

Supplementary Information: Priority research questions in global peatland science

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Supplementary Methods

1. Online survey for question solicitation

Ethical approval to conduct the study was obtained from Royal Holloway University of London, Project ID 3990. Royal Holloway University of London is designated as a public authority and in accordance with the Royal Holloway and Bedford New College Act 1985 and the Statutes which govern the College, conduct research for the public benefit and in the public interest. In line with UK data protection requirements, the project adhered to the UK GDPR principles of lawfulness, fairness and transparency and to the UK Data Protection Act 2018. The project was titled '*PeatQuest*'.

1.1. Design of the survey

An online survey was designed to ask people to submit their priority questions in peatland research (Supplementary Box 1). The survey was available online via Google Forms. For participants in China, a separate survey was available using the online survey tool Wenjuanxing. The section on the survey to submit priority questions was free-text and there was no limit on the number of questions that respondents could submit. Responses could not be edited after submission but we did not limit the number of times an individual could complete the survey. We did not place restrictions on the wording or scope of the priority questions people submitted because we did not want to deter people without a research background, preferring instead to allow respondents to frame and phrase their questions in a way that was suitable and relevant to them.

The survey asked a series of questions about the respondents to provide us with insight into the demographics of the respondents and to assess the representativeness of the survey to the global peatland community. For those respondents whose work involved peatlands, they were asked to select the sector they worked in, their job title (free text), the number of years they have worked with peatlands, and the peatland regions they work in. For respondents who did not work with peatlands, they were asked to explain what their experience with peatlands is in a free-text box, with the prompt: "For example, you live near a peatland, you are a community member in a peatland region, you volunteer at a peatland site or organisation". Mandatory demographic questions for all respondents included the country of their primary address, nationality, gender and age (Supplementary Box 1).

Supplementary Box 1. Text used in the online survey (English language version).

PEATQUEST: identifying priority questions in peatland research

PeatQuest wants to find the most crucial questions that still need answers in peatland research. These answers can help us manage and use peatlands more wisely all over the world. We're asking for questions from researchers, government officials, people who work with peatlands, those who fund research, policymakers, and local community groups or individuals active in peatland areas worldwide. These questions will help guide peatland stakeholders by suggesting future projects and showing important research topics and priorities for the next decade and beyond.

Use this form to send us your top priority questions for peatland research. You can submit one or more questions, they can be about any peatland topic, and you can use any language. The survey takes approximately 5 minutes to complete.

Your priority questions in peatland research [mandatory, long answer text]

If you have more than one question to submit, please list them here.

About you

To reach a broad audience linked to peatlands, we want to learn more about you through the questions below.

1. Does your work involve peatlands? [optional, check box]

Yes (please continue to question 2)

No (please go to question 6)

2. The sector you work in [optional, check box]

Agriculture or forestry

Education or research

Government

Industry

Not-for-profit, charity or non-governmental organisation

Unemployed

Other.....

3. Your job title [optional, short answer text]

4. The number of years you have worked with peatlands [optional, multiple choice]

1 year or less

2 – 5 years

6 – 10 years

11 – 20 years

More than 20 years

Other.....

5. The peatland regions you work in [optional, check box]

Global

North America

Central America

South America

Europe

North Africa

Central Africa

Southern Africa

Asia

Central Asia

South Asia

Southeast Asia

Australia and Oceania

Other.....

6. If your work doesn't involve peatlands, what is your experience with peatlands? For

example, you live near a peatland, you are a community member in a peatland region, you volunteer at a peatland site or organisation. [optional, long answer text]

7. The country of your primary address [mandatory, short answer text]

8. Your nationality [mandatory, short answer text]

9. Your gender [mandatory, multiple choice]

Female

Male

Non-binary

Prefer not to say

Other.....

10. Your age [mandatory, multiple choice]

18 – 24 years old

25 – 34 years old
35 – 44 years old
45 – 54 years old
55 – 64 years old
65 years or older
Prefer not to say
Other.....

1.2. Translating the survey

The English language version of the survey was translated into 20 other languages:

- | | |
|--------------|--------------|
| • Chinese | • Lingala |
| • Fijian | • Malay |
| • Finnish | • Polish |
| • French | • Portuguese |
| • German | • Russian |
| • Hausa | • Spanish |
| • Hindi | • Swahili |
| • Igbo | • Thai |
| • Indonesian | • Vietnamese |
| • Japanese | • Yoruba |

The languages were selected based on common languages in peatland-rich regions and requests from the key contacts helping to disseminate the survey in specific peatland regions (see below). We used ChatGPT-4 to translate the survey into the different languages and the translations were checked and edited by a native speaker working in peatlands (e.g., to ensure peatland terms were correct).

1.3. Disseminating the survey

We used a chain referral (snowball) approach to disseminate the survey globally and reach different peatland communities rapidly and cheaply¹. We distributed the survey through different channels to maximise visibility: peatland email distribution lists (e.g., Global Peatlands Initiative, PAGES C-PEAT, Society of Wetland Scientists, International Peat Society, UNESCO), peatland conferences and meetings scheduled during the survey window (e.g., COP Peatland Pavilion, AGU), social media (e.g., X, LinkedIn), personal networks, and direct emails to relevant organisations who might not see it via other channels (e.g., funders, UNEP, regional/local organisations such as the Greifswald Mire Centre).

The core author team are based in the UK, Ireland, USA and Indonesia and we enlisted ‘key contacts’ in different regions globally to act as additional ‘seeds’ for the sampling to reach as many peatland-rich regions as possible and access harder-to-reach communities and professional networks. Key contacts were asked to distribute the survey through appropriate region-specific channels in their region of residency or region of peatland expertise. Some key contacts covered a region or continent (e.g., South America), others focussed on specific countries (e.g., Mexico), and others covered peatland types (e.g., tropics, Arctic). We had key contacts in the following locations:

Africa: Central Africa, Democratic Republic of Congo, Nigeria, Southern Africa
Americas: Brazil, Canada, Colombia, Mexico, Panama, Peru, South America, USA
Asia: China, India, Indonesia, Thailand
Europe: Finland, Ireland, Poland, Russia, UK

Oceania: Australia, New Zealand, Papua New Guinea

While the survey was live, we targeted specific regions and sectors in the second half of the survey to increase respondents to under-represented areas. We encouraged all respondents who completed the survey to share it amongst their networks.

The survey was open for four months until March 2024. While our dissemination approach ensured broad global reach across scientific, policy and practitioner networks, we acknowledge two key limitations. Firstly, the chain-referral method, though effective for rapid expansion, inherently risks amplifying participation among well-connected groups while under-representing communities less integrated into global peatland networks¹⁻³. As a result, countries with strong existing peatland research and policy communities are likely over-represented relative to their share of global peatland area, whereas some peatland-rich countries remain under-represented. There is therefore a selection bias towards respondents with larger networks and stronger ties to global networks. Secondly, the key contacts and many of our dissemination channels skew towards researchers and policy actors. Our approach therefore means that reach to some peatland groups (such as local practitioners, local landowners, private sector, Indigenous groups and grassroots organisations) was limited compared with academic groups. There will also be a selection bias towards individuals who were willing to share their priority research ideas with no personal reward (e.g., no financial or professional incentive was offered).

2. Question processing

After the survey closed, the data were collected from the online surveys and combined into a single spreadsheet. Each response was given a submitter identification number. No responses were changed or deleted at this stage. There were 1106 responses to the survey submitted by 467 respondents. Respondents could submit more than one question, so the 1106 includes individual questions as well as keywords and/or comments (see below). A group of six peatland scientists processed the questions (Alice Milner, Michelle McKeown, Johanna Menges, Monika Ruwaimana, Angela Gallego-Sala and Julie Loisel). Data processing and analysis were conducted using R version 4.4.1 (Ref⁴). Data cleaning and standardisation were performed using functions from the dplyr and tidyr packages⁵⁻⁶. Data import was handled using readr (Ref⁷).

2.1. Translating the data

From the raw data, 209 responses were translated from different languages to English (Chinese, Finnish, French, German, Indonesian, Polish, Portuguese, Russian, Spanish, Thai) using Google Translate. The translations were checked and edited by a native speaker (for example, correcting specialist language around peatlands that were not translated correctly). No other information for that submitted response was changed.

2.2. Anonymising the data

No identifying information was requested on the survey, but 17 responses included submitter names, email addresses, postal addresses or other identifying information in the free text sections of the survey. All personal data were removed from the translated data to create an

anonymised dataset. No other part of the response was changed. Names included in cited publications were not removed.

2.3. Cleaning the data

The responses were cleaned to 1) remove irrelevant responses, 2) remove content that could not be reworded into meaningful questions, and 3) separate responses with multiple questions into individual questions. All removed responses were stored in a separate spreadsheet.

For (1), the online survey required each submission to include a response to “Your priority questions in peatland research”. A total of 12 responses had “na”, “no”, “nothing”, or similar written for this section. These responses were removed.

For (2), content that could not be reworded into questions was removed. For example, 62 responses that were removed consisted only of keywords or general areas of study without text that could be reworded into a question, such as *“peatland restoration”*, *“greenhouse gases emissions from drained peatlands”*, *“palaeolimnology”*, *“climate reconstruction”*, *“study of protozoa and insects”*, *“hydrology and hydrochemistry of mire waters”*, *“reconstruction of Holocene vegetation and climate”*. An additional 68 responses were removed that could not be reworded into meaningful questions or a question that had a clear meaning intended by the submitter. For example, *“how local communities exploit peatlands”*. This point could form the basis of an interesting question, but it is not clear in the submission what the meaning around the question was and it was therefore removed. Some responses provided information on knowledge gaps or suggestions for topics that should be given more attention. For example, *“I think that much is to be learnt about how some of the large, remote peatland landscapes function. I think that engagement of Indigenous peoples with their location, historical connection with peaty boreal and subarctic landscapes and knowledge could be better engaged in monitoring and managing these landscapes.”* These comments could not be reworded into questions and were removed from the list, but provide useful information as part of the larger dataset and were considered in the drafting of the manuscript.

Some respondents provided just one priority question, others provided multiple questions (see Supplementary Discussion, Supplementary Figure 1). For (3), all responses with multiple questions were separated into individual questions. During this process, any relevant statements were reworded into questions where possible, and spelling and grammar was standardised. Each question was given a question identifier retaining a column with the submitter identifier in order to link each individual question back to the submitter profiles. Some submitted responses had partial information removed from the submission rather than the full submission (e.g., comments associated with a question). The submitter identifier and any associated questions were retained but the comments removed. The information removed from these responses was stored for use by the team if clarifications around the question were needed in the interpretation stages of the project.

Following the data cleaning, there were 758 individual questions from 328 submitters that went forward to be sifted. These questions were used by the team as a starting point for sifting the questions.

2.4. Sifting the questions

A sift of the 758 questions was undertaken by the core team following a set of pre-determined criteria. Questions were retained if 1) they were related to peatlands; 2) the meaning of the question or comment was clear, and the comment could be reworded into a question; 3) they were answerable through realistic research design; 4) they were not already answered with

the answer well-established. Below are some examples of removed questions for each category (note that some questions fall into multiple categories).

Removed for relevance (1): keywords, comments or blank responses.

Removed for clarity (2): *What is peatland and what are its advantages and consequences? How much palaeodata can peat provide? Is agriculture in lowland areas, marshes and peatlands a threat? What maintains peatland ecosystems? What methodology can be put in place so that the surrounding population of potential peat bog areas?*

Removed for answerability (3): *How much peat and carbon has been lost due to anthropogenic impact in the past few centuries? How much of the peatland area are not mapped? Why do end consumer pay for the emission from car fuel but not from using the peat? Why do people in power ignore expert knowledge even when invited to meetings on peatlands?*

Removed for novelty (4): *What environmental variables favour peatlands formation? Why can peatlands store so much carbon, and what is the underlying mechanism? How are peatlands formed?*

To conduct the sift, each team member was assigned approximately 125 questions to read and decide which questions to retain. After an initial test, the team met to discuss how the criteria should be applied and talked through examples. Subsequent discussions were used to check questions that were ambiguous or difficult to decide. Alice Milner took overall oversight of the questions that were removed to ensure consistency between the team. Following the sift, there were 566 questions from 269 submitters remaining. The questions were used to identify and merge duplicate and similar questions.

We recognise that there is likely to be researcher bias at this point in the method, with the core team making decisions on questions to retain or remove. Decisions about clarity, novelty, answerability were inevitably influenced by our disciplinary backgrounds, assumptions, and what constitutes “realistic” research design, and our familiarity with existing literature. The researcher bias may have led to disproportionate removal of certain types of questions, particularly those framed from social and cultural perspectives that did not fit easily within conventional scientific paradigms.

In addition, our intention at this stage was to significantly reduce the number of questions ready for the prioritisation stage. Our target was for the questions to be read and voted on within one hour by the experts prioritising the questions (see Section 3), which we anticipated would be approximately 200 questions. We therefore were more likely to remove rather than retain questions, which may have excluded issues that are highly relevant at local or regional scales but appeared less generalisable. Questions that were particularly region-specific were sometimes difficult to make decisions on, but were largely removed or combined into a more general question. For example: *Is it really true that the Brazilian Amazon (Rio Negro) contains the largest wetlands with peatlands in tropical regions? Why are peatlands in Poland referred to as wastelands and are not subject to total protection? In the central Congolese basin, riverine communities living near peatlands depend on them for their survival (collection of non-wood forest products). What is the contribution of peatlands to the socio-economic life of these communities? What hydrological processes support sub-tropical peatlands in Southeast Queensland especially in the context of changing climate?* Although we attempted to mitigate bias through discussion and oversight, the filtering process should be viewed as interpretative rather than neutral. We recognise that all questions submitted have value and the full list of submitted questions after cleaning (with submitter identifiers removed) is available as a community resource (see Supplementary Data).

2.5. Combining similar questions

The sifted data had multiple questions that posed the same or very similar questions. We took a cluster analysis approach to identify similar questions and to combine and remove duplicate questions. To determine the clusters: the questions were loaded into R version 4.3.3 (Ref⁴) in RStudio (Ref⁸) and a corpus created using the package *tm: Text Mining Package* (Version 0.7-13) (Ref⁹). Basic cleaning of the corpus was performed: all letters to lower case, punctuation removed, common words removed (and, or etc.), stemming the words to the word stem (to avoid peatland and peatlands being two different words, for example). After cleaning, there were 1183 different word stems. Keywords were identified based on the frequency of each word stem. We selected 56 of these words considered useful for grouping questions to identify duplicates. Word stems with a frequency lower than five were not considered. K-means clustering was performed on the keyword document-term matrix for 15 clusters. Increasing the number of clusters to 30 did not improve the result.

The questions within each cluster were manually checked by a member of the core team and questions that did not fit within a cluster in a meaningful way were moved to an alternative cluster. For example, “accumulat*” included questions such as “*What are the limits to peatland accumulation?*” and “*What are the biogeochemical and microbiological controls on peat formation and accumulation?*” but also the questions “*What percentage of accumulated CO₂ do peatlands represent worldwide, compared to other ecosystems or biomes?*” and “*What agrochemicals are used in crops and in what quantities do they accumulate in peatlands?*”, which are not meaningful when considering “accumulation” in a peatland context. A number of questions (201) were assigned to a cluster we termed ‘mix’, which included questions that did not easily fit within any clusters. These questions were manually checked for duplicates after working through the other clusters.

Identical or very similar questions were grouped, retaining their question and submitter identifiers. A total of 93 groups covering 417 questions were identified as identical or similar. For each group of similar questions, the most representative question was selected, or a newly worded question was created that captured the meaning of the similar questions (prioritising clarity of the question). For example, there were 20 questions that asked some form of “*What is the extent of peatlands and where are they located?*”. Several questions within this group also specified poorly mapped or under-studied regions. These questions were combined into a single question: “*What is the global extent and distribution of peatlands, including those in areas that are currently poorly mapped?*” If a question in one of the groups could not be adequately combined without changing the meaning, it was retained as a separate question. For each combined question, the question and submitter identifiers that make up the question were recorded to be able to keep track of the questions (and submitter profiles) that contributed to that question. The number of submitter identifiers for each group provides an indication of the popularity of specific questions, which in itself is a form of prioritisation (see Supplementary Discussion, Supplementary Table 2). Similar to question sifting, our intention was to significantly reduce the number of questions in preparation for the prioritisation stage, with similar risk of bias (see above).

2.6. Formatting the final questions

Once all duplicates were removed and combined, the core team checked the draft of the final list of questions and made final minor wording edits to standardise format, spelling and grammar. The questions were put in a random order and new question identifiers were assigned to the final list of questions. These cleaned and sifted questions (totalling 212) were used as the questions in the prioritisation stage.

3. Prioritising the questions

3.1. Selecting peatland experts from the global community

We asked the [Global Peatlands Initiative](#) to identify a diverse range of peatland experts from their extensive global database to take part in the prioritisation of the questions. The Global Peatlands Initiative is independent of the core team. They selected the diversity of experts based on gender, country of residence, region of expertise, sector, position/organisation, and field of expertise. They identified 75 experts. Of the 75 invited people, nine declined (no time or now working in different roles), 19 did not respond (each was prompted with a follow-up email at least once), six responded that they were working on it but did not submit a response by the deadline, and 41 submitted a response. Three people passed the task on to their colleagues who they felt better placed to prioritise the questions. Others provided a response after discussing it with their team. Supplementary Table 1 shows the composition of the participants selected by the Global Peatlands Initiative and those who submitted a prioritised list.

Supplementary Table 1. Composition of the participants selected and invited to participate by the Global Peatlands Initiative and those who submitted their votes on the list of questions, organised by a) gender, b) region of residence, c) region of expertise, and d) sector.

a) Gender	Invited	Submitted
Female	33	23
Male	42	18

b) Region of residence	Invited	Submitted
Africa	9	4
Asia	11	7
Europe	30	12
Latin America	8	7
North America	12	9
Oceania	5	2

c) Region of expertise	Invited	Submitted
Africa	10	5
Asia	10	6
Europe	13	4
Latin America	11	8
North America	7	7
Oceania	3	2
Global	17	7
N/A	4	2

d) Sector	Invited	Submitted
Academia	30	20
Government	17	8
Intergovernmental organisation	8	3
Non-governmental organisation	15	9
Private Sector	5	1

3.2. Sending the questions out for prioritisation

To prioritise the questions, we adopted cumulative voting (also known as multi-voting or dot-voting), which is a simple method for prioritising lists of items (e.g., see¹⁰). It is also a common approach for in-person workshops, typically using sticky dots¹¹.

Each participant was allocated 25 points, which they could distribute across the 212 questions according to their perception of importance. The number of votes represented a compromise: large enough to allow participants to express strong preferences across multiple questions but small enough to keep the exercise manageable and focussed. Participants were free to place all 25 points on a single question if they felt it was of overriding priority or divide their points among multiple questions (integers only). They were not prevented for voting for question(s) that they had submitted to the original survey. This system allows participants to express both the intensity of preference for particular questions and the breadth of issues they consider important. Allowing participants to allocate all points to a single question risks over-amplifying individual preferences relative to collective consensus (a form of tactical voting¹²) but this effect seemed to be minimal in this instance, with the highest number of points given to a question by an individual participant was five, with the majority deciding to give 1 or 2 points to multiple questions.

The questions were randomised for each participant to avoid the primacy effect, where items towards the start of the list receive more votes¹³, and presented in a Microsoft Excel spreadsheet. The spreadsheet included (i) instructions for completing the exercise (Supplementary Box 2), (ii) a randomised list of questions with space for assigning points, and (iii) a short questionnaire requesting demographic and professional details (name, email address, job title, job sector, the number of years they have worked with peatlands, the peatland regions they work in, the country of their primary address, nationality, gender, and age). Voting via spreadsheets and email provided a simple system (reduced potential for human error) and participants were not constrained by synchronous meeting times (difficult with global participation). Once participants had allocated their 25 points, they completed the demographic details and returned the spreadsheet to the core team by email.

The prioritisation was conducted anonymously, and participants could not see other votes, which minimised authority bias, where participants feel obliged to align with influential group members, or later votes were swayed by earlier choices of others⁸. Participants were not given the opportunity for deliberation or clarification, meaning that the prioritisation reflects individual judgements rather than a negotiated consensus. The format also relies heavily on participant interpretation of question wording (which may vary across cultural, linguistic, or disciplinary backgrounds) and on the time available and individual motivation to do the task, potentially influencing how points were distributed (e.g., not reading the full list of questions because of limited time availability).

3.3. Editing the final list of questions

Once the votes had been received from all participants, the questions were ordered by number of votes. There was not a convenient “top 50” threshold in the voting scores: 53 questions scored seven points or more, and a further ten questions scored six points. Several of these questions overlapped in content. To avoid redundancy and improve clarity in the final list of 50 questions, the core team reviewed the top scoring questions and merged closely related questions, with some elements from questions that scored six points incorporated into these merged questions.

For example, “*What are the global greenhouse gas emissions from peatlands and how does it vary by peatland type and region?*” (35 votes) was merged with “*What are the key drivers influencing greenhouse gas emissions from peatlands, and how does the degree of peat*

disturbance impact these greenhouse gas flows?” (6 votes) to create the final included question “What are the global greenhouse gas emissions from peatlands and how do they vary by peatland type, region and degree of disturbance?”. Similarly, “How can remote sensing be used to improve our understanding of peatland dynamics, and support peatland monitoring and management?” (11 votes) was merged with “How can we integrate existing and emerging technologies (e.g. AI) for peatland management and address the challenges of peatland research?” (6 votes) to create the final question “How can remote sensing and other existing and emerging technologies (including AI) be used to improve our understanding of peatland dynamics, support peatland monitoring and management, and address the challenges of peatland research?”. The 50 questions presented in the main text therefore represent consolidated, high-scoring topics rather than a verbatim list of the 50 highest scoring individual questions.

The core team placed the questions into broad themes to provide a narrative in the main manuscript, and questions were rephrased where needed to improve clarity and ensure consistent formatting. The questions were not listed in order of votes, and the order presented in the main text does not reflect any hierarchy.

In using invited participants to vote rather than opening it up to the wider community, we recognise that the results are inherently a product of the participants who were invited by the Global Peatland Initiative to take part in the process. The full list of questions is available as a community resource¹⁴.

Supplementary Box 2. Instructions given to the participants to prioritise the questions.

Thank you for agreeing to take part in the prioritisation stage of PeatQuest.

Instructions

The submitted questions have been sifted, anonymised, cleaned and the duplicates merged, resulting in 212 questions. The questions have been randomised.

1. You have 25 points to vote with. You can put all points on one question or split the points up in any way you wish (integers only).
2. Please read through the questions on the 'Questions' tab and think about which questions you consider to be priority questions in peatland research.
3. Put the number of points you wish to assign to any question(s) in the points column. Check that your maximum at the end does not exceed 25 points.
4. Add in your personal details on the 'About you' tab.
5. Email the completed spreadsheet to alice.milner@rhul.ac.uk

What is PeatQuest?

PeatQuest is a community peatland project that wants to find the most crucial questions that still need answers in peatland research. These questions will help guide peatland stakeholders by suggesting future projects and showing important research topics and priorities for the next decade and beyond. The project has two parts:

In Part 1 of the project, we asked the peatland community to submit the most important peatland questions that still need answers. We received questions from over 450 individuals from 52 countries, including researchers, policymakers, local community groups and individuals active in peatland areas. The questions have been translated, anonymised, cleaned and similar questions merged.

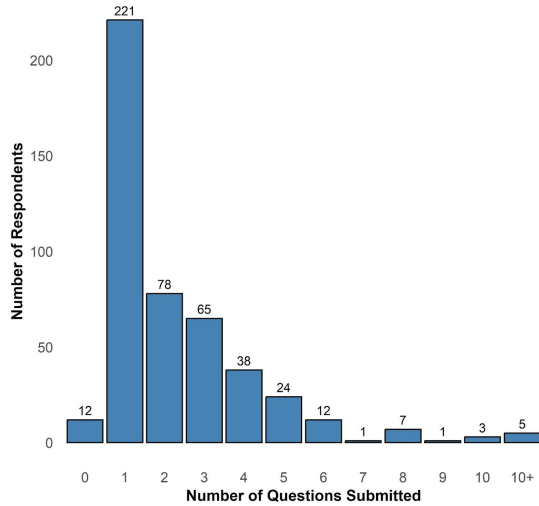
In Part 2, we are prioritising the submitted questions to create a list of the most important questions in peatland research that, if answered, can help us manage and use peatlands more wisely all over the world. The questions will be published and freely available as a community resource.

What happens next?

Once all the responses are in, we will be in touch with you to share the final list of prioritised questions. In recognition of your time, we would like to invite you as a co-author on the peer-review publication that will include the final list of prioritised questions. If you have any questions, please email alice.milner@rhul.ac.uk

Supplementary Discussion

Supplementary Figure 1. The number of questions that respondents submitted to the online community survey.



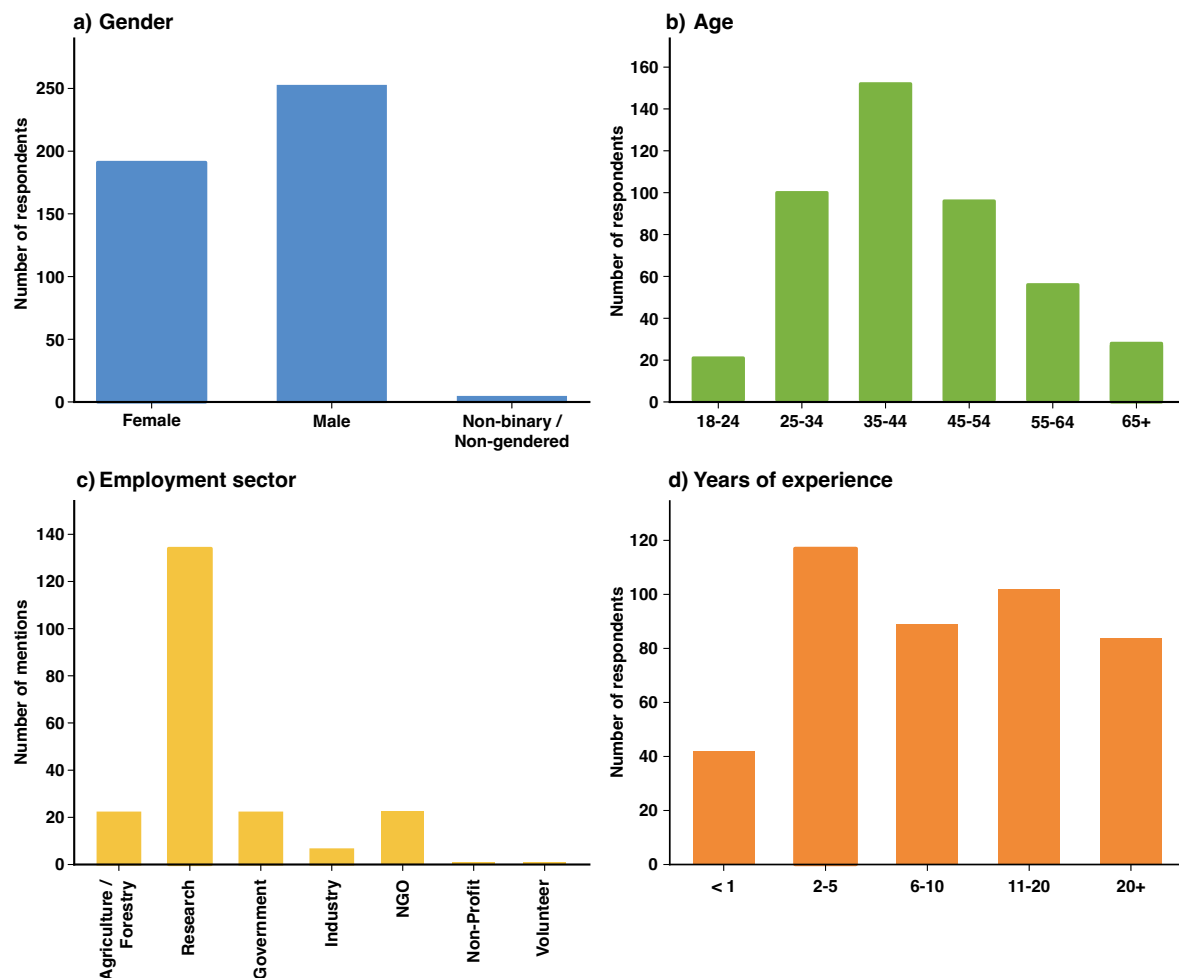
The number of questions submitted per respondent varied widely, ranging from 0 to 26, with an average of 2.38 questions, where 0 indicates no information submitted (i.e., where a respondent had responded “na” or similar). The distribution was positively skewed, with the most common submission being a single question, recorded by 221 respondents (47.3 %). Notably, 29 respondents (6.2 %) submitted more than five questions each, contributing 23.8 % of the total questions. This suggests that while a broad base of participants provided input, a smaller subset of individuals contributed disproportionately to the question pool. During subsequent processing, similar or duplicate questions were amalgamated across all respondents, irrespective of who submitted them or how many questions they submitted, and the prioritisation stage was based on expert voting on question content rather than on the identify or number of questions submitted by any individual.

Supplementary Table 2. Questions submitted to the online community survey by ten or more respondents.

Question	Number of respondents who submitted the question
How will climate change impact the carbon balance, storage capacity, and greenhouse gas emissions of peatlands and what are the mechanisms and factors (e.g., seasonal changes) that influence these processes?	25
What is the global extent and distribution of peatlands, including those in areas that are currently poorly mapped?	21
How will peatlands across different latitudes, elevations, and hydrological conditions respond to climate change and how will these changes impact their extent, processes and overall function?	18
Which restoration approaches yield the most effective outcomes to restore ecosystem function in degraded peatlands (e.g., from drainage, agriculture, mining)?	16
How much carbon do peatlands store globally?	12
How can peatlands be used to generate sustainable economic value (e.g., agriculture, resource use, carbon markets) without degrading them?	11
What environmental conditions and mechanisms influence the peatland carbon sink function and how can we maintain optimal sequestration rates across peatland types and conditions?	10

The highest number of similar questions in any one group was 25 (questions focussed on the fate of peatland carbon with projected climate change). The average number of similar questions in any one group was 4.5.

Supplementary Figure 2. Demographic breakdown of survey respondents by **a)** gender identity, **b)** age group, **c)** employment sector, and **d)** years of experience working with peatlands. As some participants reported working across multiple sectors, sector counts are presented as sector ‘mentions’ rather than by individual respondents. Custom answers to banded questions (e.g., age, experience) were excluded for consistency, as were ‘prefer not to say’ responses across all categories.



Representativeness of survey responses: In addition to asking respondents to indicate their sector, we collected optional free-text job titles (n = 427). Where job titles indicated a discipline rather than a general role, most were in natural sciences and applied environmental fields including environment, conservation, ecology, forestry, biology/botany, geography, agriculture, soil, climate change, hydrology and geology, with smaller numbers in farming, archaeology, communication, engineering, data/GIS, social work, art and community-focussed roles. Job titles were classified as peatland/wetland-explicit if they contained at least one word related to peatlands or wetlands (“peatland”, “wetland”, “peat”, “mire”); 36 titles met this criterion (e.g., Peat Resource Specialist, Peatland Conservation Officer, Peatland Scientist, Principal Wetlands Officer), spanning research, conservation/management and policy/governance positions. This categorisation is indicative rather than definitive, as it relies on how individuals chose to describe their roles, but overall it suggests that respondents are weighted towards natural science and applied management expertise in academic and public-sector institutions, with additional input from NGO, consultancy and land-management perspectives, and likely fewer explicitly social-science or economics-focussed roles.

To assess geographic representativeness, we considered both respondents' country of residence and the peatland regions in which they reported working. Respondents provided a country of residence that we grouped into world regions (Supplementary Table 3). For the peatland regions that respondents worked in, the question was optional and multiple selections were allowed ($n = 623$), indicating that many people work in more than one region. Europe is strongly represented in residency but slightly less so in work region (208 respondents are based in Europe, but Europe was selected 188 times as a peatland work region), indicating that Europe-based respondents also work in other world regions. For example, among respondents based in the UK ($n = 80$), 62 selected Europe as a peatland region they work in, but others also reported work in the Americas (20), Asia (11), Africa (8), Oceania (1) and at a global scale (15). Similarly, more respondents identified Central and South America as peatland regions they work in (64 selections) than were resident in these regions (24 respondents), indicating international collaboration or work in the region by people based elsewhere.

For Africa, the continent as a whole has similar representation in terms of residency and respondents who reported working on peatlands in the region, but Central Africa (Congo Basin) is clearly the main focus (6.6 % of all work-region selections, 41 selections). Other African regions together remain sparse in both residency and work, as does Oceania. Fifty respondents selected "Global" as a peatland region they work in, indicating that some respondents see their work as spanning multiple regions or contributing to global syntheses. Overall, this analysis shows that some peatland areas and communities remain under-represented in our survey and highlights the need for regional prioritisation exercises using the list of priority questions as a scaffold that can be adapted and re-prioritised to capture the importance of different regional, landscape and governance settings.

Supplementary Table 3. Respondent residency and peatland work regions. Numbers of respondents by world region of residency (n, and % of 464 respondents with residency data) and numbers of region selections indicating the peatland regions where respondents work (n, and % of 623 total selections). Work-region values reflect an optional survey question in which respondents could select more than one region, so counts represent region selections rather than unique individuals.

Region	Respondents with residency in region, n (%)	Region selected as peatland work area, n (%)
Global	n/a	50 (8.0)
Europe (incl. Russia)	208 (44.8)	188 (30.2)
Americas	95 (20.5)	152 (24.4)
<i>North America</i>	<i>71 (15.3)</i>	<i>88 (14.1)</i>
<i>South America</i>	<i>23 (5.0)</i>	<i>51 (8.2)</i>
<i>Central America</i>	<i>1 (0.2)</i>	<i>13 (2.1)</i>
Asia	97 (20.8)	152 (24.4)
<i>Asia (unspecified)</i>	<i>54 (11.6)</i>	<i>75 (12.0)</i>
<i>Southeast Asia</i>	<i>40 (8.6)</i>	<i>67 (10.8)</i>
<i>Central Asia</i>	<i>1 (0.2)</i>	<i>7 (1.1)</i>
<i>South Asia</i>	<i>2 (0.4)</i>	<i>3 (0.5)</i>
Africa	48 (10.3)	60 (9.7)
<i>Central Africa</i>	<i>30 (6.5)</i>	<i>41 (6.6)</i>
<i>East Africa</i>	<i>12 (2.6)</i>	<i>11 (1.8)</i>
<i>Southern Africa</i>	<i>3 (0.6)</i>	<i>5 (0.8)</i>
<i>West Africa</i>	<i>3 (0.6)</i>	<i>2 (0.3)</i>
<i>North Africa</i>	<i>0 (0)</i>	<i>1 (0.2)</i>
Oceania	16 (3.4)	21 (3.4)

The datasets generated in this study are available in an online repository¹⁴.

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