

Piotr Kociumbas / Joanna Godlewicz-Adamiec (eds.)

Listening to the Swan Song

More-than-Human Beings and Sounds in Literature
and Culture Through the Ages





Culture – Environment – Society
Humanities and beyond

Volume 11

Edited by

Joanna Godlewicz-Adamiec and Paweł Piszczatowski

Advisory Board:

Friederike Eigler (Georgetown University, Washington DC),
Michaela Holdenried (Albert-Ludwigs-Universität Freiburg /
Stellenbosch University), Joanna Jurewicz (Uniwersytet
Warszawski), Dolors Sabaté Planes (Universidade de Santiago
de Compostela), László V. Szabó (Pannon Egyetem Veszprém /
Univerzita J. Selyeho Komárno), Manfred Weinberg (Univerzita
Karlova, Prag) and Monika Wolting (Uniwersytet Wrocławski)

The volumes of this series are peer-reviewed.

Piotr Kociumbas /
Joanna Godlewicz-Adamiec (eds.)

Listening to the Swan Song

More-than-Human Beings and Sounds
in Literature and Culture Through the Ages

With 31 figures

V&R unipress

Bibliographic information published by the Deutsche Nationalbibliothek
The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie;
detailed bibliographic data are available online: <https://dnb.de>.

Reviewers: Jack Harrison (University of Warsaw),
Jadwiga Kita-Huber (Jagiellonian University in Kraków)

© 2026 with the author(s)/editor(s), published by Brill | V&R unipress, Robert-Bosch-Breite 10, 37079 Göttingen, Germany, info@v-r.de, an imprint of the Brill-Group (Koninklijke Brill BV, Leiden, The Netherlands; Brill USA Inc., Boston MA, USA; Brill Asia Pte Ltd, Singapore; Brill Deutschland GmbH, Paderborn, Germany; Brill Österreich GmbH, Vienna, Austria) Koninklijke Brill BV incorporates the imprints Brill, Brill Nijhoff, Brill Schöningh, Brill Fink, Brill mentis, Brill Wageningen Academic, Vandenhoeck & Ruprecht, Böhlau and V&R unipress. This book is available as an open access publication at <https://www.vr-elibrary.de>. This publication is licensed under a Creative Commons Attribution 4.0 International license. For a copy of this license go to <https://creativecommons.org/licenses/by/4.0/>. Creative Commons license terms for re-use do not apply to any content (such as graphs, figures, photos, excerpts, etc.) not original to the Open Access publication and further permission may be required from the rights holder. The obligation to research and clear permission lies solely with the party re-using the material.

Cover image: Detail from a depiction of a swan in Conrad Gessner's *Vogelbüch darinn die art/ natur vnd eigenschafft aller vöglen/ sampt jrer waren Contrafactur angezeigt wirt* (Zürich: Froschauer, 1557), fol. 219r. Source: Zentralbibliothek Zürich, NS 4 | F, <https://doi.org/10.3931/e-rara-4149> (public domain).

Vandenhoeck & Ruprecht Verlage | www.vandenhoeck-ruprecht-verlage.com

ISSN 2940-6269 (print) | ISSN 2940-6277 (digital)
ISBN 978-3-8471-1978-4 (print) | ISBN 978-3-7370-1978-1 (open access)
DOI <https://doi.org/10.14220/9783737019781>

Contents

Piotr Kociumbas / Joanna Godlewicz-Adamiec (University of Warsaw)
The Swan Song, the Whale Song, and More-than-Human Sounds across
Literature and Culture: Introductory Remarks 7

The Singing Swan, or Towards Symbolic Dimension

Marta Czapińska-Bambara (University of Lodz)
The Sound of the Cicada as an Ancient Topos of the Gifted Poet 29

Johann Anselm Steiger (University of Hamburg)
Martin Luther and the Swan (Song): The (De)intermedialization of
a Successful Topos and Image Type in the Sixteenth through
the Nineteenth Centuries 45

Magdalena Koźluk (University of Lodz)
Sounds of More-than-Human Beings in the Sixteenth Century
Ars Emblematica 79

The Talking Swan, or Towards Inter-Species Communication

Monika Schmitz-Emans (Ruhr-Universität Bochum)
Die Stimmen der Tiere, die Wissensordnungen und die Kunst 107

Nicola Renzi (University of Helsinki)
An Ode to *Culex*: Listening with Mosquitoes, from Virgil to Sápmi 133

Catherine Rensmann (University of Münster)
When Birds Squabble in D Minor: On the Function of Music as
a Mediator in Alexis Wright’s *The Swan Book* 165

Annie Morrad (University of Lincoln)	
Excursus: Dialogue with More Than Humans Through Art Practice	
Producing Different “Language”	187

The Dying Swan, or Towards Preservation and Remembrance

Marie Comuzzo (Brandeis University)	
Listening with Whales: From Silence to Song	203

Rowan Bayliss Hawitt (KU Leuven)	
Sound Recordings, Future Hauntings: More-than-Human Music and Species Loss	241

Sergio Santiago Renteria Aguilar (The University of Western Australia)	
Rehearsing The Fall: Synthesising Archival Decay	267

An Ode to *Culex*: Listening with Mosquitoes, from Virgil to Sápmi

Abstract

Despite their long-standing infamy in dominant historical and literary accounts, mosquito sounds have at times been portrayed with curiosity or even poetic fascination. This chapter places such depictions in dialogue with Sámi acoustemological knowledge, where the mosquito's whine carries musical, lyrical, and ecological value. Drawing on fieldwork interviews and Indigenous storytelling, it examines contrasts between human-centric aesthetics and Indigenous listening practices beyond nature-culture divides. From Virgil's pastoral verses to contemporary orality, these sporadic "odes" suggest that human-mosquito relationships are more fluid than assumed, inviting us to hear their sound as more than mere nuisance – perhaps even as music.

Keywords: Sonic ecosystems, Sámi joik, more-than-human musicking, Indigenous acoustemologies, mosquitoes

Few environmental sounds have been as persistently maligned in Western literary and historical accounts as the high-pitched whine of the mosquito. Within broader scholarly reflections on the sounds produced by other-than-human organisms and their cultural representation in lyrical and musical works, insects have remained largely peripheral despite their symbolic contributions to local ecosystems and their copious participation in complex acoustic niches.¹ The aesthetic, cultural and symbolic dimensions of insect sounds have received only limited scholarly attention,² and an even smaller academic niche has been am-

1 In a different work, I articulated the idea of "ecosystem" (a wordplay on "echo" and "ecosystem") as a complex network of sonic relationships, reciprocities and biocultural values that develop over time within a defined area, involving all living organisms, the abiotic elements that characterize it, and the ways they influence each other. See Nicola Renzi, *More-than-Music: Ecosystems, Acoustemologies, and Histories of Listening from Sápmi* (PhD diss., University of Helsinki (cotutelle with University of Bologna), 2025), <https://helda.helsinki.fi/handle/10138/330931>.

2 John Myers, *Insect Singers: A Natural History of the Cicadas* (London: Routledge, 1929); Vincent Dethier, *Crickets and Katydid, Concerts and Solos* (Cambridge, MA: Harvard University Press, 1992); Eraldo Medeiros Costa-Neto, "Entertainment with Insects: Singing and

bitiously dedicated to the sonic virtues of mosquitoes within musical and literary traditions³ in the wake of a research field that explores the sustainability of human-pest relationships through transdisciplinary lenses that include the humanities.⁴

While the swan's song has long been idealized in the Western world as a whimsical motif capable of inspiring generations of poets and composers, and while cicadas and other sonorous insects have been granted meanings of aesthetic remembrance in global imaginaries – such as *fubutsushi* (風物詩) in Japan – the whine of the mosquito has largely been dismissed, swatted away from the written page, often leaving only a bloody trace behind. Yet, despite this long-standing infamy within dominant historiographies, sporadic evocative references to mosquito sounds in literary works do exist and oscillate between dispassionate naturalistic curiosity and poetic fascination. This chapter places literary descriptions of mosquito sounds in dialogue with Sámi acoustemological knowledge, wherein the whine of mosquitoes assumes meaningful musical, lyrical and ecological values. Drawing on fieldwork interviews and Indigenous storytelling, this case study offers precious clues to critically address ontological discrepancies between listening positionalities rooted, on the one hand, in human-centric aesthetics and rigid nature-culture dichotomies, and, on the other,

Fighting Insects Around the World. A Brief Review,” *Etnobiología* 3, no. 1 (2003): 21–29; Steven Feld and Don Brenneis, “Doing Anthropology in Sound,” *American Ethnologist* 31, no. 4 (2004): 461–74; David Rothenberg, *Bug Music: How Insects Gave Us Rhythm and Noise* (London: Picador, 2013); Marion Carrier, *Insects Tell a Story: A Web Interwoven with Entomology and Naskapi Knowledge in Kawawachikamach* (M.A. thesis, Université de Montréal, 2017); Krista Delany Manard and Joseph R. Coelho, “Insects in Folk Music,” *American Entomologist* 65, no. 1 (2019): 61–65.

3 Kerry Morrison and Helmut Lemke, “AweWonderExcitement,” in *Mosquitopia: The Place of Pests in a Healthy World*, ed. Marcus Hall and Dan Tamir (New York: Routledge, 2022), 144–61; Jack Harrison, “Musicking with the Enemy: Mosquito Agency, Control, and Representation on Film,” in *Re-Thinking Agency: Non-Anthropocentric Approaches*, ed. Joanna Godlewicz-Adamiec and Paweł Piszczatowski, 135–54 (Göttingen: V&R unipress, 2024); Jack Harrison, “‘Public Enemy Number One!’: Music and Mosquito Sound in Disney’s *The Winged Scourge* (1943),” in *Beyond the Human Voice: Dystopian Soundscapes in the Arts*, ed. Martin Ullrich and Susanne Rode-Breyman, 151–69 (Berlin and Heidelberg: Metzler, 2025); Renzi, *More-than-Music*.

4 Helena Pedersen and Barbara Pini, “Educational Epistemologies and Methods in a More-than-Human World,” *Educational Philosophy and Theory* 49, no. 11 (2017): 1051–54; Anu Valtonen, Tarja Salmela, and Outi Rantala, “Living with Mosquitoes,” *Annals of Tourism Research* 83 (2020): 102945; Roger Norum, Vesa-Pekka Herva, and Mari Olafson Lundemo, “Encountering/ Thinking Mosquitos,” *Time and Mind* 14, no. 3 (2021): 417–30; Marcus Hall and Dan Tamir, “Killing Mosquitoes: Think Before You Swat,” in *Mosquitopia: The Place of Pests in a Healthy World*, ed. Marcus Hall and Dan Tamir (New York: Routledge, 2022), 3–15; Riikka Hohti and Maggie Maclure, “Insect-Thinking as Resistance to Education’s Human Exceptionalism: Relationality and Cuts in More-Than-Human Childhoods,” *Qualitative Inquiry* 28, no. 3–4 (2022): 322–32.

in Indigenous modes of listening. Particularly, this contribution traces a pattern of mosquito representations as it has crystallized in Arctic travel writing across modern history, where a millenary Western acoustemology of mosquitoes was carried northward in the explorers' intellectual baggage and recorded on the page. Set against Sámi storytelling, these representations highlight how differently mosquitoes have been heard and represented by contrasting acoustemologies within shared geographies and ecosystems. Placed within this tension, the discussion turns toward broader questions: How can we engage with mosquitoes in a meaningful way? What can alternative onto-epistemologies tell us about the ecological role of these insects? How does the definition of "pest" and other-than-human "undesirability" apply to sound worlds? From Virgil's pastoral lyricism to contemporary Indigenous orality, sporadic yet enduring "odes" to this oft-maligned insect suggest that human-mosquito relationships are more fluid than commonly assumed, challenging us to reconsider whether the sound that perturbs our summer nights might, in certain contexts, constitute something more than an annoyance – perhaps even music.

Trumpets and Spears

Lusimus, Octavi, gracili modulante Thalia
 atque ut araneoli tenuem formavimus orsum.
 lusimus: haec propter Culicis sint carmina dicta,
 omnis ut historiae per ludum consonet ordo
 notitiae. doctrina, vaces licet: invidus absit.
 quisquis erit culpae iocos Musamque paratus,
 pondere vel Culicis levior famaue feretur.
 posterius graviore sono tibi Musa loquetur
 nostra, dabunt cum securos mihi tempora fructus,
 ut tibi digna tuo poliantur carmina sensu.

[Mere play, Octavius! yet these lines receive,
 Such filmy lines as feeble spiders weave;
 Throughout my lay let fair Thalia smile,
 And tuneful verse th' unwilling ear beguile.
 A simple Gnat commands the poet's song,
 And humble strains to humble themes belong.
 Ye, who would blame my rustic Muse, beware,
 These envious loads my Gnat can never bear;
 In some fair day, when plenty gilds my field,
 And blooming summers certain harvests yield,

In bolder notes my Muse her voice shall rear,
Such notes as Caesar need not blush to hear.^{5]}

Despite the verses of the poem *Culex* – attributed to Virgil – encouraging even the most reluctant reader to tend the ear to the signals this pesky insect (*Diptera: Culicidae*) communicates, the sound of the mosquito has, over the millennia, maintained its reputation as nature's most notorious nuisance.⁶ This perception is confirmed in the eleventh book of the *Naturalis Historia*, where Gaius Plinius Secundus asks pointedly about “that sharp shrill voice of the creature, so utterly disproportioned to the smallness of its body?”⁷ Certainly, this strident whine is not the result of air being forcefully expelled through the insect's anus,⁸ as Strepsiades comically learns from Socratic teaching, exclaiming: “The rump of the gnats then is a trumpet!”⁹

Regardless of the unfortunate association between the sound of mosquitoes and flatulence, it is worth noting how this sound takes on an unexpectedly musical quality when rhetorically related to the well-known aerophone. The metaphorical association between the sound of a mosquito and that of a trumpet is a common *trope* that sustains the acoustemological narrative of this insect

5 Virgil, *Aeneid: Books 7–12. Appendix Vergiliana*, trans. H. Rushton Fairclough, rev. G. P. Goold (Cambridge, MA: Harvard University Press, 1918): 370 (vv. 1–10); Lucius Manlius Sargent, trans., *The Culex of Virgil: With a Translation into English Verse. Latin and English* (Boston: Emerald Press, by Belcher and Armstrong, 1807), 23.

6 For a quick disambiguation regarding the attribution of the poem *Culex*, refer to Eduard Fraenkel, “The *Culex*,” *The Journal of Roman Studies* 42 (1952): 1–9. This short epic follows a shepherd who, after a long day tending his flock, falls asleep in a shaded grove. As he rests, a gnat (*culex*) disturbs him by buzzing and biting. Annoyed, the shepherd swats and kills the gnat, only to later discover that it had actually saved him from a deadly snake lurking nearby. That night, the ghost of the gnat appears to the shepherd in a dream and reproaches him for his ingratitude, revealing its self-sacrifice. The shepherd, moved by guilt and sorrow, constructs a small tomb for the gnat as an act of atonement. Without asserting definitive authorship, in this study, *Culex* is referred to as a poem attributed to Virgil.

7 Pliny the Elder, *Naturalis Historia*, ed. Karl Friedrich Theodor Mayhoff (Leipzig: Teubner, 1906). The original passage in Latin reads: “ubi vero truculentam illam et portione maximam vocem ingeneravit?” (bk. XI, chap. 1, par. 2).

8 The original passage reads: “ἔφασκεν εἶναι τοῦντερον τῆς ἐμπίδος / στενόν: διὰ λεπτοῦ δ' ὄντος αὐτοῦ τὴν πνοὴν / βία βαδίζειν εὐθὺς τοῦρροπυγίου: / ἔπειτα κοῖλον πρὸς στενῷ προσκείμενον / τὸν πρωκτὸν ἡχεῖν ὑπὸ βίας τοῦ πνεύματος.” Aristophanes, *Comoediae*, vol. 2, ed. Frederick William Hall and William M. Geldart (Oxford: Clarendon Press, 1907), Cloud 133, vv. 160–64. The same passage has received the following translation in English: “Disciple: Chaerephon the Sphettian asked him whether he thought gnats buzzed through the mouth or the breech. / Strepsiades: What, then, did he say about the gnat? / Dis.: He said the intestine of the gnat was narrow and that the wind went forcibly through it, being slender, straight to the breech; and then that the rump, being hollow where it is adjacent to the narrow part, resounded through the violence of the wind.” Aristophanes, *Clouds*, in *The Comedies of Aristophanes*, vol. 1, ed. William James Hickie (London: Bohn, 1853), 123–24.

9 Aristophanes, *Clouds*, 124. The original passage reads: “σάλπιγξ ὁ πρωκτός ἐστιν ἄρα τῶν ἐμπίδων.” Aristophanes, *Comoediae*, Cloud 133, v. 165.

from antiquity into modernity. An exemplary passage is found in Tertullian, who refers to mosquitoes as “trumpets” and “spears,” “tubam et lanceam” (*Adv. Marc.* 1,14,1).¹⁰ Similarly, in an allegorical poem to Queen Elizabeth I written by the British poet Edmund Spenser in 1596, the author likens a group of troublesome locals attempting to expel two noble knights from the Queen’s castle to a “swarme of Gnats” with “murmuring small trompetts sownden wide” (*The Faerie Queene*, Book II, Canto IX, vv. 136, 138).¹¹

Nonetheless, mosquitoes are not trumpets. At best, to properly invoke the Hornbostel-Sachs classification of musical instruments, they can be described as interruptive free aerophones (HS 412.22):¹² indeed, the answer to the fatidic question raised by Pliny the Elder lies in the fast, continuous rotational motion of their wings, which agitates the air at such a frequency that generates a more or less steady tone around 300–600 cycles per second.¹³ Augustine of Hippo invited his readers to tend our ears to such minute details, as “even the most diminutive insect cannot be considered attentively without astonishment.”¹⁴ While deemed by Timothy C. Winegard as “one of the most recognizable and aggravating

10 Tertullian, *Adversus Marcionem*, ed. and trans. Ernest Evans (Oxford: Oxford University Press, 1972), 36.

11 Edmund Spenser, *The Faerie Queene* (New York: Crowell & Co., 1903), 161.

12 Febo Guizzi, *Gli strumenti della musica popolare in Italia* (Lucca: LIM, 2012). This organological analogy emerged from a conversation with Nico Staiti, August 29, 2024, Bologna, Italy.

13 The wingbeat frequency of male mosquitoes hovers around 600 Hz, while that of females typically ranges between 300 Hz and 550 Hz, with the lower frequency occurring when they are bigger or engorged. Norbert Becker, Dušan Petrić, Marija Zgomba et al., eds., *Mosquitoes: Identification, Ecology and Control* (Cham: Springer, 2020), 21–22; Andrew Spielman and Michael D’Antonio, *Mosquito: A Natural History of Our Most Persistent and Deadly Foe* (New York: Hyperion, 2001), 22; Benjamin J. Arthur, Kevin S. Emr, Robert A. Wytenbach et al., “Mosquito (*Aedes aegypti*) Flight Tones: Frequency, Harmonicity, Spherical Spreading, and Phase Relationships,” *The Journal of the Acoustical Society of America* 135, no. 2 (2014): 933–41. Yet, when male and female mosquitoes mate, they match frequencies – and, more interestingly, they do so not at their fundamental wingbeat frequencies but at an extraordinary harmonic near 1200 Hz, a frequency that lies outside the typical auditory range of both sexes, as noted by neurobiologist Ronald Hoy: “How in the world are they duetting where they can’t be hearing?” Cornell University, “Mosquito Hearing,” video, published by the College of Agriculture and Life Sciences, Cornell University, March 9, 2009, accessed November 16, 2025, [https://www.cornell.edu/video/mosquito-hearing#:~:text=Male%20mosquitoes%20have%20a%20wing,a%20harmonic%20near%201200%20Hz;cf.Ronald%20Hoy,%20Insect%20Hearing%20Selected%20Historical%20Vignettes,ed.Darlene%20R.%20Ketten,Allison%20B.%20Coffin, Richard%20R.%20Fay%20et%20al.\(Cham:Springer,2024\),25.Additionally,the%20pitch%20of%20a%20mosquito’s%20sound%20is%20proportional%20to%20its%20size%20–%20smaller%20mosquitoes%20produce%20higher-pitched%20sounds,while%20larger%20ones,such%20as%20female%20mosquitoes,generate%20lower%20frequencies%20due%20to%20their%20larger%20wings,which%20beat%20fewer%20times%20per%20minute%20during%20flight.](https://www.cornell.edu/video/mosquito-hearing#:~:text=Male%20mosquitoes%20have%20a%20wing,a%20harmonic%20near%201200%20Hz;cf.Ronald%20Hoy,%20Insect%20Hearing%20Selected%20Historical%20Vignettes,ed.Darlene%20R.%20Ketten,Allison%20B.%20Coffin, Richard%20R.%20Fay%20et%20al.(Cham:Springer,2024),25.Additionally,the%20pitch%20of%20a%20mosquito’s%20sound%20is%20proportional%20to%20its%20size%20–%20smaller%20mosquitoes%20produce%20higher-pitched%20sounds,while%20larger%20ones,such%20as%20female%20mosquitoes,generate%20lower%20frequencies%20due%20to%20their%20larger%20wings,which%20beat%20fewer%20times%20per%20minute%20during%20flight.)

14 “Sed in qualibet minutissima muscula bene consideranti stuporem mentis ingerat [...]” Augustine of Hippo, *De civitate Dei contra paganos* (The City of God Against the Pagans), trans. Henry Bettenson (London: Penguin Books, 1984), XXII,24.

sounds on earth for 190 million years,”¹⁵ the buzzing hum of a mosquito also exhibits the remarkable ability of an “exquisitely engineered organism[.]”¹⁶ If one sets aside the sense of discomfort and irritation that accompanies this sound, it becomes evident that mosquitoes are not only accomplished *musicians* with underappreciated sonic qualities but also skilled *listeners*. In fact, these dipterans are “endowed with one of the most sensitive sound detectors in the insect kingdom, the Johnston’s organ,” a mechanosensitive organ apt at detecting even the faintest sound wave, allowing “a flying mosquito to detect the tones produced by the wingbeats of other flying mosquitoes and distinguish these from tones produced by its own wings.”¹⁷ These acoustic skills and sensitivities are determinant factors in swarm formation and, particularly, for mating rituals, during which male and female mosquitoes pair by matching the frequencies of each other’s wingbeats “during flight, producing a harmonious duet in a prelude to mating.”¹⁸

Meditating on this tiny yet sophisticated organism, Augustine of Hippo wonders at the mosquito’s creation: “Quis dedit aculeum culici, quo sanguinem sugat? Quam tenuis fistula est qua sorbet! Quis disposuit ista? quis fecit ista? Expavescis in minimis; lauda magnum.”¹⁹ Curiously enough, in this passage where he praises the morphological attributes of a mosquito, Augustine seems to dismiss its aforementioned sound qualities, which are rather denounced as follows: “Nam et culicis nomine non absurde figuratur seditiosus homicida, quia hoc animal et *strepando inquietat* et sanguine delectatur.”²⁰ Moreover, the

15 Timothy C. Winegard, *The Mosquito: A Human History of Our Deadliest Predator* (New York: Penguin, 2019), 7.

16 Hall and Tamir, “Killing Mosquitoes,” 7.

17 Frances M. Hawkes and Richard J. Hopkins, “The Mosquito: An Introduction,” in *Mosquitopia: The Place of Pests in a Healthy World*, ed. Marcus Hall and Dan Tamir (New York: Routledge, 2022), 21.

18 Hawkes and Hopkins, “The Mosquito,” 21. See also Alessandro Attanasi, Andrea Cavagna, Lorenzo Del Castello et al., “Collective Behaviour without Collective Order in Wild Swarms of Midges,” *PLoS Computational Biology* 10, no. 7 (2014): e1003697; Arthur, Emr, Wytenbach et al., “Mosquito (*Aedes aegypti*) Flight Tones,” 933–41; Gil Menda, Eyal I. Nitzany, Paul S. Shamble et al., “The Long and Short of Hearing in the Mosquito *Aedes aegypti*,” *Current Biology* 29, no. 4 (2019): 709–14.e4; Hoy, “Insect Hearing,” 25.

19 Augustine of Hippo, *In Psalmum 148 enarratio*: 10. “Deus omnia gubernat.” The English translation reads: “Who gave its sting to the gnat, for it to suck blood with? How narrow is the pipe whereby it sucks! Who arranged all this? Who made all this? You are amazed at the smallest things; praise Him that is great.” Philip Schaff, ed., *From Nicene and Post-Nicene Fathers*, ser. 1, vol. 8 (Buffalo: Christian Literature Publishing Co., 1888), 10.

20 Emphasis – N. R. Augustine of Hippo, “Quaestionum Evangeliorum libri duo.” In *Patrologia Latina*, vol. 35, ed. Jacques Paul Migne (Paris: Garnier, 1845), I,35. The passage can be translated as follows: “For even under the name of the gnat, the seditious murderer is fittingly symbolized, because this creature both disturbs with its buzzing and delights in blood.”

mosquito becomes a plague and a symbol of the restlessness with which the Holy Spirit torments the violent and the proud:

Sicut autem conciliatus et placatus Spiritus Sanctus requiem praestat mitibus et humilibus corde, ita contrarius et adversus immites ac superbos inquietudine exagitat. Quam inquietudinem muscae illae brevissimae significaverunt, sub quibus magi Pharaonis defecerunt, dicentes: Digitus Dei est hic.

[And just as the Holy Spirit, when benevolent and appeased, grants peace to the meek and humble of heart, so too, when is opposed and hostile, afflicts the violent and the proud with unrest. The symbol of such unrest were the gnats, by which the magicians of Pharaoh, tormented and overcome, lost their power and confessed: Here is the finger of God!²¹]

It is undeniable that, aside from a few rare and scarce narratives that offer kinder and more dignified representations of this dipteran,²² listening positionalities in the West have dictated and immortalized a largely fixed and enduring acoustemology of the mosquito as an *undesirable* natural sound. This perspective has grown so canonical in literature that when the unsuspecting Italian traveler Francesco Negri²³ reached the northernmost expanses of Fennoscandia in the middle of the summer, overwhelmed by the pervasiveness of mosquito swarms, he dusted off the same Latinism quoted above:²⁴

21 Translated by the Author. Augustine of Hippo, “Epistola LV.” In *Patrologia Latina*, vol. 33, ed. Jacques Paul Migne (Paris: Garnier, 1845), XVI, 29.

22 A well-known passage in Thoreau’s *Walden* exemplifies this rare sentiment, where the metaphor of the mosquito as a trumpet is also vividly recalled: “Morning brings back the heroic ages. I was as much affected by the faint hum of a mosquito making its invisible and unimaginable tour through my apartment at earliest dawn, when I was sitting with door and windows open, as I could be by any trumpet that ever sang of fame. It was Homer’s requiem; itself an Iliad and Odyssey in the air, singing its own wrath and wanderings. There was something cosmical about it; a standing advertisement, till forbidden, of the everlasting vigor and fertility of the world.” Henry David Thoreau, *Walden; or, Life in the Woods* (Boston: Ticknor and Fields, 1854), 96.

23 Francesco Negri (1623–1698) was a priest and explorer, recognized as the first Italian to travel across Scandinavia and the first foreigner to reach the North Cape. His journey, lasting three years (1663–1666), is recounted in his travelogue *Viaggio settentrionale* (1700). Negri’s travels were primarily driven by religious motives, with the goal of revealing the effects of Divine Providence even in “distant” and “desert” lands. He observed that Providence had arranged Scandinavia such that “where the fruits of the earth are lacking [...] there the abundance of mines is provided.” Francesco Negri, *Viaggio settentrionale fatto, e descritto dal molto rev.do sig.r d. Francesco Negri da Ravenna. Opera postuma data alla luce dagli heredi del sudetto* (Padova: Stamperia del Seminario, 1700), 75, https://archive.org/details/bub_gb_762L-uPKLnoC.

24 Norum observes that “the pervasive presence of mosquitoes in Lapland’s stretches may come as a surprise for those unfamiliar with the region” (Norum, Herva, Lundemo, “Encountering/ Thinking Mosquitos,” 417). The same was true for Francesco Negri, who traveled to the European Arctic when knowledge of the region was still somewhat vague. In his *Lettera I*, Negri writes: “per l’eccedente freddo si crederebbe che non ce ne fosse pur una” [For the

io in viaggiando tengo in continuo moto una mano per difendermi da sì importuni animaletti [...]. E però in riguardo del proprio discomodo, e di quello de' rangiferi particolarmente, i quali non possono sopportar queste lanciette sonanti per denominarle così con S. Agostino, che scrive: *culicis vel tubam vel lanceam*, eleggono la maggior parte di loro di abbandonare il paese; e nel mese di giugno passano i monti, ed arrivano vicino al mare, dove il vento marino, e la privazione dell'acque stagnanti discaccia quella maledizione, ò pure si trattengono nella sommità de' monti, che sempre abbondano di neve, e sono senza Zenzale.²⁵

[While traveling, I find myself constantly in motion, waving my hand to ward off those vexatious little creatures. Indeed, for the sake of one's own comfort, and especially that of the reindeer, who cannot endure the stings of these sounding spears – those very same which Saint Augustine, in his writings, aptly referred to as: *culicis vel tubam vel lanceam* – most creatures choose to abandon these lands. In the month of June, they traverse the mountains and make their way toward the sea, where the maritime winds and absence of stagnant waters drive away this accursed plague. Others retreat to the lofty mountain peaks, ever laden with snow, where the gnats are blissfully absent.]

As Paola Dessì notes, among the assortment of sound events recorded by the Italian explorer in his letters, the buzzing of the mosquito is the only one that, rather than forming an original interpretation, references texts from Christian Latin literature.²⁶ While Negri does allude to the canonical aesthetic associated with this sound, he mistakenly invokes Augustine when referring to these insects as *lanciette sonanti*, an analogy that rather derives from the aforementioned apologetic work of Tertullian, who describes mosquitoes as trumpets with spears (*culicis et tubam et lanceam*). Nonetheless, the Augustinian sense of wonder is not absent when Negri encounters swarms so dense that they almost obscure the sun.²⁷ The devout admiration of nature that permeates each of the letters compiled in the *Viaggio Settentrionale*, however, takes on less exuberant tones

excessive cold, one would believe that there was not a single one to be found] (Negri, *Viaggio settentrionale*, 31).

25 Negri, *Viaggio settentrionale*, 31.

26 Paola Dessì, "Suoni e strumenti dei Sami nel Viaggio settentrionale di Francesco Negri (1663–1666) e nell'immaginario musicale secentesco," *Idomeneo* 21 (2016): 12.

27 The original text reads: "Tutta l'estate l'aria v'è piena di mosche e zenzale in tanta quantità, che, quasi dissì, coprono il sole" [Throughout the summer, the air is so thick with flies and gnats that one might say they nearly obscure the sun]. Negri, *Viaggio settentrionale*, 2. A similar passage, later in the account: "Queste zenzale dunque ed altri più piccoli moscini, in tempo d'estate, sono qui in tanta copia, che n'è ripiena l'aria, ed è quasi impossibile il durarla" [These gnats, along with even smaller flies, swarm in such abundance during the summer months that the very air is filled with them, making it well-nigh unbearable to endure]. *Ibid.*, 31.

whenever this relentless insect makes an appearance. Only the nighttime hours offered a transitory respite from such a tenacious nuisance.²⁸

“Singing” Mosquitoes in Acerbi’s Travelogue

Giuseppe Acerbi, who traveled a similar route more than a century later during an exceptionally hot summer, did not share Negri’s perspective.²⁹

Though it was now drawing towards midnight, the torment we suffered from the musquetoos, instead of being abated was increased. The night was perfectly calm, and the insects attracted by the effluvia of our Laplanders, pursued us in our course, surrounded us, and involved us as in a cloud. [...] We began to make preparations for passing the night [in Pepojovaivi], and the Laplanders set about cooking their supper. The musquetoos this night annoyed us so terribly, that it was not without the utmost difficulty we were able to swallow a morsel of victuals. [...] We were obliged to eat with gloves on; and at every morsel we put into our mouths we were under the necessity of drawing aside the veils that covered our faces [...]. In spite of all our precautions the musquetoos were sometimes swallowed together with our viands. In order to be quit of so disgusting a sauce, we were compelled at each morsel we put into our mouths, to draw near the fire, and thrust our heads into the rising column of smoke. We chose rather to encounter all the bad effects of the smoke, and to be half suffocated, than to swallow those pestiferous animals.³⁰

If Negri observed the pervasiveness of mosquitoes in the Arctic environment and rendered it into a few concise but descriptive images, Acerbi’s account transforms this physical pervasiveness into a genuine ethnographic obsession. Mosquitoes are featured in numerous log entries, with the insect fueling the author’s almost daily outbursts of frustration and even his expression of discouragement about advancing in his overland journey to the North Cape. Acerbi’s obsession with mosquitoes is such that even when they are absent, his thoughts inevitably turn to the delight of being freed from their incessant torment: “The three days we passed on this island were spent delightfully [...]

28 The original text reads: “Al presente però non mi ricordo, che mi dessero tal molestia la notte, o nel tempo equivalente alla notte, nel quale riposano gli uomini, e così gli uccelli ed altri animali” [Yet, I do not recall them troubling me during the night – or at that time which passes for night, when men take their rest, as do the birds and other creatures]. Ibid.

29 Acerbi recorded temperatures reaching peaks of 29 degrees Celsius in the shade (45 degrees exposed to the sun) during the day and a minimum of 19 degrees at midnight on July 1, 1799 – temperatures comparable to those observed today. See Giuseppe Acerbi, *Travels through Sweden, Finland, and Lapland, to the North Cape: In the Years 1798 and 1799*, vol. 2 (London: Joseph Mawman, 1802b), 28, 47.

30 Ibid., 50–51.

without the least interruption from the musquetoos, which, fortunately, had been driven off the island by the violent wind.”³¹

The acoustic experience of these “eternal tormentors” is a major factor underlying Acerbi’s sense of discouragement – even more so than the irritation caused by their stings, which he was often able to shield against:³² “Those insects, which are the scourge of that country, became indeed very troublesome to us; and our gauze veils and gloves could give us no protection against their singing in our ears, and interrupting our sleep. Here our own resolution, as that of our servants formerly, for the first time, began to be shaken.”³³

It is notable how, in this instance, Acerbi chooses the term “singing.” Although this term is not unfamiliar in the lexicon of ethology, particularly in ornithology, what stands out in Acerbi’s usage is the absence of the highly derogatory descriptors he typically associates with this pest, instead opting for a term that infers the nuisance posed by the sound of mosquitoes solely as a hindrance to sleep.³⁴ While “singing” usually refers to forms of musical communication and often carries an aesthetic judgment, in this context, that judgment is conspicuously absent. The association of the act of singing with the buzzing of mosquitoes becomes an even more notable lexical choice when contrasted with passages where Acerbi invokes his musical training to dismiss the musicality of *juoiggus*, the traditional way the Sámi Indigenous peoples inhabiting those lands “sing.” In fact, he refuses *in toto* to grant this vocal tradition, one he eagerly anticipates, the very same term “singing” – this time backing his wording with manifest aesthetic and superficial judgments:³⁵

We desired to hear them sing, being anxious to have a specimen of their skill in music. I attempted several times, both by the power of money and of brandy, to make the pastoral Laplander utter his notes, that I might form to myself, if possible, some idea of their music: but the utmost I could accomplish was to extort from them some hideous cries, during the continuance of which I was sometimes obliged to stop my ears with my fingers. It is scarcely credible, though it is perfectly true, that the mountain and wandering Laplanders have not the least idea of any thing connected with harmony, and that

31 Ibid., 39.

32 Ibid., 85.

33 Ibid., 5.

34 Dario Martinelli. *Quando la musica è bestiale per davvero: Studiare e capire la zoomusicologia* (Roma: Aracne, 2011), 154. See also Steven Feld, *Sound and Sentiment: Birds, Weeping, Poetics, and Song in Kaluli Expression* (Philadelphia: University of Pennsylvania Press, 1982); David Rothenberg, *Why Birds Sing: A Journey into the Mystery of Bird Song* (New York: Basic Books, 2005); Hollis Taylor, *Is Birdsong Music?: Outback Encounters with an Australian Songbird* (Bloomington: Indiana University Press, 2017).

35 Luca Boero, “Il viaggio di Giuseppe Acerbi in Svezia, Finlandia e Norvegia,” in *Per una storia dei popoli senza note*, ed. Paola Dessì (Bologna: CLUEB, 2010), 232.

they are absolutely incapable of an enjoyment which nature has not entirely forbidden to any other tribe or nation, as far as I have been informed.³⁶

Comparably, a few passages later, Acerbi describes ritual performances of *juoiggu*: “The *juoige*, or song of incantation, is used by the Noaaid whilst in the exercise of his magical function. To say it is sung, is to give an imperfect idea of the magician’s manner of delivering it, which he does in the most hideous kind of yelling that can be conceived.”³⁷

While these lines certainly insinuate a dehumanizing narrative towards the Sámi and their cultural expressions, associating the verb “singing” to the mosquito does not amount to a genuine humanization of the insect, nor does it reflect a respective more-than-human musicking that, by contrast, emerges metaphorically through other descriptions of the natural soundscapes of the Arctic in the same travelogue.³⁸ This instance of the “singing” mosquito, though noteworthy, stands alone against a broader and more established use of a term that distinctively frames the sound of mosquitoes: “If the wind happen to blow briskly, they disappear for the time; but no sooner is the wind laid, than they return with their usual buzzing, and crowd every place.”³⁹ It is curious how the Italian edition of this text presents expressions that reinforce an even more vexed and “bugged” attitude. The same passage reads: “Fuggono questi crudeli nemici di ogni vivente, se un vento viene a soffiare con forza; ma cessato appena, ritornano con un ronzio fastidiosissimo esso solo.”⁴⁰

Theme and Variations: Dominant Representations of Mosquitoes in the Arctic Travelogues

Far from the “Muse” celebrated in Virgil’s *Culex*, the narratives and travelogues presented above reveal a pattern of adverse representations of mosquitoes, variations on a recurring theme that resonate with a millenary history of listening to the insect. The first of these representations emerges as one of narrative *insignificance*: mosquitoes are portrayed as massively pervasive during the summer, yet not worthy of thorough ecological attention in comparison to other elements of the environment. For instance, as a naturalist and collector, Acerbi harbored an undeniable curiosity for the entire Arctic entomofauna, including a

36 Acerbi, *Travels*, 1802b, 66–67.

37 Ibid., 311.

38 Ibid., 67.

39 Ibid., 180.

40 “These cruel foes of all living creatures flee in haste should a strong wind begin to blow; but the moment it ceases, they return with an unbearably irritating buzz, and that alone.” Giuseppe Acerbi, *Viaggio a Capo Nord (fatto l’anno 1799)* (Milano: Greco & Greco, 2016), 207.

species of warble flies (*Hypoderma tarandi*), which, like the mosquito, he portrays as a plague to both animals and people. Nonetheless, Acerbi was inspired to collect “those insects and their eggs, intending them as presents for [his] entomological friends.”⁴¹ Only the tiny but fierce mosquito seems to fall outside this sentiment of marvel and scientific enrichment⁴² – it is an insignificant, bothersome and undesired non-human being – in spite of unintentionally taking on a loud protagonist role throughout the narration of the whole journey to the North Cape.

Once the initial exotic fascination with their pervasiveness fades, these insects are quickly assimilated into the more familiar category of pests tormenting people worldwide, and their literary presence emerges as a mere frustrating distraction to the journey: they must be hurriedly fended off or swatted away. However, it is precisely through these experiences of frustration and discouragement that one can trace one of the most significant impacts this tiny insect has left on the history of Sápmi: its role in deterring settlers from the land. Acerbi had been warned before undertaking his journey northwards, though he did not fully understand the reasons for such a warning...

This journey appeared to every body at Uleåborg chimerical, and a project that would be found impracticable on experiment. Every person of our acquaintance pictured Lapland to us in the most frightful colours: they assured us from authorities [missionaries and merchants] true; or supposed to be true, that in summer it was absolutely impossible [...] to pass from one place to another.⁴³

... until he experienced for himself the magnitude of the obstacle this insect posed for his expedition and that of other settlers venturing into the region during the summer season: “The pleasure which is expected to be enjoyed during the summer, after a tedious winter that lasts from Michaelmas to July, as the good missionary observes, is entirely marred by these troublesome flies.”⁴⁴

To fully understand why, over the centuries, the colonial expansion in the European Arctic has proved particularly challenging and suffered, it is crucial to look beyond just the social and economic factors – thoroughly examined by historians – and recognize concurrent other-than-human agencies that have only recently entered historiographical discussion.⁴⁵ Among these factors is the mosquito – an often overlooked yet decisive actor. As Winegard notes, few

41 Acerbi, *Travels*, 1802b, 108.

42 No representation of any species of mosquitoes in the entomological plates despite mentioning three species in the previous table. Cf. Acerbi, *Travels*, 1802b, 253–55.

43 Giuseppe Acerbi, *Travels through Sweden, Finland, and Lapland, to the North Cape: In the Years 1798 and 1799*, vol. 1 (London: Joseph Mawman, 1802a), 324.

44 Acerbi, *Travels*, 1802b, 181.

45 See John Robert McNeill, *Mosquito Empires: Ecology and War in the Greater Caribbean, 1620–1914* (Washington: Georgetown University Press, 2010), 3.

species on the planet have had as direct and profound an influence on the lives of so many human beings, and yet its role in human history “has been written off as a sidelined spectator.”⁴⁶ In the case of Sápmi, while there is no disease-bearing component at stake for humans in the region, the ubiquity of this insect exhausted missionaries, travellers, settlers, and more recently, tourists to the point of becoming a symbol of Sámi anti-colonial resistance.⁴⁷ This is humorously captured in souvenir magnets sold at the Sámi museum in Kárášjohka, where a stylized picture of a mosquito is captioned as “Sámi Airforce” – a playful reference to their significant role as defenders of Sámi lands.

This belligerent analogy – resonant with the historical association of mosquitoes with spears and trumpets – seems to be further amplified by the sentence “We are at war with the mosquito,” which opens Winegard’s monograph on the human history of “our deadliest predator.”⁴⁸ This chapter does not wish to dwell on the historical impact of mosquitoes as disease vectors – since those species are not present at the latitudes this chapter covers.⁴⁹ However, despite the fact that no microbiological war is being waged above the Arctic Circle, conflicts with mosquitoes are nevertheless attested by foreigners in Sápmi. Throughout the travelogues considered above, a second major representation of the insect emerges – that of the mosquito as a *natural enemy* to both people and “any other warm-blooded beast.”⁵⁰ Negri explicitly fabricates this antagonistic relationship as a battle that the Sámi have to endure each summer, inevitably losing and being “violently forced to leave their villages for the months

46 Winegard, *The Mosquito*, 3.

47 Nils-Aslak Valkeapää, *Terveisiä Lapista* (1971), trans. Beverly Wahl as *Greetings from Lapland: The Sami – Europe’s Forgotten People* (London: Zed Press, 1983), 51, 52.

48 Winegard, *The Mosquito*, 1. This assertion – also reinforced in D’Antonio and Spielman (*Mosquito*, 2001) and much of the literature on mosquitoes – arises from a common misconception where humans are perceived as the primary prey of mosquitoes. In reality, mosquitoes themselves pose no real danger; the true threat comes from other organisms, such as sporozoites – the protozoa responsible for malaria – of which the Anopheles mosquito is merely a vector, transmitting the disease to humans. See Dario Martinelli, *A Critical Companion to Zoosemiotics: People, Paths, Ideas* (Berlin: Springer, 2010), 131; Hall and Tamir, “Killing Mosquitoes,” 5. And even through this complicity, less than 3% of the mosquito species we know are vectors for human disease-causing pathogens. Hall and Tamir, “Killing Mosquitoes,” 10.

49 An extensive historical study on the role of mosquitoes as disease vectors in shaping colonialism and imperialism is provided by McNeill, who focuses specifically on the colonial history of the Greater Caribbean and the Global South (McNeill, *Mosquito Empires*). Similar analysis that places the mosquito at the center of the historical discourse has been carried out by Timothy Mitchell, *Rule of Experts: Egypt, Techno-Politics, Modernity* (Berkeley: University of California Press, 2002) and Timothy C. Winegard, *The Mosquito*, 2019.

50 Paolo Mantegazza, *Un viaggio in Lapponia* (Milano: Brigola, 1881), 150.

in which mosquitoes are more active.”⁵¹ Analogous narratives persist throughout the travelogues regarding the relationship between mosquitoes and reindeer, with the former portrayed as so hostile that the latter are resigned to seek refuge on windy heights or near the coast.⁵² Despite their victimization of the fellow mammal and manifest solidarity against the tedious insect, the Italian travelers inadvertently provided insight into an interspecies relationship that lies at the core of local Indigenous landscape knowledges associated with reindeer herding. As explored in more detail in the following paragraphs, this relationship is understood as a form of kinship rather than antagonism.⁵³ While insect harassment undoubtedly poses a significant threat to reindeer by disrupting their feeding patterns during the summer, it also plays a crucial ecological role that benefits both reindeer and herders by encouraging the animals to remain in flocks.⁵⁴

Another antagonistic role to emerge from the travelogue of Giuseppe Acerbi is that of mosquitoes as enemies to quietude and natural silence. The third major representation of mosquitoes is thus of a purely acoustic nature. Although musical lexicon has been caustically associated with the droning of this insect from its first literary appearance (as a “trumpet”) through to the travelogues considered here (as “singing”), this sound is ultimately framed as an overwhelming intrusion – nothing more to the human ear than an inescapable, obstinate, and unmusical *nuisance*.

As the previous paragraphs have sought to demonstrate, a shared sonic coloniality transpires from the written accounts of sound events collected by Italian travelers in the European Arctic. This acoustemology has developed within a dominant history of listening where, over millennia, these dipterans have become synonymous with one of the most recognizable and undesirable non-human sounds in nature.⁵⁵ The Virgilian *Culex*, which as a Muse sought to captivate even the most reluctant listener, has consistently suffered the same

51 Negri, *Viaggio settentrionale*, 30. The original passage reads: “Questi pigmei de’ Lapponi combattono, non già contro le grue, come alcuno favoleggia, ma bensì contro la zenzale, e la maggior parte di loro la perde, perchè sono violentati a sloggiar dal suo paese ogn’anno per qualche mese.”

52 See Negri, *Viaggio settentrionale*, 107–8; Acerbi, *Travels*, 1802b, 45.

53 A contrasting perspective within Sámi written production is provided by the Sámi religious leader Lars Levi Laestadius, who reinforces the antagonistic relationship with this tiny insect, aligning with biblical ontologies that regard mosquitoes as a plague and within which Laestadius himself was educated. Negri, *Viaggio settentrionale*, 113.

54 See Arnoldus Schytte, Yngve Espmark, Monica A. Olsen et al., *Bohcco Biologija* (Oslo: Landbruksforlaget, 1998), 83; Heidi Kitt, Nicolas Gunslay, and Bruce C. Forbes, “Defining the Quality of Reindeer Pastures: The Perspectives of Sámi Reindeer Herders,” in *Reindeer Management in Northernmost Europe*, ed. Bruce C. Forbes, Manfred Bölter, Ludger Müller-Wille et al. (Berlin: Springer, 2006), 150.

55 Winegard, *The Mosquito*, 7.

fate – misheard and dismissed with indifference, intolerance, and irritation. However, in their multispecies storytelling as a form of knowledge production that seeks to listen and stay “with the trouble,” the verses of *Culex* open to an alternative onto-epistemology where the insect embodies the possibility of a mutual ecology between humans and mosquitoes, on the condition that humans attempt to actively listen and decipher the messages that mosquitoes may convey.⁵⁶

An Indigenous “Ode” to *Culex*

Do mosquitoes speak to us? Can we truly hear and decipher their messages? Our ability to understand mosquitoes is often hindered by an aversion associated with the sense of discomfort their distinctive sound manifests – a sound pre-saging itch, exasperation, if not even fear, as potentially lethal vectors that are challenging to avoid or control. What practices would be required to liberate our sense of hearing from the encultured ways of listening that vehemently discriminate this insect’s *voice* as mere nuisance? During my fieldwork on the Indigenous lands of the Sámi people in the European Arctic, I explored these questions by engaging with instances of multispecies storytelling that, much like the Virgilian *Culex* sought to do, propose an onto-epistemic partnership with this commonly undesirable other-than-human being.⁵⁷ In Sápmi, this partnership takes on manifold forms within the ecology of the Arctic environment. As this paragraph attempts to demonstrate, the vocal tradition of *juoiggus* represents a privileged sonic relationship with the dipteran:⁵⁸ one that establishes and reinforces multispecies kinships where mosquitoes are deemed worthy of ecological respect, moral concern and, not least of all, aesthetic value. To move beyond hegemonic sonic colonialities and appreciate the musicality of mosquitoes, the

56 Donna J. Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham: Duke University Press, 2016).

57 My answers to such questions are based on my own encounters with mosquito swarms in Sápmi – including reflections on embodied recordings and epistemic stances as a non-Sámi listener in dialogue with Sámi acoustemologies, as well as a visitor committed to “staying with the trouble” – see Nicola Renzi and Mai Britt Utsi, “Joiking with the Dancing Swarm: Sámi Ethnoentomology and the More-than-Musical Aesthetic of Mosquitoes,” *Music & Nature*, Special Issue on Multispecies Sound and Movement (forthcoming).

58 For an overarching description of this more-than-musical tradition, I refer to Maj-Lis Skaltje, *Luondu juoiggaha* (Guovdageaidnu: DAT, 2005); and Nicola Renzi, *More-than-Music*. Further references on the *juoiggus* heritage are: Richard Wiren Jones-Bamman, “As Long as We Continue to Joik, We’ll Remember Who We Are”: *Negotiating Identity and the Performance of Culture: The Saami Joik* (PhD diss., University of Washington, 1993); and Stéphane Aubinet, *The Craft of Yoiking: Philosophical Variations on Sámi Chants* (PhD diss., University of Oslo, 2020).

study covered the traditional *dajahus* [poem] and *luohti* [rhythmic-melodic formula] that the Sámi associate with the mosquito, along with their intrinsic meanings within Indigenous communities, both historically and in the present. This shared onto-epistemology envisions the mosquito as kin rather than foe, challenging the three dominant representations that emerged from the travel-ogues analyzed in the previous paragraphs.

A first misconception that needs to be dispelled, however, given the unlikely generalizations that often stray from reality, is that not all Sámi appreciate mosquitoes equally – or rather, not all Sámi appreciate mosquitoes. Inger Mari Aikio makes this clear, candidly stating: “I hate mosquitos! When they bite me, the bite is itching for a week.”⁵⁹ In her contribution to the audio-anthology, however, she clarifies how “ii ieš dat jietna, ii dat dienu váivvit, go dat lea goitge dakkár de go muhtin láhkai dat lea hui čáppa musihkka dalle go mun diedán ahte dat ii mu čugge, muhto dat lea hui fiinna musihkka dat ieš alddis.”⁶⁰

In the traditional and unceded land of the Sámi – which extends transnationally across the borders of Norway, Sweden, Finland and Russia – mosquitoes (*čuoika*; pl. *čuoikkat*) mark the passage of time and the changing seasons. The massive presence and ecological relevance of this small dipteran in the summer is so significant that it has been linguistically assimilated into weather terminology by the Indigenous communities living in the region. For example, the word *čuoikabálvái* refers to a specific weather condition characterized by clouds of mosquitoes and other Arctic flies (*Diptera: Simuliidae*) that fill the air and even obscure the sky – akin to saying “today is cloudy,” but with the clouds formed by heated mosquito swarms, much like those that caught Acerbi in disbelief. Due to the seasonality of this phenomenon, mosquitoes lend their name to a time of year, *čuikeit*, when the weather begins to be warm and pleasant such that mosquitoes, gnats, and other flies become especially abundant.⁶¹ According to Sámi landscape knowledge, the start of *čuikeit* coincides with midsummer: “jus eai boade mihcamárat de goit bohtet dalle guovtti soabbai.”⁶²

59 Inger Mari Aikio, personal communication, June 3, 2021, Buolbmátjávri, Sápmi.

60 “it’s not the sound itself bothering me, because it sounds somewhat pretty, like a beautiful music, when I know it’s not going to sting me. It’s a very beautiful music in itself.” Inger Mari Aikio, “Ráfi jienat ja jaskatvuotta báhcet millii dakkár bottut // Peaceful Sounds and Silence Give the Mind Some Rest,” in *Muitalusat guldaleami birra – Histories of Listening from Sápmi*, ed. Nicola Renzi, track 20 [digital release], 2025.

61 In Davvisámegiella: “Mihcamárbeaivái boadán vaikko guovtti soabbái, jus ovdal juo in leačča joavdan.” Mai Britt Utsi, oral teaching (personal communication), July 3, 2023, Guovdageaidnu, Sápmi; Johan Sara Jr., oral teaching (personal communication), March 6, 2023, Máze, Sápmi. See also Nils Isak Eira, *Bohccuid Luhtte* (Guovdageaidnu: DAT, 2011), 41.

62 “if they don’t come by midsummer, they’ll come with two sticks.” Mai Britt Utsi, “Jus eai boade mihcamárat, de goit bohtet dalle guovtti soabbai // If They Don’t Come by Midsummer, They’ll Come with Two Sticks,” in *Muitalusat guldaleami birra – Histories of Listening from Sápmi*, ed. Nicola Renzi, track 4 [digital release], 2025. See also Laura Olsén,

It is precisely during this time, Mai Britt Utsi continues, that several practical coping strategies and situated knowledge are employed to survive the peak of the bugging activity of mosquitoes. The most valuable protection against Sámi mosquitoes – one that neither Negri nor Acerbi were aware of or could benefit from during their respective journeys – is the mastery of the *čuoika luohiti* (pl. *luodit*), a melodic-rhythmic formula that the Sámi associate with the mosquito and whose performance, according to Sámi acoustemologies, is capable of making this insect present to the audience's ears: "Olbmot han mahtte čuoikka luodiid ja daida ii beroš čuoikka, mun in borahalla čuoikka ii baljo goassege."⁶³

Except for the vast variety of *luodit* associated with reindeer,⁶⁴ animal *luodit* tend to be more standardized within the local traditional repertoires of *juoiggus*, meaning there are not many variants of the *čuoika luohiti*.⁶⁵ The *luohiti* this chapter dialogues with was performed by Mai Britt Utsi. It originates from the Guovdageaidnu area and was passed down to Mai Britt by her husband's aunt, Biret-áhkku, during a particularly intense *čuikit*. The role of the *čuoika luohiti* within human-mosquito relationships is discussed further in the following paragraphs.

The nuisance of mosquitoes is rationalized and mitigated via situated knowledge that grants the Sámi with multimodal skills to shelter from mosquitoes while recognizing the insect as a vital co-habitant in the tundra's ecology. To borrow Áilu Valle's reflections on this insect, living in Sápmi means "to grow immune to mosquitoes" and "to understand it as a friend."⁶⁶ After all, the "annoying part of the mosquito" is as integral to its "deep philosophy" and local ecology as the goods and benefits it brings throughout the summer, as Mai Britt Utsi argues: "goitge da lea oassi sámi luonddus, jus čuoikka ii boađe, de ii boađe buorre. De ii boađe bahkka lieggas mii šadda daid murjiid, guliide biebm

Assi Harkoma, Leena Heinämäki et al., *Sámiid Árbedieđu Vuhtii Válđin Birasmearrádusaid Dahkamis* (Rovaniemi: Lapin Yliopisto, 2019), 174.

63 "Those people who well mastered the *luodit* of the mosquito aren't bothered by the mosquito: I am rarely eaten up by mosquitoes." Utsi, "Jus eai boađe mihcamárat."

64 Mathis Eira, oral teaching (personal communication), June 20, 2023, Guovdageaidnu, Sápmi. See also Johan Turi, *Muitalus sámiid birra – En Bog om Lappernes Liv* (Copenhagen: Græbes Bogtrykkeri, 1910); Skaltje, *Luondu juoiggaha*; Inger Julianne Eira, "Elliid Luodit," *Sámis: Sámi Čálakultuvrralaš Áigečála* 36 (2022): 20–22; Jones-Bamman, "As Long as We Continue to Joik."

65 Mai Britt Utsi, oral teaching (personal communication), July 3, 2023, Guovdageaidnu, Sápmi. See also Jones-Bamman, "As Long as We Continue to Joik"; Aubinet, *The craft of yoiking*.

66 Áilu Valle, oral teaching (personal communication), May 7, 2021, Avvil, Sápmi. Nils-Aslak Valkeapää, on the other hand, notes how settlers (*dáččat*) who also live abundant in the North have not developed such co-living skills with mosquitoes and end up being "bothered by mosquitoes, and strive, cursing to get rid of them." Valkeapää, *Terveisiä Lapista*, 22.

ja loddiiide biebmui. Doppe lea nu ollu daid dievriid ahte daid besset borrat daid.”⁶⁷

The ecological knowledge that Mai Britt draws upon accords the mosquito essential ecosystemic roles, ranging from pollinator to fodder and biomass – qualities often disregarded in the narrative around this insect, even in disease-free contexts.⁶⁸ Within this relational ontology, the Sámi have come to live with *čuoika* as a critical piece of a broader network of care towards the Land and across Earth since the time mosquitoes arrived in Sápmi. The very origin story of mosquitoes in Sápmi is referenced in the *dajahus* [poetical content] of the *čuoika luohi*, and therefore its mention is essential for the understanding of how sound and music practices contribute to the conveyance of ecological knowledge around this insect.

The story tells of how mosquitoes arrived in Sápmi, having been guided there by a spider from Southern Finland. The spider spoke of a northern land rich with fat reindeer, abundant fish, and well-kept riverbanks and lakesides. Tempted by these favorable promises, the Mother of the mosquitoes selected three mosquito brothers to set out on a journey northwards. Along the way, however, all three mosquito brothers disappeared – one drowned in a milk trough, another got stuck in a tar bucket, and the third was suffocated by smoke inside a *lávvu* tent. Not seeing the three mosquitoes coming back, the Mother of mosquitoes consulted the spider, who could not explain their fate. Despite this, all the remaining mosquitoes decided to set out northward, searching for their lost kin. Once they arrived in Sápmi, they never left.

This origin story was first reported by Johan and Per Turi in the *Lappish Texts* (“About the mosquitos in olden time”), where the narration concludes with the colossal mosquito swarm arriving in Sápmi and encountering a reindeer herd in the woods. Since none of the mosquitoes in the swarm had ever seen reindeer or such a multitude of animals, “they flew at the herd and hurried them to the top of the mountain.”⁶⁹ As this pseudo-cosmogonic myth suggests – beside listing some of the original mosquito deterrents –, the aforementioned interspecies mutuality of mosquitoes is particularly evident in the ecological knowledge and landscape

67 “still, it is an integral part of Sámi environment: if the mosquito doesn’t come, no good follows either. It means warm weather wouldn’t arrive either, berries wouldn’t grow, and there wouldn’t be food for fish or birds. With so many insects around, they have a lot of nourishment.” Utsi, “Jus eai boade mihcamárat.”

68 Adriana Ford, Mary Gearey, and Tim G. Acott, “Living with Mosquitoes in Disease-Free Contexts: Attitudes and Perceptions of Risk in English Wetlands,” in *Mosquitopia: The Place of Pests in a Healthy World*, ed. Marcus Hall and Dan Tamir (New York: Routledge, 2022), 140; Amanda M. Koltz and Lauren E. Culler, “Biting Insects in a Rapidly Changing Arctic,” *Current Opinion in Insect Science* 47 (2021): 75.

69 Johan Turi and Per Turi, *Lappish Texts* (Copenhagen: Høst, 1920), 124; see also Donna Palomaki, “How the Mosquito Came to Lapland,” *Baiki* 7 (1993): 5.

practices associated with reindeer herding, where the ecological significance of mosquitoes ties them to deeper entanglements with humans and reindeer, extending beyond mere markers of seasonal change and geo-spatial cohabitation of shared habitats. In fact, Mai Britt Utsi described *čuoika* as the best Sámi *biiga* – the best maid the Sámi could ever ask for when it comes to reindeer herding.

Though Italian travelers across centuries have described the relationship between mosquitoes, people and reindeer as one of interspecies torment (see above), such interdependency endures in the traditional knowledge of Sámi reindeer herders as a gift that facilitates the assembling and movement of the herd. Mosquito swarms compel the reindeer to gather into a large herd because

čoahkis daid vuoigŋamis šaddan áibmorávdnji lea garrasit ja doallá čuoikkaid badjelis. Dáid áiggiid bohccuid lea álkit čohkket maid áidái dahje gárdái miessemearkuma várás, go dat leat jo lunddolaččat alážiin čoahkkis. Dajaldat “čuoika lea badjealbmá reanga” doallá deaivása, go čuikenáigi ja čuoikkaid mearri váikkuhit hui ollu maid bohccuid geasseatnamiidda johtámii.

[the airflow created by the herd’s breathing is stronger and keeps the mosquitoes a bit higher up. During these times, it is also easier to gather the reindeer into a fence or corral for calf marking, as they are naturally already together in the highlands as one herd. The saying “the mosquito is the reindeer herder’s helper” is therefore accurate, as the timing of the mosquito’s appearance and their numbers significantly affect the reindeer’s movement toward summer grazing areas.⁷⁰]

The ability of mosquitoes to round up reindeer and collect them in flocks is of an exquisitely acoustic nature. When these insects are mature enough to mate, they engage in a ritual portrayed by Spielman and D’Antonio as a “dancing swarm,” where hundreds or even thousands of male *Culices* assemble in a thick, whining cloud over a specific landmark – in this case, a moving one, the reindeer – known as a “swarm marker.”⁷¹ It has been previously noted how the sonic skills of mosquitoes are determinant in pairing males and females of the same species, with both sexes responsive to and drawn to the wingbeat frequencies of their mates. As a result of the shrill droning tone emitted over the marker, “females will be drawn to the swirling mass of males and fly into it one by one.”⁷² In turn, female mosquitoes, with their lower-pitched but louder buzzing, integrate into the “eco-polyphony” of the swarm, which now completely dominate the sonosphere surrounding their landmark and victim – a fully compacted reindeer herd.

Although this biophonic scene may appear only somewhat tangential to Sámi acoustemologies and *juoiggus*, fieldwork encounters underscored the centrality

70 Olsén, Harkoma, Heinämäki et al., *Sámiid Árbedieđu Vuhtii*, 150.

71 Spielman and D’Antonio, *Mosquito*, 8.

72 Ibid., 24.

of the storytelling that precedes, follows, or even pertains to traditional and modern renditions of mosquito *luođit*. Sámi ecological knowledge is integral to *juoiggus* and contributes to shaping it as something more-than-music.⁷³ Without this foundational knowledge, achieving a comprehensive understanding of how *juoiggus* relates to Sámi acoustemologies and the broader echosystems of Sápmi becomes challenging, if not unattainable. Learning and exploring the *čuoika luohiti*, Mai Britt became particularly fond of and deeply inquisitive about the narrative linking reindeer, wind, and mosquitoes in an ecosystemic interdependency, which weighs significantly on the poetic content of the *luohiti*:

/: Na lo, le, loi, lei, loi-le, lo :/	Na lo, le, loi, lei, loi-le, lo...
(v. 1) Ja mihcamáraide jo guovtti soabbái	And at Midsummer on two sticks
/: Na lo, le, loi, lei, loi-le, lo :/	Na lo, le, loi, lei, loi-le, lo...
(v. 2) Ja sápmelačča buoremus jo biigá	The best maid of the Sámi
/: Na lo, le, loi, lei, loi-le, lo :/	Na lo, le, loi, lei, loi-le, lo...
(v. 3) Ja bieggabárdni lei jo láidesteadđi	And the <i>bieggabárdni</i> was the leader
/: Na lo, le, loi, lei, loi-le, lo :/	Na lo, le, loi, lei, loi-le, lo...
(v. 4) Ja čuoikanieida lei jo vuojeheddji	And the <i>čuoikanieida</i> was the driving force
/: Na lo, le, loi, lei, loi-le, lo :/	Na lo, le, loi, lei, loi-le, lo...
/: Na lo, le, loi, lei, loi-le, lo :/	Na lo, le, loi, lei, loi-le, lo...
(v. 5) Ja golbma vieljaža jo ledje,	The three mosquito brothers
/: Na lo, le, loi, lei, loi-le, lo :/	Na lo, le, loi, lei, loi-le, lo...
(v. 6) Ja okta heavvanii jo mielkegivlui,	One gets stuck in a tar bucket
/: Na lo, le, loi, lei, loi-le, lo :/	Na lo, le, loi, lei, loi-le, lo...
(v. 7) Ja nubbi darvánii jo bihkkalihtái	One drowns in the milk trough
/: Na lo, le, loi, lei, loi-le, lo :/	Na lo, le, loi, lei, loi-le, lo...
(v. 8) Ja goalmát hávkkai suova sisa jo,	One suffocates by smoke
/: Na lo, le, loi, lei, loi-le, lo :/	Na lo, le, loi, lei, loi-le, lo... ⁷⁴

The precise origin of this *dajahus* remains undetermined, although we know that Mikkel Per Anderen Bongo was already performing it in the first half of the twentieth century.⁷⁵ The effective lyrical evocation of the mosquito within these verses, however, has contributed to the *dajahus* maintaining a relatively stable formulation over time, unlike the morphology of the *luohiti* itself, which varies across different regions and families. This *dajahus* does not have many words, but each of it is exquisitely formulated to exalt the mosquito and its significance within tundra's relational ecologies through which the Sámi wish to continue to celebrate, appreciate and remember this insect. In addition, Mai Britt Utsi in-

73 Skaltje, *Luondu juoigga*; Renzi, *More-than-Music*.

74 Utsi, "Jus eai boade mihcamárat." Deep gratitude is extended to Mai Britt Utsi for transcribing and translating the *dajahus*, and for generously welcoming attendance at her class on the *čuoika luohiti*.

75 Eira, "Elliid Luođit," 20.

roduces verses that directly reference the aforementioned ancient story of the mosquito's arrival in Sápmi, specifically alluding to the *golbma vieljaža* (three mosquito brothers). In summary, the first line references the time of the year when *čuoika* is at its most ravenous, employing the metaphor of two sticks to evoke the red, swollen marks left on the victim's skin. The second line, through rhetorical personification, attributes a profession to the mosquito, emphasizing its value as a *biiga* (maid) to the Sámi. Tormented by mosquitoes in the woods, the reindeer seek refuge in the wind, finding it at the tops of the tundra fjells. The third and fourth verses (vv. 3–4) sequentially describe the complicity between the male mosquito (*bieggabárdni*) and the female mosquito (*čuoikanieida*). The male, much like the wind (in fact, as “son of the wind”), leads and orients the herd's movement (*láidesteaddji*), while the female provides the driving force to propel the herd uphill (*vuojeheaddji*). The lexical distinction in denoting the genders of the mosquitoes further demonstrates Sámi's deep understanding of swarm ecology and how male and female mosquitoes work together as the best Sámi *biiga*.

Performing the *čuoika luohiti* thus becomes, primarily, a way to pass down ecological knowledge and landscape practices of communion between entangled and interdependent humans and other-than-humans. Through these reflections, joiking the mosquito also emerges as an act of gratitude, an *ode* to honor the insect for being such a helpful maid for reindeer herders and a valuable gift to the broader environment.

The power of mosquitoes within the Arctic environment holds profound significance for the Sámi, representing a deep ecology that animates and sets the entire Land in motion. Mai Britt recalls how, in 2006, she participated in the annual WINHEC meeting in Cloquet, Minnesota. At the time, she was Rector of the Sámi University of Applied Sciences (Allaskuvla), and each Indigenous institution present at the meeting was asked to express a prayer or an act of gratitude rooted in their own tradition:

and at the time we were actually applying to have the Allaskuvla recognized as an institution, you know, as an Indigenous university. And so we did. And it was a very positive result. But then the meeting started, and they asked me to go with all the other representatives and maybe say a prayer in our language or chant a sacred song. And when I went up there, I started to joik the mosquito. And everyone sat there, thinking it was a very sacred song. And when I revealed it was the mosquito, everyone in the hall was laughing. Everyone!⁷⁶

Mai Britt lets out a heartfelt laugh before growing more serious and concluding her recollection: “But in a way it is a sacred song. Because it's a Sámi joik to the

76 Mai Britt Utsi, oral teaching (personal communication), July 3, 2023, Guovdageaidnu, Sápmi.

mosquito. It's our traditional knowledge, ecological knowledge, it has the history of our land. And it is very important."⁷⁷

Listening with mosquitoes, from these deep onto-epistemological foundations bordering on the cosmological, allows us to glimpse the reasoning that led Johan and Per Turi in Sápmi – much like Virgil in ancient Rome – to contribute “such an apologetic story about a tiny, insignificant animal.”⁷⁸ Reflecting on the sounds produced by mosquitoes, their ecological role and their cultural representation in literary and oral traditions reveals that this creature is anything but insignificant, thereby dismantling the three representations of mosquitoes found in the writings of outsiders who traveled through the Arctic summer. In this sense, paraphrasing Hommá Lásse's words, Sámi scholar and cinematographer Maj-Lis Skaltje eloquently invites a reflection on the democracy of species when she observes how “even the tiniest being gets its own [*ode*].”⁷⁹

Conclusions

The significance and companionship of mosquitoes for the Sámi has long been, and continues to be, a great source of inspiration for many *juoigut* and artists, both in traditional expressions and more contemporary works. In his introduction to the English translation of Áillohaš's Sámi poetic masterpiece *Ruoktu váimmus*, Harald Gaski commends how the poet “heard the calling of birds, the roaring of the rivers and the humming of millions of mosquitos. He would grow to include all these sounds, in his words, in his music, and he would create a symphony of nature to enjoy a life-style connecting them to Nature.”⁸⁰ As the passage hints, following the stories and skills that the Sámi have inherited from this insect, if we listen more attentively and entrust our ears to their *jienat*, “we can learn a lot of joiks from mosquitoes.”⁸¹ The recognition of *čuoika* as a skilled performer of *luohti* is something deeply embedded in the Sámi history of listening and explicitly surfaces in traditional storytelling, as exemplified by the *dajahus* of the *čuoika luohti* transcribed by South Sámi *juoigi* and priest Anders Fjellner and reported in Düben.⁸² According to this *dajahus*, the task of *čuoika* is

⁷⁷ Ibid.

⁷⁸ Mardoeke Boekraad, *Ecological Sustainability in Traditional Sámi Beliefs and Rituals* (Frankfurt am Main: Lang, 2016), 90.

⁷⁹ Skaltje, *Luondu juoiggaha*, 271. The original text concludes with “*luohti*.”

⁸⁰ Nils-Aslak Valkeapää, *Ruoktu Vaimmus* (Guovdageaidnu: DAT, 1985), i.

⁸¹ Mai Britt Utsi, oral teaching (personal communication), July 3, 2023, Guovdageaidnu, Sápmi.

⁸² Gustaf von Düben, *Om Lappland och lapparne, företrädesvis de svenske: Ethnografiska studier* (Stockholm: Norstedt, 1873), 346.

to joik (translated as “to sing”) and entertain other Earth beings throughout the summer.

With her *luohti*, Mai Britt Utsi advances a phenomenology of *čuoika* as a performer of *juoiggus*, and offers deeper reflections on her own perception of this other-than-human voice within a habitual auditory context (Fig. 1).



Figure 1: Čuoikas lea iežas jietna, jus don guldat don sahtát gullat ollu luodit doppe.⁸³ © Nicola Renzi

The more Mai Britt allows the humming voice of *čuoika* to take over her own voice, the more she invites the ear to listen beyond the indistinct whining we typically associate with the *buzzing Other*.

Some of the acoustic properties that can be found in the natural sound produced by a mosquito – namely its pitch contour, a timbre that is coherent and rich in harmonics and, to some extent, rhythmic developments – reveal their inherent musical potential in Mai Britt’s voice. Yet, we tend to dismiss these sounds as nothing more than an incessant nuisance when they assail us at night in our bedrooms. The acoustemology of the mosquito in Sápmi is exemplary, for it unsettles the three major representations of the insect that crystallized in Western literature – with only rare exceptions from Virgil to the present – and that travelers such as Negri and Acerbi carried northward with their intellectual baggage and encultured modes of listening, recording and reinforcing them in their writings as adverse variations on a recurring theme. Sámi acoustemology counters the first of these representations, which treats mosquitoes as *insignificant* beings, by hearing them instead within the dense counterpoint of expanded ecosystems and recognizing their role in pollination and as nourishment for birds, fish, and other fauna; it also counters their representation as *natural enemies*, reframing them as helpers and kin – the best Sámi *biiga* – who contribute to the successful ecology and economy of reindeer herding; finally, it counters their reduction to mere *nuisance*, listening to the mosquito as a skillful agent in a more-than-human soundworld. Moving beyond the simplistic aesthetic recognition of musicality in the sounds of *čuoika* – conceived as top-down qualities granted by humans to other-than-human beings – Sámi acoustemology instead positions the mosquito as kin, with an equal claim to the *juoiggus* heritage as any Sámi Earth being. Much like Virgil’s *Culex*, *čuoika* in Sápmi finds proper

83 “Each mosquito has its own voice and if you listen carefully, you can hear a lot of *luodit* in it.” Utsi, “Jus eai boade mihcamárat.”

recognition as a Muse: a recipient, performer and teacher of a relational practice that transcends musicality as the ability of making sense of sounds to outline a more-than-musical realm where *luodit* make sense of a whole ecosystem.

Just as we wage war against mosquitoes as a whole, without recognizing that only a small percentage of these dipterans pose an actual threat, Earth's retaliation against humanity spares no consideration for which bio-politically, -culturally, or -historically situated people contribute to disrupting her well-being.⁸⁴ This is especially evident in the Arctic, where environmental fragility is most acutely experienced, and where the rate of warming is more than twice the global average.⁸⁵

It remains unclear how mosquitoes, midges and other arctic flies are responding to these rapid transformations, but as ectotherms they "are particularly sensitive to rapid environmental change."⁸⁶ Disruptions in their life cycle could lead to the spread of vector-borne diseases⁸⁷ while also having drastic consequences for biodiversity, the functioning of the entire tundra ecosystem and, as a result, culturally and economically significant activities, such as reindeer herding.⁸⁸ As Farina underscores, changes in soundscapes often accompany or even precede changes in the landscape.⁸⁹ Monitoring the ecosystemic presence of *Culicidae*, *Simuliidae* and other *Diptera* – which constitute the most abundant group of fauna in the Arctic⁹⁰ – can offer key indicators of environmental change in the region.⁹¹ But do we truly hear what the mosquito is "buzzing" about?

84 Donna J. Haraway, "Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin," *Environmental Humanities* 6 (2015): 159–65; see also Jason W. Moore, *Capitalism in the Web of Life: Ecology and the Accumulation of Capital* (New York: Verso, 2015).

85 Sámiráddi and Sámediggi, *Climate Change in Sápmi – An Overview and a Path Forward (Raporta | Report 2023)* (Kárášjohka: Sámiráddi, 2023), <https://www.saamicouncil.net/en/cli-mate-change-in-sapmi>.

86 Koltz and Culler, "Biting Insects," 75.

87 Sámiráddi and Sámediggi, *Climate Change in Sápmi*, 54, 81; see also Lorna Culverwell and Olli Pekka Vapalahti, "First Record of *Culex modestus* in Finland," *Journal of the European Mosquito Control Association* 41, no. 2 (2023): 63–66.

88 Sámiráddi and Sámediggi, *Climate Change in Sápmi*, 92; see also Klemetti Näkkäljärvi, Suvi Juntunen, and Jouni J. Jaakkola, "Cultural Perception and Adaptation to Climate Change among Reindeer Saami Communities in Finland," in *Climate Cultures in Europe and North America*, ed. Thorsten Heimann, Jamie Sommer, Margarethe Kusenbach et al. (London: Routledge, 2022), 103–25.

89 Almo Farina, "L'approccio scientifico al paesaggio sonoro come nuovo strumento per una gestione etica dell'ambiente," in *Il suono percepito, il suono raccontato: Paesaggi sonori in prospettiva multidisciplinare*, ed. Alessandra Calanchi (Teramo: Galaad Edizioni, 2015), 54.

90 Carrier, *Insects Tell a Story*, 8; Koltz and Culler, "Biting Insects," 78.

91 Hugh Danks, "Arctic Insects as Indicators of Environmental Change," *Arctic* 45, no. 2 (1992): 159–66; Sarah Loboda, Jade Savage, Christopher M. Buddle et al., "Declining Diversity and Abundance of High Arctic Fly Assemblages over Two Decades of Rapid Climate Warming," *Ecography* 41 (2018): 265–77; Christine Erbe and Jeanette A. Thomas, *Exploring Animal Behavior Through Sound*, vol. 1: *Methods* (Cham: Springer, 2022).

Technological advancements have equipped us with tools to investigate how mosquitoes perceive and interact with their environment.⁹² Yet, a comprehensive understanding of their perspective remains elusive.⁹³ Such a perspective is obfuscated by an ontology that sharply separates them from humans. Like ticks, cockroaches, houseflies and other insects, mosquitoes are framed as fundamentally *inhuman*, occupying a space and time on “the margins between life and death, organic and inorganic, human and nonhuman, conscious and unconscious.”⁹⁴ Our capacity to truly *hear* mosquitoes is also deafened by an epistemology that predominantly links their sensory presence to irritation – both physical and mental – and fear, because of their potential lethality. This epistemic frame comprises an acoustemology that invariably identifies mosquitoes’ high-pitched whines as a disturbance to quietude, an obstacle to restful sleep, and a sound that is degraded to the periphery of aesthetic considerations – even when artists incorporate it in musical works.⁹⁵ As a result, much like the shepherd in the Virgilian *Culex*, we instinctively swat the mosquito away without heeding any message or inspiration it might carry to our human ear.

Within this interspecies relationality, the mosquito is cast as a “radical other” that challenges the very foundations of an alleged “democracy of species” paradoxically sketched from an anthropocentric stance.⁹⁶ As Lisa Schonberg observes, we tend to contemplate “sentience in animals when considering how we value their worth and protection.”⁹⁷ Ecofeminist research describes this valuation in terms of an anthropic exceptionalism where “human beings are paradigmatic ethical objects” while “other life-forms are valuable only insofar as they are seen as similar to humans.”⁹⁸ According to Val Plumwood, “[b]ecause the other is to be treated as not merely different but inferior, part of a lower, different order of being, differentiation from it demands not merely distinctness but radical exclusion, not merely separation but hyperseparation.”⁹⁹

92 Cornell University, “Mosquito hearing”; see also Renzi and Utsi, “Joiking with the Dancing Swarm.”

93 Martinelli, *A Critical Companion to Zoosemiotics*, 83.

94 Hohti and Maclure, “Insect-Thinking,” 328; see also Ford, Gearey, and Acott, “Living with Mosquitoes,” 123.

95 David Rothenberg, personal communication, August 29, 2024, online. See also Rothenberg, *Bug Music*; Hawkes and Hopkins, “The Mosquito,” 20; cf. Morrison and Lemke, “Awe-WonderExcitement,” 145.

96 Rosi Braidotti, *Metamorphoses: Towards a Materialist Theory of Becoming* (Cambridge: Polity Press, 2002); Hohti and Maclure, “Insect-Thinking”; see also Robin Wall Kimmerer, *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants* (Minneapolis: Milkweed Editions, 2013), 346.

97 Lisa Schonberg, *Sensory Kinship of the Third Kind* (New York: Pioneer Works, 2022), 23.

98 Christine J. Cuomo, *Feminism and Ecological Communities: An Ethic of Flourishing* (London: Routledge, 1998), 106.

99 Val Plumwood, *Feminism and the Mastery of Nature* (London: Routledge, 1993), 49.

According to the aforementioned onto-epistemological gap that enforces the hyperseparation between humans and mosquitoes, the latter are reduced to “anti-nature,” misunderstood as deadly predator (though we battle diseases, not their carriers), or are swatted as a mere nuisance.¹⁰⁰ Ultimately, mosquitoes are relegated to the margins of multispecies connections, even becoming the drive of those who “wish for total extermination”, which includes one weighty branch of scientific efforts.¹⁰¹

Transposed onto a discourse on coloniality – which loudly emerges from the written accounts of Italian travelers cursing, within shared geographies, the same Arctic mosquitoes the Sámi wove into multispecies kinship – this hyperseparation mirrors the settler tendency to “create the image of separate, discontinuous natures and orders of being.”¹⁰² Building on this ecofeminist critique, Pedersen and Pini pose the rhetorical question of whether, “[i]n the midst of posthuman entanglements and boundary-deconstruction,” we “really have listened carefully enough.”¹⁰³ Even when we attempt to grant it proper attention, within an anthropocentric epistemology, the mosquito is known through a process of objectification that reduces its *voice* to mere acoustic data, stripping it of unique aesthetics, messages and stories.¹⁰⁴

Through oral narratives, both preserved in the historical record by the Turis and offered by Mai Britt Utsi in more recent ethnography, this chapter has sought to demonstrate how Sámi acoustemologies and histories of listening offer a compelling counternarrative. In this view, the mosquito emerges not only as an inspiration and “significant otherness” at the heart of local knowledge and aesthetics, but also performs beautiful *luodit* – and through *luohti*, the mosquito can teach different stories and carry meaningful messages. Margaret Kovach aptly observes how “stories hold within them knowledges while simultaneously signifying relationships,” constantly reminding us “who we are and of our belonging.”¹⁰⁵ As skilled listeners and interpreters of a multispecies storytelling tradition such as *juoiggus*, many Sámi have championed the messages learned from the mosquito. Unlike Virgil’s shepherd in *Culex*, they have not ignored them or swatted them away. Instead, they have amplified these stories through proper poetic and musical odes.¹⁰⁶

100 Hall and Tamır, “Killing Mosquitoes,” 5.

101 Hohti and Maclure, “Insect-Thinking,” 327; Winegard, *The Mosquito*, 1.

102 Plumwood, *Feminism and the Mastery of Nature*, 49.

103 Pedersen and Pini, “Educational Epistemologies,” 1052.

104 Cf. Renzi and Utsi, “Joiking with the Dancing Swarm.”

105 Margaret Kovach, *Indigenous Methodologies: Characteristics, Conversations, and Contexts* (Toronto: University of Toronto Press, 2009), 94.

106 Renzi, *More-than-Music*.

These are odes that, beyond music, foster sonic kinships and mutual understandings with this “significant otherness” among other Earth beings.¹⁰⁷ Relying on contextual knowledge and personification, *juoiggus* as multispecies storytelling places at the center an organism that dominant anthropocentric ontologies have historically placed at the margins and variably characterized as an *insignificant* being, a killable *enemy*, and a loud *nuisance*. Much like Virgil, who exalted *culex* as a Muse, Sámi acoustemologies and more-than-musical practices offer an unusual storying of the mosquito, one that could inform bioculturally sustainable research with this controversial insect. They value mosquito sounds as *voices*, according them as much respect, admiration and scientific dignity as any other Earth being – as a “significant” rather than a “radical” otherness.¹⁰⁸

From such odes and modes of listening, we can learn that mosquitoes are more than “trumpets” and “spears.” Echoing the virgilian epic, Sámi storytellers invite us to listen beyond the itchy acoustic signal and hear stories, melodies, and herding knowledge carried in the wingbeat of the mosquito – stories that honor and do justice to the marginal and misinterpreted.

in multiformi specie tot tantarumque animantium, quarum illae plus habent admirationis, quae molis minimum

[in the manifold variety of such great living creatures, the smallest in size are often the most wonderful]¹⁰⁹

Bibliography

- Acerbi, Giuseppe. *Travels through Sweden, Finland, and Lapland, to the North Cape: In the Years 1798 and 1799*. Vol. 1. London: Joseph Mawman, 1802a.
- Acerbi, Giuseppe. *Travels through Sweden, Finland, and Lapland, to the North Cape: In the Years 1798 and 1799*. Vol. 2. London: Joseph Mawman, 1802b.
- Acerbi, Giuseppe. *Viaggio a Capo Nord (fatto l'anno 1799)*. Milano: Greco & Greco, 2016.
- Aikio, Inger Mari. “Ráfi jienat ja jaskatvuolta báhcet millii dakkár bottut // Peaceful Sounds and Silence Give the Mind Some Rest.” In *Muitalusat guldaleami birra – Histories of Listening from Sápmi*, edited by Nicola Renzi, track 20 [digital release]. 2025.
- Aristophanes. *Clouds*. In *The Comedies of Aristophanes*. Vol. 1, translated by William James Hickie. London: Bohn, 1853.

107 See Donna J. Haraway, *The Companion Species Manifesto: Dogs, People, and Significant Otherness* (Chicago: Prickly Paradigm, 2003).

108 Hanna E. Guttorm, Lea Kantonen, Britt Kramvig et al., “Decolonized Research-Storying: Bringing Indigenous Ontologies and Care into the Practices of Research Writing,” in *Indigenous Research Methodologies in Sámi and Nordic Contexts*, ed. Pirjo K. Virtanen, Pigga Keskitalo, and Torjer Olsen (Leiden: Brill, 2021), 113–43; see also Sanna Valkonen, “Multiple Worlds of Sámi Research,” *Ethnologia Fennica* 50, no. 1 (2023): 8.

109 Augustine of Hippo, *De civitate Dei contra paganos*, XX,24.

- Aristophanes. *Comoediae*. Vol. 2, edited by Frederick William Hall and William M. Geldart. Oxford: Clarendon Press, 1907.
- Arthur, Benjamin J., Kevin S. Emr, Robert A. Wyttenbach et al. "Mosquito (*Aedes aegypti*) Flight Tones: Frequency, Harmonicity, Spherical Spreading, and Phase Relationships." *The Journal of the Acoustical Society of America* 135, no. 2 (2014): 933–41.
- Attanasi, Alessandro, Andrea Cavagna, Lorenzo Del Castello et al. "Collective Behaviour without Collective Order in Wild Swarms of Midges." *PLoS Computational Biology* 10, no. 7 (2014): e1003697.
- Aubinet, Stéphane. *The Craft of Yoiking: Philosophical Variations on Sámi Chants*. PhD diss., University of Oslo, 2020.
- Augustine of Hippo. *De civitate Dei contra paganos* (The City of God Against the Pagans), translated by Henry Bettenson. London: Penguin Books, 1984.
- Augustine of Hippo. "Epistola LV." In *Patrologia Latina*. Vol. 33, edited by Jacques-Paul Migne, 204–23. Paris: Garnier, 1845.
- Augustine of Hippo. "Quaestionum Evangeliorum libri duo." In *Patrologia Latina*. Vol. 35, edited by Jacques Paul Migne, 1321–64. Paris: Garnier, 1845.
- Becker, Norbert, Dušan Petrić, Marija Zgomba et al., eds. *Mosquitoes: Identification, Ecology and Control*. Cham: Springer, 2020.
- Blix, Arnoldus Schytte, Yngve Espmark, Monica A. Olsen et al. *Bohcco Biologija*. Oslo: Landbruksforlaget, 1998.
- Boekraad, Mardoeke. *Ecological Sustainability in Traditional Sámi Beliefs and Rituals*. Frankfurt am Main: Lang, 2016.
- Boero, Luca. "Il viaggio di Giuseppe Acerbi in Svezia, Finlandia e Norvegia." In *Per una storia dei popoli senza note*, edited by Paola Dessì, 229–50. Bologna: CLUEB, 2010.
- Brabec de Mori, Bernd, ed. *The Human and Non-Human in Lowland South American Indigenous Music*. Special issue, *Ethnomusicology Forum* 22, no. 3 (2013).
- Braidotti, Rosi. *Metamorphoses: Towards a Materialist Theory of Becoming*. Cambridge: Polity Press, 2002.
- Carrier, Marion. *Insects Tell a Story: A Web Interwoven with Entomology and Naskapi Knowledge in Kawawachikamach*. M.A. thesis, Université de Montréal, 2017.
- Cornell University. "Mosquito Hearing." Video. Published by the College of Agriculture and Life Sciences, Cornell University, March 9, 2009. Accessed November 16, 2025. <https://www.cornell.edu/video/mosquito-hearing#:~:text=Male%20mosquitoes%20have%20a%20wing,a%20harmonic%20near%201200%20Hz>.
- Costa-Neto, Eraldo Medeiros. "Entertainment with Insects: Singing and Fighting Insects Around the World. A Brief Review." *Etnobiología* 3, no. 1 (2003): 21–29.
- Culverwell, Lorna, and Olli Pekka Vapalahti. "First Record of *Culex modestus* in Finland." *Journal of the European Mosquito Control Association* 41, no. 2 (2023): 63–66.
- Cuomo, Christine J. *Feminism and Ecological Communities: An Ethic of Flourishing*. London: Routledge, 1998.
- Danks, Hugh. "Arctic Insects as Indicators of Environmental Change." *Arctic* 45, no. 2 (1992): 159–66.
- Dessì, Paola. "Suoni e strumenti dei Sami nel Viaggio settentrionale di Francesco Negri (1663–1666) e nell'immaginario musicale secentesco." *Idomeneo* 21 (2016): 7–20.
- Dethier, Vincent. *Crickets and Katydid, Concerts and Solos*. Cambridge, MA: Harvard University Press, 1992.

- Düben, Gustaf von. *Om Lappland och lapparne, företrädesvis de svenske: Ethnografiska studier*. Stockholm: Norstedt, 1873.
- Eira, Inger Julianne. "Elliid Luodit." *Sámis: Sámi Čálakultuvrralaš Áigečála* 36 (2022): 20–22.
- Eira, Nils Isak. *Bohccuid Luhtte*. Guovdageaidnu: DAT, 2011.
- Erbe, Christine, and Jeanette A. Thomas. *Exploring Animal Behavior Through Sound*. Vol. 1: *Methods*. Cham: Springer, 2022.
- Farina, Almo. "L'approccio scientifico al paesaggio sonoro come nuovo strumento per una gestione etica dell'ambiente." In *Il suono percepito, il suono raccontato: Paesaggi sonori in prospettiva multidisciplinare*, edited by Alessandra Calanchi, 33–60. Teramo: Galaad Edizioni, 2015.
- Feld, Steven. "Aesthetics as Iconicity of Style, or 'Lift-up-over Sounding': Getting into the Kaluli Groove." *Yearbook for Traditional Music* 20 (1988): 74–113.
- Feld, Steven. "On Post-Ethnomusicology Alternatives: Acoustemology." In *Perspectives on a 21st Century Comparative Musicology: Ethnomusicology or Transcultural Musicology?*, edited by Francesco Giannattasio and Giovanni Giuriati, 82–98. Udine: Nota, 2015.
- Feld, Steven. *Sound and Sentiment: Birds, Weeping, Poetics, and Song in Kaluli Expression*. Philadelphia: University of Pennsylvania Press, 1982.
- Feld, Steven, and Don Brenneis. "Doing Anthropology in Sound." *American Ethnologist* 31, no. 4 (2004): 461–74.
- Ford, Adriana, Mary Gearey, and Tim G. Acott. "Living with Mosquitoes in Disease-Free Contexts: Attitudes and Perceptions of Risk in English Wetlands." In *Mosquitopia: The Place of Pests in a Healthy World*, edited by Marcus Hall and Dan Tamir, 123–43. New York: Routledge, 2022.
- Fraenkel, Eduard. "The *Culex*." *The Journal of Roman Studies* 42 (1952): 1–9.
- Guizzi, Febo. *Gli strumenti della musica popolare in Italia*. Lucca: LIM, 2012.
- Guttorm, Hanna E., Lea Kantonen, Britt Kramvig et al. "Decolonized Research-Storying: Bringing Indigenous Ontologies and Care into the Practices of Research Writing." In *Indigenous Research Methodologies in Sámi and Nordic Contexts*, edited by Pirjo K. Virtanen, Pigga Keskitalo, and Torjer Olsen, 113–43. Leiden: Brill, 2021.
- Hall, Marcus, and Dan Tamir. "Killing Mosquitoes: Think Before You Swat." In *Mosquitopia: The Place of Pests in a Healthy World*, edited by Marcus Hall and Dan Tamir, 3–15. New York: Routledge, 2022.
- Haraway, Donna J. "Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin." *Environmental Humanities* 6 (2015): 159–65.
- Haraway, Donna J. *The Companion Species Manifesto: Dogs, People, and Significant Otherness*. Chicago: Prickly Paradigm, 2003.
- Haraway, Donna J. *Staying with the Trouble: Making Kin in the Chthulucene*. Durham: Duke University Press, 2016.
- Harrison, Jack. "Musicking with the Enemy: Mosquito Agency, Control, and Representation on Film." In *Re-Thinking Agency: Non-Anthropocentric Approaches*, edited by Joanna Godlewicz-Adamiec and Paweł Piszczatowski, 135–54. Göttingen: V&R unipress, 2024.
- Harrison, Jack. "'Public Enemy Number One!': Music and Mosquito Sound in Disney's *The Winged Scourge* (1943)." In *Beyond the Human Voice: Dystopian Soundscapes in the*

- Arts*, edited by Martin Ullrich and Susanne Rode-Breymann, 151–69. Berlin and Heidelberg: Metzler, 2025.
- Hawkes, Frances M., and Richard J. Hopkins. “The Mosquito: An Introduction.” In *Mosquitopia: The Place of Pests in a Healthy World*, edited by Marcus Hall and Dan Tamir, 16–31. New York: Routledge, 2022.
- Hohti, Riikka, and Maggie Maclure. “Insect-Thinking as Resistance to Education’s Human Exceptionalism: Relationality and Cuts in More-Than-Human Childhoods.” *Qualitative Inquiry* 28, no. 3–4 (2022): 322–32.
- Hoy, Ronald. “Insect Hearing: Selected Historical Vignettes.” *A History of Discoveries on Hearing*, edited by Darlene R. Ketten, Allison B. Coffin, Richard R. Fay et al., 9–37. Cham: Springer, 2024.
- Jones-Bamman, Richard Wiren. “As Long as We Continue to Joik, We’ll Remember Who We Are”: *Negotiating Identity and the Performance of Culture: The Saami Joik*. PhD diss., University of Washington, 1993.
- Kanngieser, Anja M. “Sonic Colonialities: Listening, Dispossession, and the (Re)Making of Anglo-European Nature.” *Transactions of the Institute of British Geographers* 48 (2023): 690–702.
- Kimmerer, Robin Wall. *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants*. Minneapolis: Milkweed Editions, 2013.
- Kitti, Heidi, Nicolas Gunsley, and Bruce C. Forbes. “Defining the Quality of Reindeer Pastures: The Perspectives of Sámi Reindeer Herders.” In *Reindeer Management in Northernmost Europe*, edited by Bruce C. Forbes, Manfred Bölter, Ludger Müller-Wille et al., 141–65. Berlin: Springer, 2006.
- Koltz, Amanda M., and Lauren E. Culler. “Biting Insects in a Rapidly Changing Arctic.” *Current Opinion in Insect Science* 47 (2021): 75–81.
- Kovach, Margaret. *Indigenous Methodologies: Characteristics, Conversations, and Contexts*. Toronto: University of Toronto Press, 2009.
- Lewy, Matthias. “About Indigenous Perspectivism, Indigenous Sonorism and the Audible Stance: Approach to a Symmetrical Auditory Anthropology.” *El Oído Pensante* 5, no. 2 (2017): 1–22.
- Loboda, Sarah, Jade Savage, Christopher M. Buddle et al. “Declining Diversity and Abundance of High Arctic Fly Assemblages over Two Decades of Rapid Climate Warming.” *Ecography* 41 (2018): 265–77.
- Manard, Krista Delany, and Joseph R. Coelho. “Insects in Folk Music.” *American Entomologist* 65, no. 1 (2019): 61–65.
- Mantegazza, Paolo. *Un viaggio in Lapponia*. Milano: Gaetano Brigola, 1881.
- Martinelli, Dario. *A Critical Companion to Zoosemiotics: People, Paths, Ideas*. Berlin: Springer, 2010.
- Martinelli, Dario. *Quando la musica è bestiale per davvero: Studiare e capire la zoomusicologia*. Roma: Aracne, 2011.
- McNeill, John Robert. *Mosquito Empires: Ecology and War in the Greater Caribbean, 1620–1914*. Washington: Georgetown University Press, 2010.
- Menda, Gil, Eyal I. Nitzany, Paul S. Shamblé et al. “The Long and Short of Hearing in the Mosquito *Aedes aegypti*.” *Current Biology* 29, no. 4 (2019): 709–14.e4.
- Mitchell, Timothy. *Rule of Experts: Egypt, Techno-Politics, Modernity*. Berkeley: University of California Press, 2002.

- Moore, Jason W. *Capitalism in the Web of Life: Ecology and the Accumulation of Capital*. New York: Verso, 2015.
- Morrison, Kerry, and Helmut Lemke. "AweWonderExcitement." In *Mosquitopia: The Place of Pests in a Healthy World*, edited by Marcus Hall and Dan Tamir, 144–61. New York: Routledge, 2022.
- Myers, John. *Insect Singers: A Natural History of the Cicadas*. London: Routledge, 1929.
- Näkkäläjärvi, Klemetti, Suvi Juntunen, and Jouni J. Jaakkola. "Cultural Perception and Adaptation to Climate Change among Reindeer Saami Communities in Finland." In *Climate Cultures in Europe and North America*, edited by Thorsten Heimann, Jamie Sommer, Margarethe Kusenbach et al., 103–25. London: Routledge, 2022.
- Negri, Francesco. *Viaggio settentrionale fatto, e descritto dal molto rev.do sig.r d. Francesco Negri da Ravenna. Opera postuma data alla luce dagli heredi del sudetto*. Padova: Stamperia del Seminario, 1700. https://archive.org/details/bub_gb_762L-uPKLnoC.
- Norum, Roger, Vesa-Pekka Herva, and Mari Olafson Lundemo. "Encountering/Thinking Mosquitos." *Time and Mind* 14, no. 3 (2021): 417–30.
- Ochoa Gautier, Ana María. "Acoustic Multinaturalism, the Value of Nature, and the Nature of Music in Ecomusicology." *boundary 2* 43, no. 1 (2016): 107–41.
- Olsén, Laura, Assi Harkoma, Leena Heinämäki et al. *Sámiid Árbedieđu Vuhtii Válidin Birasmearrádusaid Dahkamis*. Rovaniemi: Lapin Yliopisto, 2019.
- Palomaki, Donna. "How the Mosquito Came to Lapland." *Baiki* 7 (1993): 5.
- Pedersen, Helena, and Barbara Pini. "Educational Epistemologies and Methods in a More-than-Human World." *Educational Philosophy and Theory* 49, no. 11 (2017): 1051–54.
- Pliny the Elder. *Naturalis Historia*, edited by Karl Friedrich Theodor Mayhoff. Leipzig: Teubner, 1906.
- Plumwood, Val. *Feminism and the Mastery of Nature*. London: Routledge, 1993.
- Renzi, Nicola. *More-than-Music: Ecosystems, Acoustemologies, and Histories of Listening from Sápmi*. PhD diss., University of Helsinki (cotutelle with University of Bologna), 2025. <https://helda.helsinki.fi/handle/10138/330931>.
- Renzi, Nicola, and Mai Britt Utsi. "Joiking with the Dancing Swarm: Sámi Ethnoentomology and the More-than-Musical Aesthetic of Mosquitoes." *Music & Nature*, Special Issue on Multispecies Sound and Movement (forthcoming).
- Rothenberg, David. *Bug Music: How Insects Gave Us Rhythm and Noise*. London: Picador, 2013.
- Rothenberg, David. *Why Birds Sing: A Journey into the Mystery of Bird Song*. New York: Basic Books, 2005.
- Sámiráđđi and Sámediggi. *Climate Change in Sápmi – An Overview and a Path Forward (Raporta | Report 2023)*. Kárášjohka: Sámiráđđi, 2023. <https://www.saamicouncil.net/en/climate-change-in-sapmi>.
- Sargent, Lucius Manlius, trans. *The Culex of Virgil: With a Translation into English Verse. Latin and English*. Boston: Emerald Press, by Belcher and Armstrong, 1807.
- Schaff, Philip, ed. *From Nicene and Post-Nicene Fathers*. Ser. 1, vol. 8. Buffalo: Christian Literature Publishing Co., 1888.
- Schonberg, Lisa. *Sensory Kinship of the Third Kind*. New York: Pioneer Works, 2022.
- Skaltje, Maj-Lis. *Luondu juoiggaha*. Guovdageaidnu: DAT, 2005.
- Spenser, Edmund. *The Faerie Queene*. New York: Crowell & Co., 1903.

- Spielman, Andrew, and Michael D'Antonio. *Mosquito: A Natural History of Our Most Persistent and Deadly Foe*. New York: Hyperion, 2001.
- Staiti, Domenico. "The 'Rose Garden': Against Racism in Ethnomusicology." *Sound Ethnographies* 1, no. 1 (2018): 189–210.
- Taylor, Hollis. *Is Birdsong Music?: Outback Encounters with an Australian Songbird*. Bloomington: Indiana University Press, 2017.
- Tertullian. *Adversus Marcionem*, edited and translated by Ernest Evans. Oxford: Oxford University Press, 1972.
- Thoreau, Henry David. *Walden; or, Life in the Woods*. Boston: Ticknor and Fields, 1854.
- Titon, Jeff Todd. "Ethnomusicology as the Study of People Making Music." *Musicological Annual* 51, no. 2 (2015): 175–85.
- Turi, Johan. *Muitalus sámiiid birra: En Bog om Lappernes Liv*. Copenhagen: Græbes Bogtrykkeri, 1910.
- Turi, Johan, and Per Turi. *Lappish Texts*. Copenhagen: Høst, 1920.
- Ullrich, Jessica. "Animal Music: David Rothenberg, Dario Martinelli, and Martin Ullrich Exchange Their Views on the Topic." *Relations: Beyond Anthropocentrism* 2, no. 2 (2014): 115–28.
- Utsi, Mai Britt. "Jus eai boađe mihcamárat, de goit bohtet dalle guovtti soabbai // If They Don't Come by Midsummer, They'll Come with Two Sticks." In *Muitalusat guldaleami birra – Histories of Listening from Sápmi*, edited by Nicola Renzi, track 4 [digital release]. 2025.
- Valkeapää, Nils-Aslak. *Ruoktu Vaimmus*. Guovdageaidnu: DAT, 1985.
- Valkeapää, Nils-Aslak. *Terveisiä Lapista*, translated by Beverley Wahl as *Greetings from Lappland: The Sámi – Europe's Forgotten People*. London: Zed Press, 1983.
- Valkonen, Sanna. "Multiple Worlds of Sámi Research." *Ethnologia Fennica* 50, no. 1 (2023): 5–33.
- Valtonen, Anu, Tarja Salmela, and Outi Rantala. "Living with Mosquitoes." *Annals of Tourism Research* 83 (2020): 102945.
- Virgil. *Aeneid: Books 7–12. Appendix Vergiliana*, translated by H. Rushton Fairclough, revised by G. P. Goold. Cambridge, MA: Harvard University Press, 1918.
- Winegard, Timothy C. *The Mosquito: A Human History of Our Deadliest Predator*. New York: Penguin, 2019.