

# International Permaculture Research Project



[www.permaculture.org.uk/research](http://www.permaculture.org.uk/research)

## *survey two results*

# What Research is Wanted?

By Cat Richards

International Research Volunteer Placement

**The Permaculture Association in the UK works towards improving permaculture practice and building the evidence base for permaculture.**

**To further these aims, the Association launched the International Research Project which aims to support permaculture researchers and practitioners in sharing their work and developing globally consistent permaculture research programs.**

The survey reported here is the second in a series of four surveys and aimed to identify opinions about the general scope of permaculture research.

A 'yes/no/maybe' multiple-choice question was used to gauge participants' interest in involvement in large-scale permaculture research, whilst prose answers to open questions were elicited to look at which research areas participants considered it important to focus on, their thoughts on the potential contributions of a permaculture research network and their opinions on how, and by whom, decisions should be made.

In total, 45 participants answered at least one question and so were included in the analysis. Narrative analysis was used to identify common themes in the open-format answers and categorise them.

### **Are People Interested in Taking Part in Large-scale Permaculture Research?**

With a positive response from 82% of participants, it is clear that the majority of people would be interested in being involved in an international permaculture research network.

### **What Research Areas Do People Think a Research Network Could Focus on Supporting?**

The main theme that arose when participants were asked about important research areas was a request for more empirical evidence about permaculture methods with the common consensus being that this was a significant knowledge gap.

When prompted to provide research questions to be investigated by others, the same number of participants proposed social science based questions as suggested physical science based questions. Given permaculture's roots it is not surprising that the movement is best known for land-based designs but it

would appear there is significant interest in the application of permaculture thinking to social issues as well.

### **Key Aspects of a Permaculture Research Network**

From the responses to questions about how to keep research relevant, setting a potential research agenda and contributions that permaculture research could make to the wider research community eleven key aspects of a potential research network were identified.

An aspirational permaculture research network should;

- be open to feedback
- be transparent and accountable
- allow information to be collated and disseminated efficiently
- be relevant to 'those on the ground'
- be inclusive
- improve media exposure
- strengthen the empirical evidence base for permaculture
- allow networking opportunities
- be regionally relevant
- allow access to expertise and experience
- allow opportunities for coordination and collaboration

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## Aims

The Permaculture Association UK is working on building the evidence base for permaculture and improving permaculture practice. The international permaculture research project was set up as a response to the recognition that there is a lot of permaculture research going on around the world but the majority is neither published nor disseminated. In order to support people in sharing their findings, and to further the development of consistent research programs around the world, it was decided to carry out four Surveys looking at different aspects of research to inform the building of a research network.

The first Survey investigated the scope and scale of permaculture research (full report available [here](#)) and Survey 2 looked at 'What research is wanted?'. The aim was to identify respondents opinions concerning the scope of permaculture research in general.

The most important aspects of this question were identified as;

- Whether people would be interested in taking part in large-scale projects
- Knowledge gaps in current research
- What kind of research do people think needs doing
- What contributions can permaculture research make to the wider research community
- How and by whom should a research agenda be suggested

From this it is hoped that it will be possible to answer the research questions;

- Are people interested in taking part in large-scale permaculture research?
- What research areas do people think a research network could focus on supporting?
- Who do people think should make decisions and within what kind of structures?
- What are the contributions that people think a permaculture research network could contribute?

## Methods

The project set out to investigate people's experiences of permaculture research and so a survey method was used. A survey with open questions and prose answers was chosen to allow full expression of people's opinions and views. We wanted to elicit the thoughts that people hold about permaculture research as a whole. Thus the survey acts like a giant brain-storming session where each person comes up with the answers alone and then they are pooled. Thus the online survey format, in addition to being quick and relatively easy, also removes social factors which can have a negative influence on the productivity of such sessions where the primary goal is to distil into solutions, a number of people's experiences of problems. When asking about participant interest in involvement in large-scale permaculture research a 'yes/no/maybe' question format was used.

The survey (available [here](#)) consisted of:

- an introductory page
- a page with a data protection query and personal details entry form
- a page of six questions on Research Priorities
- a feedback page
- a final page thanking respondents for participating

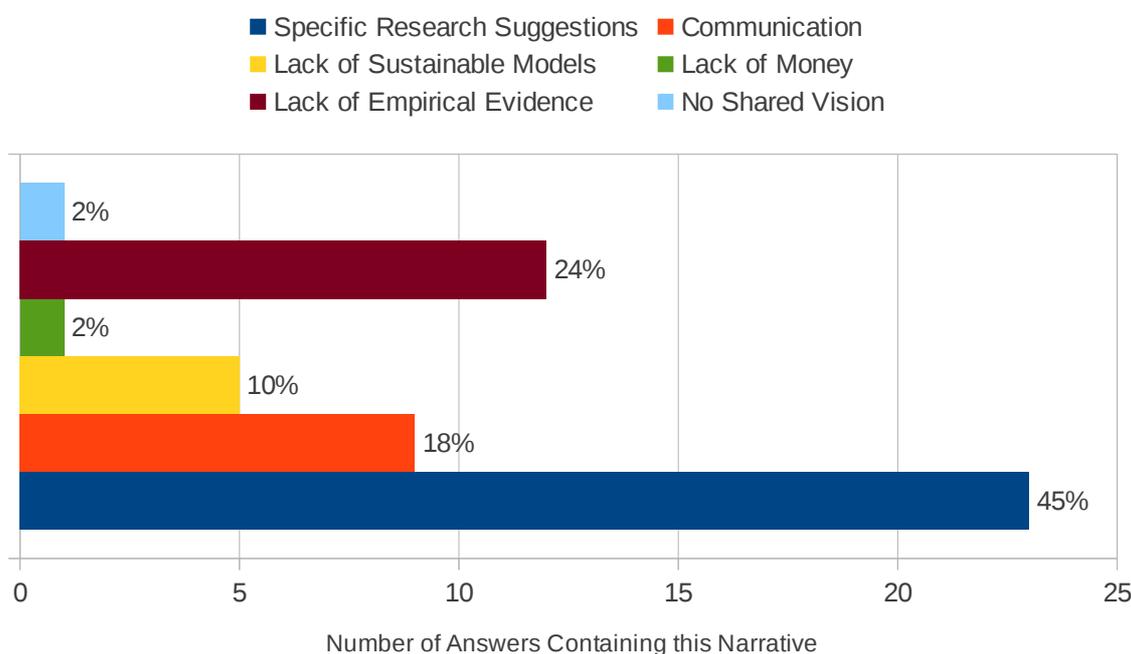
Narrative analysis was used to identify common themes in responses. This was achieved by inputting all valid responses into a mind map and then grouping them by common themes.

## Analysis and Results

In total, 45 respondents answered at least one question and were included in the analysis. Some responses contained more than one narrative (for a full table of results, please see Appendix 1) and thus are represented by more than one data point in the charts.

### Knowledge Gaps in Permaculture Research

41 participants provided answers to the question “What, in your view, are the biggest knowledge gaps in permaculture research?”, the researcher categorised the 51 answers into six groups. Four participants did not fill in this question.



*Specific Research Suggestions* – 45% of the answers (n=23) made specific requests for research for example “practical applications of some methods of energy harvesting like solar salt ponds or trompe” or “yields of perennial crops”. Research suggestions spanned all scales, with questions from “How well does permaculture application in broad-scale agriculture work?” and “I would like to see some more books/papers on large scale permaculture ie of the sepp holzer type. Something that demonstrates permaculture working on a large scale. Farmaculture!”, to requests for “Small scale ,ie average residence growing food and living ... and to a lesser extent medium size growing and living, ie allotment size up to smallholding size”. There were research questions from the social sphere; “How does community work?”, “How people learn ... how to motivate/attract new people to the movement; how best to collaborate”, “Organizing, cooperative options for business and land management”, questions about plants; “functional plant guilds divided into latitude lines/climate zones”, “Knowledge about a wider variety of trees, growth rates, coppicing effects, yields of bark as well as fruits”, “Companion plant

relationships (actual data rather than hearsay & assumptions)", "Food forests and perennials cultivation" and animals; "aquaponics & fish biology research for different environmental conditions", "Plant lists for animal self foraging systems", "Yields and management for polycultures including livestock integration". (Please see Appendix 2 for a full diagram of research suggestions)

*Communication* – these answers highlighted lack of communication, networking and collaboration. For instance they mentioned "limited access to modern communication channels", "dissemination of information" and "links between academic research and practitioner experience" as knowledge gaps in permaculture research. Also mentioned was the perceived need to reconcile "idiosyncratic permaculture terminology with contemporary scientific literature – i.e. novel synthesis of permaculture perspective for and from a well-informed scientific perspective". 18% of answers (n=9) suggested this is an issue.

*Lack of Sustainable Models* – 10% of answers (n=5) in this category suggested that permaculture research needs more applicable models for example "permaculture business models", "educating people on permaculture by creating small scale demonstration sites" and "showcases".

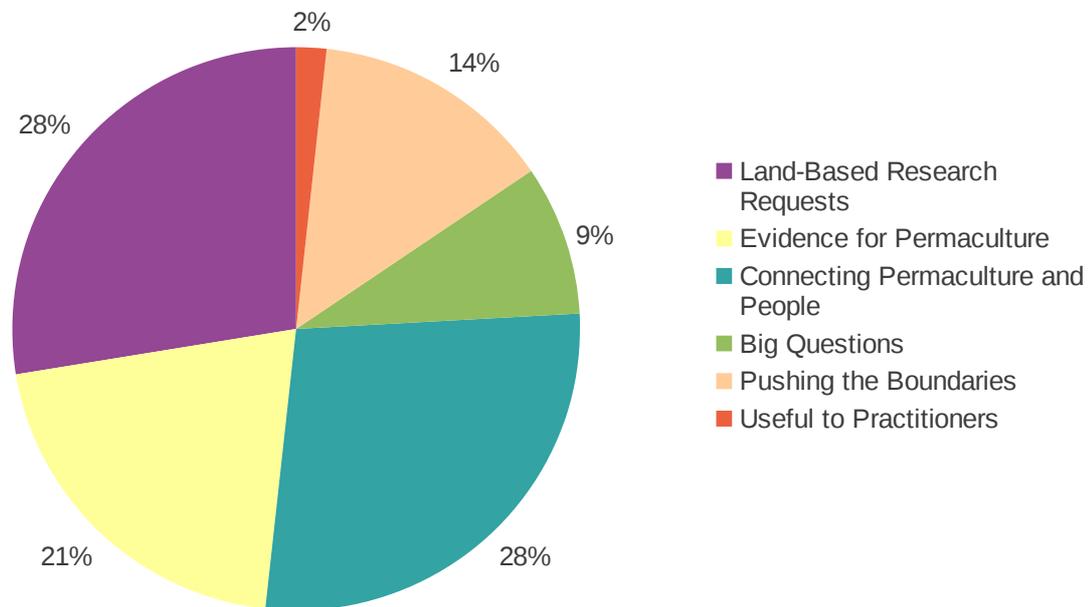
*Lack of Money* – one answer highlighted the financial issues facing permaculture researchers - "Honestly, it's the money".

*Lack of Empirical Evidence* – the 24% of answers (n=12) that were classified into this category highlighted the lack of empirical data supporting permaculture practices such as "data on yields and efficiencies of systems", "data on soil health" and "information on effectiveness of permaculture systems compared to conventional systems". Data on the "repeatability and applicability of concepts" was requested, for example "what works where? (why) is it different in different place? How can practices and solutions be targeted for specific areas (locations, or cultures etc.)?", as well as data on whether systems are "economically viable as a business proposition". This lack of data was also seen as hindering communication, "Many alleged benefits of permaculture seem to lack scientific proof ... it is sometimes difficult to communicate to those who have not heard (sic) of permaculture or who do not believe in the benefits of agroecology".

*No Shared Vision* - one answer suggested that a shared vision in the form of "laying out specific parameters to be undertaken in permaculture research" and "internationally / or locally adopted methodologies towards permaculture research" is key to closing the knowledge gaps in permaculture research.

## Requested Research

For the question “What questions would you like to see investigated by others?” six themes also emerged from the 58 answers provided by participants. Five participants did not respond to the question.



*Land-Based Research Requests* – 28% of respondents (n=16) provided specific areas and research questions that they feel should be investigated which were land-based. There were some plant specific questions about “truly effective multipurpose perennial polycultures. Proven, with measurements of yields and inputs”, “how much can you grow on balcony, window-sill ... potential of forest gardening” and “plant properties: nitrogen fixation, nutrient accumulations, ton per hectare and lbs per 100sq/ft, ground cover, insect nectary, dry/wet/poor soils, partial and full shade”, as well as queries about energy; “How could solar salt pools made in a easy applicable system?”, animal systems; “the productive potential of pasture cropping and woodland pasture” and a legal question; “regarding cooperatives, land ownership, business support, etc.”. (Please see Appendix 2 for a full diagram of research suggestions)

*Evidence for Permaculture* – 21% of the responses (n=12) to the question, addressed the perceived need for more of an empirical evidence base for permaculture practices in general. In particular many respondents highlighted comparisons with conventional agriculture and “evidence from before/after”.

*Connecting Permaculture and People* – 28% of respondents (n=16) focused in their answers on the social aspects of permaculture. Some answers focussed on the large scale social potential of permaculture to “allow people and families, and communities to become self sustainable” whilst others focussed on the relationship between people and permaculture “who isn’t using

permaculture and why?" and "the impact that working using permaculture principles has upon the person". There were questions about economics; "Economic applications of permaculture principles to help committed (sic) organisations to change from inside and provide them a competitive advantage though (sic) cooperative behaviors", along with questions of a more general nature about "indigenous (sic) permaculture" and "what works in working with human beings". (Please see Appendix 2 for a full diagram of research suggestions)

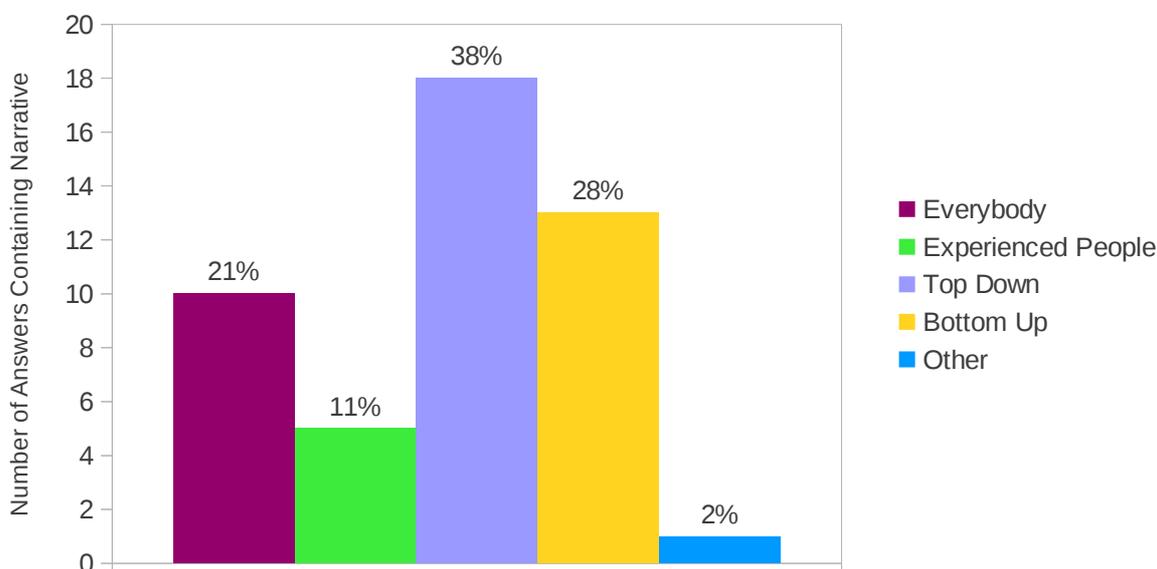
*Big Questions* – 9% of answers (n=5) to this question highlighted the value that permaculture could bring to global issues such as climate change, "can permaculture feed the world" and "can the world's populations meet it's resource ... needs by using permaculture?".

*Pushing the Boundaries* – 14% of answers (n=8) suggested that permaculture should take a role in "pushing the boundaries", we should "put permaculture in local context and create models that are locally valid and globally inspirational" and "make permaculture lifestyle public". What questions should permaculture be investigating? "All of them :)". These responses are best summed up by the ethos 'dream big'.

*Useful to Practitioners* – one response suggested that the focus of research should be that which "is of use to practitioners".

## Setting a Potential Research Agenda

When asked “Who in your view should set a potential research agenda?” respondents' 47 answers suggested five currents of opinion. Six participants did not provide an answer.



*Everybody* – 21% of the responses (n=10) to this question suggested that “everyone who is interested in permaculture should have a say in what forms the agenda”, “those who show an interest” and “people related to all possible areas” should be involved. It was proposed that “a broad base is essential if the research effort is to be taken seriously and have a chance of being acted upon by government and institutions”, and that “participatory research where stakeholders are all included in designing studies” would be optimal. The inherent theme here was inclusivity – who should set a potential research agenda? “Each and every single one of us”, “Everybody needs to be involved”.

*Experienced People* – 11% of the answers (n=5) suggested that “experts”, “those who are already know for their work in permaculture” and “people with the greatest experience of the field”, “those with extensive farming experience”, should be involved in setting any research agendas “by workshop for example”.

*Top Down Organisation* – 38% of the responses (n=18) suggested some form of centralised/ top down organisational structure or structures, often “in collaboration”. Some responses suggested that existing institutions such as “(National) permaculture organisations ... in collaboration with other national organisations”, “Permaculture network(s)” and “Government and Civil Society Organisations” (emphasis in original) should lead the way. Five responses specifically mentioned “the Permaculture Association”, with one opining that “The permaculture association is well placed to do this if it has a strong research group” and another that “there should be a

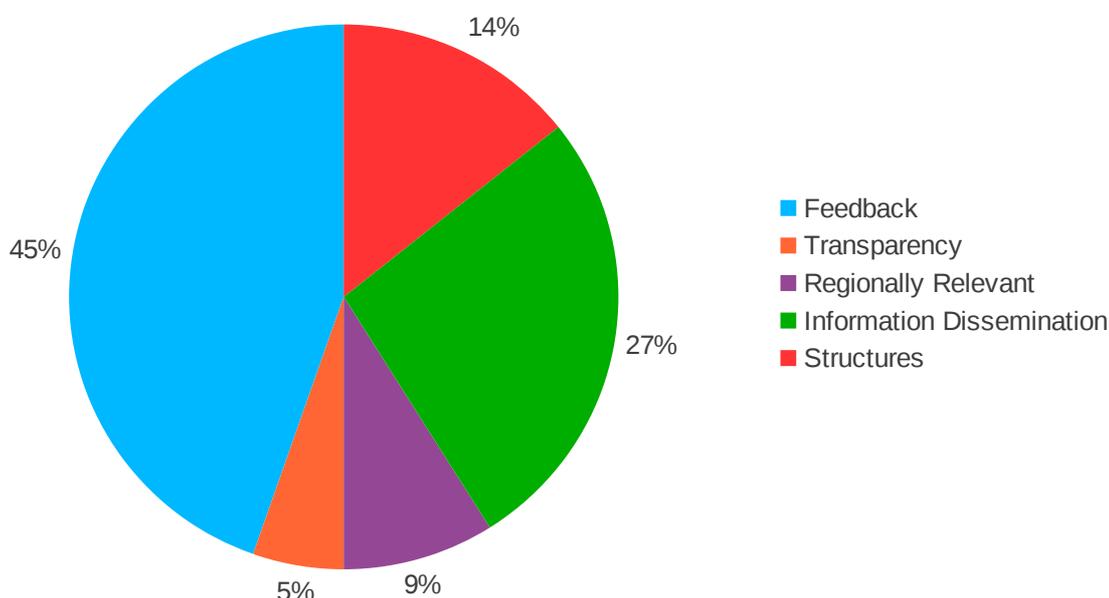
consensus between many Permaculture associations, but the leader role could be taken by the experienced UK's Permaculture Association". Other responses suggested the creation of new institutions/structures such as; an "international permaculture network group" or "international permaculture guild", a "Permaculture Research Institute" or a "panel ... including representatives of the agricultural and agroforestry industries, along with Natural England, the Environment Agency, academia and Defra", it was suggested that this institution be set up with "chapters subdivided across latitude lines, or perhaps countries and/or bioregions". It was also felt that the organisation(s) involved should be "facilitating" a research agenda steering "a path between what members want and what would appeal to a wider audience so that research findings can be more widely adopted". A system of feedback was also emphasised by suggestions that a research agenda be "based on a survey of the needs of ... members", organised "with help of qualified voting software like liquid democracy" and explored by throwing "the ball back to the Permaculture community".

*Bottom Up Organisation* – 28% of the answers (n=13) proposed a more decentralised/ bottom up structure focussed on suggestions from "permaculture-identified farmers", "indigenous groups", "entrepreneurs" and other groups who use permaculture. It was felt that "the people with the most 'skin in the game' and the most to lose" should be directly involved, with some feeling it was up to "the researcher" and "everyone should set their own and share it". It was proposed that it would be "Nice to have some democratic voice access for non-institutional folk", that "Perhaps a liquid democracy system (could be used) for upvoting or downvoting potential projects" and that "volunteer research" should play a role. One respondent has already drafted a research agenda and set up a website to share it (<http://permabook.brozkeff.net/>).

*Other* – One answer did not fit into any other categories.

## Keeping Research Relevant

To look at how to keep research relevant, respondents were asked “How do you think can we ensure that research is relevant to the greatest number of practitioners?”. Five narrative themes were identified in the 56 answers given and three participants declined to respond.



*Feedback* – Almost half of the responses to this question (45%, n=25) highlighted that people think that feedback is key to ensuring the continued relevance of permaculture research. This was seen to involve “enabling people to hear about the research being done and it’s results” as well as “maintaining open communication”. It was suggested that this could be achieved by “building up structures between practitioners and researchers which support the practitioners in their work”, “asking them (practitioners) for key areas of interest”, “(1) Widespread surveys. (2) Learning from accumulated wisdom in participatory research” or by seeking “feed back from local people on the ground”. “Accepting feedback” was also seen as important to provide “training and funding for practitioners to get involved in research, (and) encourage involvement in audits”. One response suggest that “making the research relevant to the greatest number of practitioners does not cast the net wide enough ... it’s more about how research can be made relevant to more people in the general populations so that they become permaculture practitioners”.

*Transparency* – 5% of the responses (n=3) suggested that having “a good review process/quality control internally and externally” and “trust” are necessary for keeping research relevant. Two responses suggested the use of “qualified voting software” or “liquid democracy”.

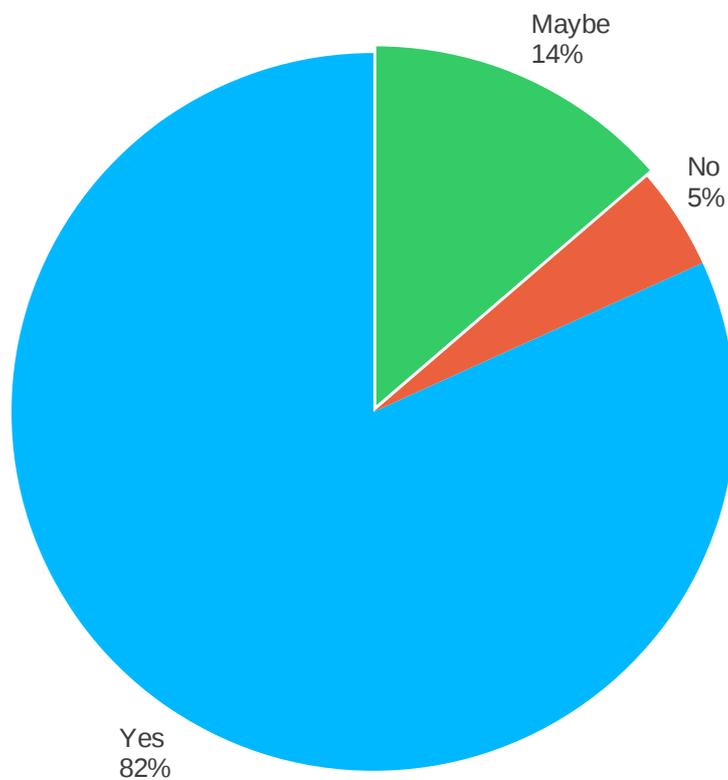
*Regionally Relevant* – 9% of answers (n=5) placed emphasis on the role of regional relevance, “it will depend on each country and region”. It was proposed be achieved by “cooperating with national permaculture associations”, by suggesting “general themes which are common by larger group, then each country can put specific research topics” or using “showcases”.

*Information Dissemination* – 27% of responses (n=15) highlighted the role of information dissemination in ensuring that research is relevant. One answer suggested that it is necessary to “monitor, publish and make public” research whilst another suggested the key is to “re-interpret it (research) outside the journals in snappy blogs or some such”. One answer proposed “‘translators’ or ‘popularizers’ (sic) ... to show how a lot of the leading edge work in other fields is aligned with permaculture principles even if the language used is different”, whilst another suggested “inviting representatives of a cross section of agricultural/productive industries ... to help shape the questions as well as convey the messages to their constituencies”. It was felt that it is important to “empower people to do and share their own research (and to) develop a protocol that allows results and methods to be shared internationally”.

*Structures* – 14% of responses (n=8) suggested structures which could be used to establish and maintain research relevance such as “qualified voting software” or “(inter-)national meetings”. One respondent felt that “Institutional support seems like an absolute necessity – and/or innovative models for funding to ensure continuity and longevity”, with another calling for “models which have a proven track-record, or clearly set out potential, to be widely adopted”. One answer suggested that “an international permaculture time bank could help with getting translations of existing research out to users of many languages ... (and) could also support the movement in many other ways”

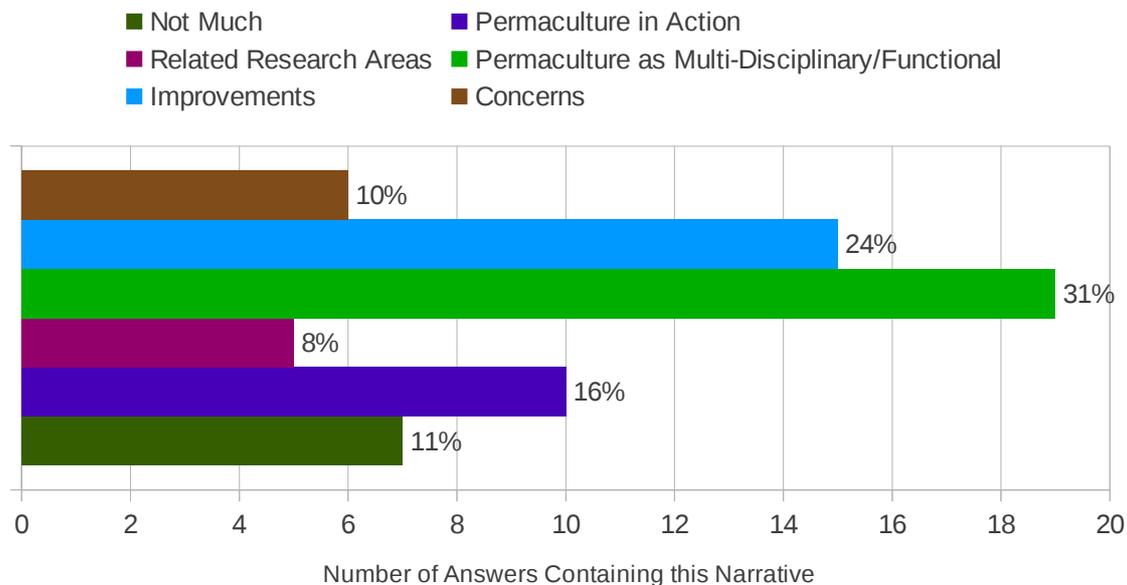
## Interest in Large Scale Projects

When asked “Would you be interested in carrying out research as part of a larger project (e.g. polycultures)?” 82% of the 44 respondents (n=36) were interested, 14% (n=6) might be, dependent on further information, (Maybe) and 4% (n=2) were not interested as they are 'an implementer, not a researcher' or due to lack of time. One participant did not answer this question.



## Contribution of Permaculture to Other Disciplines

There were five respondents who did not answer the question “How does permaculture research contribute to other disciplines, and how can this influence be improved? (e.g. certain strands in agroforestry, social science, etc.?)”. The 62 responses to the question were categorised into six themes.



*Not Much* – 11% of the answers (n=7) reflected a feeling that the contribution which permaculture makes to other disciplines is “not enough by far at the moment”, “Far too little!”, with respondent musing that they were “Not sure that it does at present”. It was suggested that permaculture is not “taken seriously in the outside world” with some laying the blame on “other disciplines ... (who) get scared by the holistic permaculture approach” and others considering that “IN GENERAL Permaculturists have more to learn from other disciplines that vice versa”.

*Permaculture in Action* – 16% of the answers (n=10) focused on ways in which permaculture can be used in everyday life. Many groups of people from “artists” and “entrepreneurs” to “landscape architects” and even a “community and liberation psychologist” were perceived as having benefited from the input of permaculture.

*Related Research Areas* – 8% of responses (n=5) highlighted specific areas in which respondents felt that permaculture could make a direct contribution. These included “Agroforestry, agroecology and landscape ecology” as well as “mainstream education”, “soil and water conservation science” and “resilience” among others. Full list in Discussion.

*Permaculture as Multi-Disciplinary/Functional* – 31% of replies (n=19) saw permaculture as a transdisciplinary and multi-functional practice with “endless” possible links to other disciplines.

*Improvements* – 24% of answers (n=15) suggested ways in which the influence of permaculture research could be improved. Ten responses suggested that “stronger collaboration” was key with one suggesting that “enhancing the networking of researchers” would be beneficial and another that “Greater cross-disciplinary links” would improve the contribution of permaculture. One respondent suggested that “We (The Permaculture movement) need to become less arrogant about being involved with all other organisations especially within this subject “research””. Two responses suggested that the influence of permaculture could be improved by “carrying out rigorous research”, proposing that “to be taken seriously in the outside world, the permaculture movement would do well to justify, through properly conducted research, many of the anecdotal claims that many of us tend to quote as if known facts”. It was also suggested, in four responses, that the influence of permaculture could be improved by “more support in outreach: publications, advertising, art, etc.”, for example by “publishing papers in academic journals”, “publication of research is the key”, and “marketing the research to mainstream media”. One response suggested that “the apparent need to attend the courses can make the discipline seem hard to access and more mysterious/complicated than necessary, inhibiting its influence in other areas”.

*Concerns* – 10% of responses (n=6) answered the question by focussing on concerns they had about the contribution and influence of permaculture research to other disciplines. Some respondents were concerned about “evangelical hubris and ontological confusion” whilst others suggested that “the desire of most universities to commercialize (sic) research output” was the main problem. It was perceived that permaculture has “an image problem”, that “there needs to be more mention of permaculture in a way that people can see it's relevance in these fields” and one respondent proposed that “we also need to get the media excited about it”.

## Discussion

As the questions asked were quite open and addressed inter-related topics it is perhaps not surprising that there were several recurring themes which ran through the survey responses. Due to people's differing interpretations of the questions there was some overlap in their relevance to the research questions laid out at the beginning of the project.

For instance, when participants were asked "What, in your view, are the biggest knowledge gaps in permaculture research?" some suggested topics for future research, some large and nebulous "how to best address climate change", others more specific "yields of perennial crops". Other respondents identified aspects which they perceived to be lacking in permaculture research as a whole, such as "links between academic research and practitioner experience", "data on actual yields" and "internationally / or locally adopted Methodologies towards Permaculture Research" or more general issues such as "limited access to modern communication channels" or "Ignorance and arrogance". Thus the original four research questions have been condensed into two questions and a section about the key aspects respondents felt were important to consider in the context of an international permaculture research network.

### Are People Interested in Taking Part in Large-scale Permaculture Research?

With 82% of respondents stating that they would be interested in taking part in large-scale permaculture and only two saying that they would not be interested, it would seem that the answer to this question is Yes.

### What Research Areas Do People Think a Research Network Could Focus on Supporting?

The key theme in the responses to the questions regarding gaps in permaculture knowledge and requested research was a call for more empirical evidence to support permaculture. People requested yields, pH's, trials, before and after tests and many other facts and figures. There seems to be broad support for the idea that the empirical evidence base for permaculture could be improved.

Represented in almost as many answers as the previous theme, when participants were asked to request research, were questions about using permaculture to connect people and improve community and individual well-being. Using permaculture in a social science context is perhaps not as familiar to people as its applications in more land-based designs but appears to be an area of great interest to many people.

Suggestions for research areas on which a research network could focus were myriad and elicited in response to questions about knowledge gaps in permaculture and requested research. Many areas of research were suggested reflecting the a broad range of topics and were categorised as specific research suggestions, permaculture and people or land-based research requests in the results section. To provide a more detailed picture of the requested research these responses were categorised using the categories of in the [Practical Solutions section of the Permaculture Association Britain website](#) (Please see Appendix 2 for full diagram). The diagram demonstrates the diversity present in the land-based research questions when

compared to the questions about using permaculture in a social science context.

Sorting the research suggestions into categories was challenging as permaculture research has a tendency towards being transdisciplinary and most suggested research questions and topics could reasonably have been placed in multiple sections. Given this inherent issue with the categorisation of permaculture research this section of the report describes broad trends in suggested research as opposed to sharply defined areas of potential research interest.

Given the origins of permaculture as an ecologically based design system it is hardly surprising that the most diverse requests within a research topic were within 'Land and Nature Stewardship', with requests for research at all scales suggested: "permaculture application in broad-scale agriculture", "small scale ie average residence" and "medium sized". There were requests for climate specific research as well as a suggested "global database that translate (sic) functions like plants attracting beneficial predator insects in a specific country... or climate zone. Including quality ratings". There was a strong emphasis on measuring things for example: "yields and inputs", "evidence from before/after. i.e. biodiversity, soil health, comparisons of effort, yield and wellbeing (sic)", "productive potential" and "plant properties: nitrogen fixation, nutrient accumulations, ton per hectare and lbs per 100sq/ft, ground cover, insect nectary, dry/wet/open soils, partial and full shade". Almost all of the sub-topics categorised within 'Land and Nature Stewardship' were represented in the suggested research topics (Horticulture and Orchards, Broadscale Agricultural Systems, Managing Animals, Forest/ Woodlands, Aquaculture, Wildlands and Biodiversity) but no one suggested any research topics directly classified under the sub-topic of Foraging.

Answers classified as 'Permaculture and People' during narrative analysis were mainly categorised as belonging to the topic of 'Culture and Education', although some would have been equally at home in the 'Health and Well-being' category, due to the perceived focus of the topic being on a social level, with 'Health and Well-being' being assumed to be a more individual orientated area. Many of these questions focussed on the idea of 'well-being' at both an individual, ecosystemic and community level. There were also questions about "what works in working with human beings?", "how can we get young people (14-25) interested?", "Who isn't using permaculture and why?" and "What tweaks need to occur to make permaculture more applicable to mainstream audiences?".

There was a fairly even smattering of requests for research within the topics of 'Built Environment', 'Land Tenure and Community Governance', 'Finance and Economics' and 'Tools and Technology', although the sub-topics of 'Transport', 'Reuse and Recycling' and 'Transport Routes' were not mentioned in any responses.

Responses categorised as 'Big Questions' during narrative analysis, e.g. "Can permaculture feed the world?", were not included in the schemata as they did not fit into any category. These responses highlighted themes such as "can the worlds population meet it's resource needs by using permaculture?" and "How to get everyone involved in climate responses".

## Key Aspects of a Permaculture Research Network

### *Decisions and Structures*

Responses to the questions about setting a potential research agenda and keeping research relevant conveyed people's thoughts on some of the key challenges in setting up a research network, who should make decisions and within what type of structures. Just under half the respondents to the question about setting a potential research agenda posited that some sort of central organisation is necessary for an effective research network. Through a process of open and constructive feedback, highlighted as being key to keeping research relevant, it should be possible to allow those with opinions and suggestions to come forward and also be involved. This would provide inclusivity and input from 'those on the ground' which many respondents felt are important in setting a research agenda. This, along with regional need differences, would suggest that international cooperation should combine with regional organisation to maximise both the opportunities available and the relevance and usefulness of information to individuals. Expertise and experience were also issues for some respondents and a research network could present an opportunity for those with these attributes to share them with a wider audience whilst also allowing easy access to these resources for those seeking it. This could also address the well represented concern that to keep research relevant an efficient system for collecting and disseminating information should be a key feature of a research network. Additionally it could represent part of a solution for the wider communication issues raised earlier. As far as structures are concerned, respondents suggested that transparency and accountability are important and suggested a range of possibilities, from meetings, use of qualified voting software and a permaculture time bank, for achieving this.

### *Contributions*

What could a permaculture research network contribute to the wider research community? The question with regards to this in the survey, focused on what a research network could contribute to other disciplines. Whilst seven participants disagreed, for various reasons, most responses (89%) reflected a view that permaculture has a meaningful contribution to make to other disciplines. The theme present in the largest number of responses was that of permaculture as transdisciplinary and multi-functional. Although this scope makes the categorisation of research and research areas challenging, it does present an opportunity for increased inclusivity and widen the options for research collaboration. This is positive as the four main suggestions for improvements to permaculture's contribution were increased collaboration, a stronger empirical evidence base, improvements in information distribution and increased media coverage. These improvements would also help address some of the concerns raised by respondents in response to this question.

In addition to this, some of the answers to the questions regarding gaps in permaculture knowledge and requested research suggested ways in which a research network could contribute to the permaculture research community. Communication was regarded as a gap in permaculture knowledge with access to information and networks and collaboration

highlighted as important aspects where permaculture research is weaker. Financial issues and a lack of shared vision were also raised as challenges, although perhaps these could be ameliorated by addressing the aforementioned perceived communication issues. Several respondents captured the idea that permaculture research should be pushing the boundaries. The idea of using productive edges is a central tenet of permaculture and it seems appropriate that a research network exploit opportunities to do so in the 'research ecosystem' - a permaculture research network should be edgy.

### *Suggested Areas Within Which Permaculture Research Could Contribute*

Agroforestry Technology  
Soil and Water Conservation Science  
Social Sciences  
Pest and Disease Control Science  
Plant Breeding  
Animal Breeding  
Agroecology  
Landscape Ecology  
Transition Networks  
Resilience

## Key Aspects of an Aspirational Permaculture Research Network

Eleven key aspects that respondents identified as important in a potential research network are summarised in the diagram below.



**The Permaculture Association UK would like to thank everybody who participated in and helped distribute the survey – we couldn't do this without your continued support and participation. You are all wonderful :)**