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I Can't Hear You
Rethinking the Experience of Our Acoustic Environment

As you read this, can you hear where you are? Do you know what the rich soup of sounds that surround you conveys? Can you hear your lungs fill with air and your heart beat in response to the information carried on the waves of sound that wash over you? Can you have a conversation without having to raise your voice to be heard?

Becca Hanson

I am a Landscape Architect who focuses on the design of places for wild life – places where people, animals and plants occur independently or are purposefully brought together. This article is purposefully short. It is meant as a provocative piece that describes my recent journey regarding environmental sound, and acts as a rallying call for landscape architects to extend their influence to the acoustic landscapes that serve as one of our universal commons. This is especially important for zoo and aquarium design where sound can play a key role in the animal–human relationship, but which is not thoroughly understood.

My main concerns include the following:

- We have come to take our acoustic landscapes for granted, expecting and accepting increasing levels of human-generated noise as part of our bargain with progress and convenience. Many have called this «noise pollution», but most of us readily raise our voices to be heard over the din and participate willingly in creating a soundscape that subsumes not only us, but every other living species on Earth.
- We evolved in a soundscape to which we are hard-wired – not only our heart rates and blood pressure, but also our vocal chords and hearing are attuned to the world in which we – and those species that share this world with us – find ourselves. Our refusal to tune into and safeguard this acoustic heritage is not only doing us harm, but also the multitude of species that live around us and with us. We are changing the world in ways that we are not even aware of.
- As we try to define the concept of «well-being» or «welfare» for domesticated, captive and wild animals, the acoustic environment must be considered, yet there are few studies that can help to guide us in creating optimum conditions. In creating settings for living and interacting in zoos, aquariums, botanic gardens, wildlife reserves and sanctuaries we frequently default to visual and spatial cues – leaving both animals and people to fend for themselves in the acoustic realm.

Becoming Aware

My own personal journey of «tuning in» began when I suddenly realized that, as my own hearing abilities aged, noisy places were driving me crazy, and I began to increasingly choose among acoustic environments and to wonder about the varying acoustic sensing abilities and requirements of the people and animals that I worked with.

This journey led me to Etienne Lombard, a French otolaryngologist who described what came to be called the Lombard Effect in 1911. This effect is produced spontaneously across cultures by people elongating their vowels and increasing their volume in response to elevated background noise. This noise can be associated purely with either volume (think industrial noise, music concerts or traffic sounds) or reverberation time (frequently referred to as the «Café Effect» in which hard-surfaced spaces cause an active acoustic environment in which sounds bounce around and override one another instead of being absorbed) – or a combination of the two. It has since been proven that various animal species do the same thing, calling louder and changing their usual communication strategies in order to be heard by others of their kind. And, more importantly for humans, it has been shown that children are deeply affected during their early years when learning environments

cannot produce an acoustic setting that actually enables speech intelligibility and encourages cooperation and communication.

My next investigation led me to the World Health Organization which has produced Guidelines for Community Noise, recognizing that – around the world – the human «physiological response to noise includes constriction of blood vessels, tightening of muscles, and increased heart rate and blood pressure» thus causing annoyance and fatigue, interference with communication and sleep, and negative changes to the immune system. In Europe and across the UK, anti-social behavior laws include prohibition on the production of noise that «alarms, distresses or causes harassment».

And finally, the journey included an examination «what constitutes our sonic environment?» and «who hears what?».

- What Constitutes Our Sonic Environment?
  We are surrounded by a potpourri of sounds that are available to human ears, recognizing that our normal conversational speech range is roughly 40–60 decibels – below that level we are whispering (or have laryngitis), and above that the Lombard Effect begins to take over and things just keep getting louder. Equally, as we recognize that there is evidence that frequent exposure to sound levels above +/-65 decibels results in an increased risk of heart attack and the effects of stress in humans[1], and increased levels of aggressive interactions with male gorillas[2], it seems that it would behoove us to keep things quieter.
- Who Hears What?
  We are all aware that different species have hearing ranges that encompass vastly different frequencies. Increasingly, through bio-acoustic research, we have come to understand that many communicate with one another with sounds that are inaudible to the human ear: elephants and giraffes use sub-sonic sounds; whales use ultra-sonic communications. Suddenly, the world around us is complicated by unheard waves of energy emanating not just from cell phones, but also from fully sentient creatures that previously seemed like they had nothing to say – and that many of our human endeavors may be getting in the way.

So What?

Bernie Krause, in «Wild Soundscapes»[3] and «The Great Animal Orchestra»[4] defined the world's acoustic environment as encompassing the following realms:

- Geophony: the non-biological sounds of weather, water, earthquakes etc.
- Biophony: the non-human biological sounds of animals, plants etc.
- Anthrophony: the myriad sounds sources of human endeavor.

Important for any kind of zoo planning is, what Krause points out: «Since every living organism creates sound and lives within some kind of acoustic environment, the subtle sonic fabric of that habitat is essential to any organism's sense of place.»[3]

- Dr. Seth Horowitz noted in «The Universal Sense»[5] that sound is «on» 24 / 7, is our fastest sense with the fewest processes between sensation and perception, and provides context and empowers emotion.
- R. Murray Schafer coined the term «schizophonia» in 1969 to define the dislocation between where we are and what we hear.[6]
- Julian Treasure in «Sound Business»[7] states that «it's time for us to take responsibility for the sound we make and the sound we surround ourselves with».
- Dr. Vicky Melfi, behavioral biologist and researcher, muses that we know so little about what constitutes a healthy acoustic environment for the wild animals that populate our world, and that the difference between «poor» welfare – in terms of a mismatch between visual and auditory cues in the environment – and «great» welfare could spell the difference between long-term success and failure of a species to survive (personal communication).[8]

While Dr. Melfi muses on the success of wild animals to survive, my mind ponders our joint future that encompasses both the joys and travails of an urbanizing world that is full of a rich diversity of cultures and voices, as well as the natural diversity that has sustained us through our evolutionary journey – a diversity that is sustained through the silence and cacophony of other species striving to hear one another as eloquently described in «One Square Inch of Silence»[9] by acoustician Gordon Hempton.

My question is: how far are we willing to go to hear one another in the fullest sense, and are we willing to redefine «anti-social behavior» as «anti-life behavior» in order to include the rich diversity of life on Earth?

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