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BIRDING THE FUTURE: MESSAGES OF MIGRATION, CONNECTIVITY AND EXTINCTION

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Abstract

Birding the Future is an interdisciplinary artwork that explores current extinction rates by focusing on the warning abilities of birds as bioindicators of environmental change. The installation invites visitors to listen to endangered and extinct bird calls and to view visionary avian landscapes through stereographs, sculpture and video. This ongoing project explores how declining bird populations signal profound changes over our entire planet. Birds are a bridge species in that they offer a way to collaborate across environmental issues that are collectively shared, yet separately valued, and enter conversations that would not be possible otherwise. We explore here the methods and technologies used within our artwork and collaborative project with the Smithsonian National Museum of Natural History and the Pueblo of Zuni to document and communicate the role of birds as messengers of change. We also discuss how through this transdisciplinary and cross-cultural collaboration the project is shifting through learning Zuni community values of "the return"—the annual return of water, birds, and life to the desert as critical elements that defines the cycle of life—not just for an individual or particular place, but for the world as a whole.

Keywords: indigenous knowledge, birds, ecology, art, technology

INTRODUCTION

Birds provide a unique window into the cultural, technological and multi-species entanglements of our time. Unrestricted by human-imposed borders, approximately five

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billion birds migrate every year linking cultures, countries, and ecologies, and thereby revealing issues that are collectively shared (Migratory Connectivity Project 2017). Declining bird populations in practically all habitat types signal profound changes over our entire planet, changes that affect our ecologically-bound cultural identities.

Birding the Future is an ongoing artwork exploring current extinction rates by focusing on the warning abilities of birds as bioindicators. The installation invites visitors to listen to endangered and extinct bird calls and view visionary avian landscapes through stereographs, sculpture, and video (Fig 1).

Figure 1 - *Birding the Future*, 2018. VisArts, Rockville, Maryland. Reclaimed wood, 14 channel sound, 5 channel video, 10 slide views, 32 stereographs. This installation was supported in part by funding from the Montgomery County government and the Arts and Humanities Council of Montgomery County, MD.

In 2017, as part of a Smithsonian Artist Research Fellowship (SARF), the artists from *Birding the Future,* Krista Caballero and Frank Ekeberg, began working with Gwyneira Isaac (National Museum of Natural History (NMNH)), and Octavius Seowtewa, Eldred Quam, Presley Haskie and Curtis Quam from the Pueblo of Zuni in New Mexico, to explore the cultural implications of bird species decline. This community-centered aspect of *Birding the Future* introduced questions about scientific, artistic and cultural concepts of environmental change, as well as how technology might be utilized to record, measure and, as a result, facilitate an experience of this change. From the beginning we have been interested in the concept of the shifting baseline syndrome (SBS), used broadly across the sciences. Through collaboration with our Zuni colleagues, however, we were able to expand upon SBS to introduce cultural concepts such as “the return” as a critical indicator of change; the return to a place, the return of the birds, the return of seasonal waterfall, and finally our own return to reexamine and revisit core questions that *Birding the Future* has been asking from the beginning. We

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explore here the methods and technologies used within our artwork and collaborative project with Zuni to document and communicate the role of birds as messengers of change.

THE RETURN

Figure 2 - *Birding the Future*, field-based research, Zuni, 2017.

Embarking on a collaborative project with colleagues from the Pueblo of Zuni appeared, at the start, as a straightforward project about cross-cultural values and Indigenous perspectives on migratory birds. Initially, our first days of research were spent in Zuni talking in-depth about the project and the ways in which the artists, community members and scientists could convene around the topic of migratory birds and work together to help a broader audience understand issues around their rapid and precipitous decline. The Zuni team, which is made up of members of the Zuni Cultural Resources Advisory Team (ZCRAT)—Octavius Seowtewa, Eldred Quam, Presley Haskie and Curtis Quam—soon decided it was crucial for the group to spend time in the lands around Zuni to observe the birds that are present in the region. What we did not foresee, however, was how these encounters in the landscape would become pivotal turning points to productively divert the project and reveal how, for Zunis, birds, ancestors and water are a continuum, and are all elements in an indivisible cycle of the gift of water that comes with the annual return of ancestors as clouds, brought on the backs of birds. The lessons shared with us through our on-foot explorations of Zuni lands came as

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firsthand experiences on how everything is interdependent and all elements are valued equally—from the beetle and the ant, to water, humans and birds.

On our first walk through Zuni lands, we had to absorb the distressing fact that the water that had once fed the Zuni River and the small regional canyons had either been dammed at Black Rock and the annual cycle of snowmelt and water flow disrupted, or water had been siphoned off further upstream by farming communities north of Zuni. For Isaac, who had lived in Zuni in the late 1990s and spent summer afternoons evading the heat alongside the running waters of these canyons, it was heartbreaking seeing them now nearly dry with stagnant pools (Fig. 2). Moreover, this change in the water-habitat was more apparent to her due to the lapse of time in between her visits to this canyon—first in the 1990s and then returning in the 2010s.

The experience of the return to the canyon provides rare insight into how we know something is or has changed, and how this change is measured. Furthermore, it highlights how, in general, change too often goes unnoticed and unobserved. This "psychological and sociological phenomenon is termed [the] shifting baseline syndrome," which explains how, "in the absence of past information or experience with historical conditions, members of each new generation accept the situation in which they were raised as being normal" and, as a result, the shifts that are taking place are not in fact comprehended (Soga & Gaston 2018). Put another way, and from a different discipline, it's an 'extinction of experience' as described by Robert Michael Pyle (2013), in which local and regional extinctions are widespread, meaning that each generation subsequently knows and experiences fewer species and less biodiversity (Fig 3).

Birding the Future explores these concepts through sound and visuals, examining the changes to habitats that are directly affecting migratory birds. Through collaboration with Zunis, the project is now shifting through learning how this community values "the return"—the annual return of water, birds and life to the desert as critical elements that defines the cycle of life—not just for an individual or particular place, but for the world as a whole. The idea of "the return" soon also became a way for the team to connect how the artists were exploring habitat destruction with how Zunis conceived of this.

When *Birding the Future* began in 2013 we had asked, "How can traditional ecological knowledge be combined with technological advances to surpass what any one way of knowing can offer?" Within this transdisciplinary team, however, it became clear that we also needed to identify meaningful elements that were shared or commonly understood between the different intersecting groups. If the premise was to find out how birds communicate environmental change, we also needed to ask: firstly, who is listening, and secondly, how are they remembering or recording what the birds' behaviours are communicating? The artists, NMNH museum and community had been employing different ways of observing and recording the birds. In the following sections, we first explore how the artworks use technology to record migratory birds, and how this creates a parallax effect—both in the soundscape as well as the stereographs. Secondly, we explore how archival images found at the NMNH offer insight into how repositories are a fundamental part of the institutional process of

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recording and indicating change, and lastly, and most central to this exploration, how Zunis were using traditional annual ritual cycles as a memory and recall method.

Figure 3. *Birding the Future,* stereograph from RheinMain Germany Series, 2018.

THE INSTALLATION: TECHNOLOGY, TIME AND THE PARALLAX EFFECT

For the past seven years, *Birding the Future* has been exploring the potential of collaboration and transdisciplinary imaginings to make new forms of agency possible—recognising and responding to how we are living through the "Sixth Extinction" where the loss of species and biodiversity is occurring at an alarming rate (Barnosky et al. 2011). Across cultures and continents, birds have been seen as "message bearers," able to communicate the future, announce changes in weather and

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warn of coming disaster. Seen by many to be barometers of environmental health, almost a third of all bird species will have disappeared by the end of this century (Sekercioglu 2008).

Figure 4 - *Birding the Future*, installation view. Kunsthall Trondheim, 2017. Photo credit: Aage A. Mikalsen/ Kunsthall Trondheim.

To date there are seven region-specific iterations of the project: Queensland Australia, the Arabian Peninsula, Norway, Mid-Atlantic USA, RheinMain Germany, Sky Islands AZ, and a series focused on laboratory birds. By focusing on local ecosystems in a number of regions across the world, this ongoing project combines notions of site-specificity to highlight regional trends while simultaneously mapping global commonalities.

Within each installation, calls of extinct and endangered birds are combined with non-vocalisation sounds of birds. Extensive sound spatialisation is utilized to create a multi-channel, immersive sound environment where calls of extinct birds act as a memory and underscore technological reproduction as the only means to hear certain species. These are paired with calls of endangered birds from the region, which are extracted to create Morse code messages based upon tales, stories, and poetry in which birds speak to humans (such as, “Our fate is your fate” from *The Conference of the Birds* by 12th century Sufi poet Farid Attar (1984)). Using a real-time control algorithm, the projected extinction rate for the region is scaled to the duration of the exhibition by decreasing the density and diversity of bird calls. Reflecting projected extinction rates, the longer you stay the fewer birds you will hear (see sound file: https://www.birdingthefuture.net/art-extinction).

The soundscape is paired with a series of stereographs, which reveal the entanglements of birds, people and the complexity of our diverse and shared worlds. Popular from the mid-nineteenth century through to the early twentieth century, the stereoscope was

chosen by the artists as the viewing instrument for its interactive potential to heighten perceptual awareness and provide a historical link to human impact on the environment. The viewer's gaze wanders back and forth between foreground and background, and by doing so continuously shifts one's point of view within the frame (Fig 4). In this way the stereograph plays with the act of looking and the viewer is challenged to consider how the lens through which one looks then translate into ways knowledge is constructed. On the front of the stereographs, composite photographs of real and imagined environments highlight regional specificities. On the back, textual analysis explores the complexities of our more-than-human world via poetry, scientific data and other habitat and behavioural information (Fig 5, 6 and 7) (Caballero & Ekeberg 2014).

Figure 5 - *Birding the Future*, stereograph from Queensland Australia Series, 2013.

These chosen media and methods emphasize change. In the case of the soundscape, a visitor who leaves *and* returns will find marked changes in the number of birds present in the beginning and that are then absent later on in the duration of the exhibit. It is the visitor's departure and return to the gallery that allows them to have an initial baseline and then re-observation and recognition of the changes and extinctions that have taken

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place. Similarly, the use of the stereoscope forces the viewer to consider their current position in time and space relative to when these technologies were being used in the 19th century (Fig 8). This pairing of specific sound and vision technology amplifies the visitors' awareness of what technology is being used to record the birds, and in addition, how this also is used not only to indicate, but to provide for the visitor a firsthand experience that they embody as the changes which are taking or have already taken place. This provides a parallax effect much like when we are in a vehicle and perceive the movement of objects close to us as moving quickly, and objects further away as barely moving or as inert. The soundscapes and stereoscopes are the methods by which objects or sounds alert the visitor to the change, like the objects that appear to move more quickly due to their position close to the viewer. Thus, the overall effect of the technology heightens the viewers' understanding of declining bird populations.

Figure 6. *Birding the Future*, stereograph from Mid-Atlantic USA Series, 2016.

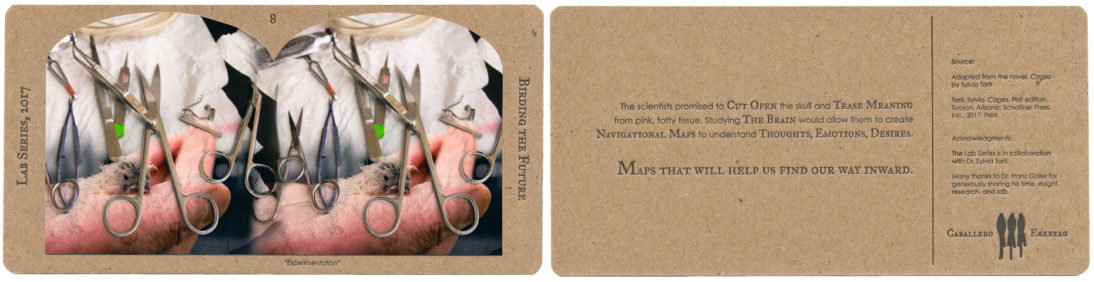

Figure 7. *Birding the Future*, stereograph from Lab Series, 2016 (text by Sylvia Torti).

As *Birding the Future* aimed to generate new scholarship with regards to ethno-ornithology and the role visual cultures might also play in understanding the complexities of our more-than-human world, we began collaborating with the NMNH and colleagues from the Pueblo of Zuni to explore the cultural and artistic implications of bird species decline across borders with particular focus placed on indigenous and local ecological knowledges.

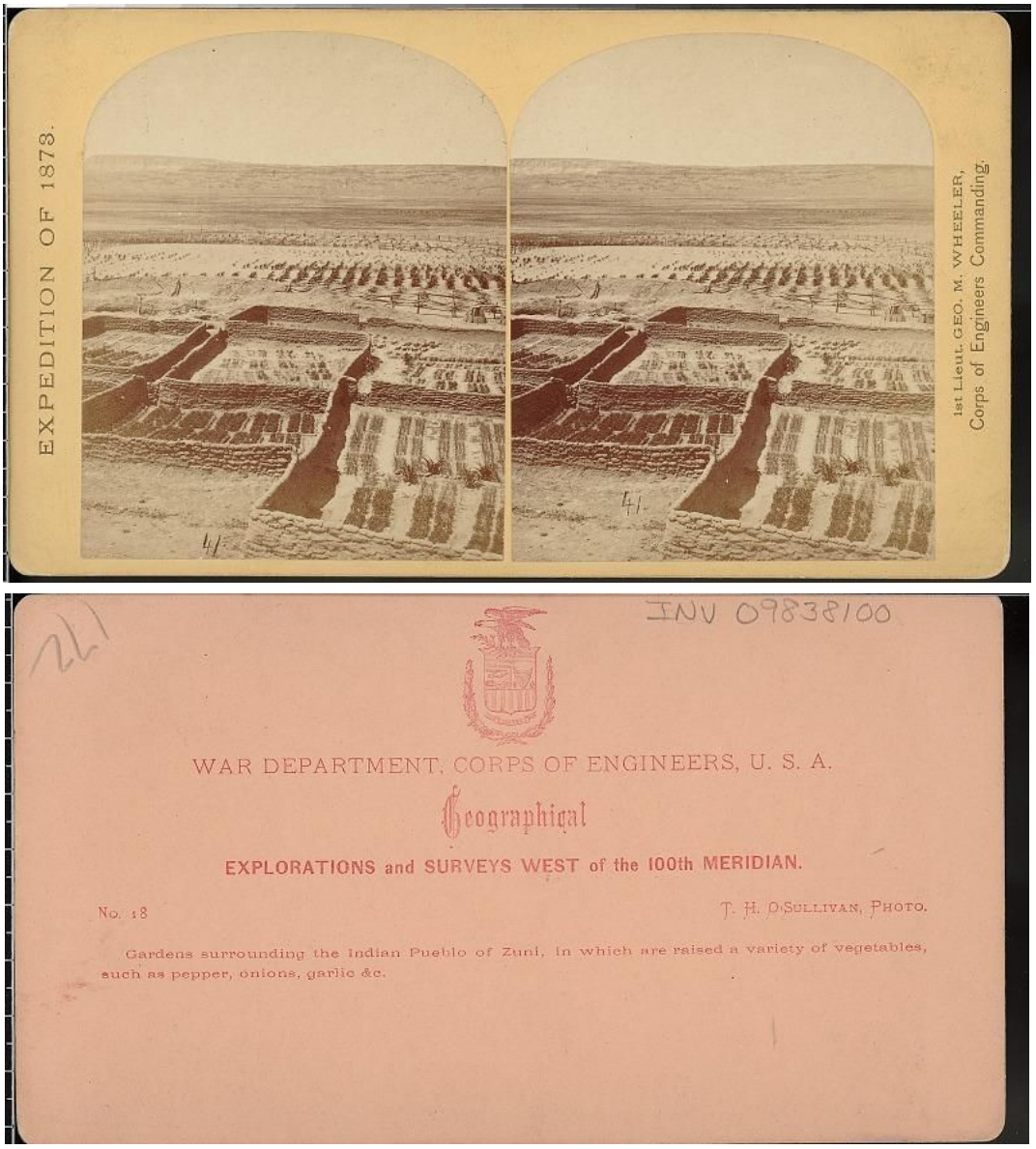

Figure 8. Timothy H. O'Sullivan, 1873. Gardens surrounding the Zuni pueblo. National Anthropological Archives, Smithsonian Museum Support Center, Suitland, Maryland.

THE REPOSITORY: UNDERSTANDING "THE RETURN" THROUGH ARCHIVAL COLLECTIONS

A critical part of the research element of *Birding the Future* has been consulting archival documents at the National Anthropological Archives (NAA), Department of Anthropology, and Division of Birds collections at the NMNH, including the ethnographic work of Frank Hamilton Cushing and Matilda Coxe Stevenson, both of whom worked as part of expeditions to Zuni in the late 1800s. These expeditions were the first conducted under the aegis of the Bureau of American Ethnology (BAE) and were, therefore, the first anthropological collections made of Zuni, consisting of ethnographic objects, photographs, and ethnobotanical specimens.

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Figure 9 - Jesse L Nusbaum, 1911. View of River and Mesa in Distance, Corrals and Pueblo Nearby 1911. National Anthropological Archives, Smithsonian Museum Support Center, Suitland, Maryland.

Images we uncovered from the archive from the 19th century brought into stark relief the environmental shifts that had taken place since these first expeditions to Zuni and provided a rich starting point for dialogue with our Zuni colleagues. In particular, these archival images provided valuable insight regarding what the Zuni river used to be like in the late 19th century (Fig 9), and showed it as a seasonal watershed that provided rich silt for farming, as well as water for human use and irrigation. This state of the river was subsequently altered in the early 1900s by the development of the Black Rock Dam by the Bureau of Indian Affairs (Dodge 2007). This history of interventions in the Zuni watershed was remembered at the United Nations Permanent Forum on Indigenous Issues (2011) discussion on "The Right to Water and Indigenous Peoples":

> 'For countless generations in the high desert region where rain is very rare and the land is constantly thirsty, the Zuni River flowed through the village sustaining the Zuni / A:shiwi people [...] The Zuni River was dammed and diverted by the Ramah Cattle Company, empowering Mormon missionary settlements upstream [...] 1982 was the last time the river flowed through the village since the Ramah Dam was built. The precious waterway on which the community has relied for centuries, died in its sleep. A dead dry riverbed remains where the river once flowed. What was once a rich landscape awake with gardens, wheat and cornfields, is a parched land that only tears can soften today.'

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During our work at Zuni, the ZCRAT members shared with us similar stories, remembering being children and playing in the river, recalling a river that provided important habitats for many of their most beloved and important bird species. It became clear that the history of climate shifts in the region and birds of the region, is a history connected to water (Fig .10).

Figure 10. *Birding the Future*, field-based research, Zuni, 2018.

These changing environments and water shortages affect not only bird life habitats, but agricultural practices. Traditionally, the Zuni used what are called "waffle gardens," a type of small-scale vegetable garden divided into small squares resembling a waffle. These gardens are surrounded by low walls or rocks to help contain water, as well as to protect the plants from rabbits and other animals and give protection from the wind. They are typically built near the river, and are used to grow plants on a smaller scale that were water intensive. Although this method was largely abandoned when the river no longer had a significant flow that also brought seasonal silt, it is being revitalised by the community museum in Zuni—the A:shiwi A:wan Museum and Heritage Center (n.d.). The lead for this project, Curtis Quam, is working to regenerate the waffle gardens as a way to engage Zuni youth in their cultural traditions and lifeways (Fig 11). Quam is also now in partnership with the Smithsonian, *Doye:na:kwe: Zuni Desert Farming Then, Now and Future,* a project that will use historic photographs from the NAA that preserve valuable information about traditional farming, using these in conversations with elders to help draw out and share this knowledge with Zuni youth.

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Figure 11 - Community waffle gardens, Zuni Youth Enrichment Project, 2019.

Another component of our research brought us to the National Bird Collection in the Division of Birds at NMNH. As the third largest bird collection in the world, over 640,000 specimens are housed here (Division of Birds n.d.). In many ways, visiting these 'skin collections' was overwhelming; the smell of preservation, the sheer number of specimens including extinct species, and finally, wrestling with what it means to archive other beings. One particularly distressing label we encountered was on the talons of an owl and read: "Shot from oak tree where it was sitting with its mate at 6000 feet" (Fig. 12). This text was striking as it offered more information than most labels we saw in the collection, which simply record the date and location of death. Through this systematic recording of deaths, we were being taught to recognise these birds according to scientific scales and measurements of being, and loss.

Figure 12 - *Birding the Future*, field-based research at the National Bird Collection, 2017.

While in the collections we asked to see the now extinct Carolina Parakeet, called *puzzi la née* ("head of yellow") or *pot pot chee* by the Seminole and *kelinky* in Chickasaw (Snyder & Russell 2002). The last known wild Carolina Parakeet was killed in 1904 and the last known individual died in captivity in the United States at the Cincinnati Zoo in 1918. The Carolina Parakeet was declared extinct in 1939 (National Audubon Society n.d.). We encountered the drawer where they had originally been housed, which revealed only bared scrappy feather remains and a note stating "all specimens moved to Extinct Collection," a high security vault (Figs. 13 and 14). Access to this vault is carefully guarded and official permission must be sought by researchers needing to work on these collections. These are the indicators of no-return—the museum now invests in the concept of extinction as a value and resource in itself.

Our experiences in the museum revealed the different knowledge systems and ways for comprehending interspecies relations, but also required us to expand our understanding of the diverse ways in which knowledge is conceived, produced and shared. These encounters also highlighted the contrasts of the museum environment with the views of the people of Zuni about birds as community members who are part of an intricate, connected ecosystem that includes all forms of life, and their value as ancestors who return to bring the clouds and rain from the South.

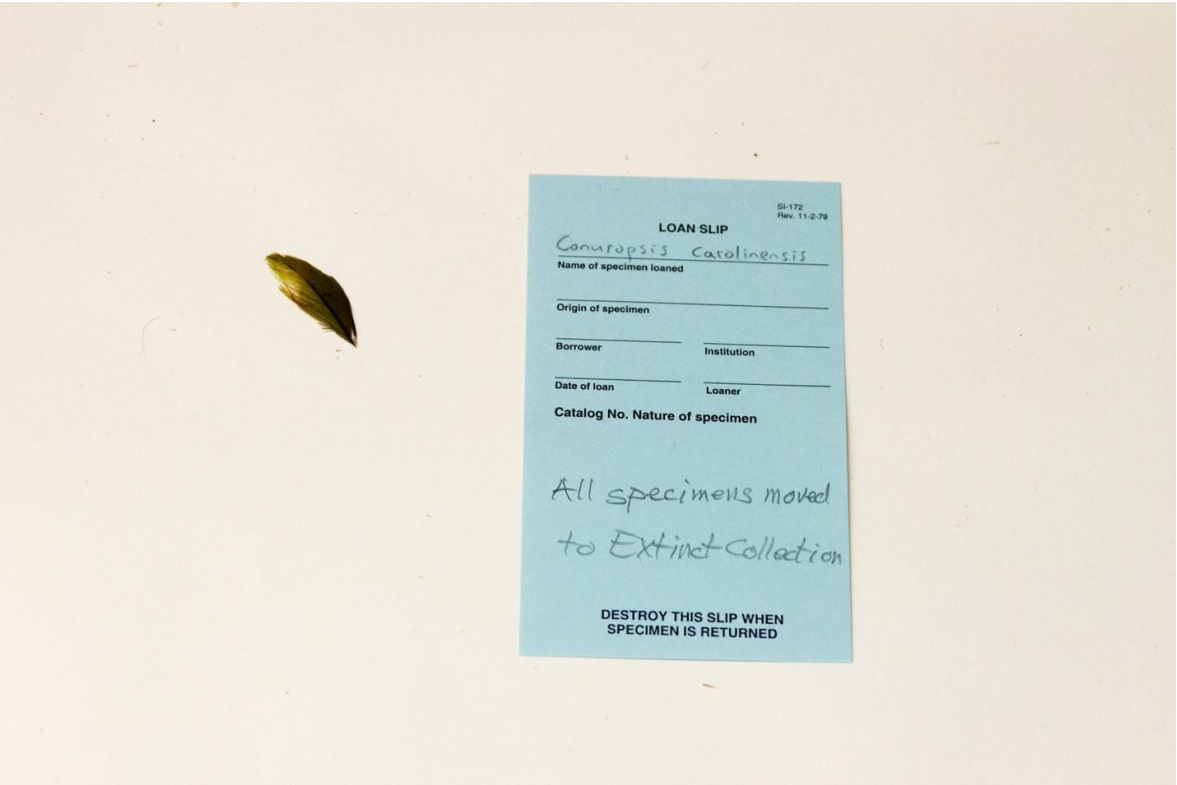

Figure 13 - *Birding the Future*, field-based research at the National Bird Collection, 2017.

Figure 14 - *Birding the Future*, field-based research at the National Bird Collection, 2017.

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THE COLLABORATIVE RE "TURN"

Birds are a bridge species in that they offer a way to collaborate across environmental issues that are collectively shared, yet separately valued, and enter conversations that would not be possible otherwise. This has certainly proven true through this transdisciplinary collaboration that brings *Birding the Future* together with NMNH and Native American cultural specialists in the Southwest.

We return now to our earlier question, "How can traditional ecological knowledge be combined with technological advances to surpass what any one way of knowing can offer?" Through this collaborative work, we began to recognise the need for greater clarification and refinement of this question to better understand the landscape of human-bird encounters over time and place, and inform ourselves about different cultural concepts of interdependence. In the case of this project, we observed how different technologies or methods were used by each group to record or recall change, which led to different concepts of change in each context. Furthermore, if diverse groups conceive of and experience change differently, how will this affect how each of these groups envisions their future? In effect—do we have the same future in mind? And how do we acknowledge the cyclical history of ecological and social devastation in order to move toward more just futures? As described by Kyle Whyte (2016) in "Is it Colonial Déjà Vu? Indigenous Peoples and Climate Injustice":

> 'For many Indigenous peoples, climate injustice does not involve, simply, an 'age of the human' dated to industrial development. Indigenous people often see themselves as participating in cultural and political systems that, from hundreds even thousands of years of experience, are explicitly designed to adapt to environmental change; climate injustice emerges as an issue more recently that is part of a cyclical history of disruptive anthropogenic environmental change caused by settlers and other colonial institutions [...] We will understand the nature of climate injustice against Indigenous people better—and perhaps its solutions too—the more we see it as more like the experience of déjà vu.'

Each cultural or disciplinarily distinct group in the project ascribed a different value to the concept of change. For the artists, the collaborative project also therefore became about weaving together these different values, and being able to identify the nature of this difference and communicate this between the groups—with the birds providing common flight-paths and connectivities.

While collaboration and transdisciplinary work are messy processes, full of friction and potential ethical repercussions, it is also critical to engage these frictions if we are to imagine and create other forms of cross-cultural and political agency. Friction as described by Anna Tsing (2005) becomes a metaphor for "the awkward, unequal, unstable, and creative qualities of interconnection across difference" that continually co-produce culture/s. We believe it is in this exploration of friction as a catalyst for change that we might develop a transdisciplinary praxis for ecological futures—one that also acknowledges and provides sovereignty to indigenous knowledge in its own right

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and environmental context, and where appropriate and in partnership with Indigenous communities, integrates it into the fabric of how we might reimagine the role humanity plays in our more-than-human world.

With these thoughts in mind, and in acknowledging that this project with Zuni is in its early stages with future collaborations still to be considered, we return to and reframe our original question: “How might we bridge knowledge systems using traditional and emerging technologies to develop a cross-cultural praxis for ecological futures rooted in a kinship with the world?”

For additional artwork, please visit: https://www.birdingthefuture.net/

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