



PROJECT MUSE®

The Music of the Trees: *The Blued Trees Symphony and Opera as Environmental Research and Legal Activism*

Aviva Rahmani

Leonardo Music Journal, Volume 29, 2019, pp. 8-13 (Article)

Published by The MIT Press



➔ For additional information about this article

<https://muse.jhu.edu/article/745351>

The Music of the Trees

The Blued Trees Symphony and Opera as Environmental Research and Legal Activism

AVIVA RAHMANI

ABSTRACT

The Blued Trees project is a transdisciplinary thought experiment, physically manifested across miles of the North American continent. It melds ideas about music, acoustics, art and environmental policy. Hundreds of GPS-located individual trees in the path of proposed natural gas pipelines were painted with a sine wave sigil. Each “tree-note” contributed to an aurally perceivable composition employing the local terrain. The score is the formal skeleton for systemic changes challenging several laws. A mock trial explored how this project might open new directions in legal activism for Earth rights and contribute to an operatic libretto.

The Blued Trees Symphony is an interdisciplinary and collaborative composition incorporating music, painting and the natural landscape that challenges obsolete environmental policies and morphed into a conceptual opera. I felt desperate urgency about fossil fuel use and climate change and had developed a theoretical approach to ecological restoration as art that I could apply to this project. Stretching musical ideas such as time and tempo, I could then model an expanded discourse between consonance and dissonance; deconstruct obsolete boundaries between visual art, music, law and science; and propose new paradigms. The on-the-ground work was installed in increments of $\frac{1}{3}$ mile, each a “measure” in the full symphony, at the invitation of individual landowners. Their privately owned land was threatened with eminent domain “takings” by natural gas corporations in the name of the “public good.” The subsequent development and crowd-sourced reflections illuminated the fickle determinant of time in human change and how time, technologically mediated and musically conceived, might foster change. This thought experiment asked: What is the public good today? How might art help resolve conflicts between the public good and anthropocentrism?

My first measure, designated as an overture, was installed in Peekskill, NY. A proposed pipeline expansion for high-

velocity fracked gas was to pass 105 feet from Indian Point, an aging nuclear power plant 30 miles from almost nine million threatened residents of New York City, and alongside the Hudson River. In this text, I will explain the form, intentions and outcomes of five symphonic movements, which evolved from overlaying maps and compositional forms (Fig. 1).

Alberta, Canada, sculptor Peter von Teisenhausen set a precedent for weaponizing art to protect habitat in 1996. He copyrighted his entire ranch to protect it from corporate incursions to advance natural gas pipelines [1]. Von Teisenhausen’s legal premise was never tested in the courts. In 2015, New York state-based antifracking activists contacted me about testing the premise. I perceived the maps of pipelines as synesthetic aerial musical lines, venues for sonifying hundreds of miles-long installations. The movements of *The Blued Trees Symphony* follow the conventional fast-slow-fast *sinfonia* template but incorporate unconventional means.

Each movement is discussed in detail in this article and will contribute to what would become my ongoing *Blued Trees* project. Collectively, the movements represent an experiment in the length of time that humans might require to internalize an idea at an appropriate experiential, albeit not necessarily performative, tempo:

1. Overture. In days, *presto*: Introducing legal theory and initiating work in New York.
2. First movement. Three years *allegro* in production, *largo* in siting; painting trees across the continent. The dominant “theme” is intimate relationships with trees.
3. Second movement. Two months *con moto*, short duration: studying contamination at the Newtown Creek superfund site as a foreshadowing presaging the third movement.
4. Third movement. Four years and continuing *larghissimo*: progression of legal activism and international movement for Earth rights.
5. Coda. *Veloce*, the 2016 U.S. elections, portending threats to some judicial and constitutional principles. In addition to assaults on and arrests of the Standing

Aviva Rahmani (artist-composer, researcher), Institute for Arctic and Alpine Research INSTAAR, University of Colorado at Boulder, Boulder, CO, U.S.A.
Email: ghostnets@ghostnets.com.

See www.mitpressjournals.org/toc/lmj/29 for supplemental files associated with this issue

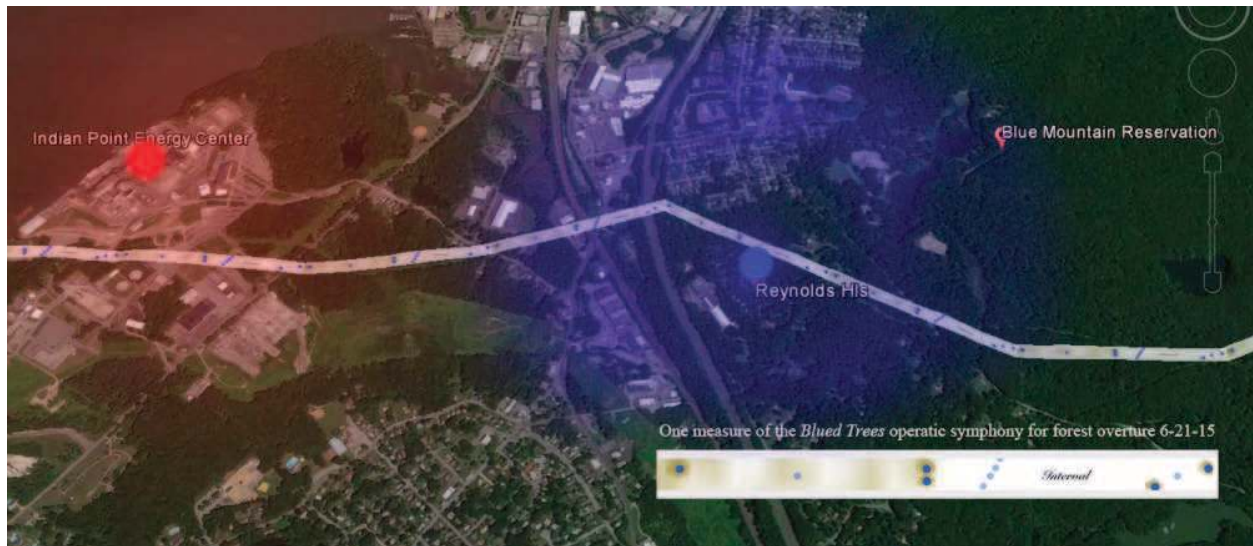


Fig. 1. A series of musical measures imposed over the 2015 projected trajectory of the Algonquin natural gas pipeline in Peekskill, NY. Bottom right corner illustrates the score for the iterated melody to create a musical line. (Satellite image © Google. Graphic overlays © Aviva Rahmani.)

Rock water protectors and other natural gas protestors, starting in February 2017, 18 states have elevated natural gas protest from a misdemeanor to a felony with heavy penalties [2].

Strategies central to the project as both a symphony and an opera include:

1. Transposing GPS locations into scoring
2. Synesthetic notation based on geography
3. Creating scores out of continental mapping
4. Layering conventional harmonies with acoustic composition
5. Sonification of each tree from canopy to roots

Composers such as Bernie Kraus [3] and David Dunn [4] have recorded ecosystemic changes as valid scientific research. In this case, my proposed new knowledge had legal implications. My legal credibility, however, depended on establishing legal standing with regards to current art discourse.

Therefore, fragments of the symphony and elements of the opera have been performed or exhibited as immersive acoustic installations, such as at New York University for the Precarious Sounds/Sounding Sanctuary Conference (2018); in larger installations on a loop, as at the KRICT gallery in Daejeon, South Korea (2018); in the Perspective Gallery at Virginia Tech University (2016); or as part of longer speaking engagements, such as at George Mason University (2017) and the Wexner Center, Ohio (2018); in short residencies, such as at the University of Georgia (2018); and in numerous panel presentations, such as for the Feverish World Symposium at the University of Vermont (2018). Each of those events was an occasion for publications that reinforced standing [5]. In a 2018 mock trial, Bronx Supreme Court Judge April A. Newbauer cited the testimony of art critic Ben Davis in her decision to temporarily stay a hypothetical corporation. Da-

vis referenced those publications in his testimony to position the project within current art discourse, therefore meriting protection as a work of art.

COMPOSING FOR VERTICAL AND HORIZONTAL PERCEPTION IN *THE BLUED TREES SYMPHONY*

I transposed intrinsic spatial and temporal relationships to habitat into embellished chords from vertical and horizontal indices. The synesthetic aspect was both experienced by performers on site and recapitulated in overlays on satellite mapping as simultaneous experiences of acoustic and visual environments for each tree. I considered the most prominent trees as tree-notes. The score became a drawing for sonified biogeographic sculpture. The vertical positioning of the sine wave sigil referenced the permaculture of ecosystem sound, the layers of sound ecologies in the root systems and trunks we cannot hear as much as the wind through canopies or birds in the branches. One aspect of that layering was captured in the recording of an hour of birdsong at one tree-note by ecologist Matt Perry. Acoustic composer Maile Colbert assembled a library of interior tree sounds recorded from inside the trunks that were later woven into fragments of the symphonic coda.

The sonata form was appropriated to bridge past and present formalism. The horizontal melodic line was composed with MuseScore software. As in conventional instrumental or vocal scoring, the line ascends and descends harmonically, has dissonant chords and concludes cadentially. Additional technological resources for producing the sound included satellite mapping, GPS and acoustic software.

This approach reflected what science historian Thomas Kuhn [6] described as an essential requirement for a successful transition from an older to a newer paradigm: the connection of the two. In this case, the paradigmatic shift that interested me was contained in the original wording of copyright

law originating from the French Revolution, calling for protection of the *spirit* of art [7]. In contemporary creative work, that spirit is often reflected in a search for discursive models that lead to a sustainable future. In this project, I presumed humanity could shift cultural boundaries and redefine rules for sustainable behavior in fragile ecosystems to realign us with the rest of nature and reject anthropocentrism.

MAP AS SCORE

Maps and scores invite imaginative movement. Explosive accidents on these pipelines are not unusual and were easy to imagine. *The Blued Trees Symphony* score developed from the initial idea for *Blued Trees* and then inspired the idea of developing an opera to address this urgency. An iterative refrain was composed in a triumphal G major mode to distribute tree-notes in patterns that could impede the passage of heavy machinery if recognized as legally inviolable (Fig. 2).

The refrain recurs in each movement. It recurs again in the opera-in-progress.

The symphony sources classical sonata themes and an iterated melody with variations. Duration, rhythm and tempo in novel relationships with geography and environmental justice strategically prioritized time. This temporal emphasis connected musical form to legal requirements to establish the permanence of the art in the habitat (merely site-specific art that can be removed is not deemed permanent to a site) (Fig. 3).

The installations were habitat dependent. Each tree was marked with a sigil painted in nontoxic ultramarine blue and buttermilk, creating a permanent casein layer to encourage moss growth over time. The sigil diameter corresponded to the trunk width. It reached from each tree canopy to roots in the soil, penetrating the soil and ultimately the watershed. I chose to mark only deciduous trees to avoid creating acidic imbalances on evergreen trees (Fig. 4).

Photographs of individual tree-notes were submitted for copyright protection with an aerial map of the GPS-located trees that composed the score. The moss-growing capacity of the sine wave established a sound layer ecology beyond direct human hearing. The pattern of GPS-designated trees in Peekskill was the first of many subsequent aerial synesthetically perceived “measures” in 1/3-mile increments for the score (Fig. 5).

The GPS-located tree-notes for the refrain were imagined as “tree-songs,” “tree-soloists” and eventually—sadly—in many cases, “tree-martyrs.”

Blued Trees

An iterative measure for an improvisational operatic symphony to be performed for a forest

Aviva Rahmani



Fig. 2. Original score for iterated melodic refrain submitted for copyright registration. (© Aviva Rahmani)

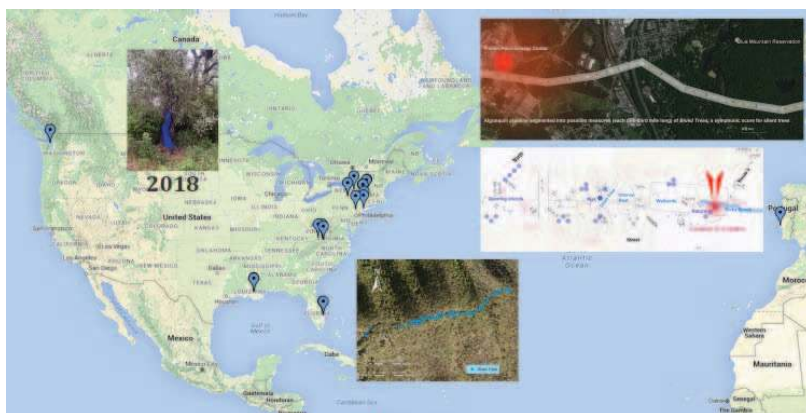


Fig. 3. Considering the map as score; blue teardrops indicate locations of the *Blued Trees* forest installations for a symphony. Inserts represent materials for copyright. (Satellite image © Google. Graphic overlays © Aviva Rahmani.)



Fig. 4. Tree-notes marked with sigils from the 2015 overture launch at Peekskill, NY, registered with U.S. Copyright Office. (© Aviva Rahmani)

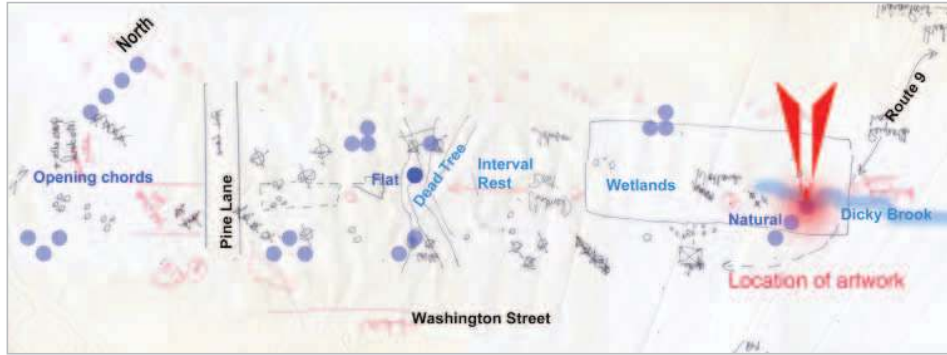


Fig. 5. Mapping the score, Peekskill, NY, submitted for copyright registration, 2015. Sketch on tracing paper imposed over a composite segment of maps available from corporations. (© Aviva Rahmani)

TIME, ENVIRONMENTAL POLICY AND THE SONATA FORM

Time organizes sound and experience. Adaptation to climate change presents a tension between urgency and cultural change that art can resolve. *The Blued Trees Symphony* researched temporal, geographic and musical form and environmental policies as models for conceptual change.

Establishing court standing for work to be protected requires time. An artist who has established standing can challenge eminent domain takings, but this depends on establishing permanence. Unlike site-specific art, which is deemed movable and therefore cannot be protected, this work was not portable. The biological relationships to moss, roots and canopy were permanent and fixed.

Conventionally, any score is limited by the envelopes of linear time during which a human audience can comfortably sustain consecutive attention to a contained experience: e.g. three minutes for a song, an hour for a concert. The terms and premises of time in classical music invite metaphorical, conceptual and corollary associations closer to forest time. *The Blued Trees Symphony* spread time over years in a score that encompasses a vast heterogenous landscape of experience and staggered conceptions of events in time (Fig. 6).

I divided the examination of processes and ideas into the five movements of the hypothetical symphony to clarify aesthetic arguments in any eventual court proceeding.

The sonata form was appropriated from early eighteenth-century musical tropes that evolved during the Age of Reason, before the French and American revolutions, as abstract expressions of the conviction that in time even the most violently dissonant human conflicts might be resolved into consonant cadence.

The overture proceeded at an adagio tempo to develop ideas and help decide on possible legal actions between January 2015 and the actual overture launch. The overture on the Spring Equinox, 20 June 2015, presumed that art, justice and science might defy ecosuicide. The Spectra natural gas corporation destroyed the painted trees five months later despite a cease and desist motion. The painting took place exclusively at the invitation of landowners whose property was threatened with eminent domain takings but had not

yet been condemned by the Federal Energy Regulatory Commission to accommodate the natural gas corporations. If property owners whose land had already been condemned had participated, they would have been perceived as activist protestors, liable for jail time. Colbert layered sound onto segments of the musical composition I created that were used in the film documentation by Denise Petrizzo.

The first movement continued to paint measures across the North American continent (the first movement continues to unfold, overlapping in time all other movements except the overture and the second movement). I conceived it as an expository celebration of trees, sustainable relationships to contiguous forests and clean freshwater. As a bel canto singer, I imagined how evolving tree-songs might play with time, rhythm and melody for nonhuman audiences.

I composed music by visually interpreting aerial perceptions of terrain and geography from Google Earth Pro satellite mapping with MuseScore software. The ground-level distribution of designated trees as harmonic embellishments was inflected from site to site by geological features and the natural growth patterns of vegetation (Fig. 7).

The second movement tracked contamination and monitored toxicity at Newtown Creek in Brooklyn. That focus emerged from a residency funded by the NEA with the International Studio and Curatorial Program (ISCP) near the site. It was realized as a developmental model for what would become of the North American continent if fossil fuel use is not checked [8]. The second movement transposed



Fig. 6. Visualizing the temporal relationships of the five movements of *The Blued Trees Symphony*. (© Aviva Rahmani)



Fig. 7. GPS-located measures located in terrain. Image produced by Kathy High. (© Dennis Ryan)

documentation of contamination in the water channel and referenced how the extreme contamination of a Superfund site could expand across the continent. Notation was also accomplished with MuseScore. Documentation of the history of contamination at the site became a recitative of text from Wikipedia. The results were layered with a track of local traffic sounds captured by artist Dylan Gaultier, who had also been working on Newtown Creek. Although the time given to creating that movement was short (two months), the accumulation of contamination at that site took three centuries, creating a contrasting slow tempo. The overture and first two movements were performed at ICSP Fall 2015 (Fig. 8).

The third movement is acoustically silent. It may find voice as the core of an opera-in-progress based on legal arguments and premises, some of which were researched by copyright lawyer Gale Elston, a minuet between justice and corporate abrogation of the law of the commons.

The coda was first composed in 2016 as a recitative of legal quotations combined with vocalization on the eve of the U.S. presidential election. That movement was performed at several venues. An acoustic veil by Colbert was added for the sound installation for the Precarious Sounds/Sounding Sanc-

tuary conference. Earlier live performances were presented at Perspectives Gallery at Virginia Tech as part of an installation about the entire project and at White Box Gallery in New York City. The elements of the coda will be recapitulated for the 2020 U.S. presidential election.

As in a classical sonata, the tempo of each movement of the symphony reflected transitions in physiological moods as ideas are absorbed from exposition, development and recapitulation. The symphony manipulated and elongated time to accommodate the real-time demands of human adaptation to traumatic or surprising changes, such as the toxification of a water body (Newtown Creek), the lengthy process of moving a new legal idea through court systems or how quickly the 2016 election in the United States changed the American political landscape and, arguably, the entire global political balance in favor of populist support for fossil fuel corporations as a short-term economic driver. Couching the counterpoint and harmonic resolutions within the score by representing terrain as embellishment was nuanced in the events that unfolded between corporate interests, environmental activists, landowners, politicians, scientists and habitat since 2016.

LEGAL ACTIVISM AS NARRATIVE LIBRETTO

The premise of legal activism is that you win even if you lose. Even a *Blued Trees* loss, however, requires a test case. But the judicial effort ground forward far more slowly than glaciers under a climate change regime.

Patrick Reilly, the first copyright lawyer for the project, had counseled me to “win in the court of public opinion” before setting foot in a courtroom. That mandate addressed standing. Numerous interviews, articles, panels and short films about the project advanced standing.

An obstacle to environmental law litigation today is, as Jane Mayer has documented, corporate funds that persecute whistleblowers and discourage legal challenges to fossil fuel hegemonies [9]. Since no lawyer was willing to risk court censure and liability if we failed in a real courtroom, three years into the project, the mock trial was mounted and filmed 25 April 2018 by A Blade of Grass at the Cardozo School of Law, in New York City. The film was launched April 2019.

Chronological events will determine the shape of the libretto for the projected opera. Public interactions will contribute musical lines to the opera. The production is scheduled for presentation shortly before the 2020 election and will recapitulate political and psychological events since the 2016 symphonic coda.

The legal ideas in the *Blued Trees* content hinge on an interrogation of the legal definition of “public good,” which now legitimizes the exercise of eminent domain for corporate avarice to acquire private property for private profit. That is a recent legal interpretation. In Baroque music terms, that abuse of power provides the essential recurrent dissonant line that requires equally recurrent

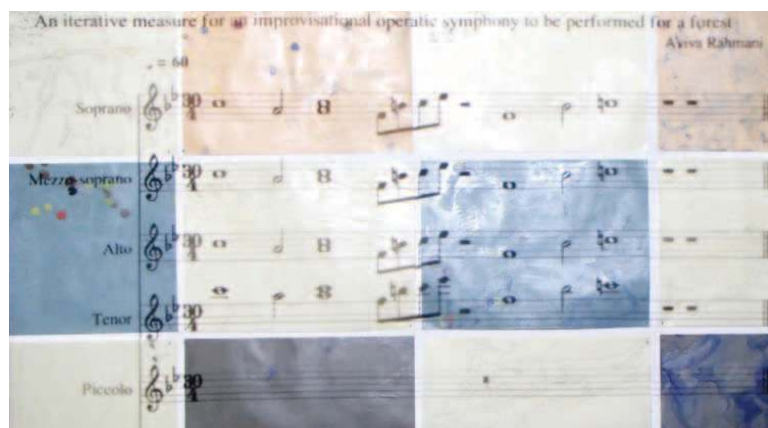


Fig. 8. Detail of sound installation projection over encaustic drawings of New York State gas line mapping at ICSP, 2015. (© Aviva Rahmani)

resolution: greed versus justice. I had prioritized collecting evidence establishing standing for a court. Proving standing was as important as proving the work as distinct from site-specific art by permanent integration into the habitat.

The Visual Artists Rights Act (VARA) protects art, scores and artists from infringement—but not site-specific work. Instead, the literally-painted-blue trees component of *The Blued Trees Symphony* was copyrighted under a proposed new category for VARA: sonified biogeographic sculpture. That assertion of a new category positioned the work to contest the taking of private property under eminent domain law for corporate profit at the expense of local communities. As with eminent domain, which was created to protect the “sacred” home, the original definition of copyright as protecting the “spirit of the art,” critical to this project, was established in the Baroque period that codified sonata forms. Challenging current interpretations of eminent domain and copyright law also involves the global movement to protect natural features,

as with Earth rights. All three of those legal threads go toward integrating a spiritual aspect to the law and to United Nations statements to the effect that economic interests alone cannot determine decisions around climate change; cultural factors must be considered.

Our core legal theory is that VARA needs to be expanded to protect artwork that is integrated into habitat and aligned with Earth rights. If that were the case, eminent domain law would also be challenged. Eminent domain was originally intended for protection of the “sacred” home and for the “public good.” Even conservative judges have questioned whether public good is being redefined to privilege corporate profit. Boundaries need to be moved from arbitrary silos to accommodate harmony with other species and the waters we all depend upon. In *The Blued Trees Symphony*, an interdisciplinary aesthetic emerged to reconsider how the spiritual in art is synonymous with public good.

References and Notes

- 1 Stephen Keefe, “This Canadian Artist Halted Pipeline Development by Copyrighting His Land as a Work of Art,” *Vice* (6 November 2014): www.vice.com/en_us/article/5gk4jz/this-canadian-artist-halted-pipeline-development-by-copyrighting-his-land-as-a-work-of-art-983.
- 2 “‘Protesters as terrorists’: growing number of states turn anti-pipeline activism into a crime”: www.theguardian.com/environment/2019/jul/08/wave-of-new-laws-aim-to-stifle-anti-pipeline-protests-activists-say.
- 3 Bernie Kraus, *The Great Animal Orchestra: Finding the Origins of Music in the World’s Wild Places* (New York: Little, Brown, 2012).
- 4 Scott Rappaport, “Music Professor Receives Patent to Help Fight Bark Beetles Ravaging Western Forests,” UC Santa Cruz News Center (9 February 2017).
- 5 E.g. Nancy Averett, “An artist uses her creativity to fight the construction of natural gas pipelines,” *Earth Island Journal* (16 June 2016): www.earthisland.org/journal/index.php/elist/eListRead/copyrighting_nature; Jaya Bajaj, “Art, Copyright, and Activism: Could the Intersection of Environmental Art and Copyright Law Provide a New Avenue for Activists to Protest Various Forms of Exploitation?” *Northwestern Journal of Technology and Intellectual Property* 15, No. 1 (Spring 2017); Julie Baumgardner, “Nine Artists Respond to Climate Change” *Artsy* (22 September 2015): www.artsy.net/article/artsy-editorial-nine-artists-respond-to-climate-change; Roger Denson, “Earth Day EcoArt Confronts Deforestation, Fracking, Nuclear Hazards In Eastern US Woodlands,” *Huffington Post* (21 April 2016): www.huffingtonpost.com/g-roger-denson/earth-day-ecoart-confront_b_9721354.html; Hunter Gresham, “Art Raises Awareness about Trees in Pipeline’s Path,” *Virginia Tech Daily* (4 November 2016): www.vtnews.vt.edu/articles/2016/11/110816-dsa-bluedtrees.html; Isaac Kaplan, “This Nonprofit Is Willing to Bet That Art Can Change the World” *Artsy* (1 May 2016): www.artsy.net/article/artsy-editorial-nonprofit-bet-art-change; Audrea Lim, “How Land Art Lived and Died to Stop a Fracked Gas Pipeline and How It Lives Again,” *Village Voice* (27 June 2016): www.villagevoice.com/2016/06/29/how-land-art-lived-and-died-to-stop-a-fracked-gas-pipeline-and-how-it-lives-again; Steve Schindler and Katie Wilson-Milne, “Artist Series: Aviva Rahmani’s Work With VARA, Land Use and Environmental Law,” Art Law podcast interview (8 November 2018): www.artlawpodcast.com/2018/11/08/artist-series-aviva-rahmanis-work-with-vara-land-use-and-environmental-law;

Jillian Steinhauer, “Art to Stop a Pipeline,” *Hyperallergic* (9 September 2015): <http://hyperallergic.com/235429/using-art-to-stop-a-pipeline>.

- 6 Thomas Kuhn, *The Structure of Scientific Revolutions*, 4th Ed. (Chicago: University of Chicago Press, 2012).
- 7 Cynthia Esworthy, “A Guide to the Visual Rights Act”: www.law.harvard.edu/faculty/martin/art_law/esworthy.htm.
- 8 Stop Algonquin Pipeline Expansion! “Maps”: www.sape2016.org/resources/maps.
- 9 Jane Mayer, *Dark Money: The Hidden History of the Billionaires Behind the Rise of the Radical Right* (New York: Doubleday, 2016).

Bibliography

- Allan, Aaron, and Dawe, Kevin. *Current Directions in Ecomusicology: Music, Culture, Nature* (Routledge 2017).
- Feld, S. “Reproducing Acoustic Landscapes,” in P. Gagliardi, B. Latour and P. Memelsdorff, eds., *Coping with the Past: Creative Perspectives on Conservation and Restoration* (Florence: Olschki, 2010) pp. 97–114.
- Gibb, Rory; Kanngieser, Anja; and Rekret, Paul. *In Sonic Defiance of Extinction*, performed at Turmoil :: CTM Berlin festival, 2018.
- Morton, Timothy. *Dark Ecology: For a Logic of Future Co-existence* (New York: Columbia Univ. Press 2016).
- Rosen, Charles. *Sonata Forms* (New York: W.W. Norton, 1988).

Manuscript received 1 January 2019.

AVIVA RAHMANI exhibits and publishes internationally. She is an affiliate with the Institute for Arctic and Alpine Research at the University of Colorado at Boulder and gained her PhD, with the thesis “Trigger Point Theory as Aesthetic Activism,” from the University of Plymouth, U.K., in a crossover between environmental sciences, technology and studio art. Rahmani received her BFA and MFA at the California Institute of the Arts with a double major in electronic music and media.