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Operator Please: Field Recording Practices through the Lens of Agential Realism

Jesse Budel

The University of Adelaide
jesse.budel@adelaide.edu.au

ABSTRACT

The past decade has seen the proliferation of inexpensive long-duration field recording technologies made available to creative practitioners, researchers and amateurs alike. Without the need for continuous attendance of equipment, such technologies have led to the rise of unattended field recording methodologies, considered as objective and minimally impactful on recording sites.

This paper draws on perspectives offered by Karen Barad's 'agential realist' paradigm - which view the ontological and epistemological relationships object/subject, phenomena/apparatus as intra-active and entangled - and interrogates the (material-discursive) field recording practices as related to acoustic ecology and ecoacoustics. The agency of the field recordist as part of the field recording apparatus is given particular consideration complicating claims of objective observation and offering renewed ideas of acoustic observation and listening.

1. INTRODUCTION

Wherein does agency lie when a field recording device is left unattended by a field recordist? The practice of field recording (the act of making audio recordings of environmental sound), has enjoyed a proliferation of interest and activity in the past decade, in part resulting from the accessibility of cheap, portable recording devices, as well as a widening range of applications in the spaces of entertainment media (including social media, gaming & VR, audio and video production), acoustic ecology and ecoacoustics. Various field recorders and associated methodologies are employed with respect to their applications, such as field recorders manufactured by Zoom, Sound Devices and Tascam for entertainment and acoustic ecology, and specialist recorders for ecoacoustics applications, including the Bioacoustics Audio Recorder by Frontier Labs, the SongMeter recorders by Wildlife Acoustics and AudioMoth by Open Acoustic Devices.

Typically, field recorders are calibrated for the intended processing or outputs. All are impacted by operational limitations such as power consumption, storage capacity and bandwidth. More specifically, entertainment and acoustic ecology projects prioritise high-quality audio (high sample and bit rates, at least stereo if not multichannel recording) intended for a human listening experience. By contrast, ecoacoustics typically focuses on acoustic data as a proxy for ecosystem activity and function, prioritising outputs such as audio visualisation and big-data algorithmic analyses (rendering acoustic indices and feature sets). Channel counts are also typically low, as Barclay and Gifford note, "In bioacoustics it is not uncommon to take field recordings in 'mono' at low sampling rates, for reasons both practical—cost, data storage, power consumption, bandwidth; and theoretical—most acoustic indices and classifier algorithms are monophonic, and operate in the frequency domain, so that the high sampling rates needed to encode complex spatial or reverberant information are redundant." [1]. Such outputs imply a non-human, machine 'listenership'.

The accessibility, portability, and increasing use/storage capacity has permitted field recording applications and methodologies that remove the need for constant human attendance, otherwise known as 'passive acoustic monitoring' [2]. This approach is at the heart of long-duration recording, which takes place over days, months and years, and is called for in ecoacoustics research to generate acoustic data sets for seasonal and climatic modelling. It is presumed in passive acoustic monitoring practices that the use of proxies reduces 'observer bias' in data acquisition [2], as well as removes the potential impact that human presence may have on non-human behaviour at a particular site, allowing the possibility of a scientifically 'objective' result.

This conception of the field recordist being distinct from the field recorder proxy (the latter of which in turn is productive of the field recording) implies a Cartesian dualist model of subject (the field recordist) and object (the field recording/acoustic environment/soundscape), mediated by the apparatus of the field recorder-proxy. These ontoepistemological assumptions rooted in subject-object duality in turn affect ethical approaches to field recording practice, often focussed on human field recordist behaviours. This position has been explored by Mark Peter Wright (in the performance and negotiation of field recording practices between humans and nonhumans) [3] and Hildegard Westerkamp's conception of the 'microphone ear' [4] but can be additionally redressed through post-humanist lenses such as that offered by Karen Barad's agential realist project.

2. AGENTIAL REALISM

In their seminal book, 'Meeting the Universe Halfway' [5], philosopher-physicist Karen Barad proposes 'agential realism', an ethico-onto-epistomological (theory of acting, being and knowing) paradigm intended to critique the 'material discursive practices' not only of the sciences, but broader sociocultural and political institutions and systems. Agential realism posits agency not as an attribute possessed by discrete entities, but as emerging through 'intra-action' – a neologism signifying the "mutual constitution of entangled agencies" contrasting with 'interaction' wherein distinct agencies precede their engagement with one another.

Barad holds that reality comprises phenomena, the "ontological inseparability of agentially intra-acting components", and apparatuses, which are material-discursive "conditions of possibility for determinate boundaries and properties of objects and meanings of embodied concepts within the phenomenon." This notion aligns with Sterne's conception of apparatuses as crystallizations of practices and relationships [6]. Intra-actions between phenomena and apparatuses result in 'agential cuts' which are causal intra-actions (between apparatus and phenomena) in which "marks are left on bodies: bodies differentially materialise as particular patterns as a result of the specific cuts and reconfigurings that are enacted" ([5], p. 176). Barad offers additional readings of apparatuses, in that they:

"1) are specific material discursive practices (they are not merely laboratory setups that embody human concepts and take measurements); 2) produce differences that matter - they are boundary making practices that are formative of matter and meaning, productive of, and part of, the phenomena produced; 3) are material configurations/dynamic reconfigurings of the world; 4) are themselves phenomena (constituted and dynamically reconstituted as part of the ongoing intra-activity of the world); 5) have no intrinsic boundaries but are open-ended practices; and 6) are not located in the world but are material configurations or reconfigurings of the world that re(con)figure spatiality and temporality as well as (the traditional notion of) dynamics (i.e., they do not exist as static structures, nor do they merely unfold or evolve in space and time)" ([5], p. 146).

2.1. The Baradian Apparatus of Field Recording

In the conventional Cartesian dualist (subject-object) understanding of field recording practice, the subject is identified as the human field recordist, or by proxy (and also recognised as the apparatus), the field recorder. The object is the field recording, rendered from the acoustic environment/soundscape. An agential realist account of field recording, by contrast, offers multiple diffractive readings of these terms, revealing a complex enmeshment of intra-actions between recordist, recorder and recording. Let's consider each of Barad's interpretations of the 'apparatus' above:

1) field recording practices themselves are apparatuses, involving mutual material-discursive intra-actions between the phenomena of recordist, recorder, and recording.

2) field recording practices are productive of the soundscape phenomenon. The use of a field recorder, like a human recordist, implies the occupation of a distinct locus in an environment that receives (or intra-acts with) sound according to its configuration and environmental surroundings, thereby engendering a perspectival bias (or, agential cuts) wherein recordings are framed (re)configurations of acoustic environments. Such framing denotes boundary making practices.

Responding to Tim Ingold's critical essay 'Against Soundscape' [7], Helmreich's 'Listening Against Soundscapes' draws attention to the role of technological invention and intervention in enabling the soundscape concept, which regards "sound as an aesthetic and conceptual remove. Telephony, phonography, architectural acoustics... permit sound to be apprehended as an abstraction. The soundscape is a back-formation from such technologies, an after-effect" [8]. Resultant abstracted definitions, such as the ecoacoustic understanding of soundscape as "the distribution of sounds across a landscape when the landscape is considered a geographic entity" [9], have the potential to neglect the inherent perspectival and boundary-making practices involved in listening and field recording.

3) as noted in 2), field recording practices capture and render recorded sound as an object. Dynamically (re)configuring sound from an ephemeral acoustic phenomenon into an replicable audio object, recordings are thus (re)configured bodies of the acoustic environment resulting from agential cuts made in the recording process: the equipment used (microphones, recorders, storage systems), file format and compression, bit rates, sample rates, and associated decisions made by the recordist including number of devices, time of recording initiation, duration of recording, location of the recorder, direction of the microphones, amongst many other choices. Additionally, agential cuts are made through the 'transductive' process of acoustic (environmental sound) to kinetic to electromagnetic energy (microphone) to analog-digital signal conversion (recorder) to audiovisual data for computer analysis and high fidelity representation. 4) field recording practices employ material recording systems and analytical hardwares and softwares, (re)configured in their various aspects (microphones, recorders, storage devices, network infrastructure, DAWS and analytical programs) in intra-action with humans, non-humans, and broader sociocultural, economic and political forces. 5) field recording practices are necessarily open-ended and adaptable practices that are (re)configured as appropriate to the objectives of the project. Different recording equipment and settings are required for different environments and research. 6) field recording practices, as shifting and dynamic apparatuses (and phenomena) intra-acting with broader sociocultural and political perspectives have been productive of (re)conceptualisations of sound and recording: e.g.

Pierre Schaffer's reduced listening, Truax's ideas on acoustic communication, Attali's commentary on sound and politics, etc.

2.2. Baradian Agency in Field Recording

Agential realism offers novel perspectives on the situation of agency, where it "is a matter of intra-acting; it is an enactment, not something that someone or something has. It is "doing" or "being" in its intra-activity. It is the enactment of iterative change to particular practices, including the boundary articulations and exclusions that are marked by those practices in the enactment of a causal structure" ([5], p. 178). Agency thus emerges for the 'human' field recordist in their intra-action with field recorder, place, ecosystem and soundscape. 'Non-human' agency is accounted for in the abiotic – the field recorder, recordist and recording environment mutually intra-acting, as well as with the biotic, whose agency emerges in intra-action with their environment and ecological resources (as per the Umwelt [10] and eco-field hypothesis [11]). The recording – the soundscape – emerges through the entangled song and dance of field recording practices and their attendant phenomena.

3. CONCLUSION

Returning to the issue of passive acoustic monitoring, an agential realist account of field recording practices problematizes claims of the objectivity of recordings. The field recordist is always implicated in the act of recording, even when not attending the field recorder. Experimental design and intended outcomes; recorder setups, settings and operation; the flux of the environment; socialcultural-politcal discourse all are enmeshed and enact myriad agential cuts that are productive of the final recording output. Recordings, whether 'passive' or otherwise, are thus never truly 'objective', and always bear the marks (or rather, are constituted of the marks) of the agencies at play in the field recording process.

In (re)framing the relationship between field recordist, recorder and recording away from a dualist model to that of an agential realist model, an alternate foundation for field recording ethics may emerge. Recognising agency is not possessed by or rests in the human field recordist exclusively, but rather emerges through intra-action between multiple co-constitutive phenomena in field recording practice, repositions the locus of behavioural concern. Consideration of non-humans, inclusive of living beings, machines, artificial intelligence, and discursive forces, all should factor into a revised ethics. Far from abdicating responsibility, the field recordist should recognise they are always part of the apparatus, their participation implicated through intra-action with multiple other material-discursive agencies in the field recording processes. Recording preparation matters. Travelling to site matters. Assembling the recording equipment and calibrating settings matters. Pressing 'record' matters. Playback matters. Listening matters. Recording is never passive, but rather an interconnected means by which we might (re)configure the dynamic unfolding of our world through acoustic transduction, in turns informing what it means (and matters) to hear, to listen, to respond, to be.

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