Feathered, Pink Botanic

a soundwalk for headphone listening as part of The Secret Sound of Trees

text by Jez riley French

In childhood, forest are etched with the dusk of fairy tale, myth and custom. We grow weaving idyllic narratives around ideas of nature, yet there is so much more than we pay attention to, more in every millimetre of this forest. Oaks, Beech Sweet Chestnut, Petty whin, sundews and feather moss have bordered human activity at Beechenhurst. At times struggling between resource and an environment to be protected. History, like place isn't fixed. It shifts and is revealed as we look and listen more closely to voices other than our own.

Our growing awareness of environmental imbalance can allow us to reassess our understanding of the vast realities of other species, to listen to trees, plants, life in the soil and even the hum of the earth as it spins. During this walk we can listen to some of those sounds, recorded here in spring.

The science of plant communication has often focused mostly on their physical characteristics, but creative explorations of listening allow us in to their realm of sound. Patterns of communication, of language, spread through stem, bark, bud, leaf and flower. Words, in this context, aren't spoken or sung, but a combination of signals. In 'The Language of Plants' Monica Gagliano writes "How do we approach others whose languages we fail to notice because they appear silent to us? Through their crafty use of chemical language, plants are able to breathe out their message by encoding it with a single scented word that nonetheless conveys multiple meanings."

But what about the sounds? Plants produce sounds at levels that, until recently, were almost impossible for us to hear, at frequencies outside our human abilities, calling for the use of technology that often simply translated them into musical tones. Using the microphones and techniques I have developed we can now listen to some of these sounds as they exist. For example, a beech tree affected by cavitation; air bubbles forming and imploding in xylem cells, as it attempts to cope with changes in rain fall..

Other minute sounds we are only starting to detect, to understand their role, to ask whether some might contribute to signals that stretch beyond geographically logical areas, perhaps across oceans and continents. Within these questions we often return to folkloric and indigenous knowledge that, long before scientific practices confirmed it, acknowledged that plants produce and respond to sound.

Trees, ferns & other plants, such as those we are listening to now, co-exist with microscopic threads of funghi forming complex interdependencies with roots systems. These mycelium and mycorrhizal networks supply water, nutrients and transfer information. The smallest vibrations of plants attract and stimulate communities of invertebrates such as snails, worms and insects, which in turn aerate the soil, allowing their roots to spread. These partnerships then affect other species; small mammals, deer, birds, cattle and ourselves. The circle repeats, revealed as ever more intricate in its complexity.

Mosses, thought to be the oldest plant species on earth, form a vital blanket of protection and the reserves needed for other species to flourish. Using highly sensitive microphones, we can hear how, whilst appearing still, silent, moss is in fact one of the most active, and sonically intense plants in the forest.

This revealed audible diversity can seem at odds with how we might crave the perceived calm of the forest, but that doesn't exist for other species. For them it is a frenetic metropolis of life, competing for resources that we are stretching ever thinner.

Some of the sounds revealed are startling, such as these ants communicating by rubbing different parts of their abdomens together. Others, such as the familiar buzzing of bees we can find calming, though it also reminds us of the times they have struck back, stinging our clumsiness.

As we listen we often become more aware of sounds we learn to ignore in order to cope with the constant noise of our species; traffic, flight paths, other people nearby. We often want less of our sounds, whilst being complicit in them. If we take our time listening, environments can begin to affect us in new ways. We question our impact on them, and are humbled by how little we really understand. Fascinating in its constant, endless variation, the immense weave of sounds wraps itself around our perceptions and increasingly demands we consider the equality of all species, impose less, step back, listen.

Plants are microbiomes; communities of microbes populating their surfaces, alongside nematodes, insects and fungi, all working, as we are listening to now, alongside the vast ecosystems in soil horizons, layers of physical, chemical and biological difference.

To draw enough moisture from the soil, the root systems of trees must work with mycelium networks to search for every trace of water. These soil horizons each play their part in that process, each teaming with diverse forms of life. Trees use this moisture, combined with temperature changes and photosynthesis, the process of converting sunlight into chemical compounds such as sugars, to produce sap. Even with this well researched process, culturally linked to spring through expressions such as ‘when the sap rises’, there is still so little known about the sounds that accompany it.

Here is a recording of sap in a Norwegian Spruce at Beechenhurst.
Despite many years working with these sounds I am still unsure of the exact process involved in this slight, brittle sound. There’s a part of me that wants to know, but also part that doesn’t, simply because for me listening is about not always being in control, not assuming I already know what is there. Room for intuition and for acknowledging ways of living with trees that held their unknown as a vital part of those relationships. Another way to give them more equitable space. There is a tension there of course, between the urgent need for knowledge that might help us protect environments, and accepting that that need is the direct result of our drive for progress.

Forest paths or desire lines, formed instinctively by animals and humans over decades or centuries, rarely draw our eyes for longer than needed to navigate them, but look down and they are knitted with roots, speckled with minerals formed over millions of years, capturing gases, the elements and compounds needed for life. Ironically with just a slight increase in acidity, caused by human activity, these minerals dissolve, releasing those gases back in to the atmosphere as we can hear now.

On a different scale, this sound, the low infrasonic hum of the earth spinning on its axis, recorded below this forest and brought into our range of hearing, holds us to place. It resonates all forms of life on the planet.

Our listening to forests changes with age and acquired knowledge but it would be naive to assume we hear them more fully than when we visit in childhood, or sense them more than other species do at levels we can only imagine. Given that our hearing reduces to a fraction of its original range by the time we reach our early twenties a child will hear more than we do as adults in certain ways. The fact that we formulate theories and explanations no more connects us to a sense of place amidst the intricate diversity of a forest than the openness of childhood. It merely shifts our perspective from one view to another. A measurement of human time rather than botanic realities.

Listening, as an act of perception, can allow us to questions some of our impositions on environments, to contemplate myriad microscopic biographies of time. Whether in trees, plants, the soil and rocks around us, or in our imagination, we are still only exploring the edges of sound, the borders of those other vast realities.