One Region Across Two Nations Issues a Clarion Call to Mitigate Biological Annihilation

Subhankar Banerjee

> *"My conviction is that environmentally engaged art bears the potential to both rethink politics and politicize art's relation to ecology, and its thoughtful consideration proves nature's inextricable binds to economics, technology, culture, and law at every turn."*
>
> —T. J. Demos, from *Decolonizing Nature: Contemporary Art and the Politics of Ecology*[1]

In 2000, a short text with the title "RESOURCES: Species in Peril" was published in the journal *Science*, which warned that more than 1,200 animals and plants in the United States were in peril and had been added to the endangered species list.[2]

The same year proved a turning point in my life. I left a well-paid job in science and headed north. In late October, I came upon an unusual scene in subarctic Canada: one polar bear eating another. That scene of violence was an antithesis of Canadian Inuk artist Pauta Saila's 1973 exuberant stone sculpture, *Dancing Bear*. One polar bear eating another was my first encounter with the biological crisis. As the sea ice continues to disappear in a rapidly warming Arctic, polar bears are finding it difficult to hunt for food.[3]

At the turn of this century, the polar bear was not on the U.S. endangered species list. But by 2006, this charismatic Arctic animal had become a poster child of climate change communication, appearing in the Academy Award–winning documentary *An Inconvenient Truth* and on the cover of *Time* magazine. Two years later, the polar bear was recognized as a threatened species under the Endangered Species Act.

Troubling news arrived as I was writing this essay.

On August 12, the Trump administration announced its intention to gut the Endangered Species Act. "The new rules would make it easier to remove a species from the endangered list and weaken protections for threatened species," the *New York Times* reported.[4]

But *why*?

The *Times* writer opines that the updated rules "appear very likely to clear the way for new mining, oil and gas drilling, and development in areas where protected species live."

According to the latest data from the IUCN (International Union for Conservation of Nature) Red List of Threatened Species, the United States ranks #3 and Mexico ranks #6, with Ecuador and Madagascar taking the top two spots.[5] At a time when the number of imperiled species in the U.S. is considered to be the third highest globally, the Trump administration's attempt to gut the Endangered Species Act is unconscionable and must be challenged.

A new battle is brewing.

Ruben Olguin
Evaporation
2019
Hand-foraged clay and soil on wall

Senator Tom Udall of New Mexico and his cohorts are "considering invoking the Congressional Review Act, a 1996 law that gives Congress broad authority to invalidate rules established by federal agencies, to block the changes," according to the *New York Times*.

From Extinction to Biological Annihilation

Until recently, public debates and discussions on environmental crisis were largely focused on human-caused global warming. Incorporating lucid narrative and impeccable science journalism, Elizabeth Kolbert urged us to also consider the biological crisis in her path-breaking book *The Sixth Extinction: An Unnatural History,* first published in 2014.[6] It was a watershed moment for public communication on species extinction.

The biological crisis is getting worse by the day.

Earlier this year, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), which was established in 2012 following a directive from the United Nations General Assembly, offered the most comprehensive assessment of the escalating crisis to date and issued the grimmest warning in human history: "around 1 million animal and plant species are now threatened with extinction, many within decades." This epic tragedy is a direct result of human activities.[7]

Species in Peril Along the Rio Grande was conceived with an eye toward making the biological crisis—which so far has eluded much public engagement—into a common crisis. By that I mean a crisis that we all can see and experience and participate in to mitigate.

For that to happen, we will need to think beyond the extinction narrative and engage with a more expanded term—biological annihilation, which includes human-caused species extinctions, die-offs, and massacres. Two years ago, the term was introduced in a seminal scientific paper by Gerardo Ceballos, Paul Ehrlich, and Rodolfo Dirzo.[8]

If we keep focusing exclusively on extinction, which happens relatively rarely and gradually and often in remote places out of most of our sight, we will fail, or slow down the process, to turn biological annihilation into a common crisis. Our first task will be to frame the tragedy with stories of die-offs and massacres coming from where we live and with events that we can experience right now.

If I ask you: Have you witnessed an actual species extinction? By that I mean watch the last member of a species die in front of you or see its carcass. The answer will likely be "no." But if I ask: Have you witnessed a species die-off or massacre? The answer will likely be "yes." Varieties of die-offs and massacres surround us right now. All we have to do is pay attention.

Over the past two decades, I have witnessed and engaged with three mass species die-offs in the United States:

- The piñon die-off in northern New Mexico—about 90% of mature piñons died between 2001 and 2005.
- The sea stars die-off along the Pacific Coast—more than 20 species of sea stars from Mexico to Alaska suffered mass die-offs between 2013 and 2017, with about 99% population decline in many sites.
- The die-off of the southern Beaufort Sea polar bear population in the Arctic National Wildlife Refuge—40% loss between 2006 and 2010.

These experiences have helped me to appreciate the scale of the biological crisis firsthand and make a commitment to help the public understand what is happening to the nonhuman relatives with whom we share this Earth.[9]

According to the 2018 *Living Planet Report*, issued by WWF and the Zoological Society of London, since 1970 the monitored populations of vertebrate species—birds, mammals, fish, reptiles, and amphibians—have declined on average by 60% globally. In Latin and Central America, the decline is the worst, a tragic 89%. The Indo-Pacific ranks second, with 64% decline, while freshwater populations have declined globally by a staggering 83%. At the same time, we are beginning to learn that the news is equally grim for insects and plants.[10]

The story of biological annihilation since the dawn of the early modern age is deeply entangled with colonialism, capitalism, and imperial ambitions.[11] Today, all aspects of modern living, and its products, infrastructures, and institutions, are contributing to the biological crisis.

It isn't only pesticides, as highlighted in Rachel Carson's 1962 classic, *Silent Spring*, or plastics, as highlighted in Chris Jordan's recent film *Albatross*.[12] Myriad other industrial chemicals that have become part of our daily life contribute to the loss of nonhuman life, and products like window glass—through which we see the outside—are massacring life at a great scale.

In March 2006, a couple of days after moving into a rented house in northern New Mexico, I found a dead male house finch, a small songbird, on the porch. The bird had smashed into one of the building's large glass windows and died. After mourning that humble and private human-nonhuman moment,

Subhankar Banerjee,
Dead Bird: Tribute to Ryder, New Mexico,
2006
Photograph

laura c carlson
Study for Lotic Possibities 2 , Potamilus metnecktayi
Study for Lotic Possibilities 3, Quadrula couchiana
2019
Pencil on paper

I started what became a five-year journey to understand where I live. I made an ethical commitment to engage the biological crisis.[13]

As many as 988 million birds die each year in the United States by crashing into glass windows, which puts windows as the second-largest driver (after cats) of avian mortality.[14]

Biological annihilation is arguably the most expansive crisis of our time, if you count casualties; and the most challenging, if you consider mitigation. Yet, so far it has gotten very little public attention.

Why a Regional Model?

The name of the organization responsible for bringing the global community together to address the biological crisis—Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services—is limiting and problematic.

Should global public policy on mitigating biological annihilation be guided only by science, and by economics via ecosystem services? Should we also not consider the arts? The humanities?

The crisis is as much cultural and political as it is scientific. We also need an ethical lens to apprehend the tragedy. For that we need arts and humanities.

Species in Peril Along the Rio Grande was conceived with an expansive interdisciplinary frame, which includes visual arts and culture, music, performances, stories, law, and public policy, informed by science and Indigenous ecological knowledge. The main exhibition at 516 ARTS in Albuquerque is accompanied by extensive public programming hosted by 516 ARTS and partner organizations from both sides of the U.S.–Mexico border.[15] This collaboration among unlikely allies is an example of building bridges (not walls) across nations, peoples, disciplines, and creative practices.[16]

This may be the first time that communities across a large region spanning two nations have engaged the biological crisis in such an expansive and distributed manner with a shared concern and generosity.

In April 2017, I had convened a public forum in Albuquerque, *Decolonizing Nature: Resistance, Resilience, Revitalization,* which included a four-day conference at the National Hispanic Cultural Center and a two-week exhibition at 516 ARTS. At the time, Suzanne Sbarge and I first discussed the possibility of organizing an exhibition focusing on the biological crisis. The following year, Josie Lopez (then curator at 516 ARTS) and I discussed how we might proceed curating the exhibition. In short order, the three of us put our heads together—and the planning for *Species in Peril Along the Rio Grande* started in earnest.

The few questions that animated our early planning were:

At what scale do we engage—local, regional, global?
How do we select the artists and from where?
What stories do we tell?

After carefully considering several recent environmentally themed art exhibitions for guidance, we opted for a different approach—a regional model, but one that is binational. We also decided to include only artists who live in the selected region. I now offer some rationale for these choices.

When a planetary crisis like the climate crisis or the biological crisis is presented at a global scale, we begin to lose local complexity and politics. On the other hand, if we present it at a hyper-local scale, we lose the big picture. It's worthwhile to search for a sweet spot where we retain much of the local complexity while at the same time don't lose sight of the larger story.

The fabled and endangered Rio Grande, or Río Bravo as it is known in Mexico, its basin, and the associated U.S.–Mexico borderlands offered an appropriate scale and complexity.

We are honoring the extraordinary yet overlooked ecological vitality of our region. Take, for example, New Mexico.

- Did you know that New Mexico ranks third nationally (after California and Arizona) in diversity of wild birds?[17]
- A "desert wasteland" to some, New Mexico harbors 546 wild bird species, which is nearly half of the national avian diversity. How does New Mexico's diversity of wild birds compare to some of the most biologically diverse places around the world—say, the Western Ghats in India or Yasuni National Park in Ecuador? The Western Ghats and Yasuni provide a home for 508 and 596 wild bird species, respectively.
- Did you know that New Mexico ranks third nationally in diversity of native mammals? With 179 native mammal species, New Mexico trails behind California and Texas, while the Western Ghats and Yasuni provide a home to 139 and 173 wild mammal species, respectively.[18]
- Did you know that New Mexico is home to more than a quarter of the native bee species in the U.S.? Of the 4,000 species of native bees that live in the U.S., New Mexico is home to about 1,100, which is more than 5% of the global diversity of bees.[19]
- Did you know that New Mexico ranks fourth nationally (after California, Texas, and Arizona) in overall diversity of wild species?[20]

We are yet to publicly acknowledge and celebrate such profusion of life. What we do speak about, however, reads like a litany of social tragedies. New Mexico ranks among the worst nationally—in environmental injustice, education, child welfare, poverty, opioid crisis—a consequence of the long history of colonial violence and capitalist exploitation. I also did not raise questions about the ecological vitality of my home state until two years ago, when I began to think seriously about *Species in Peril Along the Rio Grande*.

The ecological vitality of New Mexico and the interspecies connectedness is in peril. Take, for example, the recent piñon die-off, which was the most widespread loss of biological life in New Mexico since the turn of this century. Over a four-year period, from 2006 through 2010, I had made photographs of the piñon die-off and had wondered about the larger ecological impacts—who else might die following the die-off of New Mexico's state tree?[21]

We are finally beginning to find out something about the scale and significance of that larger loss. Last year, Los Alamos National Laboratory ornithologist Jeanne Fair and her colleagues released the results of a 10-year bird study on the Pajarito Plateau of New Mexico's Jemez Mountains, where some of the worst piñon die-offs had occurred. The study shows that between 2003 and 2013, the diversity of birds declined by 45% and bird populations, on average, decreased by a staggering 73%.[22] Consider the irony of that on a plateau whose Spanish name, Pajarito, means "little bird."[23] Two of my students, Leia Barnett and Dylan McLaughlin, are working on addressing the tragedy.[24]

But why did we only select artists who reside in the region?

Our aim is not merely to raise awareness through arts and visual culture but also to build a community that will make a long-term commitment to engage the crisis.

We are also honoring the cultural diversity of the Rio Grande Basin. Again, take New Mexico. The extraordinary diversity of lifeways in New Mexico—with 19 Pueblo communities, the Navajo Nation, three Apache tribes, Hispano and Latinx Americans, and Anglo and other communities—anchors a variety of human relationships with nonhuman species.

To honor Native land, peoples, plants, and animals along the Rio Grande, the exhibition's public programming includes an evening event, *Honoring Traditional Ecological Knowledge of the Rio Grande,* held at the Valle de Oro National Wildlife Refuge in Albuquerque on Indigenous Peoples' Day.

After we finalized the geographic scope and how we would select artists, we then discussed various broad themes to frame the exhibition. Three terms emerged: acknowledgment, awareness, and action, and a bit later I added accommodation. Below I discuss briefly acknowledgment and accommodation.

Acknowledgment—Past & Present

The exhibition and the associated public programs are taking place in the traditional homelands of Indigenous peoples. We begin this exhibition catalog with a Land Acknowledgment by Rosie Thunderchief (Diné, Pawnee, Arapaho & Cheyenne, Ho-Chunk, Lakota), Roger Fragua (Jemez Pueblo), and Brophy Toledo (Jemez Pueblo).

I also offer a few examples of how the exhibition artists are engaging the tragedy and developing their work.

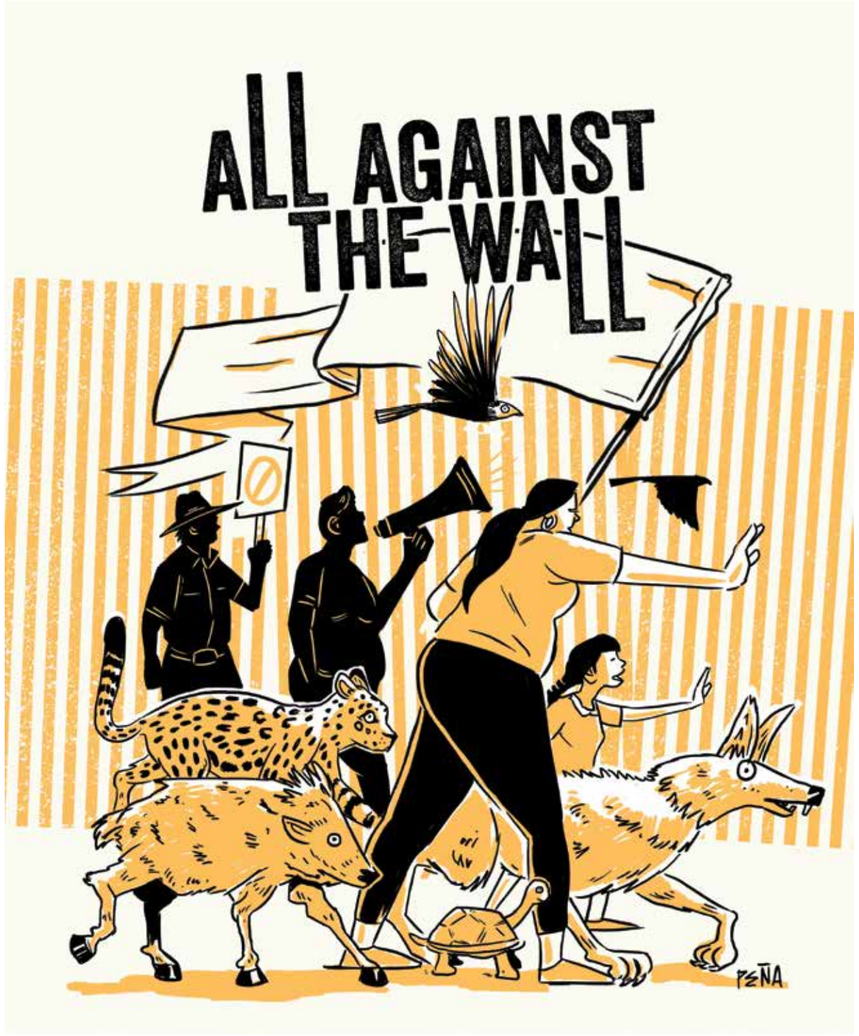
In late June 2019, we received a list, "Species in Peril in the Rio Grande Watershed," from the Center for Biological Diversity, one of our two national partners. The list includes 46 animals and 25 plant species. Created with mud and pigments collected from the Rio Grande Valley, *Evaporation* by artist Ruben Olguin is a mud mural that acknowledges the endangered and threatened species along the Rio Grande.

Below is another example of how artists using different creative media are acknowledging the Rio Grande in peril and the creatures who live in and/or depend on the river for survival.

On May 7, 2018, NM Political Report published an article, "A Dry Rio Grande in Springtime Isn't Normal. But It Will Be," by New Mexico environmental journalist Laura Paskus.[25] The article opens with "I smell the mounds of dead fish before seeing them," placed underneath a picture of dead fish and tree branches on the dry riverbed, taken by Paskus herself (see her essay "Repentance and Redemption on the Rio Grande" earlier in this catalog). At the time, Paskus was a student in my spring course, *Integrative Ecology & Social Transformation*. A year later, three graduate students at the University of New Mexico, Marisa Demarco from Experimental Art + Technology, and Dylan McLaughlin and Jessica Zeglin from Art & Ecology, inspired by Paskus's article from the previous year, created a musical score based on the Rio Grande streamflow data. The score, titled *There Must Be Other Names for the River,* was performed by six Albuquerque-based singers on April 19, 2019, at the UNM Art Museum and the following day on the bank of the Rio Grande. Paskus was in attendance at the museum and was deeply moved. So was I by the heartrending performance. The *Species in Peril Along the Rio Grande* public programming also includes a performance of *There Must Be Other Names for the River* at the National Hispanic Cultural Center.

We also acknowledge past injustices. The large-scale massacre and near extinction of the buffalo in the 19th century paved the way for white settler colonial expansion into the American West, while destroying Native American food security and a way of life. For the exhibition, Indigenous artist Cannupa

Marisa Demarco, Dylan McLaughlin & Jessica Zeglin
There Must Be Other Names for the River
2019
Performance featuring singers Jessica Chao, Monica Demarco, Ryan Dennison, Ken Cornell, Antonia Montoya, and Mauro Woody



Hanska Luger created *Be(Longing)*, a life-sized ceramic and steel sculpture of a buffalo skeleton, with accompanying video, as an acknowledgment of past biological annihilation and colonial violence as well as a call to action to avert similar future massacres.

Accommodation in the Borderlands

Did you know that the U.S.–Mexico borderlands are some of the most biologically diverse places in North America?

Bookended by the Pacific Ocean and the Gulf of Mexico, the borderlands traverse six eco-regions—through California, Arizona, New Mexico, and Texas in the U.S.; and Baja California, Sonora, Chihuahua, Coahuila, Nuevo León, and Tamaulipas in northern Mexico—and are home to 1,506 native terrestrial and freshwater animal and plant species, according to a study by Defenders of Wildlife, our other national partner.

Last year, Defenders of Wildlife organized a letter, "Nature Divided, Scientists United: US–Mexico Border Wall Threatens Biodiversity and Binational Conservation," which was endorsed by more than 2,500 scientists.[26] The letter highlights that the Trump administration's efforts "to complete a continuous border 'wall' threaten some of the continent's most biologically diverse regions."

To bring attention to the letter among our community members, I coauthored an op-ed with two colleagues at the University of New Mexico, biologist Joseph Cook and historian Samuel Truett, in which we point out that the science letter is the latest "in a series of acts of resistance from scientists, scholars, environmental justice advocates and Indigenous peoples living in the U.S.-Mexico borderland."[27]

Artist Zeke Peña's *All Against the Wall* is participating in this broader culture of resistance.

All Against the Wall is intergenerational and interspecies and makes a plea for accommodation (or living with wild animals), not extermination. It is an exemplary illustration of multispecies justice. Multispecies justice brings concerns and conservation of biotic life and habitats into alignment with environmental justice and Indigenous rights.[28] With a spare color palette (yellow, black, white, and gray), the lively illustration packs political ecology with humor and a hard punch.

Peña's use of "All" also brings to mind Indigenous multispecies cosmology—All Our Relations.

But it isn't only the charismatic, cartoonish, and cute mammals and birds in peril that deserve our attention. Equally important are the overlooked invertebrate creatures, like freshwater mussels, that also are caught up in the politics of ecology in the borderlands.

Last year, the U.S. Fish and Wildlife Service added the Texas hornshell mussel to the U.S. endangered species list. Celebrating the designation as the latest result of a "landmark agreement" between the Center for Biological Diversity and the federal agency, the center also highlighted the threats in a press release: "The last surviving native freshwater mussel in New Mexico, the hornshell is threatened by plans for a new dam, pollution and diminishing water in rivers due to global warming and agricultural and municipal use."[29]

Zeke Peña
All Against the Wall
2018
Digital illustration, created for Southwest Environmental Center (Las Cruces, New Mexico) to call attention to the harm that the border wall causes wildlife and our communities. For more information: wildmesquite.org

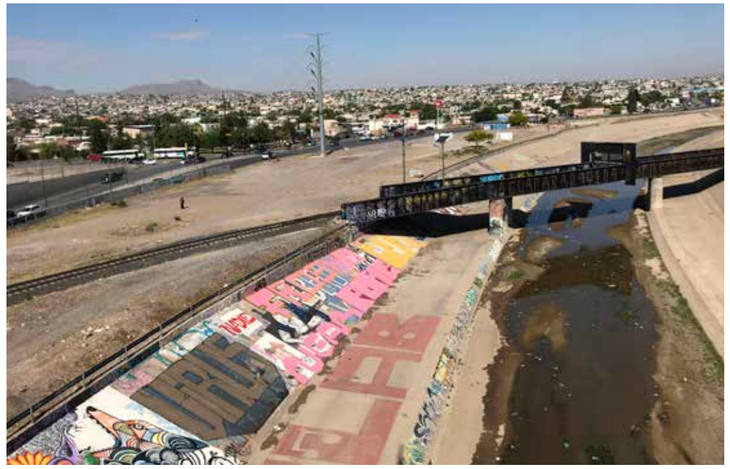
There is also the threat of oil and gas development.

Not everyone was thrilled with the listing. The *Albuquerque Journal* reported that then congressman Steve Pearce, who represented southern New Mexico, was "concerned that the listing may harm business in that corner of the state and the state as a whole as a result of decreased energy production."[30]

There is fear that the listing would endanger oil and gas development in southeastern New Mexico. As it happens, oil and gas production has already caused trouble for the hornshell. The Center for Biological Diversity press release also pointed out that one of the reintroduced populations in the Delaware River in New Mexico likely was wiped out two years ago following an oil and wastewater spill from a ruptured pipeline.

If you take this hyper-local story of an overlooked species and connect it to the Trump administration's current attempt to gut the U.S. Endangered Species Act, you will realize how the public policy of a nation endangers imperiled species.

Artist laura c carlson first brought to my attention that the freshwater mussels are among the most endangered families of animals in North America. carlson's passion to amplify the plight of mussels through art and education is infectious. With five dremel-etched drawings on glass panels, a concrete sculpture, and a zine, carlson's work in the exhibition honors the freshwater mussels of the Rio Grande and its tributaries in the Mexico-U.S. borderlands—and urges accommodation, not extermination. Invoking each mussel's capacity to filter enormous amounts of water, the artist offers a provocation: "If a mussel can't survive in your river, you can't live off of that river."



View of the Rio Grande walking over the Santa Fe Bridge between El Paso and Ciudad Juárez. Photograph by Suzanne Sbarge

What's Next?

Species in Peril Along the Rio Grande was developed by 516 ARTS in partnership with the Art & Ecology program at the University of New Mexico. Over the past two years, the Art & Ecology program convened two environmental justice conferences—*Decolonizing Nature: Resistance, Resilience, Revitalization* in April 2017 and *the last oil: a multispecies justice symposium on Arctic Alaska and beyond* in February 2018—and several speaker series lectures, including the *Global Futures Initiative* series in spring 2019.[31]

Species in Peril Along the Rio Grande is a continuation of these community-engaged scholarly efforts, and the most expansive and significant to date.

The Art & Ecology program is now making a long-term commitment to address biological annihilation. We are in the process of developing a global research, creative practices, and public outreach initiative: Biological Annihilation Omnibus. We plan to launch the initiative website in December 2019 (biologicalannihilation.unm.edu).

There is more. Last year, Albuquerque's BioPark became the first facility in the United States to become a hub for the IUCN. In attendance at the partners' meeting at 516 ARTS was Clayton Meredith, the IUCN Red List Officer for Plants at the BioPark. His colleague Tim Lyon is assessing freshwater fish. "With the recent addition of two Red List assessors, the ABQ BioPark is now at the leading edge of conservation research worldwide," the *Albuquerque Journal* reported.

With the expansive kickoff of *Species in Peril Along the Rio Grande* at 516 ARTS—and the upcoming efforts of the Art & Ecology program at the University of New Mexico and the IUCN initiative housed at the BioPark—cultural, academic, and conservation institutions in the Rio Grande Basin are making a commitment to foster creative production, public scholarship, and outreach on biological annihilation.

We hope that our collective efforts will prove informative, inspiring, and generative for our region and beyond.

I close with what my Gwich'in relatives of Arctic North America taught me.

Mahsi choo shalak nai (thank you all my relations)!

Subhankar Banerjee is Lannan Chair and Professor of Art & Ecology at the University of New Mexico. His creative, scholarly and activist work over the past two decades have focused on biological annihilation and climate breakdown, and on defending critical nurseries and Indigenous rights in Alaska's Arctic, including the Arctic National Wildlife Refuge. His photographs have been shown in more than fifty exhibitions around the world; an exhibition of his work will open at the Harwood Museum of Art in December 2019. Subhankar is editor of the anthology *Arctic Voices: Resistance at the Tipping Point*, and coeditor with TJ Demos and Emily Eliza Scott of the forthcoming book *Routledge Companion to Contemporary Art, Visual Culture and Climate Change*. Subhankar received a Greenleaf Artist Award from the United Nations Environment Programme and a Cultural Freedom Award from Lannan Foundation.

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30. Maddy Hayden, "Mussel in Southeast New Mexico Listed As Endangered," *Albuquerque Journal*, February 10, 2018.

31. See the websites for the *Decolonizing Nature* (http://decolonizingnature.unm.edu) and *the last oil* (https://thelastoil.unm.edu) conferences and the *Global Futures Initiative* speaker series (https://thelastoil.unm.edu/global-futures-speaker-series/).

32. Rick Nathanson, "ABQ BioPark Has Lead Role in Species Conservation," *Albuquerque Journal*, August 6, 2018.