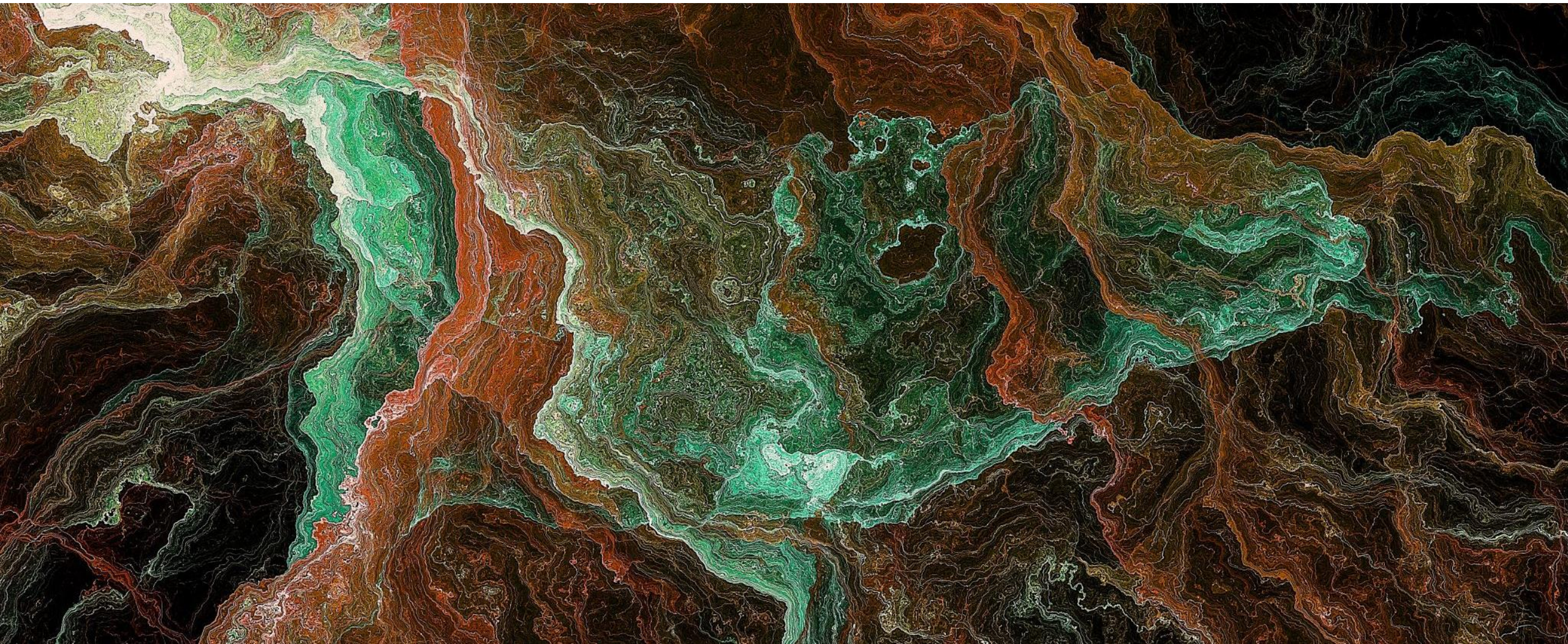



Participants proposed areas of focus for a possible future NERC- funded research project



Results – an overview

Results from six workshops across England and from 240 online survey respondents across the UK

- Workshops resulted in 49 research questions
 - Questionnaire respondents formulated >500 individual thoughts and potential ideas for further research
 - Coded in NVivo, resulting in 15 broader themes, many interconnected
- 

Main categories I

- Pathways of contamination
- Assessment of scale of pollution
- Assessment of impacts
 - including for animal~, crop~, human~, plant~, soil health
 - methodological approaches
- Pathways for reducing presence of plastics in soil:
 - Change in Gardening practices
 - Use of alternatives to plastic (or higher quality plastic)
 - Remediation
 - Political and-or regulatory actions

Main categories II

- Plastic pollution of soils vis-à-vis other contaminants
- Communication and knowledge around plastic among the general public and among 'experts', including researchers
 - Suggestions on how/where to disseminate findings
 - Discussion of suitable methodological approaches
- Who is responsible?

Examples from survey and workshops

- Assessment of scale of pollution
- Pathways of contamination
 - What is the greatest source of plastic in soil?
 - How much/ which chemicals related to plastics can be found in soils?
 - How safe is artificial grass re micro plastics coming off?
 - What is the cumulative effect over time, and as pollution levels increases?
 - The use of plastic pots and other containers and what could be leeching from some of them into the planting medium.
 - The materials that many plastic compost bins are made from and whether they're leaking harmful substances into the finished compost."
 - I want to know how much plastic ends up in the soil from things degrading that aren't necessarily visible to the human eye. I can sieve through my soil to remove large plastic chunks- but by reusing old plastic pots am I still adding microplastics into my soil?
 - What level of plastic is already in the soil in my garden and allotment and how can I detect it?
 - How do I monitor ongoing levels of pollution?

Examples from survey and workshops

➤ Assessment of impacts I

- including for animal~, crop~, human~, plant~, soil health
- methodological approaches

- What are the effects of microplastics on soil life (micro-organisms)?
- Can we monitor animal interactions with plastic e.g. birds picking it up, building nests etc.?
- What is the effect (if any) on soil health and temperature (eg: does plastic kill beneficial microbes, earthworms and fungi, and does it cause solar/soil heating (like sand becomes hotter when contaminated with microplastics).
- How does plastic affect soil fertility and drainage? And soil composition, structure and biology?
- How do different plastics behave in different soil types?

Examples from survey and workshops

➤ Assessment of impacts II

- including for animal~, crop~, human~, plant~, soil health
- methodological approaches

- Is plastic entering the food chain by being absorbed somehow by plants?
- If yes, do we understand the effects on ingesting it on human and animal health?
- To what extent are plastics taken up into the consumable parts of veg / fruit and are garden-grown veg better or worse than commercially grown produce?
- Which plants / food plants take up harmful toxic/harmful substances derived from micro-plastics?

Examples from survey and workshops

- Pathways for reducing presence of plastics in soil:
 - Change in Gardening practices
 - Use of alternatives to plastic (or higher quality plastic)
 - Remediation
 - Political and-or regulatory actions

- What are ways to remove or minimise plastic pollution in soils?
- What are effective ways of removing plastic from growing soil?
- What alternatives to plastic can we use?
- Can biodegradable replacement products be developed which exhibit comparable properties and costs?
- Should we take physical action to deal with contaminated soil e.g. replace soil or bury the contaminated layer?
- (How could /should) we make low grade cheap plastic illegal?
- (How could we) lobby for compostable packaging for all garden products and encourage refill?

Examples from survey and workshops

- Plastic pollution of soils vis-à-vis other contaminants
 - What is the prevalence of PFAS and other chemicals from industrial processes and products?
 - How much of a priority is plastic pollution in the context of other contaminants? Could focus on plastic (e.g. from weed suppressants lead to reintroduction of chemical weed killers?)
 - Do the benefits of using polytunnels and crop coverings outweigh the downsides of contamination?

Examples from survey and workshops

- Communication and knowledge around plastic among the general public and among ‘experts’, including researchers
 - Suggestions on how/where to disseminate findings
 - Discussion of suitable methodological approaches

- How do we best educate and fund today's young people to understand their environments and their own level of personal power to stand up to the psychotic CEO's of our global industries?

- Who is responsible?
 - (How could we) lobby for compostable packaging for all garden products and encourage refill?
 - Could we trace the entire life-cycle of soil and use this to go back to the manufacturer?
 - Can we gather evidence of harm caused by industries’ use of plastic e.g. horticulture, then use this as part of ‘polluter pays’ scheme?

We would like your thoughts, please.

- For the focus of our research proposal, we want to be responsive to what gardeners like yourselves would like to know. We want to incorporate research questions that have emerged through this engagement process.
- Therefore, please help us make a decision on prioritising of what we should try and focus on. Of course, we won't be able to research everything in one project, but we would like to understand your priorities.
- Please read through the headings and example questions, and vote with your three dots.
- You can distribute them as you see fit, either for different options, or clustered.

Thank you!

