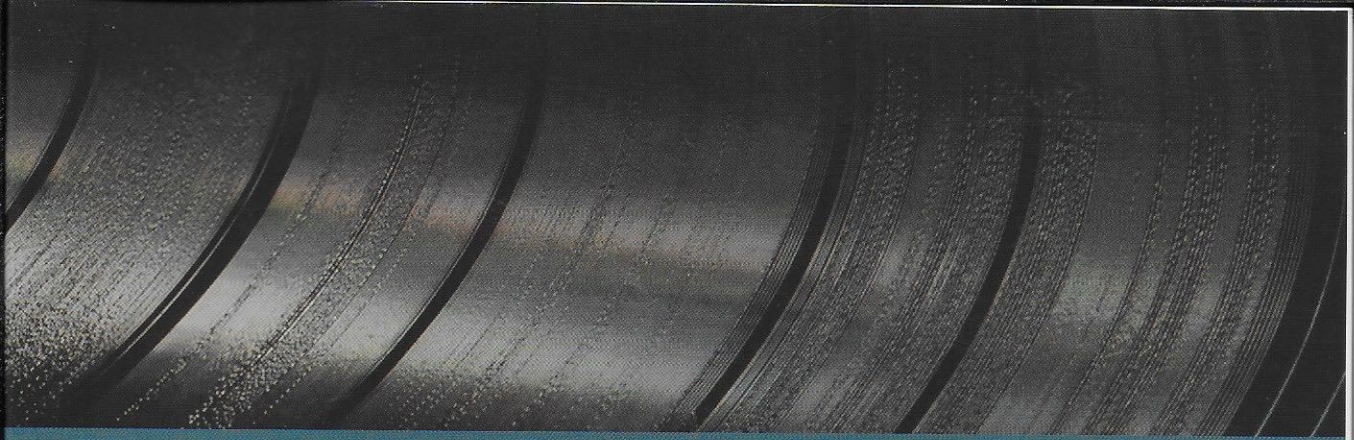

Between the Tracks

MUSICIANS ON SELECTED ELECTRONIC MUSIC

edited by Miller Puckette and Kerry L. Hagan

3 Hildegard Westerkamp's *Beneath the Forest Floor* (1992)

Leigh Landy

Setting the Stage

In the introduction to a recent book, Simon Emmerson and I proposed that regarding the analysis of (electroacoustic) music, one should first pose a four-part question (Emmerson and Landy 2016, 11):

- For which users?
- For which works/genres?
- With what intentions?
- With which tools and approaches?

This chapter commences with the answer to this four-part question. The following analysis has been written for a broader readership than many musical analyses because of the very particular nature of soundscape composition. This body of work, although radical in many ways, is accessible to a broad public, given its focus on the known. As appreciation and understanding go hand in hand, broadening this analytical discussion seems a logical step to take. As an example, this chapter examines Hildegard Westerkamp's 1992 composition *Beneath the Forest Floor*. The intention is to investigate relevant aspects of the work in a slightly unconventional manner—as reflected by the unorthodox formatting of this chapter—in particular from the standpoint of the listening experience.[1] However, because we are dealing with a soundscape composition realized by a composer who is committed to having her works act "as a force for ecological engagement with real-world issues" (Westerkamp, personal communication with the author), an analysis excluding those issues would be incomplete. Therefore, the second intention of this chapter is to embed this aspect into the analysis, as clearly many, if not most, electroacoustic works do not engage directly with daily life and certainly do not normally call for social engagement. Other than the straightforward use of the software EAnalysis to assist in making a visualization of this work, no particular tools

have been employed. Various approaches are used, reflecting experiencing the work from many angles in order to investigate how one analyzes a soundscape composition. Returning to our book's introduction, we also proposed a "template for analysis" (Emmerson and Landy 2016, 13–18). A selection from this template (e.g., materials, listening behaviors, behavior of materials, ordering, space, intention/reception, and elements specific to a given genre) will be included in the discussion.

> ABOUT SOUNDSCAPES: FOR THOSE NEW TO SOUNDSCAPE COMPOSITION, A BRIEF DESCRIPTION OF A SOUNDSCAPE IS IN ORDER, PARAPHRASED FROM THE DEFINITION ON THE ELECTROACOUSTIC RESOURCE SITE (EARS, WWW.EARS.DMU.AC.UK), WHICH IS TAKEN FROM TEXTS WRITTEN BY BARRY TRUAX (TRUAX 1996 AND TRUAX 2000). IT IS A KIND OF ELECTROACOUSTIC WORK IN WHICH ENVIRONMENTAL SOUND RECORDINGS FORM THE SOURCE MATERIAL AND INFORM THE WORK AT ALL ITS STRUCTURAL LEVELS IN THE SENSE THAT THE ORIGINAL CONTEXT AND ASSOCIATIONS OF THE MATERIAL PLAY A SIGNIFICANT ROLE IN ITS CREATION AND RECEPTION. IT IS THUS CONTEXT EMBEDDED, AND EVEN THOUGH IT MAY INCORPORATE SEEMINGLY ABSTRACT MATERIAL FROM TIME TO TIME, THE PIECE NEVER LOSES SIGHT OF WHAT IT IS "ABOUT."

Hildegard Westerkamp puts it this way: "The composer's knowledge of the environment and psychological context of the soundscape material plays an essential and integral part in letting the shape of the composition emerge. … [T]he essence of soundscape composition [is] the free-flowing conversation/relationship between the material/recordings and the composer's musical, creative language, the balance between these and the vast depths of exploration it opens up" (Westerkamp, personal communication with the author). This

sentiment is expressed in all her writings closely related to her remark cited earlier regarding ecological engagement.

> TRUAX (1996) ADDS THAT:
>
> LISTENER RECOGNIZABILITY OF THE SOURCE MATERIAL IS MAINTAINED, EVEN IF IT SUBSEQUENTLY UNDERGOES TRANSFORMATION.
>
> THE LISTENER'S KNOWLEDGE OF THE ENVIRONMENTAL AND PSYCHOLOGICAL CONTEXT OF THE SOUNDSCAPE MATERIAL IS INVOKED AND ENCOURAGED TO COMPLETE THE NETWORK OF MEANINGS ASCRIBED TO THE MUSIC.
>
> THE WORK ENHANCES OUR UNDERSTANDING OF THE WORLD, AND ITS INFLUENCE CARRIES OVER INTO EVERYDAY PERCEPTUAL HABITS.
>
> THUS, THE REAL GOAL OF SOUNDSCAPE COMPOSITION IS THE REINTEGRATION OF THE LISTENER WITH THE ENVIRONMENT IN A BALANCED ECOLOGICAL RELATIONSHIP.[2]

Writing about what electroacoustic music analysis might entail in a book dedicated to it seems a bit superfluous. Suffice to say that, to me, the main difference is that, other than those analyses studying music of oral traditions, most note-based music analysis is focused on the score and thus on the means of production and notation. A large percentage of electroacoustic music analyses (and of nonnotated forms of music, for obvious reasons) focuses primarily on the listening experience. Naturally, electroacoustic composers can be asked about how works have been made and, where relevant, performed. Still, only a few use a score as the basis of a work. Those studying music from the standpoint of the listening experience may create a postscriptive score, such as a sonogram, or a more sophisticated representation, using software such as the Acousmographe and EAnalysis, but these are there to offer support, not to dictate the analysis.

There are inevitable and valuable overlaps between note-based and sound-based music analysis, such as structure, pitch, use of sound quality (e.g., timbre and texture),

time-related elements, and so on. However, given the distinctive nature of the breadth of electroacoustic composition, including soundscape composition, a host of other aspects need to be taken into account, as is already evident in the description of soundscape composition given earlier. In fact, this description offers an immediate link to what I have called the "something to hold on to factor" in such types of music (Landy 1994). There is an inevitable connection with the sonic material in soundscape composition that offers an access tool to listeners inexperienced with respect to this musical corpus as well as, in the case of Westerkamp's *Beneath the Forest Floor*, the ecological issue being presented. There are thus a number of options for things to hold on to, as will be exemplified in the discussion that follows.

> So how does one approach an analysis of a soundscape piece? Going back to the four-part question, most of the answer has already been shared. It is, among other things, the concluding sentence of the soundscape description given earlier that makes this analysis different from most others, where one speaks of establishing "a balanced ecological relationship," something with which most musicologists are not involved. To be fair, it is also rather demanding for a single individual analyzing the work to establish. Therefore, one challenge in this chapter will be to find a discourse that enables this subject to be included within the analysis.
>
> Another, perhaps awkward, question that deserves to be asked at this point is, Is soundscape composition music? It is not my intention to open a can of worms here, but one can simply cite the reception of Luc Ferrari's *Presque rien no. 1: le Lever du Jour au Bord de la Mer*, composed in 1970, his first so-called anecdotal composition. (According to Ferrari, it is not soundscape, strictly speaking,

> AS HE DOES NOT HAVE SUCH A STRONG PHILOSOPHICAL STANDPOINT ABOUT ECOLOGY IN SUCH WORKS. NEVERTHELESS, IT IS STILL OFTEN DISCUSSED ALONGSIDE THE WORK OF SOUNDSCAPE ARTISTS—SEE, FOR EXAMPLE, CAUX 2012.) THIS WORK, WHICH WAS RECORDED ON A BEACH IN WHAT IS NOW CROATIA, COVERS THE EARLY HOURS OF A DAY WITH VERY SUBTLE EDITS. FIRST PERFORMED AT THE WARSAW AUTUMN FESTIVAL AND AROUND THE WORLD EVER SINCE, THE WORK CREATED ENORMOUS REACTIONS, ESPECIALLY EARLY ON, FOCUSED ON THE SIMPLE QUESTION, "WHAT IS MUSIC?" I FIRMLY BELIEVE THAT THE NOTION OF "ORGANIZED SOUND" IS A GOOD DESCRIPTION OF MUSIC. ARTICULATED IN A DIFFERENT MANNER, BOTH THIS WORK AND SOUNDSCAPE COMPOSITION IN GENERAL *CAN* BE MUSIC IN THE EARS OF THE BEHOLDER, AND SUCH WORKS DEFINITELY ARE IN MINE.

Soundscape composition is always based on sampling. One normally thinks of samples in two ways: 44,100 samples per second, as one finds on a CD, or short snippets of sound used in, for example, hip-hop. But samples can be as long as you like (although issues of legal use may become relevant in certain cases). Therefore, it might be said that soundscape composition falls within today's sampling culture regardless of whether some of the samples are subsequently manipulated.[3]

Let's talk about listening. There exist ways of expressing different modes of listening, whether we subscribe to the *quatre écoutes* of Pierre Schaeffer (1977) or terminology emanating from people such as Denis Smalley (1992) or Katharine Norman (1996). I like the term *conduits d'écoute* (listening behaviors) from François Delalande (1998). All this terminology concerns the combination of how attentively we are listening and what we are focused on. Because the following discussion forefronts the listening experience, and the listening experience is the primary conduit of the musical experience, that's what analysis should consider, isn't it?

We normally do not actually focus that much on controlling our listening behavior. Think, for example, of the many people who use background music or television to

allow them to tune out. Are they aware of what they are listening to? And, of course, different listeners do not necessarily listen to works in the same way. Extenuating circumstances (e.g., thoughts that have nothing to do with the music "jamming" one's focus, catching one's breath after cycling when arriving late at a concert, and so on) can influence concentration and reception. Still, the composer is often aware of how one is likely to listen in an attentive environment, whether a concert hall or close listening by way of a recording. In such cases, the composer is playing with, and possibly leading, these behaviors.

So what are the listening behaviors relevant to soundscape composition? Using a selection of existing terminology, I would suggest that there are three main active listening behaviors. In this case, I will use my own terminology, including one term borrowed from Schaeffer. Having spoken with many composers of soundscape compositions, I believe the most evident terms are: heightened listening, attentive listening focused on the source and cause of sounds heard and their combination; reduced listening (Schaeffer's *écoute réduite*), almost the opposite of heightened listening, focusing on the quality of the (musical) sounds as opposed to their source and context; and technological or recipe listening, listening to how sounds have been recorded and/or manipulated. There is also a fourth option, "just listening," with less focus on detail and a greater experience of the general flow of things.

However, we cannot overemphasize the importance of these listening behaviors, as we have already concluded that the experience of meaning is important to soundscape. Therefore, another aspect is of great importance here: dramaturgy. This word, when used in a musical context, is mainly restricted to grand forms of Western art music, such as opera and ballet; that is, works involving the stage, performance, and narrative. However, I believe that dramaturgy need not be restricted to such works. I have defined it as follows (from the EARS site): "a term borrowed from theatre which involves the verbal contextualisation of a work or an interpretation or performance thereof. In a sense, the dramaturgy of music is more involved with the question of 'why' something takes place than the 'what' or 'how' of the endeavor. Dramaturgy has always been used to allow someone appreciating art to obtain a greater insight into artists' intention." This last sentence is key. Given that in my opinion the intention/reception loop is more fundamental to soundscape composition than in most other forms of (electroacoustic) music composition, knowledge of the dramaturgy of a soundscape work is of fundamental importance, not least when the audience may include listeners unfamiliar with this method of organizing sounds.

Related to this notion of dramaturgy is another artistic element worthy of mention. Many of the most important pieces I have experienced or been involved in creating

have been those that create what I call their own universe. Leaving the universe means entering another reality, which, upon entry, may seem strange even though it's the reality that's part of one's daily life most of the time. Thus, the power of a great work of art is to envelop people in its universe. Most soundscape works are not site specific, meaning that the universe is imagined, which is the case with those works just described. However, soundscapes can be immersive; they can attempt to represent movement in nature (which is very difficult to capture, even using sophisticated recording techniques; for example, the sound of a bird flying from one point in a listening space to another). These are excellent techniques for creating an artistic universe.

Two words deserve to be added to this discussion, albeit with care: *narrative* and *discourse*. John Blacking dealt with the latter in a remarkable manner, stating: "'Musical discourse' can be discourse about music, or the discourse of music. My argument belongs to the first, but is chiefly about the second. It is musical discourse about the discourse of music. It uses the language of words to discuss the language of music" (Blacking 1982, 15). However, discourse is not restricted to language. For example, Simon Emmerson (1986) spoke of the dimension ranging from aural to mimetic discourse in electroacoustic music, where aural had to do with musical attributes such as patterns of pitches and rhythms and mimetic had to do with the signifying potential of referential or extrinsic attributes of sound, which is particularly pertinent to electroacoustic music in general and, more specifically, to soundscape composition.

Is there narrative in a soundscape work? Perhaps not as in a story, but there is a verbal narrative behind each work and, most likely, a less linear one in the composition itself. The handling of discourse in any sense of the term is relevant, and both form part of the work's dramaturgy.

> Writers on soundscape (composition) tend not to speak solely about music, which should come as no surprise. They are not only interested in soundscapes sonically wherever they are. (As John Cage often said, just open your window and listen; that is, there's music everywhere, all the time.) They are also normally equally interested in social aspects related to soundscape as well as artistic ones, such as noise pollution. The field of acoustic ecology was born of soundscape

SPECIALISTS. AGAIN, TRUAX IS AN EXCELLENT SPOKESPERSON FOR THIS EVOLVING FIELD, WHICH TODAY HAS SPECIALISTS AROUND THE GLOBE (SEE, FOR EXAMPLE, TRUAX 1984; TRUAX 1999). HIS WRITINGS COMPLEMENT THOSE OF WESTERKAMP CITED THROUGHOUT THIS TEXT.

Hildegard Westerkamp speaks and writes eloquently regarding her work and the field that fascinates her. In recent years, she has been a frequent keynote speaker on subjects related to acoustic ecology, listening, and her works. One text that pulls important thoughts together is her article "Linking Soundscape Composition and Acoustic Ecology" (Westerkamp 2002), which offers a personal account of many of the issues raised earlier in this chapter.[4]

Westerkamp's writings about her own work are normally focused on dramaturgy. She is fully aware of an intention/reception loop regarding her work and yet, at the same time, she offers her listeners a huge amount of freedom to drift from one mode of listening to another. We will discover shortly how this works in Beneath the Forest Floor. Clearly, ecology, a desire to be in harmony with nature, and a desire to take a soundscape and transform, embellish, and celebrate it artistically are being treated in a single form of artistic expression. But Westerkamp's work goes beyond that—it is about something (e.g., the ecological issue at stake)—and yet we are invited to appreciate parts of her works both in terms of what they are and abstractly, as sound.

... and then there are others who have written about Westerkamp and her work. Of these, I highly recommend Andra McCartney's doctoral dissertation, *Sounding Places:*

Situated Conversations through the Soundscape Compositions of Hildegard Westerkamp (1999), and Katharine Norman's book chapter "The Same Trail Twice: *Talking Rain* with Hildegard Westerkamp" (2004). *Beneath the Forest Floor* is clearly relevant in both cases, but these texts also focus largely on discussing Westerkamp and her work holistically, not least because of their spending time with her and through their discussions. Both McCartney and Norman investigate Westerkamp's compositions in detail. Both discuss her musical and ecological concerns in equal depth, connecting them with the composer and her ideas. Norman's chapter (along with many of John Cage's writings) also inspired the unusually formatted presentation of the current chapter. Some of the issues that they have discovered in other works by Westerkamp will inevitably be reflected in the following discussion.

Beneath the Forest Floor (1992)

Beneath the Forest Floor was commissioned by CBC radio and produced in their Advanced Audio Production Facility in Toronto. This is important, as it was originally intended as a work of radio art and received a mention at the Prix Italia in 1994. It was recorded on a CD, *Transformations*, in 1996, and, of course, has been presented in concert format. What is relevant here is that, having been commissioned by a radio broadcaster, it had to be a stereo piece. This had implications regarding its use of space that will come up in the following discussion.

Hildegard Westerkamp wrote the following about this piece (the first three paragraphs from her website/CD text):

"Beneath the Forest Floor" is composed from sounds recorded in the old-growth forests on British Columbia's west coast. It moves us through the visible forest, into its shadow world, its spirit; into that which affects our body, heart and mind when we experience forest.

Most of the sounds for this composition were recorded in one specific location, the Carmanah Valley on Vancouver Island. This old-growth rainforest contains some of the tallest known Sitka spruce in the world and cedar trees that are well over one thousand years old.

Its stillness is enormous, punctuated only occasionally by the sounds of small songbirds, ravens and jays, squirrels, flies and mosquitoes. Although the Carmanah Creek is a constant acoustic presence it never disturbs the peace. Its sound moves in and out of the forest silence as the trail meanders in and out of clearings near the creek. A few days in the Carmanah creates deep inner peace—transmitted, surely, by the trees who have been standing in the same place for hundreds of years.

"Beneath the Forest Floor" is attempting to provide a space in time for the experience of such peace. Better still, it hopes to encourage listeners to visit a place like the Carmanah, half of which has already been destroyed by clear-cut logging. Aside from experiencing its huge stillness a visit will also transmit a very real knowledge of what is lost if the forests disappear: not only the trees but also an inner space that they transmit to us; a sense of balance and focus, on new energy and life. The inner forest, the forest in us.

In her "Notes on the Compositional Process" (Westerkamp 1992) she summarizes: "The aim was to re-compose the forest environment with its own recognizable, unchanged sounds on the one hand and to explore its acoustic/musical depths by processing some of its sounds on the other hand." There are times, she continues, where "the listener can get lost in his or her own acoustic imagination." The work's sociopolitical focus, already alluded to in the program note, is that she sees the work as "a mythical confrontation between the ancient forces of the forest and the destructive forces of modern-day economic 'progress.'"

This dramaturgical description is invaluable and an integral part of the experience of *Beneath the Forest Floor*, in my opinion. I find that listening to the piece is like taking

a walk, perhaps even a soundwalk,[5] albeit with the added dimension that this work is not one long sample but instead a complex of a huge number of samples, including manipulated ones. The walk is not a normal one for two reasons: because nature has been recomposed and because the work is in a sense episodic, whereas a walk tends to feature gradual changes throughout. The walk is therefore the result of composition.

The fact that *Beneath the Forest Floor* is not a normal soundwalk is made clear immediately. The opening sound of the work is quite low, eerie, and slightly surreal. It sets the tone but does not immediately give away where it was recorded. This sound will become important throughout the work, so we will return to it, as it is too early in this discussion to focus on specific details. Let's first reflect on the listening experience in general and triangulate it with the definition of soundscape as well as Westerkamp's program note, her other notes, and her correspondence with me (in May, June, and October 2016). *Beneath the Forest Floor* is an intimate encounter with a forest, its fauna, and its flora, including a particular interest in water sounds that will be presented later. Much of this work can be listened to specifically in terms of heightened (also called contextual) listening; that is, involving the sources of the sounds that you hear. Much of it can be listened to in terms of more sonic/musical (reduced) listening as well. And, yes, experienced listeners may find themselves involved in technological listening from time to time, focusing on how sounds have been captured, manipulated, and placed spatially. Our mood, the environment in which it is being heard, and, of course, to an extent, the composer's will to have certain parts focused on in different ways all inform the listening experience and consequently the listening behaviors throughout this 17 minute and 23 second composition. In the following discussion, remarks regarding reception will be interwoven with Westerkamp's words.

Let's start with what I consider the most salient elements of the piece, beyond the dramaturgy itself and how it has led the work to be what it is. In general terms, these have to do with the real and the abstracted[6] (at times surreal?), the continuous and the discrete, source recognition—and within this, sources that play a major role in sections of the work, manipulated sounds either playing a role on their own (e.g., that initial sound) or heard in combination, creating "musical" combinations, many related to chromatic pitch combinations, the perception of space and sonic movement, of rhythm, and of structure. Every one of these offers the listener something to hold on to. In the case of the manipulated sounds, as noted, technological or recipe listening can come into play. However, to best appreciate the piece, focusing on how sounds have been transformed can lead one to miss the piece and focus on filter settings, the amount of pitch shifting, the creation of space using reverberation, the composition of the loops, and so on. Although all these and more have clearly been used, this discussion will focus on the sonic result backed up by Westerkamp's own remarks. We will

now look at these elements discovered through repeated listenings of the work in a bit more detail before analyzing the piece from beginning to end.

The real and the abstracted: For me as a listener, the most remarkable aspect of *Beneath the Forest Floor* is the challenge—and enjoyment—that arises through the interplay between "as is" samples used as musical material and manipulated ones. Westerkamp courageously starts the work with a manipulated sound, for which she offers an important dramaturgical description, adding an extra dimension to the work's program.

> *Westerkamp considers the initial transposed sound of a raven a "drumbeat," which is indeed quite audible. She wrote: "Its timbre is reminiscent of the native Indian drum on B.C.'s westcoast. The raven itself is one of the totem animals in the native Indian culture and can be seen in the totem poles of various tribes. Totem poles are made from the trees of these old-growth forests and tell the tales and legends of native life within them. The drumbeat, then, became the sonic/musical symbol or totem for the piece, representing the deeply ecological co-existence between forest life and human cultural activities that once existed between native Indians and their environment" (Westerkamp 1992).*

This remark demonstrates that the composer has simultaneously discovered a sound of fundamental importance within her work and realized an important link that this sound has with both tradition and the forest's essence. Soundscape music is music about something, and the program here is quite strong from the very beginning of the work.

The real and abstracted are at times offered in sequence and at times combined. It is fascinating to note how the ambient sounds evolve when moving from one to the other as both the musical and the contextual spaces are continuously evolving. One can listen to the entire composition via either listening strategy, but one would miss a great deal to limit an audition to either important element.

The continuous and the discrete: Although not nearly as prominent as most of the other elements discussed, Westerkamp punctuates sonic continuities with clear,

discrete sounds throughout the work. There are very few moments of perceived silence. This interplay can play a significant role in terms of "locating" or focusing on specific sounds.

Recognizable source material: Almost all the recognizable sources represent the flora, and especially fauna, of the forest that inspired *Beneath the Forest Floor*. In terms of animals, it is clear that there are different types of birds and insects to be heard. Westerkamp's information also mentioned the sound of a squirrel that I, for one, would not otherwise have been able to identify (nor did it hinder the listening experience). Beyond this, the most salient feature consists of various water sounds, a creaking tree, and one manmade sound—a chain saw (see the structure section that follows). As previously stated, the sound of the general ambience, whether it has to do with wind or other factors, plays an important role here, as it is one of the most immersive sonic aspects in the work.

Manipulated sounds/musical listening: Most (or possibly all) of the sonic material in *Beneath the Forest Floor* also appears in manipulated form. In terms of salience, the most audible treatments have to do with establishing a clear pitch (normally related to animals), sound quality (especially water and ambience), and rhythm (often, though not solely, by using loops). A few examples will be cited in the discussion of the work's structure that follows.

The perception of space and movement, of rhythm and structure: These aspects all come to the fore in different ways throughout the work. Space is perhaps the trickiest subject. The work as we know it is in stereo. Although radio is evolving—for example, there have been some quadraphonic broadcasts over two broadcasters—stereo is a given. Having made works for radio in the past, I have asked broadcasters whether they would consider asking their listeners to put on headphones in order to hear a binaural (i.e., immersive) recording. None has thus far agreed, so binaural versions have never been broadcast. This is a shame. Nonetheless, Westerkamp has made the most of the circumstances, offering a sense of two-to-three-dimensional space without one hearing anything beyond a linear stereo field. All movement is from left to right or vice versa, yet one perceives being "in" or moving "throughout" space during the composition. One wonders what this work would be like if performed in a more immersive setting.[7]

Rhythm manifests itself through repetition of sounds, such as birdcalls, and through natural patterns. The most rhythmical passages in this piece are constructed, thus heightening the reality of rhythm through (another form of abstracted) composition. Westerkamp's use of loops, in particular with water sounds, establishes the opportunity

for familiarization or, as she mentioned in our correspondence, to allow listeners to discover and enter into the "inner complexity" of sounds. What is interesting here is the composer's awareness of when she is placing the forest in the forefront and when she allows its musicality to take over.

Structure did not need to play a key role in this work and, as Westerkamp herself wrote during our correspondence, there was "no preconceived structure." Nonetheless, the recorded and manipulated material led to a work that, when compared with many other soundscape works, electroacoustic works, or contemporary works in general, has a very clearly defined structure. Jean-Jacques Nattiez and others (e.g., Nattiez 1990) speak of the poietic (construction), aesthesic (reception), and neutral (e.g., score) levels when discussing semiotics. I had already plotted out a rough overview of the work before talking to Westerkamp about this subject and before using the EAnalysis software's basic sonogram function, plotting the image in figure 3.1. In all cases, it appears that the work is in four distinct sections. At some points, there is a bridge or (cross)fade between sections. Each section has its distinctive characteristics, although inevitably, as the work is about the soundscape of a particular forest, there are elements in common, some because they are always there and others because the composer wanted them in her composition. The structure offers the same type of "something to hold on to" support as any item listed earlier, as it helps the listener follow the piece at both the local and general levels.

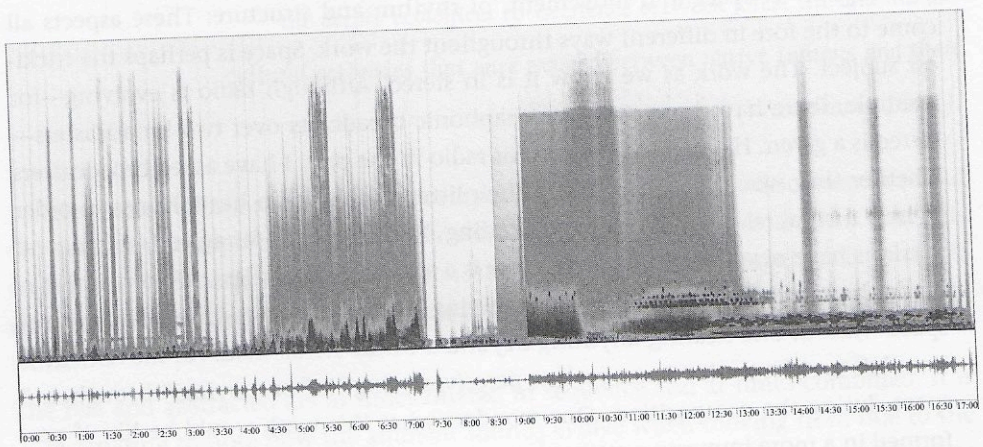

Figure 3.1
EAnalysis sonogram image of *Beneath the Forest Floor*.

Let's look at the four sections in some detail.

I. Section I acts very much like an introduction, presenting much, although not all, the material one item at a time. But this introduction is upside down in a sense

because, as we already know, the piece commences in the world of the abstract. In fact, the slowed-down raven sound, which appears in a manner similar to an ostinato, is there throughout the section as well as in the bridge that introduces section II. This sound is interrupted or complemented by unmodified sounds from the forest, the first of which (at 0:26) is also a raven recording, thus exhibiting the source of the foundational sound of the section. This is followed by water flowing from left to right as if one were moving slowly past a stream (at 0:37–0:46; water will feature in section III), after which one hears the raven's second appearance (here the cry is heard twice), other birds, a creaky tree (which features in section II), a more rapid movement of water, a sequence of more or less isolated bird sounds, the squirrel mentioned earlier,[8] insects, water (again repeated twice), insects with birds, and finally the water sound. The order appears to be chosen as a way of introducing the "characters" and the forest space.

Another layer of sound evolves during this passage, which lasts until 3:53, when the bridge at the beginning of section II commences. From 0:57, pitched material is introduced that is not immediately recognizable, creating a slightly surreal ambience. The first tone is on C in different octaves, complemented by a sound a minor third higher. At 1:30, the individual sounds converge as if a chord. I assume that all these are birds. This pitched reverberant material offers a layer of sound, a forest choir, moderate in pace, meditative in character, and independent of both the unmanipulated sound sources and the repeating raven or "drum." The listener has three layers and many specific sources to hold on to and is clearly experiencing an introductory passage in a very special forest. From 2:04, a C-sharp is added, and there is slight dissonance in the choir sounds, but this is simply an example of accumulation, a technique Westerkamp will use occasionally, adding new elements to ones that were repeated earlier. Although some of the pitched material offers the impression of sliding tones early on, they more prominently begin to slide downward from around 3:13, adding another abstracted, perhaps surreal layer to this soundscape.[9] From 3:37, there is a bit of near silence, and all we hear are two successive low raven sounds. The sound that follows those two sounds forms part of the bridge into section II.

> *The way Westerkamp sees section I is that we are taken to "various specific locations in the forest, e.g. where the raven flies, where the squirrel lives, where the creek flows, where the thrush feeds, where the [S]teller's jay flies, and so on" (Westerkamp 1992), thus offering the listener "different soundscape[s] along with different vegetation and animal life." On the chord, she adds that this foreshadows the*

musical treatment that will feature in section IV. She claimed that "the slowed down bird song calls 'gave' me a musical atmosphere, a 'tone,' perhaps even harmonic structure, for the piece and created the desire to let the ear descend into these beautiful sounds and explore their musicality."[10]

In our correspondence, Westerkamp mentioned her preference for the German word Urwald (primeval forest). This first section excellently offers a composed Urwald for listeners to enter and experience.

II. The bridge to section II is actually the second accumulation that one finds in this work. Along with the low raven call, we hear a single slowed-down sound. In its next appearance, it merges with a second such sound, and so on until the sixth iteration of the accumulation continues, launching the main part of section II at 4:31.

Section II contrasts greatly with section I. As it begins, the low raven sound finally departs and is replaced by a loud, stormlike general ambience, with rain, rapidly passing birds, the creaking tree sound, and a general sense of eeriness. Again, slowed-down, highly reverberated animals cohabit with natural ones, but the feeling is more claustrophobic and the pitch material seems to be abstracted from a noisy chain saw. Sometimes the ambience is without detail, whereas at other times it becomes dense with activity, until the chain saw seems to shift rapidly downward in pitch, leading to a final sound that reverberates into relative silence.

There is no need to identify which specific sounds are heard when and where as, in my opinion, this would contradict the natural setting of the piece. Clearly, Westerkamp composed this dark, scary ambience, but I believe that this passage from 4:31 until that final sound at 7:15 is one "event" or "sequence" that changes in both detail and density. This final sound decrescendos until 7:22, where it is overcome by a bird flying past, after which the decrescendo moves to real silence at 7:32, ending this section.

Westerkamp (1992) mentions that the slowed-down sounds focus on squirrels and jays that fly by and, beyond the above-mentioned confrontation with the real world symbolized by the chain saw, that the leitmotif here is "the dark side of the forest ... a mythical

place full of powerful natural forces and potential dangers." In our correspondence, she added that "the slowed down squirrel seemed to connect to the darker side of the forest and naturally aligned itself with the creaking trees and the storm sounds."

III. After the dark section II, there is a bridging section or interlude that doesn't at all provide a sense of what comes next in section III. Its content simply evolves from that brief silence from 7:35 to 8:42 and then continues in the background of the water-based section III. This bridge commences with two isolated slow sounds, which Westerkamp identified in our correspondence as the slowed-down "phuit" bird's "solo." Each utterance has its own highly reverberated internal melody. This is followed by the slowed-down raven leitmotif, and then bird glissandi appear in the pattern of a rise of a major second and a response a minor third higher, with the same major second glide oddly reminiscent of the blues. These glissando sounds are complemented by occasional raven sounds at normal pitch, all of which are repeated at seemingly independent intervals until 8:42 (and beyond, without the raven, which is replaced by other birds introduced at natural pitch). The presence of birds acts as a layer of sound from this point onward. The introduction of the section's main water sounds comes to the foreground through a rapid movement of the creek sound from right to left, which again fades into the background as a foretaste of what's to come while the birds continue. At 9:10, a bird flies quickly in the opposite direction, and at 9:15 the water rapidly sweeps across again and then envelops us, with all birds singing at their specific pitch. A new bird appears, apparently a baby raven (per Westerkamp's correspondence), at 9:21, representing the sound of a different generation. (It will return between 10:20 and 11:00.) At first, the water sounds like the continuous flow of water, but suddenly (at 9:31) a clear loop of what might be bubbles or droplets is heard within the flow. This sets the scene for a counterpoint of flowing water, water loops, and birds, which apparently are no longer all singing at their own single pitch, for as time goes on, the individual birds start responding to each other in the form of simple melodies, in a sense similar to the loops of water sounds that appear. At around 10:15, the water flow again disappears into the background and there seems to be a "loop solo" focused on more discrete water sounds. The birds also seem to be singing in that same background, their melodies becoming increasingly diverse with time. They move further into the background through the addition of reverberation, while natural sounds appear "above" the water as the flow finally returns in the middle of section III, at around 11:15.

Before moving on, how does one listen to this? What was just described could not have been transcribed during a single audition. Although there is never a high density of sounds, or sounds that are totally abstract or unidentifiable (why would there be?), these layers of sound can be focused on one at a time or in combination, identified with their sources or heard as melodies, sound qualities, and the like. Their rhythmical interplay may become the sonic focus. The listener who is aware of listening behaviors has an inner conflict of choice or, dare one write, goes with the flow of the sounds. One can be there with the sense of birds and water, immersed in sound, or both. Does one think of an endangered forest at this time? Perhaps not, but when one remembers what the piece is about, the thought of this beautiful soundscape disappearing or being radically altered is rather painful.

The remainder of section III is in a sense similar, but it allows the imagination to rove further, as the bird melodies now include long-held pitches that create countermelodies and a sense of space. But what kind of space is this? This is not only the real forest but also an abstracted one, with pitches as its contours. As one dreams within this new sonic universe, the water recedes again into silence (at around 13:12). During one audition, I had the sense of a hymnlike chant evolving from the shorter pitched bird sounds and the longer resonant ones. This interpretation became another the next time I listened. Westerkamp has composed an interplay between real and abstracted soundscapes, although one never forgets the real one and awaits its reappearance. What follows is the road to that reappearance, a long crossfade between sections III and IV.

Westerkamp speaks of spending time at the creek, attempting "to lead the listener into the rich microcosm of creekwater timbres and rhythms" (Westerkamp 1992). In our correspondence, she explains that her dramaturgy includes the desire "to immerse the listener into the powerful presence of the Carmanah River and the dripping wetness—heard from the many little creeks and rivulets—that is characteristic for the west coast rainforest with moss everywhere, on the ground, on tree trunks and hanging from tree branches." She emphasizes the importance of the loops that she fades in and out of the general creek ambience. She sees the creek as a place where

"the listener can get lost in his or her own acoustic imagination; where it is never clear whether the sounds that one hears are real or an acoustic illusion" (Westerkamp 1992). She notes in our correspondence that she had "recorded a small trickle of water that had a very distinct 'drippy' flow down some tree roots in the forest … editing out different sections of the flow and making loops with different rhythmical structures," adding that she was also fascinated by a "tiny clicking sound … created by the stem of a dry leaf that had fallen into the water in such a way that it obstructed the water flow in a very subtle way." In this way, she was able to contrast the more flowing sounds with this more discreet click. On a more poetic note, she added that "a moving microphone reveals the 'architecture' of a creek and the fact that it is precisely its structure (the rocks, branches, sand shoreline, etc., meaning its obstructions) that makes out the specific character of the creek sounds," concluding that the sounds of the water are simply the acoustic expression of the water's relationship to the land formations it meets. This remark underlines the importance of field recording as part of composition.

IV. The crossfade moves forward without the water but with the reverberant pitched birds singing within the ambience of the long-held pitches. Where are we? At 13:40, our leitmotif of the entire work (low-pitched raven "drum") reappears. It will start and end this section as it starts and ends the entire work. This time it is there with the slowed-down baby raven singing calls and response in a descending fifth. Again, one would have to know one's birdcalls and how they sound octaves lower to discover this. Our correspondence was helpful in identifying their proximity.

This continuing dream world is interrupted by a reminiscence of a recent sound, a water loop from 14:14 to 14:42. As this is fading out, there is a peep sound, starting at 14:31, the sound of a wren (Westerkamp told me in our correspondence), which we have only known in its slowed-down form.

Westerkamp speaks of the contrast between the continuous and the discrete here. In this case, it involves a tiny, low "peep" sound of one of the songbirds. It appears "purposely in the foreground of the grander musical chords in this section" because of "the difference in proportion between the smallness of this little sound and its (and other birdcalls') slowed-down versions. The peep's deep inner beauty, its purity and clarity are revealed when it is slowed down" (Westerkamp 1992). The same holds true for all manipulated sounds. The complex pitch pattern heard in the slowed-down version of this birdcall is indeed undecipherable. In fact, Westerkamp purposefully added no reverb (despite a request from her technician in Toronto). She kept this dry sound to hide the "inner subtleties" that emerged when the pitch was shifted downward.

These peeps certainly form a contrast from the rest in terms of duration and pitch. It knows no time. Amplitude changes. Some pitches or musical voices come to the fore and then recede. The loop returns, as do the glissando calls. This is like a reprise. Nothing is presented in its original recorded form, yet all is familiar. This could go on forever. About a minute before the end, particular sounds come to the forefront, a last breath, and then recede. Our low raven returns, announcing the end of the piece. It was there at the beginning. It occurs to me that there is no beginning, and despite no sound at 17:23, there is no end. There should be no end to the forest.

Thus ...

Beneath the Forest Floor is a soundscape composition. Sometimes, we are in the recorded forest, sometimes in an abstracted, composed soundscape, and at other times in both. The real forest is always there in one form or another. Our focus changes—or is being changed by the composer.

Many people I meet tell me that they do not like or need program notes. A soundscape work represents, or is based on, a program. It is about something (the place),

and sometimes this something is *also* about something else, such as the disappearance of the forest in *Beneath the Forest Floor* and forests in general. It is very much about an intention/reception loop in combination with an individual's listening experience. You hear beauty, but this beauty is possibly ephemeral, not in the sense of your going to the forest and leaving it but rather of the forest's leaving after centuries of existence: the *Urwald*—the *nicht mehr Wald* (the no longer forest). Is beauty a reason for survival? No, that's not the right question. Does humankind have to dictate what stays and goes in this world, what flora and fauna have to be killed? Now we're getting close. But who am I, and who is Hildegard Westerkamp, to raise such issues? Answer: if we don't and, more poignantly, if she hadn't, who would?

In the conclusion of a music analysis, one would normally review the work's salient characteristics; for example, the presence/foregrounding or absence/not paying attention to chromatic pitch or the real versus abstract. This summary is not that important here; it is hoped that the items were sufficiently presented earlier in this chapter. The discourse of analysis has been an attempt to discover those elements, how they were composed into a narrative that is open to individual interpretation, and how these elements are fundamentally connected with the work's dramaturgy. I have written an analysis of an electroacoustic soundscape composition in which I have just concluded that we need to talk about how people should care for their world. Is this analysis? In the case of soundscape composition, indeed it is. Westerkamp's dramaturgy is very powerful. Her piece is profound. The combination is vital.

Postscript: *Westerkamp has written (Westerkamp, personal communication with the author): "The trail building was a very smart move and made a lot more people aware of this remote treasure. Around the time or shortly after I was there the Carmanah Pacific Provincial Park was established (or what remained of it, half of the Carmanah area had already been clear cut), which later became the Carmanah Walbran Provincial Park. The Walbran area was a neighboring area that was under a fierce dispute then between the logging company and the environmentalists. Eventually both areas [not all of the Walbran] became protected into one Provincial Park."*[11]

Notes

1. There haven't been many in-depth discussions of this work, Duhautpas, Freychet, and Solomos (2015) being an exception. Fortunately, a book written by the TIAALS team in Huddersfield and Durham, United Kingdom (Michael Clarke, Frédéric Dufeu, and Peter Manning), on their project, which includes a chapter on this work, is expected to offer a text complementary to this one, investigating the composition process of the work via the use of interactive software. Their book is expected to appear around the time this chapter is published.

2. Beyond the writings of Westerkamp and Truax, readers who are unfamiliar with the work of founding pioneer of soundscape R. Murray Schafer are recommended to become familiar with his soundscape-informed music and his writings (such as Schafer 1994) as well as information regarding the World Soundscape Project based at Simon Fraser University in Burnaby, British Columbia, where both Truax and Westerkamp have worked.

3. There are two terms in this paragraph that deserve further attention. Many soundscape composers do not speak of using *samples* in their work; however, given the ubiquity of sampling in today's world, in music and far beyond, this notion in musical contexts is related to recording something (whether from note-based music or any sound) and reusing it in a new work. Therefore, in my view, the term sampling can also be applied to this type of work. Many leave samples as is in their works, regardless of genre. Others happily use tools to *manipulate* sounds, as Hildegard Westerkamp does from time to time in her work; for example, her lowering the pitch and extending the duration of the birdcall at the very start of this work. Sound manipulation here relates to a composition technique used in much electroacoustic composition. Manipulation is therefore not used here in any pejorative sense.

4. Her personal website can be found at www.sfu.ca/~westerka and, within this site, the page listing her writings and including some of her publications is at www.sfu.ca/~westerka/writings.html.

5. A soundwalk is a walk in which the listener's attention is more focused on the sonic environment than usual. These can be led, or any individual can set his or her own soundwalk route.

6. Here I am borrowing a term from Simon Emmerson (1986) that refers to manipulating sounds from real life, eventually making them more abstract. In such cases, those who do recognize the original source may involve that knowledge in their interpretation.

7. In my correspondence with Westerkamp, she made it clear that the 16-channel studio digital recording was mixed to stereo, as she did not believe that digital multichannel playback was an option at the time. She has diffused the stereo recording through multiple loudspeakers in concert performance, however, which does create a live-performed immersive environment.

8. In our correspondence, Westerkamp claimed that the squirrel sounds were their "defence call when you tread on their territory."

9. In our correspondence, Westerkamp informed me that she did not know the name of this particular bird but that she had named it the "phuit" bird, which is "an onomatopoeic expression

for its whistle." She indicated that this was the bird with the glissando sound and that this bird had a "solo" in section II at 7:35.

10. In our correspondence, she added that there were adult and child raven sounds (of which two recordings were made by Norbert Ruebsaat in the Queen Charlotte Islands, also known as Haida Gwaii, not in the forest itself, and thus she inserted them into the soundscape) as well as manipulated recordings of a thrush, a winter wren, and the "phuit" bird mentioned in the previous note. She stated that there were other untreated birds as well.

11. The decision was made in 1990, and the Provincial Park opened in 1991. Further information can be found on its Wikipedia site (https://en.wikipedia.org/wiki/Carmanah_Walbran_Provincial_Park) and the park's own site (http://www.env.gov.bc.ca/bcparks/explore/parkpgs/carmanah/).

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