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NATURAL SOUNDS AND ENVIRONMENTAL AESTHETICS

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The sounds of a natural environment form an essential part of our aesthetic experience of it. The sounds of the bayou or the ocean's surf are as essential as the sights to be seen in those locations. But are such sounds simply an independent addition, or are they an integral part of a larger experience? Indeed, can they be aesthetically appreciated by themselves? In short, how do natural sounds figure into the aesthetic appreciation of a natural environment? Moreover, do we hear them just as sounds in themselves abstracted from their context, or should we hear them as part of their natural context? If the latter, are there norms for how to listen to natural sounds *as natural*? Finally, can natural sounds and their aesthetic value play a role in environmental protection?

1 Aesthetic appreciation of natural sounds

Are the sounds of music the only sounds that can be aesthetically appreciated, the only sounds with aesthetic value? Common reactions to sounds in nature appear to contradict such an art-centric view. We commonly respond to and value natural sounds, defined as non-human-produced sounds. We particularly value such sounds in natural environments. We enjoy the sounds of a waterfall, the gurgling of a stream through a meadow, the surf lapping a beach; we find many bird songs beautiful and almost all bird songs aesthetically interesting even when they are beyond our limited musical vocabulary to describe. Moreover, not only are individual sounds in nature attractive, an ensemble of sounds at a given moment and place can yield pleasure—the splashing waves, the raucous calls of seabirds, wind in the pines, barks from sea lions sunning on the beach—all these together yielding a rich surrounding acoustic experience that can reward aesthetic attention (since "acoustic" often refers to the physical properties of sounds, I use "acoustic experience" to refer to sounds *as heard*). Moreover, the surrounding sounds ground the hearer in their particular place and moment and thus are an essential element in a multi-sensory aesthetic experience of a natural setting. Also, sounds are often an essential feature of the appreciation of perceptual objects in nature; the roaring sound of the water is as much a part of appreciating a mountain stream as is the visual perception of breaking waves.

That said, recognition of the importance of natural sounds for the aesthetics of nature is relatively recent. Sounds have been overlooked for a variety of reasons. Over the last four centuries, nature has tended to be thought of through the way it is represented in the visual arts, particularly

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landscape painting and nature photography (see the entry by Paden on the Picturesque). This has generated an aesthetic tradition that Barbanti calls "oculo-centrism" and the resultant conception of nature primarily through the lens of vision (Barbanti 2018, 62). There are psychological reasons as well. As Horowitz notes, "we are a visual species, diurnal (mostly awake during the daytime) …, and we usually describe our surroundings or think about them using visual descriptions" (2012, 97). A further factor within philosophy is the ubiquitous assumption that perceptual knowledge about the world around the perceiver comes primarily through sight. Indeed, it is only recently that philosophical attention has been directed to sounds and auditory perception (O'Callaghan 2021).

1.1 The phenomenology of ambient hearing

Because of the causal relation between a roaring lion's vocal cords and the sound waves that arrive at our ears, it appears that audition of the environment and its objects is on some level indirect and inferential. But phenomenologically that is not how it appears to our hearing. Just as we *see* trees, rocks, and birds, we *hear* waterfalls, bird songs, and roaring lions. Our auditory experience of the world around us is *of* objects and processes, although we may not hear a sound as of a *particular* object, as when we hear thunder or a cracking sound in the woods. So, just as we appreciate the visual appearance of mountains, rock formations, and flowers, we hear and appreciate the sounds of brooks, birds, and aspen leaves in the wind.

However, unlike visual images of rocks and trees, natural sounds, such as bird songs, are dynamic temporal processes; the soundscape around the hearer is in constant flux. Yet in counterpoint, as O'Callaghan notes, "sounds audibly seem to persist through time and to survive change" (2021). This leads to the ontological problem of how to individuate heard sounds. Is the shift in the wind and thus a change in the wind's sound a new sound? Is the varying sound of the rushing creek as I walk along it one sound? Is the siren's up and down two sounds or one? (for one account of sound ontology, see Green 2019). In any case, our aesthetic perception of sounds roughly tracks common sense ontology, which counts the roar of a waterfall as one long sound but rumbles of thunder as separate sounds.

In sum, from a phenomenological perspective, the auditory objects we are conscious of hearing are not sounds as a physicist or acoustician thinks of them—as patterns of sound waves. Our perceptual conceptualization of heard sounds in general, and nature sounds in particular, focuses on the sounds produced by common sense objects. As van Gerwen says,

> One does not hear an unstructured amalgam of sounds on the basis of which one then infers that such and such events may have caused them. We directly hear events, and their sounds are not metaphysically distinct from the objects of sight.
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> (van Gerwen 2012, 224)

Just as at a concert we hear the tones of the piano or guitar, in nature we hear the sounds of natural objects, animate (birds, crickets) and inanimate (waves, wind) (Nudds 2001; O'Callaghan 2021). I will call this referential hearing.

That we hear objects referentially does not imply that I know (or believe) that the beautiful bird song I hear is that of a Western Meadowlark. Nonetheless, although we often do not mentally categorize the precise identity of the cause of a natural sound, the sound sequence is not devoid of conceptual content for the hearer. If it is a bird song, we hear it not as the sound of a mechanical bird, nor as Kant once pointed out, a human imitating a bird song, but as the vocalization of

a living, sensing, and wild being. The proof that we normally assume a song to be authentic and natural, for Kant, is that

> as soon as one realizes that it was all deception [by a youth hiding in the bush], no one will long endure listening to this song that before he had considered so charming; and that is how it is with the song of any other bird. In order for us to be able to take a direct interest in the beautiful as such, it must be nature, or we must consider it so.
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> (1790/1987, 169)

1.2 Skepticism about aural appreciation?

Natural sounds are not intentionally produced to be appreciated. If aesthetic responses are limited to the arts as a form of intentional communication to be appreciated with pleasure and, in the case of music, to be emotionally affecting, then natural sounds and soundscapes cannot be aesthetically appreciated. A specific version of this view could be dubbed "the music thesis": sounds can only be appreciated aesthetically if they are intentionally arranged to be appreciated (as in music). This view will seem most plausible to those puzzled by how natural sounds could be aesthetically appreciated.

Is the music thesis true? Consider a group of crows raucously cawing in a nearby tree. This may not attract my interest, but imagine that some blue jays then start calling from another tree and a family of magpies start rhythmic chattering. This is an interesting ensemble of sounds if one but listens. The music thesis would claim that I can only find this aesthetically interesting if I imagine that these sounds are being intentionally produced to appeal to aesthetic interest. But why? This thesis implausibly implies that when we find an individual bird song beautiful, we must imagine that the bird is intentionally singing for our aesthetic pleasure. But consider the analogous claim about vision. Do we think that a columbine flower needs to be intended to be beautiful? If not, why would such a requirement be necessary for sounds, but not for visual experiences?

Surely the music thesis is too narrow, as our pleasurable responses to non-music sounds of all sorts demonstrate. Moreover, the fact that we find many natural sounds to be eerie, pretty, chaotic, cheerful, delicate, powerful, harsh, or ugly—in short, that we perceive them to have aesthetic qualities—shows that aesthetic responses to sounds range far beyond music.

1.3 Aesthetic hearing defined

We have many reactions to sounds. Which ones exemplify an aesthetic response? Empirical work in psychology has shown that many people have positive reactions to many natural sounds (Ratcliffe 2021). Although these psychological reactions—relaxation, stress, and fatigue reduction—do not directly exemplify aesthetic appreciation, they add psychological value to natural sounds and soundscapes. Moreover, positive reactions are often the result of finding natural sounds attractive. Indeed, Noël Carroll implies that mere positive mood reactions amount to aesthetic nature appreciation: "standing barefooted amidst a silent arbor, softly carpeted with layers of decaying leaves, a sense of repose and homeyness may be aroused in us" (Carroll 1993). Carroll calls this sort of response "being moved by nature," and he labels his position the "arousal model of nature appreciation" (See also Carlson 1995). But is it *aesthetic* appreciation?

In addressing this question, it is useful to distinguish between a positive mood that is a causal result of hearing, on the one hand, and being moved by nature aesthetically on the other hand, although many cases undoubtedly involve both processes. The distinction can be based on whether the sound is something we hear emotionally as an object of perception, such as the lone wolf's howl heard as eerie. A clear example where this is not the case is if the hearer's mood changes without consciousness of the sound or sounds; then it is not an aesthetic appreciation (Ratcliffe 2021). Another type of non-aesthetic reaction is the case of certain sounds to which we are hard-wired to react emotionally, such as a sudden sound behind us at night (Horowitz 2012). Despite these cases, clearly there is no sharp line between mere psychological effect and aesthetic appreciation. Consider how sounds form part of an emotional reaction to an experience of a natural environment, such as the gentle lapping of the surf at night on a beach or the bird songs and calls in the trees and bushes alongside a rushing gurgling mountain stream. It would be hard to find exact words to describe the feelings that are part of such experiences. The hearer may be aware of shifting attention among various sounds but also subliminally aware of an overall positive feeling (on psychological investigations of reactions to environments, see Prior 2017).

That said, there are many reasons why hearers have non-aesthetic reactions, including pleasure and displeasure, to natural sounds. We can catalogue these in a rough and ready way. The plop of a fish tells the angler that the trout are rising; the song of a bird can give pleasure to trappers who plan to make songbird pie. The cawing of crows is irritating because it is distracting. The sound of rain on leaves can, for self-interested reasons, cause feelings ranging from dismay to joy. A nearby yipping of wolves might incite fear, as might a nearby rumble of thunder. These are all examples of sounds that might affect the listener's projects or her well-being. Thunder means it will rain, and that's good or bad for me, good or bad for the crops or the environment, but it might also be awesome—and that would be an aesthetic perception.

Finally, we should note that sublime experiences of nature, which exemplify an emotional aesthetic response, typically involve natural sounds. It certainly seems that perception of sounds in cases usually cited as examples of the sublime can be an essential part of the experience of *otherness*, *overwhelming power*, or *the unbounded*: emotionally tinged features of the sublime that, reflecting back on the perceiver and her finitude, can lead to the kinds of pleasure characteristic of the sublime such as awe at the unbounded (the rumble of an erupting volcano) or a frisson upon hearing wolves howling in a forest at night (see also the entry by Clewis on the sublime).

Aesthetic hearing might also be *defined in a more positive fashion*, Appreciation of sounds could be called "aesthetic" in a broad sense if the sounds, individual or as an ensemble, are appreciated as auditory objects in themselves, finding them sources of pleasure (or possibly displeasure) and often hearing them as embodying aesthetic qualities (see, e.g., Budd 1996, 213).

There are a variety of aesthetic responses to sounds. Most obviously, some individual nature sounds are commonly regarded as beautiful, such as the songs of many birds. But pleasure (or displeasure) is not the sole content of an aesthetic response; some sounds are awesome, dramatic, melancholic, etc. In short, they have aesthetic qualities: the call of the loon is melancholic, the scream of a hawk is ominous, the howl of a distant wolf is eerie, the caw of a crow as harsh, the evening frog chorus sounds mysterious or perhaps comforting, and the meadow lark's song is plaintive.

There is also a natural inclination to attend to sounds together, as we do in music, to form an ensemble of sounds: to combine in conscious listening the bubbling brook and the rustle of leaves in the trees. Indeed, we are wired to hear the auditory world surrounding us while simultaneously focusing on prominent sounds (Horowitz 2012). But whereas in music we may think we hear meaning or intention (provided by performers or composer) behind the sound combination and its

temporal progress, the aesthetic pleasures we ascribe to combinations of natural sounds may be relative to the hearer and her interests and knowledge (see Section 6).

2 Natural sounds vs. musical sounds

Do we listen to natural sounds and music differently? Roger Scruton holds that to listen to music *as music* is to listen acousmatically whereas we hear natural sounds referentially. To listen to sounds acousmatically is to abstract them from their causes and to hear them as pure sounds in relation to each other. So, for example, it is to ignore that the sound one hears is made by a violin as it is being played by a performer. Hamilton (2007) describes acousmatic listening as experiencing sounds as "detached from the circumstances of their production" (Quoted in O'Callaghan 2021). This implies divorcing the heard sounds from their causes but also from their social and historical context. As he states the composer Pierre Schaeffer's conception is to attend "to qualities of the sound itself, without reference to its source or significance" (Hamilton 2010, 155).

The idea of divorcing sounds from their sources, as well as the term "acousmatic," originated with the musique concrète movement of the 1940s and 1950s. "Musique concrète" refers to the practice of early electronic composers, such as Schaeffer, of taking recorded sounds, such as a creaky door and a sigh, and mixing them into electronic compositions. However, as interesting as such compositions may be, as a general thesis about what is required to appropriately hear sounds as music, the acousmatic music thesis has received much criticism. Hamilton, for example, argues instead for the two-fold thesis that "both acousmatic and non-acousmatic experience are genuinely musical and fundamental aspects of musical experience" (Hamilton 2010, 146; see also 2007).

Could we say the same for the experience of the sounds of nature, specifically that appropriate appreciation of natural sounds is both acousmatic and non-acousmatic? It seems not. For one thing, it is not at all clear what it would mean to appreciate natural sounds acousmatically. In the case of instrumental classical music (the focus of Scruton and other music theorists), there is a ready account of acousmatic appreciation, namely, musical formalism, which endorses an exclusive focus on musical tones (abstracted from their causes) and their development into temporal structures, such as themes, harmonies, and counterpoint. Thus Scruton: "The notes in music float free from their causes. … What we understand, in understanding music, is not the material world, but the intentional object: the organization that can be heard in the experience" (Scruton 1997, 221).

Clearly, we perceive subtle differences between natural sounds. Pitch, loudness, timbre, and temporal position only crudely describe the dimensions of our auditory ability to differentiate the rustle of dry leaves on the ground from the sound of the same leaves in the tree. Moreover, the ability to differentiate phonemes in spoken language or the identity of a speaking voice testifies to subtle auditory attention. Hence, we hear the acoustic properties of natural sounds. But note that we hear them as properties of dripping water, rustling leaves, or George's voice. Are we able to focus on these sounds as causeless?

Even if we could enjoy howls, growls, and stridulations by themselves, as if they did not have their worldly causes—not as howls, for example, but as a mere pattern of sounds—it would be extremely difficult to do so. This is not how we normally hear natural sounds. Hamilton asks,

> Is it really possible to experience non-musical sounds acousmatically, as I have just assumed? The raison d'être of musique concrète is that it is possible, while the impression given in Scruton's *The Aesthetics of Music* (1997) is that it is not.

However, he concludes:

> Certainly it is the case that sound phenomena which are not music or sound art have acousmatic—one might say musical—aspects, such as the rhythm of a train engine or the melody of speech patterns. A heartbeat is a natural rhythm, birdsong is melodic; nature can be musical, even if it is not music, which has to be an intentional production (2010: 160).

But to hear melody or a rhythm in a bird song in a natural setting does not require hearing it divorced from a bird.

Even if it were possible to appreciate natural sounds in nature acousmatically, divorced from their causes, this would not be a way to appreciate them as what they are. Acousmatic listening would thus violate plausible views of appropriate appreciation of nature (see Section 4). So, a two-fold thesis, such as Hamilton proposes for music, does not appear viable for natural sounds.

Nonetheless, such a thesis is defended by Dyck (2016). The non-acousmatic dimension incorporates the claim that sounds are heard as of their sources, what above was labeled referential hearing. He also incorporates the suggestion that natural sounds have a special value for us because we perceive them as other. As Dyck puts it (drawing on Fisher 1998):

> While all sounds can refer to their sources, natural sounds refer to different types of sources than musical sounds. Natural sounds are caused by ecologically natural objects, which are experienced as being both inevitable and belonging to the land. In virtue of these causes, the sounds have a kind of otherness.
>
> (Dyck 2016, 297)

This amounts to the idea that in referential hearing of natural sounds we not only hear them as having particular causes (birds, wind) but also as instances of a general category: nature. Further, this category is associated with positive values.

But natural sounds tend to also have an acoustic otherness, according to Dyck. To explain this, he proposes "the microtonal thesis: Natural environments tend to have a greater variation of microtones, microrhythms, and microtimbres, than human environments" (298), and a fortiori than musical tones in Western music. He proposes that because natural sounds are so different "from music in virtue of the tones, rhythms, and timbres that they ordinarily have, [this] account is thus acousmatic" (299). But this doesn't follow. Even though we hear the acoustic differences between natural sounds and musical ones, this does not appear to require listening acousmatically, much less that we are able to aesthetically appreciate natural sounds acousmatically.

3 The concept of a soundscape

The soundscape concept is both elusive and controversial (Geisler 2014; Barbanti 2018). The term "soundscape" was coined by R. Murry Schafer in 1977 as an analogy with "landscape." Just as vision shapes a world around a perceiving subject, a landscape, so hearing shapes a world around a perceiver, a soundscape. Schafer thus initiated a very broad-ranging research program which he called the World Soundscape Project. His interest was in all the sounds around us, their nature, causes, and influences on behavior in various environments. This included the urban sounds, often noise, that have come to dominate life in the modern world.

Schafer defined "soundscape" broadly as "any portion of the sonic environment regarded as a field of study" (1977, 274). His broad approach to soundscapes often blurred distinctions that

are important for the aesthetics of natural sounds. For instance, his discussion does not clearly distinguish between aesthetic responses to sounds and other types of responses. He also doesn't clearly address the difference between sounds as physical phenomena and as objects of hearing, nor between the causes of sounds and the sounds as heard. One commentator takes his term "soundscape" to designate "those elements that shape or compose a landscape from an acoustic perspective" (Geisler 2014, 1). One way to take this idea is as referring to fixed or stable elements, as in a landscape, that produce our auditory experience. Although this would make some sense inside a building, such as Grand Central Station, it does not in nature, where there is a constant flow of changing sonic events, such as bird calls and gusts of wind.

We need a way to individuate natural soundscapes and describe their constituents. In general, we could say that a soundscape of location X, for any X, is what can be heard from that location. But this would not be very useful for environmental aesthetics. Rather, a soundscape is generally referred to as "the soundscape of X," where X takes on characteristic values, such as a train station or Niagara Falls. Note that if "soundscape" refers to what we can hear from a given point, then there is no particular soundscape of the Grand Canyon, for it is far too large and diverse, containing many soundscapes. The formula "soundscape of X" therefore needs to be narrowed in application. I propose to stipulate that it is what can be heard from points of hearing roughly centered within X, where X is a geographically located and usually characteristic environment or space such as Times Square, Grand Central Station, the Moraine Park in Rocky Mountain National Park, or the beach at Asilomar CA. I will call this the located soundscape. (For examples of scientifically informed delineations of soundscapes, see Pijanowski et al. 2011.)

But merely locating a sonic environment may not be specific enough if we seek to describe auditory experiences, because sounds in an environment change depending on time of day, season, changing weather, migratory animal patterns, and other factors. Moreover, because we are assuming human listeners, in order to specify auditory experiences, we need to limit the temporal interval of hearing to human-size episodes. What we might call human-relative soundscapes are in fact designated this way by Rocky Mountain National Park (e.g., "Morning soundscape from Finch Lake").[1] In referring to an environment, then, it is more useful to consider the soundscape of that environment as all the sounds that can be heard over a range of times and auditory positions. The environment produces the soundscape. The soundscape is a repository of possible sounds to be heard, and this repository is continuously changing (for research on the ecology of soundscapes, see Pijanowski et al. 2011).

3.1 The experience of a soundscape

The acoustic experience of an environment includes the sounds all around one, whether or not one attends to any one sound in particular. We hear the sounds behind us as we are walking and talking with a friend. It is an important feature of hearing that we can shift conscious attention between salient sounds just as when focusing on the notes from the soloist in a concerto we hear but do not consciously note the accompanying harmonic and rhythmic background provided by the orchestra.

A key feature of experiences of a natural environment is hearing the surrounding ambient sounds that serve to experientially ground the hearer in that environment, be it alpine, jungle, or desert. The hearer is at a located point in the environment. Being surrounded by natural sounds feels different from being surrounded by urban sounds, or so many would think. That difference might be partially accounted for by the acoustic differences that Dyck pointed out, but more likely it primarily involves the auditory experience of naturalness or the wildness of which these sounds are a part.

3.2 Individual sounds vs. the whole soundscape

An attentive hearing episode combines individual sounds with the ambient soundscape, and this raises both ontological and aesthetic questions. What is it that the listener in nature appreciates, and what is it that has aesthetic value? When we hear music we hear episodes of sounds—the English horn solo in Dvorak's 9th symphony, say—and at the same time the larger musical structure, a performance token of the symphony. Similarly, one might think, we hear both the bird song and the larger ensemble of surrounding sounds (wind, water, birds), that is, the soundscape from that location at that moment. But what defines an individual sound in nature and what delimits in space and time a combination of sounds? In the case of music, conventions guide listening practices, such as picking out solos, attending to contrapuntal themes, occurrent harmonic combinations, and so on. Moreover, there are conventions governing the beginnings and ends of songs and musical works. These provide the acculturated listener with the auditory objects of appreciation (the song, the solo, the recurring theme) and of aesthetic value. The same function must be performed in listening to nature by a combination of a given culture's commonsense ontology ("rustle of leaves," "bird song") and the contingencies of a given listener's attention. The auditory objects of appreciation in a soundscape are not created by the listener's cognitive background and attention, but they are conditioned by them.

While not contradicting this picture of possible objects of appreciation, I have argued in the past that "the type of object appropriate to an aesthetics of nature is the set of sounds occurring in a soundscape" (Fisher 1998, 168). This claim is subtly ambiguous. The contrast I referred to there was with individual sounds: "a different object of aural attention would be the sounds of individual kinds of things considered in themselves: birds, crickets, tractors, wind, fireworks, waterfalls" (1998, 168). Call this "the Soundscape claim": that listening to combinations of sounds is the only way to appropriately respect the way nature truly sounds: "When we hear any actual tokens of the sounds of animals or natural features of the landscape, we hear them as part of the overall ensemble of sounds in a soundscape" (Fisher 1998, 168). However, this conflates two issues: (1) Is it appropriate to aesthetically appreciate the bird song or the bubbling brook *in isolation* from the other sounds around it, and (2) Is it appropriate to appreciate individual natural sounds as individual but as heard in relation to other sounds in their context? Some would argue that the answer to (1) is "no" because to focus on an object, even an auditory object, is not to appreciate nature as it is, as what is naturally occurring in its sonic context (see Section 4). The same consideration does not apply to (2): the hearer *is* appreciating the bird song as it is heard in its natural context, probably as figure to ground. Hence both individual sounds and combinations of sounds can be appropriately appreciated as natural. Moreover, there is no reason to think that aesthetic value only applies to the combination of sounds that one hears and not to the individual sound that attracts one's attention. A pluralist view—that one can appropriately appreciate both an individual sound (a bird song) and an ensemble of sounds—seems most plausible simply because it reflects how we actually listen to the sounds around us, sometimes focusing on one sound, sometimes on several sounds in combination, and sometimes a combination including a primary sound.

4 Normative accounts of nature appreciation and natural sounds

Normative accounts of nature appreciation often argue that there are appropriate and inappropriate (or at least shallow or misperceived) aesthetic judgments of natural objects or events. Such accounts are usually based on the idea that the manner and cognitive basis of one's appreciation should be keyed to the actual nature of the perceived objects in a natural environment just as they should be for the appreciation of artworks (Fisher 1998; Carlson 2000).

4.1 The natural environmental model

A number of approaches to nature appreciation have been suggested. Carlson influentially schematized these as "models intended to capture the essence of appropriate aesthetic appreciation of nature" (2000, 5–6). This led him to argue for what he called the "natural environmental model" (NEM) (see also the entry by Parsons, this volume).

Carlson's criticisms of approaches to appreciating nature are relevant to the account of appreciation of natural sounds.

The first challenge involves Carlson's remarks about appreciating an environment. These remarks are potentially paradoxical. He has said, "we must experience [an environment] not as unobtrusive background, but as obtrusive foreground" (Carlson 1979, 272). However, as I have observed, since the foreground is relative to and requires a background, this produces an aesthetic conundrum:

> On the one hand, it is obvious that it is possible to appreciate nature aesthetically. On the other, it looks impossible to appropriately appreciate a natural environment, especially when one accepts that, as Carlson has said more recently, it "is intimate, total and somewhat engulfing."
>
> (Fisher 2007, 16)

Unlike vision, hearing naturally processes the hearer's immediate engulfment. Hearing not only grounds the listener in a surrounding environment but involves awareness of the hearer's surrounding soundscape, which is then structured into sonic figure and ground, foreground and background. As Horowitz says, "If you paid equal attention to everything, with no automatic ability to parse out what was relevant to your needs, you would soon be overwhelmed by trivia both external and internal" (2012, 87).

The second challenge comes from the requirement that appropriate appreciation must be based on scientific knowledge (see the entry by Parsons on science and nature appreciation).

There are two issues here for natural sounds: (1) Is there a certain amount of knowledge of the sound that the hearer must cognize for her appreciation to be appropriate, and (2) does such knowledge necessarily make appreciation of natural sounds more "serious and deep"?

Although Carlson objects to appreciating nature as art, his idea that there is superficial or deep appreciation appears to come from the assessment of artworks. There are artist's intentions, genre conventions, and art history that need to be understood to adequately appreciate artworks.

None of this applies to natural sounds. There is no intentional object that one has an implicit obligation to grasp, on the one hand, and, on the other, there is an unlimited amount of knowledge that one might employ in regard to any natural object, sound, or situation. Consider the wind in the leaves: does it matter to aesthetic pleasure in their sound whether the leaves are oak or maple? Moreover, there is so much one might learn about the wind and its interaction with the leaves' shapes and tensile strength. But does that matter for aesthetic appreciation to be appropriate? Does it matter aesthetically whether I know which bird is making that attractive song? Does it matter that I do not know which species of frogs I am hearing?

The answer to these questions depends on context. If knowing which bird is singing or calling and the function of that song or call leads me to hear the song in a different way (for example, as calling for a mate), then it would be relevant aesthetically. However, understanding how the lion's vocal cords work when it roars is surely irrelevant.

So, the answer to issue (1) above would seem to be that yes, there is a cognitive background that is necessary for appropriate appreciation, but it does not amount to more than hearing sounds as natural, knowing their commonsense cause and location, and knowing whether that cause is biological or geophysical. There is no obvious reason to think that more extensive knowledge of the causes of the sounds is necessary to enjoy them appropriately.

The issue of better or deeper appreciation, issue (2), depends on the case and context. Wren or sparrow? Does knowing which one I am hearing increase my aesthetic pleasure or the aesthetic value of its song? Suppose we do know what we hear (referentially). Then, perhaps knowing the function of the sounds—for example, if the sound is strange or harsh, we understand why it is adaptive and fitting—alters how it sounds to the listener. Yet, isn't there a level where knowledge does not enrich? It seems counter-intuitive that our appreciation of a bubbling brook is better if we know why, in terms of rock shapes and fluid dynamics, it makes the particular sounds that it makes.

5 Soundscapes and appreciation

Can we appropriately appreciate a natural soundscape? Since our sense of hearing forces us to structure the surrounding auditory space into sounds and their relations, a better question is how to appreciate, not just the individual sounds by themselves, but the *relation* between the sounds. Imagine that I hear a bird song while walking, and I then hear a different bird song from a different tree. Suddenly the space around me is delineated; multiple sounds produce a sense of space that grounds me at the center. At the beach a whole ensemble of sounds at a given moment yields pleasure, not just the waves breaking on the rocks, but the waves, the seabirds' raucous calls, the wind in the pines, and the hoots from the sea lions, together yield a surrounding acoustic experience that can reward aesthetic attention. We do not have familiar words for such combinations of sounds around us. Sometimes we reach for analogies: one might describe an intense burst of tweeting and rustling from some nesting birds as a "symphonic experience," for instance. But we do not need standardized terminology for sounds, any more than we do for the visual combinations of rocks, trees, and flowers on the mountain path.

If the NEM's emphasis on environmental sciences is right, a deeper appreciation of the natural sounds and their relations would come from understanding the ecology of this environment and how the sounds reflect that ecology, e.g., why the birds are quiet or raucous at this time of day or why the sound intensity is high or low and why we hear various species in various seasons (see Pijanowski et al. 2011) In any case, the ensemble has aesthetic value over and above a sum of individual sounds.

5.1 Appreciation of mixed soundscapes

What we have said about appreciating natural sounds and soundscapes raises puzzling questions about the appreciation of natural sounds in mixed environments, such as urban settings and urban–rural interface settings. Are natural sounds in such settings appreciated in the same way as they are in natural settings? (On the wide variety of mixed environments, see Di Paolo 2022.)

One might argue that we have a general aesthetic preference for natural sounds, based on pairs of sonically indiscernible counterpart sounds where we prefer a natural sound over a sonically indistinguishable human-generated sound (indeed, we may even dislike the latter; Fisher 1999). For example, compare the sound of a rushing mountain stream with that of nearby highway traffic:

> One sound—the sound of a rushing mountain creek—strikes most people as a highly pleasing sound that blends well with other sounds to be heard in the area, such as the sounds of

> birds, insects, and wind. The other sound—rushing traffic noise—strikes most listeners as an unpleasant intrusion.
>
> (Fisher 1998, 29) (see van Hedger et al. (2019) for empirical evidence for the natural-sound preference and its dependence on referential hearing)

There are several possible explanations for this aesthetic preference, one of which, drawing on the work of Williams and Budd, we can call the "otherness strategy" (Fisher 1999, 36). As summarized by Dyck (2016), this view holds that "natural sounds are caused by ecologically natural objects, which are experienced as being both inevitable and belonging to the land. In virtue of these causes, the sounds have a kind of otherness" (297). This also explains how the sounds fit together appropriately in a natural soundscape. As Fisher (1999) puts it, the "rightness or appropriateness of nature's sounds may be part of what some might mean by nature's "interconnectedness" or "harmony."" This accounts "for the way that sounds of nature relate together to form compelling wholes, even though the component sounds are in themselves (that is, disregarding their origin) not attractive" (35).

Mixed soundscapes, however, are not a harmonious combination of sounds that belong together. On the one hand, there are natural sounds carrying their otherness as an element of how we hear them, and, on the other, there are the artifactual, human-produced sounds. So, in an urban environment it seems that there are two categories of sounds in one soundscape. This raises the question of whether natural sounds and urban sounds are appreciated together *in relation* as we have seen natural sounds can be appreciated as an ensemble in a natural soundscape. Dyck argues for what he calls the interaction condition for music: "music and natural sounds can be wedded together to create unified aesthetic objects" (2016, 295). This applies most clearly to a musical context in which music is intended to be played and related to the sounds of a natural setting, as in the outdoor musical works of John Luther Adams. But what of artifactual sounds and natural sounds in mixed, non-musical environments?

Consider a crow's raucous caws on a light standard in a supermarket parking lot; this is the epitome (and symbol) of otherness. The crow's caws are not as aesthetically positive in the parking lot as they would be in the forest. However, in contrast, bird songs even on an urban street, and surely in a park, are aesthetically attractive. But in either case the sense of otherness would be a dimension of our hearing experience. So, we do not, as in the forest, hear a harmonious soundscape on an urban street, but, even so, we do hear bird songs as attractive natural sounds that contribute individually to the overall soundscape comprising two different categories of sounds.

6 Subjectivity and objectivity of aesthetic judgments of natural sounds

The question of whether aesthetic judgments of nature are subjective was influentially cast by Carlson as the question of whether such judgments are merely relative. Carlson's relativist argues that (1) aesthetic judgments of nature are subject to the conceptual framework that a perceiver brings to her experience *and* (2) that there is no correct set of such concepts to apply to perception. Common examples given by relativists are judgments of clouds or sunsets because of a propensity to view them in terms of personal imaginative analogies. However, such examples do not plausibly generalize to more common judgments of natural objects and landscapes, such as that the Tetons are majestic (Carlson 2000).

The account of referential hearing already implies that perceptual categories psychologically affect the perception of natural sounds (i.e., (1) above is true) and that *up to a point* there are correct concepts guiding responses to natural sounds. This is merely a matter of aesthetic response truly tracking its object. That said, what Carlson's argument in favor of scientific and/or commonsense

perceptual categories establishes is only that these general categories are a necessary condition for *appropriate* aesthetic response; such responses should be consistent with such concepts.

Generalizing from this, we could say that, to achieve objective, or at least more widely shared, aesthetic judgments, there must be such a thing as an "appropriate listener," understood as follows:

"Appropriate Listener" = a listener who is aesthetically attentive, guided by at least common-sense perceptual concepts, and not guided cognitively by incorrect beliefs that influence emotional/aesthetic responses to the sounds.

Such a listener, meeting the necessary cognitive conditions, is open to the sounds aesthetically and takes an aesthetic interest in them. It seems that such a listener is implicitly assumed in the statements of aesthetic value and aesthetic qualities that are frequently ascribed to natural sounds. Accordingly, the judgments of hearers who meet the conditions for appropriate listening circumscribe the set of objective aesthetic judgments about sounds in nature, thus giving us a limited criterion of objectivity.

We can apply this to listeners from different cultures, such as the Kaluli of Borneo, influentially described by the anthropologist Stephen Feld. One of them told Feld: "Listen, to you they are birds, to me they are voices in the forest." He responded:

> I was startled by this. … "To me they are voices in the forest" meant that there are many ways to think about birds, depending on the context in which knowledge is activated and social needs are served. Birds are "voices" because Kaluli recognize and acknowledge their existence primarily through sound, and because they are the spirit reflections (ane mama) of deceased men and women. Bird sounds simultaneously have an "outside," from which Kaluli attribute a bird's identification, and an "inside," from which they interpret the underlying meaning as a spirit communication.
>
> (Feld 2012, 45)

Assuming that it is not inconsistent with scientific knowledge, the Kaluli way of hearing the birds cannot be necessarily ruled out as non-objective by the above account of a standard appreciative listener; indeed, hearing the birds as voices might allow for hearing expressive properties, such as loneliness or anger.

There are, however, further reasons to think that judgments of natural sounds have a certain amount of subjectivity. Responses to sounds often involve emotional responses, and those vary depending on a hearer's psychology. So, for natural sounds, judgments of aesthetic qualities seem necessarily to be partly a function of individual psychology; e.g., a loon's distant calls might strike one hearer as sad and another as eerie. A further reason is that there is no one natural way to frame the sounds of a soundscape, no set of conventions for correct and incorrect ways to attend to and combine the sounds around the hearer (Fisher 1998). This implies that aesthetic responses to natural sounds, if expressed by judgments, are relative to a specific moment and framing of the sounds around the hearer. This is, however, consistent with the possibility of amalgamating similar responses by many listeners to form generalities such as that the meadowlark's song is attractive or the waterfall's roar is exciting. That said, Parsons (2006) argues that individual aesthetic judgments of nature based on a perceptual modality are not as fundamental as those based on scientific understanding:

> Insofar as the greater perceptual freedom inherent in the appreciation of natural objects forces us to understand aesthetic judgements as relativized to a particular mode of perception, this involves aesthetic properties that are peripheral to aesthetic appreciation and therefore of less importance in assessments of aesthetic value.
>
> (34)

7 Natural sounds, soundscapes, and environmental protection

Does the aesthetic value of a soundscape, considered as a repository of characteristic sounds, add to the reasons to preserve its environment? One line of argument focuses on the psychological grounding necessarily created by sounds: "Because soundscapes are our auditory link to nature, we [the authors] also argue for their protection, using the knowledge of how sounds are produced by the environment and humans" (Pijanowski et al. 2011, 203). Or, as the website of Yellowstone National Park says,

> The natural soundscape of the Greater Yellowstone Ecosystem delights visitors during the fall elk rut, during birds' spring choruses, along streams, and in the still and profoundly quiet winter days and nights. … Many visitors come to national parks to enjoy serenity and solitude and to hear sounds of nature.

Clearly there is aesthetic value to be appreciated in these located soundscapes. So a soundscape is indirectly valuable as the repository of valuable individual and ensemble sounds. Hence the underlying environment is indirectly valuable as the causal producer of the soundscape.

Some natural soundscapes will have many more sounds to be heard individually and in combination—these will be richer experiential soundscapes—than other natural soundscapes with relatively few living things or sound-producing geological features—relatively barren landscapes. It would seem that the richer natural soundscapes (and hence their underlying environments) are to that extent more aesthetically valuable, produce more aesthetically valuable auditory experience, than relatively barren soundscapes. However, such comparisons do not take us very far, as each natural soundscape offers uniquely valuable sonic experiences, and thus it would not be plausible to infer that a noisy natural environment is more aesthetically valuable than one with episodes of relative silence on that basis alone.

Beyond aesthetics there is also symbolic value. As Pijanowski and colleagues say, "We also argue that society should value natural soundscapes as it does other aspects of nature. Soundscapes represent the heritage of our planet's acoustic biodiversity, and reflect Earth's natural assemblage of organisms" (2011, 213).

Note

1 Examples can be heard on the park's website, at https://www.nps.gov/romo/learn/photosmultimedia/sounds-ambient-soundscapes.htm.

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