

Creative Exchange Mapping Emergence

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**KESTLE
BARTON**



University of Exeter
Environment and Sustainability Institute

eden project

**FALMOUTH
UNIVERSITY**

Mapping Emergence

Our project set out to conduct an experimental creative exchange with social insects, mapping their colonies' emergent properties. During its course, however, we have been forced to reevaluate the meaning of 'creative exchange' from a non-anthropocentric perspective, and indeed to consider the boundaries of human | non-human collaboration.

What followed was a journey into the emergent complexity of insect societies, with some fascinating and frequently surprising results. In working with social insects, we found a 'new world of sensations, perceptions, movements, stratagems, and patterns of organization that work much beyond the confines of the human world'.

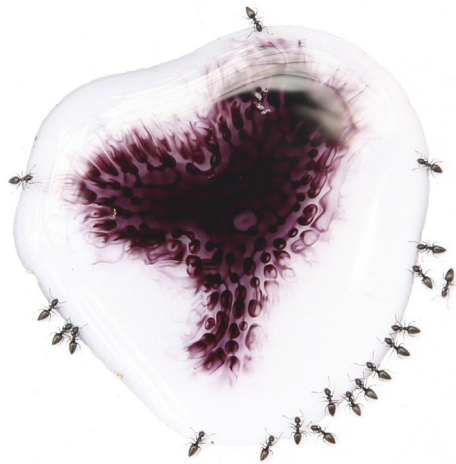
Through artistic practice, we will highlight the themes of collective intelligence, creativity, and self-organisation in each of these insects.

The first challenge that we faced was finding a suitable medium to express this mark-making. It rapidly became apparent that the forces of surface tension were not in our favour when working at the scale of ants. Many ant species are small and light enough to walk over paint, across ink, and even on water without breaking the surface, thus leaving no trace. Attempts to coat ants with non-toxic, edible paint proved more successful in terms of mark-making, but problematic in terms of our own standards for artful collaboration with insects.

As part of this process, we wished to incorporate the concept of creative exchange, not just between researchers from Falmouth and Exeter, but with the ants' individuals themselves. Human and non-human reciprocity were at the core of our interactions.

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Following these initial efforts, we reconsidered our intentions from a more ant-centric perspective. We needed a collaborative medium that ants would want to interact with, one that had value to them as an object of exchange. The obvious answer was sugar, specifically ~30-50% sucrose solution—this approximating the honeydew upon which they naturally feed. Then began exhaustive trials across the greenhouses and gardens of Exeter's Penryn campus, filming ants feeding on the sucrose in a variety of locations and light levels.



Watching back the footage, we had a breakthrough.

We found that the ants created fluid currents in the sucrose, appearing as fine silver strands when exposed to the light. While these strands were fleeting, and almost impossible to capture on camera, adding a drop of non-toxic ink to the solution revealed them in striking contrast. Equipped with this newly found process, which served both as creative medium and as an offering to the colony, we then set out to find a variety of ant species across Cornwall and beyond, from the fields of Kestle Barton, to the Rainforest of The Eden Project.

The resultant fieldwork generated many interesting moments, and highlighted the unique characteristics of each species. In Idless woods, we tracked the foraging trails of *Formica rufa*, using them to locate their mounded nests, while trying to avoid being sprayed by formic acid. In the rainforest biome of The Eden Project, we encountered thousands of the tiny *Technomyrmex albipes*, which seemed entirely uninterested in our sucrose solution, until we left for lunch, when they promptly swarmed it in our absence. Outside of the ESI building on campus, we struggled to maintain peace in the midst of a war between *Lasius niger* and *Myrmica rubra*, generating pieces with both species in the moments of calm between skirmishes.

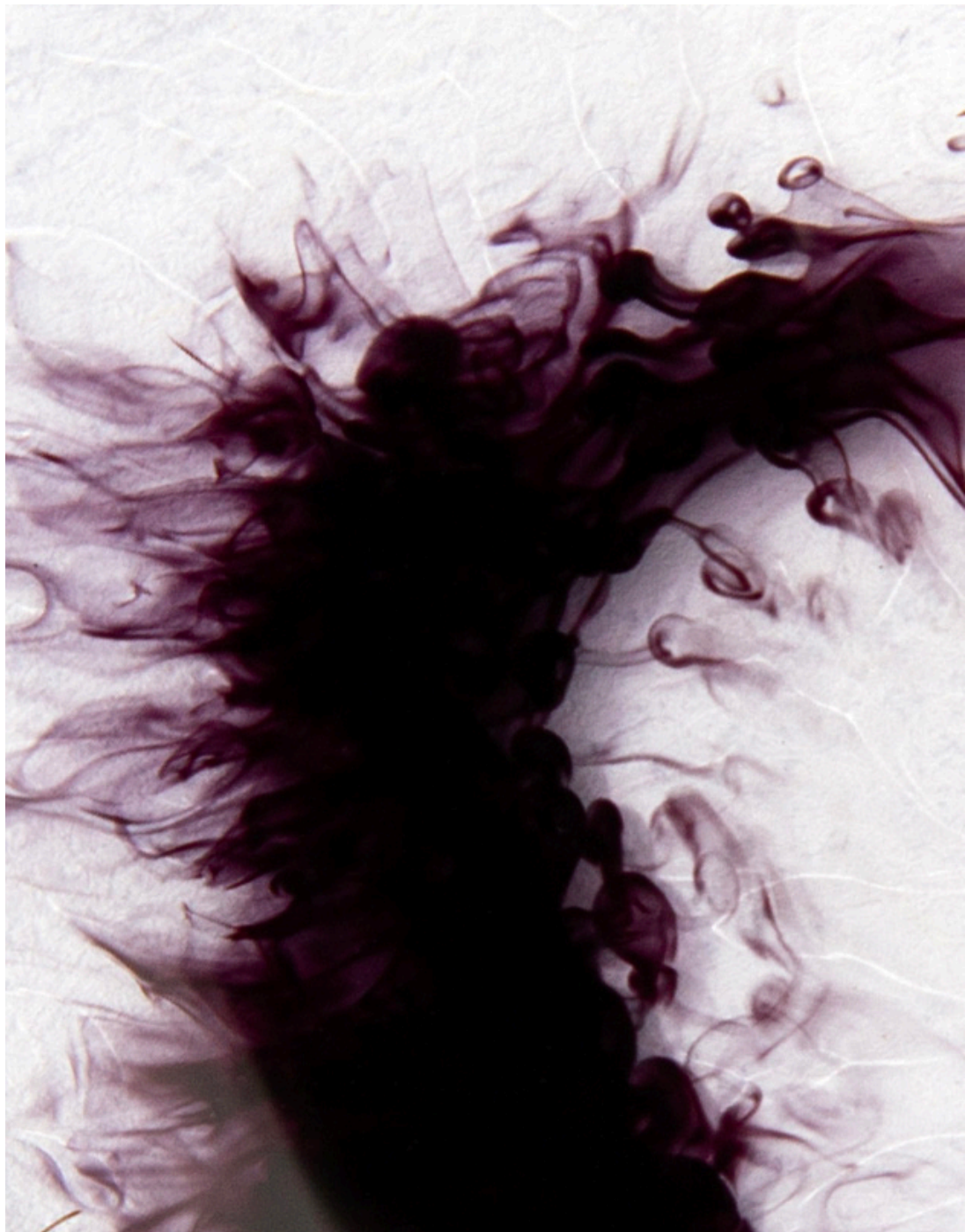
This project has a lot of potential for public engagement. The drawing, photographs and films made during these trips revealed the unique ink patterns that each species generated, driven by differences in size, behaviour, morphology, and recruitment.

We found that there were indeed distinct artful signatures between ant species, and to a lesser extent within species, confirming the potential to capture these traces with an artistic medium. By exhibiting the pieces created by these ants, we hope to visualise their emergent complexity and individuality in a way that engages human audiences, and provides alternative perspectives on these otherwise familiar insects.

So far we engaged with the public at sites of fieldwork, captivating people of all ages and helping them connect with ubiquitous insects we all interact with in our lives. We have presented the project and lead public workshops at the Environment and Sustainability institute at Exeter University. In July of 2023, we have also visited local schools and taken part on the Agile Rabbit FUTURES Science fair taken place in Falmouth in September of 23.

We have plans to exhibit the project and lead more public engagement and collaboration in 2024.

Giovanni Aloisio has written that from the human perspective, insects are 'inhabitants of a remoteness that makes the space between us so vast and difficult to bridge', yet at the same time, the biologist E. O. Wilson observed that 'work on ants has profoundly affected the way I think about humans'². Our proposed seeks to address the paradox of this vast space contrasted with striking similarities, and thus help human audiences to appreciate insect intelligence in the face of shared ecological crisis.





Mapping Emergence' Video Installation 10:30:00, produced in collaboration with the Eden Project Tropical Biome and *Technomyrmex albipes* invasive species of ants resident there.



