) "Soil":

boundaries  
                  between  
horizons  
are often  
    mixed up  
      merged  
churned by worms  
    and other organisms

In this instance poetry, while being in Cresswell's work largely a realm for personal subjective reflection, also comments on philosophy and theory outside of an individual, discrete, speaking subject. For example, in both the lines from Niedecker and Cresswell, we have a geological-organic relational image that reflects geographic

concepts of borders, mobility, and landscape. In other words, poetry—although done in a different key—may do some of the work of geographical theory.

de Leeuw's poetry, particularly in *Geographies of a Lover*, is sexual and earthy. She has written about it as a project firmly situated within a radical feminist politics critical of a distanced—'mindful'—approach to geographic-ecological-geologic conceptions such as that of the Anthropocene. In contextualizing her work as a poet, she notes "the remarkable and untapped potential for sustainability on Earth that might be held by the body, by bodies, by the moving and moved and even sexualized woman's body" (de Leeuw 2015). This "potential for being moved" is an important motivator in creative geographies broadly.<sup>3</sup> While the form of an academic article is a scaffold that often builds knowledge as a rational and ordered process, poetry is a form that works in a more associational or intuitive register, one that can serve to provoke a reader and reach for the gut, the stomach, the skin, as well as the mind.

borderlands between ontario and quebec the ottawa river separates  
topographic shifts from westerly flatness to the east hilled relief as  
you slip up and beneath my shirt fingers pressuring trees bowed  
and curved in semi-circles against rounded gradient you cup the  
in-between space and ribcage lines are shallow valleys of snow  
accumulation extended like worn skin stretch marked with layers  
draped over the granite incursions that are flesh brown and shot  
with purple-pink veins, your cock pushed between my breasts you  
fuck new gradient, steep contours, and the hills with de-foliaged  
tamaracks and white pines yellow cedars sumac berries puckered...  
(from "45038'09.35"N 75055'35.85"W in *Geographies of a Lover*)

Both content and form in de Leeuw's prose poems (periods only come at the end of these prose poems that sometimes span longer than a page) create a breathless movement and experience in which the bodies of the lovers get entwined with the bodies of the landscape.

Poetry can do work for geography, not just as representation of an individual subjective experience, but as enactment of the geographical, political, ethical, and theoretical concerns that poets who are also deeply engaged with the disciplinary questions of critical, cultural, and political geography bring to their creative work. As more geographer-poets work in both or on the edges of these fields, we should push for an ongoing reflexive consideration of what insights poetry has for critical geography, and likewise, of what insights critical geography can have for poetry. The situational purposes of their differing forms, while creating tension, also hold promise. What the creation of hybrid forms that blend a poetic orientation toward language, allusion and metaphor (or the space of the page as a geography itself—see Lorimer 2008) with an academic form that privileges analytic precision and structured thought might look like is also a question for the field. Is it possible to do both within one piece of geopoetics? And what would such a piece expect from its audience?

#### *Poetry as a Research Method within Geography*

Recent creative geographies “open the way not only for creative writing practices, but also for a broader creative and experimental arsenal of methods to become part of geography’s own expanded field” (Hawkins 2013b, 63). This follows on the heels of calls for qualitative methods “to push further into the felt, touched and embodied constitution of knowledge” (Crang 2003, 501). Accordingly, the use of poetry as a geographic research method opens up other approaches to geopoetics.

Geographers have researched the process of creative writing itself and how it connects with intertextuality and non-representational theory (Brace and Johns-Putra 2010), as well as the possibilities of poetry as a method for critical human geography.

Examples include poetry's use in postcolonial research (Eshun and Madge 2012) or critical urban geographies (Attoh et al. 2011), while in broader social sciences, scholars have looked to poetry as improvisational textual performance engaging the methodological and epistemological "meaning of (re)search" (MacKenzie 2008), or the writing of "research poems" in which the researcher turns qualitative research data into poems (Furman, Lietz, and Langer 2008), an ethnographic method that Aitken (2014) has also employed in children's geographies.

One of the growing concerns for creative geographies, as posed by Marston and de Leeuw (2013), is that geographers "take seriously the skill sets that may be involved in such productions" (xxi). In a direct response, Madge (2014), in a piece that incorporates her own poetry, asks, "Is poetry a creative *process* of thoughtful making, an act of expressing new and imaginative ideas and feelings that can be undertaken by anyone, or is it an aesthetic *practice* that can only be performed by those with particular skills or formal training?" (180). Madge purposefully presents a poem she includes in the article as the former.

The canonization of what counts as aesthetically valuable is often connected to "the conditions and power relations of their production and the value systems in which they are brought into being, such as an already determined discursive space of global capital" (Madge 2014, 180). When valuing the impulse of geographers to experiment with creative methods, we should be mindful that aesthetic devaluation can reflect racist and patriarchal positions of power. At the same time, geographers who employ creative geographies—and in this case the use of poetry—should push each other to undertake and aspire to produce work that expand the boundaries of both geography and poetry. It



does not have to be an either/or. This is an exciting proposition for geopoetics, as it opens up the variety of resources available. In short, geographers should go to the work of poets as well as that of critical geographers as a resource. For that, expanded work on literary geographies of poetry will be particularly useful.

## GEOPOETICS AND LITERARY GEOGRAPHIES OF POETRY

Literary geographies of poetry interpret and analyze poetry, akin to Hawkins's (2011) "dialogues." Here, we are closer to the mode of literary criticism than to creative writing, though current work in cultural and creative geographies engages openings for a creative-critical blend (Ward 2014).

New literary geographies explore reader response as spatial practice (Hones 2011, 247) and the spatialities of the text itself (Saunders 2010). While Saunders goes to poeticism and spatial poetics in "reforging the connections" of literary geographies to call for close-reading of texts, it is largely in the context of fiction, where the poetics may be most akin to a sense of prosody and structural form. In their introduction to a special issue of *The Geographical Review* on Geography and Creativity, Marston and de Leeuw (2013) provide a brief survey of literary geography in the 1970s, 1980s, and 1990s, and point to different modes of this work, including "tracing the geographical imagination of the author," "how consistently a fictional geography represents an actual one," or "how a regional sense of place" is represented in the work (ix). In addition, an online resource (<http://literarygeographies.wordpress.com/>) provides an important service to the sub-discipline of literary geographies by offering bibliographies on a variety of literary geographies. Taking these into account, rather than duplicating a

review of literary geography, I would like to point to some openings for literary geographies of poetry, particularly focusing on contemporary North American poets associated with the field of ecopoetry or ecopoetics (see also Magrane 2013b).

Ecopoetics has been described as “a poetics full of systemic analysis and critique that questions the divisions between nature and culture while also acknowledging that humans use up too much of the world” (Spahr 2003, 29); and “an ecopoem becomes a tool for altering the reader’s perceptions from the anthropocentric to the biocentric” (Scigaj 1999, 81).<sup>4</sup> Ecopoetics draws on ecocriticism, which “as an activist philosophy, has one of its primary agendas the reduction of dualistic thinking that has separated the human being from the natural world in Western discourse and practice” (Dreese 2002, 4). In their preface to *The Ecopoetry Anthology* (2013), Ann Fisher-Wirth and Laura-Gray Street proffer three groupings of ecopoetry: a nature poetry shaped by Romanticism and American transcendentalism; an environmental activist poetry that takes into account environmental destruction; and an ecological poetry that “engages questions of form most directly, not only poetic form but also a form historically taken for granted—that of the singular, coherent self” (xxix).

The tools that the textual turn in geography, the geographic imagination, and the depth of thinking on place, political economy, and environment within the discipline of geography can offer to a creative-critical ecopoetics (Skinner 2001) is certainly a place for more work. Research in literary geography that delves into the work of ecopoets could and should open up a cornucopia of poetic texts through which to approach important geographic questions. As a provisional starting list of some contemporary poets, those engaging literary geography of poetry would do well to look to the work of

Sherwin Bitsui, Jonathan Skinner, Brenda Iijima, Camille Dungy, Alison Hawthorne Deming, Linda Hogan, Arthur Sze, Craig Santos Perez, Stephen Collis, Linda Russo, Wendy Burk, Lisa Robertson, Hugo García Manríquez, Marcella Durand, M. NourbeSe Philip,<sup>5</sup> Harriet Tarlo, C.S. Giscombe, Alec Finlay, and CA Conrad, to name just a few.

In the realm of the environment and geopoetics, another relevant area is how contemporary poetry reflects and/or disrupts narratives of climate change, work that is yet to be done within geography (though see Trexler and Johns-Putra 2011, or Strauss 2015 for climate change fiction) but that appears in the environmental humanities (see Moore and Slovic 2014). For example, Kathy Jetñil-Kijiner (2014) composed her poem “Dear Matafele Peinem” to address narratives of climate change in her homeland, the Marshall Islands. Dedicated to Jetñil-Kijiner’s daughter, “Dear Matafele Peinem” was performed by the author at the 2014 UN Climate Summit:

no greedy whale of a company sharking through political seas  
no backwater bullying of businesses with broken morals  
no blindfolded bureaucracies gonna push  
this mother ocean over  
the edge

Geographers are well-positioned to explore the political work that pieces such as Jetñil-Kijiner’s poem and performance do for climate justice.

Moving from approaching poems as texts, I will next outline a third mode of geopoetics—as geophilosophy.

## GEOPOETICS AS GEOPHILOSOPHY

Whether approaching geopoetics through the work of geographer-poets, as a research method incorporating poetry, or through literary geographies of poetry, an object recognizable as a “poem”—one made of words, and most often presented

formally on a page with line breaks—is generally present. Geopoetics as geophilosophy, on the other hand, does not necessarily imply that a thing directly understandable as a “poem” is its object or outcome. “What we’re concerned with is a new world-sensation,” writes the poet Kenneth White (1992), with a geo-cosmological sensibility. Put alternately, geopoetics (earth-making) employs the widest conception of a poem, where climate change and the Anthropocene themselves—embodied in the form of a massive dam, for example—are “geopoetics writ large” and where “geopoetics is a means to consider appropriate technology” (Magrane forthcoming).

Drawing on Heideggerian poetics, White (1992) phrases this aspect of geopoetics: “What we are trying to delineate is a field of presence and activity which has poietic characteristics,<sup>6</sup> but which has little in common with what is habitually known as ‘poetry’ (172). Examples within geography of this approach to geopoetics include a “quest for wiser ways of dwelling” (Buttimer 2010, 35), as well as Clark’s (2011) or Yusoff’s (2013) speculative geophilosophy, work with deep ethical implications about human and more-than-human subjectivities, agencies, and technologies. Here, perhaps, is geopoetics as an “un-disciplined” geography, one “liberated from established ontologies, familiar epistemologies, and predetermined methods” (Springer 2015, 23)—in short, geopoetics as a practice of radical experimentation in making new worlds. We might look back to Lowenthal’s (1961) observation that “If we could not imagine the impossible, both private and public worlds would be the poorer” (249). Or we might look, as Springer (2015) does, to 19<sup>th</sup> century anarchist geographer Elisée Reclus. “Humanity is nature becoming self-conscious,” proclaimed Reclus (Clark and Martin 2013, vi), and one of the questions for geopoetics as geophilosophy is what to do with

that self-consciousness within a socio-nature that is understood as much wider than human.

In assemblage geographies that “rethink the ontological status of the social” (Robbins and Marks 2010, 177), the realms of the social and the political are expanded to include the more-than-human, impelling social scientists to take the ‘stuff’ of politics seriously (Braun and Whatmore 2010). Bruno Latour (2014), whose social theory along with that of Deleuze and Guattari has been an instigator of much of this work, writes, “Far from trying to ‘reconcile’ or ‘combine’ nature and society, the task, the crucial political task, is on the contrary to distribute agency as far and in as differentiated a way as possible” (15), something that has also been taken up in thinking object-oriented poetics “in which a poem is not simply a representation, but rather a nonhuman agent” (Morton 2012, 216).

The ramifications of this more-than-human (Whatmore 2006) turn for the creative geographies includes—within the dialogues side—an analytical focus that looks to the agency of other-than-human entities in the doings of art and creative practice. Within the doings side, creative geography and geopoetics become receptive to the philosophical-creative possibilities of collaborative processes with others-than-humans.

Just as we may expand the sense of agency in the realm of the social or political, we may also do so in the realm of the aesthetic.<sup>7</sup> Dixon, Hawkins, and Straughan (2013a) apply a conception of a posthuman, post-Kantian aesthetics to the artist Perdida Phillips’s work with bowerbirds and thrombolites. Their question, “where is the artistry?,” extends the Kantian question of where the aesthetic experience is situated (a subject-object question) to one that situates artistry not just within the human subject,

but also within the subject of bowerbirds and thrombolites, more-than-humans with which and through which Phillips works. The concept of more-than-human may be used widely, encompassing both living organisms and machines. Another example of how the more-than-human might be taken up in creative geographies in the realm of dialogues is in a study of art-science collaboration that examines how a technical object (a computer) performs or has agency in a geovisualization collaboration between artists and atmospheric scientists, and plays a role in the forming of subjectivities (Woodward et al. 2015).

Looking to artists themselves, Ingram (2013) uses an interview with the eco-artists Helen and Newton Harrison to do a close reading of their work as a more-than-human practice, an example of how geography can look outside of the field for insights into geopoetics. The site-based work and writings of artist Robert Smithson are themselves a form of geopoetics that address earth-making, representation, and sites. In “A Provisional Theory of Non-Sites,” Smithson (1996) writes: “To understand this language of sites is to appreciate the metaphor between the syntactical construct and the complex of ideas, letting the former function as a three dimensional picture which doesn’t look like a picture” (364; see also Yusoff and Gabrys 2006 for an example of geo-aesthetic criticism that engage Smithson’s speculative projects). It is the concept of site that I will briefly turn to next, as it has resonance in art theory (Kwon 2004; Rendell 2010), literary theory (Shaw 2013), and spatial theory (Woodward, Jones, and Marston 2009), and is highly relevant to geopoetics.

As of yet, a thorough methodological exploration that brings together the orientations of site ontology with methodologies of creative geographies has not been

attempted (though see Scott 2011; Hawkins 2013a, 2013b). In site ontology, “research is experimentation, an ongoing process whose results are never a matter of stable states, but rather commentaries on relationality, affects and conditions of dynamic relation” (Woodward, Jones, and Marston 2009, 276). A methodology that brings together the immanent spatial theory of site ontology, the insights of site-based arts practices, and a geopoetics that understands poetics as “social documents that express relationships” in which the poetic process “recalibrates the social—how we function dynamically in space, in time, with each other” (Iijima 2010, 276) can offer advances for geohumanities. This points us toward a focus on emergence and encounter (Haraway 2008), a situational focus in which site-based arts practices and encounters (Hawkins 2013a) have much to offer.

Geopoetics can have specific insights for practicing the orientations of site ontology.<sup>8</sup> To elaborate, I’ll briefly speak to my practice as a poet: For me, the impulse for a poem often comes from an image, a phrase, or an encounter rather than from a question or an idea. I think it’s safe to say that this is true for many poets and artists, although of course there is no one way that a poem or piece of artwork arrives. Each piece might also be considered an immanent site itself, sometimes more object, sometimes more process or event. A creative practice that first approaches the site with a close attention to images, phrases, and encounters can aid a researcher in an orientation that suspends both transcendent categories and pre-conceived ideas of the final form that a piece of creative geography may take. “With regard to research, studying a site is about openness and encounter” (Woodward, Jones, and Marston 2009, 276). If that is the case, a research agenda may not even begin with a question in the traditional social

science sense, but with an immersion in a site that first pays close attention to the materialities and encounters of the site, and then intervenes in the site through a geopoetic form that is immanent to the site itself, one that is designed to enact, perform, comment upon, critique, and, perhaps even to recalibrate, the site itself.

The topic of recalibration brings us to a consideration of the potential politics of geopoetics, which I will turn to in the next section.

### GEOPOETICS: POLITICS OF FORM, POLITICS OF PRACTICE, POLITICS OF CONTENT

Recent work in creative geographies calls for those engaged in the field to pay attention to “questions concerning politics and power” (Marston and de Leeuw 2013, xi). Cameron (2012), echoing this call, asks, “what is at stake when geographers aim not only to explain, describe, and analyze the worlds they live in, but also to move, to affect, and to create as storytellers? Does such an approach represent a depoliticized dabbling in creative writing, or a genuinely radical transformation of geographic understandings of the political?” (589).

Geopoetics may work in the mode of narrative, but it may just as often work in a lyrical or experimental mode. Adding to Cameron’s “to move, to affect,” geographers often look at their work as enactment and performance. “We want to work on presenting the world, not on representing it, or explaining it,” write Dewsbury et al. (2002, 438), mobilizing non-representational theory and performance. One of the key questions of politics, then, becomes a question of content: what world is presented?

Before circling back to this question of the politics of content, I would like to say something else about the politics of form. In the (re)turn to creative geographies (and



geopoetics in particular), presenting poetry within geographic scholarship can instigate discussions of the presentation of research and knowledge, and can compel critical geographers to re-think how they read texts. As an example, in an introduction to presenting a poem and song within the journal *ACME* (Attoh et al. 2011), Attoh writes: “buried in our field notes and in the texts we hold so dear, we may also find the trace of a melody, the palpitations of a rhythm, or the beginnings of a tune. We need only to listen” (280). The presentation of Attoh’s creative piece takes up six pages, while an editor’s preface and two commentaries that bookend the piece take a total of eight pages. This juxtaposition of creative work with this important contextualizing commentary of equal or greater length implies that training geographers to do/write creative texts should also include training geographers in how to approach/read such texts.

Geographers can produce work for audiences within the discipline, but they can also produce work that reaches audiences outside of the discipline. This is one of the strengths and promises of the field. “We could better answer critiques against humanistic approaches in the discipline if we produced more books with a purchase outside the academy,” writes Wilson (2013), in a commentary on two recent texts on geography and the humanities (Dear et al. 2011; Daniels et al. 2011). Kitchin (2013) describes how writing for different audiences “can be used to create new public geographies that seek and enact progressive change” (156). The ramifications for creative geographies and geopoetics, as having the possibility of reaching broader or different audiences, should be clear.

On the other hand, it is precisely the possibility of a broader audience that should serve to remind geographers to pay close attention to the political economy within which

their work circulates and to have a critical stance toward media and modes of circulation, and their possible role in producing certain—read, Fascist or Capitalistic—subjectivities and hegemonic narratives. In thinking through the politics of geopoetics, one must therefore step back and address Adorno’s ([1967] 1981) oft-referenced statement on the barbarism of poetry. Taking Adorno’s full quote,<sup>9</sup> as well as his writing on lyric and poetry in his “Lecture on Poetry in Society,” we would do better to read this statement not as a critique of poetry per se, but rather as a critique of reification, “self-satisfied contemplation,” and ideology. Put another way, borrowing Damon and Livingston’s (2009) insightful reading of Walter Benjamin, it’s about the difference between the politicization of aesthetics and the aestheticization of politics.

We would do well to look to poets as well as geographers, and remember that “poetry is not a luxury,” as Audre Lorde ([1984] 2007) emphatically made clear thirty years ago. Speaking specifically from a radical black feminist position, she wrote:

It is a vital necessity of our existence. It forms the quality of the light within which we predicate our hopes and dreams toward survival and change, first made into language, then into idea, then into more tangible action. Poetry is the way we help give name to the nameless so it can be thought. The farthest horizons of our hopes and fears are cobbled by our poems, carved from the rock experiences of our daily lives. (36)

Geopoetics and the geohumanities should not be a luxury either.

## CONCLUSION

Each of these modes of geopoetics—as creative geography; literary geographies of poetry; and as geophilosophy—has room to spare and much more work to be done. By briefly outlying them here, I hope to have cultivated a few future directions. These modes overlap, of course, and this is only one way to set the field. In juxtaposing

geographic thought with poetic texts, remembering that neither of them are static entities is key, and each field will be the more vibrant for this. The conceptual and formal blending that geopoetics can unfold, will, I believe, offer myriad sites for future work in the geohumanities.

Those sites exist both on and off the page. Geopoetics can help us to make meaning of the world, while at the same time resisting explanatory models that themselves preconfigure what we see. A poem can be distilled language, it can be energy transfer, and it can perform. A poem can tend toward stillness or toward multiple understandings. A poem can be a collaborator or an act of resistance. We can look to our poems to help illuminate our scholarship and we can look to our scholarship to help approach our poems.

The poem that opens this article is in part a comment on the reification of history and culture, abstractions that can distract from the material efficacy of stories, the politicalities of sites, and grounded embodied experiences of the world. Poetry can lead one back to the physical world, away from abstraction, into the “mystical, moist, night air,” to borrow a line from Walt Whitman ([1892] 1983). This, ultimately, is the calling of geopoetics, work that might help us think past questions of subjectivity-objectivity, art-science, nomothetic-ideographic, and imagine and enact other ways of inhabiting the world.

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## NOTES

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<sup>1</sup> Poetry and poetics as energy transfer (Rueckert [1978] 1996) or as compost (Rasula 2002) echo Olson's kinetics.

<sup>2</sup> The number of poets who address geographical themes is quite large and well past the scope of this article. Here, I'm focusing specifically on individuals who situate themselves both as geographers and poets. Other geographer-poets currently or recently engaging both fields include Maleea Acker, Amy Cutler, Eric Magrane, and Diane Ward. This article focuses primarily—though not completely—on North American poets writing in English.

<sup>3</sup> In a piece that draws on Roland Barthes' work, Dewsbury (2013), reflecting geographic trends of affect and performance, echoes this: "for me, writing in the humanities and social sciences, part of this adventure is about reassembling social and political life through theory and a performative emphasis on the micro forces of the body" (151).

<sup>4</sup> For a reading of Thoreau's biocentric geopoetics, see Luria 2011.

<sup>5</sup> For an example of a literary geographic treatment of Philip's work, see McKittrick 2000.

<sup>6</sup> White draws on Reiner Schürmann's reading of Heidegger to distinguish the "poietic nature of thought" from poetry.

<sup>7</sup> I here separate the worlds of the aesthetic, the social, and the political only as a heuristic to situate creativity and artistry in the more-than-human as well. The aesthetic is, of course, social and political itself.

<sup>8</sup> For one example of site-based geopoetics, see "Biosphere 2, Poetry, and the Anthropocene" (Magrane 2014). A further elaboration of the methodological underpinnings of this project, which brings together site ontology with geopoetics to interrogate narratives of the Anthropocene, is currently in preparation.

<sup>9</sup> Directly following the famous line ("To write poetry after Auschwitz is barbaric.") is: "And this corrodes even the knowledge of why it has become impossible to write poetry today. Absolute reification, which presupposed intellectual progress as one of its elements, is now preparing to absorb the mind entirely. Critical intelligence cannot be equal to this challenge as long as it confines itself to self-satisfied contemplation." On poetic thought, Adorno also writes, in "Lecture on Poetry in Society" (1974): "The idiosyncrasy of poetic thought, opposing the overpowering force of material things, is a form of reaction against the reification of the world, against the rule of the wares of commerce over people which has been spreading since the beginning of the modern era—which, since the Industrial Revolution, has established itself as the ruling force in life."

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APPENDIX B: A POEM IS ITS OWN ANIMAL: POETIC ENCOUNTERS AT THE  
ARIZONA-SONORA DESERT MUSEUM<sup>1</sup>

Eric Magrane

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## ABSTRACT

This literary essay reflects on poetry installations at the Arizona-Sonora Desert Museum, a bioregional zoo, botanical garden, and natural history museum that receives 400,000 visitors a year, where I am the inaugural poet in residence. Through description of some of the various forms of installations—including a poem composted out of water policy documents and installed in a window, poems inside of masks, and a poem painted in black-light paint to interact with scorpions—the essay reflects on how creative interpretations at natural history sites can communicate environmental issues in effective and innovative forms.

A POEM IS ITS OWN ANIMAL: POETIC ENCOUNTERS AT THE  
ARIZONA-SONORA DESERT MUSEUM

On summer nights when the Arizona-Sonora Desert Museum is open, people bring black lights to shine on the stone walls, in search of scorpions. The animals glow under ultraviolet light. Human visitors are rarely disappointed in their quest—and yes, it’s probably better for them to see scorpions here than in a closet at home. Thinking about these encounters got me to wondering—are there poems that would glow in black light?

As the Desert Museum’s poet in residence, I had the chance to find out. I asked Alberto Álvaro Ríos if he had any scorpion poems, and he e-mailed me a couple of his one-line *greguerías*:

Scorpions are lobsters sent west by the witness protection program.

The scorpion carries on its back the question mark of its existence.

As soon as I saw these poems, I imagined them fluorescing, a scorpion walking through the words “carries on its,” perhaps pausing to rest in the “q” of “question mark of its existence.” That line works in a number of ways; it resonates with the shape of the scorpion and also with its life history. Young scorpions spend their first couple weeks of life riding on their mother’s back, until their exoskeleton comes in.

We painted the line in black-light paint on the stone wall. You couldn’t see it during the day—just at night under ultraviolet light. Placed within the resonances of the site, within the landscape of the Desert Museum, the poem would be a surprise to the humans who visited, a kind of hidden message.

On the first night after the scorpion poem was installed, I stood back and watched as people discovered it. A scorpion rested directly underneath the word “scorpion.” Another left its crevice, scurried through “the” and entered another gap between the stones. A young boy followed the words with his black light, reading them out loud as they appeared. He turned to an adult, who asked him what he thought it meant. The boy thought for a moment and then said, “Oh, I get it! I learned about that—it’s about how scorpions put their babies on their backs.”

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“All art is empathy,” writes Alison Hawthorne Deming in *Zoologies*. And she asks, “Do you remember a time when you saw an animal and it made you startle into wonder? That moment of consciousness is where art and science and religion were born, that moment of snapping awake.” I want to think about poems in the widest sense—as stored energy and energy transfer. As instigators of moments of snapping awake. The boundaries of a poem extend well past the page, well past what we even understand as language.

The events that led me to thinking about poetry as habitat for scorpions circle back to something I heard poet Sandra Alcosser say at a reading at the University of Arizona Poetry Center in 2009. Describing her work as poet-in-residence at New York City’s Central Park Zoo, in which she curated poems to be placed within the zoo, she joked at one point that she thought about turning the poems around so that the animals could benefit from them. Three years later, when I began my work at the Desert Museum, Sandra’s comment kept running through my mind. What would it look like to present poetry for all the creatures who would inhabit or visit the space, not just for the humans?



Brenda Iijima writes of poetry as a process that “recalibrates the social—how we function dynamically in space, in time, with each other—communally, communicational.” Poetry also can help us to think of the social in the widest—human and nonhuman—sense. While the scorpion poem wasn’t literally turned around for the scorpion to read, it became a part of its habitat.

Woven Words, our project at the Desert Museum, is a collaboration with the University of Arizona Poetry Center and is modeled in part on The Language of Conservation, a Poets House program that, building off of Alcosser’s work at Central Park Zoo, placed poets in residence with five other zoos across the country. That project demonstrated poetry’s effect in reaching visitors. A report reflecting on The Language of Conservation observed: “While research shows that most zoo visitors remember few facts from educational signs, a study conducted in the Central Park Zoo discovered that nearly half of visitors could cite specific poems they had read.”

The first phase of installations at the Desert Museum includes selections from a dozen poems—the majority of which have strong and specific resonances to the Sonoran Desert, including poems written after visits to the Poetry Center and the Desert Museum over the years. Lines from Lucille Clifton’s “sonoran desert poem,” which she wrote after a visit to Tucson, are painted on a wall adjacent to an overlook. She dedicated the poem to longtime Poetry Center director Lois Shelton and her spouse, poet and emeritus University of Arizona Regents’ Professor Dick Shelton. An excerpt from Seamus Heaney’s poem “The Otter,” written after a visit to the Desert Museum, is also included, as is work by Linda Hogan and Ofelia Zepeda, among others.

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On the wall of my home in Tucson, I have a collage that I made when I was young—silhouettes of three saguaros in the foreground and one in the distance. A round sun sits in the upper left. The shapes are cutouts of dark but now slightly faded construction paper, pasted onto light background paper that has very faint tinges of pinkish sky. I can't remember if I made the sky's color on purpose or if it is an effect of thirty-some years of gluestick reaction.

I also can't remember making the collage, though I wrote my name on it in what looks like elementary-school handwriting. Perhaps I made it before I ever set foot in the desert. I grew up in the east, my early years in Connecticut, my teenage years in Maine. The American West held a mystique for me. I first came through the Sonoran Desert on a cross-country trip in a station wagon with my family one summer when I was seven or eight, just a couple of years before my parents divorced. Picture one of the Chevy Chase *Vacation* movies, a little something like that. Our car didn't have air conditioning, and I remember getting a fever after we drove through Tucson and the desert. Maybe the collage was from just after that trip.

After that, I always wanted to get back. And I eventually did, in 1999, for my first round of grad school. Since then, I've tried to leave once or twice, including a stretch when my partner and I lived in Mexico. When we came back to the states, however, Tucson was as far as we could get. We dug in to this place, into this community. For close to ten years, my day job was as a hiking guide and naturalist in the Sonoran Desert and the surrounding sky islands—those mountain ranges that lift off the desert floor, rising from about twenty-six hundred feet in Tucson to over nine thousand feet on top.

“Landscape is neither something seen, nor a way of seeing, but rather the materialities and sensibilities *with which* we see,” writes cultural geographer and landscape theorist John Wylie. It is something we practice, a kind of performance where the distinctions between subject and object or nature and culture fall away.

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“Museum” is a bit of a misnomer for the Desert Museum, which, as well as being a natural-history museum, is a bioregional zoo and botanical garden with a focus on the desert’s inhabitants. The lushest desert in the world, the Sonoran Desert extends across the current geopolitical border between Arizona, in the United States, and Sonora, in Mexico. The museum has fostered relationships between naturalists and researchers on both sides of the border, as well as with people of indigenous nations of the desert, including the Tohono O’odham and the Comcaac, or Seri.

One of the reasons for the great biodiversity in the Sonoran Desert is its two rainy seasons. Still, depending upon where you’re measuring, the average is somewhere around ten inches a year. With ongoing climate change, increased drought and less-predictable weather patterns are projected in the southwest, and water in the region is, to say the least, a big issue. As part of the broader Colorado River basin, Arizona is one of seven western states that receive an allotment from the Colorado, which historically flowed to the ocean in the Gulf of California. Aldo Leopold, who explored the Colorado River Delta in 1922, wrote of “a hundred green lagoons” and a “wealth of fowl and fish.” He wouldn’t recognize it today.

The 1922 Colorado River Compact divided up the waters of the Colorado for human use, and is still the primary policy agreement governing water use in the region.

The allotments in the compact were based on acre-feet amounts of water that are unlikely to exist in our shifting climate (or in the historical record, it turns out, as tree-ring dating has demonstrated). Due to a series of dams, agriculture, industry, and the growing population's thirst for water, the Colorado River has not regularly flowed all the way to its natural outlet in the Gulf for close to fifty years. That is, not until recently, when an agreement between the United States and Mexico, Minute 319, allowed for occasional "pulse flows" to begin to restore the Delta.

When the Desert Museum asked me for a poem to go along with a riparian mural in their Cottonwood Café, I thought about these pulse flows. I read the 1922 agreement and Minute 319 closely to see if I could find any poetry in the texts. I looked for flourishes of language, phrases I could employ in a collaged cut-up poem.

"Minute 319 represents a further agreement by the United States and Mexico to work towards addressing these considerations by implementing several of these options and activities..." No, not quite poetry.

"The term 'Colorado River System' means that portion of the Colorado River and its tributaries within the United States of America." Hmm.

Ultimately I chose four phrases, two from each document: "tributaries within," "present and future," "of new water," and "pulse flow." Each is now the first line of a short poem etched into a window at the café, one of which follows.

tributaries within  
our thoughts  
are a river's memory  
of a bird

just alight from a branch  
on its banks

The stiff officialese of policy is difficult to turn into poetry on the page—but policy can have poetic effects on landscapes. This is the hope Minute 319 brings for the Colorado River Delta. The poems are created to serve as lyric intermediaries in this unfolding story.

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The hummingbird aviary at the Desert Museum is a favorite spot for visitors. Over a dozen hummingbird species spend time in the Sonoran Desert, and the aviary currently includes four of these, including Anna's, Costa's, broad-billed, and broad-tailed.

People are drawn to the birds' brilliant flashes of color and to their amazing energy. A hummingbird's heart rate can beat up to twelve hundred to fourteen hundred beats per minute. All of this zest takes sustenance. They often eat up to four to eight times their body weight in liquid every day—with a good serving of flies and insects on top. Their body weight is a mere 4 grams or so.

In 1992, the Desert Museum renovated and expanded its hummingbird aviary. After the birds were reintroduced to the space, they had trouble making nests. "The nests were loose and quite fragile, and even experienced nesters were having difficulty," writes Karen Krebs in *A Natural History of the Sonoran Desert*. "We scratched our heads for days trying to figure out the problem before we finally concluded that a primary component of hummingbird nests was missing—spider webs! Hummingbirds use spider webbing as a way to bind and tie their nests together." Krebs and others at the museum

gathered spiders and webs to reintroduce to the aviary, and once they did so the nests improved right away. I read this story very shortly after moving to Tucson, and often recounted it while leading bird walks in my guiding days. It was such a good one to express the idea of ecological relationship and connection.

The Japanese poet Issa, whose work I was first introduced to in versions and translations of his haiku by Robert Hass and Sam Hamill, has many poems about spiders and insects. One of my favorites is the following version from Hass:

Don't worry, spiders,  
I keep house  
casually.

When I began the project at the Desert Museum, I thought about how this poem—as stored energy through time and space—interacted so well with the story of the hummingbird renovation. How many ways to read that “house!”

The poem now greets visitors from above the doors of the aviary, in conjunction with a large photograph of a hummingbird nest by artist Cita Scott. The poem—in its landscape just outside—serves as an intermediary between the story of the renovation, the ecological idea of interrelation, the visitors to the Desert Museum, and the docents and staff who help interpret the hummingbirds and the resonances of the site.

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In “Tawny Grammar,” an essay from *The Practice of the Wild*, Gary Snyder writes, “The dialogue to open next would be among all beings, toward a rhetoric of ecological relationship.” I see this dialogue in his poem “The Canyon Wren,” which Snyder wrote on a trip down California’s Stanislaus River, as he wrote, “to see its face

once more before it goes under the rising waters of the New Mellones Dam.” In the poem, which rides the page like a river, the song of the canyon wren mixes with quoted lines from Su Shih and Dōgen. The poem concludes:

These songs that are here and gone,  
Here and gone,  
To purify our ears.

The purifying songs are multiple—those of the canyon wren, of Su Shih and Dōgen, of Snyder, of the river.

For me they also lift out of the circumstances of the poem and into my own story. In 2008, when my Uncle Dennis died suddenly at age 59, I spoke at his funeral. Dennis was a house painter and carpenter, a Vietnam vet, and a storyteller. We were close. After my parents’ divorce, a couple years after that cross-country trip that first brought me through Tucson, my mom, my brother and I drove from Cheshire, Connecticut, to Bridgton, Maine, and moved in with Dennis and my mom’s sister Sue. We lived with them in the 1800s farmhouse they were restoring until my mom could make enough money for us to rent our own place. As I thought about what I would say at the memorial, the last three lines of Snyder’s “Canyon Wren” kept surfacing in my mind, and I quoted the lines in my eulogy for Dennis.

It strikes me that of the more than four hundred thousand visitors to the Desert Museum every year, many of them likely experience poems primarily during momentous events like this, ones that remind us of change and impermanence. Births. Deaths. The museum has a small amphitheater that overlooks the dry drainage of King Canyon, with three benches set in concrete. The last three lines of Snyder’s “Canyon Wren” are now

sandblasted there, melting into the curved texture of the concrete, songs stored across time and space.

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One of my favorite plants in the Sonoran Desert is the limberbush. Most of the year it looks nondescript—thin, flexible branches whirling up out of ground, usually three or four feet high. After summer monsoons it briefly bursts with heart-shaped leaves.

Rebecca Seiferle wrote a poem for the limberbush as a contribution to *The Sonoran Desert: A Literary Field Guide*, a book I edited with Christopher Cokinos, released this year, that blends the genres of bioregional literary anthology and field guide.

Rebecca’s poem begins “I must have passed by a hundred times and not noticed / these spindly twigs, drought and cold deciduous, / among the desert’s scraggle...” The poem notes a few things the speaker knows about the limberbush, but then reflects: “...Knowledge / is not the encounter with the thing itself.” The speaker goes searching for a limberbush, “for its white to pale yellow blooms, to see / *knowingly* this one small life, / like all the nondescript small creatures, / including human beings...” The poem ends:

... how radiant  
is the ordinary, overlooked, the *never-seen*  
*when branches that seem dead or stricken*  
*leaf and flower in the rain.*

At the museum, we installed these lines etched into a clear polycarbonate sign, placed unobtrusively between two limberbush plants on the side of a path. Those who



encounter the lines and know the limberbush will likely connect the two, and those who don't might think of the poem in relation to other plants, such as the ocotillo. The juxtaposition also reminds me of the close attention and observation that connect poetry and natural history.

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Joy Harjo's poem "humans aren't the only makers of poetry" begins: "The young banana tree is making poetry; I see how it translates the wind. / The need to make songs is inherent in all life." This idea—that humans are not poetry's only makers—is one I wanted to explore at the Desert Museum. Working with Shawnee Riplog-Peterson, curator of Mammalogy and Ornithology, and Pete Oftedahl, curator of exhibits, we talked about how we might co-create a poem with the river otter who lives at the Desert Museum—or at the very least, how a poem could also enrich an animal's environment. River otters, generally solitary, were likely once common in Arizona's high-country rivers, and were reintroduced to some of those areas in the 1980s.

Humans have often claimed a sense of aesthetics as one of the qualities that conceptually separates ourselves from nonhumans. But is aesthetics only in the human realm? Artist Perdita Phillips has done work with Australian bowerbirds, who collect, arrange, and rearrange objects in their nests. In a project that explored behavioral ecology through creative practice, she offered gifts of objects to the birds and observed which they aesthetically preferred. In considering these relations, I look to posthuman theorist Donna Haraway's concept of encounter value as a way to think through the spaces between one species and another. Focusing on that encounter itself may be a means to

think outside of the “anthropological machine,” to borrow philosopher Giorgio Agamben’s phrase.

In thinking through the poem that would double as enrichment for the otter, I imagined something like refrigerator magnet poetry, but a variety in which the otter, who is famous for playfulness, could move the words around. We decided on a series of blocks that would spin on a line, fixed into her enclosure, viewable by humans in a window that looks into her habitat from an underwater perspective. On each of the blocks is carved a series of words in both English and Spanish that align in different combinations when the otter interacts with the blocks. My partner, poet and translator Wendy Burk, helped me come up with the words during a hike in the desert. The first block generally includes a series of verbs, the second prepositions, and the third, nouns. When combined they make such phrases as TURN UNDER SKY or SWIM AFTER LIGHT.

I especially like the prepositions, so often reflecting spatial relationship—our most geographic parts of speech.

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In Alberto Álvaro Ríos’s poem “Why Animals Stay Away,” the speaker of the poem attempts to talk to an owl. But the speaker is not able to draw the owl in: “I called back to the owl / using its human name, / but it did not come.” The poem ends:

I tried to speak  
its language, but I  
could not. The distance  
in between us

was a third animal.

Ever since I first met this poem, as an undergraduate student at Goddard College in Vermont in the 1990s, that last line has stuck with me. Over the years, I've thought of that third animal as many things—as quiet or silence or stillness or as a common language lost. Or as space and distance itself, not empty, abstract, a container, as space is often thought of, but as a living organism. This is something like Wylie's idea of landscape as that with which you see, as embodiment, as more-than-representational.

And this brings me back around to poetry as energy transfer and stored energy. In another installation, I collaborated with mask maker Beckie Kravetz, who made a great horned owl mask. Inside it is inscribed the ending of Ríos's "Why Animals Stay Away": "The distance / in between us / was a third animal." The mask is on a stand so that visitors can place their faces in it, and as they do, they encounter these lines. Across from it is another mask that Kravetz made—this one of a ringtail, Arizona's state mammal. When a visitor looks out of the great horned owl mask, they might see human eyes peering back at them through the ringtail mask. Inscribed in the ringtail mask are lines I wrote: "of course a poem is not human / a poem is its own animal."

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Close to a century ago, Aldo Leopold wrote, "The land ethic simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land." In the second decade of the twenty-first century, in the face of human-caused climate change and runaway extinction rates, Leopold's words continue to resonate. How can something like the land ethic be built into a world increasingly overrun by the commodification of nature? And how can the world be imagined as a social assemblage

that resists forms of power that reproduce environmental and social injustices, whether through racism, xenophobia, or a continued “mastering” of nature? Stephen Collis has proposed a poetic manifesto of the “biotariat,” which he provisionally defines as “the enclosed and exploited life of this planet.”

Zoos, of course, enclose. “Everywhere animals disappear. In zoos they constitute the living monument to their own disappearance,” writes John Berger in *Why Look at Animals?* Yet zoos, at their best, also reveal and serve as landscapes of encounter, where other orders can be imagined. An excerpt from Linda Hogan’s poem “Map,” which we’re installing at the Desert Museum, reads:

There are names each thing has for itself,  
and beneath us the other order already moves.  
It is burning.  
It is dreaming.  
It is waking up.

By placing poetry within the Desert Museum, we hope to surprise visitors and, occasionally, stop them in their tracks, snap them awake. When I conceive of a poem as its own animal, I think of the multiple ways each of the poems at the Desert Museum has spoken to me. Visitors will encounter the stored energy of the poems in their own unique fashions—in ways that I can’t even imagine. The installation of poems at the Desert Museum is an unfolding collaboration with landscape, and with the other inhabitants of that landscape.

APPENDIX C: THE WAVE MACHINE CHURNS: GEOPOLITICS, SITE  
ONTOLOGY, AND THE ANTHROPOCENE AT BIOSPHERE 2<sup>1</sup>

Eric Magrane

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<sup>1</sup> Formatted for submission to *Environment and Planning D: Society and Space*.

## **Abstract**

Geographers increasingly turn to experimental and creative research methods to investigate and (re)present geographical concerns. Works in the geohumanities and cultural geography produce creative output aimed both for geographers and for audiences outside of geography, including readers/viewers in the environmental humanities and other disciplines, as well as broader publics outside of the academy. While this creative (re)turn has opened up spaces for experiments with forms other than the traditional academic essay to engage and express geographic concerns, methodological work on *how to do* creative geography informed by geographic theory is still under-developed. To address this gap, in this article I argue that bringing a site-based arts practice together with the methodological orientations of a site ontology offers a rich area for methodological invention. I propose a *site-based geopoetics* as an experimental critical-creative practice that intervenes in sites through research that is designed to generate literary and artistic works. To illustrate this approach, I narrate the design of an art-science experiment at Biosphere 2 (B2), a science research and outreach facility that I argue is an embodiment of many of the dreams and anxieties of the Anthropocene. In the Poetic Field Research Performance Piece (PFRPP), I installed poets in the biomes of B2 to generate poetic responses to the site. Part 1 outlines my methodological approach to sites. Part 2 situates B2 and the Anthropocene. Part 3 narrates my individual relationship to B2 and design of the PFRPP. Excerpts of poems produced by the poets on site at B2 are woven throughout the article.

**Keywords**

experimental methodologies, Biosphere 2, Anthropocene, site ontology, geopoetics, empiricism, creative geographies, art-science, site-based geopoetics

## Introduction

All this time, we've been glubbing  
dinosaur blood,  
comet water, noctilucent clouds,  
the entire Western Interior Seaway  
suggestive vapors to calibrate  
now and again, to ship from knowing  
magnificent struts, elegant pour from  
all stomata, fetched  
and fashioned inside our beauty factory.

— Christopher Cokinos (2014)  
from “White Paper: Echo & Slope”

The opening poem excerpt was written during the Poetic Field Research Performance Piece (PFRPP) at Biosphere 2 (B2) in February 2014. In B2's first incarnation twenty-some years earlier, eight people lived in a closed system under glass for two years. This event has been described as “the human experiment” (Poynter, 2006) and as a forerunner of reality television. B2's current life as a site of big science, a controlled environment in which to do large-scale landscape evolution studies and climate systems modeling—as well as a tourist attraction, one of Time Life's 50 Must See Wonders of the World—embodies many of the dreams and anxieties of the Anthropocene. B2 houses multiple biomes, including a tropical rainforest, ocean, mangrove wetlands, savanna grassland, and fog desert, as well as a human habitat. Underneath, two acres of pipes known as the ‘technosphere’ are a metaphor for the Earth's ecosystem services, the Earth's processes that provide benefits to humans.

I designed the PFRPP at B2 as an experiment in which I brought poets to meet with researchers, and then installed the poets in biomes and in B2's underground ‘lung’ to write poems. Wendy Burk, Christopher Cokinos, Alison Hawthorne Deming, Joshua Marie Wilkinson, Arianne Zwartjes, and I were the participating poets. Environmental



journalist Michelle Nijhuis also joined the PFRPP for part of the weekend; she wrote about her experience (Nijhuis, 2014) in her blog, “The Last Word on Nothing.” An opening column and poetry from the PFRPP were featured in *Terrain.org: A Journal of the Built and Natural Environments*, reaching an audience in environmental humanities communities (see Magrane, 2014a).

In this article, I further address the methodology of the project. By thinking through and with the site of B2, I argue that bringing a site-based arts practice together with the methodological orientations of a site ontology offers a rich area for

methodological invention in geography. Building on

calls for “a broader creative and experimental arsenal of methods to become part of geography’s own expanded field,” (Hawkins, 2013: 63)

I propose a *site-based geopoetics*, one that

intervenes in a site through

creative research that is designed to generate literary and artistic works.

Throughout the article, I mix in excerpts from the poems written as part of the PFRPP. At times I contextualize or explicate these excerpts; at other times I allow them to speak for themselves, both with and against the text of the article. In a nod to performative, non-representational, and posthuman thinking, I do not solely read the site



Figure 3: Human habitat at Biosphere 2

of B2 through the lens of the geophilosophical considerations of the Anthropocene. Nor do I look to the poems written in the project as solely representational of B2. Rather, I approach this article as a performative site itself, one in which the different sections work something like diffraction, like the echoing whirl and squeal of the wave machine in the B2 ocean.<sup>2</sup>

This is a different kind of geography: one that works as much through allusion, glances, echoes, cognitive leaps, and openings for interpretive abundance as it does through explanation. Take, for instance, the wave machine. Barad (2007: 94) builds her onto-epistemological agential realism in part through an account of the physics of wave diffraction patterns, toward an understanding of diffraction “both as a material-discursive practice and as a critical practice.” While my reference to the wave machine in the title of my article echoes this theoretical understanding, it also references the periodic screeching and squealing sounds of the wave machine in the B2 ocean as it produces waves under a glass dome. Both of these allusions are accurate, and they do not close down any other allusions and interpretations that the reader may entertain.

## **Part 1: Working with sites**

Science is a muscle waiting for small alterations,  
not big—

— Wendy Burk (2014)  
from “Biosphere 2: James D’Elia’s Duet”

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<sup>2</sup> Barad (2007: 30) writes “diffraction does not fix what is the object and what is the subject in advance, and so, unlike methods of reading one text or set of ideas against another where one set serves as a fixed frame of reference, diffraction involves reading insights through one another in ways that help illuminate differences as they emerge...” Of particular relevance in a site-based geopoetics is that the subject and object are not fixed.

I take a broad approach to the term ‘site’ in this article, drawing on the use of the term in spatial theory, as well as in literary and art criticism. The sites of this article are multiple: they include the physical site of B2, the sites of the poems produced during the PFRPP, and the multiple narrative sites of the Anthropocene. [See Table 1] Things are always unfolding and re-configuring, and this article is a momentary snapshot of that dynamism. Building on discussion of these sites in Part 2, the article turns to a narration of the development of the PFRPP in Part 3. It further develops and builds the modes of geopoetics in which a “creative practice that first approaches the site with a close attention to images, phrases, and encounters can aid a researcher in an orientation that suspends both transcendent categories and preconceived ideas of the final form that a piece of creative geography might take” (Magrane, 2015: 95).

| <b>Table 1: Sites, descriptions, and approaches to geopoetics at Biosphere 2</b> |   |  |
|--|---|--|
| <i>Site</i>  | <i>Description</i>  | <i>Approach</i>  |
| Biosphere 2 (B2)   | Physical site: science research and outreach facility outside of Tucson, Arizona, with a storied history.   | I outline the broad contours of B2’s history and narrative, as well as some aspects of its current life. The site of B2 was the physical location for the PFRPP. In designing the project, I approached the site of B2 as a collaborator itself.   |
| Poems from the Poetic Field Research Performance Piece (PFRPP)                   | A series of poems written on site at B2 by the six poets who took part in the project. These were first published in a feature on the project in <i>Terrain.org: A Journal of the Built + Natural Environment</i> . A number of the poems have since been included by the individual poets in other publications. | Excerpts from poems written during the PFRPP are included throughout this text. At times they are contextualized; at other times, they are presented without analysis, juxtaposed both with and against the arguments of this article. I invite readers to bring their own interpretations to the poems. |
| Anthropocene   | Proposed geologic epoch in which humans have written ourselves into the strata and atmosphere of the Earth.   | Here I approach the Anthropocene concept primarily <i>as a narrative</i> . I argue that B2 embodies many of the dreams and anxieties of the Anthropocene. This article is a means to geopoetically interrogate the Anthropocene concept, both explicitly and implicitly.                                 |

Woodward et al. (2009) outlined orientations toward sites as a methodological component of a flat ontology, highlighting difference and material specificity over

categorical generalization. While they articulate these orientations in relation to geographical-social research, the orientations they propose lend themselves very well to poetics and creative geography—to a site-based geopoetics. Sites can be approached “as collectivities of bodies or things, orders and events, and doings and sayings” (Woodward et al., 2009: 274). “Rather than being something that gets ‘put to work’ in empirical research... the site ontology ‘goes to work’, seeking out the situated articulation of grounded specificities,” they continue, arguing that “research is experimentation, an ongoing process whose results are never a matter of stable states, but rather commentaries on relationality, affects and conditions of dynamic relation” (Woodward et al., 2009: 276). It is this conception of a site—based in immanence and an articulation of a poststructuralist ontology inflected with new materialist thought and practice—that ‘went to work’ in the PFRPP at B2.

Geopoetics can be a form of empirical practice, in which concepts are presented directly through the bodies of poetry. As such, this site-based geopoetics also draws from Bennett’s (2009) understanding of the “naïve ambition of vital materialism,” in which there is a “postponement of a genealogical critique of objects” (17). Bennett (2009: 17) writes that “Vital materialists will thus try to linger in those moments during which they find themselves fascinated by objects, taking them as clues to the material vitality that they share with them.” Her understanding of vital materialism draws directly from Deleuze’s (1995) embrace of a “naïve work” which puts forth “raw concepts” in contrast to “mediation.” Deleuze (1995: 88–89) wrote, “I’ve never renounced a kind of empiricism, which sets out to present concepts directly.” Furthermore, the kind of lingering in “moments... fascinated by objects” described by Bennett is akin to the

methodological practice that led to the development of the PFRPP, in which *the capacity of B2 itself—in its objects, performances, assemblages, and materialities—allowed for an approach in which the site itself could be approached as a collaborator.*

The methodological possibilities of paying close attention to encounter within and across sites, pointed to by Haraway's (2008) conception of encounter value, is also relevant to a site-based geopoetics. Encounter value can be considered a kind of feminist, more-than-human, or queer corrective to a Jumbo Marxism. Encounter itself, however, can be approached as a methodological practice in creative geography and the geohumanities somewhat akin to Bennet's "lingering." Indeed, geographers have looked to the concept of encounter in geographical aesthetics (Hawkins and Straughan, 2015) and in experimental geographies (Last, 2012). Experimental methodologies and practices in the geohumanities that draw on landscape writing practices and artistic production (Bauch, 2015), archives (Sachs Olsen, 2016), and the enactment of "undisciplined" geography in contemporary art (Scott, 2011) all share an affinity, I would argue, with practices of encounter as generative.

One may also look to poets and artists to understand a different framing of materialist practices in situated encounters. While Bennett's "postponement of a genealogical critique" focuses on the effects of the categorization that pre-configures what a scientist looks at, in literary theory and criticism Lytle Shaw (2013: 9) reminds us that poets and artists also examine "genres and discourses themselves as sites." Art critic Miwon Kwon (2002: 29) argues that "the site textualizes spaces and spatializes discourses."

Examples within geography where situational concerns have been taken up include Lefebvrian-inspired examinations of art and everyday life through art movements such as Dadaism or Situationism (Bonnett, 1992), urban public art (Loftus, 2012), or the site-specific work of Robert Smithson (Yusoff and Gabrys, 2006). Cresswell (2015) employs Kwon's work to examine site-specific art in relation to place as a concept in humanistic geography. Kwon (2002: 29) wrote of the site as "structured (inter)textually rather than spatially, and its model is not a map but an itinerary, a fragmentary sequence of events and actions through spaces, that is, a nomadic narrative whose path is articulated by the passage of the artist." I would add—in extending this intertextual notion of site—that the path is also articulated by the passage of the reader through the sections of this article.

## **Part 2: Biosphere 2; its embodiment of the dreams and anxieties of the Anthropocene**

### *The site of Biosphere 2*

"What confused people all the more was that B2's magic—and possibly its Achilles' heel—was that it was not conceived as any single thing, making it impossible to pigeonhole. It was a scientific project, a tool for furthering our knowledge of ecosystems and systems ecology. It was an artistic expression in its extraordinary architecture. It was business enterprise, meant to make money from spin-off technologies and later, tourism. It was an educational tool to inspire people of all ages. And it was an engineering project, developing a prototype for long-duration, self-sustaining space bases. If you ask twenty people who were part of the project what the aim of it was, you would receive close to twenty different responses." (Poynter, 2006: 102–103)

...This is the experimental  
world  
under glass, space frame  
white as starlight

— Alison Hawthorne Deming (2014)  
from “Morning in the Lung”

B2 has consistently inhabited the edge between art and science, helping to reveal how the site blurred (not always comfortably) the edges between both physical and social science and art. B2 has already had multiple lives, from its first incarnation, which is alternately understood as a systems science experiment and/or an experiment to study the possibilities for space colonization, to its management by multiple universities, including Columbia University and, currently, The University of Arizona. Numerous books detail aspects of B2’s narrative. Two examples include Poynter’s (2006) account from the perspective of a Biospherian, a term for those who participated in the early experiments, and Reider’s (2009) account from the perspective of a former Columbia University student at B2. Reider’s work, in particular, situates the B2 project within the context of the history of science, as well as theater. The impetus for the imagining and design of B2, for example, came out of readings and interpretations of early 20<sup>th</sup>-century Russian geochemist Vladimir Vernadsky<sup>3</sup>, ecological symbiosis theorist Lynn Margulis, and Gaia hypothesis proposer James Lovelock (Reider, 2009: 119–121).

The initial B2 mission, in which eight people lived in a closed system under glass for two years, resulted in two factions emerging within the group. Conflict over the direction of the project arose over multiple issues, including the problem of decreasing

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<sup>3</sup> Vernadsky’s (1945: 9) noösphere predated the concept of the Anthropocene: “The noösphere is a new geological phenomenon on our planet. In it for the first time man becomes a *large-scale geological force*. He can and must rebuild the province of his life by his work and thought, rebuild it radically in comparison with the past. Wider and wider creative possibilities open before him.”

oxygen levels within B2 and how to manage those levels. One group argued for more self-control in decision-making for the Biospherians living inside the dome, while the other group argued for fidelity to the directives issued by the outside control center. Stress on the project and its perceived legitimacy also arose from the Biospherians' and the outside project managers' responses to external critiques of the project's scientific validity.

The intricacies of the above conflict are described in more detail by multiple accounts, including those of Poynter (2006) and Reider (2009), and are past the scope of this paper. What's important here is that the difficulties encountered in the original B2 mission could be read as a social crisis as much as a physical crisis. "If you ask twenty people who were part of the project what the aim of it was, you would receive close to twenty different responses," wrote Poynter (2006: 103), one of the original Biospherians. The multiple narratives of B2 are akin to the multiple narratives of the Anthropocene.

B2's scientific significance stands in large part on the site's viability for closed-systems experimental research. Published research related to the original B2 mission includes work such as the effect of calorie restrictions on the Biospherian diet in the first mission (Walford et al., 1992, 2002) and oxygen loss (Severinghaus, 1994). Research from Columbia University's tenure at B2 includes a perspective on biodiversity loss within B2 in relation to ecosystem services (Cohen and Tilman, 1996). The example of B2 has also been used in environmental arguments on the value of ecosystem services (Hawken, 1997) and the issue of population growth (Avisé, 1994). More recent research includes an interdisciplinary critical zone experiment in the form of the Landscape Evolution Observatory (LEO), a set of three hillslopes in the former agriculture biome



(Huxman et al., 2009; Niu et al., 2014) constructed for studying water, carbon, and energy cycles. These are just a few examples of the science coming out of B2.<sup>4</sup> Like all sites, B2 is not one thing, and it is continually evolving—it is a site “where science lives,” to quote one of B2’s bylines.

Rather than offering any definitive “reading” of B2’s history or current state, my point is that B2’s history, particularly its history of blending art and science, makes it a rich site through which to examine and engage Anthropocene narratives.

### *B2 as an embodiment of the dreams and anxieties of the Anthropocene*

Here, the chambering of hope. Here, glass-domed urgency,  
Buckminster-Fuller-visions, a world spiraling beyond itself, a  
grandiose, Quixotic dream.

— Arianne Zwartjes (2014)  
from “So much light, this silence”

Perhaps the most curious thing about the concept of the Anthropocene is that it at once centers and de-centers the human. The term itself, from the Greek *anthrōpos*—human being—puts the human front and center in geologic time. Stepping into the breadth of a few billion years, however, has the peculiar impact of also minimizing the human; humans are placed within deep time, the time of the Earth and of the Cosmos. In an age when humans are faced with environmental crisis through runaway climate change, biodiversity loss, and the reaching or pushing past other “planetary boundaries” or thresholds that indicate a “safe operating space for humanity” (Rockström et al., 2009), the idea of the Anthropocene simultaneously focuses attention on the relationship between humans and the environment and highlights the threat of human extinction as a

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<sup>4</sup> A list of “B2-UA Research Papers 2007–2014” shared with me by Kevin Bonine, B2’s Director of Education and Public Outreach, includes 93 citations.

reality. As sociologist Bronislaw Szerszynski (2010: 16) put it: “the very notion of the Anthropocene contains an element of indecision: is this the epoch of the apotheosis, or of the erasure, of the human as the master and end of nature?”

Now what gives you your  
voice to trouble each passage  
with whose methods would  
you carry on without our  
knowing, with what slow creature?

— Joshua Marie Wilkinson (2014)  
from “Six Lung Tanka”

Proposed and forwarded by a group of earth systems scientists (Crutzen, 2002), the idea of the Anthropocene reflects the fact of human impact in changing the face of the Earth and signals a need for “planetary stewardship” (Steffen et al., 2011), particularly in light of climate change. While not yet an official geological epoch,<sup>5</sup> the idea of the Anthropocene has also reached outside of the physical sciences. It is increasingly taken up by the environmental humanities as a concept that encapsulates many of the dreams and anxieties of the early twenty-first century, one that does nothing less than force us to reimagine the relationship between humans and the environment. The idea of the Anthropocene has a long lineage in human-environment geography before the advent of the term “Anthropocene.” For instance, in Western traditions we could trace this idea back to George Perkins Marsh and Alexander Von Humboldt. Vernadsky’s concept of

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<sup>5</sup> See the 2016 Subcommittee on Quaternary Stratigraphy page for the Working Group on the Anthropocene at: <http://quaternary.stratigraphy.org/workinggroups/anthropocene/>. In this article, I am primarily interested in the concept of the Anthropocene as it has been taken up by geographers and humanists as a narrative, rather than the process of whether or not to formalize it as an official geological unit.

the noösphere—one that the Biospherians drew upon in conceptualizing the site—is also very similar to the Anthropocene.<sup>6</sup>

The totalizing aspect of using the word “human” in the Anthropocene—glossing over difference—is particularly problematic, as many social scientists and critical scholars have pointed out. It is not all humans who have brought us to this geologic moment, which might be better approached as the outgrowth of certain socio-economic assemblages and arrangements of power. Growing critiques of the Anthropocene from social and environmental justice perspectives, feminist and postcolonial critiques of the Anthropocene as the “Manthropocene” or the “Northropocene” (see Raworth, 2014), and political economy critiques of the Anthropocene that proffer an alternative “Capitalocene” (see Moore, 2017) have helped to problematize the term. In response, Haraway (2015: 260) has offered a “Chthulucene” that “entangles myriad temporalities and spatialities and myriad intra-active entities-in assemblages.”

In short, the ongoing unfolding of the Anthropocene narrative—and how scholars, writers, and artists engage with that narrative—is as much in play as is the attempt to find a golden spike marking the ‘beginning’ of the Anthropocene. To borrow from Lorimer (2016), we might consider this the *Anthropo-scene*. Castree (2014: 436) has argued that geographers “should be participants in, rather than mere observers of, the unfolding discussion.” The term has also arrived in congruence with a new materialist turn in the social sciences and humanities that places renewed interest on the efficacy of non- or more-than-human bodies, processes, and assemblages in shaping human arrangements with matter. Clark (2011: xiv), for example, in the introduction to a work of more-than-

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<sup>6</sup> See Sattler 2014 for further discussion of this connection in relation to the performative architecture of B2.

human geography, addressed his Anthropocene project cosmologically: it is “about coming to terms with a planet that constantly rumbles, folds, cracks, erupts, irrupts... It explores some of the issues that arise out of the condition of being sensuous, sociable beings in a universe that nourishes and supports us, but is forever capable of withdrawing this sustaining presence. And it begins to ask how better we might live – with other things and with each other – in the context of a deep, elemental underpinning that is at once a source of profound insecurity.”

How to participate in the unfolding narrative of the Anthropocene? At the conclusion of her contribution to a *Progress in Human Geography* forum on the Anthropocene, Yusoff (Johnson et al., 2014: 455), wrote: “Step one: jump into the crack! This is an Earth revolution!”

So let’s jump into the crack of B2 and go underground, into the technosphere, where a series of pipes and handlers move the water and air that support the biomes above.



Figure 4: Path through the technosphere to the lung

Walking through the technosphere, one eventually ends up in the lung, a large rubber diaphragm that was designed to help B2 breathe when it was a closed system. The diaphragm would move up and down, thereby adjusting air pressure so that the glass frame of B2 wouldn't burst. Although B2 is no longer a closed system and the lung is not active, it is one of the sites within B2 that captures the metaphorical imagination of visitors in its evocation of a technological breathing apparatus. During the PFRPP, Alison Hawthorne Deming wrote a poem in the lung that concludes:

Link by link this  
organ  
becomes organism  
no artifice  
hidden: the technosphere  
a complexity  
underpinning and overriding  
the random.  
Clack clack. . .  
the diaphragm  
rises link by link  
the building  
listens to itself  
breathe.

— Alison Hawthorne Deming (2014)  
from “Morning in the Lung”

Indeed, B2 seems to have a cyborg sentience, particularly in the technosphere, where it “listens to itself/ breathe,” as in the end of Deming’s poem. The blurring of human and machine echoes Haraway’s (1991) feminist cyborg, as well as science fiction: Kim Stanley Robinson’s (2015) *Aurora*, for example, includes conversations between a spaceship’s engineer and the ship itself, in which the engineer prods the ship to narrative-making and even to sentience. Robinson’s ship design, including biomes replicating those

of the Earth, is strikingly similar to B2. In fact, in an interview with PFRPP poet Christopher Cokinos (2016), Robinson references visiting B2 to research the book.

While B2 can be approached with a kind of sci-fi techno-optimism, it can also be approached as an argument for the limitations of technology, and the need to re-focus critique on socio-techno-ecological assemblages. These two competing narratives of the Anthropocene have recently been articulated by—on the one side—techno-optimists such as the “ecomodernists” who argue for “a good Anthropocene” (Asafu-Adjaye et al., 2015) in which human development and environmental impacts are decoupled; and—on the other side—critiques of this formulation as dangerously doubling down on an outdated modernism, or an “amnesia” that leads to “pursuit of a kind of Enlightenment human on steroids—wanting to achieve that final, pure transcendence of messy, pesky nature... propelling the same old patterns into the future” (Collard et al., 2015: 230).

Try to find the silence inside this glass dome, beneath the rhythmic roar of the wave machine, the birdcall-like squeak that precedes it each time, the sound of the breeze. Up close it conjures a heavy-breathing monster, crouched beneath the metal pipes.

— Arianne Zwartjes (2014)  
from “So much light, this silence”

Geographers have recently approached the Anthropocene through projects that address sound (Kanngieser, 2015) or geopoetics and geopolitics (Last, 2015). As Yusoff (2013: 792) put it, in a piece of speculative writing that approaches the concept of the Anthropocene through the lens of the mineral, asking primary questions about human-mineral orientations: “It is not a case of ‘our’ responsibility *for* the Earth, but our responsibility to forms of collaboration within geologic life. This is as much about the reception of new forms of subjectivity and geo-ontologies of the Earth as it is about creation of new energy forms.”

As the PFRPP was a project designed to interact with and intervene in the multiple narratives embodied at the site of B2, it took a similar geopoetic approach to the Anthropocene: one that is attuned to sites, collaboration, and alternative forms of subjectivity. To illustrate that approach, in Part 3, this article turns to a writing mode akin to the auto-ethnographic field narrative.<sup>7</sup> The goal is to concretely share some of the key moments and encounters that led to the design and articulation of the PFRPP, and offer a specific grounded example of how to do site-based geopoetics.

### **Part 3: Narrative of poetic field research at B2**

My opportunity to do research at B2 came about through my enrollment in a cultural geography seminar with Sallie Marston and J. P. Jones at the University of Arizona, which they were teaching in conjunction with their collaborative NSF- and AHRC- funded study “Art/Science Collaborations, Bodies, and Environments.”<sup>8</sup> Marston invited me to do an independent study with her and to research the artist-in-residence program at B2, which helped give me access to the site.

I interviewed artists in residence at B2, including the photographers Judy Natal, Deborah Ford, and Dana Fritz. (Fritz’s and Ford’s work is included in *Curating the*

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<sup>7</sup> As artists and writers increasingly turn to the discipline of geography (Marston and de Leeuw, 2013, Hawkins et al., 2015), auto-ethnography and related autobiographical writing allows a researcher to bring his/her/their own subjectivity into the work—in anecdotes, vignettes, and writings on direct experience. Human geography has recently seen a flourishing of this approach to writing (see for example Butz and Besio, 2009; DeLyser and Hawkins, 2013; WS Shaw, 2013). In choosing to use personal narrative in particular to outline a critical-creative methodological practice and to describe fieldwork, I also look to examples such as Katz (2013), who uses a first-person narrative and a “comic book journal” to share personal reflections and field notes that are not often part of the formal narrative of research, and to Pratt (2000) who revisits a participatory research project and situates writing and research as reflexive performances. Both of these trouble what can be thought of as evidence in research; here, in particular, I hope that my narrative of the design of the PFRPP may be helpful for others doing this kind of research. As with any narrative, the one that I outline is only partial, built from selective details. In addition, writing in a narrative subject-based mode does not necessarily lead to a reification of the idea of the liberal humanist subject. The subject is always in the process of being formed and re-formed, performed.

<sup>8</sup> See <http://artscience.arizona.edu/>.

*Cosmos*, an online exhibit produced concurrent with the 2013 American Association of Geographers annual conference in sessions of the same name organized by one of the Co-Principal Investigators on the Art/Science project, Deborah Dixon; see Straughan et al., 2013.) I spent a week at B2, staying in one of the casitas used for the artist-in-residence program, interviewing various researchers, interpretive specialists, and administrators at the site. I also approached the site creatively, taking notes for poems and dreaming up creative projects that could be done there.

I had known about B2 for some time: I remember reading an article about the Biospherians in *Newsweek* magazine when I was a high school student in Maine in the 1990s. Even then, as a teenager interested in the environment, I was struck by the weirdness and singularity of B2. When I later moved to Tucson, I went on a number of public tours of the site, taking visiting relatives to the space-age Buckminster Fuller-like dome in the desert.

When I began my own art-science research at B2, one of the established scientific research projects at the site was a mesocosm experiment, commonly called the “Blue Barrel Experiment,” which involved growing of mesquite trees and grasses within blue barrels and measuring their stomatal conductance and photosynthesis in relation to temperature, water, and environmental conditions under the dome. The Blue Barrel project also involved the use of a minirhizotron, a camera that takes underground pictures of rhizomes, documenting the roots’ responses to environmental conditions. These mesocosm experiments are smaller versions of B2’s current flagship experiment, the Landscape Evolution Observatory (LEO), three constructed hillslopes that scientists use to quantify and model the effects of climate change on water, carbon, and energy cycles.



the cognitive leap one must make standing  
beneath slopes wired for knowing the future

if we stop the rain, turn up the heat, or prescribe  
a deluge, stripping out the wind accounting

for intricacies, taking  
the measure where science is

a work of metaphor and where data  
come in many forms

— Eric Magrane (2014b)  
from “Six Short Movements Regarding Control”

The blue barrel experiments are set on platforms within the biomes, in easily accessible locations where tour groups continually pass by. As I stood on the mesocosm platforms with the research technicians, it struck me that they had the dual role of *doing science* and *performing science* for the public tours that came by. Often, the research technicians would turn from their data collection to explain the project to tour groups. This interaction contained multiple resonances: the performance of science (as embodied by the research technicians and their relationship with research technology); the evolving narrative of B2 (many of the visitors, expecting to learn about the original B2 experiment, were surprised to hear about current science at the site); the humanization and gendering of science (both of the researchers in this interaction were female, upending gendered stereotypes of scientists as male, and wore casual clothes that differed from the stereotype of lab coats and specialized garb); and the communication of climate change and its effects on landscapes (instigated by the technicians’ description of the research itself). To me, the way that the interaction between researchers and the public seemed to refract so many of the intricacies of the B2 site held something very rich as an encounter. This moment became the image or encounter that instigated my creation of the PFRPP.

Later, as I was looking down at the B2 beach from the walkway above, the idea for the PFRPP began to gel. What would happen if I referenced the form of the interaction I had witnessed between researchers and public visitors by placing artists—in this case, poets—within B2 to practice the process of writing poetry?<sup>9</sup> I imagined a poet sitting on the beach writing, which would riff off of a traditional idea of the poet or artist going to nature for inspiration: the beauty of the waves, the beach, and the ocean. But in this case, the waves, the beach, and the ocean would be under glass. The whole thing would be a bit incongruous and surreal<sup>10</sup>—what is really happening here?—like a set of nesting dolls, smaller ones fitting into larger ones, or, to bring in a metaphor from site ontology (Woodward et al., 2009: 276), like a game of pick-up sticks. This image of the poet on the beach under glass became the hinge for the design of the project.

a little surrealist poem might include  
a desk on a beach under glass  
and a poet writing something about  
humans as the confounding variable

but about wouldn't be the right word  
taking the wave machine into account

— Eric Magrane (2014b)  
from “Six Short Movements Regarding Control”

As an experiential methodology, in a sense the project rested on the shifting of one variable. Through close attention to the site, and the doings and sayings occurring in the performance of science, I shifted something slightly about the interactions already happening at B2: poets were situated in place of research technicians, performing the act

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<sup>9</sup> This idea was then worked through in informal discussion with others, including Franklin Lane and Matthew Adamson at B2, and poet Wendy Burk.

<sup>10</sup> In the midst of the PFRPP, when poets were installed at multiple locations in B2, I had a chance to stand looking down at one of the poets sitting on the beach writing. A visitor standing with me described it as being “like a scene from a Fellini film.”

of making poetry rather than the act of doing science. This image, rather than a question, became the center of the research design, which would engage with the narratives embodied at the site and be productive of creative outputs in the forms of poems.



*Figure 5: Magrane writing on the B2 beach  
(credit: Kevin Bonine)*

I designed the PFRPP<sup>11</sup> to include inviting a group of poets to participate; arranging a tour of B2 for the poets on the Friday of their arrival; holding meetings between poets and B2 researchers over meals on Friday and Saturday; and scheduling a series of writing shifts, in which poets were ‘installed’ to write at six different locations

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<sup>11</sup> I’m grateful for support for this project from the Institute of the Environment’s Carson Scholars Program, the Biosphere 2 Institute, the University of Arizona Poetry Center, and the University of Arizona Green Fund.

within B2 throughout Saturday and Sunday. Those locations included the beach; the floor beneath one of the constructed hillslopes of LEO; the human habitat, which entailed sitting at a writing desk behind glass in an apartment from the original B2 mission that is preserved as a museum-like exhibit; the rainforest; the desert; and the lung. There were enough 60- to 90-minute shifts for each poet to complete one shift in each location, and then return to a location of their choice on Sunday.

Body in the body of the Biosphere,  
as every visitor hands an invisible body into the airlock,  
the sun-swept biome where outside most enters in  
and inside most resembles outside, lie  
and truth of our experimental lives.

— Wendy Burk (2014)  
from “B2: James D’Elia’s Duet”

Leading up to the weekend, I visited with the interpretive staff at B2 and described the project so that they wouldn’t be surprised by the poets, and could incorporate them into their tours if they chose to do so. Two geographer colleagues of mine, Sarah Kelly Richards and Laurel Bellante, also joined some of the tours, observing and making field notes on any interactions between the poets and the interpretive staff and the tourists. The observations from their field notes included multiple references to how the presence of the poets was perceived as similar to that of scientists: “Because of how she was crouched, observing plants, it looked like she could have been making scientific observations in her field notebook...” “Again, I was struck that he looked like a scientist doing observations.”<sup>12</sup>

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<sup>12</sup> The field notes also included discussion of varying levels of comfort in the interpretive staff in communicating with the poets or referencing the Poetic Field Research Performance Piece in their tours. This aspect of the project is useful for thinking through reception studies and interpretation of art-science project such as this. A detailed discussion of this aspect of the research design, which also included a

In looking back over my own field notes from the Poetic Field Research Performance Weekend, I find a number of notes about control:

“I can’t stop thinking about control, about layers of control... the controls that are put in place here at B2, and the controls that I’ve put in place with this experiment... how do you adjust for variables? The interpretive staff, moving tours around, on a tight schedule, and the impetus to encourage encounter. How nothing can be made to happen...”

I could not, of course, control the interactions between tourists, interpretive specialists, poets, and the resonances of the site. The orientation of site-ontology-as-creative-geography-practice in the PFRPP became less about studying the interactions between artists and scientists or between artists and the public, and more about the generation of artistic work that interacted with the site.

For example, while writing “Six Short Movements Regarding Control,” I was thinking about epistemology and the concept of scientific control (“...taking/ the measure where science is// a work of metaphor and where data/ come in many forms,” Magrane, 2014b). I was also thinking about the broader site of B2: the physical site, as well as all the narratives around the site and around the politics of knowledge creation. Creative geography and art-environment projects are often formulated as science communication. The argument is that art can speak to emotion as well as to reason in inspiring publics around environmental issues. Arts practices, however, also generate their own knowledge—knowledge that is often embedded within poems, performances, and art objects. In the case of the PFRPP, the poems generated during the project are texts that go to work both as literature and as artifacts/objects that serve as ways into (re)imagining the Anthropocene and human-environment relations.

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mechanism of distribution of the poems written to visitors to B2 that day, and postcards through which they could respond, is beyond the remit of this current paper.

Designing a research project inductively outward from an encounter/image, rather than deductively from a precise question, poses limitations for the project's relevance as a traditional social science undertaking: namely, that the outputs of the project become more generative than explanatory. A site-based geopoetics is interested in critical-creative making *with* sites rather than distanced analysis *of* sites. With the growing number of geographers producing creative research, as well as artists and writers entering the field of geography, an often-referenced quote is Meinig's (1983: 325) call that "Geography will deserve to be called an art only when a substantial number of geographers become artists." Bringing site-based arts practices to the methodological apparatus of geography, and situating research projects themselves as site-based arts practices informed by critical spatial theory, may very well be one of the richest areas in which human geography can go to work in the coming decades to produce work that can stand as geography *and* as literature and art.

## **Coda**

"What ecological thought must do, then, is unground the human by forcing it back onto the ground, which is to say, standing on a gigantic object called Earth inside a gigantic entity called biosphere." (Morton, 2013: 18)

In Fall 2014, I attended the Center for Art + Environment's triennial conference in Reno, Nevada. Artist Ingar Dragset was one of the presenters. He spoke of his work as part of the artistic duo Elmgreen and Dragset, including discussion of Prada, Marfa, an installation of a replica of a Prada storefront in the Chihuahuan Desert outside of Valentine, Texas. Dragset described their work as "frame-breaking," meaning that what one sees in an exhibit isn't what it first appears to be. The web site of Galerie Perrotin

(2016) describes Elmgreen and Dragset’s work like this: “In installations and performances, this duo explores and redefines space and its numerous possibilities of definition and function... [they] transfer space to new contexts of description, purposefully modifying its functionality, and, therefore, facilitating the re-definition of the familiar.”

The performative aspect of site-based artwork such as that practiced by Elmgreen and Dragset has many echoes to site ontology as an orientation toward geographic research, and to the site-based geopoetics that I have described here. In narrating the design of the PFRPP, and in taking creative geography seriously, I have situated PFRPP as an experiment in site-specific art and geographic practice. The collaborators include the participating poets, as well as the multiple sites of B2—its physical site, its poems, and its embodiment of the multiple narrative sites of the Anthropocene. Importantly, the approach is one in which B2 is itself a collaborator. Site-specific art practices often hinge on paying attention to particular interactions and building a project from those interactions into multiple forms of output. In the unfolding of the current epoch, artistic and literary outputs produced by geographers should be made to reach multiple audiences, and can help to implicitly shape—and trouble—narratives of the Anthropocene.

outside is the leaf, the lung organ, inside is the mud, concrete  
outside, the bird, the weather is inside, outside is the control, cognate,  
the brain, neither does not stand for,

does not surface

— Tyeen Taylor and Eric Magrane (2014)  
from “I can only pick up the stones and throw them like my voice”

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APPENDIX D: THE POETRY OF CLIMATE CHANGE<sup>1</sup>

Eric Magrane

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<sup>1</sup> Formatted for submission to *Nature Climate Change*.

## ABSTRACT

Amidst growing calls for social science and humanities approaches to global environmental change, in this short commentary I argue that poetry can help to counteract the crisis of the imagination that hinders our ability to visualize what is possible for climate-friendly and just futures. As a geographer and a poet, I have explored the power of poetry to connect with audiences in public outreach and in teaching. I recently designed and taught a community course called “Climate Change and Poetry,” among the first of its kind. Using responses to this course as evidence, I suggest that global change researchers who do public outreach can incorporate poetry into their presentation toolbox as a way to humanize global environmental change, which is at its root a social and cultural challenge. The commentary also includes examples of contemporary poems that engage with climate change, and a brief inventory of recent anthologies and literary journals focused on the issue.

## THE POETRY OF CLIMATE CHANGE

At the September 2014 United Nations Climate Summit in New York, Marshallese poet Kathy Jetñil-Kijiner performed a poem dedicated to her young daughter. “Dear Matafele Peinam” speaks of hope for the future amidst a sea level rise that threatens the poet’s homeland: standing just meters above sea level, the Marshall Islands are on the front lines of climate change. Jetñil-Kijiner’s poem<sup>1</sup> has a strong sense of environmental and social justice. An excerpt reads:

no one’s drowning, baby

no one’s moving  
no one’s losing  
their homeland  
no one’s gonna become  
a climate change refugee

or should i say  
no one else

Poems work in multiple manners: first, they help to communicate the situation of climate change, and second, they point to other ways of understanding human-nature relationships and the role of imagination in moving forward. Mike Hulme has argued that “the role of arts and humanities is not simply to translate scientific knowledge into public meaning, as though science is the only source of primary knowledge.”<sup>2</sup> Amidst growing calls for social science and humanities approaches to global environmental change, including Castree *et al.*’s critique of a human dimensions frame that excludes “the ideas and products of the arts, which make manifest the human capacity to be deeply imaginative, creative and feeling,”<sup>3</sup> I argue that the poetry of climate change can help to counteract the crisis of the imagination that hinders our ability to visualize what is

possible for climate-friendly and just futures. As a geographer and a poet, I’ve explored the power of poetry to connect with audiences both as public outreach and in teaching. I have found that poetry can make juxtapositions and connections that speak to hearts as well as minds, helping to catalyze the cultural momentum needed for effective action on global environmental change.

A robust cultural and artistic response to climate change that “anchors it in our culture”<sup>4</sup> has emerged over the past decade, with examples including David Buckland’s art-science expeditions with Cape Farewell;<sup>5</sup> ArtCOP21, a festival run concurrently with COP21 in Paris; and David Matless’s cultural geography of the “Anthropscenic.”<sup>6</sup> The response within contemporary poetry has likewise grown in depth (see Table 1).

| <b>Table 2 / Recent Poetry Anthologies and Literary Journals on Climate Change</b>  |   |
|---|---|
| <b>Title and Editor/Publisher</b>   | <b>Description</b>  |
| <i>Big Energy: Ecopoetry Thinks Climate Change</i> ed. Staples and King (BlazeVOX Books, 2017)  | Contributions from twenty experimental ecopoets, with selections addressing ‘Poetics,’ ‘Process,’ ‘Perceptual Challenge,’ and ‘Suggested Reads’   |
| <i>The Ecopoetry Anthology</i> ed. Fisher-Wirth and Street (Trinity University Press, 2013)   | Ecologically focused works from more than 200 historical and contemporary United States poets   |
| <i>Interdisciplinary Studies in Literature and Environment (ISLE)</i> 21:1 (Winter 2014)  | Official journal of the Association for the Study of Literature and the Environment (ASLE); this issue focuses completely on global warming, with poems, essays, and reviews  |
| “Keep it in the Ground: A Poem a Day” ( <i>The Guardian</i> , 2015)   | A series of twenty climate change poems curated by Carol Ann Duffy, Poet Laureate of the United Kingdom<br><a href="http://www.theguardian.com/environment/series/keep-it-in-the-ground-a-poem-a-day">www.theguardian.com/environment/series/keep-it-in-the-ground-a-poem-a-day</a> |
| <i>So Little Time: Words and Images for a World in Climate Crisis</i> ed. Delanty (Green Writers Press, 2014)   | More than 100 poems and images relevant to global climate change, by both historical and contemporary authors   |
| In addition to anthologies and literary journals, single-author poetry collections referencing climate change have abounded in recent years. For a review of climate change in contemporary literature, see Johns-Putra “Climate change in literature and literary studies: From cli-fi, climate change theater and ecopoetry to ecocriticism and climate change criticism” <i>WIREs Clim Change</i> 7, 266–282 (2016). For a detailed reading of the work of five contemporary Indigenous poets in relation to climate narratives, see Magrane “Healing, belonging, resistance, and mutual care: Reading Indigenous ecopoetics and climate narratives” (in preparation). For a collection on teaching climate change in the broader humanities, see Hall <i>et al. Teaching Climate Change in the Humanities</i> (Taylor and Francis, 2016). |   |

Some poems, such as Jetñil-Kijiner’s “Dear Matafele Peinam,” present climate change as a deeply personal environmental and social justice issue. Others, such as Julia Alvarez’s “Vermont is the New Florida,” use humor (“winter now always in quote marks,



as in/‘this winter’ we went ‘snow’ shoeing/over the swampy pastures”)<sup>7</sup> and serve as instigators to discuss the shifting phenology associated with climate change. Some, like my own poem “Mesquite” (see Box 1), dovetail with discussions on adaptation and mitigation. Hulme has suggested that “we need to reveal the creative, psychological, ethical and spiritual work that climate change is doing for us.”<sup>8</sup> Poems do this by both revealing and adding depth to the multiple human and personal perspectives of climate change.

Poems can be considered boundary objects, imbued with interpretive flexibility. While the boundary concept is often taken up at the organizational level, through boundary organizations that connect science with decision-making,<sup>9</sup> poems—which by nature have interpretive flexibility, with multiple layers of literal and symbolic meaning—are a relevant way to mediate between different conceptions and narratives of climate change and their audience. I encourage global change researchers who do public outreach to add the use of poetry to their presentation toolbox to humanize their research. Find a poem that speaks to you from the variety of work listed in the examples in Table 1, and open a talk by reading the poem.

I recently explored the use of poetry in climate outreach by designing and teaching a course called “Climate Change and Poetry” for the University of Arizona Poetry Center in Tucson, Arizona. Among the first of its kind, the course mixed readings on climate change and the Anthropocene with works of contemporary poetry that explicitly or implicitly engaged with climate change. I taught the class in Fall 2015 as a Climate and Society Fellow for the NOAA RISA Climate Assessment for the Southwest (CLIMAS). Enrollment in the six-week course was open to the community at large, and

to deepen the community impact of the course, 60% of registration fees were donated to Watershed Management Group, a Tucson NGO that works on green infrastructure.

| <b>Box 1 / Poetry of Adaptation</b>  |  |
|--|--|
| <b>Mesquite</b>  |  |
| The mesquite's root system is the deepest documented; a live root was discovered in a copper mine over 160 feet (50m) below the surface. Like all known trees, however, 90 percent of mesquite roots are in the upper 3 feet of soil, where most of the water and oxygen are concentrated. The deep roots presumably enable a mesquite to survive severe droughts, but they are not its main life support. – from <i>A Natural History of the Sonoran Desert</i> |  |
| Down here<br>the layers of earth<br>are comforting<br>like blankets.   | When the new gatherers<br>of the desert<br>learn again how to live here,<br>its pulse will course through me.      |
| The soil I think of<br>as time. Below the caliche<br>I sift through sediment<br>from thousands of years.   | And I say, I will be ready<br>if the drought comes.  |
| Though the sharp desert light above<br>is another world, its pulse<br>courses through me.  | And I say, go deep<br>into the Earth.  |
| When the mastodons<br>and ground sloths roamed,<br>its pulse coursed through me.   | And I say, go deep<br>into yourself, go deep<br>and be ready.  |
| When the Hohokam<br>in the canyon<br>ground my pods<br>in the stone,<br>its pulse coursed through me.  | Eric Magrane<br><br>from <i>The Sonoran Desert: A Literary Field Guide</i> (The University of Arizona Press, 2016) |

Drawing on my background as a geographer and a poet, I alternated discussions of poems with readings from social science and popular nonfiction works, such as Hulme's *Why We Disagree About Climate Change* and Naomi Klein's *This Changes Everything*, and summaries of key findings from regional and national climate assessments. Interspersed throughout were creative writing assignments and brief lectures on topics such as the Anthropocene. Invariably, my brief lectures were more resonant with the group and provoked greater conversation when they arose in response to the poems at hand, rather than when I introduced a concept and then turned to the poems as illustrations of the concept. The course helped to inspire a public reading and lecture

series on Climate Change and Poetry at the University of Arizona Poetry Center the following year.

At the beginning of the course, I asked students to write down their thoughts in response to the question, “In your own words, what is climate change?” One student wrote, “a humanly caused change in the climate’s temperature—overall a rise of several degrees caused primarily by an increasing amount of carbon dioxide from the burning of fossil fuels, which has consequences for all life’s creatures.” This reflected a strong awareness of the physical aspects of climate change.

After the final class meeting, I asked students to again answer the question, “In your own words, what is climate change?” The student quoted above wrote, “Something that is coming, that is both complicated and simple, that is overwhelmingly moral, that is disastrous yet not without hope, in that it challenges us to be imaginative in its wake.”

“To be imaginative in its wake”: this insight is crucial for those who value arts and humanities approaches to climate change. Anthropogenic climate change is a social product, and to adequately address environmental change, the social realm must be at the forefront.<sup>10</sup> In the face of a reactionary politics in which political actors continue to dispute the science of climate change, it’s increasingly clear that a nuanced, sensitive appeal to both emotion and reason is necessary for effective social and cultural responses to climate change. The science is overwhelmingly clear, and the poetry is on its way.

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- <sup>5</sup> Buckland, D. *Nature Clim. Change* **2**, 137–140 (2012).
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APPENDIX E: 'HEALING, BELONGING, RESISTANCE, AND MUTUAL CARE':  
READING INDIGENOUS ECOPOETICS AND CLIMATE NARRATIVES<sup>1</sup>

Eric Magrane

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<sup>1</sup> Formatted for submission to *Literary Geographies*.

**Abstract:**

Narratives of climate change place it alternately as an environmental justice issue, a national and global security issue, an apocalyptic threat to life on earth, an opportunity for social change, and more. In this article, I aim to bring critical geographic work on climate narratives into conversation with contemporary poetry, through close readings of specific poems. I argue that the work of contemporary poets, and in particular the work of Indigenous eco-poetics, is rich in poetic texts that offer imaginative practices for recalibrating climate change narratives. I look particularly to works by Craig Santos Perez, Kathy Jetñil-Kijiner, Allison Adelle Hedge Coke, Joy Harjo, and Linda Hogan. I approach the poems as both a critical geographer and as a poet, thinking through and with their form and content in relation to climate narratives, and in relation to a description of Indigenous eco-poetics by Perez. I meet these poems as stored energy, as actors themselves in a human and more-than-human collective. A close reading of the craft of creative texts—particularly to the level of the line in poetry—highlights the inextricable connection between form and content in how a poem acts and means in the world. As a non-Indigenous reader of texts by Indigenous poets, my goal is not to perform a ‘master’ reading or analysis of these texts, but rather to learn from the poems and in doing so attempt to decolonize my own thought, a process that is a constant practice.

**Keywords:** climate narratives, geopoetics, Indigenous eco-poetics, environmental justice, mutual care, climate change and poetry

## **Introduction**

How the story of climate change is framed has lasting effects on how it is approached, both as an object of study and policy issue, and in influencing individual perceptions of climate change. Narratives of climate change place it alternately as an environmental justice issue, a national and global security issue, an apocalyptic threat to life on earth, or an opportunity for social change, to name just a few (Hulme 2009, Manzo 2012). Climate change is increasingly understood as a social challenge as much as a physical science challenge (Hackmann et al. 2014).

Geographers and other scholars have analyzed media responses to climate change (Boykoff 2011), artistic responses (Thornes 2008; Miles 2010; Buckland 2012), landscape visualization (Sheppard 2005), cartoons (Manzo 2012), key images such as the Burning Embers and Tipping Point images (Liverman 2009), and literary responses (Trexler and Johns-Putra 2011; Johns-Putra 2016).

Geographic work on climate narratives, however, has not intersected with detailed readings of contemporary poems that engage with climate change. In this article, I aim to bring critical geographic work on climate narratives into conversation with contemporary poetry, through close readings of specific poems. I argue that the work of contemporary poets, and in particular the work of Indigenous ecopoetics, is rich in poetic texts that offer imaginative practices for recalibrating climate change narratives. I will look to specific works by poets Craig Santos Perez, Kathy Jetñil-Kijiner, Allison Adelle Hedge Coke, Joy Harjo, and Linda Hogan.

I present this article as a conversation, taking a cue from trans-Indigenous methodologies (Allen 2012) and transpacific ecopoetics (Huang 2013) that are attuned to the politics of comparative projects, where ‘the point is to invite specific studies into

different kinds of conversations' (Allen 2012: xiv). As a trans-literary-geographic reading, my article does not aim to flatten difference and specific histories of particular nations and tribes into one identity. Rather, I will read specific poems in relation to climate narratives in the geographic literature from my standpoint as a human geographer and a poet. As a non-Indigenous reader of texts by Indigenous poets, my goal is not to perform a 'master' reading of these texts, but rather to learn from the poems and in doing so attempt to decolonize my own thought, a process that is a constant practice. Literary geography is 'essentially a way of reading' (Hones et al. 2015: 1) and this article also demonstrates how a close reading of the craft of creative texts—particularly to the level of the line in poetry—highlights the inextricable connection between form and content in how a poem acts and means in the world.

In the unfolding story of climate change as a key factor of the Anthropocene, geographers have argued for the role that the discipline should play in helping to shape the narrative (Castree 2014). Climate change is an issue that is here now, and not in some far-off future. Embodied local knowledge and traditional ecological knowledge are important sites at which to address climate change narratives (Lejano, Tavares-Reager and Berkes 2013). As Indigenous activists and allies are often on the front lines of resistance to extractive industries, literary geographies would do well to look to contemporary Indigenous poetics in relation to climate change. Literature can both reflect and complicate climate narratives, both ontologically and epistemologically. For example, the interconnections, interdependence, and interrelationship of Indigenous and Native science (Cajete 2000; Colorado 1988) reflect an epistemology that does not distinguish between art and science in the same way that Western traditions often do.



Geopoetics as world-making or earth-making (*geo-poesis*, Magrane 2015), especially as connected to oral traditions and traditional ecological knowledge, can be a crucial realm for addressing climate change and the Anthropocene at their roots. Geopoetics builds on calls for an increased focus on the politics of geohumanities and creative geographies (Eshun and Madge 2016; Marston and de Leeuw 2013). Ultimately, the idea of the Anthropocene, in which humans have become a geologic force, should push us to re-examine our assumptions about human nature, and how those assumptions lead to the reproduction of certain modes of living—economically, politically, and socially. Is human nature inherently driven by separation, duality, control, dominance, and competition? Or, is it just as (or more) accurate to take an alternative view of human nature, one based in interrelation and mutual care? While the former view of human nature has largely become embedded within dominant socioeconomic systems, the latter view may be precisely what we need to create more just and sustainable futures.

### **Reading Indigenous Eco-poetics**

Poet and postcolonial theorist Craig Santos Perez (2015a) has offered the following description of Indigenous eco-poetics:

Indigenous eco-poetics foregrounds how the primary themes in native texts express the idea of interconnection and interrelatedness of humans, nature, and other species; the centrality of land and water in the conception of indigenous genealogy, identity and community; and the importance of knowing the indigenous histories of a place. Moreover, indigenous eco-poetics shows how native writers employ ecological images, metaphors, and symbols to critique colonial and Western views of nature as an empty, separate object that exists to be exploited for profit. Lastly, indigenous eco-poetics re-connects people to the sacredness of the earth, honors the earth as an ancestor, protests against further environmental degradation, and insists that land (and literary representations of land) are sites of healing, belonging, resistance, and mutual care.

This description is included in a collaborative glossary of ‘Place-Relation Eco-poetics’ curated by the poet Linda Russo in the online poetics journal *Jacket 2*. Perez, a native Chamoru from the Pacific Island of Guåhan (Guam), approaches Indigenous eco-poetics through both a poetic and a critical lens, having published a trilogy of books titled *from unincorporated territory*, as well as critical work. Of his work, Perez has written, ‘I value poetic forms that creatively weave moments, languages, voices, and geographies to create multiple layers of meaning’ (2015b: 256), and ‘Poetry is a site of sharing, struggling, and recognizing the colonality and aesthetics of power’ (2015b: 257).

In what follows, I will read four poems by Allison Adelle Hedge Coke, Kathy Jetñil-Kijiner, Joy Harjo, and Linda Hogan, in part through the lens of Perez’s description of Indigenous eco-poetics. Ecologist and writer Robin Wall Kimmerer, in an essay about learning her Potawatomi language, writes ‘So it is that in Potawatomi and most other indigenous languages, we use the same words to address the living world as we use for our family. Because they are our family’ (2013: 55). This ethic, embodied in language, points us to interconnection and interrelatedness, much as in Perez’s description above. To link this linguistic ethic to climate narratives, frameworks that link climate and environmental justice movements (Bond 2012) similarly call for an increased focus on ‘systems of responsibility’ that include ‘webs of interspecies relationships’ (Whyte 2013: 518).

As a reader, I meet these poems as stored energy (Rueckert 1996/2009), as actors themselves in a more-than-human collective and family. I approach the poems both as a critical geographer and as a poet, thinking through and with their form and content in relation to climate narratives and Perez’s description. Form and content, in the best cases,

are not separate, but rather are inextricable expressions of each other. How might this insight also relate to the bridging of theory and praxis in the face of climate change?

### **Allison Adelle Hedge Coke: ‘In the Year 513 PC’**

Allison Adelle Hedge Coke’s first book of poetry, *Dog Road Woman*, won the American Book Award from the Before Columbus Foundation in 1997. An Indigenous writer of Huron, Metis, and Southeastern Native ancestry, as well as European ancestry including French Canadian, Portuguese, English, Irish, and Scot, she is also the editor of numerous anthologies, including *Sing: Poetry from the Indigenous Americas*. Her work takes multiple forms, including poetry, memoir, music, and film. Here I focus on her prose poem ‘In the Year 513 PC,’ from her 2014 collection *Streaming*.

The poem’s title and opening lines set time differently from the dominant Gregorian calendar: ‘In the year 513 PC—post-contact, post-Columbus, post-cultural invasion...’ (Hedge Coke 2014: 57). The poem then gathers force and movement, in part through its prose (paragraph) form, in which language accrues and turns within and among sentences through repetition and association: ‘In the year 513 PC, we heard fluting sounds from southern feathered, feathered never here before this rhyme, never here without zookeeper logic trace’ (Hedge Coke 2014: 57). In this example, the repetition of ‘feathered’ acts as a turn or pivot into the stream-of-consciousness phrase ‘zookeeper logic trace.’ When the poem is read aloud, it feels like a storm barreling toward the shore: in the absence of line breaks that would allow the reader to catch a breath, the long, unlineated sentences of the poem fill the page and the throat. With its

energy looming and circling around repeated words and phrases, the poem itself resembles a hurricane.

513 PC (i.e., 513 years after Indigenous contact with Columbus, or 2005 C.E.) is indeed the year of Hurricane Katrina, and Hedge Coke's poem makes many references to New Orleans. As well as referencing Katrina, Hedge Coke alludes to shifts in both phenology and species distribution as demonstrative of climate change: 'Now robins sing early, leaving them hungry for later worms,' 'we heard fluting sounds from southern feathered, feathered never here before' (2014: 57). The poem both situates itself in New Orleans and connects with other locations:

Now no bird's leaving, tides receding, waters capture sand like evening fog: Virgin Islands, Galápagos Islands, Cook Islands, Belize Barrier Reef, Red Sea Reefs, Great Barrier Reef, Tokyo, Jakarta, London, New York, New Orleans—we've seen it quarter blown—engraved. Big Easy slipping far past fate of no return, her trumpets flaring. We're all a jazz funeral display, singing, dancing, masking ourselves to crypt enclave... (Hedge Coke 2014: 57)

The inadequate response to Hurricane Katrina clearly highlights questions of adaptation, risk, and vulnerability (Pielke et al. 2007) and climate change as a social justice and biopolitical issue (Brox 2015, Giroux 2007). While articulations of risk and vulnerability within climate adaptation discourse can be critiqued as framings in which the 'vulnerable' are rendered as 'other' and as marginal (Bankoff 2001), Hedge Coke's poem doesn't rest solely in a frame of vulnerability. The first person plural narrator of the poem is a vulnerable subject ('We're all a jazz funeral display'), but also has power and resistance: remember, the poem itself begins in resistance through the alternative time frame ('PC—post-contact, post-Columbus, post-cultural invasion,' Hedge Coke 2014: 57) posited by its title and opening lines. Hedge Coke ends her poem with the following: 'If we'd only seen the writing, bird tracks left etched on earthen wall. 513 you'd scarcely

remember until it had all been drowned. Someone still calling, “Saving the Earth is not a competition, but an essential collaboration” (2014: 57).

To me, the last lines of ‘In the Year 513 PC’ speak fundamentally to the nature of human-environment relationship. Who is the ‘someone still calling’ in the poem? I read that someone as the speaker of the poem; I also read the last lines as a statement on a poetics of care and collaboration. The lines move from loss (‘If we’d only’) through resistance (‘Someone still calling’) to a prophetic declaration (‘Saving the Earth is not a competition, but an essential collaboration’). In a note to her poem, Hedge Coke writes of ‘references to multiple climate change occurrences—and Indigenous prophecies regarding their coming—with the arrival of Europeans upon the Americas’ (2014: 143). With this note in mind, it’s useful to return to Perez’s (2015a) description of an Indigenous ecopoetics that ‘shows how native writers employ ecological images, metaphors, and symbols to critique colonial and Western views of nature as an empty, separate object that exists to be exploited for profit,’ and ‘insists that land (and literary representations of land) are sites of healing, belonging, resistance, and mutual care.’ The last line of Hedge Coke’s poem, ‘Saving the Earth is not a competition, but an essential collaboration,’ is an embodiment of the poem as a site of mutual care. By ending on this declarative statement rather than a concrete image, the poem makes an argument about the need for an alternative view of human nature—collaboration rather than competition—that is necessary for adaptation.

Here, I also want to articulate some of the echoes that this conception of mutual care has with traditions of mutual aid in geography, particularly in anarchist traditions such as Kropotkin (1902/2013). Their communitarian visions take a wholly different

view of human nature than that of the dominant economic and cultural order of capital. Rather than a notion of the survival of the fittest that reifies competition, mutual care supposes human nature as cooperative. Mutual care also resonates with recent feminist geophilosophy that looks to more-than-human collaboration as an alternative orientation to the materialities of the world, one not based primarily in use and exploitation (Yusoff 2013). In addition, feminist critiques of the Anthropocene that problematize the essentializing of human experience and erasure of difference also resonate with Perez's conception of Indigenous eco-poetics and with Hedge Coke's poem. Rutazibwa, Last, and Yusoff (2016), for example, in a discussion of how to decolonize the Anthropocene, point to how the 'term Anthropocene masks not an essential human fault, but the consequences of oppressive systems, such as capitalism and colonialism.'

To my ear, both Indigenous eco-poetics and these critiques of the Anthropocene point to the need to foster alternative subjectivities in the face of global change. The echoes between Indigenous eco-poetics and feminist and anarchist geophilosophy point to an opening for increased conversation. The question is how to break through and change the social organizations, patterns, and naturalization of detrimental practices and powers that imperil all life on the Earth. If we pay attention, perhaps the 'healing, belonging, resistance, and mutual care' (Perez 2015a) of Indigenous eco-poetics can help point a way.

### **Kathy Jetñil-Kijiner: 'Dear Matafele Peinam'**

Kathy Jetñil-Kijiner is a Marshallese poet, performer, and climate activist. Her performance of a poem at the 2014 UN Climate Summit in New York, as well as her

participation in art events at the 2015 Conference of Parties (COP) 21 climate negotiations in Paris, have established her as a leading voice in climate activism. Her first book of poems, *Iep Jāltok: Poems from a Marshallese Daughter*, was published in 2017.

The immediacy of ‘Dear Matafele Peinam,’ the poem that Jetñil-Kijiner performed at the 2014 UN Climate Summit, comes through its direct address to Jetñil-Kijiner’s daughter. Its opening lines begin in the second person, in a celebratory tone:

Dear Matafele Peinam,

You are a seven month old sunrise of gummy smiles  
you are bald as an egg and bald as the Buddha  
you are thighs that are thunder  
shrieks that are lightning  
so excited for bananas, hugs and  
our morning walks past the lagoon (Jetñil-Kijiner 2017: 70)

In the stanzas that follow, Jetñil-Kijiner applies the poetic device of anaphora, through repetition of the salutary address ‘Dear Matafele Peinam.’ In the second stanza, the poem shifts to first and third person, and in doing so, changes tone from celebratory to cautionary:

I want to tell you about that lagoon [...]

Men say that one day  
that lagoon will devour you

They say it will gnaw at the shoreline [...]

They say you, your daughter  
and your granddaughter, too  
will wander  
rootless  
with only  
a passport  
to call home (Jetñil-Kijiner 2017: 70)

The third person here—‘men say,’ ‘they say’—is an important technique that distinguishes the voice of the speaker of the poem from those who Jetñil-Kijiner then

calls out in lines like ‘no greedy whale of a company sharking through political seas/ no backwater bullying of businesses with broken morals/ no blindfolded bureaucracies gonna push/ this mother ocean over/ the edge’ (2017: 71).

The language of Jetñil-Kijiner’s poem, in phrases like ‘backwater bullying’ and ‘blindfolded bureaucracies,’ carries resistance, shifting the tone once again from cautionary to defiant. The consonance, through repeated hard ‘b’ sounds, builds a forceful, critical, oppositional tone; the sound of the poem itself conveys the resistance, merging form and content. In contrast, the language employed when the poem shifts back to first and second person is hopeful and infused with care: ‘we are [...] the rich clean soil of the farmer’s past [...] petitions blooming from teenage fingertips’ (Jetñil-Kijiner 2017: 72). By moving back and forth through these two tones, the poem is able to both employ a critique of power and injustice and to call for and bring a hopeful future into vision, embodying Perez’s (2015a) ‘healing, belonging, and resistance.’

How texts circulate, and how audiences respond, can point to the kind of work that poems can do in the world as stored energy, to use Rueckert’s (1996/2009) phrase. As of March 19, 2017, Jetñil-Kijiner’s performance of her poem at the United Nations has received more than 249,000 views on Youtube, while a version that includes video footage from the Marshall Islands has received more than 132,000 views. Comments from viewers (Jetñil-Kijiner 2014; United Nations 2014) include:

- ‘Incredible. I cried this was so moving.’
- ‘Marshallese pride!’
- ‘That brought me to tears. What a powerful poem — one that shows how we all need to be a part of this clean new future in order to thrive.’



- ‘True and heartfelt opening statement. The Poem... is truly emotional and inspiring, a call for action and collaboration.’
- ‘We are drawing the line here! We are ready to fight! Fists raising up! Canoes blocking coal ships! There are thousands out on the streets chanting for change NOW! We won't let you down. You'll see.’

In short, the poem struck a chord with many of those who have viewed it. While it has reached people in an emotional realm (‘I cried,’ ‘brought me to tears’), many viewers also responded to the poem as a call to action and as motivation to stand up for climate justice (‘a call for action and collaboration,’ ‘We are ready to fight’). In arguments for the role that art and poetry have in creating the cultural momentum for action on climate change, Jetñil-Kijiner’s work is a clear example.

My own experience as a teacher for courses including Climate Change and Poetry, Environmental Studies, and Sustainable Development attests to the effectiveness of Jetñil-Kijiner’s poem and performance. Multiple students have told me personally that the poem affected them and stayed with them after the class was over. As a text, it helped ground and personalize our discussions of climate justice, and it instigated student involvement in environmental activism. The poem critiques power and injustice, resists dominant narratives of vulnerability, and posits a vision of collective resistance.

While both Jetñil-Kijiner’s and Hedge Coke’s poems are relatively recent pieces, from 2014 and 2013 respectively, the following two poems by Joy Harjo and Linda Hogan are from books published in 2000 and 1993. While neither of these poems explicitly addresses climate change, both are relevant to a discussion of healing, belonging, resistance, and mutual care. Each of these poems is a map poem. Maps can, of course, be approached as spatial representation; in what follows, however, I want to primarily focus on these two map poems as instructions and directions.

## Joy Harjo: 'A Map to the Next World'

Joy Harjo is a poet and musician; a member of the Mvskoke Nation, her first book was the 1975 chapbook *The Last Song*. Since then, she has been a major figure in contemporary poetry, publishing many books and receiving awards such as the Lifetime Achievement Award from the Native Writers Circle of the Americas. Here, I look at 'A Map to the Next World' (from the book of the same title) which begins

In the last days of the fourth world I wished to make a map for those who would climb through the hole in the sky.

My only tools were the desires of humans as they emerged from the killing fields, from the bedrooms and the kitchens.

For the soul is a wanderer with many hands and feet. (Harjo 2000: 19)

Following these stanzas, Harjo provides a kind of map, one that is 'of sand and can't be read by ordinary light' (2000: 19). The poem moves through long lines that are often formed as declaratory and instructive statements, such as 'Take note of the proliferation of supermarkets and malls, the altars of money./ They best describe the detour from grace' (Harjo 2000: 19). The language of the poem moderates between rage, depression, and loss ('Flowers of rage spring up in the depression. Monsters are born there of nuclear/ anger,' Harjo 2000: 19) and openings of remembering and hope in tribal communities ('Fresh courage glimmers from planets,' Harjo 2000: 20). The poem's juxtaposition of these two tones might be read as both an inventory of loss and a map to find one's way out of loss. It is work of witness and transformation.

To return to Perez's conception of Indigenous ecopoetics, I want to make a note of the first part of the following formulation: 'Indigenous ecopoetics... insists that *land*

(*and literary representations of land*) are sites of healing, belonging, resistance, and mutual care' (2015a, emphasis added). Harjo's poem concludes:

Yet, the journey we make together is perfect on this earth who was once a star  
and made the same mistakes as humans.

We might make them again, she said.

Crucial to finding the way is this: there is no beginning or end.

You must make your own map. (2000: 21)

I read the personification of the earth that makes mistakes as a literary representation of land that is indicative of another way of relating to life forces, another way of being in the world: one based not on domination or use, but on collectivity. If humans are inextricably part of the earth, perhaps climate change can be read as a collective material mistake, where certain organizations of matter have gone awry. Ultimately, it is the human relationship with other materialities of the earth, namely the burning of fossil fuels, that has hastened anthropogenic climate change. As important as it is to limit our use of fossil fuels, the focus on 'use' itself should also be in question (Yusoff 2013). What other arrangements may be possible? As Yusoff (2013) asks, if we were to take an orientation toward fossil fuels not based in use and extraction, but one based in collaboration, what would it look like?

Map poems like Harjo's address this question by referencing a tradition that perhaps knows what this would look like: 'In the legend [of the map] are instructions on the language of the land, how it was we/ forgot to acknowledge the gift, as if we were not in it or of it' (2000: 19). Note the prepositions 'in' and 'of.' Prepositions convey spatial relationships, and can hold within them whole ontologies. Here in Harjo's last line, 'in' and 'of' connote a relational world in which the first person plural 'we' of the poem is

not separate from the materialities of the Earth. In contrast, the preposition ‘on’ (i.e., ‘as if we were not on it’) would imply more of a separation between the ‘we’ and the Earth. This separation, then, would lead more easily to an orientation toward the Earth in which maps become a colonial tool for control, plunder, and extraction. This is the collective material arrangement that the poem implicitly critiques, as does the next poem I address, by Linda Hogan.

### **Linda Hogan: ‘Map’**

Linda Hogan is a Chickasaw poet and writer whose work often addresses human and animal relationships and the environment. Her first book, *Calling Myself Home*, was published in 1978, and she has since published many books of poetry, essays, memoir, and fiction. She is the Writer in Residence for the Chickasaw Nation. ‘Map,’ from Hogan’s *The Book of Medicines*, opens with the lines

This is a world  
so vast and lonely  
without end, with mountains  
named for men  
who brought hunger  
from other lands,  
and fear  
of the thick, dark forest of trees... (Hogan 1993: 37)

Geographers, of course, have deconstructed maps as representation of power (Harley 1989) and as actors in cartographic history and postcolonial sovereignty struggles (Sparke 1998). Within literary studies, Johnson has pointed out that Indigenous maps, particularly as presented in Native women’s writing, have been used ‘as a means of asserting, maintaining, and advocating political and cultural sovereignty’ (2007: 116). We can approach the opening of Hogan’s poem similarly. Power, control, and

colonialism are critiqued by the speaker, who singles out the act of naming mountains for the invading ‘men/ who brought hunger.’ These names, memorializing histories of injustice, write over the Indigenous names of the land; naming is, in itself, a political and imperial act. However, the poem’s first stanza ends by evoking the ultimate failure of this form of colonialist naming: ‘as if words would make it something/ they could hold in gloved hands,/ open, plot a way/ and follow’ (Hogan 1993: 37). The ‘words’ the speaker refers to are those that posit a certain orientation of control upon the world, which the poem will go on to dispute.

Many dominant climate narratives continue to replicate an orientation that separates humans from the rest of the living world; it is this orientation itself that is arguably at the root of the climate crisis. In contrast, in her preface to *Dwellings*, a book of essays published two years after *The Book of Medicines*, Hogan writes that

It has been my lifelong work to seek an understanding of the two views of the world, one as seen by native people and the other as seen by those who are new and young on this continent. It is clear that we have strayed from the treaties we once had with the land and with the animals. It is also clear, and heartening, that in our time there are many—Indian and non-Indian alike—who want to restore and honor these broken agreements. (1996: 11)

Perez’s conception of Indigenous ecopoetics echoes much of this sentiment, which also finds its expression in the final lines of ‘Map’:

There are names each thing has for itself,  
and beneath us the other order already moves.  
It is burning.  
It is dreaming.  
It is waking up. (Hogan 1993: 38)

Respect, honor, and a relationship of care to the animal other are all present in the acknowledgement of the ‘names each thing has for itself.’ The poem—as in the title of the collection it is included in, *The Book of Medicines*—is a kind of medicine. Notice

particularly the cadence of the last three lines of the poem. The repetition of ‘It is’ followed by the present participle (‘burning,’ ‘dreaming,’ ‘waking’) give an animacy and power to ‘the other order’ (Hogan 1993: 38), a kind of ‘grammar of animacy,’ to use Kimmerer’s (2013: 48) phrase. In terms of rhythm, note how after two lines of four syllables, the final line includes five syllables and ends with a stressed syllable, the percussive word ‘up.’ This variation of rhythm and accent in the final syllable of the poem helps to punctuate the ending with force. Read the lines out loud to hear how the form and content are inextricably linked; the song and rhythm of the poem, as well as the meaning of the words, express its power.

## **Conclusion**

Words, songs, stories, and poems are more than representations of the world. They can inspire multiple audiences and call alternative worlds into being. They are actors in the world. Hogan, in her novel *Power*, puts it this way: ‘Stories are for people what water is for plants’ (1998: 227). Hedge Coke, in the introduction to her anthology *Sing: Poetry from the Indigenous Americas*, expresses a similar idea:

In movement, songs reveal what approaches need to be made to sustain and continue... Sometimes songs present themselves in the most unfamiliar moments, improvisationally. Sometimes songs connect, familiarize. Sometimes the orchestration of tones, or words, heals. Sometimes we actually learn to let go and let them lead us. Sometimes we follow to sing. (2011: 1)

What if poems and songs hold some of the keys to mitigating and adapting to climate change? What if poems and songs are some of the best methods for connecting social justice and climate action? I often think of poems and songs as organisms themselves. Thinking this through Indigenous ecopoetics—in my case, through reading

Indigenous eco-poetics, and trying to do so with an orientation of respect and openness, as an attempt to decolonize my own thought—makes sense. I go to, listen to, and read poems to try to re-situate hegemonic habits of mind, knock them off kilter.

Poetry can enact resistance and inform our attempts to imagine other paths forward, as embodied in the work of Perez, Jetñil-Kijiner, Hedge Coke, Harjo, and Hogan. Poems are not static texts but actors in the world, making poetry a rich site for literary geography, particularly in its ability to foster alternative subjectivities in the face of climate change. I have approached this article as a conversation, in which the poems at hand complicate dominant climate narratives. Moving forward, I hope that alliances based in interwoven care and respect in the broadest sense—in contrast to separateness, fear, and control—may proliferate.

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