The Bug Hotel ten years on: a More-than-Human Research through Design study

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1 INTRODUCTION

In this paper I reflect on the temporal dimension of the Bug Hotel, a Research through Design artefact produced as part of my PhD research, over ten years ago, in the context of multispecies urban cohabitation (Heitlinger, 2016). I provide a background to the project including how it was initially conceived and made. I then discuss a number of issues pertinent to this workshop that the artefact surfaces, including the ways in which the temporal aspects of the Bug Hotel contributes to new knowledge in more-than-human design research; how the processes of time impact the refinement, decay and evolution of the artefact, and the different ethical, organisational, technological and methodological challenges such an artefact presents. The Bug Hotel is the sole remaining study from my PhD that is not yet written up, so I thank the organisers for the opportunity to come back to it and think about it through the lens of time. I use this position paper to think about how the Bug Hotel as an artefact is a representation of the long-term, participatory design engagement I have had with the host community, through different roles and research projects. This has allowed me to observe the artefact over the passage of time. I also use this position paper to propose extending how we think about Research through Design, beyond a human-perspective, and I suggest some practical guidelines for new research into more-than-human Research through Design.

The Bug Hotel was envisaged as a Research through Design case study, an interactive living sound sculpture, and an experiment in interspecies urban living. It was designed in collaboration with the artist Franc Purg and in collaboration with Spitalfields City Farm in inner east London, UK, where it is permanently installed. It formed the third of 3 studies in my PhD research – all situated at the farm and starting in 2010. My design research engagement with the farm continues to this day.

The aim of this case study was to extend a community-based Participatory Design methodology I was developing in my PhD research, by exploring what happens when a project is initiated and owned by the community. I was also interested in how playful and reflective experiences with hidden, overlooked parts of the farm, and its non-human inhabitants, could broaden our understanding of sustainable cities and expand the design space of sustainable HCI.

Figure 1 (left) the Bug Hotel when it was first completed in 2014. Figure 2 (right) the same artefact 10 years on, in 2024.

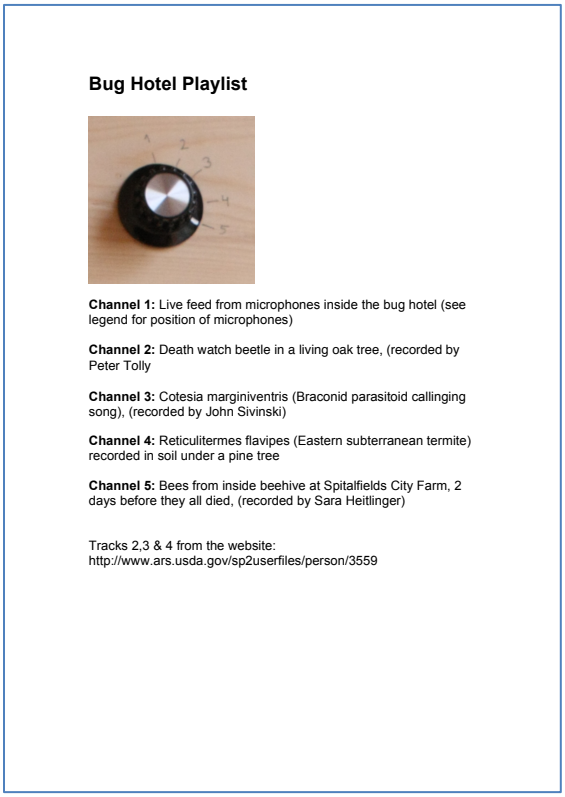
Background

The Bug Hotel initially followed an iterative design process from May 2012 to July 2014. Working with a key staff member, Esther, the beekeeper, we envisaged a way to give visitors access to the beehive, which was located in an area of the farm that was out-of-bounds. We decided to put microphones in the beehive (figures 3,4, and 5), and to run a live feed to a listening station: which became the Bug Hotel.

Figure 3,4, and 5: Microphones being inserted into a beehive frame, and placed inside the beehive.

The idea was that you could go inside the Bug Hotel, put on headphones and listen to different insect sounds, including the resident bees. There were two sets of headphones inside the Bug Hotel. The right side was the live feed from the beehive located some 20 metres away (Figure 6). The left side gave you some options of listening to pre-recorded sounds, or to a live feed from 20 contact microphones that were hidden within the wooden structure (Figures 7 and 8). As insects and other creatures took up residence, you would be able to hear them through the sensitive microphones. One of the pre-recorded sounds was from the farm's bee colony, on the day before the colony died – you could hear the sounds were very high-pitched and they sounded distressed.

Figure 6 (left): A sign explaining where live bee sounds are coming from). Figure 7 (right): headphones on a switch to save battery life. The batteries were powered by solar panels on the roof of the Bug Hotel.



Bug Hotel Playlist

Channel 1: Live feed from microphones inside the bug hotel (see legend for position of microphones)

Channel 2: Death watch beetle in a living oak tree, (recorded by Peter Tolly

Channel 3: Cotesia marginiventris (Braconid parasitoid callinging song), (recorded by John Sivinski)

Channel 4: Reticulitermes flavipes (Eastern subterranean termite) recorded in soil under a pine tree

Channel 5: Bees from inside beehive at Spitalfields City Farm, 2 days before they all died, (recorded by Sara Heitlinger)

Tracks 2,3 & 4 from the website:
http://www.ars.usda.gov/sp2userfiles/person/3559

Figure 8: Playlist of pre-recorded insect sounds, and one channel playing live feed from 20 microphones inside the Bug Hotel

Evaluation: Creating a new, more-than-human perspective on the world

The response from Esther, the beekeeper, surfaces the ways in which the Bug Hotel functions as More-than-human artifact. In the evaluation conducted during my PhD research, Ester reported said that the Bug Hotel directly provides food and habitats for insects through its roof planting, and its spaces:

"thereby supporting the ecosystem of the farm and beneficial pollinators. But more importantly, she felt it was working by helping to change people's perceptions about other species, and the place of humans in that ecosystem. It works by providing a new perspective onto sustainability. "*You can look at it very closely and very directly and see a roof garden that literally provides some food for [insects].... But I think it's just a way of tuning in or...like creating a different lens, a new perspective on the world, the world of bugs perhaps, and my place in it when I'm sitting listening to it, or creating a space for them.*"" (from my PhD report)

She continued, explaining how the Bug Hotel encourages "*thinking about the space as...used in different ways, or as a space for different creatures*."

In my PhD report I wrote: "During the school tours Esther uses the Bug Hotel as a way to explore the idea of habitats and homes and taking care of other species. The Bug Hotel works by encouraging people to acknowledge that the space is shared with other species, and by promoting the active care of those species. In this way the Bug Hotel does the indirect educational work of trying to shift perspectives and open new possibilities for sustainability."

Methodological insights

My commitments to participatory design meant that I included domain experts as equal participants to help shape the design process. Involving Esther, an expert in bees, helped to open up my possibilities for design in more-than-human worlds, and helped develop in a more-than-human sensibility towards design.

After I submitted the PhD I continued working with the farm. I served as a board member to the charity for 2 years. I brought students to work on their MSc projects, and have continued working with the farm in research

projects, many of which are written up here: (Nichols and Heitlinger 2022). I continue this engagement through my current research on the Mosaic project.

Figure 9: Detail of the Bug Hotel. nesting sites for leafcutter bees – the holes that are covered up have been filled with bee larvae and plugged.

Figure 10: promotional materials for a kids' workshop around "Autumn Arts and Nature" organised at the farm, using an image of the Bug Hotel

Decay of the artefact

Quite soon after I submitted the PhD the electronics stopped working. In 2021 I contracted two technologists to fix the Bug Hotel. They re-designed the electronics, and got it working again for a short while. But the interactive elements stopped working again shortly afterwards and have not worked properly since 2022. When I last visited, the solar panels powering the electronics had been removed.

Even though the Bug Hotel is not used as intended by humans, it still gets used. It's becoming a well-used habitat for bees. In particular, leafcutter and other solitary bees have made it home (see Figure 9). A number of years ago, the Bug Hotel was also a site for research for bee behavioural scientists from Queen Mary University of London, who set up experiments on top of the Bug Hotel.

Figure 11: The Bug Hotel today with sign saying "The Bug Hotel, Free Wi-Fly"

Designing for More-than-Human Appropriation

At the same time, the Bug Hotel continues to be used by the farm community, although not in its intended original ways as a sound sculpture. Nonetheless it was always intended as a playful encounter with other species. The farm have since put a sign up inside saying: “Free Wi-Fly” (Figure 11), they have used in in their promotional materials (Figure 10), and it continues to be a distinctive landmark in the farm grounds.

Being able to observe the artefact in situ over an extended timeframe has allowed me to see how the farm community have appropriated the Bug Hotel beyond what we imagined when we designed it. Similarly, its long-term presence in an active host site has allowed for observations into the ways that it has been appropriated by other species. For example, foxes have been spotted sunning themselves on the roof of the Bug Hotel (Figures 12 and 13), and endangered newts have been spotted nearby. Although the Bug Hotel may not be used by humans in original intended way, it clearly still has value for both human and non-human members of the community farm. This suggests the value of designing for appropriation by humans - and nonhumans.

Figures 12 and 13: Fox using the Bug Hotel

Conclusion

I finish with a suggested set of practical guidelines for More-than-human Research through Design as gleaned by reflecting on the Bug Hotel over a period of ten years:

1. When conducting more-than-human Research through Design it’s important to include domain experts such as ecologists, growers, gardeners, and farmers, or biologists in co-design in order to gain deep understanding of the context and other species
2. Don’t expect the technology to last. Instead, assume it will stop working, and make sure it is a non-essential part of the design.
3. Shift your timeframe: designing for other species requires different timescales. It may take years before you can see new habitats used by other species, and that’s ok.
4. Design for appropriation by humans – and nonhumans.

References

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