ORNITHOLOGICAL PIANO REPERTOIRE IN A TIME OF ECOLOGICAL CRISIS

by

JACOB SKILES

(Under the direction of Liza Stepanova)

ABSTRACT

With current trends in climate science and ornithology, it is increasingly important that the public be made aware of risks to the world around us and given concrete measures by which individuals can have a positive and observable impact on their surroundings. Musicians and artists have an important responsibility to appeal to audiences' ethos and inspire positive change. This dissertation discusses the role of music in bird conservation, based upon the foundational work done by ecomusicologists in the twentieth and twenty-first centuries, and considers the methods by which performers and composers can fulfill their ethical duties through music. It draws upon the existing classical canon, considering bird-centric works by Amy Beach and Olivier Messiaen, and examines a new work, *Avifauna* (2024), commissioned from Matthew Schultheis by the author. This dissertation also examines the work being done by recent composers and performing artists and proposes interdisciplinary collaboration with local ecologists as a method of presenting "ornithological music" than can bring awareness to the threats facing birds and provide tangible methods that audiences can use to act in responsible, sustainable, and immediately impactful ways.

INDEX WORDS: Ornithology, ornithological music, bird music, piano repertoire, Amy Beach, Olivier Messiaen, Matthew Schultheis, zoomusicology, ecomusicology, interdisciplinary performance, art activism

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DEDICATION

To the Athens birding community and to all the people in this country who fight to protect our natural lands and wildlife.

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CHAPTER I

INTRODUCTION

January 2021. I was sitting at the breakfast table in my apartment in Tallahassee, Florida when my phone buzzed. My then-fiancé, now wife, was visiting her family in Jacksonville when she noticed a brilliant and shocking array of color sitting just outside the dining room window. The text I received from her was a picture of a Painted Bunting. I sat there for a moment in utter disbelief, which quickly morphed into jealousy. I did my best to express the magnitude of what she had just witnessed—this bird had, for years, held a mythical status in my mind. As a child I had seen photos and illustrations of this bird in every field guide, but unlike so many of the other species in those books, it just wasn't around—at least not my immediate environment. Its appearance was also unlike any other bird in those field guides. This 4-inch ball of feathers wears a bold outfit of unlikely colors: a rich, royal blue head with a thin, blood red eye ring that matches its red breast and belly, and to cap it all off, a bright lime green back and wings. The bird seemed to-good-to-be-true, and for years, it was. Eventually, my childhood interest in birds faded into the background as other things sought my attention, but the mystery of this beautiful little songbird, which I had never laid eyes on, remained with me. My wife's encounter with this now-very-real bird sparked in us a shared love of these incredible creatures. In the years that followed, we attended a birding class, bought ourselves a pair of binoculars and a myriad of other optical devices, and began to explore the natural areas around us with the goal of seeing as many species as we could find. We even went as far as to plan vacations around certain birds, like the Atlantic Puffin, that we had dreamed of seeing. My childhood passion was fully

rekindled, yet, something was different. Now, I was much more keenly aware of the tragic circumstances and bleak futures that surround so many of these lovely creatures. In the two decades I lived in Florida, I observed the relentless destruction of pristine natural habitat for the sake of sprawling subdivisions, cheap strip malls, and manicured, non-native golf courses. I watched places in central Florida go from a natural paradise to an ecological desert, all while appearing to be bustling with life. American Alligator populations plummeted from human interference and removal—what was once a commonplace sighting became a rare and exciting encounter. The bird populations were no different. Owls which were heard abundantly each night became scarcer and scarcer, and these were just the few species of which I was aware. Rekindling my childhood passion for birds also brought about a severe sense of urgency and concern regarding the future of our natural lands and the ever-increasing human population. How much longer will the wildlife around us exist? What are we doing to ensure we don't stomp out other species' existence? During that spring semester of 2021 at Florida State University, in the months following my wife's Painted Bunting encounter, I had a class with renowned musicologist Denise Von Glahn, who raised questions about how we listen to the world around us and how sound reflects our modern concerns. It was in these discussions that I began to ponder the connection between the sounds of the world around me and the music I perform, and consequently, my responsibilities as a nature-loving classical musician whose career falls in the middle of an ecological crisis. Eventually, I resolved to use my performing career to address these concerns. This project, *Ornithological Piano Repertoire in a Time of Ecological Crisis*, is the result.

The purpose of this research is to examine, from a performer's perspective, methods by which nature-oriented piano repertoire can participate in conservation efforts and environmental

education. The project will consider how the creation of new, ecologically conscious music, and the reinterpretation of existing music can participate in interdisciplinary performance formats that emphasize messages of accessibility and hope. First, we must establish three pillars on which this project rests: the need for ecological action, the connection between sound and nature that allows for interdisciplinary work, and the rich history of birdsong in the classical canon.

The Need for Ecological Action

The habitat destruction I witnessed in Florida is unfortunately not unique to that area. It is a worldwide problem. Across North America, bird populations have declined by about 25% over the past 50 years.[1] The U.S. Fish and Wildlife Services highlights habitat loss as the largest contributor to this decline.[2] While the exact number of birds lost specifically to habitat loss is difficult to measure, they do outline several other risks birds are facing which have far more measurable estimates, such as collisions with man-made structures and predation from domesticated cats.[3] While the USFW and other organizations have a number of highly specialized bird conservation initiatives through the work of environmental and ecological experts, they also acknowledge the potential and need for action by individual citizens and outline suggestions for how everyday people can take measures to improve their surroundings and contribute to citizen science projects.

Additionally, improving bird habitats also builds "climate resiliency" according to Cornell University, home of the renowned Cornell Lab of Ornithology.[4] While bird conservation

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[1] North American Bird Conservation Initiative, 2022, The State of the Birds, United States of America, 2022 StateoftheBirds.org.
[2] "Threats to Birds," U.S. Fish and Wildlife Service, accessed February 19, 2025, https://www.fws.gov/library/collections/threats-birds.
[3] Ibid.
[4] "Bird Habitat Can Put America on a Fast Track to Climate Resilience," State of the Birds 2022, Cornell University, Accessed February 19, 2025, https://www.stateofthebirds.org/2022/bird-habitat-can-put-america-on-a-fast-track-to-climate-resilience/.

certainly brings measurable benefits to climate issues, intangible benefits of increasing interest in birds relate to their observability and the potential to encourage a hopeful attitude towards climate issues. Christian Cooper writes in his recent book *Better Living Through Birding*, "Birds communicate the same ways we do: through sight and sound…they've evolved a stunning range of patterns and colors and, among the songbirds, an astonishing musical repertoire, and we humans are equipped to revel in all of it."[5] Because of this similarity in sensory experience, humans are quick to notice the presence or absence of birds, and with it, the improvements made to their habitats. Jeff Todd Titon writes in his essay "The Sound of Climate Change" that we can tell by the sounds around us whether an ecosystem is a healthy one.[6] Birds are no doubt one of the reasons for that, and they offer us a unique opportunity to observe the impacts of our actions.

The Connection Between Sound, Nature, and Music

We have observed in recent years the emergence of the fields of ecomusicology, biomusicology, and zoomusicology.[7] Scholars in these fields often seek to answer questions about our perception of what constitutes music, or about how we listen to sound, frequently in context of the environmental crisis. Such conversations arose as a result of the work of ethnomusicology in which scholars such as Dylan Robinson challenge colonial listening practices applied by western classical musicians to the music of indigenous communities.[8] Since

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[5] Christian Cooper, *Better Living through Birding: Notes from a Black Man in the Natural World* (New York: Random House, 2023), https://research.ebsco.com/linkprocessor/plink?id=b2e2f5c7-2090-3779-86d2-1c5c7183f4a6.

[6] Jeff Todd Titon, "The Sound of Climate Change," in *Toward a Sound Ecology: New and Selected Essays*, Music, Nature, Place series (Bloomington, IN: Indiana University Press, 2020), 248, https://research.ebsco.com/linkprocessor/plink?id=17a61ef7-1ee8-3e3f-af5e-c9f71fcb4710.

[7] Ana María Ochoa Gautier, "Acoustic Multinaturalism, the Value of Nature, and the Nature of Music in Ecomusicology," *Boundary 2: An International Journal of Literature and Culture* 43, no. 1 (2016): 108, https://doi.org/10.1215/01903659-3340661.

[8] Dylan Robinson. *Hungry Listening : Resonant Theory for Indigenous Sound Studies / Dylan Robinson*. University of Minnesota Press, 2020. https://research.ebsco.com/linkprocessor/plink?id=b1b0897a-dae4-3650-9e9f-c17da1eea4c8.

then, numerous authors including Ana Maria Ochoa Gautier, Jeff Todd Titon, and Emily Doolittle have challenged the way we think about the relationships between music and nature. Titon defines ecomusicology as "the study of music, culture, sound, and nature in a period of environmental crisis," indicating its inseparability from our modern environmental context .[9] At the same time, there has been an increased interest from composers and performing artists in creating and presenting music that brings attention to the climate crisis and advocates for change. If we, as musicians, are to use music for the betterment of the world around us, we ought to establish a framework that justifies such an interdisciplinary effort and considers the schools of thought belonging to these fields.

Ana Maria Ochoa Gautier advocates for developing a posthuman approach to listening, in which humans are not understood to be inherently superior to the rest of nature. She asserts that by not listening and acting with an attitude that we may subdue nature for our own gain, we can bring about a more sustainable culture. Composer and scholar Emily Doolittle adopts a posthuman listening approach that applies also to human music; she sees it as just one form of music amongst many, viewing it not as a superior art form but as an equal with bird music.[10] Meanwhile, Jeff Todd Titon advocates for a relational epistemology of sound that pushes back on the controversial role of scientific realism in ecomusicology.[11]

Following this line of thinking is important for overturning the notion that human music is an elevated art, superior to the sounds of nature. Alternatively, we may conclude that we

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[9] Jeff Todd Titon, "The Nature of Ecomusicology," In *Toward a Sound Ecology: New and Selected Essays*, Series: Music, Nature, Place, Indiana University Press, 2020, 224, https://research.ebsco.com/linkprocessor/plink?id=3f2447df-2290-3d7f-af95-60b9fa4841fd.
[10] Denise Von Glahn, *Music and the Skillful Listener: American Women Compose the Natural World*, Indiana University Press, 2013, 276-77, https://research.ebsco.com/linkprocessor/plink?id=e76282c0-d509-3f9b-b52d-7fe8bb8db49e.
[11] Titon, "The Nature of Ecomusicology," 227-232.

perceive it as such because it is what best suits our ears—it is sound organized by humans, for humans. We might then conclude that, as the music we create is designed to appeal to our own ears, the music created by other species would be most appealing to their own ears. This does not mean, however, that the music created by one species is appealing *exclusively* to others of its kind. Our appreciation for bird music clearly contradicts such a thought. This cross-species musical communication is where we find incredible intrigue, and out of this fascination comes a deeper desire to protect and conserve the sounds of those species that are not like us.

The common response of many authors to the idea of shifting listening approaches is to acknowledge the importance of music in healing our relationship to nature. Ochoa Gautier writes that "music…is that which can suture the torn relationships between humans and the environment."[12] Titon writes that "for humans, nothing represents the sound connection and the sound and just community, economy, and ecology better than music."[13] This means that music is uniquely positioned amongst the art forms, and amongst sound practices, as a method for helping us to understand and connect to the rich soundscapes of the natural world, and further emphasizes the notion that performers of music must consider their own responsibilities given the power they wield through music. Given the present risks facing our environment and considering these thoughts on the connections between sound and nature, I propose that performers have a responsibility to present music that properly represents the state of the world around us. If a performer's job is the realization of music, it now becomes much more than that––it is the realization of the extramusical topic as well.

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[12] Ochoa Gautier, 127.
[13] Jeff Todd Titon, "Sustainability and a Sound Ecology," in *Toward a Sound Ecology: New and Selected Essays*, Music, Nature, Place series (Bloomington, IN: Indiana University Press, 2020), 274, https://research.ebsco.com/linkprocessor/plink?id=e18d6892-e36b-31e3-b8c0-841249f2c06d.

The question we ask now is then not whether the artist has responsibilities, but what methodologies are appropriate for fulfilling them. Ochoa Gautier calls for interdisciplinary work between the sciences and the humanities, which she considers to be valuable in developing a "posthuman" paradigm of the human/nature relationship and can bring healing to the environment.[14] She also acknowledges the "time [needed] to think" —the long process of transitioning a societal attitude towards nature and our relation to it. Reevaluating such a mindset with colonial roots is certainly an important step in healing the relationship between humans and nature, however, as with many situations within the climate crisis, the urgency of bird decline may far outpace the shifting of an entire societal attitude. Birds, and other wildlife, may face extinction far quicker than we can convince millions of the problem at hand. Direct human action must be taken immediately.

Interdisciplinary work seems to be the preferred medium for addressing these challenges. If interdisciplinary work provides a solution, we may ask what practical role music plays in conservation? Field work in music is certainly not going to look like field work in the science, technology, engineering, and math (STEM) world. The use of music in the actual natural environment likely doesn't have a logical direct benefit for wildlife the way banding, GPS tagging, and nest monitoring would. Music's potential for conservation rests almost wholly in its ability to interact with audiences.

If we are to pursue interdisciplinary work, we must dismantle the idea that science and art are somehow mutually exclusive. A recent publication from the University of Georgia poses the questions: "What is the role of the arts in a research university? How can we sustain a culture of

[14] Ochoa Gautier, 132.

creativity and critical thinking?"[15] Upon first reading, these questions may seem to imply that sciences do not require creativity, and that the arts do not require critical thinking. However, this publication actually highlights the University of Georgia's Interdisciplinary Arts Collaborative, an organization which merges "artistic" and "scientific" fields in ways that, in recent times, have often been strictly divided. The true sentiment expressed by the UGA Interdisciplinary Arts Collaborative, and by many similar programs at other institutions, is that the arts and the sciences benefit from one another. Plenty of publications advocate for the fusing of arts and sciences. Scholars Blandy, Congdon, and Krug in 1998 argue that "ecological restoration is overtly interdisciplinary" and that artistic endeavors therefore have an integral role in shaping the future of environmentalism.[16] Mark Graham in 2007 talked of the inadequacies of environmental education in the American school system and proposes that incorporating the arts into scientific education would be effective in remedying this issue.[17] Susan Jacobson, Jennifer Seavey, and Robert Mueller in 2014 published work highlighting the benefits of using art in climate science communication, particularly in educational settings, citing the engagement of multiple senses and increased social interaction during the artistic process as factors which led to positive reception of climate science topics.[18] In fact, the use of art in scientific communication is not new—popular culture media has often produced climate-/ecology-themed material with explicit messages. For example, *Hoot*, the 2006 family film, aims to raise awareness for habitat loss of Burrowing Owls in south Florida. The 2007 film *The Bee Movie* has a similar goal and audience

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[15] Meredith Emery, "Interdisciplinary Insights from the Arts Collaborative," University of Georgia, January 28, 2025, https://research.uga.edu/news/interdisciplinary-insights-from-the-arts-collaborative/.
[16] Doug Blandy et al., "Art, Ecological Restoration, and Art Education," *Studies in Art Education* 39, no. 3 (1998): 237, https://doi.org/10.2307/1320366.
[17] Mark A. Graham, "Art, Ecology and Art Education: Locating Art Education in a Critical Place-Based Pedagogy," *Studies in Art Education* 48, no. 4 (2007): 376.
[18] Susan K. Jacobson, Jennifer R. Seavey, and Robert C. Mueller, "Integrated Science and Art Education for Creative Climate Change Communication," *Ecology and Society* 21, no. 3 (2016).

but focused on the worldwide decline of pollinator populations. These types of artistic projects are characterized by intellectual accessibility (and the ensuing breadth of audience) and explicitness of message.

If we are reframing our understanding of sound relationships and practices, and if the natural world at the heart of these relationships has an increasingly uncertain future, what then should we do with the rich tradition of natural sounds incorporated into western classical music?

The History of Birdsong in Western Classical Music

There exists already a rich tradition of using birdsong in human music. From the Western Classical Canon, composers who have used birdsong in their music include, but are not limited to, Ludwig van Beethoven, Amy Beach, Maurice Ravel, Leoš Janáček, Béla Bartók, William Grant Still, and Olivier Messiaen. Living composers who write bird-centric music include Emily Doolittle, John Luther Adams, Whitney George, and Barbara Assiginaak. These names are but a tiny sampling of the many who've taken inspiration from nature's winged musicians.

Across centuries of composition, many different methodologies for representing nature in music have arisen. Early examples of bird representation in the western classical canon feature simple representations of birdsongs which lend themselves easily to integration with established musical practices. One famous early keyboard work, "Le Coucou" by L.C. Daquin, features the call of the Common Cuckoo repeatedly in the left hand while the right hand features idiomatic sixteenth-note passages. The Common Cuckoo's call, however, may not even be recognized as a bird call by the listener if they are unaware of the work's title. Its call is a two-note descending third (from which the onomatopoeic name "cuckoo" is derived), allowing it to fit seamlessly into the music as harmonic support. Ludwig van Beethoven's appreciation for birds evidently

influenced the development of his motifs.[19] Sylvia Bowden writes of the Yellowhammer's song serving as the inspiration for some of Beethoven's famous "vibration" motifs such as the opening of the *Waldstein* Sonata Op. 53. These examples provide us with a look into how composers have translated natural sounds onto scores during a time when musical structure was of utmost priority. Later composers of the romantic era and beyond begin to have a more "literal" approach to birdsong in music. Maurice Ravel's "Oiseaux triste" of his *Miroirs* suite features a very different approach to incorporating birdsong from the earlier composers. The song of the blackbird is unmistakable as "bird music" due to its prominent placement and timbral isolation. Ravel was even said to have performed this birdsong figure in a manner free from the rhythmic constraints of the surrounding music, indicating its natural origins.[20]

Interestingly, the history between birdsong and western classical notation appears to go both ways. While some musicians have used birdsong in their musical compositions, some musicians and ornithologists have used classical notation for the purpose of documenting birdsong. F. Schuyler Mathews, whose notations of the Hermit Thrush song will be discussed in the following chapter, published a book in 1904 which transcribes the songs of North American birds in Western Classical notation and frequently offers idiomatic musical adaptations as a way of learning and remembering birdsongs for easier field identification.[21] Amy Beach, a significant figure in American "nature essayists" and whose work is to be studied in the following chapter, also participated in such musical documentation of birdsong for the purposes of field guides.[22]

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[19] Sylvia Bowden, "The Theming Magpie: The Influence of Birdsong on Beethoven Motifs," *The Musical Times* 149, no. 1903 (2008): 17–35, https://doi.org/10.2307/25434536.
[20] Roger Nichols, *Ravel,* Yale University Press, 2011, 73.
[21] F. Schuyler Mathews, *Field Book of Wild Birds and Their Music: A Description of the Character and Music of Birds, Intended to Assist in the Identification of Species Common in the Eastern United States* (Applewood Books, 2000), https://research.ebsco.com/linkprocessor/plink?id=2c5a51d8-eed9-398e-9966-e456e71681b3.
[22] Von Glahn, 41.

This project, however, does not merely study music which contains birdsong, it studies what I will refer to throughout this project as "ornithological repertoire." This term will be used to describe music that not only uses the sounds of birds but holds the birds themselves as the central focus of the music. This project then looks at ornithological repertoire through the lens of conservation. It is time, not for birds to serve our music, but for our music to serve the birds.

The following chapters will demonstrate the potential for music from the Western Classical Music tradition to be integrated with scientific communication about avian conservation. The following is a suggested program of approximately 25 minutes of ornithological repertoire that may be used in an interdisciplinary educational performance. We will explore in detail how each of these works, which represent different methodologies for capturing natural sounds, can be incorporated into such a performance and how they can convey modern conservation concerns.

Program

Hermit Thrush at Eve, Op. 92, no. 1 — Amy Beach (1867–1944)

Catalogue d'oiseaux — Olivier Messiaen (1908–1992)
- XIII. "Le Courlis cendré"

Avifauna (2024) — Matthew Schultheis (b. 1997)
- I. Hunting Behaviors
  - i. Song 1
- III. Burning/Clearing

CHAPTER II

HISTORICAL ORNITHOLOGICAL REPERTOIRE

Our approach to using music for conservation endeavors perhaps ought to mirror our approaches to environmental conservation. What I mean is this: it would be unrealistic to expect humans to completely tear up our homes and developments to reconvert them into the native landscape that preceded them. Likewise, we should not expect musicians to discard the extant musical repertoire which we have inherited. Much like our homes, which can be landscaped in sustainable ways to bring environmental value to an otherwise unhelpful structure on a plot of land, music which already includes nature can be recontextualized and repurposed for conversation efforts. Preserving native habitat and creating wildlife refuges certainly have immense value to conservation, as does music written for environmental purposes, but in this chapter, we'll focus on the ordinary used for good—historical repertoire not written for the purposes of environmentalism, but which may take on new meaning in our modern ecological context. Let us examine two pieces of ornithological repertoire, each from a different aesthetic tradition, yet which hold a commonality of accurate transcription.

Amy Beach and the Hermit Thrush

Amy Beach's *Hermit Thrush at Eve, at Morn* Op. 92 is a set of two relatively short piano pieces (approximately 4-5 minutes each), published in 1921. Its inclusion in this project stems from Amy Beach's significance to the genre of American nature music and the significance of the bird which it features: the Hermit Thrush. The Hermit Thrush's song is among the most revered bird songs in literature and music and has been studied extensively in the scientific

community.[23] Each of the two pieces from Op. 92 pulls from this rich literary representation, featuring quotes from poetry about the Hermit Thrush at the beginning of the score. *Hermit Thrush at Eve*, which in this project represents Romantic-era ornithological repertoire that glorifies beauty, opens with the words of John Vance Cheney "Holy, Holy, in the hush – hearken to the Hermit Thrush; all the air is in prayer."[24]

Figure 1: Hermit Thrush. *Photo by Unknown Author is licensed under CC BY-NC.*

Hermit Thrush at Eve, at Morn, Op. 92 is one of many of Beach's attempts to capture nature in her music. This set of two pieces was written during her residency at the MacDowell colony where she encountered these birds' songs.[25] The first of these two pieces, *Hermit Thrush at Eve*, depicts one of the Hermit Thrush's more unusual behaviors—evening singing. Songbirds

[23] The Hermit Thrush is certainly the most revered bird within American literature, although European English literature understandably focuses on European species such as the Eurasian Blackbird or Common Nightingale. Some authors even try to argue the Hermit Thrush's superiority as a singer compared to the famed nightingale. F. Schuyler Mathews wrote in 1904 that "the song of the Hermit Thrush is the grand climax of all bird music."
[24] John Vance Cheney, "The Hermit-Thrush," Best Poems Encyclopedia, accessed March 31, 2025, https://www.best-poems.net/john-vance-cheney/the-hermit-thrush.html.
[25] Von Glahn, 41.

are typically most active in dawn hours, however, Hermit Thrushes, along with a small handful of other species are known to vocalize during darker hours before sunrise and after sunset when most other birds are silent.[26] Unlike Olivier Messiaen's *Catalogue d'oiseaux*, which will be discussed later, Beach's Op. 92 depicts the Hermit Thrush song in isolation from other birds' songs, as she may have encountered it at the MacDowell Colony due to the thrush's singing habits.

Musical transcription has held an important role in developing our understanding of the Hermit Thrush's singing patterns. It both reveals our human-minded interpretation of their apparent harmonic progressions and provides a clue into the historical singing patterns of these birds at a time when audio recording technology was not readily accessible. Hermit Thrushes are thought to develop their own individual songs, rather than learn songs from their neighboring singers as is the case with many other songbird species.[27] Spectrogram analysis reveals general patterns of commonality but not identical imitation, which seems consistent with the great variability of musical transcription of these birds' songs. What may be dismissed initially as a difference in human interpretation may very well be compounded by the individuality of the Hermit Thrushes to which the transcribers listened. Humans' attraction to the Hermit Thrush's songs may be related to the apparent harmonic progression found in their singing patterns, which appears in nearly all musical transcriptions of their songs. Emily Doolittle's work with biologists and mathematicians to analyze pitch selection in Hermit Thrush songs reveals overtone selection which resembles that of human music, perhaps offers insight into why this bird's song so

[26] Rachel Dellinger et al., "Hermit Thrush (Catharus guttatus)," version 1.0, in *Birds of the World* (A. F. Poole, Editor), Cornell Lab of Ornithology, https://doi.org/10.2173/bow.herthr.01.
[27] Ibid.

uniquely fits into a Romantic aesthetic, as seen in Amy Beach's writing.[28] Doolittle also gives attention to these apparent harmonic changes between consecutive iterations of a song.[29]

Before looking at Amy Beach's *Hermit Thrush at Eve*, we will examine a transcription made of the Hermit Thrush's song by F. Schuyler Mathews made on June 29, 1903, in Campton, New Hampshire, less than 70 miles away from the MacDowell Colony, where Amy Beach heard and transcribed the song in the summer of 1921 (See Figure 2).[30] Mathews writes of his transcriptions:

> …I am only the reporter who has listened attentively for a score of vernal seasons to the little feathered musicians of nature's great orchestra…I have taken no liberties with the score, except to make a doubtful A or B no longer doubtful. All is a literal transcription, not without certain puzzling phrases of course; for who of us have never been bothered by the rapid performances of expert musicians. Naturally, therefore, some of my records are imperfect; indeed, it is safe to add that some singers sang a great deal more than I was able to put down on paper. I trust, however, that no bird lover will be disturbed by the remarkable records coming from the more talented songsters when he hears what they have done through the interposition of the pianist. If he should doubt my record I would be pleased to introduce him to my bird (or perhaps some other one just as talented) in the field opposite my studio, or on the mountain-side behind it, in the wilds of New Hampshire.[31]

This passage yields several revelations about the musical transcription of natural sounds in the early twentieth century. First, we see the personification of birds and nature. Second, there is an acknowledgement of the method of "literal transcription" which is perhaps not so literal after all, as it adjusts each bird's song to fit within the western 12-tone musical system. The rigid pitch-key assignments of the piano, which Mathews evidently uses, further entrenches this process of adjustment, yet he also acknowledges the limitations of transcription despite the claim to

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[28] Emily L. Doolittle, et al., "Overtone-Based Pitch Selection in Hermit Thrush Song: Unexpected Convergence with Scale Construction in Human Music," *Proceedings of the National Academy of Sciences of the United States of America* 111, no. 46 (2014): 16616–21, http://www.jstor.org/stable/43190271.
[29] Emily Doolittle, ""Hearken to the Hermit-Thrush": A Case Study in Interdisciplinary Listening," *Frontiers in psychology* vol. 11 613510 (2020) doi:10.3389/fpsyg.2020.613510.
[30] Mathews, 239.
[31] Mathews, vi.

literalness. Third, we see evidence of his motive: appreciation. The entire point of his attempt to transcribe these songs is to be a bridge between the birds and the music-listeners and to delight their ears with the pleasantries of birdsong. Fourth, we see the dissemination of the physical divide between classical music and nature in the proximity of the studio and the wild which evidently influences it. As for the Hermit Thrush's song in particular, Mathews writes "it is a theme worthy of elaboration at the hands of a master musician."[32] Amy Beach certainly demonstrated why. Mathews 1903 transcription focuses greatly on the complex harmonic relationships that one seems to hear between consecutive iterations of the Hermit's song, which is precisely the sort of interpretation we see from Amy Beach in her 1921 pieces.[33] Ironically, in that same year, Mathews took a revised approach to his transcription, simplifying his interpretation to a "pentatonic scale," however, this is beyond the point of this project.[34] Mathews original transcription demonstrates the fascinating harmonic complexity of the Hermit Thrush through a constantly modulating transcription:

[32] Mathews, 239.
[33] Doolittle, ""Hearken to the Hermit-Thrush:" A Case Study in Interdisciplinary Listening."
[34] Ibid.

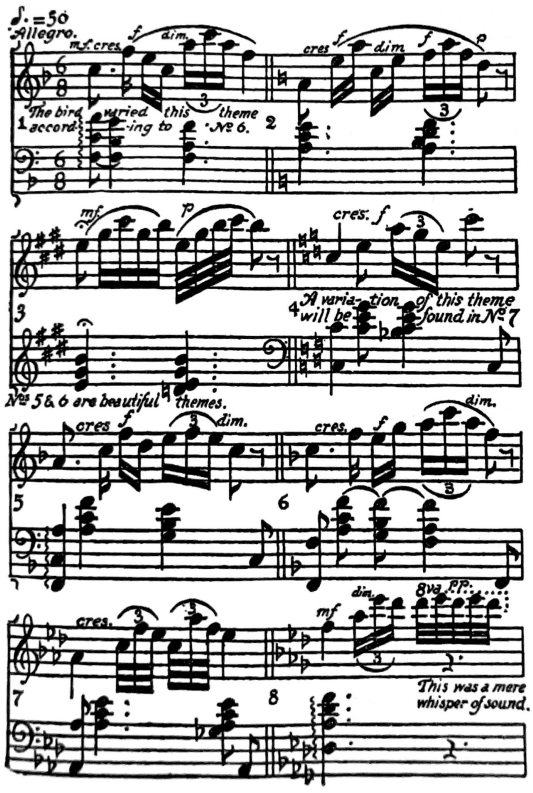

Figure 2: F. Schuyler Mathews' transcription of the Hermit Thrush song.

Amy Beach's *Hermit Thrush at Eve* handles these harmonic changes in a different manner. She opens in the somber and elegiac key of E-flat minor, a harmonic color which is meant to reflect the waning light. Few keys bear such a striking timbre on the piano—many Romantic composers have used E-flat minor for writing elegies including Sergei Rachmaninoff and Nikolai Medtner. Before introducing the Hermit Thrush's song, Beach adorns the elegiac mood with spacious accompaniments, chromatic turbulences, and a simple, lyrical melody entirely unrelated to the bird's song. It is a fully-fledged scene of human expression and evening harmonies before the Hermit Thrush even enters.

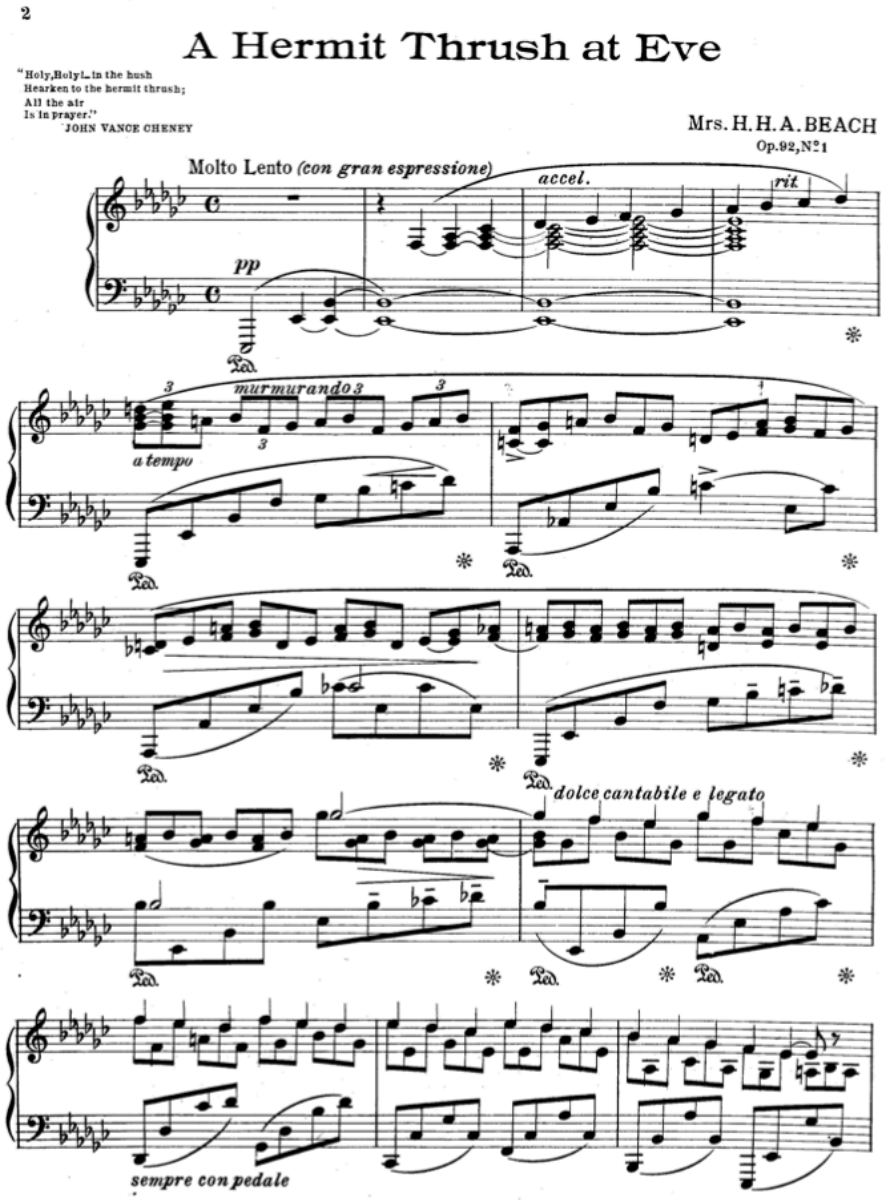

Figure 3: *Hermit Thrush at Eve*, Op. 92, No. 1, opening page.

Let us look now at how Beach interprets the Hermit Thrush song on the piano: the first thing we might notice is that the first note of the song, a long C-natural, breaks out of somber E-flat minor sound world.

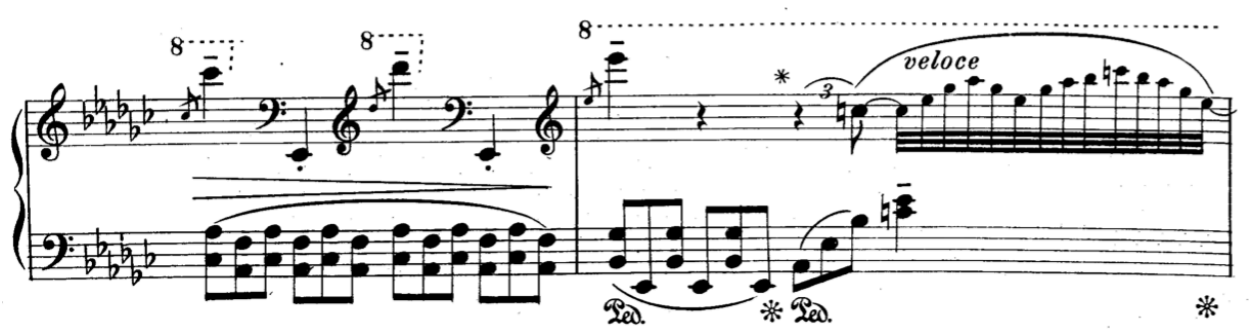

Figure 4: Amy Beach's *Hermit Thrush at Eve*, Op. 92 No. 1, mm. 22–23.

After the initial song, for which Beach uses a rapid swirling arpeggiation of an A-flat dominant 7th harmony with an added major 9th, she features 14 further iterations of the song of varying lengths and shifting harmony (as we might expect to hear from a real Hermit Thrush). The harmonic progression of these 15 song iterations is reduced here in Figure 5:

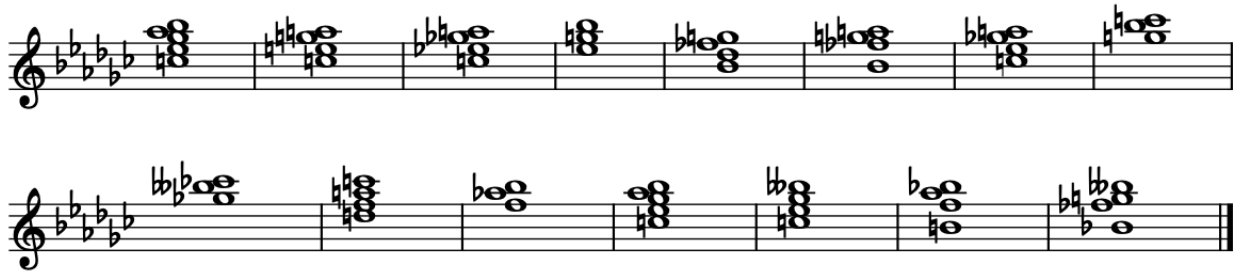

Figure 5: Chordal reduction of the pitches of the Hermit Thrush song iterations transcribed by Amy Beach.

Beach certainly does a fine job of fulfilling Mathews wish to provide musical elaboration to the Hermit Thrush's song. However, our reevaluated stance on the relationship between human music and birdsong allows us to go beyond acknowledgement and appreciation of the intricacies and beauty of both things. Rather than compare birdsong to human music or further attempt to convert one into the other, we may reinterpret this ornithological music as a

commentary on our human responsibilities as they relate to the birds represented, rather than a demonstration of their potential for integration.

Several elements of Beach's *Hermit Thrush* pieces make them ideal for incorporation into interdisciplinary performance formats. First is accessibility. The Hermit Thrush's wide range allows it to be observed in most of North America for at least some portion of the year, meaning that many audiences would be able to reasonably encounter this species. The romantic aesthetic of Beach's work is likely to appeal to a similarly wide audience, more so than some of the "contemporary" sounding bird pieces of Messiaen or Schultheis, which will be discussed later. Second, the length of these pieces, each being five minutes or less, allows it to be incorporated into the middle of a lecture without major disruption to the format. Third, the elegiac sound of the first piece, could be reinterpreted as a commentary on the bird's decline and uncertain future. It provides a strong emotional appeal that can accompany a more explicit worded message. Jeff Todd Titon talks of the Hermit Thrush's northward shifting breeding territories as a directly observable effect of climate change on our soundscapes.[35] There is perhaps no more appropriate piece to fit his solemn sentiment than Amy Beach's *Hermit Thrush at Eve*.

Olivier Messiaen and the *Catalogue d'oiseaux*

In the current culture of the Western Classical tradition, there is perhaps no name which we associate more closely with birds than Olivier Messiaen. Messiaen's compositional output frequently uses, or is centered around, birdsong, and perhaps no work of his has a tighter focus on ornithology than his multi-volume set, *Catalogue d'oiseaux*, for solo piano. *Catalogue d'oiseaux* comprises of 13 movements, published in seven volumes between 1956–58. While each movement within the set features a single title bird, the pieces reflect more broadly the

[35] Titon, "The Sound of Climate Change," 252.

sounds of their environment and all feature additional birds which are frequent cohabitants of the title birds' habitats.[36] "Le Courlis cendré" is the thirteenth and final movement of *Catalogue d'oiseaux*, published in book 7, and it features the birds and sounds of the French coastline. Its inclusion in this project stems from Messiaen's massive contribution to the genre of ornithological repertoire as well as its use of man-made structures and sounds. Like Amy Beach's *Hermit Thrush at Eve*, it makes use of dark harmonic colors, but Messiaen uses even more foreboding sounds which allow this piece to readily accompany messages of concern and alarm. Robin Freeman writes of a particularly terrifying performance of this piece having an "eerie feel of desolation."[37] Furthermore, while this project is not explicitly about North American birds, many of the birds featured in these pieces are native to North America. Because of the ecological similarities across the North Atlantic coastlines, the birds in "Le Courlis cendré" are either the same species found on the North American Atlantic coast or have closely related American equivalents. The title bird of this work is the Eurasian Curlew, a large species of shorebird with an exceptionally long, decurved bill. Messiaen includes a subtitle of *(Numenius arquata)*, the Latin name of the bird.

Messiaen's self-described approach to annotating bird song primarily focuses on melodic contour. Not unlike the methods used by Mathews and Beach, Messiaen admits to altering the pitches to allow them to fit the notes available on the keyboard (it would be near-impossible not to do so during any transcription process without altering the tuning system of the piano). However, where Messiaen deviates from the practice of his predecessors, he does not alter the

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[36] Minhye Park, "Evolution of the Roles of Messiaen's Birdsong in His Piano Works" (PhD diss., University of Cincinnati, 2023), 25, https://www.proquest.com/dissertations-theses/evolution-roles-messiaens-birdsong-his-piano/docview/2864812704/se-2.

[37] Robin J. Freeman, "Courtesy towards the Things of Nature: Interpretations of Messiaen's Catalogue d'oiseaux," *Tempo: A Quarterly Review of Modern Music*, no. 192 (January 1, 1995): 9–14

notes to fit within a certain harmony—instead he expands the smallest intervals sung by the bird to an interval possible on the piano keyboard, then expands all other intervals proportionately to keep the relative contour intact.[38] Messiaen refers to the existence of a "bird style" which he uses frequently in his music, and is characterized by exquisite contour and ornamentation with an improvisatory rhythmic impression.[39] His approach to the "bird style" in his music relies on "transcription, transformation, and interpretation" and does not simply copy nature which he called a "servile" endeavor.[40]

While Beach's "Hermit Thrush at Eve" focuses on the song the Hermit Thrush, the environmental context in which the Hermit Thrush appears is limited to the colors of the fading daylight; nothing else about the bird's surroundings is represented in the music. Messiaen's *Catalogue d'oiseaux*, however, features more sonic environmental context to accompany the title birds of each movement. In this way, the pieces become focused on the habitats in which the title birds live, rather than strictly the birds themselves. In addition to the Eurasian Curlew, the title bird of "Le Courlis cendré," Messiaen includes sounds from 10 other species: Sandwich Tern, Black-headed Gull, Little Ringed Plover, Common Redshank, European Herring Gull, Common Gull, Common Murre, Eurasian Oystercatcher, Ruddy Turnstone, and Little Tern. The following is a table of the birds found in "Le Courlis cendré" and their closely related American relatives:

Table 1: Birds in "Le Courlis cendré" and their North American equivalents.

Birds in "Le Courlis cendré"	**North American Equivalents**	**Notes**
Eurasian Curlew	Long-billed Curlew Whimbrel	Genus *Numenius* contains a number of presumed extinct species.[41]

[38] Rob Schultz, "Melodic Contour and Nonretrogradable Structure in the Birdsong of Olivier Messiaen," *Music Theory Spectrum* 30, no. 1 (2008): 90.
[39] Olivier Messiaen and John Satterfield, *The Technique of My Musical Language / by Olivier Messiaen ; Translated by John Satterfield*. Alphonse Leduc, 1956.
[40] Ibid.
[41] Jan van Gils et al., "Eurasian Curlew (*Numenius arquata*)," version 1.0, in *Birds of the World* (J. del Hoyo et al., Editors), Cornell Lab of Ornithology, 2020, https://doi.org/10.2173/bow.eurcur.01.

Sandwich Tern (Sandwich)	Sandwich Tern (Cabot's)	Sandwich Tern currently has three subspecies: *sandvicensis* which occurs in Europe, *acuflavidus* or "Cabot's" which occurs in North America, and *eurygnathus* or "Cayenne" which occurs in South America.[42]
Black-headed Gull	Bonaparte's Gull	Black-headed Gull has a somewhat unhelpful name as it resembles at least 16 different gull species that have a dark hood in breeding plumage. Bonaparte's is the most closely related among North American breeding gulls, being our only representative of the *Chroicocephalus* genus. Black-headed Gull does, however, have a pattern of vagrancy to the North American east coast.[43]
Little Ringed Plover	Semipalmated Plover Wilson's Plover Snowy Plover Piping Plover Killdeer	Little Ringed Plover belongs to the *Thinoris* genus which does not have any North American representatives. However, the Charadriidae family (plovers) has numerous American members which bear visual similarities to Little Ringed.[44]
Common Redshank	Lesser Yellowlegs Greater Yellowlegs Solitary Sandpiper Willet	Structurally this bird has several close relatives, however its coloration is rather unique.[45]
European Herring Gull	American Herring Gull	These were, until recently, considered subspecies of one species: Herring Gull, which has been split into four species. Genus *Larus* has 11 breeding representatives in North America, as well as several vagrant visitors.[46]
Common Gull	Ring-billed Gull	These are among the smaller gulls within the *Larus* genus, to which the Herring Gulls also belong.[47]
Common Murre	Common Murre	This is a North Atlantic pelagic species that breeds on rocky coasts and cliffs on both

[42] David Shealer et al., "Sandwich Tern (*Thalasseus sandvicensis*)," version 1.0, in *Birds of the World* (S. M. Billerman, Editor), Cornell Lab of Ornithology, 2020, https://doi.org/10.2173/bow.santer1.01.
[43] Joanna Burger et al., "Black-headed Gull (*Chroicocephalus ridibundus*)," version 1.0, in *Birds of the World* (J. del Hoyo et al., Editors), Cornell Lab of Ornithology, 2020, https://doi.org/10.2173/bow.bkhgul.01.
[44] Popko Wiersma et al., "Little Ringed Plover (*Thinornis dubius*)," version 1.1, in *Birds of the World* (J. del Hoyo et al., Editors), Cornell Lab of Ornithology, 2024, https://doi.org/10.2173/bow.lirplo.01.1.
[45] Jan van Gils et al., "Common Redshank (*Tringa totanus*)," version 1.0, in *Birds of the World* (J. del Hoyo, et al., Editors), Cornell Lab of Ornithology, 2020, https://doi.org/10.2173/bow.comred1.01.
[46] D. V. Weseloh et al., "European Herring Gull (*Larus argentatus*)," version 1.0, in *Birds of the World* (B. K. Keeney and S. M. Billerman, Editors), Cornell Lab of Ornithology, 2024, https://doi.org/10.2173/bow.euhgul1.01.
[47] William Moskoff et al., "Common Gull (*Larus canus*)," version 1.1, in *Birds of the World* (S. M. Billerman, Editor), Cornell Lab of Ornithology, 2021, https://doi.org/10.2173/bow.mewgul.01.1.

		sides of the Atlantic. Multiple subspecies exist but there is little visual differentiation between Eastern North American and European populations.[48]
Eurasian Oystercatcher	American Oystercatcher	Monotypic family Haematopodidae (oystercatchers) has 12 species, 6 of which look very similar to Eurasian Oystercatcher.[49]
Ruddy Turnstone	Ruddy Turnstone	Same species.[50]
Little Tern	Least Tern	Very similar in appearance and genetics, separated mainly by range.[51]

Figure 6: Eurasian Curlew. *Photo by Ken Billington is licensed under CC BY-SA.*

[48] David G. Ainley et al., "Common Murre (*Uria aalge*)," version 2.0, in *Birds of the World* (S. M. Billerman et al., Editors), Cornell Lab of Ornithology, 2021, https://doi.org/10.2173/bow.commur.02.
[49] Phil Hockey et al., "Eurasian Oystercatcher (*Haematopus ostralegus*)," version 1.0, in *Birds of the World* (S. M. Billerman et al., Editors). Cornell Lab of Ornithology, 2020, https://doi.org/10.2173/bow.euroys1.01.
[50] David N. Nettleship, "Ruddy Turnstone (*Arenaria interpres*)," version 1.0, in *Birds of the World* (S. M. Billerman, Editor), Cornell Lab of Ornithology, 2020, https://doi.org/10.2173/bow.rudtur.01.
[51] Michael Gochfeld et al., "Little Tern (*Sternula albifrons*)," version 1.0, in *Birds of the World* (J. del Hoyo, et al., Editors), Cornell Lab of Ornithology, 2020, https://doi.org/10.2173/bow.litter1.01.

Figure 7: Long-billed Curlew. *Photo by Mike Baird is licensed under CC BY.*

In addition to the sounds of these birds, Messiaen also includes, and names, several other features from the environment: waves, water, fog, night, and a lighthouse siren. The additional imagery completes the picture of the birds' environment; however, the inclusion of the man-made lighthouse and its sounds is of particular interest. The lighthouse represents a human presence both sonically and physically on the French coastline. Its insertion into this environment forces us to consider the relationship it has with the natural surroundings. What impact did its construction have on the habitat? What impact does its continued use have on the birds themselves? Perhaps the lighthouse may be interpreted as man's attempt to tame the landscape. Perhaps its presence demonstrates the tendency for humans to prioritize our own safety at the expense of other creatures. Regardless of the answer to these questions, the fact that the lighthouse exists and raises these questions means that it has potential for use in conservation conversations.

The movement opens with a spacious E-flat minor chord, a similar harmonic color to the opening of Amy Beach's *Hermit Thrush at Eve*, yet becomes immediately distinguishable as Messiaen's own harmonic language in the intervals that follow. The haunting sonic color created by the dark, ominous E-flat minor tenth in the low register with the widely spaced dissonances in the upper register (labeled as a vocalization of the curlew) create an impression of emotional anguish (supported also by the parenthetical indication "flûté, triste"), similar to the sentiments expressed by William Yeats which he penned in response to hearing this same species:

> O curlew, cry no more in the air,
> Or only to the water in the West;
> Because your crying brings to my mind
> passion-dimmed eyes and long heavy hair
> That was shaken out over my breast:
> There is enough evil in the crying of wind.[52]

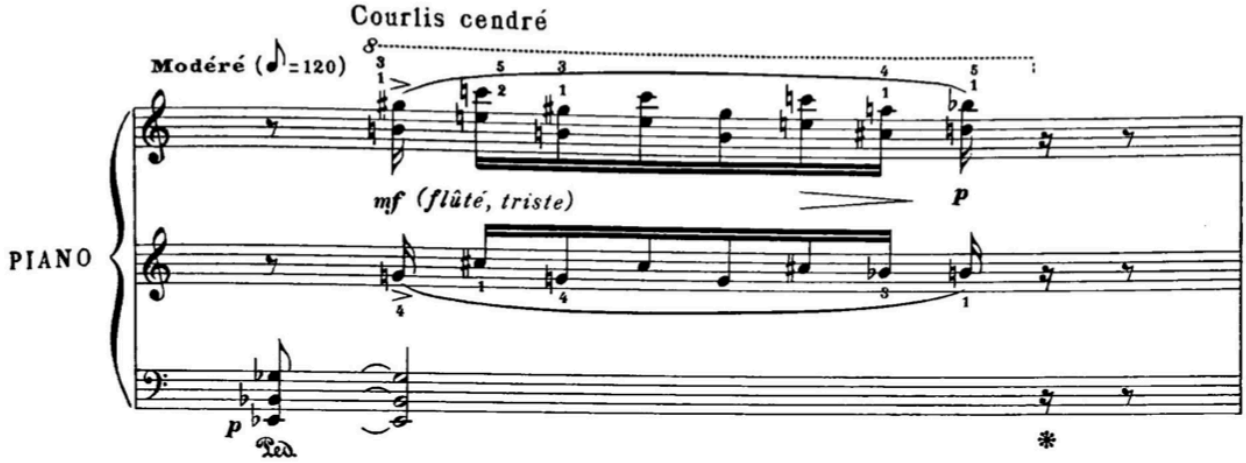

Figure 8: *Catalogue d'oiseaux*, XIII. Le Courlis cendré, m. 1.

[52] W. B. Yeats, "He Reproves The Curlew," *The Collected Poems of W.B. Yeats*, Macmillan, 1956, https://research.ebsco.com/linkprocessor/plink?id=3548f4e8-06f7-3912-9623-ea1a4a686a14.

This sentiment is once again found in a passage a short while later, during which the minor tenth now rests on D minor, and the curlew vocalization is its famous yelping or wailing sound. The dynamic progression of this passage suggests a flyover of one or more curlews.

One of the shorebirds that Messiaen uses in "Le Courlis cendré" other than the title bird is the Common Redshank. The redshank's vocalizations in this piece demonstrate a fascinating way in which Messiaen imitates the harmonic visualizations seen on spectrograms of audio recordings. The hands are split by multiple octaves, but contrary to typical piano practice, the bottom voice is marked several dynamic levels louder than the upper voices. With the voices moving in parallel motion with rhythmic unison, this dynamic balance imitates the effect of a strong fundamental pitch with apparent overtones. Figure 10 and Figure 11 show the Common Redshank vocalization in "Le Courlis cendré" along with a spectrogram of their calls.

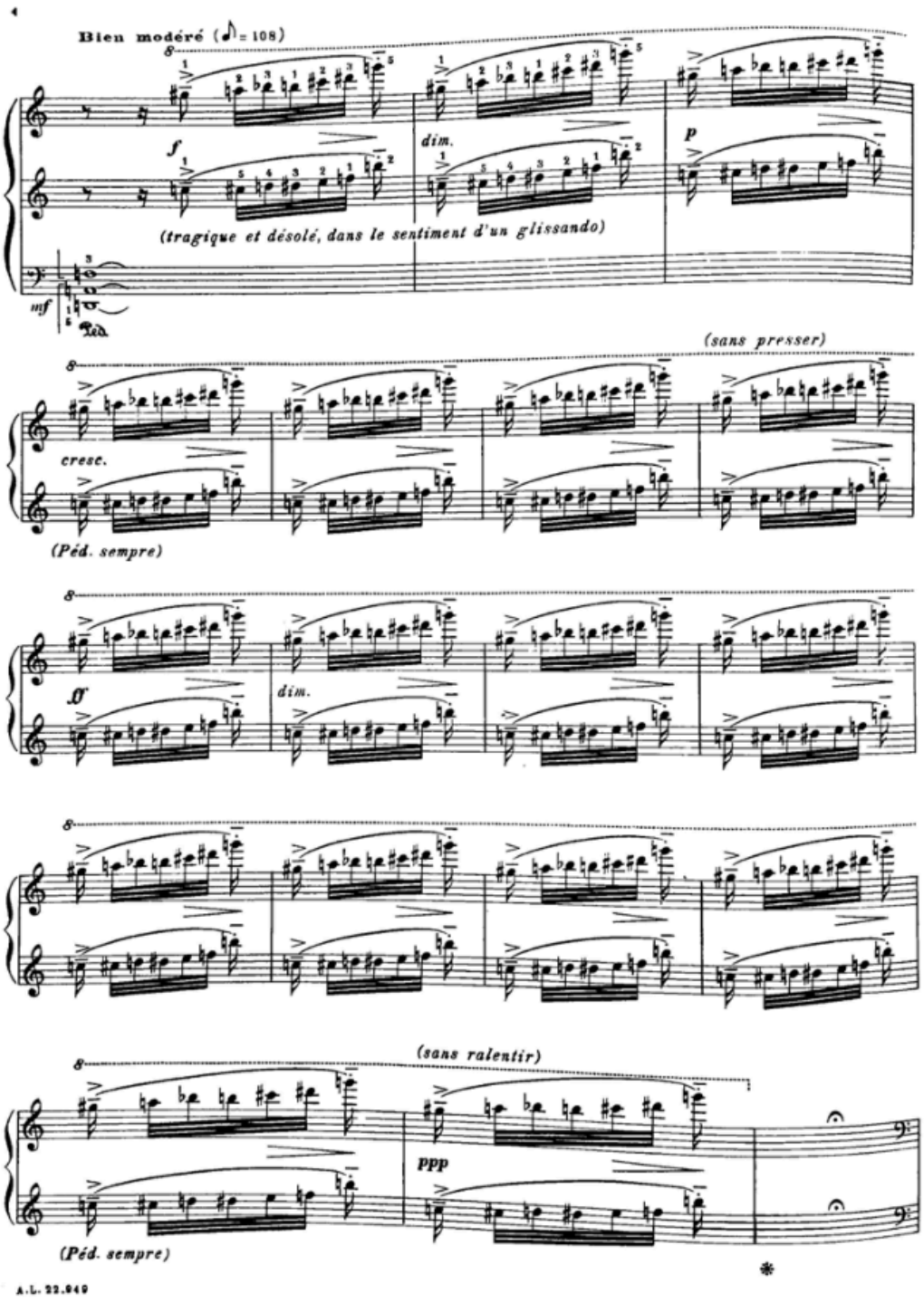

Figure 9: "Le Courlis cendré" mm. 21–38.

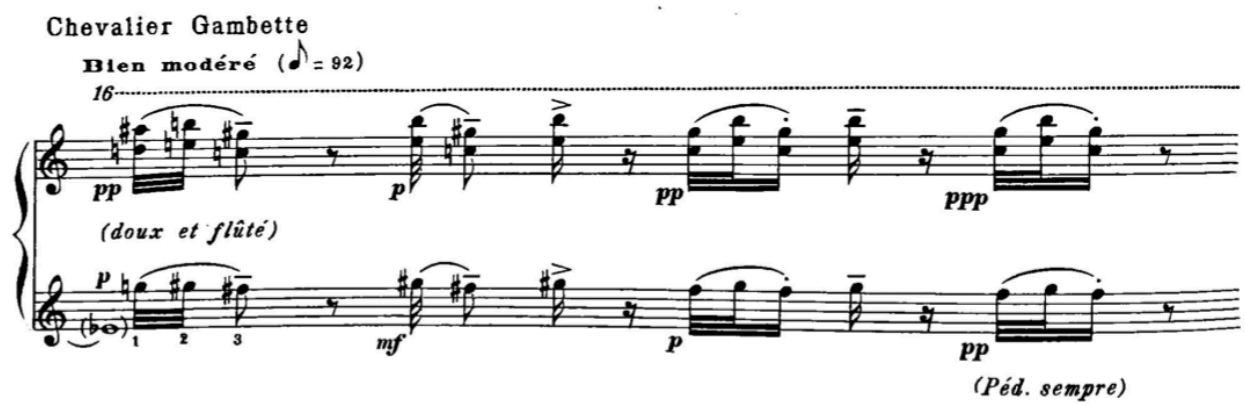

Figure 10: "Le Courlis cendré" m. 111.

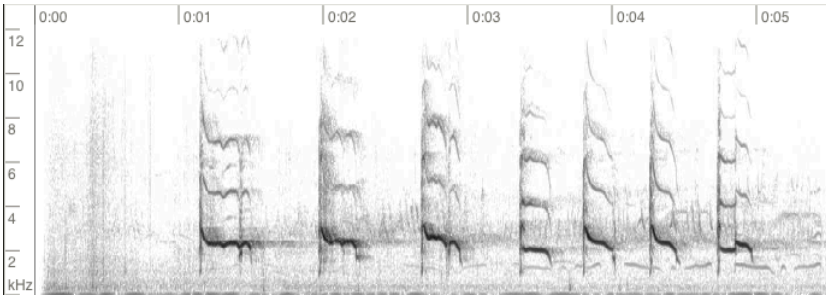

Figure 11: Common Redshank by Bob McGuire; Cornell Lab of Ornithology | Macaulay Library (ML233382).[53]

One non-sonic natural phenomenon which Messiaen includes in this piece is waves. They are represented in a nearly-romantic-style sweeping gesture, imitating their visual characteristics of rather than their sonic qualities.

[53] Bob McGuire, "Common Redshank (*Tringa totanus*)," Macaulay Library, Cornell Lab of Ornithology, https://macaulaylibrary.org/asset/233382.

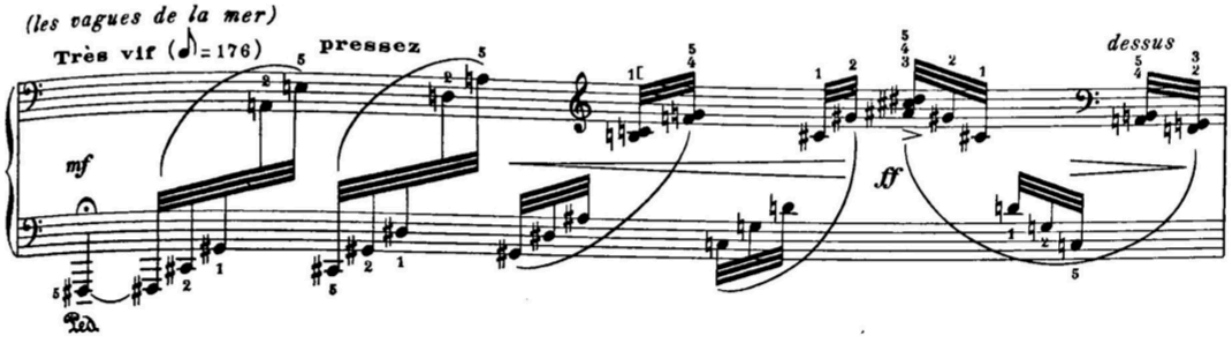

Figure 12: "Le Courlis cendré" m. 75. Waves.

Then we come to the lighthouse in measure 178. A massive 11-note chord is played in the low register, appearing to be G-sharp minor in the left hand and E-flat minor/F-sharp major in the right hand. Both thumbs are displaced from their evidently intended black notes to double white notes below them (D-sharp to D+E and F-sharp to F+G), which confounds the sense of tonality and traditional harmony one might find in the chords and provides a sense of noise that one would associate with a lighthouse siren (or perhaps a train horn would be more familiar to those who don't live near the coast). After this monstrous chord is played, accented and quadruple-forte, the left hand hammers the lowest the lowest A on the piano in a similarly forceful manner. The glacial tempo indication of "Très lent" and metronome mark of sixteenth equals 54 means that Messiaen allows for over eight seconds of bird-less musical stagnation while the lighthouse chord slowly decays. The enormity of volume and length of this moment, which occurs three times during the movement, casts the lighthouse as an imposing presence on the French coastline. It is by far the loudest and slowest moment of the piece, and it remains unchallenged and unimpeded by any of the natural sounds, birds or otherwise, that Messiaen includes. All time seems to stop at its arrival. Lighthouses, while increasing safety and viability

of sea travel for humans, do have recorded negative impacts on the natural surroundings. Their construction often occurs on breeding habitat for many sea birds while the light it gives off often attracts nocturnal migrants, resulting in high numbers of fatalities from collisions.[54]

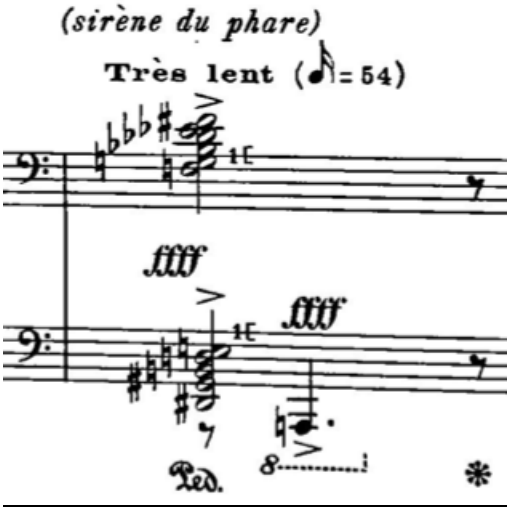

Figure 13: "Le Courlis cendré" m. 185. Lighthouse siren.

An interesting point of discourse in bird representation is Minhye Park's 2023 dissertation on the evolving role of bird song in Messiaen's piano music. Park suggests that some birds represented in *Catalogue d'oiseaux*, such as the European Herring Gull, have vocalizations in the score which serve as a "sound of the environment" while at other times they are the primary means of "musical expression."[55] Considering this varied, and evidently fluid, function of birdsong in Messiaen's ornithological music, it may be appropriate, by extension, to acknowledge the capacity for these bird sounds to represent greater environmental concerns. Given the curlew's historical interpretation as an emotional wailing, the concerning and ominous representation of human presence, and the dramatic decline of shorebirds in recent years,

[54] Jones, Jason, and Charles M. Francis, "The Effects of Light Characteristics on Avian Mortality at Lighthouses," *Journal of Avian Biology* 34, no. 4 (December 1, 2003): 328–33.
[55] Park, 64.

Messiaen's "Le Courlis cendré" becomes an ideal candidate for ornithological repertoire participating in environmental education.

CHAPTER III

MATTHEW SCHULTHEIS' *AVIFAUNA* (2024)

The final piece on the program is Matthew Schultheis' *Avifauna*, which I commissioned specifically for the purposes of environmental education in the Southeastern United States. Only the first movement, first interlude, and third movement of *Avifauna* will be included the program since they share thematic material and are the most directly related to environmental issues threatening bird populations, yet the material of the second movement and second interlude will be addressed briefly. This piece represents modern compositional aesthetics and environmental values.

As I sought music on North American birds, I was troubled by the lack of material featuring one of my favorite species: the American Kestrel. Kestrels are small colorful falcons known for their exciting hunting behavior. They frequently perch on telephone wires bobbing their heads and their tails, then swoop down to grab their prey out of the grass below.[56] However, on a windy day, kestrels can be seen flying into the wind, hovering perfectly in place. Their heads will remain impossibly still, allowing them to keep a steady eye gaze as they scan for prey, but the rest of their body will seem to flail about in order to achieve this. My desire to see this behavior depicted through music is what initially pushed me to commission a new piano piece about birds. However, given the recent trends in bird populations I did not want this project to be solely about my own appreciation for the American Kestrel, I wanted it to have the capacity to help them. I reached out to Matthew Schultheis, a composer at the Juilliard School, who

[56] John A. Smallwood and David M. Bird, "American Kestrel (*Falco sparverius*)," version 1.0, in *Birds of the World* (A. F. Poole and F. B. Gill, Editors), Cornell Lab of Ornithology, 2020, https://doi.org/10.2173/bow.amekes.01.

excitedly agreed to the project. During our collaboration, we decided that the piece would be a multi-movement set that focuses on multiple species and habitats, all with the intent of bringing attention not just to their beauty and intrigue, but to their uncertain futures. Among our considerations at the genesis of the project were location and accessibility. We wanted every bird and habitat featured in the music to be close-to-home, literally and figuratively, for the audience. One of my frustrations in searching through ornithological piano repertoire was that, while the music is fascinating, much of it, particularly that of Messiaen, was not relevant to my experiences with birds. There was a sort of barrier that prevented me from fully appreciating the birds as Messiaen had because they simply weren't a part of my local experience. To me, those birds might as well have been unicorns.[57] We wanted the birds in this music to feel real to the audience, and with it, the messages we want to convey about their plight. Ultimately the birds we decided to incorporate into the piece were the American Kestrel (Falco sparverius), Eastern Meadowlark (Sturnella magna), Veery (Catharus fuscescens), Red-cockaded Woodpecker (Dryobates borealis), and Eastern Bluebird (Sialia sialis); their representation is indicated by their Latin names at the beginning of their respective movements.

One thing Schultheis discussed about the composition process was how to wrestle with the shadow that Messiaen seems to cast on the genre of ornithological repertoire. His solution to this was to pay homage to Messiaen through using one of his "modes of limited transposition" in several chordal passages from the first movement.[58] One way that *Avifauna* differs from Messiaen's *Catalogue d'oiseaux*, however, is its explicit and intentional incorporation of current conservation topics in the music. Another consideration Schultheis had in writing this piece was

[57] On the other hand, traveling to Europe and hearing the bird songs that inspired Messiaen and other European composers is a rewarding experience in its own right—a sort of ornithological-musical pilgrimage.
[58] Matthew Schultheis (composer), in discussion with the author, January 2025.

wrestling with how to represent the birds, the "giants" of the Earth's culture of sound with which no human composer can compete in terms of breadth of influence and longevity.[59] Schultheis' solution to paying homage to the birds was to, as many composers have claimed to do before, transcribe the birds' songs with the highest degree of literal accuracy, but unlike many historical composers, maintain the birds' sonic impressions, their sound gesture, rather than find the closest pitches on the piano.[60] Figure 14 shows a page from Schultheis' personal sketchbook where he transcribed the songs of the five species we chose to include in *Avifauna*.

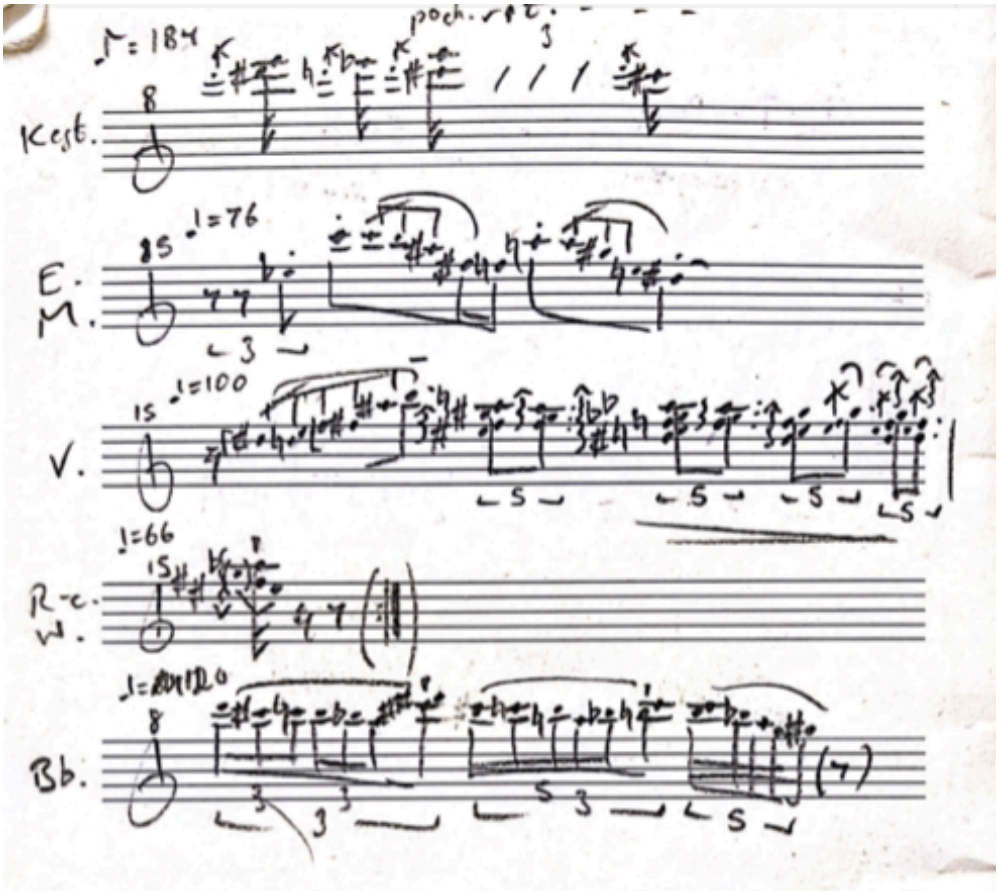

Figure 14: Sketches of the kestrel, meadowlark, Veery, woodpecker, and bluebird (from top to bottom).

[59] One species' song will remain constant throughout hundreds or thousands of years while human music shifts aesthetics much more readily, yet this longevity is in jeopardy given their uncertain futures.
[60] Schultheis, interview.

Figure 15: American Kestrel (top left) *Photo by Vince Maidens is licensed under CC BY*, Red-cockaded Woodpecker (top right) *Photo by Julio Mulero is licensed under CC BY-NC-ND*, Eastern Meadowlark (bottom left) *Photo by Laura Wolf is licensed under CC BY*, Eastern Bluebird (bottom middle) *Photo by Kevin Heffernan is licensed under CC BY-NC*, and Veery (bottom right) *Photo by Tom Murray is licensed under CC BY-NC*.

Movement I: Hunting Behaviors *[Falco sparverius]*

The first movement is imaginative of the unique hunting behaviors of the American Kestrel, hence its title. It explores the "differences in speed and suddenness between birds and humans." The particular fascination of the Kestrel's behavior is their tendency to hover, described previously, in which they fly into the wind, using their body motions to stabilize their heads. The music captures the character of this by using rapid, erratic gestures that surround a more logical musical line. This calmer legato line demonstrates the Kestrel's incredible pinpoint focus amidst busy maneuverings. Figure 16 shows the first page of the piece which features numerous elements of their erratic flight.

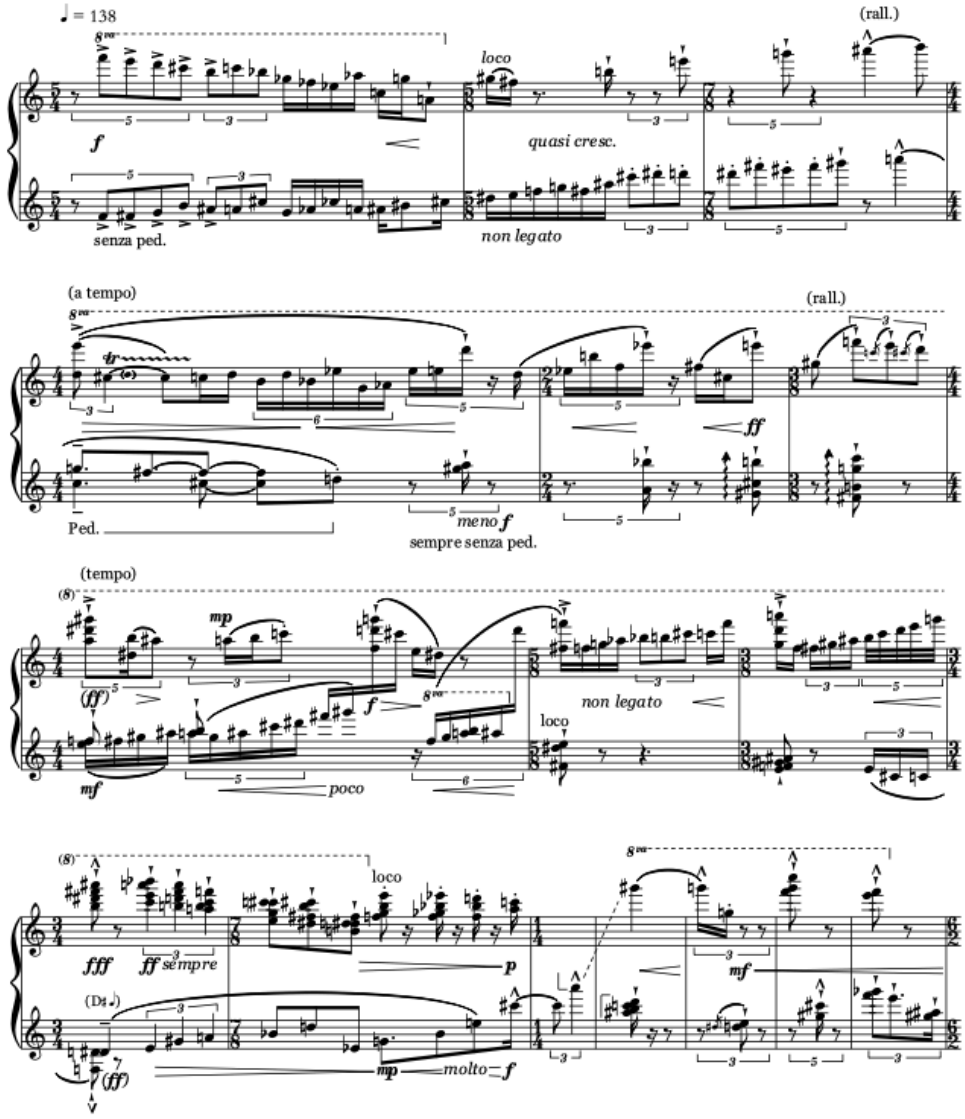

Figure 16: *Avifauna*, I. Hunting Behaviors mm. 1–16.

Measures 1–3 show the swooping gesture with a gravity-imitating acceleration of notes as the gesture descends and converse deceleration as it returns to the higher register. Immediately afterwards, in measure 4, there is a preview of the hovering behavior which will be explored more in later passages. The hovering is associated with a trill in the right hand that expands into looser spacing of notes while maintaining its quickness—visual imagery of the wings flapping in an unpredictable manner. Meanwhile, the left hand has a calmer, sustained sound. This

juxtaposition of opposing timbres is used throughout the piece to show the visual difference between the kestrel's head stability and its frantic-looking body movements. The kestrel's focus also appears in several passages where Schultheis chose to thin out the texture into strings of rapid notes on a singular staff, as shown in Figure 17.[61]

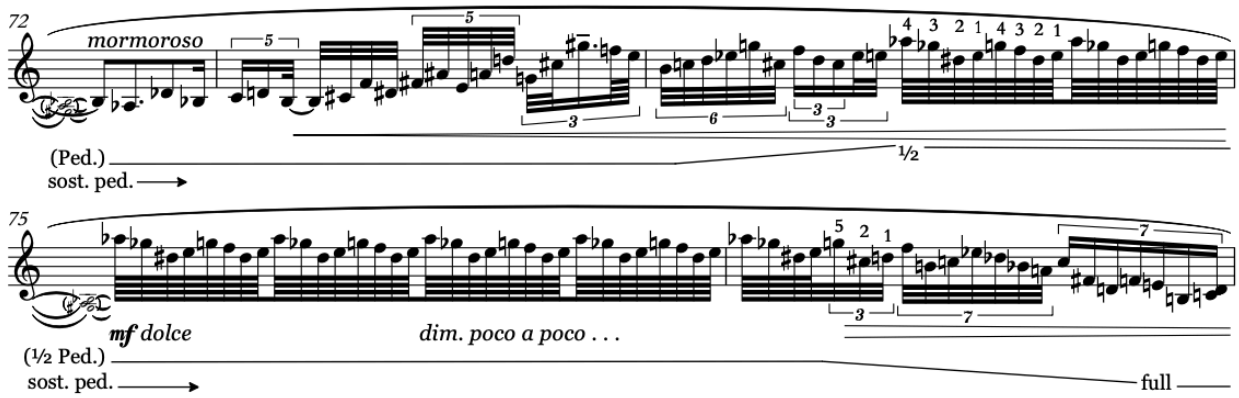

Figure 17: *Avifauna*, I. Hunting Behaviors, mm. 72–76.

The erratic, rapid musical shifts is also depicted visually through the physical and technical gestures of the pianist. One spot which Schultheis highlights as an example of intentional visual rapidity is measure 40, during which the pianist plays 32nd notes in the right hand while the left hand quickly jumps over to reach a high point (an octave higher than one would expect given the closeness of the rest of the gesture) then immediately back down to punctuate the right hand's swirl gesture with a staccato chord.[62] This passage is marked "loco" and has an uncomfortably quick feeling when executing the passage properly, however, this is precisely what the composer intended for such a gesture. It is born out of the idea which Schultheis describes in his program notes of the Kestrel having a very different scope of

[61] Schultheis, interview.
[62] Schultheis, interview.

existence, with its movements and processing speed being exceedingly fast compared to ours.[63] This passage attempts to put the human in the place of the kestrel for a moment, taking us out of our comfortable expected zone of human movement speed.

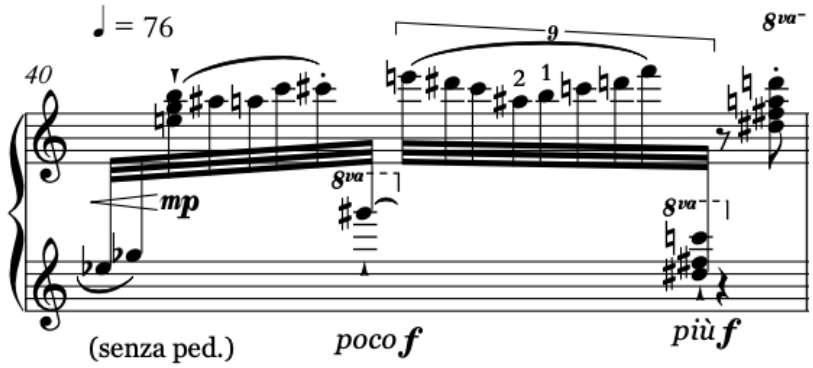

Figure 18: *Avifauna*, I. Hunting Behaviors, m. 40.

The first movement culminates in a climactic fury of percussive prestissimo notes in the highest register of the piano where the sounds of the hammers and the action begin to overpower the pitches themselves. This passage represents an intense, first-person view of the kestrel's hunt, lasting roughly ten-seconds. It is both bewildering for the observer and exhausting for the performer, and it captures the incomprehensible athleticism exhibited by many birds.

[63] Matthew Schultheis, "Avifauna," score, 2024.

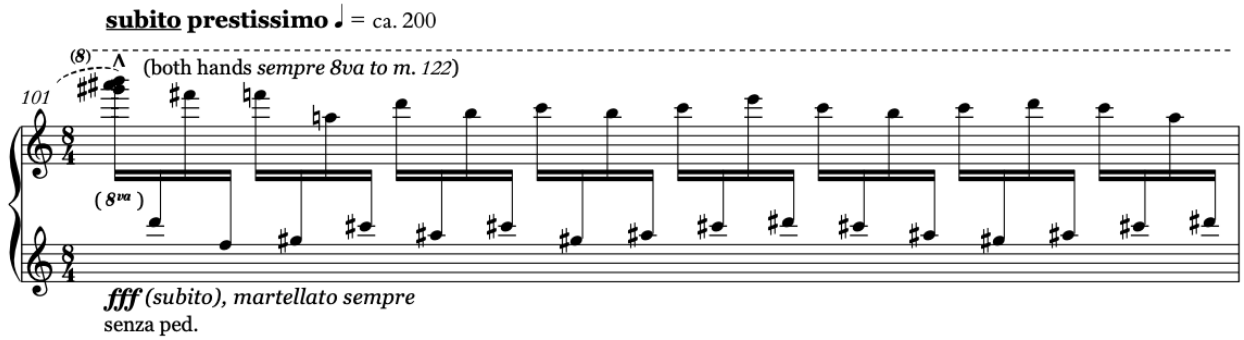

Figure 19: *Avifauna,* I. Hunting Behaviors, m. 101.

While much of the movement is focused on their mesmerizing flight and hunting habits, the movement ends with a sudden shift to soft mysterious notes to be played "senza colore" to reflect the American Kestrel's rapid and poorly understood decline across North America.

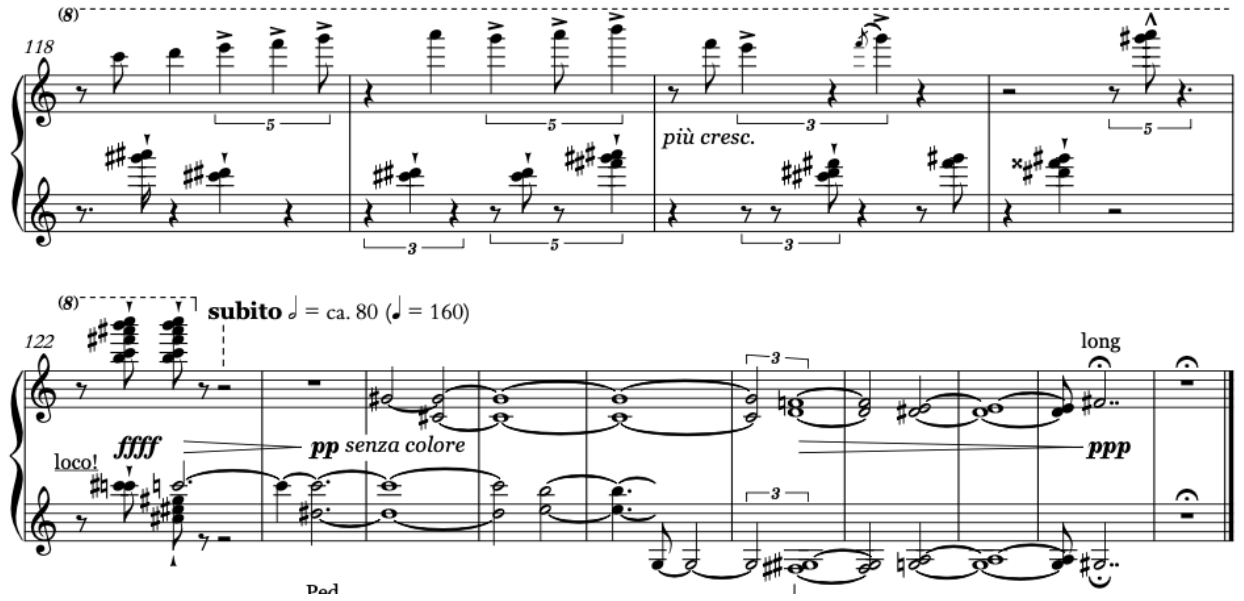

Figure 20: *Avifauna*, I. Hunting Behaviors, mm. 118–131.

Interlude i: song 1 *[Falco sparverius/Sturnella magna]*

The next part of the piece is an interlude entitled "Song I" and shows a transition from a focus on the Kestrel's behavior to the soundscapes of its habitat—open grasslands and prairies. It includes some of the Kestrel's vocalizations, as well as remnants of their flight patterns but perhaps its most prominent feature is the sound of its songbird cohabitant, the Eastern Meadowlark. The Meadowlark's song serves as an important motif that returns in the last movement, but this interlude demonstrates the most literal transcription of its song found in the whole piece:

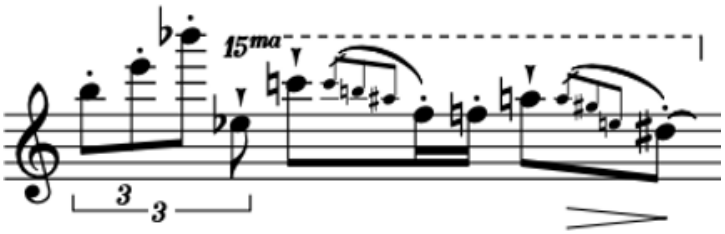

Figure 21: *Avifauna*, i. Song I, m. 5. Eastern Meadowlark song.

Towards the end of this interlude, the shrill call of the American Kestrel appears in its loudest, highest, and most complete form, indicating the bird's proximity, which is an effect Messiaen uses in "Le Courlis cendré" to suggest a flyover. It ends in similarly eerie manner to the first movement, suggestive of the birds' disappearance. Of all the movements in *Avifauna*, this first interlude is the most purely focused on the bird's sounds. Its goal, according to the composer, is to provide a sonic context for the first movement which was mostly focused on behavior. Schultheis' method for transcribing the vocalizations consisted of listening to multiple recordings to obtain an "average" of the birds' vocalization, and sketching songs and calls using closest pitches found on the piano. He states that his method of representation attempts to remain

true to the sonic effects of the actual bird song, rather than attempting to reform the song into a musically idiomatic motif, as we find in Amy Beach and even Messiaen.[64]

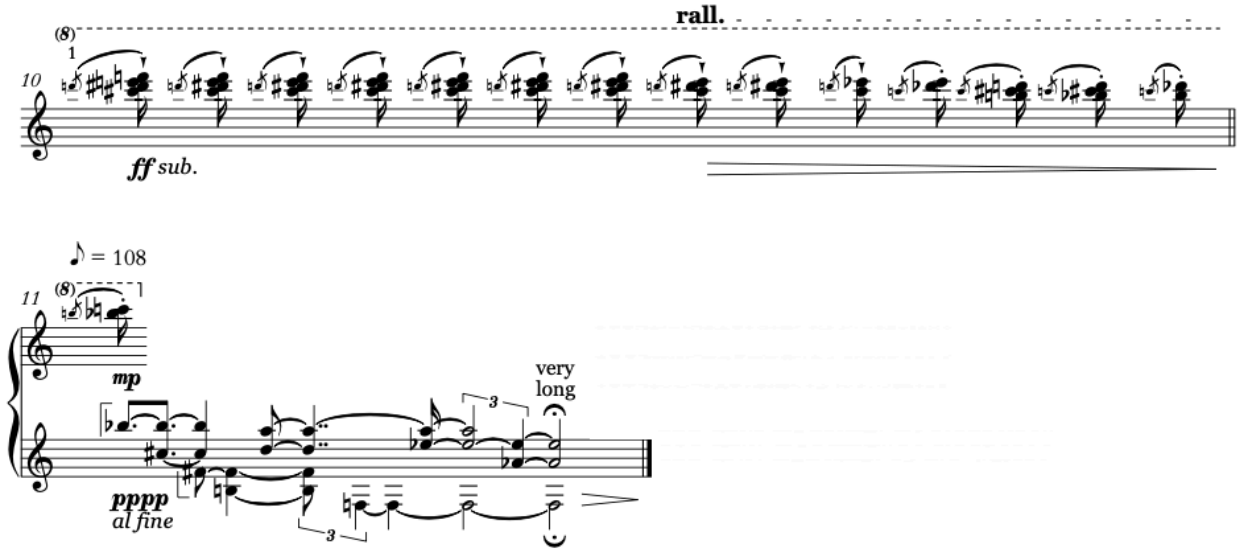

Figure 22: *Avifauna*, i. Song I, mm. 10–11. Kestrel vocalizations.

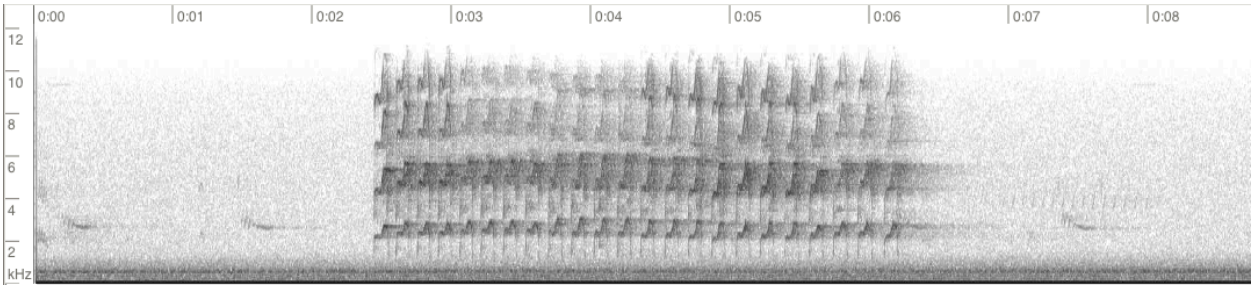

Figure 23: American Kestrel by Liam Wolff; Cornell Lab of Ornithology | Macaulay Library (ML452810931).[65]

[64] Schultheis, interview.
[65] Liam Wolff, "American Kestrel (*Falco sparverius*)," Macaulay Library, Cornell Lab of Ornithology, https://macaulaylibrary.org/asset/452810931.

Movement II: Solomon's Gift *[Catharus fuscescens]*

The second movement focuses on the Veery, a close relative of the Hermit Thrush which was the focus of Amy Beach's work. Both of these songbirds belong to the Catharus genus of thrushes. Nearly all of the North American Catharus thrushes are revered for their incredible songs and have been praised in literature and music for centuries. While the Hermit Thrush is a year-round resident of North America, migrating between the Northern and Southern States, the Veery makes a much longer trek. Much of its breeding range overlaps with the Hermit Thrush, however, the Veery's breeding range extends down the high elevations of the Appalachian Mountains and can even be found breeding in north Georgia on sites such as Brasstown Bald. In spring and fall, however, the Veery makes an incredible migratory feat of crossing thousands of miles of water to and from its wintering range in southern Brazil. The Veery's song possesses fascinating timbral qualities often described in field guides as "ethereal," drawing out many authors' most creative sonic descriptors.[66] Schultheis drew inspiration for this movement from the religious historical connotations surrounding birdsong. Its biblically inspired title refers to Solomon's divine wisdom imparted through birdsong. Interestingly, Schultheis' decision to bring this religious element of birdsong into a movement focusing on the Veery echoes long-standing sentiments about Catharus songs having spiritual qualities. Ornithologist Edward Nelson described the Veery's song as being the "most spiritual" of North American bird songs.[67] Schultheis then explores the idea of divine wisdom imparted through birdsong by demonstrating a translation of the Veery's song into something more humanly understandable. The composer was quite taken with the differences in the scope of existence between birds and humans, with

[66] Christopher M Heckscher et al., "Veery (*Catharus fuscescens*)," version 1.0, in *Birds of the World* (P. G. Rodewald, Editor), Cornell Lab of Ornithology, 2020, https://doi.org/10.2173/bow.veery.01.
[67] Mathews, 230.

that of the birds being generally higher and faster in multiple regards. Measures 43–51 show a textural shift from the Veery's song into something more human, out of which the *Hauptstimme* emerges.

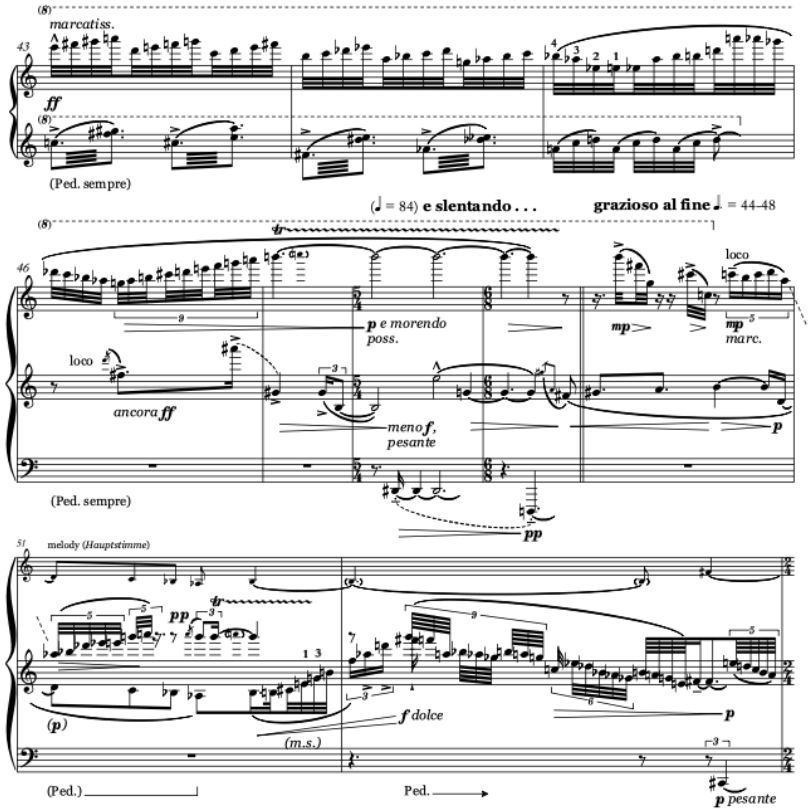

Figure 24: *Avifauna*, II. Solomon's Gift, mm. 43–52. Veery song and translation.

Interlude ii: song 2 *[Catharus fuscescens]*

This second interlude expands upon the idea of the second movement, taking the Veery's song, gradually spacing out the notes and dropping them in pitch as if to make it more intelligible to a human audience. The entire interlude is essentially one single string of notes—even parts that appear to be marked vertically are still part of the string. Clusters are indicated to be played

as rapid arpeggiations, while whole step intervals playing by a single thumb should be thought of as a single undefined pitch rather than vertical harmony.

Movement III: Burning/Clearing *[Dryobates borealis/Sturnella magna/Sialia sialis]*

The final movement of Matthew Schultheis' *Avifauna* (2024), entitled "Burning/Clearing," centers around the topic of habitat alteration by humans in both positive and negative contexts. It features three birds whose conservation status ties closely to the condition of their habitats: the Red-cockaded Woodpecker, the Eastern Meadowlark, and the Eastern Bluebird.

The endangered Red-cockaded Woodpecker is a species whose existence now depends almost wholly on human efforts to manage longleaf pine forests with prescribed fire. This woodpecker was once widespread throughout the southeastern U.S., at a time when low-intensity wildfires were regular.[68] Since then, humans have sought to extinguish wildfires to protect our property, which resulted in overgrown habitats that burn more fiercely when fires do start, as well as decreased acreage of suitable habitat for fire-specialist species. Though the Red-cockaded Woodpecker's populations have stabilized, this species may very well be extinct if not for diligent conservation efforts. It is a reminder of the harrowing reality that many species have gone extinct due to human interference with the natural order, and now many more species are reliant on our attempts to safely replicate the necessary natural phenomena which we have quenched in our own self-serving interest.

The Eastern Meadowlark, which was featured in Song I and returns in this movement in a different context, is a species that inhabits open grasslands and prairies. Meadowlarks are known

[68] Jerome A. Jackson, "Red-cockaded Woodpecker (*Dryobates borealis*)," version 1.0, in *Birds of the World* (A. F. Poole and F. B. Gill, Editors), Cornell Lab of Ornithology, 2020, https://doi.org/10.2173/bow.recwoo.01.

for their bright yellow bellies and their loud, lyrical songs that can be heard from hundreds of meters away. They often hide away in tall grass but when singing during breeding season they perch conspicuously on fences of posts where they are easily seen.[69] Meadowlarks nest in tall grasses during the spring and summer leaving them susceptible to mowing and agricultural activity. Meadowlarks are currently widespread, but their habitat is among the fastest declining in North America.

The Eastern Bluebird is currently one of the most common and widespread species in Eastern North America, but they were once in great decline. Bluebirds rely heavily on tree cavities for nesting, which are often carved out of dead trees by woodpeckers. With frequent removal of dead trees and increased competition from introduced species such as European Starlings and House Sparrows, populations of native cavity-nesting species, such as bluebirds, began to plummet.[70] Since bluebirds, however, have a strong presence in popular culture, their decline was met with alarm from many. Their populations recovered when homeowners started putting up nest boxes that were suitable for bluebird nesting.

This movement also faces the reality of negative human impacts. The Eastern Meadowlark's song is recontextualized amongst human interference, showing a dark change in character in light of the rapid destruction of their breeding grounds. Of all the movements of *Avifauna*, the third has the clearest focus on habitat. The opening page features an expansive textural shift from the high registers of the "language of the birds" to the lower registers which simulate their habitat. Out of this spacious, contrapuntal passage emerges the "tree chords" which depict the tall mature longleaf pines that make up the Red-cockaded Woodpecker's

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[69] Levi A. Jaster et al., "Eastern Meadowlark (*Sturnella magna*)," version 1.1, in *Birds of the World* (P. Pyle and N. D. Sly, Editors), Cornell Lab of Ornithology, 2022, https://doi.org/10.2173/bow.easmea.01.1.
[70] Patricia A. Gowaty and Jonathan H. Plissner, "Eastern Bluebird (*Sialia sialis*)," version 1.0, in *Birds of the World* (A. F. Poole, Editor), Cornell Lab of Ornithology, 2020, https://doi.org/10.2173/bow.easblu.01.

habitat.[71] These low, thick harmonies move gradually, enveloped in long pedals, with occasional moments of relative clarity, where pedal changes accentuate a new harmony and where bird sounds appear intermittently. As the bird sounds become more abundant, Schultheis merges the sounds of the meadowlark and the bluebird in a display of bird counterpoint. This passage, seen in Figure 25, marks a significant moment in the piece, demonstrating the similarities between these bird's situations and signaling hopefulness that the meadowlark's fate may be similar to that of the bluebird with proper recognition and action.[72] The combination of the bluebird and meadowlark songs appear measures 28-31. After this "counterpoint of the birds," we hear several "pik" sounds of the Red-cockaded Woodpecker in the extreme high register of the piano in measure 30, then one last clear iteration of the meadowlark sound before the music succumbs to the muddy rumbles of the low register.

[71] Schultheis, interview.
[72] Schultheis, interview.

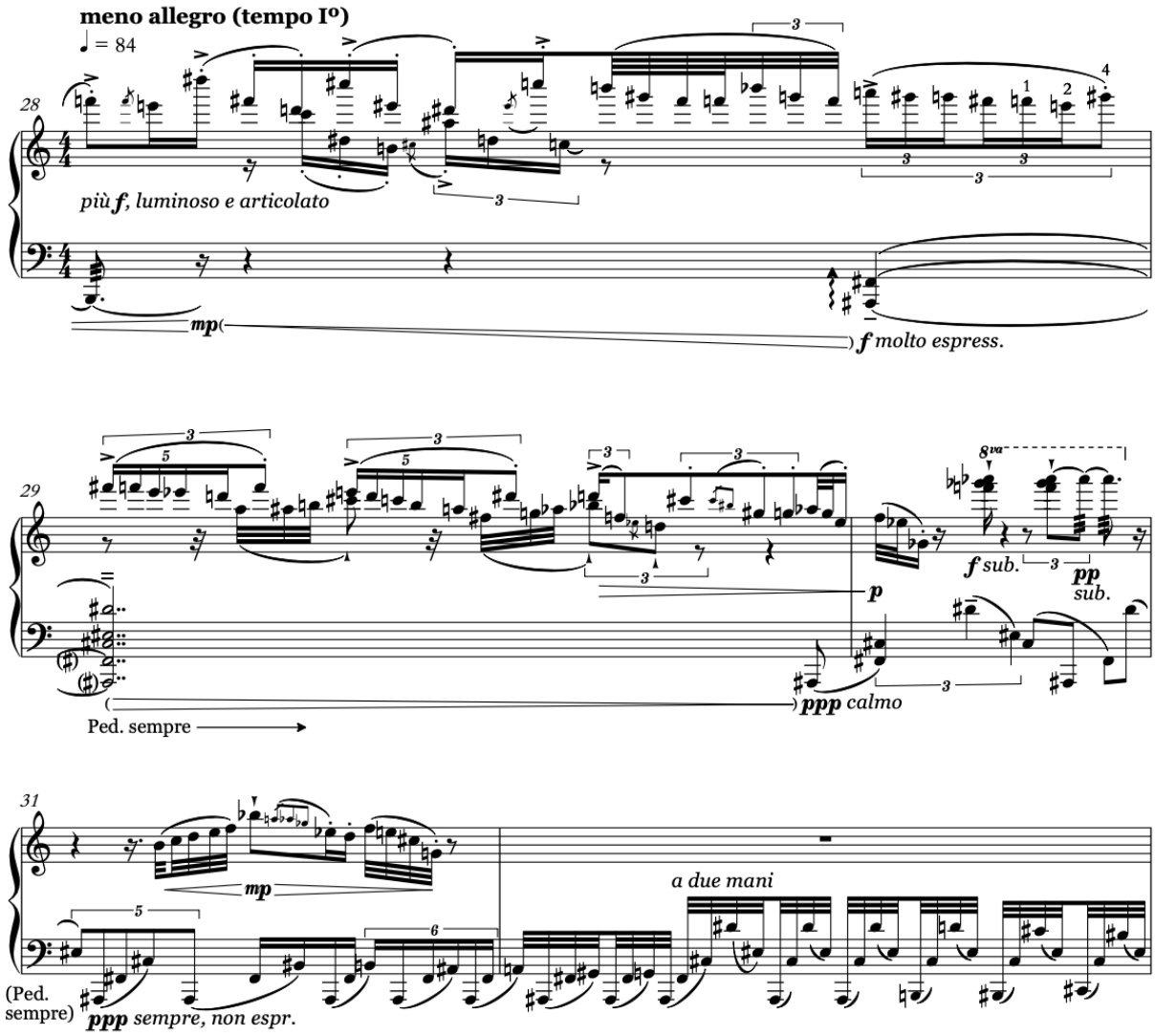


Figure 25: *Avifauna*, III. Burning/Clearing, mm. 28–32. Vocalizations of the bluebird, meadowlark, and woodpecker in close proximity.

Schultheis describes the continuous low rumbles as a point at which the audience should "abandon their expectations" of anything new happening in the piece.[73] This extended dark, murky passage that grows from beneath the birdsongs serves multiple purposes, both in relation to the work's structure, but also the emotional and intellectual content of the music. The low

[73] Schultheis, interview.

rumble, which is marked on both ends by the high "pik" of the woodpecker, is meant to bring a finality to the cross-movement descent that Schultheis depicts. The seven descending white-key glissandi in measures 35 and 36 mark a turning point in the work where the future becomes desolate and uncertain. Schultheis describes it as having an intentional "artlessness" that contributes to the dread and uncertainty. This uncertainty refers both to the audience's perception of the music (their understanding of how the work will conclude) and to the current state of bird decline (the unknown futures of many species in North America). The imagery of the rumble depicts fire and smoke, both controlled and raging, but it also has a rather mechanical passage from measures 43 to 46 which suggests the destructive activity of human machinery.

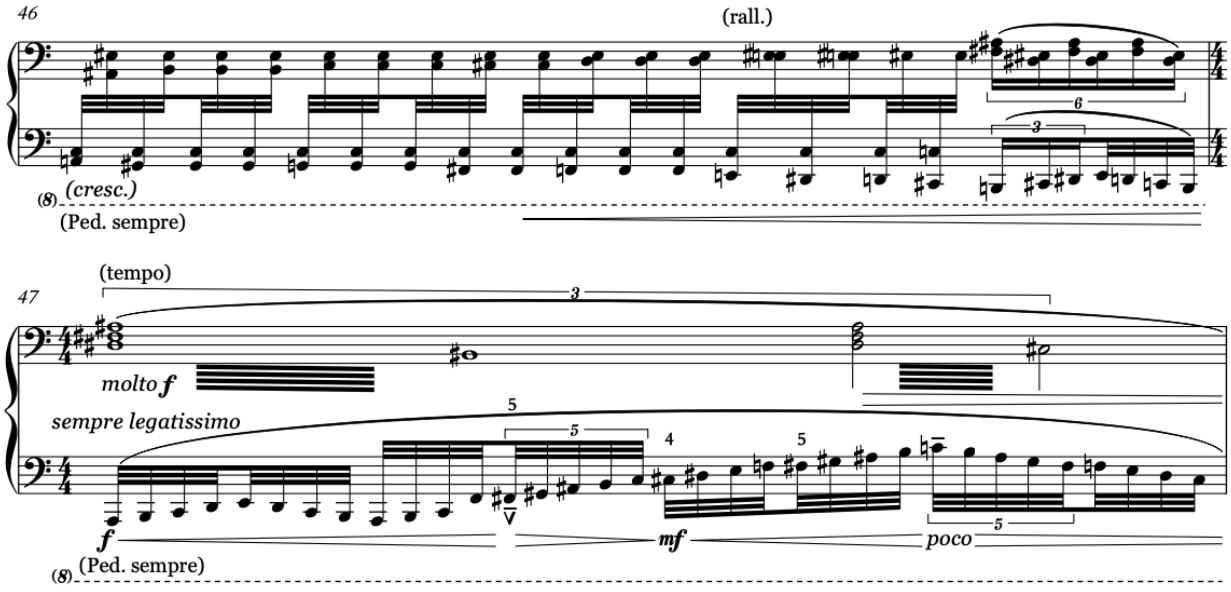


Figure 26: *Avifauna*, III. Burning/Clearing, mm. 46-47.

Once this long murky passage settles, its end is marked by the return of the Red-cockaded Woodpecker's "pik" call as well as their pecking sounds, symbolic of bird's benefit from the controlled burns. The uncertainty of the middle section then gives way to a more hopeful and

optimistic coda. The pecking sound that emerges out the fire imagery is imitated by irregular repeated notes on the highest C on the piano, where the hammering mechanism makes nearly as much sound as the pitch. The remainder of the coda prominently features on the song of the Eastern Bluebird, which is projected in the upper registers over fourth- and fifth-based harmonies in the lower registers. These open-sounding harmonies are, according to Schultheis intended to display the hopefulness that accompanies individual action, appreciation, and enthusiasm, but does not fully commit to the joy or contentment that can accompany certain knowledge. It retains the sense of urgency and uncertainly, held simultaneously with hopefulness, in order to encourage the audience to refrain from complacency; to act and to enthusiastically take part in bettering the habitats around them.[74] The ending settles in a harmony that is vaguely F-sharp major with additional color tones, recalling prior composers use of this key in association with the divine (Beethoven, Liszt, and Messiaen, despite their vast compositional differences all demonstrate this association to a certain extent). While the final harmony portrays a sense of divine hopefulness in connection to the bluebird, Schultheis chose not to linger on this harmony ad infinitum, which suggests finality and eternity, but rather to cut off the sound, suggesting to the audience that while the future can be hopeful, it is not definite.[75] The silence begs the audience to help us reach the hopeful future which we imagine. Figure 28 shows the final two pages of *Avifauna*, which contains a significant, musical call-to-action.

[74] Schultheis, interview.
[75] Schultheis, interview.

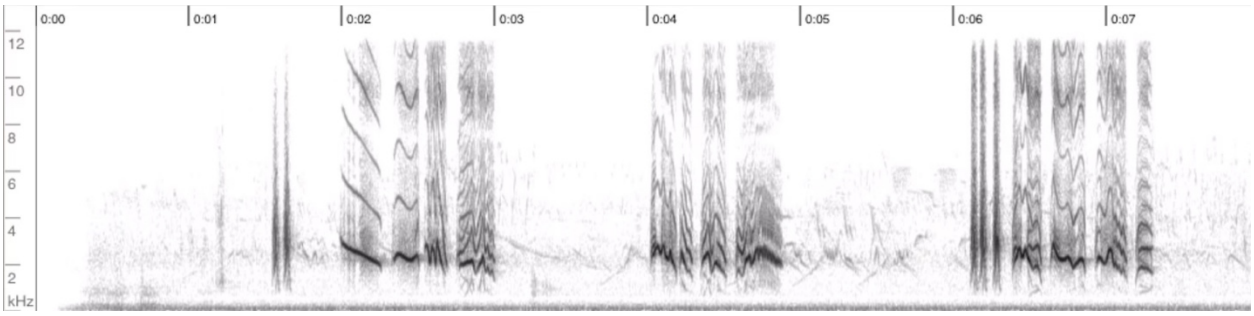
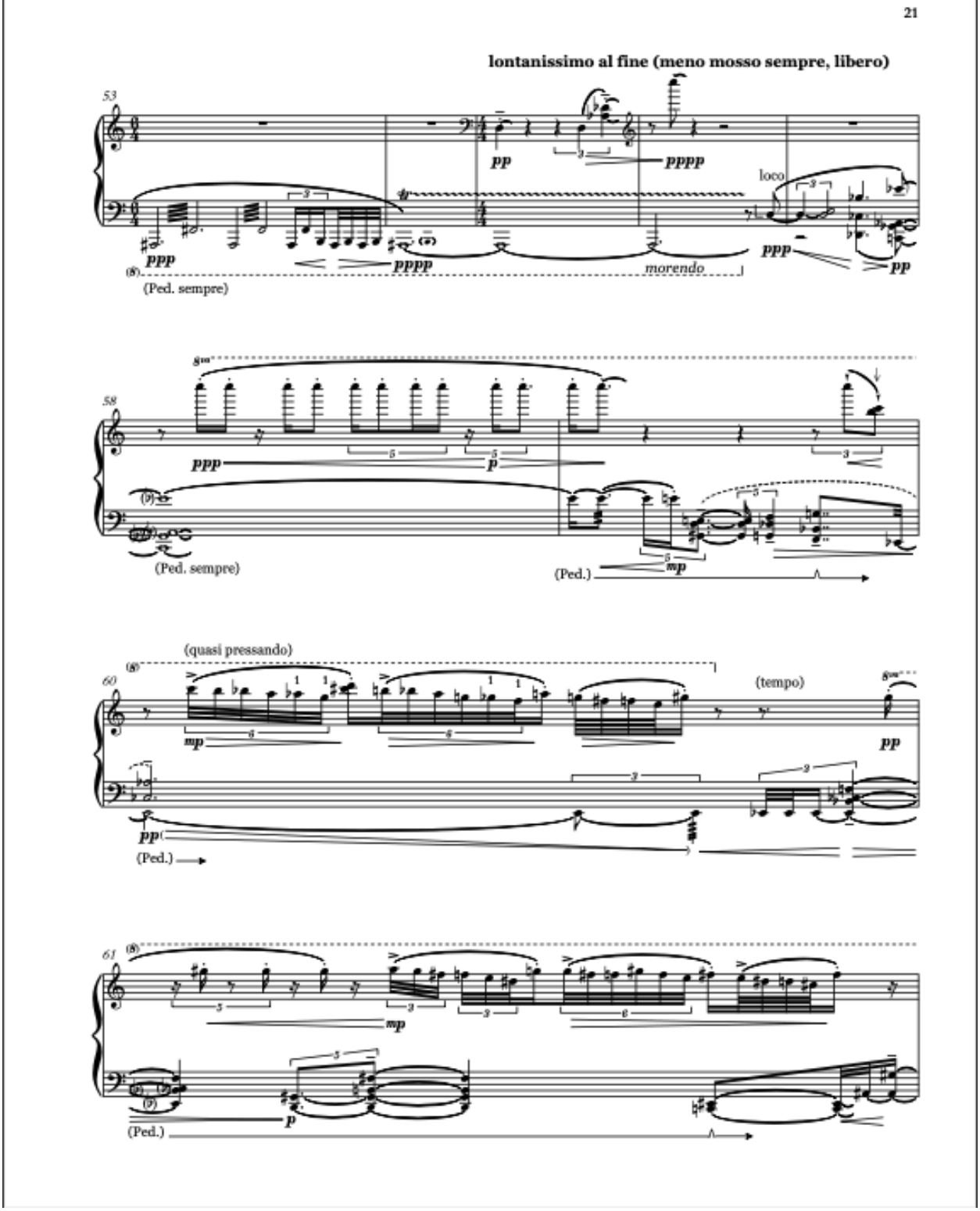


Figure 27: Eastern Bluebird by Wil Herschberger; Cornell Lab of Ornithology | Macaulay Library (ML534419).[76]

[76] Wil Herschberger, "Eastern Bluebird (*Sialia sialis*)," Macaulay Library, Cornell Lab of Ornithology, https://macaulaylibrary.org/asset/534419.


21
lontanissimo al fine (meno mosso sempre, libero)
53
pp
pppp
loco
ppp
pppp
morendo
ppp
pp
(Ped. sempre)
58
ppp
p
(Ped. sempre)
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(quasi pressando)
60
mp
(tempo)
pp
pp
(Ped.)
61
mp
p
(Ped.)

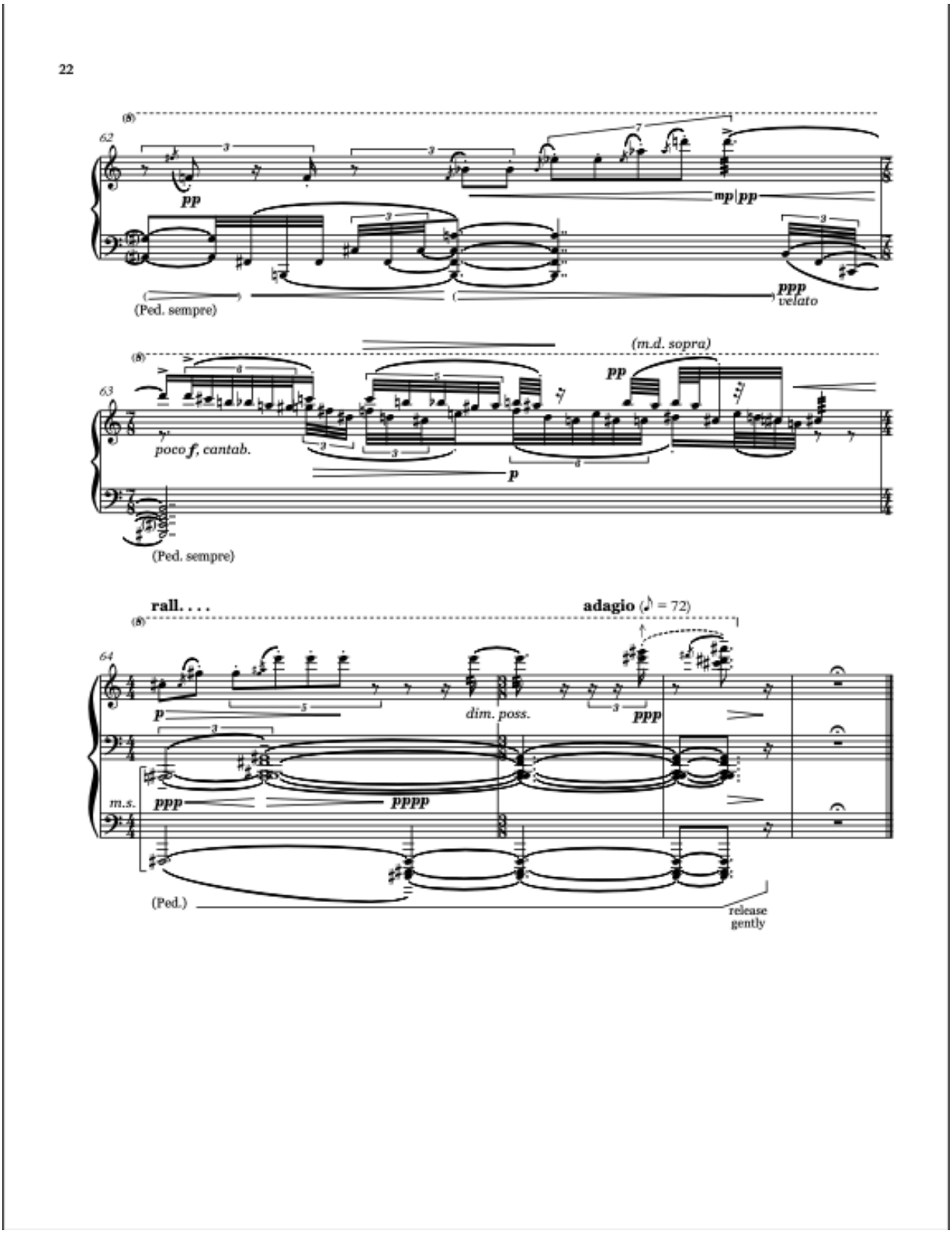

Figure 28: *Avifauna*, III. Burning/Clearing, mm. 53–67. Coda.

CHAPTER IV

ART IN ACTION

In this chapter, we'll examine the work being done by several performers and composers relating to environmental activism and conservation. Afterwards we'll look at the format of the premiere of *Avifauna* (2024) as a model for future work of composer-activists.

A number of artists have taken interest in using classical music as a medium for environmental activism. Libby Larsen is among the earliest pioneering advocates for politicized ecology in music. While her work frequently features the sounds of birds, wildlife, plants, and landscapes (and the human influence on them), she has even gone so far as to code hidden messages about climate action into those pieces.[77] Gabriela Lena Frank, current composer-in-residence for the Philadelphia Orchestra, created a program called "Composing Earth" as part of the Gabriela Lena Frank Creative Academy of Music, that helps composers collaborate with climate scientists and create new, ecologically mindful music. She also composes music that focuses on environmental themes and has developed a very clear ideology on what it means for musicians to be "eco-citizens" grounded in practical actions.[78] Frank is known for her advocacy of reformed, climate-friendly classical performance culture. Gabriela Montero, the world-renowned concert artist and composer, has used her concertizing career as a platform for raising awareness of the atrocities happening in her home country of Venezuela. Her compositional emphasis on these topics includes both humanitarian and environmental issues.[79] Gabriella Smith

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[77] Von Glahn 242–43. Larsen included a morse code rhythm of "save the rain forest" in her marimba concerto.
[78] Gabriela Lena Frank Creative Academy of Music, "Eco-Citizenship," accessed October 24, 2024, https://www.glfcam.com/eco-citizenship.
[79] Gabriela Montero, "Biography," accessed October 24, 2024, https://www.gabrielamontero.com/biography.

is a composer/activist whose self-described approach to climate activism particularly emphasizes joy.[80] The list may go on and on. However, two artists who are of particular interest to this project are Emily Doolittle and Ann DuHamel due to their work with birds and with interdisciplinary piano performance respectively.

Emily Doolittle

Emily Doolittle, whose work has been referenced several times throughout this project, is a North American composer and music scholar who has made major contributions to the genre of ornithological repertoire. Of the modern musician-activists considered here, Doolittle's work ties most closely to birds, the topic of this project. Many of her ornithological compositions (and works containing other animal sounds) are tied to a specific location and reflect conservation concerns.[81] One example is her *Palouse Songbook* for flute and piano, named for the Palouse region of the Northwestern United States and features three movements, each titled after a bird that can be found there. It is worth noting that despite her relevance to the topic of conservationist bird music, her compositions are not included in this project because she has relatively few solo piano works compared to her large output of chamber and other instrumental works. Some of Doolittle's most innovative and enterprising work, however, is in her extensive set of writings on what she calls "zoomusicology." These interdisciplinary publications frequently analyze bird song and relate to contemporary composition and conservation.[82] Doolittle's frequent participation in scientific discourse is unusual amongst musicians, and stems from her familial upbringing which encouraged simultaneous pursuit of artistic and scientific

[80] Gabriella Smith, "About," accessed October 24, 2024, https://www.gabriellasmith.com/about.
[81] Emily Doolittle, "Bird and Animal Music," accessed October 24, 2024, https://emilydoolittle.com/bird-and-animal-music/.
[82] Emily Doolittle, "Writing," accessed October 24, 2024, https://emilydoolittle.com/writing/.

endeavors.[83] Her trailblazing work demonstrates the potential and need for artists to consider working in interdisciplinary fashions. Her work also serves as a model for how musicians can participate in science from an intellectual approach. Additionally, Doolittle has participated in interdisciplinary "talk and concert series" formats for environmental activism.[84]

Ann DuHamel

Ann DuHamel is a performing classical pianist based in Minnesota who has created a monumental climate-focused project titled "Prayers for a Feverish Planet." This project consists of dozens of solo piano works by composers from all over the world, all in response to a call for scores she published in on January 1st, 2020.[85] The scale of the response to this call for scores demonstrates the breadth of interest from musicians to participate in climate-related conversations, as well as the availability of musical resources for tackling interdisciplinary conservation projects. DuHamel's call for scores is quite open-ended, allowing composers to focus on any aspect of the climate crisis they wish, but several of these submissions focus on the impacts on wildlife. In DuHamel's description of the project, she cites the loss of birds in North America as one of many reasons it is easy to feel "overwhelmed" by the situation.[86] She also notes the potential for hopefulness to be a part of the project, yet in an interview stated that few composers chose to take a hopeful approach in their compositions.[87] Her approach is very wide-reaching, capturing the magnitude of the situation, and while hopefulness may be difficult to find in the majority of works submitted, DuHamel's programming decisions are influenced by her

[83] Von Glahn, 276.
[84] Emily Doolittle, "Home," accessed February 25, 2025, https://emilydoolittle.com/.
[85] Ann DuHamel, "Prayers for a Feverish Planet: Description of Project," accessed January 22, 2025, https://annduhamel.com/prayers-description/
[86] Ibid.
[87] Ann DuHamel (interviewee), in discussion with the author, February 2025.

desire to display hope.[88] One of the pieces presented in DuHamel's project that does have an indication of hope is "Birdflight" by South African amateur composer Anél Van de Venter. This piece focuses on the human relationship with a bird and projects a hopeful shift throughout the piece's progression.[89] This type of hopefulness associated with the bird-human relationship is a prominent feature not just of "Birdflight" but of *Avifauna*, the central work of my project. In terms of interdisciplinary work, DuHamel has explored several options for presenting these programs alongside speakers from various disciplines and notes the high variability associated with such open-ended practices.[90] Furthermore, one of her primary goals of presenting climate-themed programs, regardless of the presence of interdisciplinary collaboration, is education. Her chosen method for achieving this sharing reading resources with her audiences that relate to climate science.[91]

Desired Outcomes

Regardless of the chosen methods of each of these artists, the work they do shares at least one common goal: to better the world around them by improving the outlook for the future of both people and nature. That much is evident, and as we have seen in ecomusicology where studying natural sound is inevitably tied to sustainability, the nature of performing eco-centric works is for the ultimate benefit of the Earth. The difference in methodology frequently comes down to the practical, everyday outcomes rather than the big picture.

One of the desired outcomes of performing ornithological repertoire recalls the sentiments expressed in ecomusicology—that society needs a cultural shift towards valuing and

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[88] DuHamel, interview.
[89] Ann DuHamel, "Prayers for a Feverish Planet: Vandeventer," accessed January 22, 2025, https://annduhamel.com/prayers-for-a-feverish-planet-vandeventer/.
[90] DuHamel, interview.
[91] DuHamel, interview.

protecting the natural world. We, as performers, certainly seek to contribute to this shift. On the other hand, we also acknowledge the urgency of the situation, which does not afford us the luxury of time, therefore we also seek to enable positive and immediate change through individual action. While shifting a cultural attitude takes time, showing a singular audience member the joy of nature, sparking in them a desire to protect it, and providing them with the means to do so, is comparatively quick work. Therefore, one of the most important outcomes we can hope for from a performance of ornithological repertoire, or any ecology-themed music, is the creation of an engaged citizen.

Premiering *Avifauna*

The premiere of *Avifauna*, the work which I commissioned for the purposes of environmental conservation and was discussed extensively in chapter III, serves as a template for artistic participation in future interdisciplinary endeavors. The premiere took place on May 16th, 2025 at the Georgia Museum of Art as part of the Chamber Music Athens festival in Athens, Georgia (USA). The event was focused on interdisciplinary performances of new musical works. I, along with my fellow performers, recruited a diverse audience that consisted of many local musicians, classical music and art enthusiasts, members of the local Audubon Society chapter, and members of other schools within the University of Georgia. Recruiting a broad audience for a new music concert was, of course, assisted by the interdisciplinary nature of the performance, but it should be a point of emphasis for any performance of ecological music, given the wide-reaching impacts of climate change. The program began with a ten-minute presentation from David Tilson, a local ecologist and research coordinator for the University of Georgia's Warnell School of Forestry, which was then followed by my performance of the piece. The rest of the program featured other new musical works with interdisciplinary themes, including the premiere

of Anya Yermakova's *respire* (2024) commissioned for Liza Stepanova by the Gabriela Frank Creative Academy of Music which was accompanied by a presentation from oceanographer Mandy Joye. During intermission, after the premiere of the piece, audience members were invited to walk around a gallery of bird prints and paintings provided by the Georgia Museum of Art.

Figure 29: Ecologist David Tilson gives presentation on birds at the premiere of *Avifauna*.

Collaboration with Ecologists

Interdisciplinary collaboration is crucial to the work of a performer-activist. In the case of environmental stewardship and ecological music, collaboration with ecologists who regularly work in the local environment, is particularly important. If we take Jeff Todd Titon's view that scientific realism has been the prevailing paradigm of the past several decades, then interdisciplinary collaboration can enhance the validity of the artistic work in the minds of the audience. If the goal of performing ornithological repertoire, and by extension, all ecological

music, is to inspire appreciation and a desire for action, interdisciplinary collaboration is an opportunity to provide guidance on what that action might look like. This, of course, is to benefit the birds, but also to instill an optimistic attitude towards conservation.

Ecologist David Tilson's presentation at the premiere of *Avifauna* identified the five birds that were present in the music, projecting photos and range maps and playing field recordings of their songs and calls. He also discussed some of the characteristics of the birds that were important considerations during my collaboration with the composer, such as the kestrel's flight patterns, the Veery's divided syrinx which allows it to sing multiple pitches at once, and the Red-cockaded Woodpecker's dependence on prescribed fire. After profiling the birds, David then discussed some of the most prominent risks facing bird populations—habitat destruction and fragmentation, collisions with man-made structures, ingestion of pesticides, competition from non-native species—then he highlighted things that audience members could do to make their homes and properties safer for, and more supportive of, resident and migrant bird species. These things included landscaping with native plants, limiting use of pesticides (insect populations are very important to sustaining bird populations), keeping cats indoors, putting decals on windows to make them visible to birds, and putting up nest boxes to support cavity nesting birds such as bluebirds and kestrels.

Hope

One of the defining features of this collaboration is the emphasis on hope. While it is our job to properly represent the condition of our environment, we must also provide a way forward. Hope is essential for inspiring positive change. It is a necessary antidote to the "doom and gloom" messages that so often dominate climate change conversations. In *Avifauna*, the Eastern Bluebird is our symbol of hope. It is a species that was brought back from severe decline because

of efforts from everyday people. The bluebird's song, which fills the soundscapes of the Eastern United States, IS the music of conservation; it represents hope for other species who face similar perils and for humans who wish to build a more sustainable world. These are the sorts of hopeful sounds and messages which I believe to be one of the most necessary elements of ecological performances going forward.

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APPENDIX A

LECTURE SCRIPT

Ornithological Piano Repertoire in a Time of Ecological Crisis

Thank you for being here this evening. My name is Jacob Skiles, many of you know me as a pianist, others know me as a birder—I'll let you decide which one better describes me at the end of the evening. The lecture recital I am giving today, "Ornithological Piano Repertoire in a Time of Ecological Crisis," offers, from a performer's perspective, a method for presenting ecologically conscious music in an interdisciplinary manner and proposes three works from different eras of compositional practice which can be used for the purposes of environmental education. We'll be looking at existing works by Amy Beach and Olivier Messiaen which can be repurposed for modern conservationist use, and we'll look at a recent work by Matthew Schultheis composed for the purposes of environmental activism in the Southeastern United States.

Premise

Birds have a long history of representation in the Western Classical tradition. Composers too numerous to list have drawn inspiration from birds, and we even see influences of birdsong in some of the most famous themes of Beethoven. For example, Sylvia Bowden writes of the Yellowhammer's song serving as the inspiration for the opening of the *Waldstein* Sonata. Meanwhile, birds are also facing severe decline—the State of the Birds 2025 report published by Cornell University shows populations of grassland birds have declined by 43% since 1970. In the same time frame shorebirds have declined by 33% and eastern forest birds by 27%. Given the

severe state of bird populations, and the prevalence of bird representation in classical music, a question arises: is it possible to use this repertoire for the benefit of birds? In this project, we will answer this question by focusing on what I will call "ornithological repertoire." That is—works that don't just include birdsong but which hold birds as the central focus of the music.

Before we discuss such music, let us first consider the historical precedent for music interacting with nature in environmentalist contexts. In the past few decades, we've observed the emergence of the field of ecomusicology which scholar Jeff Todd Titon defines as "the study of music, culture, sound, and nature in a period of environmental crisis." The field arose from conversations in ethnomusicology, where scholars studying the sound practices of indigenous communities began to ask questions about how we listen to and understand the natural world. Since then, many authors, while advocating for various new listening approaches, acknowledge the importance of music and musical performance in understanding and mending human's relationship to nature. Ana Maria Ochoa Gautier writes: "music, sound, and listening are understood as those which can suture the torn relationships between humans and the environment." Furthermore, if we believe that music does possess the power to positively impact the environment, then we can conclude that music performers have a responsibility to present music that properly represents the state of the world around us and advocates for change.

Interdisciplinary work, meanwhile, seems to be the preferred medium for achieving this. Ochoa Gautier in 2016 calls for interdisciplinary work between the sciences and the humanities as a medium for healing the relationship between humans and nature. Doug Blandy et al. in 1998 argued that "ecological restoration is overtly interdisciplinary" and that artistic endeavors therefore have an integral role in shaping the future of environmentalism.

If interdisciplinary work provides for us a solution, we may ask what the practical role is of music in conservation. Taking Jeff Todd Titon's claim that "for humans, nothing represents the sound connection and the sound and just community, economy, and ecology better than music," we may say that music's potential for conservation rests in its ability to interact with audiences, as it is uniquely positioned amongst art forms as a method for understanding and connecting to the rich soundscapes of the natural world, and in turn, advocating for its conservation.

There are a number of composers and performing artists exploring various avenues of musical participation in climate science and conservation. Emily Doolittle, a composer and music scholar currently based in Scotland, has written a number of musical works that center around birds and other wildlife often tied to a specific location or habitat. In addition to her composing, she frequently publishes work on the topic of "zoomusicology" in collaboration with biologists and has participated in interdisciplinary "talk and concert series" performances which allows music to be presented alongside educational lectures.

Ann DuHamel, a performing classical pianist and professor of piano at University of Minnesota Morris, compiled a monumental climate-focused project titled "Prayers for a Feverish Planet" based on a call for scores she published in 2020. This call for scores was open ended, allowed for submissions of music that touch on any aspect of climate change and resulted in seven recital programs of music by composers from all over the world. This project revealed the widespread interest from composers in writing music about climate change and led to varying interdisciplinary collaborations during DuHamel's performances of these programs.

Gabriela Lena Frank, composer-in-residence for the Philadelphia Orchestra, created a program called "Composing Earth" which enables composers to interact with climate scientists

and write climate-themed music. She also frequently advocates for reforming classical performance culture to become more environmentally friendly.

Next, we'll look at some examples of ornithological repertoire which have potential to participate in this interdisciplinary methodology exhibited by many prior artists and aim to provide a hopeful approach to environmentalism that focuses on birds and habitat restoration. Some may ask why I am focusing so narrowly on birds and not climate issues on a broader scale. Aside from my own personal interest in birds, we do have a long-standing history of bird representation in classical music, therefore providing us with ample repertoire options to address the topic. Another reason is that conservation practices that benefit birds have wider benefits to our environment while providing us with a unique opportunity to observe the impacts of our actions. Christian Cooper writes in his 2023 book *Better Living Through Birding*, "Birds communicate the same ways we do: through sight and sound…they've evolved a stunning range of patterns and colors and, among the songbirds, an astonishing musical repertoire, and we humans are equipped to revel in all of it." Because of this similarity in sensory experience, we are quick to notice the presence or absence of birds and with it, the improvements made to their habitats. Jeff Todd Titon writes in his essay "The Sound of Climate Change" that we can tell by the sounds around us whether an ecosystem is a healthy one. Birds are no doubt one of the reasons for that.

We'll now look at two examples of historical ornithological repertoire which have the potential to be repurposed for environmental education, even though they were not written with modern environmental concerns in mind. These pieces are Amy Beach's *Hermit Thrush at Eve*, and Olivier Messiaen's "Le Courlis cendré" from *Catalogue d'oiseaux*.

Amy Beach and the Hermit Thrush

Amy Beach's *Hermit Thrush at Eve, at Morn*, Op. 92, is a set of two relatively short piano pieces written in June of 1921 after she encountered Hermit Thrushes singing at the MacDowell colony in Peterborough, NH. The pieces depict two different times of day when one is likely to hear a Hermit Thrush sing; tonight, I'll be playing for you the first of these pieces: *Hermit Thrush at Eve*. Its inclusion in this project stems from Amy Beach's significance to the genre of American nature music and the significance of the bird which it features. The Hermit Thrush's song is amongst the most revered in literature and music and has been studied extensively in the scientific community. *Hermit Thrush at Eve* is one of many of Beach's attempts to capture nature in her music and represents the Romantic-era practice of glorifying nature's beauty. She includes a poem by John Vance Cheney at the beginning of the score which reads: "Holy, Holy! In the hush, hearken to the hermit thrush; All the air is in prayer." Unlike Olivier Messiaen's *Catalogue d'oiseaux*, which will be discussed later, Beach's Op. 92 depicts the Hermit Thrush song in isolation from that of other birds.

Beach was certainly not the first to transcribe the Hermit Thrush's songs. A number of musicians and ornithologists have written out musical transcriptions which document bird songs prior to audio recording technology becoming readily accessible. One such transcription is that of F. Schuyler Mathews made on June 29, 1903, in Campton, New Hampshire, less than 70 miles away from the MacDowell Colony, where Amy Beach encountered these birds nearly 20 years later. Mathews writes of his transcription: "I have taken no liberties with the score, except to make a doubtful A or B no longer doubtful. All is a literal transcription…" This paradoxical claim of "literal transcription" while also acknowledging the adjustment of the bird's song to fit within the western 12-tone musical system is commonplace amongst composers. Amy Beach makes a similar claim on the score of the *Hermit Thrush at Eve*, "These bird-calls are exact

notations of hermit thrush songs, in the original keys but an octave lower." The transcriptions of Mathews and Beach are both characterized by a strong allegiance to tonality while also emphasizing the apparent harmonic complexity we perceive between consecutive iterations of the Hermit's song. Let us listen to a field recording of a Hermit Thrush song about which Mathews wrote, "it is a theme worthy of elaboration at the hands of a master musician."

Mathews' transcription approaches the harmonic complexity of the song through constant modulation.

Amy Beach's *Hermit Thrush at Eve* handles these harmonic changes in a different manner. She opens the piece in the somber and elegiac key of E-flat minor, a harmonic color which is meant to reflect the waning light of dusk. Before introducing the Hermit Thrush's song, Beach adorns the elegiac mood with spacious accompaniments, chromatic turbulences, and a simple, lyrical melody entirely unrelated to the bird's song. It is a fully-fledged scene of human expression and evening harmonies before the Hermit Thrush even enters.

Let us look now at how Beach interprets the Hermit Thrush song on the piano: the first thing we might notice is that the first note of the song, a long C-natural, breaks out of somber E-flat minor sound world. She then moves through a complex chord progression in the bird song while the accompaniment keeps us tethered to its E-flat minor key origin.

Beach certainly, knowingly or unknowingly, fulfills Mathews wish to provide musical elaboration to the Hermit Thrush's song. However, our reevaluated stance on the relationship between human music and birdsong allows us to go beyond acknowledgement and appreciation of the intricacies and beauty of both things. Rather than compare birdsong to human music or further attempt to convert one into the other, we may reinterpret this ornithological music as a commentary on our human responsibilities as they relate to the birds represented.

Several elements of Beach's *Hermit Thrush* pieces make them ideal for incorporation into interdisciplinary performance formats. First is accessibility. The Hermit Thrush's wide range allows it to be observed in most of North America for at least some portion of the year, meaning that many audiences would be able to reasonably encounter this species. Second, the romantic aesthetic of Beach's work is likely to appeal to a similarly wide audience, more so than some of the "contemporary" sounding bird pieces of Messiaen or Schultheis. Third, the length of these pieces, each being five minutes or less, allows it to be incorporated into the middle of a lecture without major disruption to the format and message. Lastly, the elegiac sound of the first piece could be reinterpreted as a commentary on the bird's decline and uncertain future. It provides a strong emotional appeal that can accompany a more explicitly worded message. Jeff Todd Titon talks of the Hermit Thrush's northward shifting breeding territories as a directly observable effect of climate change on our soundscapes. There is perhaps no more appropriate piece to fit his solemn sentiment than Amy Beach's *Hermit Thrush at Eve*, which I will now perform for you.

Olivier Messiaen and the *Catalogue d'oiseaux*

In modern classical music culture, there is perhaps no name more closely associated with birds than Olivier Messiaen. Messiaen's compositional output frequently uses birdsong and features titles which explicitly indicate their ornithological nature. His multi-volume set, *Catalogue d'oiseaux*, or "catalogue of the birds," for solo piano, is among the most well-known examples of twentieth-century ornithological repertoire, comprising of 13 movements, published in seven volumes between 1956–58. Each movement within the set features a single title bird, but the pieces reflect more broadly the sounds of their environment, including sounds of cohabitant species. "Le Courlis cendré" is the thirteenth and final movement of *Catalogue*

d'oiseaux, published in book 7, and it features the birds and sounds of the French coastline. Its inclusion in this project stems from Messiaen's massive contribution to the genre of ornithological repertoire as well as its use of man-made structures and sounds. Furthermore, while this project is not explicitly about North American birds, many of the birds featured in these pieces, because of the ecological similarities across the North Atlantic coastlines, are either the same species found the North America or have closely related American equivalents. The title bird of this work is the Eurasian Curlew, a large shorebird with an exceptionally long, decurved bill. Here you can see the Eurasian Curlew alongside the remarkably similar American species, Long-billed Curlew. Also included in this work are the Sandwich Tern, Black-headed Gull, Little Ringed Plover, Common Redshank, European Herring Gull, Common Gull, Common Murre, Eurasian Oystercatcher, Ruddy Turnstone, and Little Tern.

Messiaen's self-described approach to annotating bird song primarily focuses on melodic contour. Not unlike the methods used by Mathews and Beach, Messiaen admits to altering the pitches to allow them to fit the notes available on the keyboard. However, Messiaen deviates from the practice of his predecessors, not altering the notes to fit within traditional western harmony, but expanding the smallest intervals sung by the bird to the smallest interval possible on the piano keyboard (a semitone), then expands all other intervals proportionately to keep the relative contour intact. While the pitches don't necessarily conform to tonal harmony as we heard in Mathews and Beach, they do fit into Messiaen's own harmonic language based on the modes of limited transposition. Messiaen also refers to the existence of a "style oiseaux" or "bird style" which he uses frequently in his music and is characterized by exquisite contour and ornamentation with quasi-improvisatory rhythms, though again much of Messiaen's non-traditional rhythmic organization is still present. His approach to the "bird style" in his music

relies on “transcription, transformation, and interpretation” and does not simply copy nature which he called a “servile” endeavor.

One interesting observation we can make about his transcription process in “Le Courlis cendré” is his imitation of harmonics that are frequently observable in spectrograms of audio recordings. Here in this imitation of the Common Redshank, we see that the hands are split by multiple octaves, but perhaps contrary to our default piano habits, the bottom voice is marked with a louder dynamic than the upper voices. With the upper voices moving in rhythmic unison parallel to the bottom voice, the dynamic balance imitates the effect of a strong fundamental pitch with its apparent overtones. We can also see here a spectrogram of Common Redshank vocalizations which shows just this. Note here that the volume of each tone is indicated by its darkness.

Like Amy Beach’s *Hermit Thrush at Eve*, Messiaen’s “Le Courlis cendré” makes use of dark harmonic colors but goes further in its use of foreboding sounds which allow this piece to readily accompany messages of concern and alarm. Music critic Robin Freeman writes of a particularly haunting performance of this piece as having an “eerie feel of desolation.” The movement opens with a spacious E-flat minor chord, a similar harmonic color to the opening of Amy Beach’s *Hermit Thrush at Eve*, then is followed by widely spaced dissonances in the upper register representing the sounds of the Eurasian Curlew. The haunting sonic color created by this juxtaposition of the ominous E-flat minor chord with the eerie vocalization of the Eurasian Curlew also creates an impression of emotional anguish similar to the sentiments expressed by William Yeats, penned in response to his hearing of this same species:

> O curlew, cry no more in the air,
> Or only to the water in the West;
> Because your crying brings to my mind

passion-dimmed eyes and long heavy hair
That was shaken out over my breast:
There is enough evil in the crying of wind.

This sentiment is once again found in a passage a short while later, in which a low D minor chord is paired with the yelping or wailing calls of the curlew, in what appears to be a flyover of one or more birds.

In addition to the birds in this movement, Messiaen also includes, and names, several other features from the environment: waves, water, fog, night, and a lighthouse siren. The inclusion of the man-made lighthouse and its sounds is of particular interest as it indicates a human presence and impact on the French coastline. Its insertion into this sonic environment forces us to consider the relationship it has with the natural surroundings. Given what we know of the risks lighthouses can pose for birds, particularly nocturnal migrants, the inclusion of the lighthouse in "Le Courlis cendré" gives this movement a strong case for use in conservation conversations, particularly as it relates to human's attempt to tame landscapes for our own benefit.

The lighthouse siren appears as a massive 11-note chord played in the low register, forcefully merging harmony with noise, as one would expect to hear with a real lighthouse siren. After this monstrous chord is played, accented and quadruple-forte, the left hand hammers the lowest A on the piano in a similarly forceful manner. The tempo indication of "Très lent" and glacial metronome mark of sixteenth-note equals 54 means that Messiaen allows for over eight seconds of bird-less musical stagnation while the lighthouse chord slowly decays. The enormity of volume and length of this moment, which occurs three times during the latter half of the movement, casts the lighthouse as an imposing presence on the French coastline, unchallenged and unimpeded by any of the natural sounds, birds or otherwise, that Messiaen includes.

As for the sounds of the birds, recent discourse on Messiaen's music has suggested that they have an evolving role throughout his writing. Minhye Park points to the European Herring Gull as one example of this evolution, as its vocalizations can be found representing the "sound of the environment" while at other times it is a means of "musical expression." Considering this varied, and evidently fluid, function of birdsong in Messiaen's ornithological music, it may be appropriate, by extension, to acknowledge the capacity for these bird sounds to represent greater environmental concerns that were not necessarily on the forefront of Messiaen's mind when he wrote piece. Given the curlew's historical interpretation as an emotional wailing along with the concerning and ominous evidence of humans in this piece, and considering the dramatic decline of shorebirds in recent years, Messiaen's "Le Courlis cendré" becomes an ideal candidate for ornithological repertoire participating in environmental education. I will now perform for you, the last movement of Messiaen's *Catalogue d'oiseaux*, "Le Courlis cendré."

AVIFAUNA (2024)

Next, we will move on to Matthew Schultheis' *Avifauna*, a piece which, by contrast to the works we heard by Amy Beach and Olivier Messiaen, was composed quite recently with environmental concerns in mind. It is the direct result of my own interest in presenting music which highlights our local bird species here in Georgia and it consists of three movements with two interludes—today I will be playing first movement, first interlude, and third movement.

This project began with a search for piano repertoire that features North American birds, during which I was troubled by the lack of material featuring one of my favorite species: the American Kestrel. Given the recent trends in bird populations, and particularly the decline in Kestrels, I did not want this project to be solely about my own appreciation for the birds, I wanted it to have the capacity to help them. I reached out to Matthew Schultheis, a composer at

the Juilliard School, who excitedly agreed to the project. During our collaboration, we decided that the piece would be a multi-movement set that focuses on multiple species and habitats, all with the intent of bringing attention not just to their beauty and intrigue, but to their uncertain futures. Among our considerations at the genesis of the project were location and accessibility. We wanted every bird and habitat featured in the music to be close-to-home, literally and figuratively, for the audience. Ultimately the birds we decided to incorporate into the piece were the American Kestrel, Eastern Meadowlark, Veery, Red-cockaded Woodpecker, and Eastern Bluebird. Here you can see a page from Matthew Schultheis' personal sketchbook where he transcribed the songs and calls of these five species.

Movement I: Hunting Behaviors *[Falco sparverius]*

The first movement is imaginative of the unique hunting behaviors of the American Kestrel, hence its title. It explores the "differences in speed and suddenness between birds and humans." The particular fascination of the Kestrel's behavior is their tendency to hover: they fly into the wind, using their body motions to stabilize their heads. The music captures the character of this by using rapid, erratic gestures (the bird's movements) that surround a more logical musical line (the bird's steady eye gaze). You can see here in the first page of the piece various elements of their erratic flight, with swooping gestures, hovering trills, rhythmically inconsistent bursts of fast notes, and striking juxtapositions of articulation. The kestrel's pinpoint focus continually appears throughout the movement in passages where Schultheis chose to thin out the texture into strings of rapid notes on a singular staff, as shown here (72 and 73)

The erratic and rapid nature of the Kestrel's flight also depicted visually through the physical and technical gestures of the pianist. One spot which Schultheis highlights as an example of intentional visual rapidity is this measure (40) which features quick notes in one hand

with rapid registral leaps, in the other hand. This passage, marked "loco," has an intentionally uncomfortable feeling when executed properly.

While much of this first movement is focused on their mesmerizing flight and hunting habits, the movement ends with a sudden shift to soft mysterious notes to be played "senza colore" to reflect the American Kestrel's rapid and poorly understood decline across North America.

Interlude i: song 1 *[Falco sparverius/Sturnella magna]*

The next part of the piece is an interlude entitled "Song I" and shows a transition from a focus on the Kestrel's behavior to the soundscapes of its habitat—open grasslands and prairies. It includes some of the Kestrel's vocalizations and introduces us to the sound of its songbird cohabitant, the Eastern Meadowlark. The meadowlark's song serves as an important motif that returns in the last movement, but this interlude demonstrates the most literal transcription of its song found in the whole piece.

Movement III: Burning/Clearing *[Dryobates borealis/Sturnella magna/Sialia sialis]*

The final movement of Matthew Schultheis' *Avifauna* (2024), entitled "Burning/Clearing," centers around the topic of habitat alteration by humans in both positive and negative contexts. It features three birds whose conservation status ties closely to the condition of their nesting habitats: the Red-cockaded Woodpecker, the Eastern Meadowlark, and the Eastern Bluebird.

The endangered Red-cockaded Woodpecker is a species whose existence now depends almost wholly on human efforts to manage longleaf pine forests with prescribed fire. This woodpecker was once widespread throughout the southeastern U.S., at a time when low-intensity wildfires were regular but is now restricted to managed forests. Though the Red-cockaded

Woodpecker's populations have stabilized, this species may very well be extinct if not for diligent conservation efforts.

The Eastern Meadowlark is a species that inhabits open grasslands and prairies. Meadowlarks are known for their bright yellow bellies and their loud, lyrical songs that can be heard from hundreds of meters away. Meadowlarks nest in tall grasses during the spring and summer which leaves them vulnerable to mowing and agricultural activity. Meadowlarks are currently widespread, but their habitat is among the fastest declining in North America.

The Eastern Bluebird is currently one of the most common and widespread species in the US, but they were once in great decline. Bluebirds rely heavily on tree cavities for nesting, which are often carved out of dead trees by woodpeckers. With frequent removal of dead trees and increased competition from introduced species such as European Starlings and House Sparrows, populations of native cavity-nesters, such as bluebirds, began to plummet. Their populations recovered when homeowners started putting up nest boxes that were suitable for bluebird nesting.

The opening page of the third movement features an expansive descent from the high register of the "language of the birds" to the lower register of the keyboard which is used to represent their habitat. Out of this spacious, contrapuntal texture emerges what Schultheis calls the "tree chords" depicting the tall, mature longleaf pines that make up the Red-cockaded Woodpecker's habitat. These low, thick harmonies move gradually, enveloped in long pedals. One important passage which Schultheis highlights in the middle of the movement features the sounds of the bluebird, meadowlark, and woodpecker in close proximity. The intertwining of their sounds is used to demonstrate the similarities between these bird's situations and signal hopefulness that the meadowlark's fate may be similar to that of the bluebird and woodpecker

with proper recognition and action. After this initial intertwining of the meadowlark and bluebird songs, we hear several "pik" sounds of the Red-cockaded Woodpecker in the extreme high register of the piano, then one last clear iteration of the meadowlark song before the music succumbs to the muddy rumbles of the low register. This extended dark, low rumble is meant to bring finality to the piece's cross-movement registral descent and marks a turning point in the movement where the future becomes desolate and uncertain. The imagery of the rumble depicts fire and smoke, both controlled and raging, but it also features a rather mechanical passage within this pedal obscuration which suggests the destructive activity of human machinery.

The end of this long roaring passage is marked by the return of the Red-cockaded Woodpecker's "pik" call and gives way to a more hopeful and optimistic coda, symbolic of the bird's benefit from the controlled burns. The remainder of the coda primarily features the song of the Eastern Bluebird in the upper registers projected over directionally ambiguous harmonies in the lower registers. Schultheis intended this coda to hold in tension the hopefulness that accompanies individual action, appreciation, and enthusiasm, with a sense of urgency and uncertainly about the future. It functions as a sort of musical call-to-action. I will now perform for you, the first movement, first interlude, and third movement of Matthew Schultheis' *Avifauna*.

Premiering *Avifauna*

The premiere of *Avifauna* took place on May 16th, 2024, at the Georgia Museum of Art as part of the Chamber Music Athens festival in Athens, Georgia. Its format can serve as a template for future artistic participation in climate-related endeavors. The program began with a ten minute presentation from David Tilson, a local ecologist and research coordinator for the University of Georgia's Warnell School of Forestry, which was then followed by my

performance of the piece. During intermission, after the premiere of *Avifauna*, audience members were invited to walk around a gallery of bird prints and paintings provided by the Georgia Museum of Art, which included depictions of several extinct Georgia species. The audience at this event consisted of many local musicians, classical music and art enthusiasts, members of the local Audubon Society chapter, and members of other schools within the University of Georgia.

Ecologist David Tilson's presentation at the premiere of *Avifauna* identified the five birds that were present in the music, projecting photos and range maps and playing field recordings of their songs and calls. He also discussed some of the characteristics of the birds that were important considerations during my collaboration with the composer, such as the kestrel's flight patterns and the Red-cockaded Woodpecker's dependence on prescribed fire. After profiling the birds, David then discussed some of the most prominent risks facing bird populations—habitat destruction and fragmentation, collisions with man-made structures, ingestion of pesticides, and competition from non-native species—then he highlighted things that audience members could do to make their homes and properties safer for, and more supportive of, resident and migrant bird species. These things included landscaping with native plants, limiting use of pesticides, keeping cats indoors, putting decals on windows to make them visible to birds, and putting up nest boxes to support cavity nesting birds such as bluebirds and kestrels.

One of the defining features of this collaboration was its emphasis on hope. While it is our job, as performers, to properly represent the condition of our environment, we must also provide a way forward. Hope is essential for inspiring positive change. It is a necessary antidote to the "doom and gloom" messages that so often dominate climate change conversations. In *Avifauna*, the Eastern Bluebird is our symbol of hope. It is a species that was brought back from

severe decline because of efforts from everyday people. Its song, IS the music of conservation; and it represents hope for other species who face similar perils and for humans who wish to build a more sustainable world. These hopeful sounds and messages are what I consider to be one of the most necessary elements of ecological performances going forward. Thank you.