

Tools for mapping land for community-led growing

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Summary

One of the barriers to communities and aspiring food producers growing on public, or other, land is a lack of access to information about the land around them. There are many more questions than answers:

Where is it? Who owns it? How big is it? What's happened on it before? What's the soil like? Is there any land near me I could grow on? Where's a piece of land near my local community centre where we could start growing? Where's a site I could grow with a good chance of selling, sharing or processing my produce?

This is a summary of community-friendly mapping tools (that I'm aware of) that could provide this information and help to speed up and demystify accessing land for growing.

I have been asked to provide this summary for Friends of the Earth and in particular for its Postcode Gardener project, where such a tool would help, and further to that, to affiliated or similar projects such as the Wildlife Trusts' Nextdoor Nature project.

Methodology

This research is a combination of:

- desktop research into mapping tools

- conversations with members of Urban Agriculture Consortium's food land mappers group (M Thurstain, J Deakins, J Bickersteth, D Evans, L Davies, J Ferro).
- selective light weight analysis and reflections on the content of the mapping group meetings and the projects represented there.

To enable this research I signed up to a number of free mapping tools and spent about half an hour on each to understand more about what they could offer and see how easy/difficult it was. These were: Land Explorer, OpenStreetMap, ESRI ArcGIS online, Felt.

I am not a mapper, therefore my technical knowledge is limited, so I can approach this topic as a gardener might. I do convene a community of food land mappers (as part of the Urban Agriculture Consortium) and therefore have access to information about mapping tools that mappers in the group do understand, and I have seen presentations by members of the group (and participated in ensuing discussions) on tools that they are using or developing.

This report is to be read in conjunction with [this spreadsheet](#).

Overview of current thought

Open data

There is a strong agreement among mappers in the group, that using technology that is free and open to all is important for this work; that it is 'owned' by the communities who create and use them, not reliant on costly developer expertise or payments to a company who then 'gatekeeps' the map or the data. There is a shared strong conviction that these are essential ethics if the work is to make a contribution to furthering bigger-picture land justice and social justice in some way.

Purpose and timeframe

Maps need to have a clear purpose, linked to a timeframe, and that during that timeframe it is fulfilling its purpose; that is to say, understanding what is the map for, who creates and maintains it, and how easy is it for communities and citizens to engage with. We need to be able to critique the usefulness and limitations of digital mapping and not forget the times when paper maps may be more powerful, useful and appropriate for co-creating and curating local knowledge, for collectively visioning our future landscapes and inspiring engagement.

Right to Grow

There is a UK campaign currently underway to establish a '[Right to Grow on Public Land](#)', led by Incredible Edible CIC. This campaign invites us to examine how little citizens know about, can access, or have a sense of agency over, pieces of land which are essentially 'ours' e.g 'public'. Right to Grow and the mappers group are exploring how they can collaborate to create the tools that the deployment of Right to Grow would require.

In times of growing nutritional inequality and poor food habits which see fresh food abandoned in favour of cheap processed food, as food prices rise and global supply chains are broken, this is a perfect time for citizens to reclaim connection to, knowledge of and agency over the public land around them and use it to meet their needs for nourishment and belonging.

Accessible and inaccessible data

In researching digital mapping tools relevant to food growers, it seems to me that there are three layers of information:

1. The public-facing map (for end users/viewers)
2. The software tools that created that map - often several in combination (for map developers and maintainers)
3. The technical details of each of these tools' functions (that most lay-people using the map will have no interest in or ability to interpret)

Much of the information that accompanies mapping tools is inaccessible to the lay-person. A community grower will rarely want to or be able to fathom technical language of map coding, for example, in pursuit of growing vegetables. So, workable maps for community growers need to be designed for simplicity, legibility and usefulness.

There's a well written article [here](#) on community and participatory mapping which unpacks some of these tensions and challenges and refocusses mapping on the people and processes rather than the data and the technology.

The public-facing map

Examples of public-facing maps linked to community food and land are hard to find. These are noteworthy examples. It is important to note that all are 'composite maps' relying on developers to build them from different software, and to maintain them.

Public-facing maps - composite.

Link to the map:	the software its made up of:
Take Back the City. Belfast https://www.takebackthecity.ie/map	combines ESRI, Svelte, Leaflet and OpenStreetMap
Who Owns England www.whoownsengland.org	combines Mapbox and OpenStreetMap

New York City Commons https://nycommons.org/	combines Leaflet, Mapbox and OpenStreetMap
New York City Living Lots https://livinglotsnyc.org	combines Leaflet, Stamen Design and OpenStreetMap

Free public-facing mapping tools designed to be easier for public use.

Land Explorer	Open Source tool developed initially by Shared Assets and now by Digital Commons. Free. In-built Ordnance Survey map base layer, commercial ownership data, historic flood data, agricultural land classifications, conservation and SSSI areas. Can import your own data sets. Support from Land Explorer developers.
Google Maps	Easy to use, available free to anyone with a google account. Put pins in locations and save as your own maps. Multiple editors. Add free text to pins. Build up layers of location pins, if you want to put them into different categories.
Open Street Map	Used by millions around the world this is an accessible mapping tool communities can use to plot all kinds of activity in a chosen area.
ArcGIS online	This is a product of ESRI ('global market leader in GIS software and mapping'). At basic level this is a free tool that gives access to the Living Atlas of the World - a huge repository of all kinds of geo-spatial maps and data sets (at national scale it is US-centric) with which you can create your own map. There is also a Non-profit (annual fee) version.

Other software tools and technical details

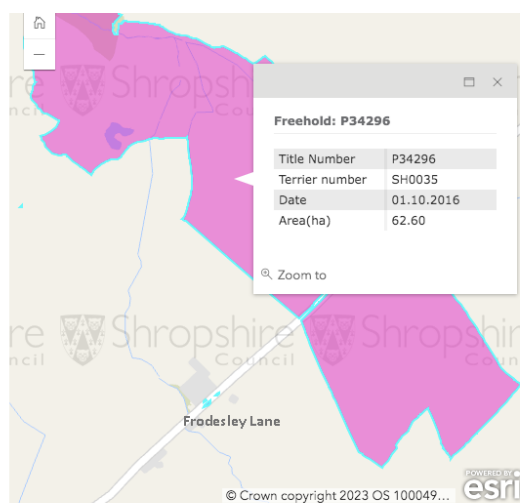
There are a number of other tools listed in the Map-making Software and Comparison Research tabs in the [spreadsheet](#), some of which have been used to make some of the maps listed above. Digging into them is beyond the scope of this research but the info and links provided in the spreadsheet are useful.

Council map data

English Councils only own about 4% of England's 32million acres. Thanks to Who Owns England, [here is a database of published council Asset Registers](#) (xls). How can communities find out what council's own? Council's own maps are pretty good in a few cases but generally can be patchy or limited, and a community's ability to then do something with a bit of council land is not clear and varies widely from council to council.

Here are two examples from Shropshire and Bristol.

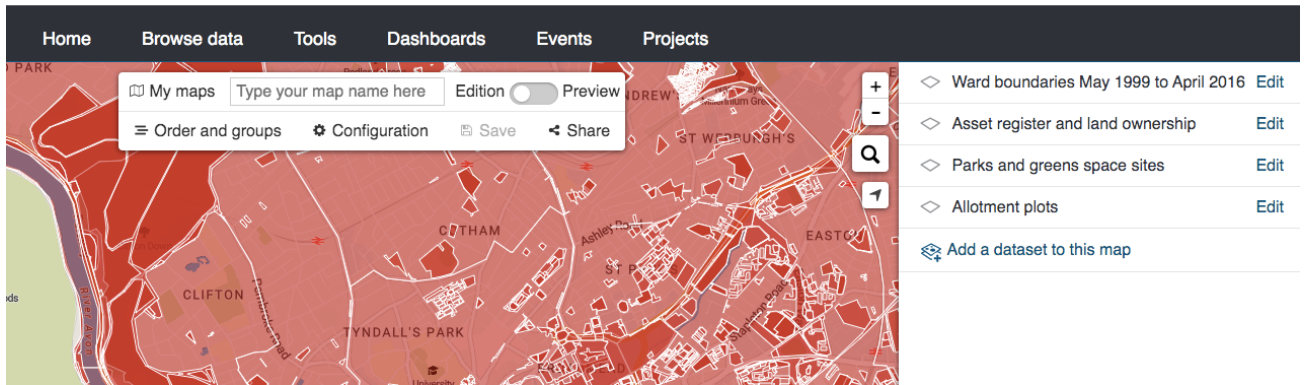
Shropshire: So what do those numbers mean? If this data isn't reliable (see disclaimer), what data is? There are limits to the accuracy of council asset maps, but they can be cross referenced with community-made maps or possibly even uploaded into one of the mapping tools.



Disclaimer

Boundaries are for identification purposes only, not to be relied on/used for any legal/decision making purpose. We may own/maintain other land not shown. If you have an enquiry or cannot use this map, please contact us using the details on this page.

Bristol: With a lot of digging and convoluted meandering I came across a page called '[Mapping Tools](#)' via a [Ward Data Dashboard](#) for the city of Bristol. Here there are links to ArcGIS and Bristol Open Data where it says 'there is also the ability to build maps and charts (i.e located under the tools tab) within the platform. You can also export data should you wish to use your own analysis tools. Clicking through takes you to map builder where you can easily create a composite open data map from their data. These could be uploaded into a tool such as Land Explorer.



Land Ownership

Understanding who owns the land around you is an important part of cultivating it as a community (though not knowing the owner doesn't necessarily stop you from cultivating it). Land Explorer and Who Owns England are the only mapping platforms of those listed here to provide land ownership data for free (Private Eye created a map of British property owned by overseas companies in 2015 [here](#)). Land Explorer holds all *commercial* ownership data for England, and links to the Land Registry for privately owned land. As a map, Land Explorer has a great deal more functionality than Who Owns England as it is designed for community-led map making. Who Owns England is an information source (excellent blog) for education and campaigning and shows ownership by key institutions while unpacking the social, ecological and justice-related implications of English land ownership.

So, if you want to know about land ownership, Land Explorer, Who Owns England and council asset maps are all useful. Of these, Land Explorer is the only one where ownership data is integrated into a mapping tool.

What other data might communities want on their maps?

Land Explorer, ArcGIS Online, OpenStreetMap and Felt provide a huge range of layers - from global drought and geology to cycle route maps and habitat maps. It's really worth just registering for free and having a browse around all the maps that are out there. Whatever mapping tool you decide to use, these can be used for cross-referencing, bigger picture stuff and inspiration for your own map.

Land Explorer has a carefully selected, smaller (but growing) range of data layers; it selects those felt to be most pertinent to accessing land in the UK and is evolving in response to user feedback. You can also import additional layers into Land Explorer with support from Land Explorer's developer (they are very keen to support interoperability) and it provides UK commercial ownership data which others do not. An over-abundance of layers can make the

process of map-making both more informative and more overwhelming, depending on the group, its skill-set, and what it's trying to look at and understand.

The Hope Spots mapping project in Lancaster district looked at the following layers to ascertain suitability of sites for cultivation:

- Historical maps ([Digimap](#)) - Identification of historic allotment sites, market gardens, greenhouses and potential contaminated sites
- Community Needs - socio-demographic data, pollinator and biodiversity needs, food deserts.
- Mapping Community knowledge - As Incredible Edible Lambeth did with ARUP. Ground-truthing by communities.
- Mapping Small business needs - to support connections and identify gaps

The short video made by the Hope Spots team gives a good overview of what community-led food land mapping is all about: <https://www.lancaster.ac.uk/future-places/activities/our-food-growing-hope-spots/>

What do the mappers think?

Comparison of OpenStreetMap and Land Explorer by mappers in Leeds:

From Jamie Deakins and Emilie Tricario - Climate Action Leeds/Seekonomics. They are leading on the mapping work in Leeds.

OpenStreetMap -

Steeper learning curve than Land Explorer, just because there's more going on. Sometimes difficult to know which categories to assign to each polygon because there's so many. The data is very busy, lots of data points in a very small area, great as a base map to query and use the filtered data elsewhere, should probably be backdating our Land Explorer mapping to OpenStreetMap as seems to be the most used/updated platform.

Not sure if this is true, but because it so established, might be quite difficult to get different categories added that would be useful to our work.

Land Explorer -

Much simpler interface than OpenStreetMap, great that we can report issues straight to Lynne as well to be fixed. Group mapping is available on request which seems to work well, couple of bugs but to be expected as it's all quite new. Definitely need some functionality added before it's really useful, being able to add more info to polygons would be handy, but again, something they're looking to add.

All in all both platforms are great, Land Explorer is a lot better suited to community mapping I reckon, easier to use and not as busy with data we're not interested in.

Reflections from a Council GIS officer perspective - Neil Webber, Leeds:

(email thread 22 NOV 22) There are various other products out there (Leaflet/Mapbox/QGIS etc) with varying degrees of open-ness, but all require some degree of technical expertise to make them work effectively. So I did wonder whether you'd come across this - <https://www.esriuk.com/en-gb/industries/sustainability/nonprofit-programme/overview>. This is the software that we use in Leeds City Council and they have a non-profit programme that allows more-or-less free use of their kit to qualifying orgs. I don't know how stringent the qualifying criteria are (never been involved in an application to it), but I would suggest it may be worth exploring. I'm sure that one of the myriad groups involved here must have the right status. The online application form looks relatively painless, and a successful application to ESRI would open up a powerful suite of mapping tools that are relatively easy to use once you get the hang of it. The additional benefit is that I know the system, and all of our (Leeds City Council) data is designed to work in it, which gives you a head-start.

Even without a non-profit licence you can still do quite a lot with their free public offering. If you wanted to set yourself up with an account I'll happily take half hour at some point to give you a few pointers. I promise I'm not on commission from ESRI – I just think they're one of the easiest ways for non-experts to get into map-making.

The usefulness of ArcGIS has not yet been explored much in the mappers group. I will be asking them what they perceive to be it's strengths and limitations.

Community mapping *process* - much more than a mapping *tool*

Keeping spatial knowledge within authoritative databases instills the idea that gatekeepers are necessary to give local knowledge validity.

The 'How to take over green space in your area' infosheet provided by the Wildlife Trusts as part of their Nextdoor Nature campaign shows us that there are a number of hurdles to accessing information about land that people may be put off by, and they don't point to a user-friendly mapping tool that communities can use.

https://www.wildlifetrusts.org/sites/default/files/2022-10/TakingOverGreenSpace_ENG.pdf

How do we use the mapping process to help reconnect people with land and agency over it?

To sum up... Gaps in provision / opportunities for further development.

There is **a lot of data out there** depicting, in map form, all kinds of aspects of our human and non-human environments.

People like maps. They enable us to situate ourselves in our environments in ways that express **not only what is, but what if....?** We derive from them a sense of belonging, relationship to place, patterns and dynamics that help to explain and design human behaviour in relation to the world around us. However, **not everyone likes having to interface with technology** in order to use maps and some experienced mappers argue for the need to keep digital maps firmly in their place; not letting a digital map become more important than the people, the process or the objectives the map is helping to meet.

Use of mapping technology by corporations and NGOs is booming and there are **many products out there**, for everything from disaster relief to urban masterplanning and farm estate management. But what of communities? What of the commons?

Our objective at Urban Agriculture Consortium with initiating and developing this work and setting up the **land mappers community of practice** is to find ways for **citizens to have enduring agency over their food system**, to grow a sense of sovereignty and skills among the people, to empower the majority to meet their own needs for nutrition and health. This is because existing systems are now accelerating nutritional insecurity locally and globally and we have overshot many of our planetary boundaries and the safe space for humanity - holocene conditions - no longer exist.

The other reason for facilitating this community is so that organisations, groups and individuals looking for food-land-mapping solutions have **a place they can come to to discuss their needs and find support in developing solutions**. It is important that we do this together.

When looking for good tools, it is always good to **look for the motive** behind why they were created - what is their intention - and go towards those that resonate with your own principles. For communities, particularly those at the margins, this will mean:

- free or cheap,
- open source,
- easy to understand and use
- collaborative tools with
- developer back up, that can
- bring together the information the community wants in a
- legible, enjoyable, shareable and easy to interpret way,
- that brings to life narratives about places and
- acts as a lever for change on wider systems and conditions.

Mapping tools that will effectively unlock land for community cultivation and pave the way for localised food economies in the UK are **still young but at an exciting stage because of the way people are collaborating**. The map cannot, on its own create enough leverage to change the system. The mapping tool and, critically, the process of creating and using it, must be considered as **part of a constellation of interoperable and complementary tools** that together enable new patterns and dynamics of land use and power to emerge, whether this is on micro-sites in a single ward, or peri-urban farms around a city.

Land Explorer in particular is developing in direct response to the needs of growers, citizens and communities, actively working on improving functionality as it evolves. Data is already building up for particular projects which can then potentially become public data layers on Land Explorer in order to benefit everyone.

Local Authorities need to be encouraged and invited to collaborate on unlocking land in their area. Local Authorities are generally resource poor and risk averse and they therefore need to seek solutions to local problems more and more through collaborations with both trusted local partners and across their own internal departments. We are supporting the Right to Grow campaign because it is a lever that opens up possibilities for local authorities to work in this way and optimise public land for the common good.

What I think could be beneficial to develop now is **a set of guiding questions** (perhaps like a business model canvas) that someone seeking to create a map can answer to help them have clarity about what they want the map to do in the short and long term, who is using it, what it needs to show, how it will be maintained, what wider system it is part of, and so on.

Areas of work:

- Develop a 'mapping project canvas' to work through dimensions and considerations and help clarify the map's purposes, that will lead to the right tools.
- To foster new collaborations between food land mappers, communities, local authorities and other landowners to test tools and combinations of tools for unlocking land for the local food system.
- Strengthen the Urban Agriculture Consortium food land mappers community of practice so it becomes a useful go-to resource where food land mapping projects can be considered and developed