

# A Review of the Biological Recording Infrastructure in Scotland by the Scottish Biodiversity Information Forum

## QUESTIONNAIRE FINDINGS

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## Acknowledgements

Development, analysis and reporting of the questionnaire have been undertaken on behalf of the SBIF Advisory Group by the SBIF Review Working Group: Ellen Wilson, Liz Edwards, Christine Johnston, Rachel Stroud, Colin McLeod and Lindsay Bamforth.

The SBIF Advisory Group and SBIF Review Working Group would like to thank Rebecca Jefferson for her advice on questionnaire design and on the drafting of this paper, Andrew Mercer for his advice on using SmartSurvey and Purba Choudhary and Mandy Henshall for their advice on communications for the questionnaire. We also thank everyone who helped to promote the questionnaire across the UK.

## Citation

This document should be cited as:

Wilson, E., Edwards, L., Johnston, C., Stroud, R., McLeod, C. and Bamforth, L. (2018) A Review of the Biological Recording Infrastructure in Scotland by the Scottish Biodiversity Information Forum: Questionnaire Findings. Scottish Biodiversity Information Forum Commissioned Report No. 3.

Its accompanying appendices should be cited as:

Wilson, E., Edwards, L., Johnston, C., Stroud, R., McLeod, C. and Bamforth, L. (2018). A Review of the Biological Recording Infrastructure in Scotland by the Scottish Biodiversity Information Forum: Appendices to the Questionnaire Findings. Scottish Biodiversity Information Forum.

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14 November 2018

## 1. Introduction

The SBIF Advisory Group undertook to drive a review and redesign of the biological recording infrastructure in Scotland in order to inform any realignment of structures and resources necessary to achieve the SBIF vision:

*High quality species and habitat data will be collected and managed through a sustainable, co-ordinated and integrated local and national framework of organisations, partnerships and initiatives. These data will be available to ensure that Scotland's biodiversity, ecosystems and people benefit.*

The first phase of this Review has been to gather information on the 'current situation' so that we can determine what is working well and what is not working well. This information gathering has been undertaken at two levels: firstly through a questionnaire open to all sectors and roles involved in the collection or use of biological records; and secondly through interviews with key stakeholders perceived to have the most interest and influence. The findings of the questionnaire are reported in this document while the findings of the interviews are available as a separate report.

Information from the questionnaire and interviews will together inform decision-makers as to whether there is any significant need for change given the perspectives and requirements of each sector and role. Subsequently, workshops on data flows, service provision, governance and funding will evaluate potential options to enable the development of a detailed business case for change. This detailed business case and recommendations to support the changes needed will be presented to key decision-makers in due course.

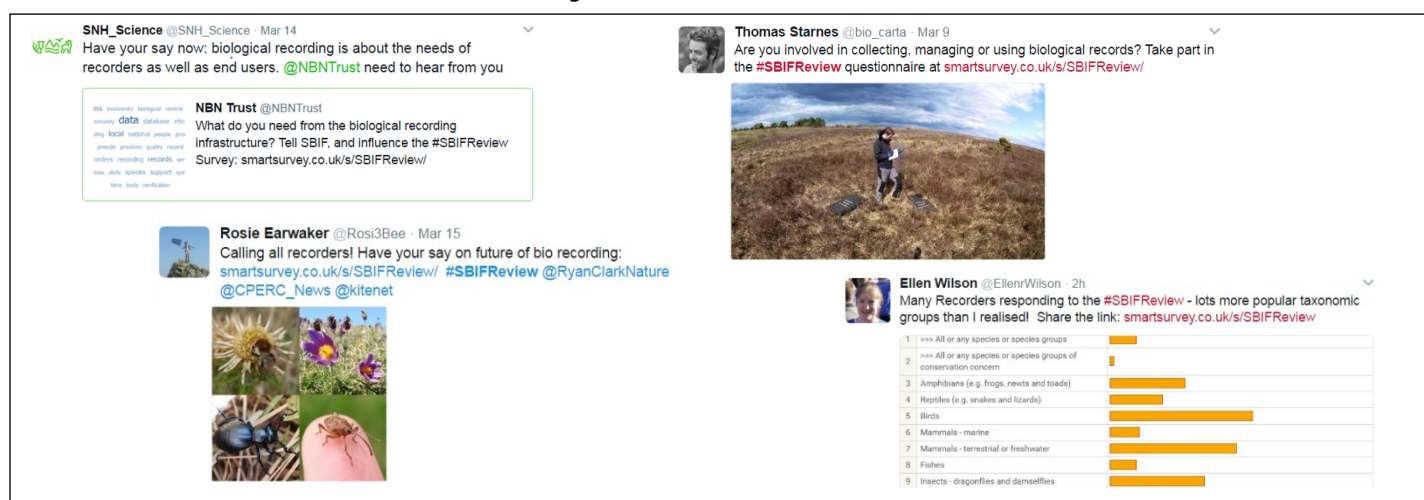
Subsequent phases of the Review will consider how its recommendations can be implemented and supported in the most effective way for all sectors and roles. We hope that with the review concluding in 2018, implementation can begin from 2019 onwards. All outputs from the review and all related communications are published on the SBIF pages and *Network News* on the National Biodiversity Network (NBN) web site at <https://nbn.org.uk/about-us/where-we-are/in-scotland/review/>.

## 2. Methods

### i. Questionnaire development and limitations

Question development was undertaken by the SBIF Review Working Group. The questionnaire was conducted using SmartSurvey, an online survey tool, to facilitate access and participation by the public. Questionnaire responses were invited over a period of five weeks during March and April 2017. Targeted invitations were sent to key stakeholders, who were encouraged to promote the questionnaire within their communities, and all major interested audiences including people on the SBIF Supporters Mailing List and people who attended the NBN Conference in 2016. The questionnaire was widely promoted via the December 2016 and March 2017 edition of *Network News* issued by the National Biodiversity Network Trust, via use of the hashtag #SBIFReview on Twitter (**Figure 1**) and via the SBIF pages of the NBN website.

**Figure 1: #SBIFReview on Twitter**



Participants could only take part in the questionnaire on confirming their agreement with four statements regarding the purpose, use and retention of their information (**Figure 2**). To differentiate the roles in the infrastructure played by each participant, and the sectors to which the participants belonged, we defined roles, sectors, interest areas and service areas (**Tables 1-5**). It is possible that participants who were unfamiliar with these definitions may have found it difficult to know which were relevant to them and may have failed to complete the questionnaire at this point or they may have matched themselves to the wrong role or sector. Although this is a limitation, the majority of people recruited to participate in the questionnaire are likely to have been sufficiently familiar with these roles and sectors to recognise the ones of most relevance to them. As the same core questions were asked of each role, if participants provided answers for more than one role they may have found the questions repetitive and either failed to complete the questionnaire or failed to answer a question when it was re-encountered.

## ii. Question groups

The questionnaire included eight question groups (**Table 6**) covering the following areas: 1) *current situation*: open questions to elicit details about the current situation for each role in terms of what is currently working well and less well; 2) *ideas and priorities for improvements*: open questions to elicit details about participants' ideas for how the current situation can be improved and their priorities for earliest or greatest attention; 3) *data flow mechanisms and interactions*: closed questions on systems in use, data flows and formats and data provision to determine the mechanisms and interactions currently facilitating the flow of data from point of collection to end user; 4) *service provision*: closed questions on services currently being provided and used to determine the nature of the services and their use; 5) *funding and facilitation*: closed questions on funding and facilitation of the network to determine how each role and area of activity is currently supported; 6) *Open Data*: a closed question on whether participants are happy for 'their' data to be made openly available; 7) *motivation and morale*: an open question on what motivates participants to play their role and closed questions to assess the morale of participants; and 8) *respondent profile*: closed questions to determine the profile of participants in terms of their involvement, sector, roles, taxonomic interests, activity, level of expenses and their geographic location in terms of the local authority of their home or office base. A full list of the questions asked is given in Appendix 1.

The questionnaire was organised by role so that we could obtain the perspective of each role. Participants received one page of, on average, 20 questions for each role that they selected as a role they undertook. Core questions were asked of every role, with supplementary questions asked for specialist elements, e.g. for verification because only verifiers are involved in this.

## iii. Data analysis

Descriptive statistics were used to summarise the results for each question using tools in SmartSurvey and Excel 2010. The results were presented by Sector, Role and Country wherever sample size was sufficiently large to avoid identifying individual responses. All analysis, including the categorisation of open question responses, was undertaken by the SBIF Working Group.

**Figure 2: Use of your information statement**

### Use of your information

To complete the questionnaire you must be aged 18 or over and happy for your response to be used in the ways outlined below (if you are under 18 please ask your parent or guardian to complete the questionnaire on your behalf). The information that you provide will only be used to inform the Review of the Biological Recording Infrastructure in Scotland. Your response will enable us to:

- identify what is working well and less well, and to discover what ideas you might have for where worthwhile improvements could be made.
- categorise and summarise responses by sector, role and country so that your information is not used in a way that would identify you or your organisation individually.
- inform options for what could be local, national or central to facilitate the selection of a preferred option and the overall recommendations of this Review.

All responses will be held confidentially and securely by the SBIF Working Group and archived for up to 3 years once the recommendations of the Review have been published.

### By ticking the box below I agree that:

- I understand that the information that I provide will be used to inform the SBIF Review of Biological Recording Infrastructure in Scotland.
- I understand that my response will be treated confidentially and retained for no more than 3 years after the findings of the Review have been published.
- I understand that the information I provide will not be used in a way that could identify me or my organisation individually.
- I am at least 18 years of age.

☐ PLEASE TICK HERE TO CONFIRM YOUR AGREEMENT WITH THE ABOVE STATEMENTS.



**Table 1: List of the roles used in the questionnaire**

\* LERC = Local Environmental Records Centre; NBN = National Biodiversity Network

ROLE	
1	RECORDER OR DATA COLLECTOR: you collect biological records for your own or others' use
2	VERIFIER OR COUNTY RECORDER: you verify the accuracy of biological records collected and identified by others
3	COLLECTION CURATOR: you curate biological samples or specimens for analysis, exhibition or reference
4	RECORDING GROUP OPERATOR: you manage the activities and administration of a recording group
5	RECORDING SCHEME OPERATOR: you manage the activities and administration of a recording scheme
6	DATA PROVIDER: you publish datasets or derived data products and manage their metadata and licensing
7	DATA DEVELOPER: you create new value-added datasets or derived data products such as enriched data or trends
8	DATA USER: you use biological records, added-value datasets or data products for your own purposes
9	SERVICE PROVIDER: you supply services such as those provided by LERCs or the NBN Trust*
10	SERVICE USER: you use services such as those provided by LERCs or the NBN Trust*
11	FUNDER: you provide funding to support or commission key activities in our network
12	FACILITATOR: you act as a secretariat to coordinate, and communicate across, our whole network

**Table 2: List of the spatial levels used in the questionnaire**

LEVEL	
1	LOCAL: activities in, or services for, a local or regional area that are undertaken from within that local or regional area
2	NATIONAL: activities in, or services for, a nation (e.g. Scotland or the UK) that are undertaken from within that nation
3	CENTRAL: activities or services that are not place-based and that can be delivered from anywhere or to anyone

**Table 3: List of the sectors used in the questionnaire**

SECTOR	
1	Recorders or Recording Groups
2	National Recording Schemes
3	Environmental/conservation Non-Governmental Organisations
4	Local Environmental Records Centres
5	Commercial companies and environmental consultancies
6	Museums, zoos and botanic gardens
7	Academia and education
8	Local authorities and national park authorities
9	National or central government departments, agencies or public bodies
10	Cross-sectoral partnership or secretariat organisations - e.g. the National Biodiversity Network (NBN) Secretariat
11	Member of the general public
12	Other

**Table 4:** List of the interest areas used in the questionnaire

INTEREST AREA	
1	Wildlife conservation
2	Development planning and environmental impact assessment
3	Invasive non-native species
4	Public health and well-being
5	Disease control
6	Pollution
7	Climate change
8	Sustainable management of land, water or sea
9	Producing peer-reviewed scientific papers
10	Species taxonomy

**Table 5:** List of the service areas used in the questionnaire

SERVICE AREA	
1	FACILITATION: supporting partners to play their part, defining standards and providing common systems
2	INTRODUCTION: introducing people to biological recording and enjoyment of the natural world
3	COLLECTION: encouraging, training and supporting people to collect, digitise or mobilise biological records
4	VERIFICATION: checking the accuracy of biological records or developing capacity to do so on a wider scale
5	CURATION: managing and showcasing biological records on your own behalf or on behalf of others
6	PROVISION: publishing, aggregating and sharing biological records as easily available resources for all
7	DISCOVERY: enabling people to identify, locate and extract the biological records that they need
8	ENHANCEMENT: configuring, analysing or enhancing records to increase their value or aid their interpretation
9	USE: using biological records to obtain value or benefit yourself, for colleagues or customers, or for public good

**Table 6: Questions included in each question group**

Questions listed below are illustrative of the range of questions asked. All questions were optional.

## QUESTION GROUPS 1-8

### 1 CURRENT SITUATION

- Working well* For the activities that you ticked above, what is already working well and what makes it so effective?  
*Working less well* For the activities that you ticked above, what is working less well and how is it problematic for you?

### 2 IDEAS AND PRIORITIES

- Ideas* What ideas do you have for specific changes or general improvements that could help resolve any of these issues for you as a <role>?  
*Priorities* Given that the SBIF Review could potentially identify and facilitate many key improvements across our biological recording network, what would be your top three priorities for earliest or greatest attention?

### 3 DATA FLOW MECHANISMS AND INTERACTIONS

- Data capture* How do you capture your biological records in the field?  
*Data storage* How do you hold and manage the biological records that you collect/verify/curate/provide/use?  
*Data submission* Where do you send or submit your biological records?  
*Data formats* In what formats do you submit/receive/use your biological records?  
*Preferred format* In which format do you most prefer to submit/receive your biological records?  
*Data origin* From whom do you receive biological records?  
*Recorder contact* When necessary, how do you liaise or correspond with the original Recorders of the records that you verify?  
*Data sources* Where do you go to source or obtain biological records, added-value datasets or derived data products that you can use for your own purposes?  
*Data use* How often do you make use of biological records, added-value datasets or derived data products in some way?  
*Data satisfaction* How satisfied are you with the biological records, added-value datasets or derived data products that are available for your use through our biological recording communities and infrastructure?

### 4 SERVICE PROVISION

- Services provided* In which of the following areas do you provide services that support our biological recording community and infrastructure?  
*Service costs* What level of annual operating costs does your organisation currently incur to provide its services?  
*Service funding* From which of the following sources do you receive income or funding that contributes towards, or fully covers, the annual operating costs of providing the services that you provide?  
*Service data* Where do you go to source or obtain the biological records, added-value datasets or derived data products that you make available through, or use as a component of, your services in some way?  
*Income purpose* How is the income that you make, if any, from the provision of your services used?  
*Service use* In which of the following areas do you make use of services that are of value to you in some way?  
*Use level* How often do you make use of the services that you use?  
*Use scale* Do you primarily make use of services at a local, national or central level?  
*Use cost* In the last year, how much have you spent in total on paying for the services that you have used (regardless of who supplied them)?  
*Service satisfaction* How satisfied are you with the services that are available for your use through our biological recording communities and infrastructure?

### 5 FUNDING AND FACILITATION

- Funding level* In the last year, what level of funding have you provided to support or commission key activities in our network in some way?  
*Funded sectors* Which of the following sectors do you fund to support or commission key activities in our network in some way?  
*Funded roles* Which of the following roles do you fund to support or commission key activities in our network in some way?  
*Funded activities* Which of the following areas do you support or commission through the funding that you provide?  
*Facilitated sectors* Which of the following sectors do you support, or facilitate the involvement of, within our biological recording network in some way?  
*Facilitated roles* Which of the following roles do you support, or facilitate the involvement of, within our biological recording network in some way?  
*Facilitated activities* Which of the following areas do you support, or communicate about, within our biological recording network?  
*Facilitation resources* What types of activities or resources do you offer to coordinate and communicate with your network partners and other stakeholders?

### 6 OPEN DATA

- Open Data* Are you happy for the biological records that you <collect/curate/use/provide> to be openly available (with appropriate caveats for sensitive records) for use by anyone? "*Open means anyone can freely access, use, modify, and share for any purpose (subject, at most, to requirements that preserve provenance and openness).*" [source: [www.opendefinition.org](http://www.opendefinition.org)]

### 7 MOTIVATION AND MORALE

- Motivation* What motivates you to be a Recorder or Data Collector?  
*Morale* Regarding the part that you play as a Recording Group Operator in our biological recording communities and infrastructure, to what extent do you agree with each of the following <six> statements?

### 8 RESPONDENT PROFILE

- Involvement* How are you currently involved within our biological recording network or infrastructure?  
*Sector* Which sector do you primarily belong to?  
*Role* Which of the following <list of 12 roles> do you personally have?  
*Base* Which Local Authority area are you based in?  
*Interest* Do you have a particular interest in any of the following <list of 10 topics>?  
*Place* In which of the following places <list of 11 countries and regions> do you primarily collect biological records?  
*Environment* In which of the following environments do you primarily collect biological records?  
*Taxa* For which of the following taxonomic groups do you primarily collect biological records?  
*Paid hours* In the last year, how many hours a month on average have you acted as a <role> in an employed capacity?  
*Unpaid hours* In the last year, how many hours per month on average have you acted as a <role> in a voluntary capacity?  
*Activities* Which of the following <list of 12 activities> do you do as a <role>?

### 3. Results

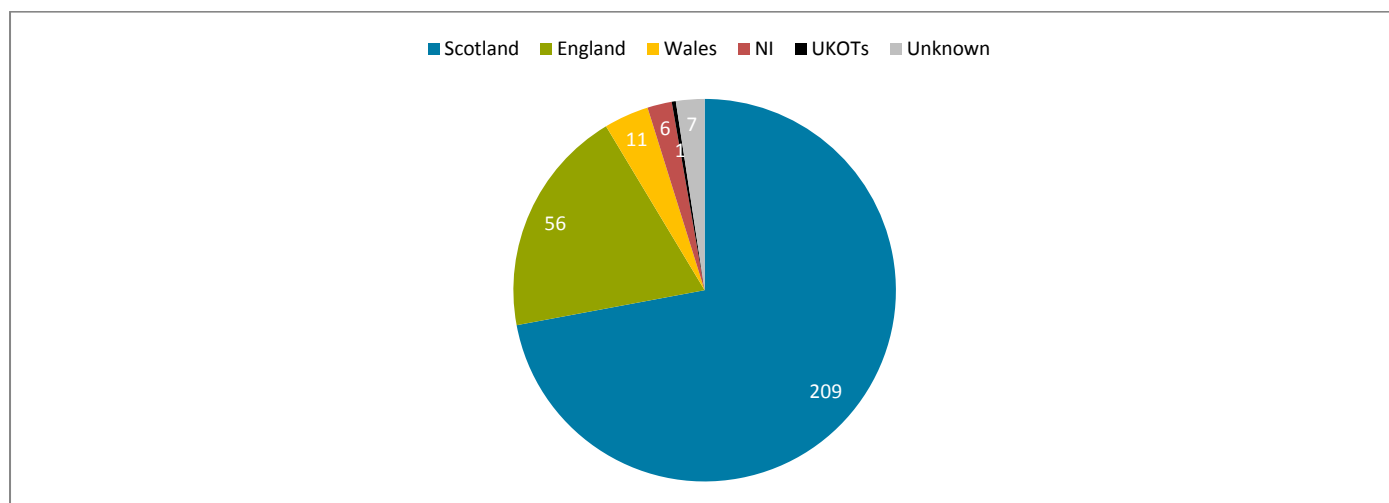
#### 3.1 Number of responses and respondent profiles

##### i. Sector, role, involvement and interest

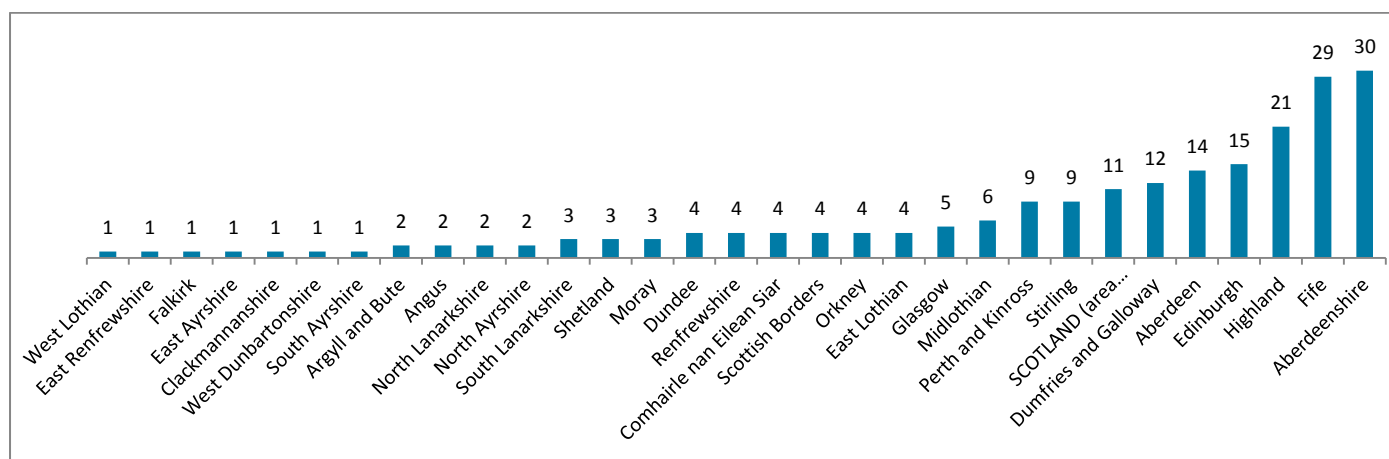
A total of 290 respondents (listed in Section 6) completed the questionnaire with 209 (72.1%) respondents coming from Scotland, 56 (19.3%) from England, 11 (3.8%) from Wales, 6 (2.1%) from Northern Ireland, 1 (0.3%) from a UK Overseas Territory and 7 (2.4%) not stating their location (**Figure 3**). Due to sample sizes being relatively small, analysis of the results has been undertaken using all responses for a role or sector rather than just those for one particular country, unless otherwise stated.

Responses were received from 30 of 32 (93.8%) local authority areas in Scotland (with Inverclyde and East Dunbartonshire giving no response), from 28 of 85 (32.9%) in England, 8 of 22 (36.4%) in Wales and 5 of 11 (45.5%) in Northern Ireland (**Figures 4 to 6**).

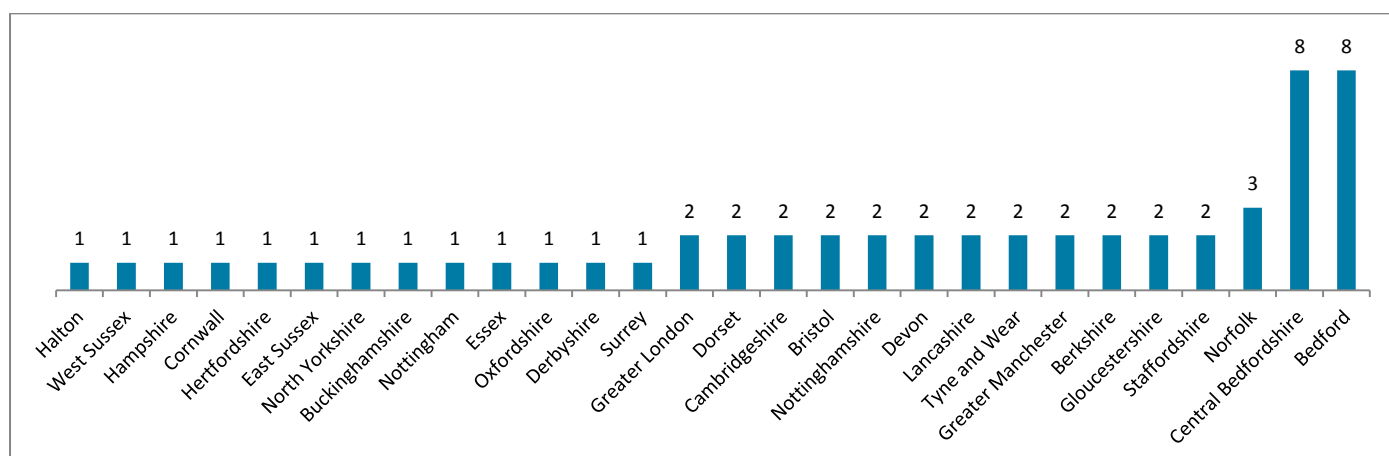
**Figure 3: Number of respondents by country**



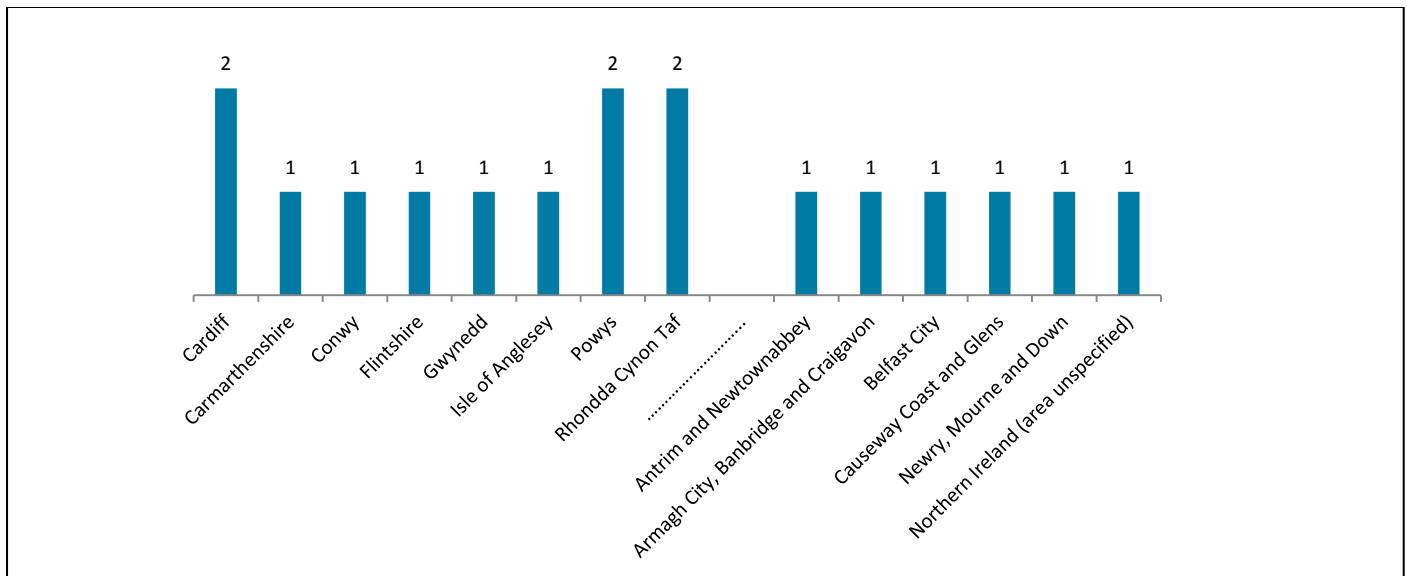
**Figure 4: Number of respondents per local authority area in Scotland**



**Figure 5: Number of respondents per local authority area in England**

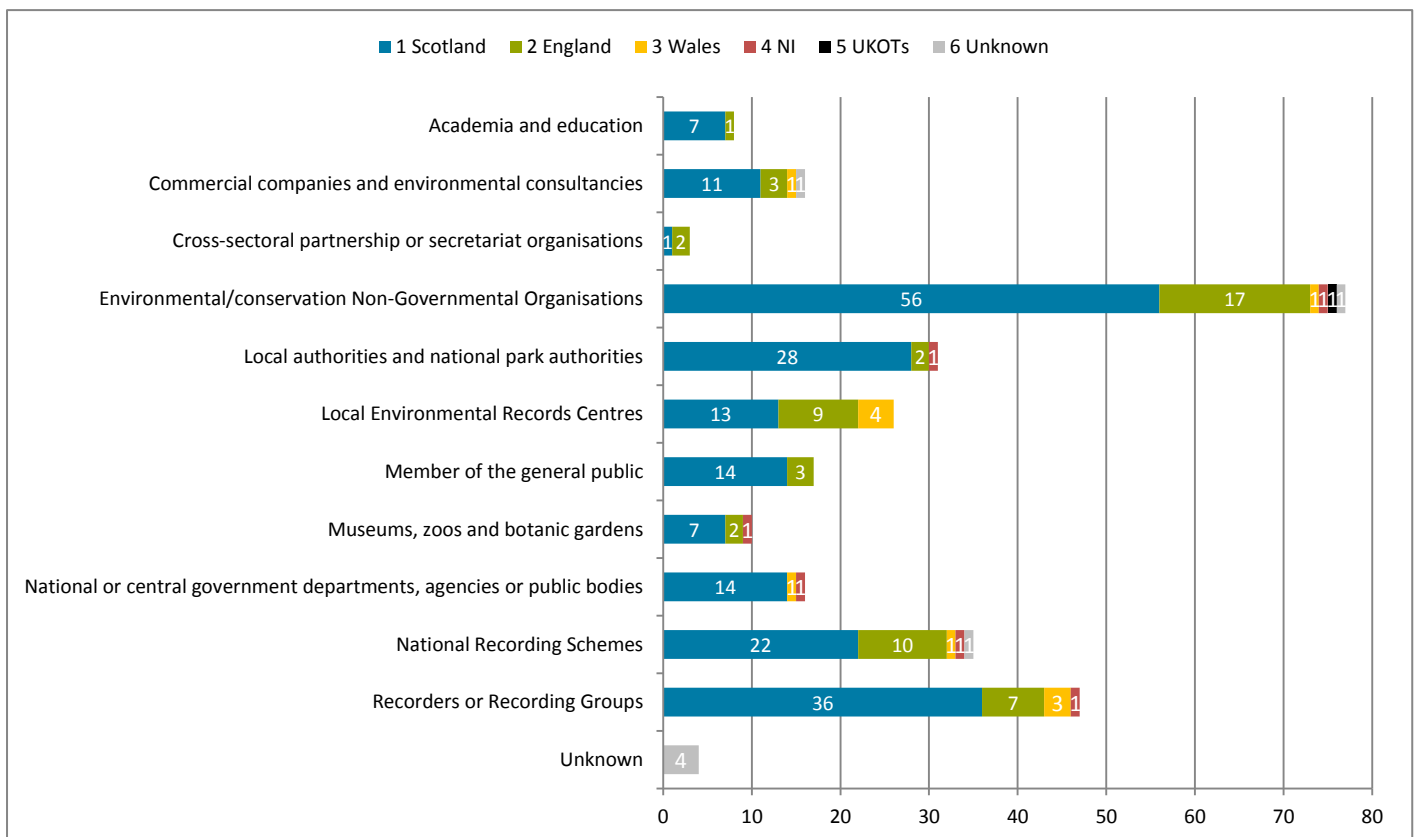


**Figure 6:** Number of respondents per local authority area in Wales (shown left) and Northern Ireland (shown right)



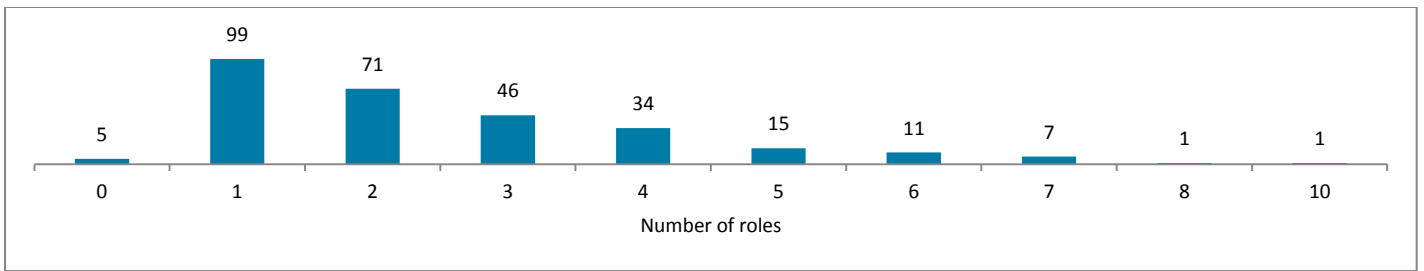
Responses were received for all sectors with 8 (2.8%) respondents from academia, 16 (5.5%) from commercial organisations and environmental consultancies, 3 (1%) from cross-sectoral partnership or secretariat organisations, 77 (26.6%) from non-governmental organisations, 31 (10.7%) from local authorities and national parks, 26 (9%) from Local Environmental Records Centres, 17 (5.9%) from the general public, 10 (3.4%) from museums, zoos or botanic gardens, 16 (5.5%) from national or central government, 35 (12.1%) from national recording schemes, 47 (16.2%) from recorders or recording groups and 4 (1.4%) not stating their sector (**Figure 7**).

**Figure 7:** Number of respondents by sector and country

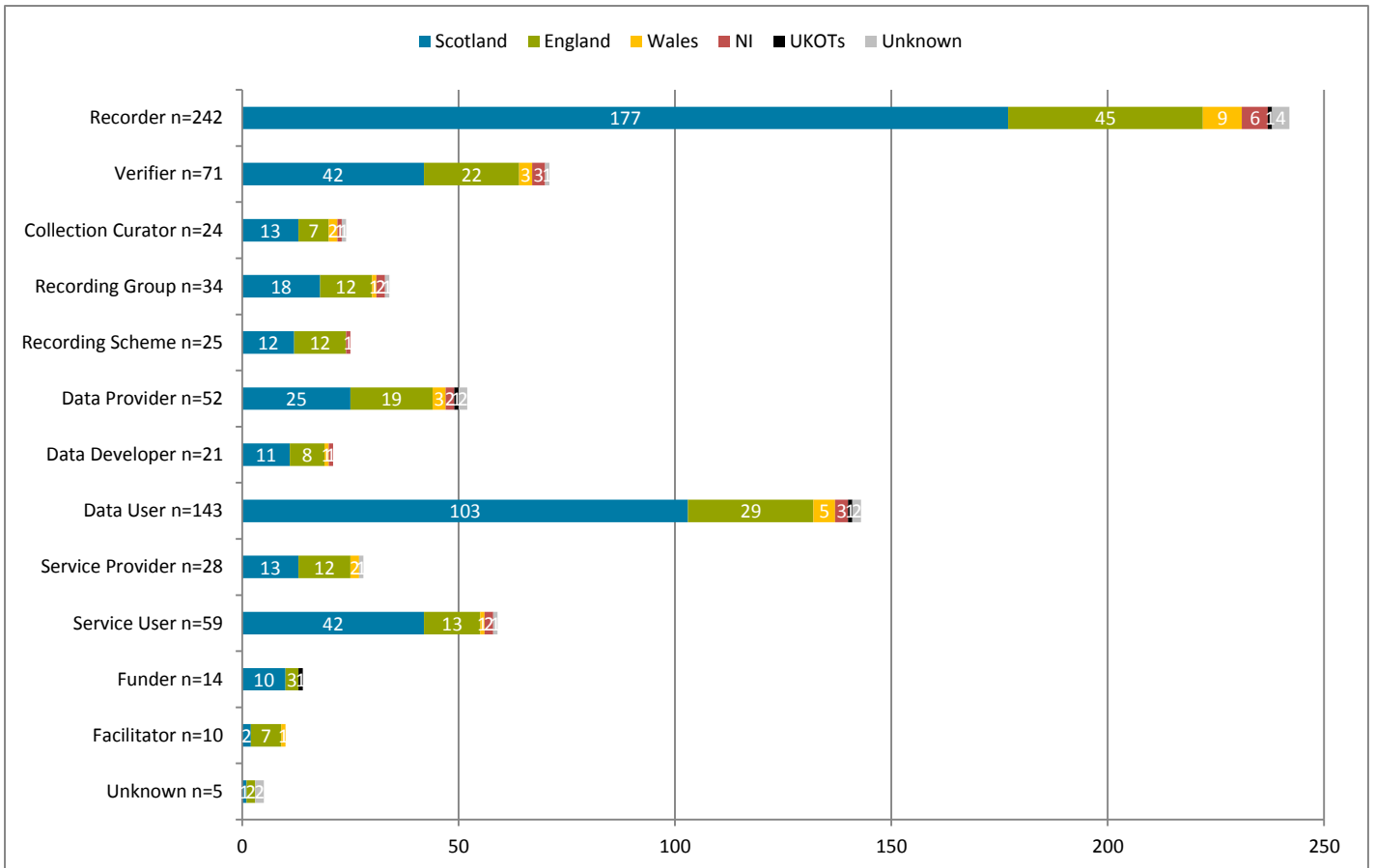


Of 285 respondents who indicated the roles that they held, 186 (65.3%) respondents held more than one role (**Figure 8**). The average number of roles per respondent was 2.54; 99 (37.4%) respondents held one role, 71 (24.9%) held two, 46 (16.1%) held three, 34 (11.9%) held four, 15 (5.3%) held five, 11 (3.9%) held six, 7 (2.5%) held seven, 1 (0.4%) held eight and 1 (0.4%) held ten (none held nine). 242 (84.9%) were Recorders/Data Collectors, 71 (24.9%) were Verifiers/County Recorders, 24 (8.4%) were Collection Curators, 34 (11.9%) were Recording Group Operators, 25 (8.8%) were Recording Scheme Operators, 52 (18.2%) were Data Providers, 21 (7.4%) were Data Developers, 143 (50.2%) were Data Users, 28 (9.8%) were Service Providers, 59 (20.7%) were Service Users, 14 (4.9%) were Funders and 10 (3.5%) were Facilitators (**Figures 9 and 10**).

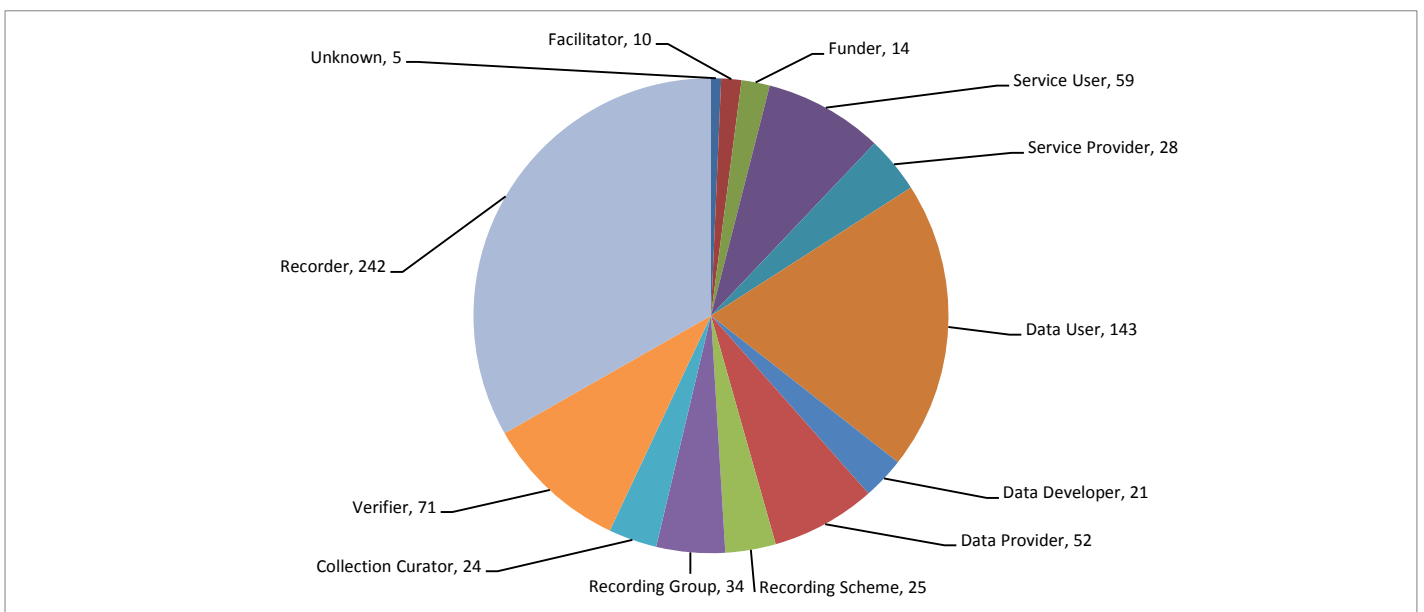
**Figure 8: Number of roles held per respondent**



**Figure 9: Number of respondents by role and country**

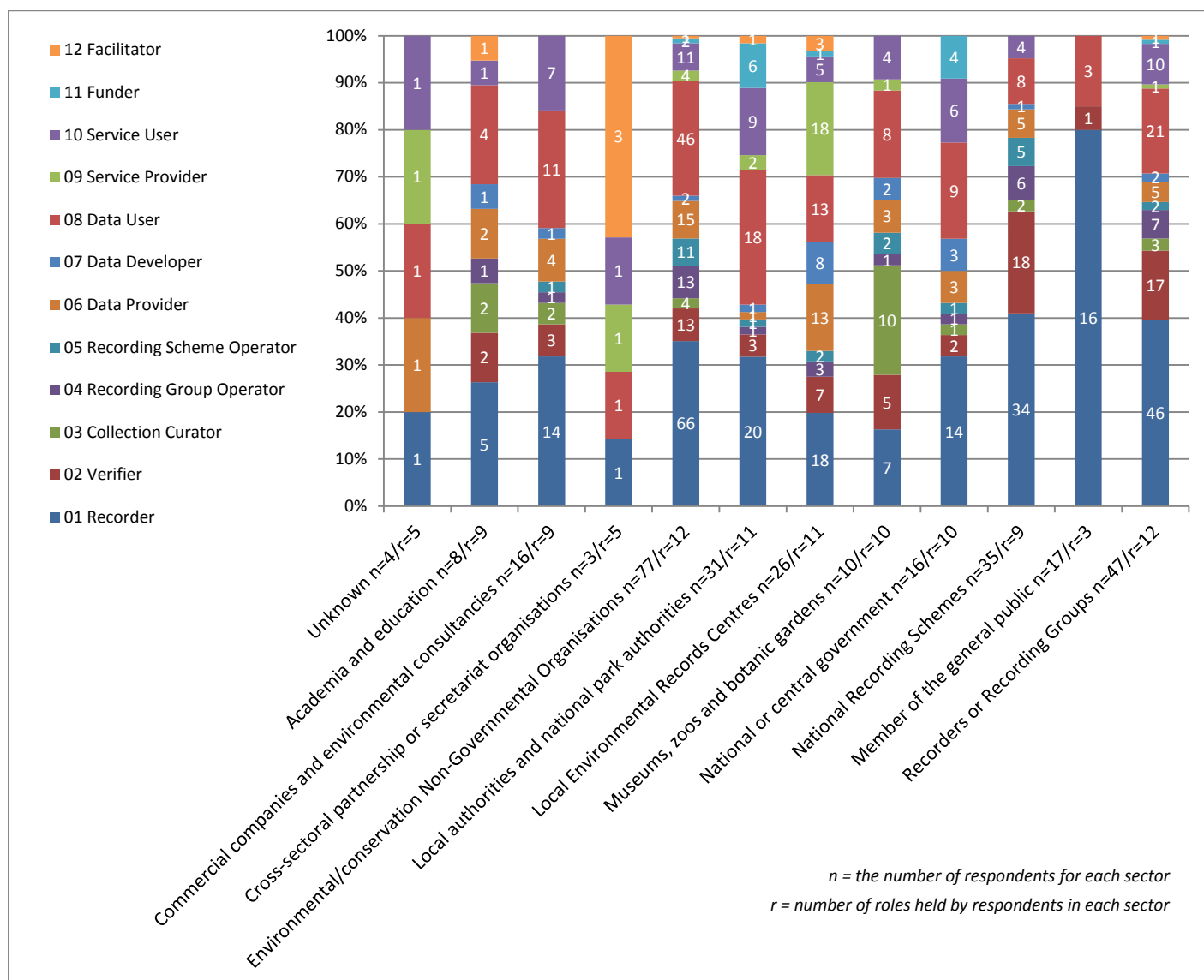


**Figure 10: Proportion of respondents by role**



The number of roles held by respondents within each sector varied from 5 for cross-sectoral partnership or secretariat organisations to 12 for recorders or recording groups and environmental/conservation NGOs. Other than cross-sectoral partnership or secretariat organisations, all sectors fulfil at least 75% of all roles - i.e. a minimum of 9 of the 12 roles recognised by the SBIF Review are undertaken by each sector (excluding the 'general public' and 'unknown' in the graph below).

**Figure 11: Number of respondents holding each role in each sector**

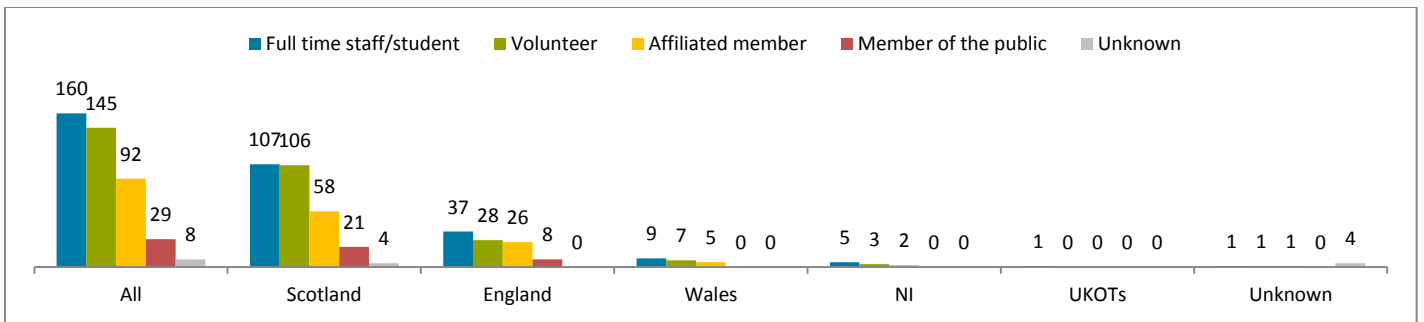


Of 282 respondents who indicated their involvement, 160 (55.2%) respondents were in full time employment or education in one or more of these sectors, 50% volunteered in one or more of these sectors, 92 (32.7%) were affiliated members of an organisation within one or more of these sectors and 29 (10%) also considered themselves to be a member of the general public (Figure 12).

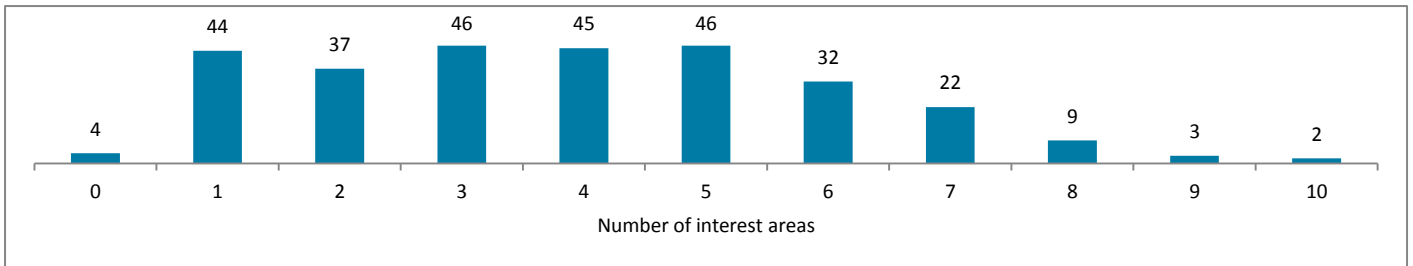
Of 286 respondents who indicated their interests, 242 (84.6%) respondents had more than one area of interest (Figure 13). 13 (4.54%) respondents indicated that they held no particular interest in any of these areas. The average number of interest areas per respondent was 3.96; 44 (15.4%) had just one interest area, 37 (12.9%) had two, 46 (16.1%) had three, 45 (15.87%) had four, 46 (16.1%) had five, 32 (11.2%) had six, 22 (7.7%) had seven, 9 (3.1%) had eight, 3 (1%) had nine and 2 (0.7%) had ten. 268 (93.7%) were interested in wildlife conservation, 169 (59.1%) in invasive non-native species, 157 (54.9%) in sustainable management of land, water or sea, 133 (46.5%) in development planning/environmental impact assessment, 125 (43.7%) in climate change, 78 (27.3%) in species taxonomy, 62 (21.7%) in pollution, 57 (19.9%) in public health, 49 (17.1%) in producing peer-reviewed scientific papers and 20 (7%) in disease control (Figure 14). This pattern of interest, with allowances for sample size, seemed consistent between countries (Figure 15).

Of the ten interest areas, the only area for which all respondents within a sector expressed a particular interest was wildlife conservation, with 100% of all respondents in four sectors (commercial companies/environmental companies, non-governmental organisations, cross-sectoral partnerships/secretariats and national government) indicating that wildlife conservation was a particular interest. Four interest areas (wildlife conservation, development planning, invasive non-native species and climate change) were of interest in all sectors. Five other interest areas were of interest to nine sectors and only one (disease control) was of interest to just six of 11 sectors (Figures 16 and 17).

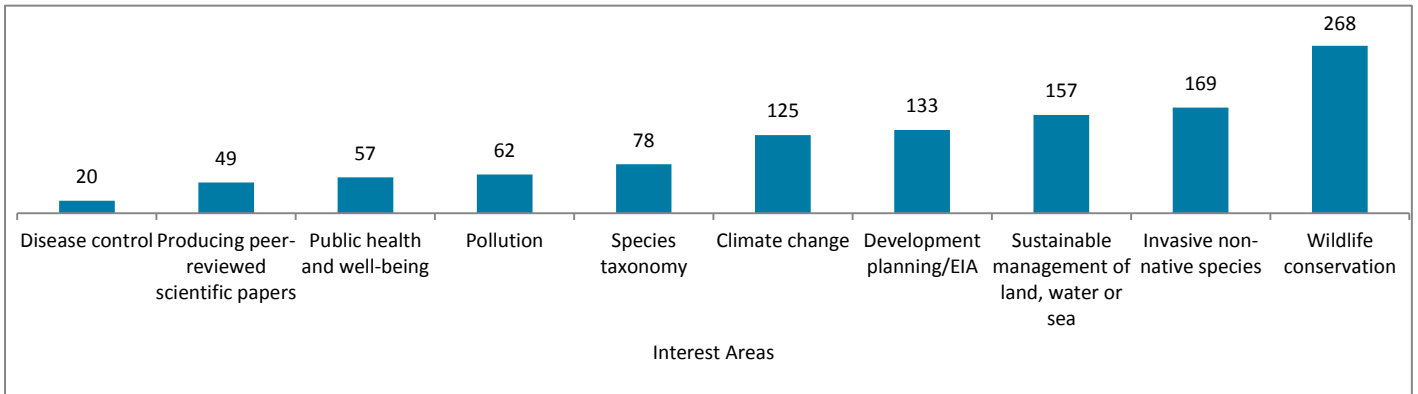
**Figure 12: Number of respondents by involvement and country**



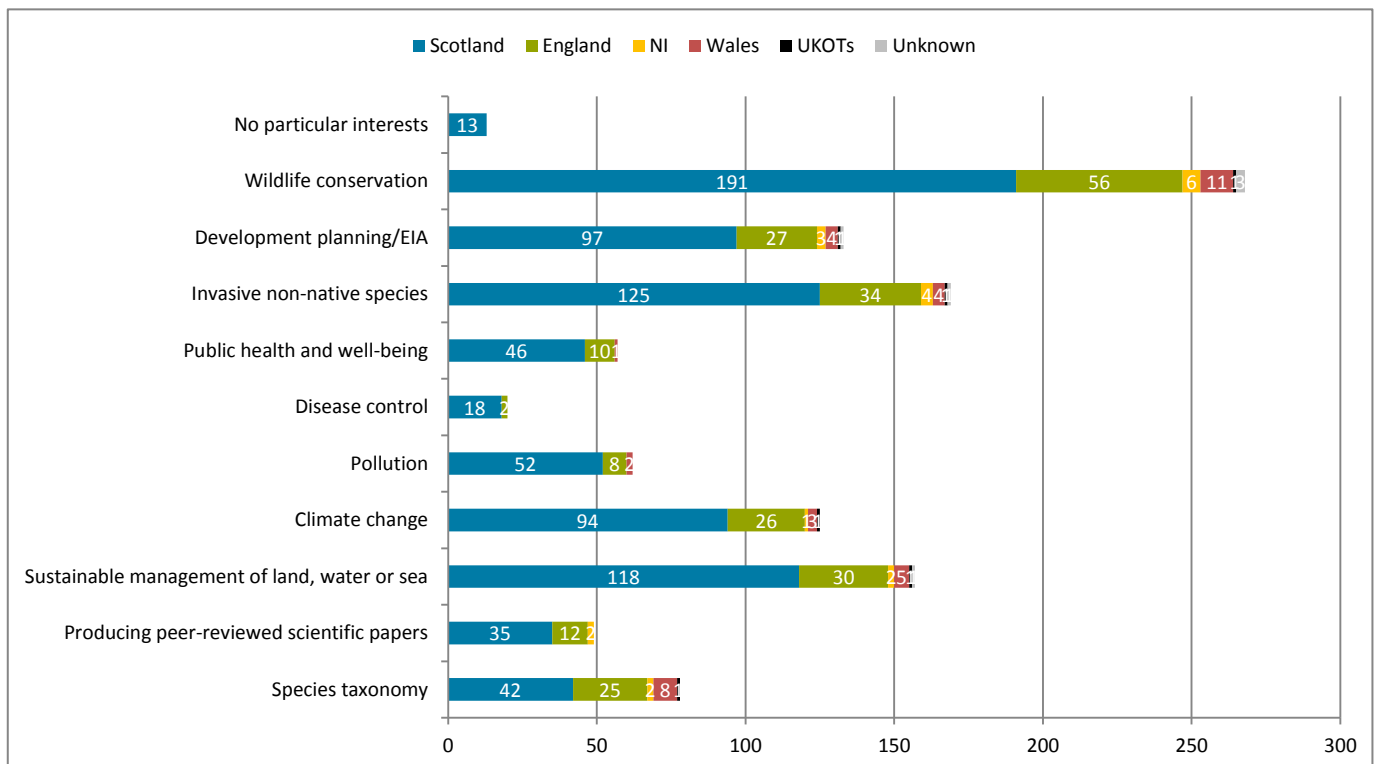
**Figure 13: Number of interest areas per respondent**



**Figure 14: Number of respondents with a particular interest in each interest area**

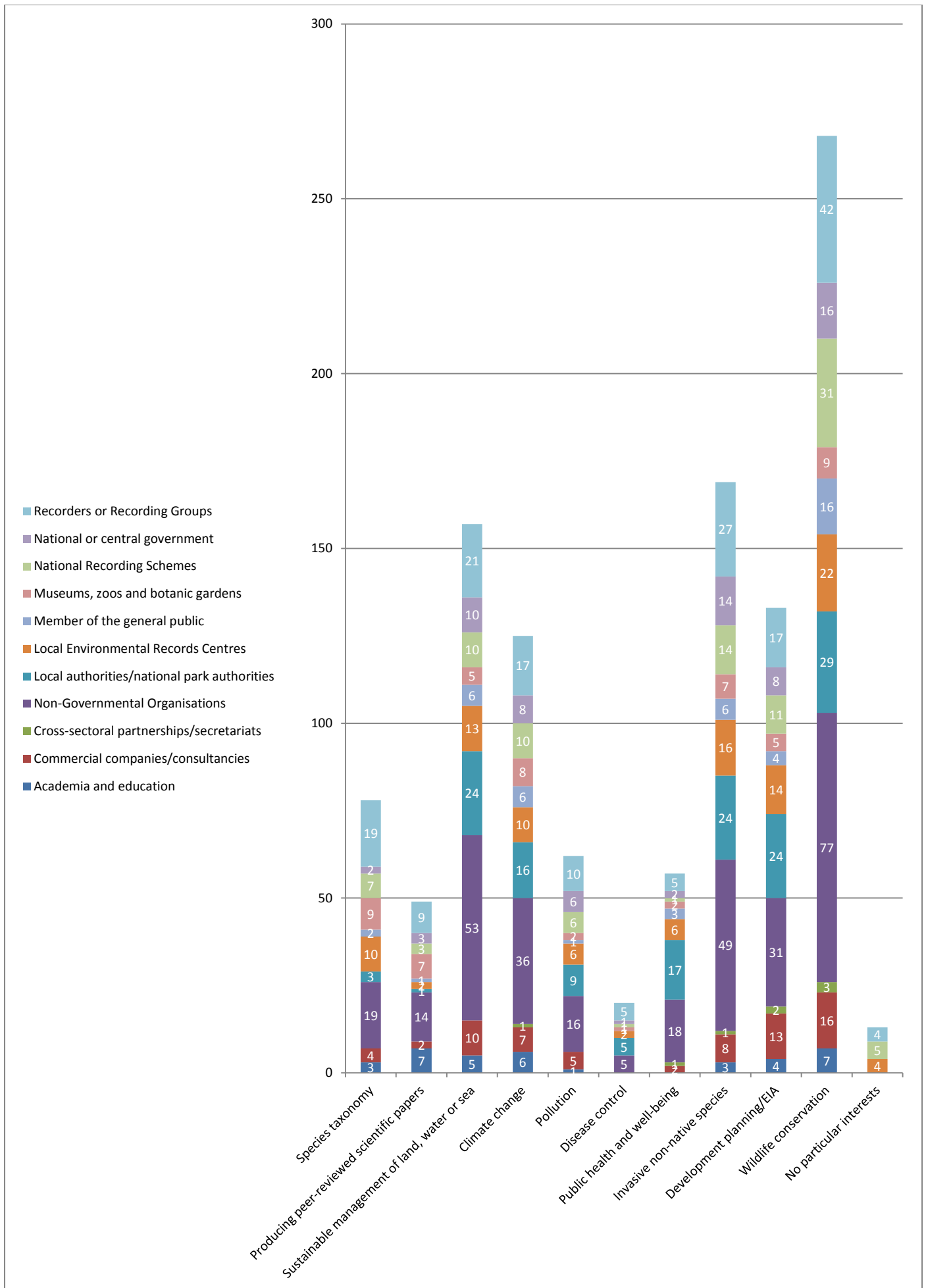


**Figure 15: Number of respondents by interest area and country**





**Figure 16: Number of respondents by interest area and sector**



**Figure 17: Detailed analysis by sector of 1118 'votes' for areas of particular interest to respondents**

The question asked was “Do you have a particular interest in any of the following topics?” and respondents could select as many or few as they wished. For example: 90% of respondents in the ‘Museums, zoos and botanic gardens’ sector indicated they were interested in species taxonomy; the three topics of most interest in the ‘National or central government’ sector were conservation, invasive non-native species and sustainable management of land, water or sea.

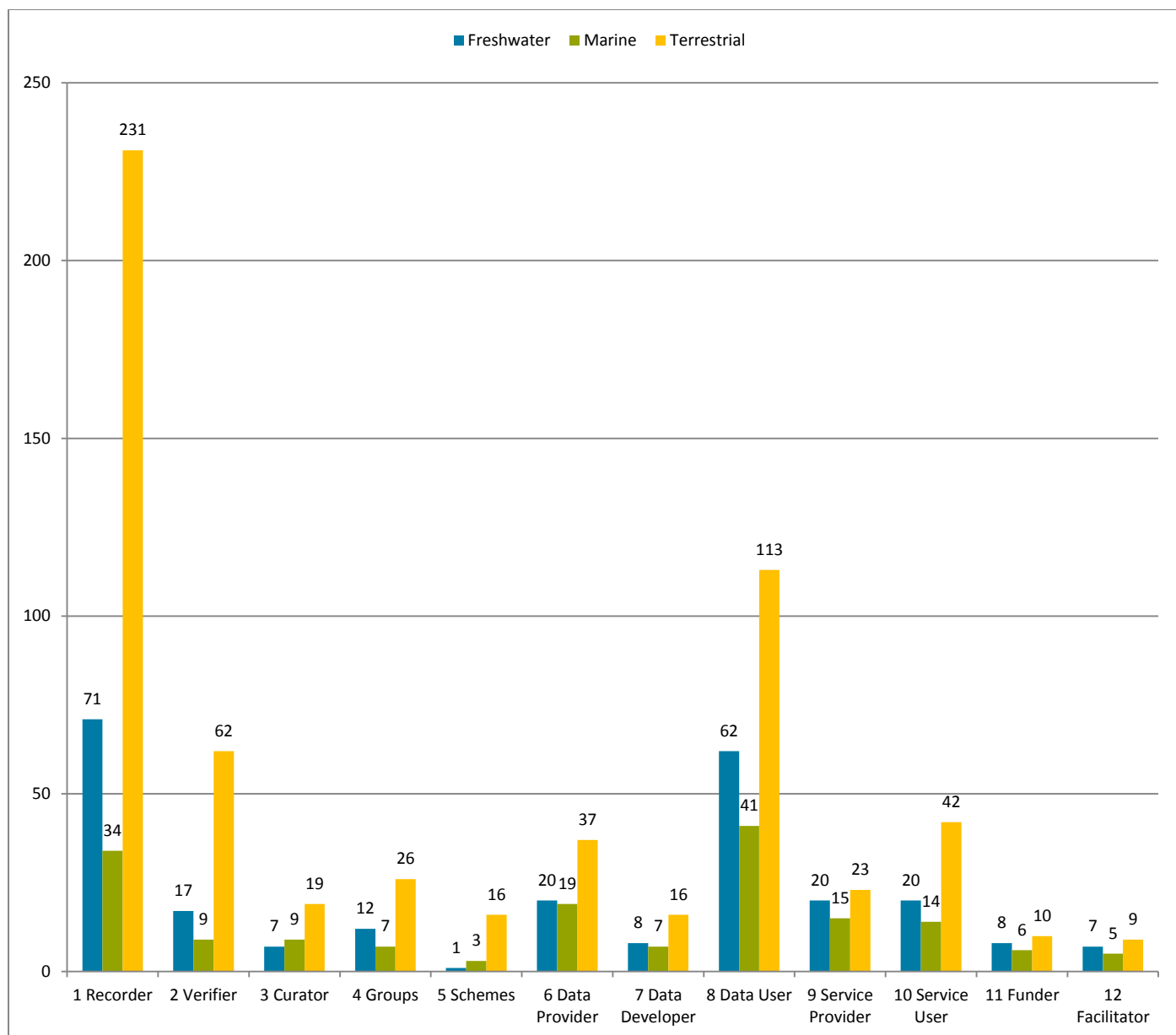
	Academia and education	Commercial companies/consultancies	Cross-sectoral partnerships/secretariats	Non-Governmental Organisations	Local authorities/national park authorities	Local Environmental Records Centres	Member of the general public	Museums, zoos and botanic gardens	National or central government	National Recording Schemes	Recorders or Recording Groups	# 'votes'	% of 1118 'votes'	% of 286 respondents
Species taxonomy	37.5%	25.0%	0.0%	24.7%	9.7%	38.5%	11.8%	90.0%	12.5%	20.0%	40.4%	78	7%	27.3%
Producing peer-reviewed scientific papers	87.5%	12.5%	0.0%	18.2%	3.2%	7.7%	5.9%	70.0%	18.8%	8.6%	19.1%	49	4%	17.1%
Sustainable management of land, water or sea	62.5%	62.5%	0.0%	68.8%	77.4%	50.0%	35.3%	50.0%	62.5%	28.6%	44.7%	157	14%	54.9%
Climate change	75.0%	43.8%	33.3%	46.8%	51.6%	38.5%	35.3%	80.0%	50.0%	28.6%	36.2%	125	11%	43.7%
Pollution	12.5%	31.3%	0.0%	20.8%	29.0%	23.1%	5.9%	20.0%	37.5%	17.1%	21.3%	62	6%	21.7%
Disease control	0.0%	0.0%	0.0%	6.5%	16.1%	7.7%	0.0%	10.0%	6.3%	2.9%	10.6%	20	2%	7.0%
Public health and well-being	0.0%	12.5%	33.3%	23.4%	54.8%	23.1%	17.6%	20.0%	12.5%	2.9%	10.6%	57	5%	19.9%
Invasive non-native species	37.5%	50.0%	33.3%	63.6%	77.4%	61.5%	35.3%	70.0%	87.5%	40.0%	57.4%	169	15%	59.1%
Development planning/EIA	50.0%	81.3%	66.7%	40.3%	77.4%	53.8%	23.5%	50.0%	50.0%	31.4%	36.2%	133	12%	46.5%
Wildlife conservation	87.5%	100%	100%	100%	93.5%	84.6%	94.1%	90.0%	100%	88.6%	89.4%	268	24%	93.7%

## ii. Environment and place

Respondents could indicate an environment being of interest to them for one or more of any roles they held. The majority of respondents were interested in the terrestrial environment: 58.9% of all responses across all roles were for the terrestrial environment with 82.6%- 100% of respondents within each role indicating an interest. For the freshwater environment, 24.7% of all responses across all roles indicated an interest and 5.9% to 86.7% within each role, while for the marine environment, 16.5% of all responses across all roles indicated an interest and 13.6% to 65.2% within each role (**Figure 18**).

Respondents were active in Scotland and beyond (**Table 7**). Respondents were least active in the UKOTs, British Territorial Waters and elsewhere on land or at sea, and most active within Scotland, England, Wales, Northern Ireland, the Isle of Man, Channel Islands and Republic of Ireland.

**Figure 18: Number of respondents by environment and role**



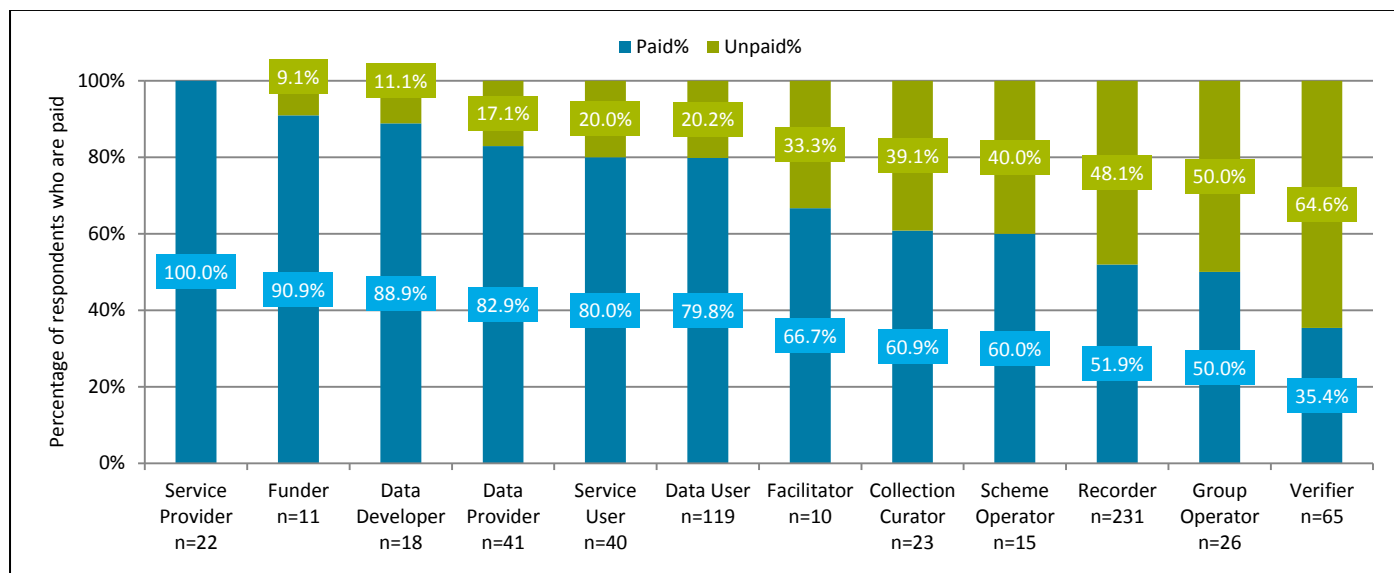
**Table 7: Number of respondents by place and role**

	Scotland	England	Wales	Northern Ireland	Isle of Man	The Channel Islands	Republic of Ireland	UKOTs	British Territorial Waters	Elsewhere on land	Elsewhere at sea
Recorder	194	64	17	13	4	3	7	4	0	10	5
Verifier	45	26	12	8	5	4	4	1	0	1	2
Curator	14	13	7	5	5	5	5	3	3	5	5
Groups	18	10	5	5	1	0	1	1	0	0	0
Schemes	14	13	10	6	3	4	2	0	0	0	0
Data Provider	29	20	14	11	5	5	2	4	1	3	4
Data Developer	12	7	4	2	2	2	1	0	0	1	0
Data User	97	35	21	13	4	4	8	2	0	4	1
Service Provider	13	11	4	2	2	0	0	0	0	0	0
Service User	33	11	3	3	1	1	4	0	0	1	0
Funder	8	2	0	0	0	0	0	1	0	0	0
Facilitator	6	8	4	4	3	0	0	0	0	0	0

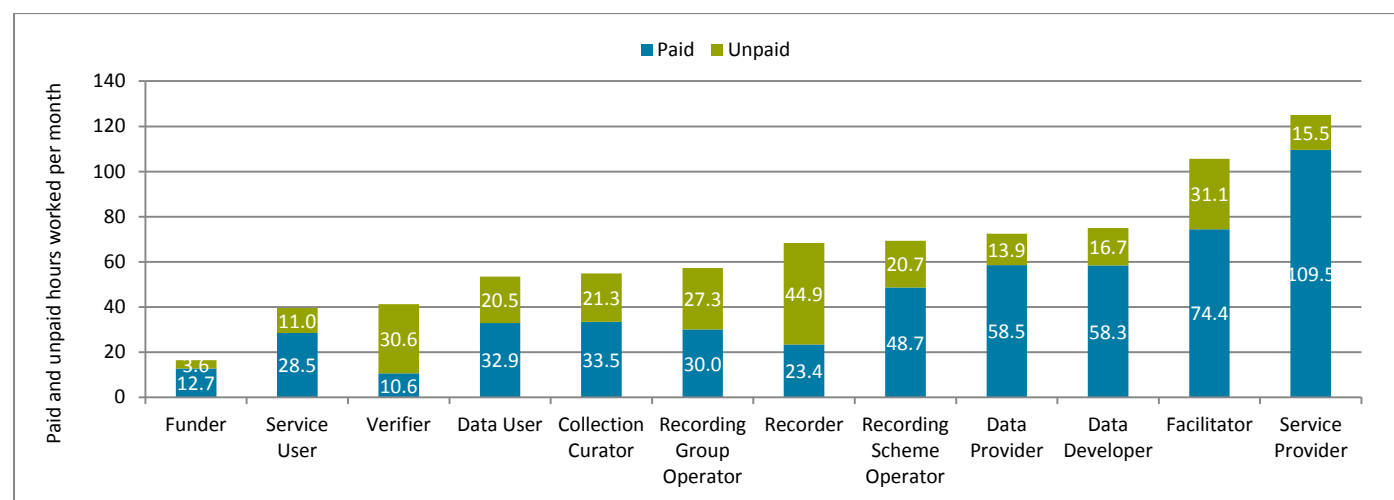
### iii. Hours and expenses

Using the midpoint of each category of hours worked (0 for '0 hours', 10 for '0.1-20 hours', 30 for '20.1-40 hours', 60 for '40.1 to 80 hours' and 120 for '80.1 to 160 hours'), and 160 for 'over 160 hours', it was possible to calculate the proportion of respondents who were paid to some extent whether or not they also worked unpaid hours (**Figure 19**) and the average number of hours worked per month per role that were paid and unpaid (**Figure 20**). All roles, except service providers, had a bimodal distribution with an unpaid community and an at least partly or wholly paid community (**Figure 21**). Many respondents had more than one role – e.g. 96.7% of Verifiers were also Recorders – and may contribute hours cumulatively for each role held.

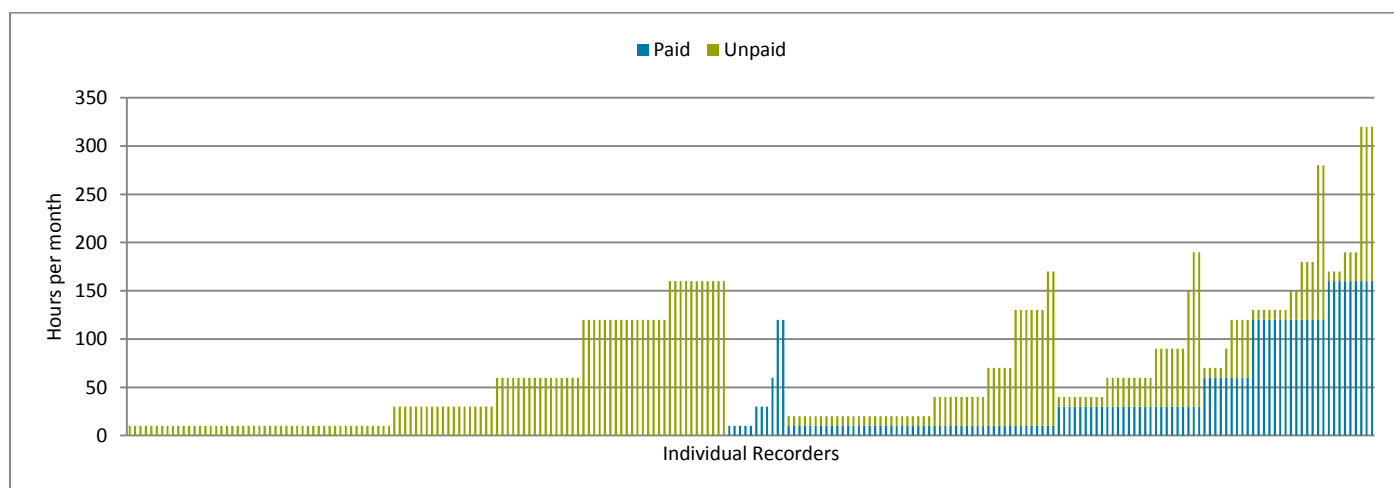
**Figure 19: Percentage of respondents who are paid for some or all of the hours worked per role**



**Figure 20: Average number of paid and unpaid hours worked per month per role**

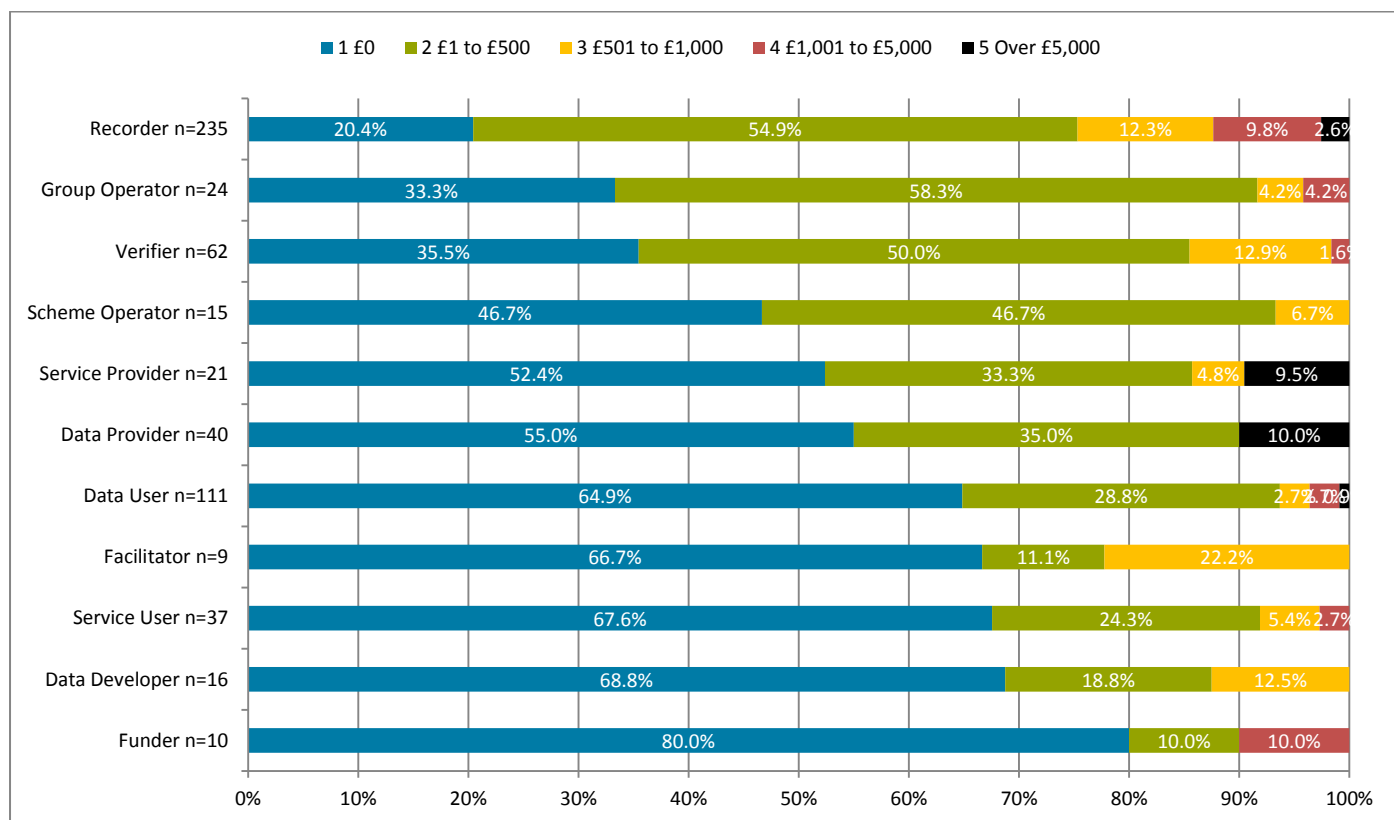


**Figure 21: Bi-modal distribution of paid and unpaid Recorders**

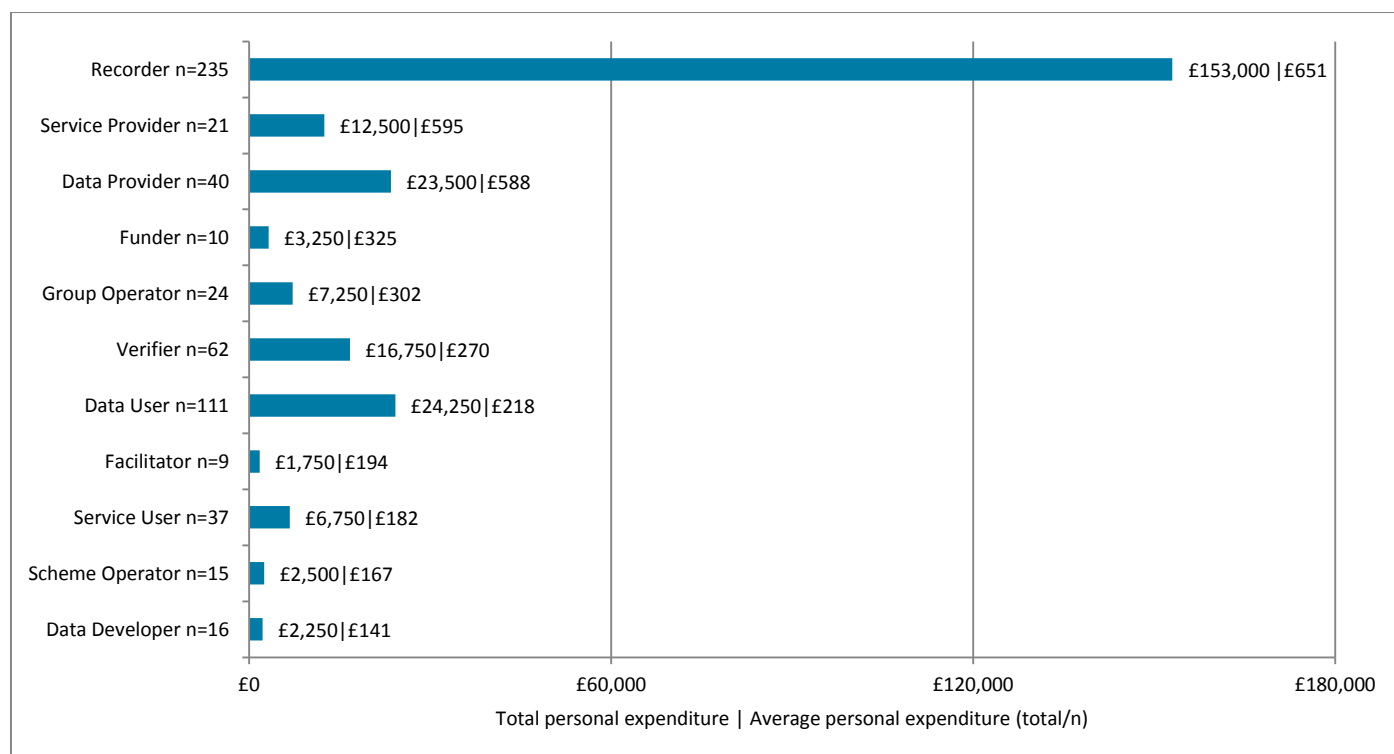


Using the midpoint of each category of expenses incurred in the last year (£0 for '£0', £250 for '£1 to £500', £750 for '£501 to £1000' and £3000 for '£1000 to £5000'), and £5000 for 'Over £5000', it was possible to calculate the total personal expenditure within each role. Respondents with the role of Recorder, Recording Group Operator and Verifier incurred the highest total level while respondents with the role of Funder, Data Developer and Service User incurred the lowest total level (**Figure 22**). The total value of personal expenditure over the last year across all respondents was estimated to be in the region of £253,750 with £153,000 (60.3%) of this solely incurred by Recorders (**Figure 23**). Calculating the average (mean) expenditure per head within each role revealed that three roles incurred highest average personal expenditure (Recorder £651 per head, Service Provider £595, Data Provider £588) while all other roles incurred an average of £325 per head or less.

**Figure 22: Percentage of respondents incurring expenses per expense class and role**



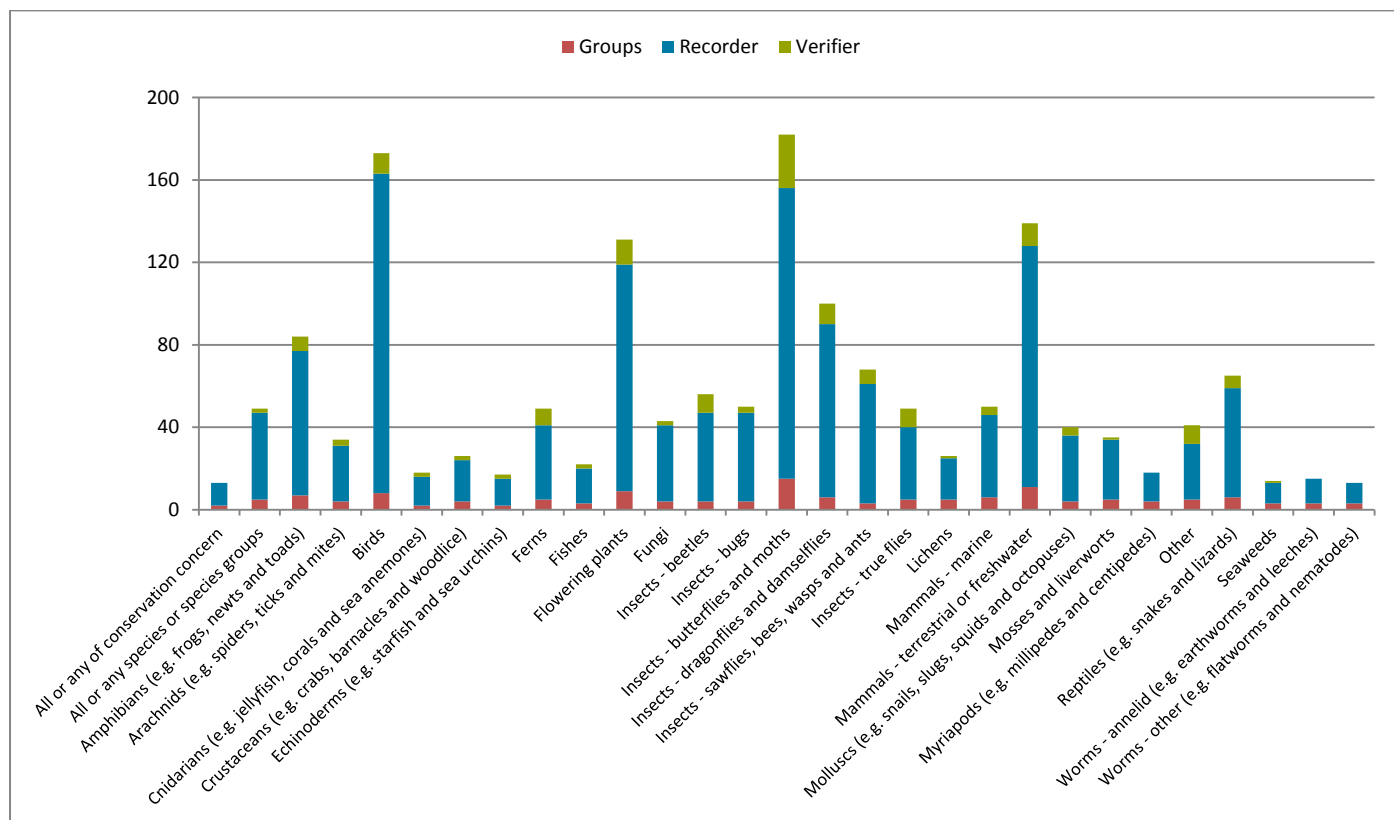
**Figure 23: Total and average personal expenditure incurred by questionnaire respondents by role**



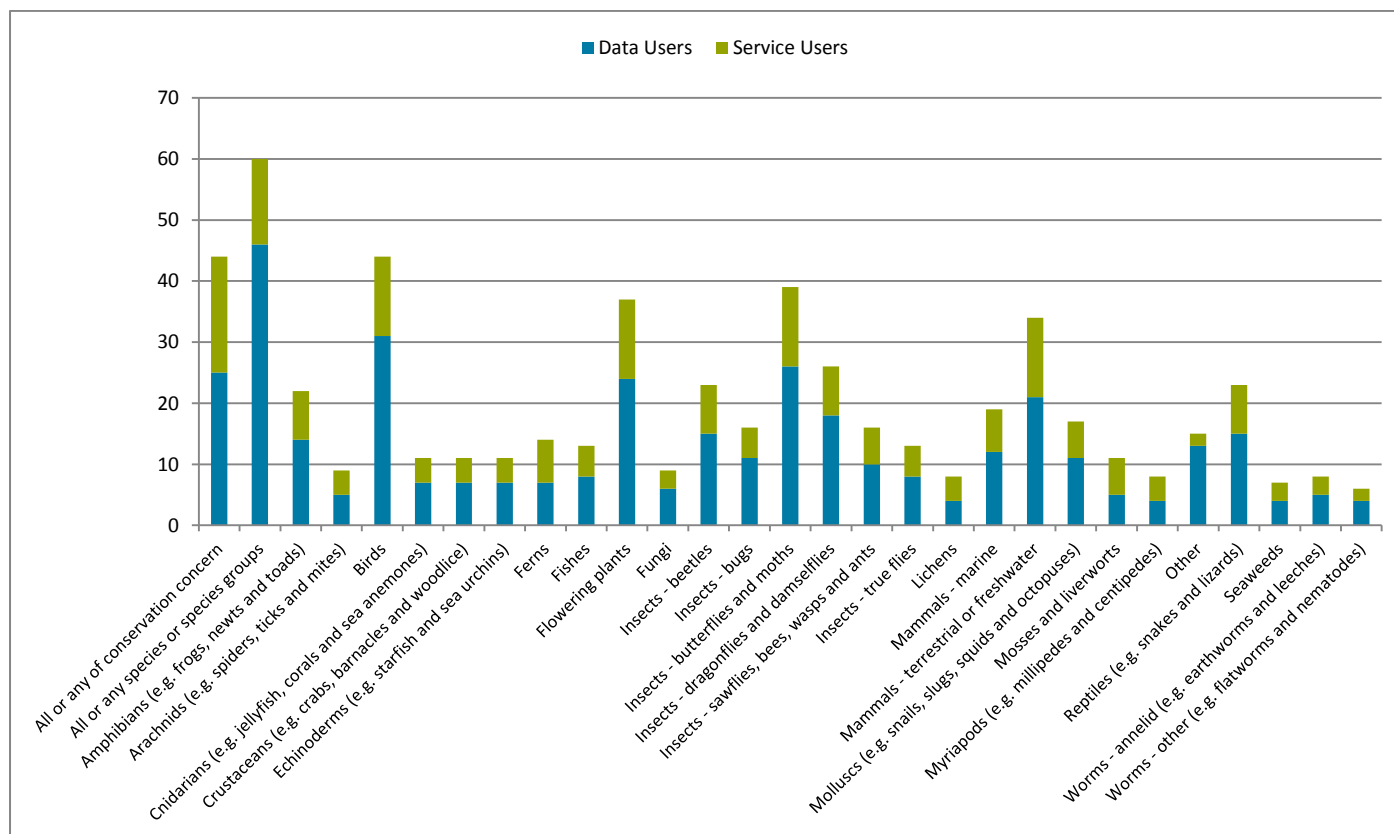
#### iv. Taxonomic interests

Respondents to the questionnaire covered all taxonomic groups and varied from those with an interest in one or many taxa to those interested in all or any taxa. The top five groups of most interest to recorders, verifiers, data users and service users were birds, flowering plants, butterflies and moths, dragonflies and damselflies, and mammals (Figures 24 and 25). The top five groups of most interest to collection curators were all insects: beetles, true flies, bugs, butterflies and moths, and sawflies, bees, wasps and ants (Figure 26). All other roles had a more even spread of interests across all groups (Figures 27 and 28).

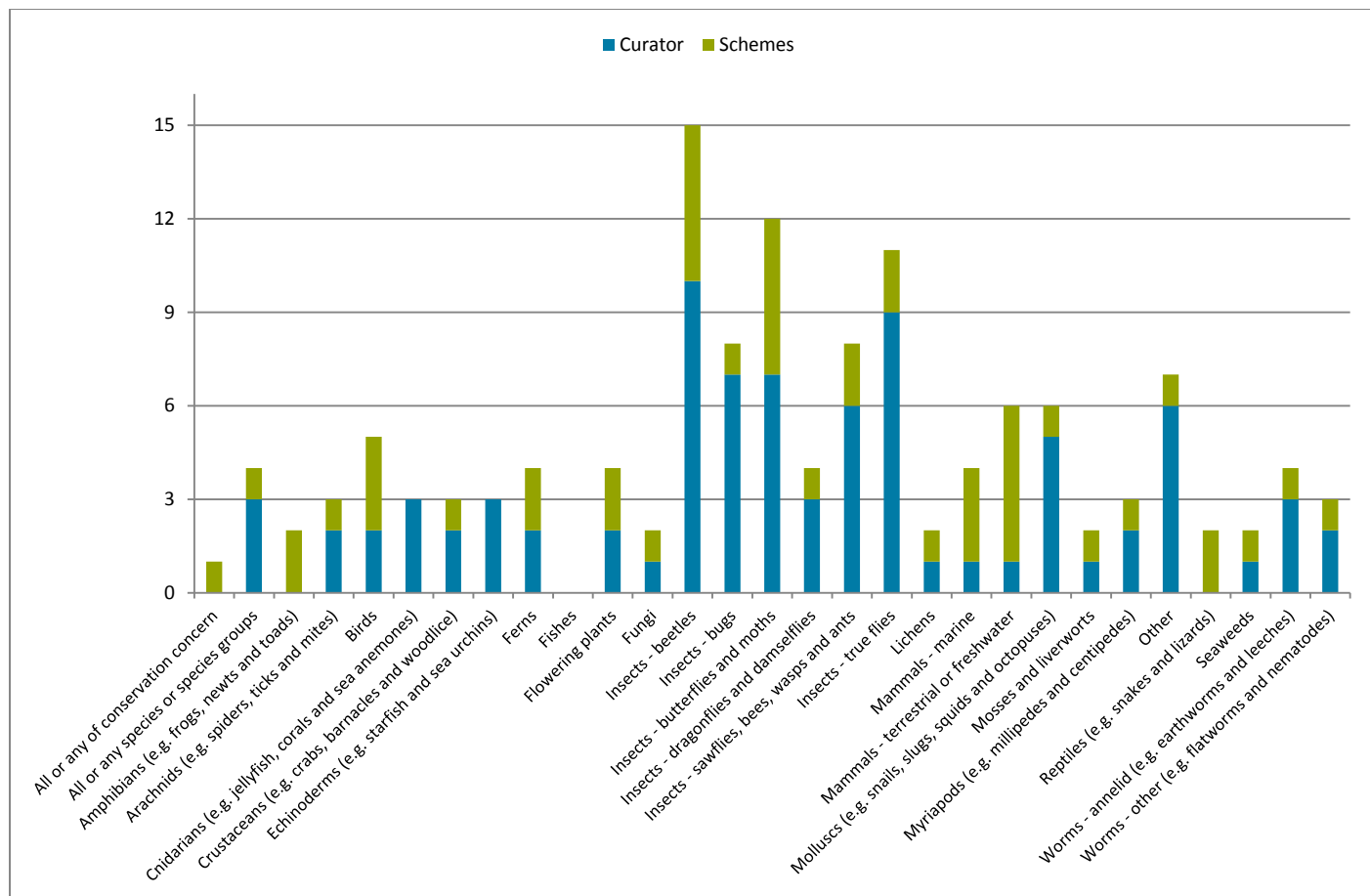
**Figure 24: Number of Recording Groups, Recorders and Verifiers interested in each taxonomic group**



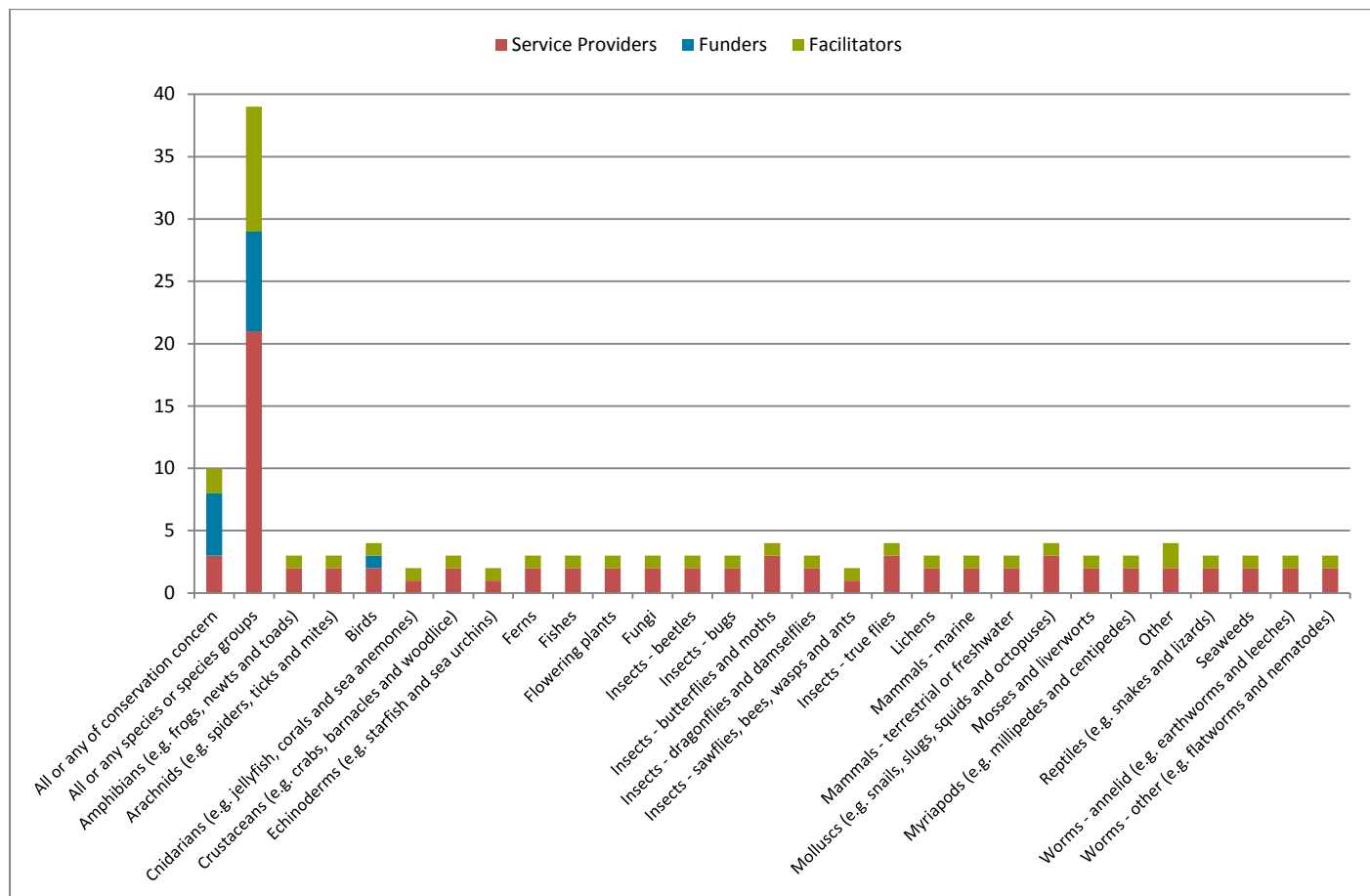
**Figure 25: Number of Data Users and Service Users interested in each taxonomic group**



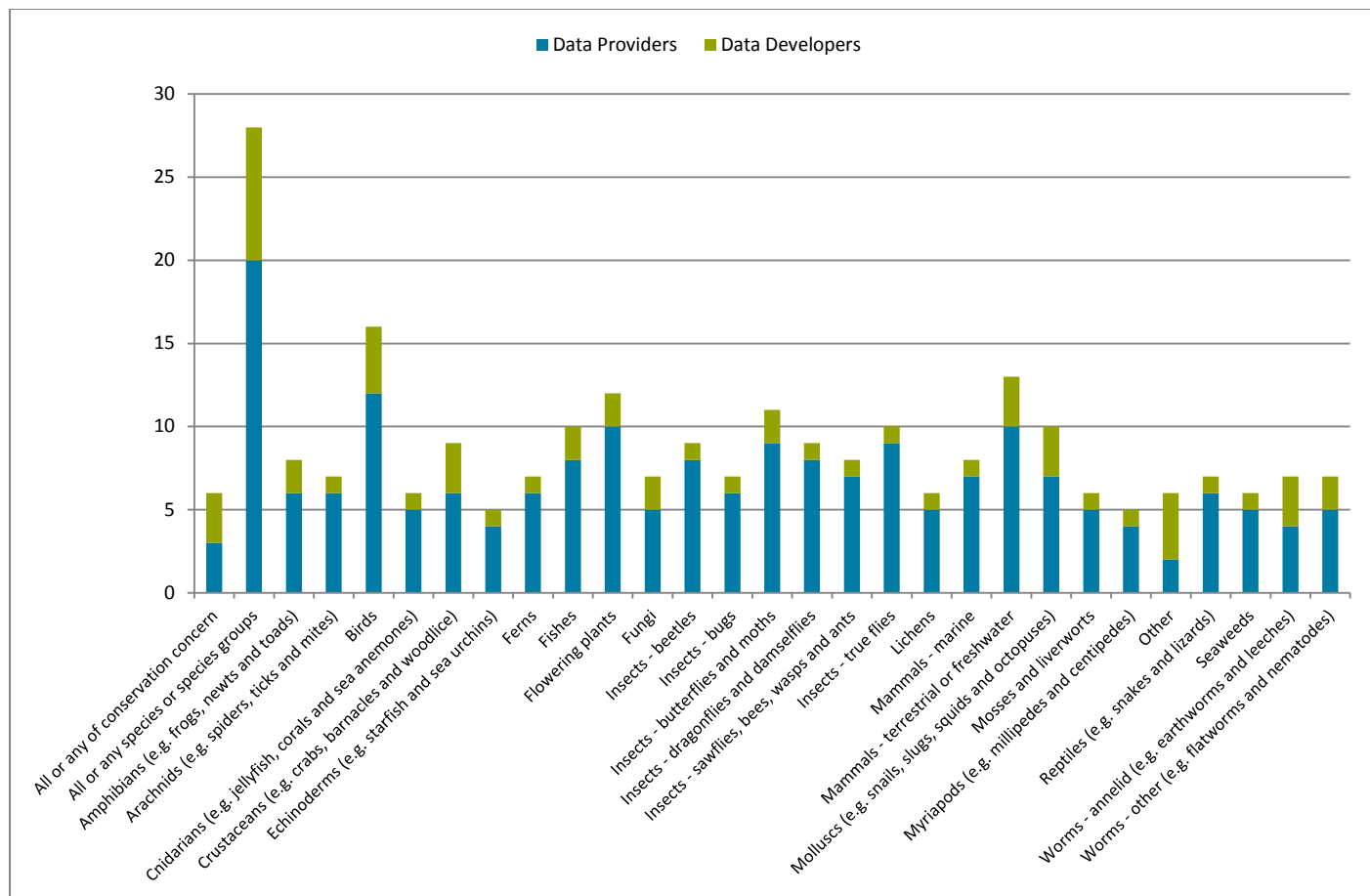
**Figure 26:** Number of Collection Curators and Recording Scheme Operators interested in each taxonomic group



**Figure 27:** Number of Service Providers, Funders and Facilitators interested in each taxonomic group



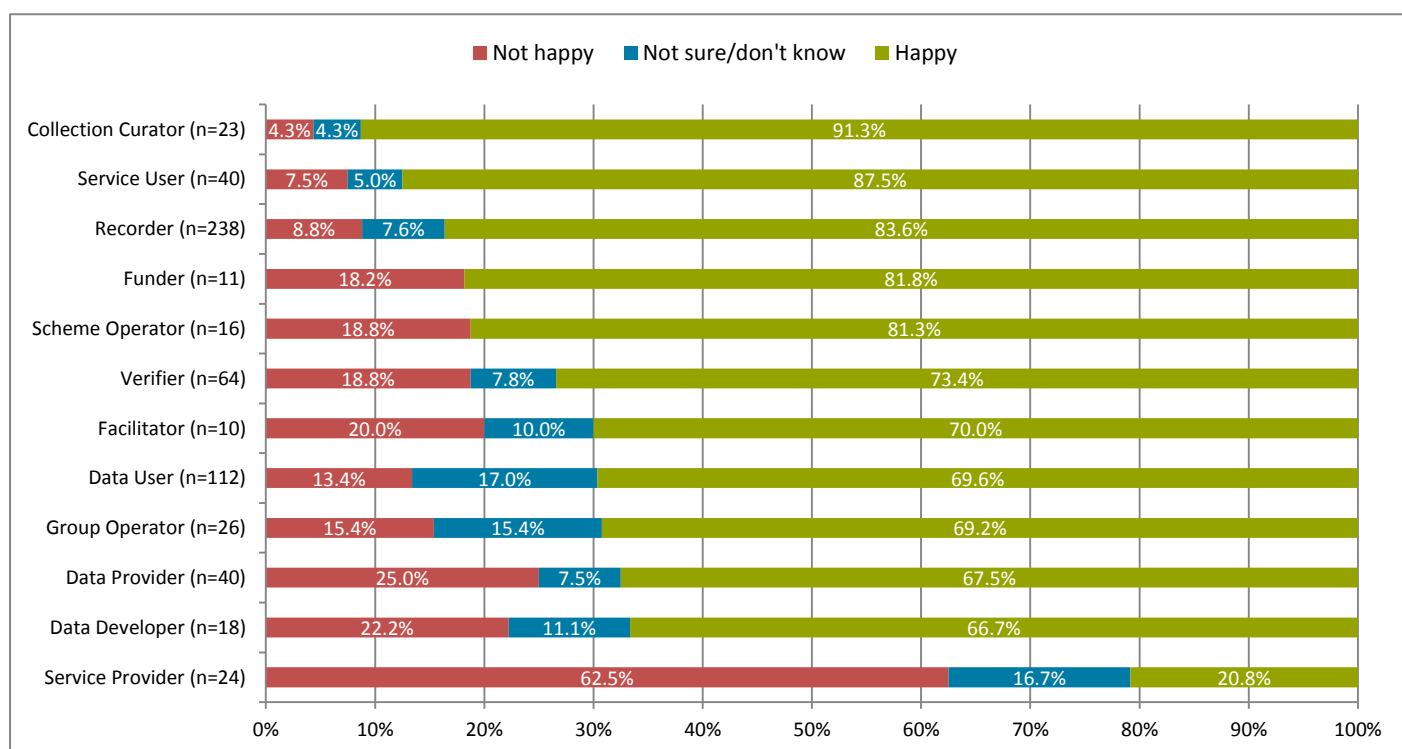
**Figure 28: Number of Data Providers and Data Developers interested in each taxonomic group**



#### v. Open Data

Across all roles – with one exception, that of Service Provider – at least two thirds of respondents within each role (from 66.7% for Data Developers to 91.3% for Collection Curators) were happy for the records they collected or used in some way to be openly available (**Figure 29**). For Service Providers, the percentage of respondents who were happy for the data that they used to be openly available was far lower with just over one fifth (20.8%) of respondents indicating this. Overall, across responses for all roles (n=622), 14.8% of all responses were ‘Not happy’, 9.5% were ‘Not sure/don’t know’ and 75.7% were ‘Happy’.

**Figure 29: Percentage of respondents who are happy for the records they collect or use to be openly available**



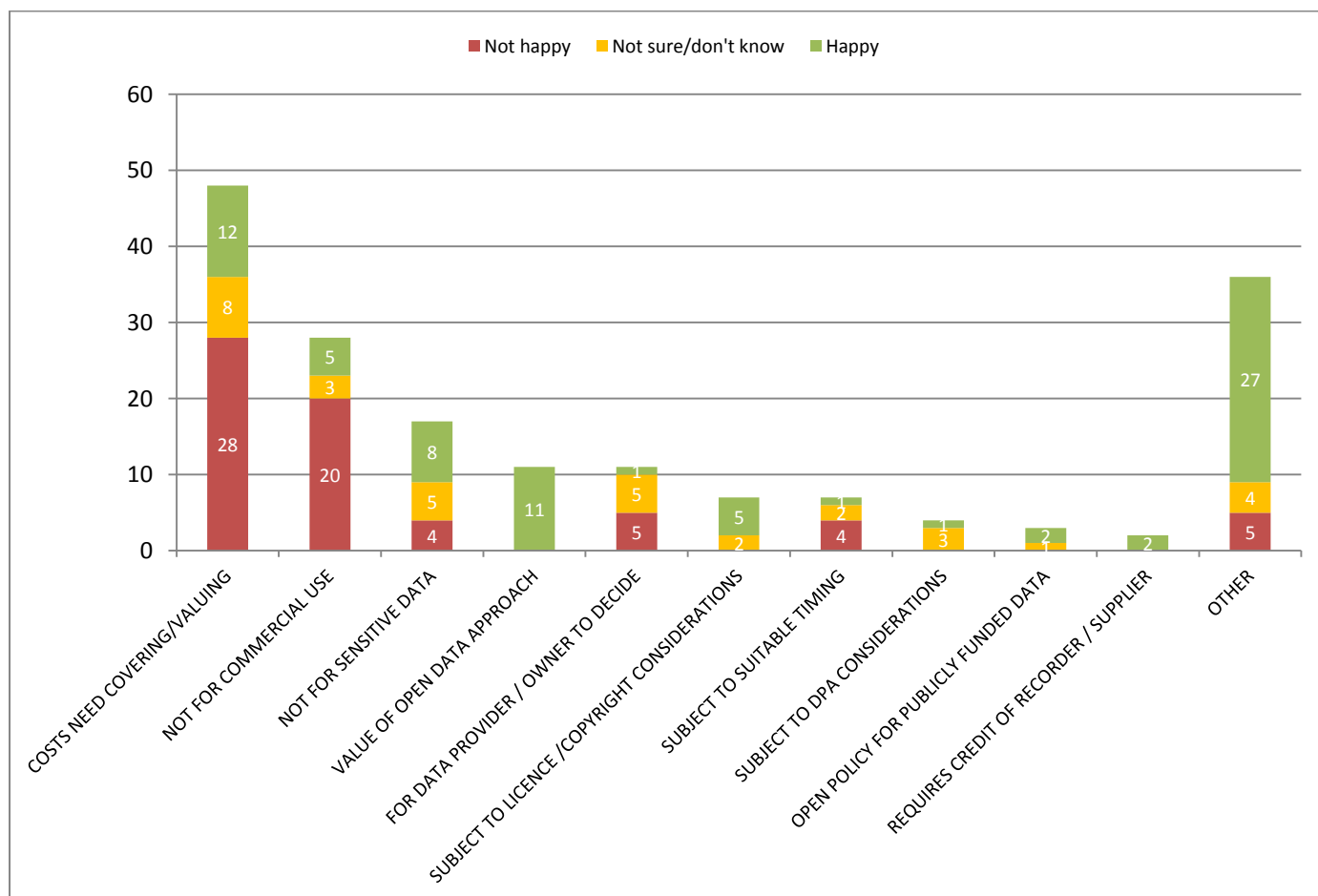


Overall, 174 comments about Open Data were received in response to the Open Data question, with similar concerns being raised regardless of whether respondents were happy, or not, for the data that they collected or used to be openly available (listed in **Appendix 2**). All comments were classified as relating to, or being primarily concerned about, one of ten broad themes (**Table 8**). The most commented on theme was that of the need to recognise the costs and value of collecting and sharing data so that the business models of recording schemes and service providers in particular could be covered (**Figures 30 and 31**). Concerns about commercial use, the second most commented on theme, seemed to be strongly related to this with many respondents mentioning their reliance on income from the commercial sector to cover their operating costs. The third most commented on theme was that of sensitive data and the need to safeguard at risk species, sites or habitats that could be harmed were records of these to be openly available. It is also notable that Recorders commented strongly on their desire for their records to be openly available so that the maximum value could be realised from them.

**Table 8: Broad themes used to classify Open Data comments**

BROAD THEME	EXAMPLE COMMENT
COSTS NEED COVERING/VALUING	"I believe that the work done by LERCs is invaluable and has an undeniable economic value, so expect all commercial users to pay for data. Inappropriately open data undermines [LERC] business models..."
NOT FOR COMMERCIAL USE	"Commercial organisations should not be able to freely [obtain] (as in not pay for) data that I have freely (as in not been paid for) provided"
NOT FOR SENSITIVE DATA	"...except where the species would be endangered by doing so (e.g. badger setts)."
VALUE OF OPEN DATA APPROACH	"As a recorder I want my data available to whoever needs them, without the restrictions, duplication, drain on resources and prevention of innovation that licensed data approaches result in."
FOR DATA PROVIDER / OWNER TO DECIDE	"I verify for a national scheme and how the data is made available is not for me to decide"
SUBJECT TO LICENCE / © CONSIDERATIONS	"Though of course if I am using others' data then I have to abide by any conditions they may place on use of those data..."
SUBJECT TO SUITABLE TIMING	"Records being produced for a publication like an atlas I prefer to keep private until the relevant publication is published, otherwise all my hard work could be used by someone else to produce an atlas, scientific paper, etc."
SUBJECT TO DPA CONSIDERATIONS	"There is a lot of nervousness amongst data providers over the DPA implications of publishing records containing recorder name (an essential component of most records)..."
OPEN POLICY FOR PUBLICLY FUNDED DATA	"For all SNH-owned data and projects where SNH funds data collection or mobilization, it is generally a requirement to publish all data at capture resolution (subject to precautions for sensitive species)."
REQUIRES CREDIT OF RECORDER / SUPPLIER	"Definitely for non-commercial purposes and, in most cases, for commercial purposes as well. We do, however, like to be informed when our data is being used and to be credited properly."

**Figure 30: Number of comments received on Open Data by broad theme and answer response**



**Figure 31: Number of comments received on Open Data by broad theme, answer response and role**

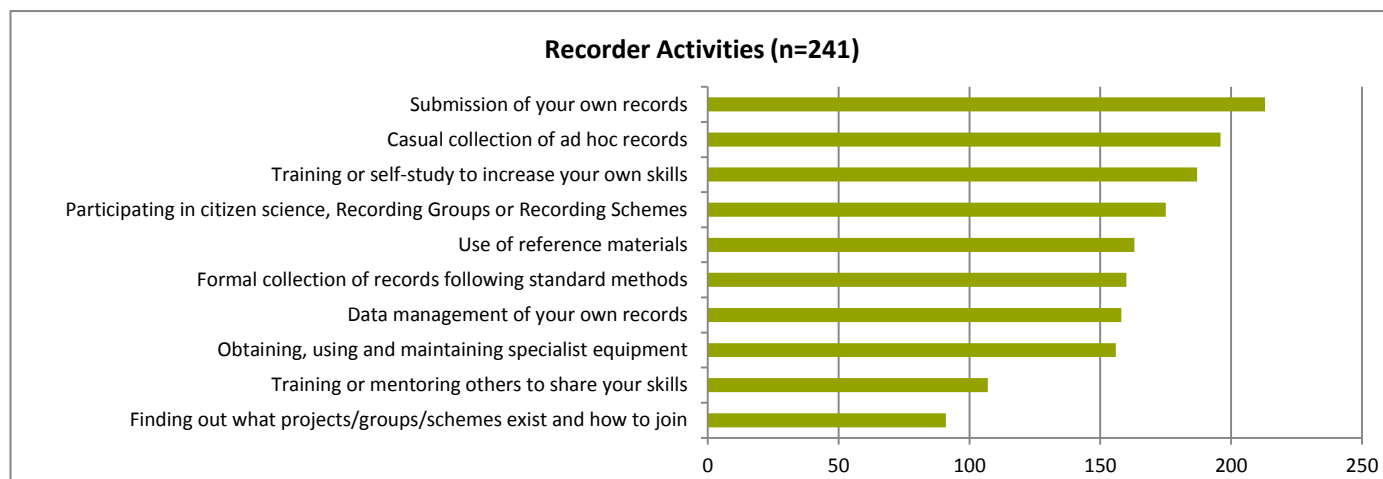
ANSWER RESPONSE and ROLE: (with darker shading where more than two comments were received)	BROAD THEME:											Total number of comments received:
	COSTS NEED COVERING/VALUING	NOT FOR COMMERCIAL USE	NOT FOR SENSITIVE DATA	VALUE OF OPEN DATA APPROACH	FOR DATA PROVIDER / OWNER TO DECIDE	SUBJECT TO LICENCE / COPYRIGHT CONSIDERATIONS	SUBJECT TO SUITABLE TIMING	SUBJECT TO DPA CONSIDERATIONS	OPEN POLICY FOR PUBLICLY FUNDED DATA	REQUIRES CREDIT OF RECORDER / SUPPLIER	OTHER	
<b>No</b>	<b>28</b>	<b>20</b>	<b>4</b>		<b>5</b>		<b>4</b>				<b>5</b>	<b>66</b>
Curator	1											1
Data Developer	1	1										2
Data Provider	5	2									1	8
Data User	2	3	1		1		2				1	10
Facilitator		1										1
Group Operator	1	1									1	3
Recorder	7	4	2				1				2	16
Scheme Operator	1		1				1					3
Service Provider	7	4			1							12
Service User	2	1										3
Verifier	1	3			3							7
<b>Not sure/don't know</b>	<b>8</b>	<b>3</b>	<b>5</b>		<b>5</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>1</b>		<b>4</b>	<b>33</b>
Curator								1				1
Data Developer								1				1
Data Provider	1				1			1				3
Data User	1				3	1					1	6
Group Operator	2											2
Recorder	4	2	3				1				3	13
Service Provider						1						1
Service User									1			1
Verifier		1	2		1		1					5
<b>Yes</b>	<b>12</b>	<b>5</b>	<b>8</b>	<b>11</b>	<b>1</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>27</b>	<b>75</b>
Curator	1										1	2
Data Developer						4						4
Data Provider	1		1						1		2	5
Data User	1					1					2	4
Facilitator	1		1									2
Funder									1			1
Group Operator	1										2	3
Recorder	4	1	5	11			1	1		2	13	38
Scheme Operator	1	1									1	3
Service Provider											1	1
Service User											1	1
Verifier	2	3	1		1						4	11
<b>Total number of comments received:</b>	<b>48</b>	<b>28</b>	<b>17</b>	<b>11</b>	<b>11</b>	<b>7</b>	<b>7</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>36</b>	<b>174</b>

## vi. Activities

Within the questionnaire section for each role, respondents could indicate which activities they undertook as part of that role. Few respondents suggested any alternative or additional activities and so the list of activities for each role is considered to be broadly appropriate. The rationale for offering the list of activities was to allow the respondents to recognise that the role related to them so that they could then more easily then focus on what, for those activities in particular or in general for their role, was working well and less well. Beyond noting the numbers of respondents identifying that they did each activity and any alternative or additional activities (**Figures 32 to 43**), the activity information is not further analysed here.

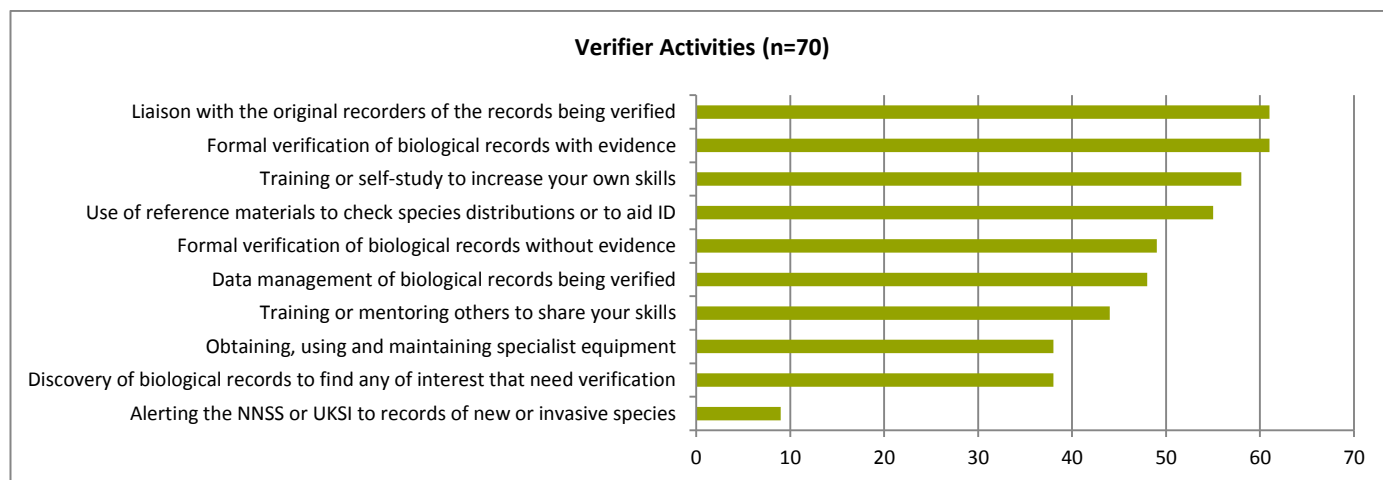
**Figure 32: Number of Recorders undertaking each activity**

ADDITIONAL ACTIVITIES SUGGESTED: being part of an online community to share records and assist with identification enquiries; collating other people's records for them; trying to record all species for a site; submission of records to LERCs; providing assistance to NBN, ALERC *et al.*



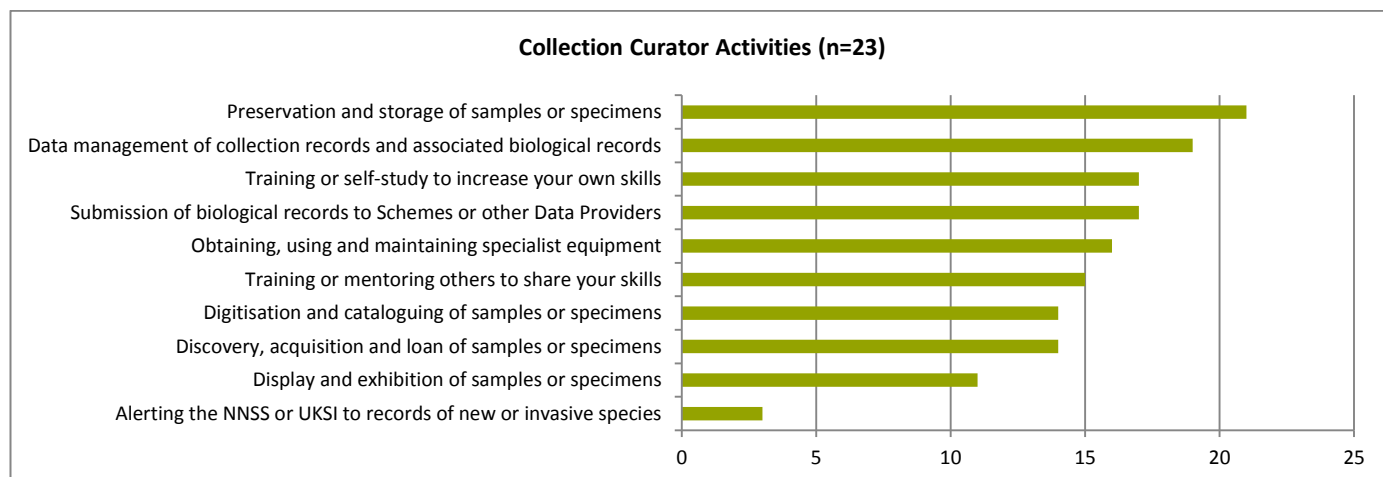
**Figure 33: Number of Verifiers undertaking each activity**

ADDITIONAL ACTIVITY SUGGESTED: local verification of records to allow local use of otherwise unverified records.



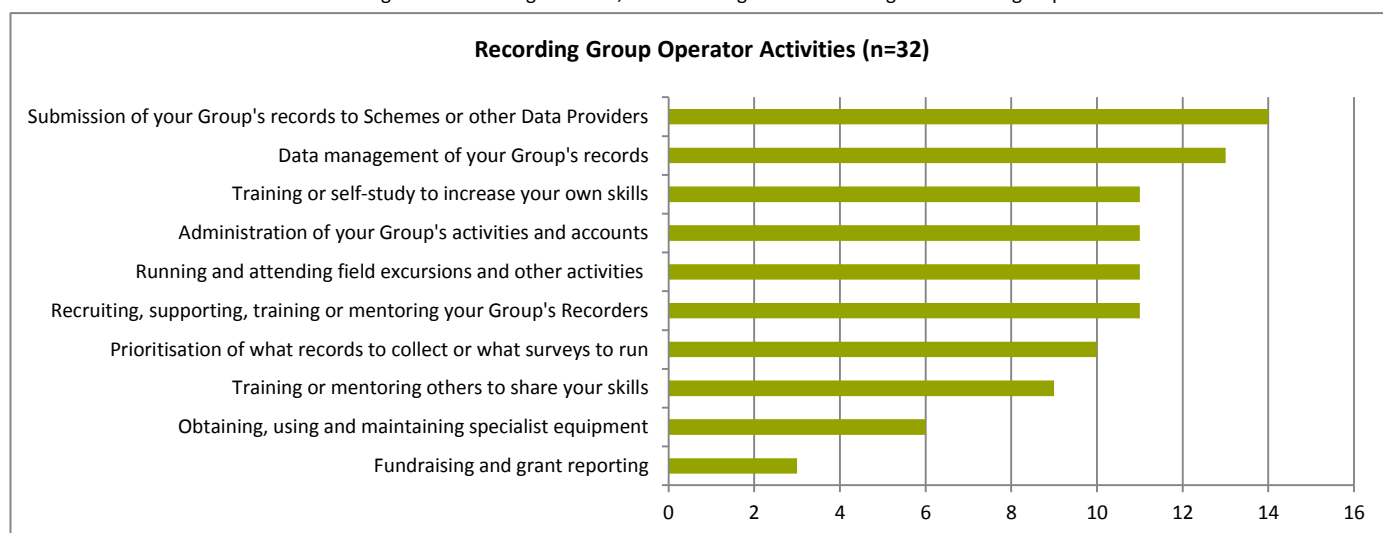
**Figure 34: Number of Collection Curators undertaking each activity**

NO ADDITIONAL ACTIVITIES SUGGESTED



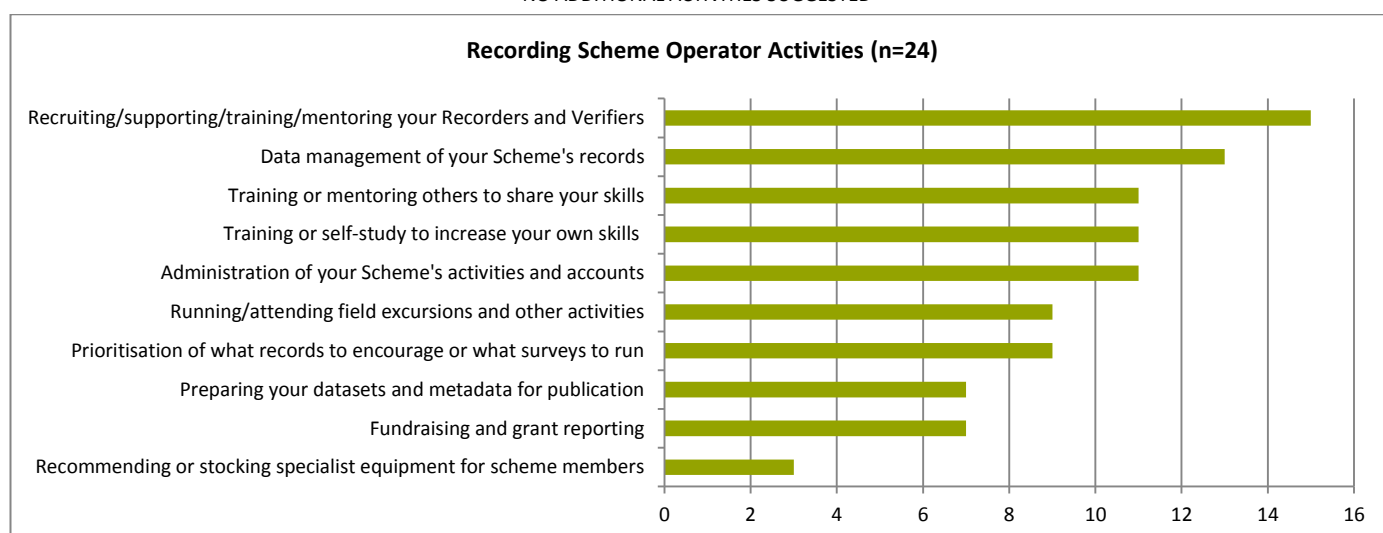
**Figure 35: Number of Recording Group Operators undertaking each activity**

ADDITIONAL ACTIVITIES SUGGESTED: Talking about and publishing the results of data collection; editing the Group's magazines/journals; building and maintaining websites; administering and contributing to Facebook groups



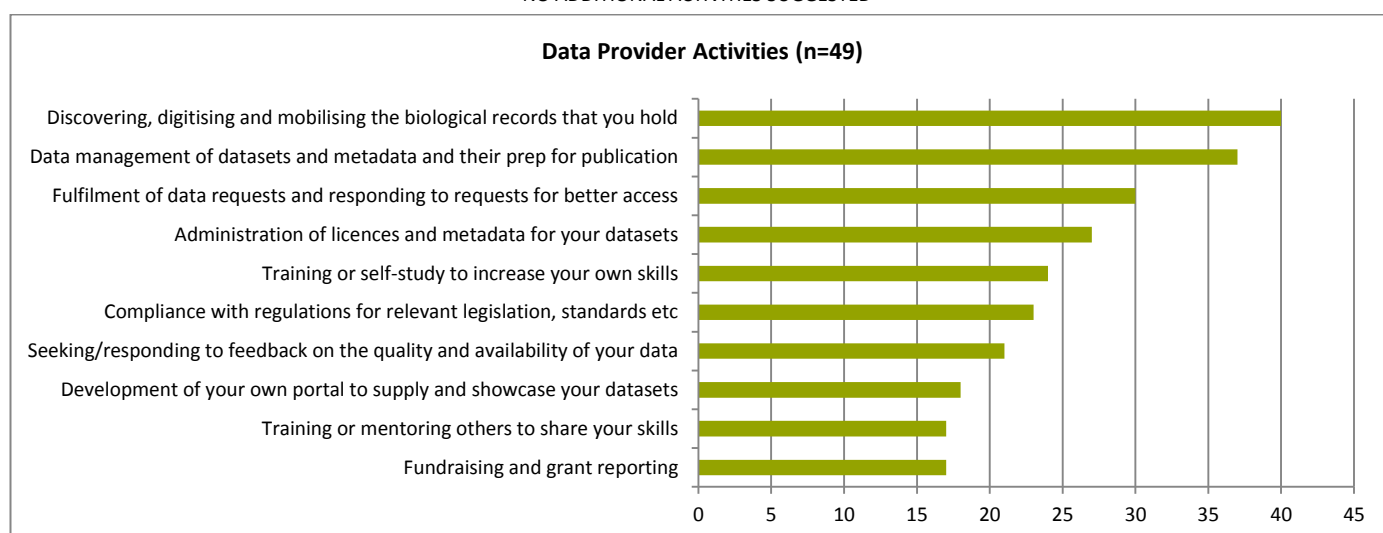
**Figure 36: Number of Recording Scheme Operators undertaking each activity**

NO ADDITIONAL ACTIVITIES SUGGESTED



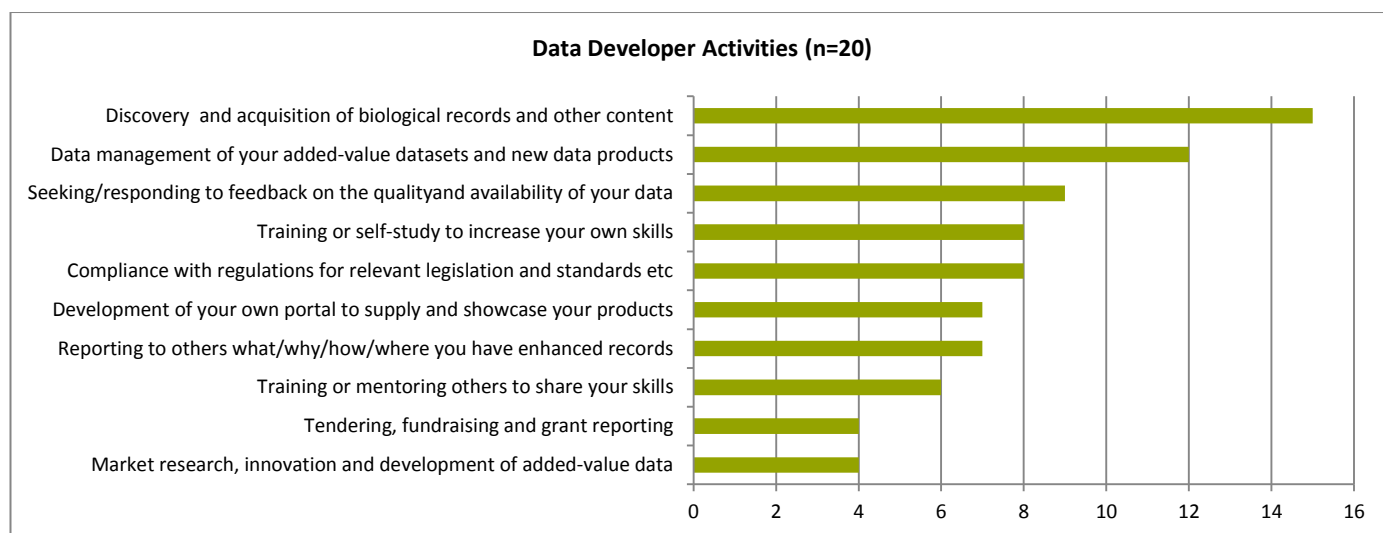
**Figure 37: Number of Data Providers undertaking each activity**

NO ADDITIONAL ACTIVITIES SUGGESTED



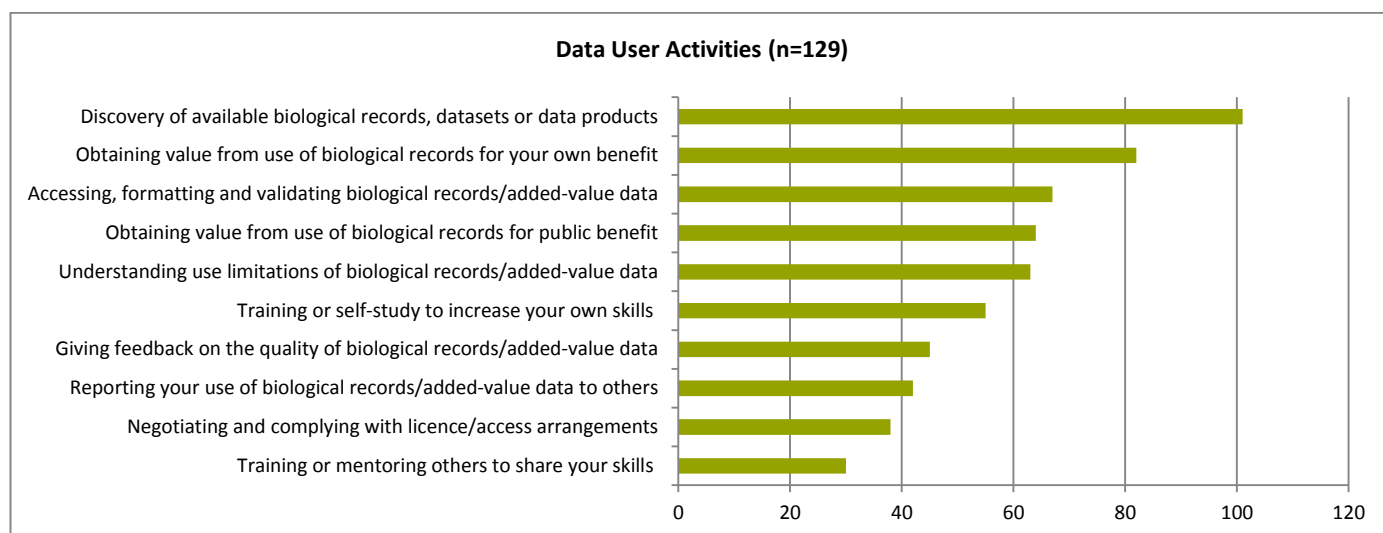
**Figure 38: Number of Data Developers undertaking each activity**

NO ADDITIONAL ACTIVITIES SUGGESTED



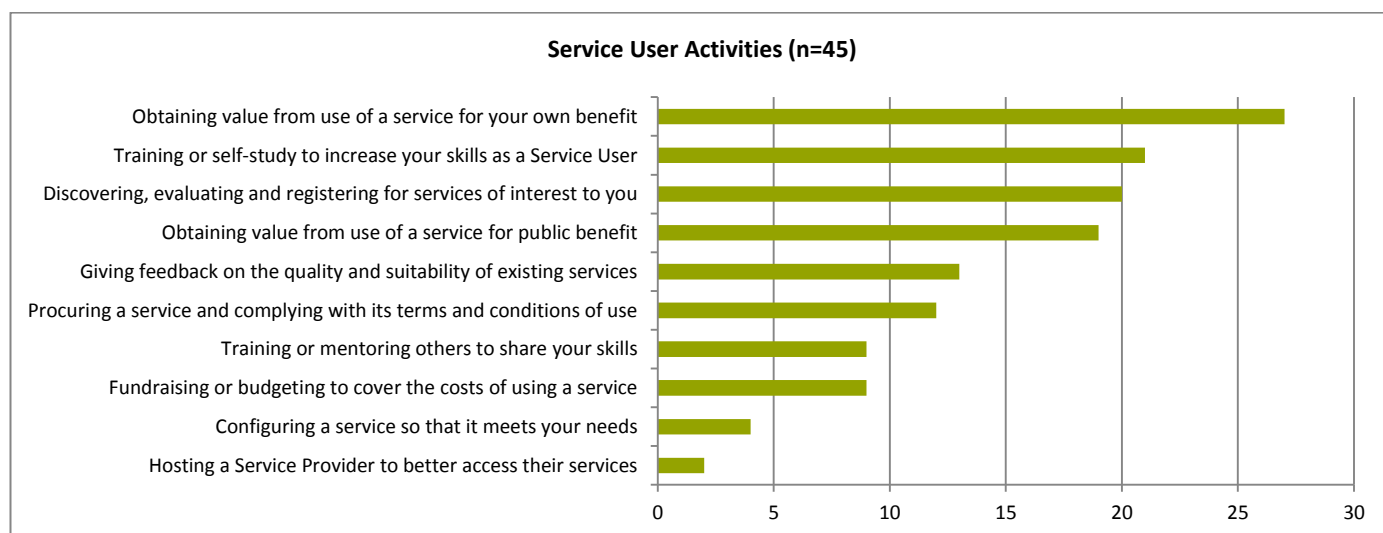
**Figure 39: Number of Data Users undertaking each activity**

NO ADDITIONAL ACTIVITIES SUGGESTED



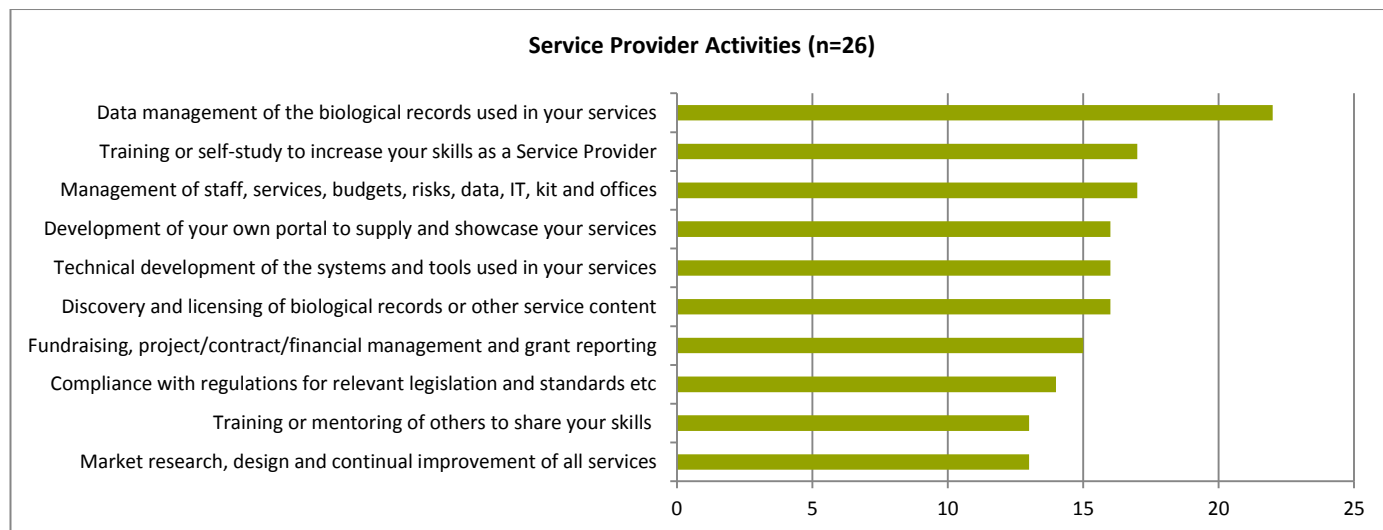
**Figure 40: Number of Service Users undertaking each activity**

NO ADDITIONAL ACTIVITIES SUGGESTED



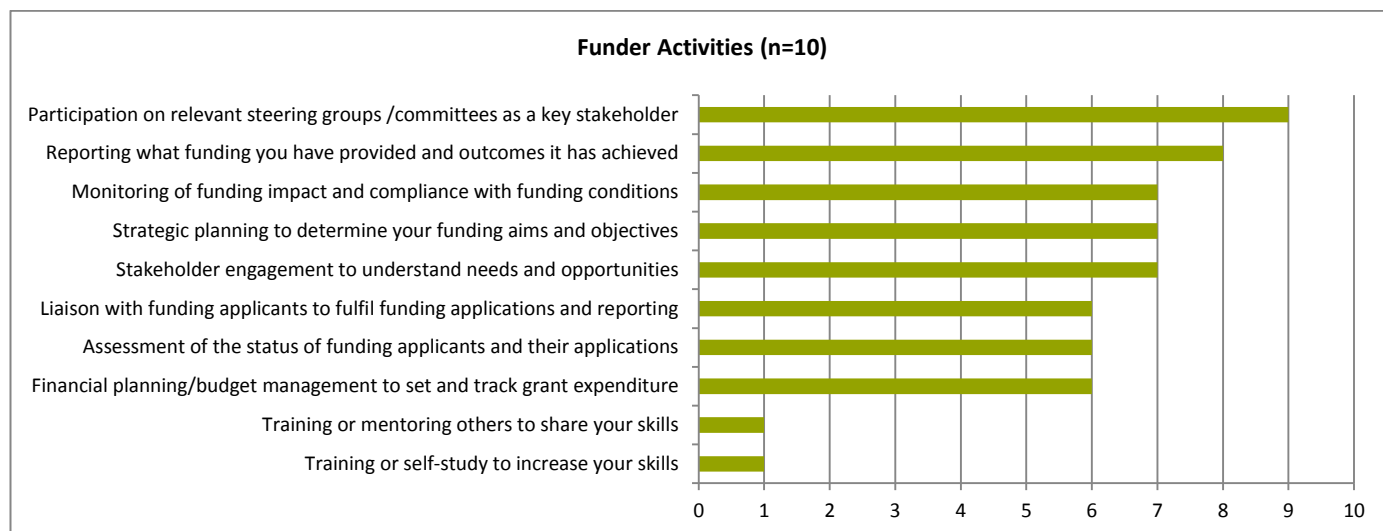
**Figure 41: Number of Service Providers undertaking each activity**

NO ADDITIONAL ACTIVITIES SUGGESTED



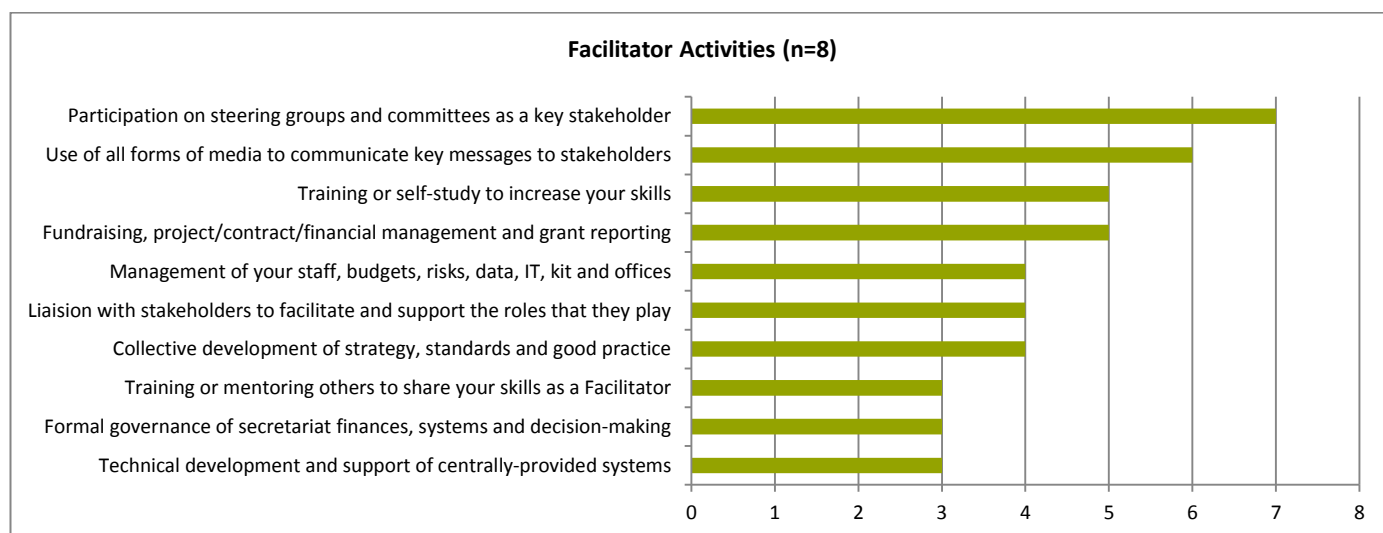
**Figure 42: Number of Funders undertaking each activity**

NO ADDITIONAL ACTIVITIES SUGGESTED



**Figure 43: Number of Facilitators undertaking each activity**

NO ADDITIONAL ACTIVITIES SUGGESTED



### vii. Activity profiles: Recorders to Recording Schemes

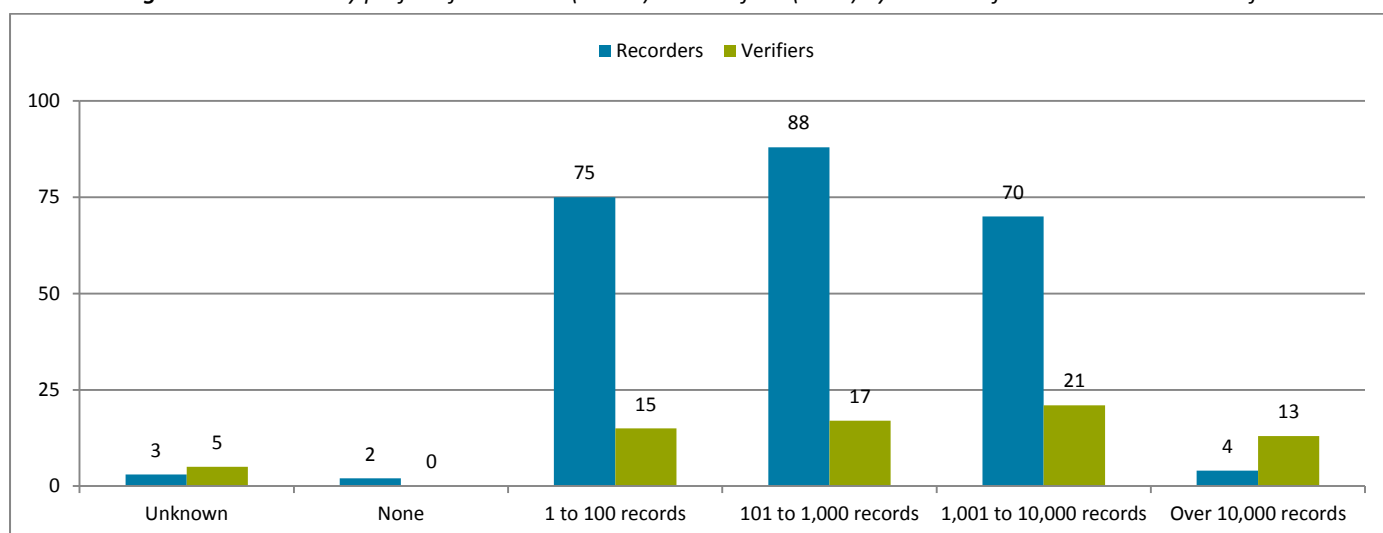
The number of records collected, verified or curated in the last year was indicated by each of the roles of Recorder, Verifier and Collection Curator (**Figures 44 to 45**), and by the roles of Recording Group Operator and Recording Scheme Operator (**Figures 46 to 47**). For the latter, the number of records collected is shown by the number of members (for Recording Groups) or annual cost of operating (for Recording Schemes) (**Figures 48a and 48b**).

Within the questionnaire section for each role, respondents could indicate which of 27 broad taxonomic groups were of interest, or whether they were interested in all or any species, or all or any species of conservation concern (see section 3.1.iv above for details). For simplicity, as respondents could also define any other specific interest, any other interests – whatever was specified e.g. ‘other insects such as Orthoptera and Auchenorrhynca’, ‘trees’, ‘parasites’ or ‘roadkill’ – were counted as a 28<sup>th</sup> ‘taxonomic group’. Overall, Recorders indicated an interest in an average of 5.18 taxonomic groups each, Verifiers indicated an interest in an average of 2.15 taxonomic groups, Collection Curators in 3.30 groups, Recording Scheme Operators in 2.65 groups and Recording Group Operators in 5.19 groups. 19% of both Recording Group Operators and Recorders indicated an interest in all or any taxa/taxa of conservation concern, 13% of Collection Curators indicated an interest in all or any taxa/taxa of conservation concern, and likewise 6% of Recording Scheme Operators and just 3% of Verifiers (**Table 9**).

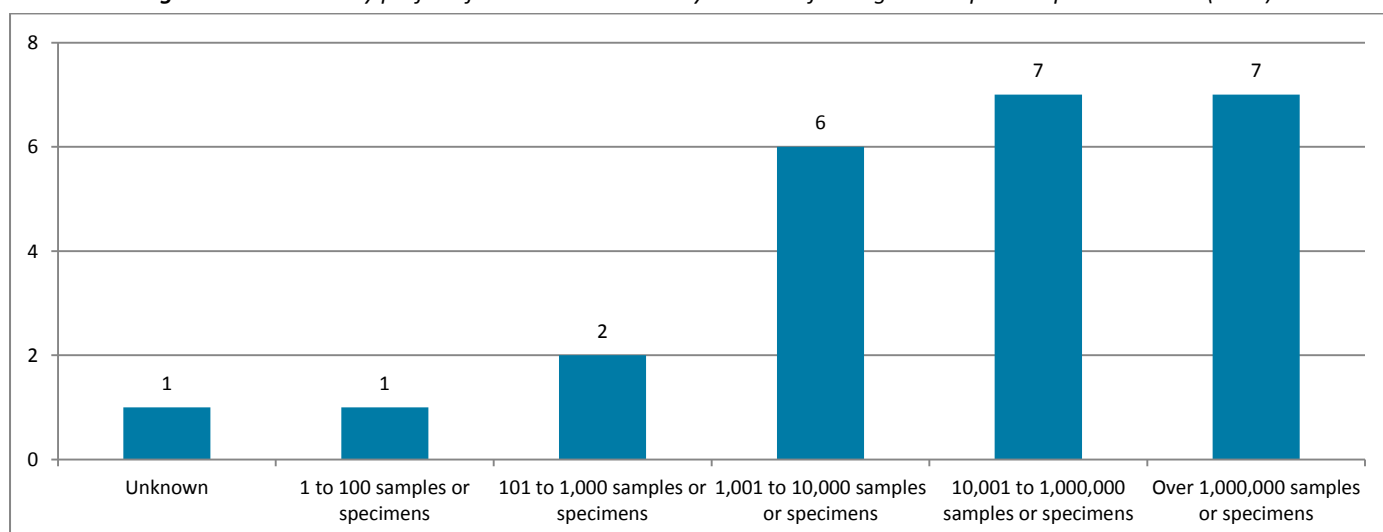
**Table 9: Breadth of taxonomic interests by Role**

ROLE	AVERAGE NUMBER OF TAXONOMIC GROUPS OF INTEREST	PERCENTAGE OF RESPONDENTS INTERESTED IN ALL/ANY TAXA
Recorder (n=237)	5.18	19%
Recording Group Operator (n=26)	5.19	19%
Verifier(n=66)	2.15	3%
Recording Scheme Operator (n=17)	2.65	13%
Collection Curator (n=23)	3.30	13%

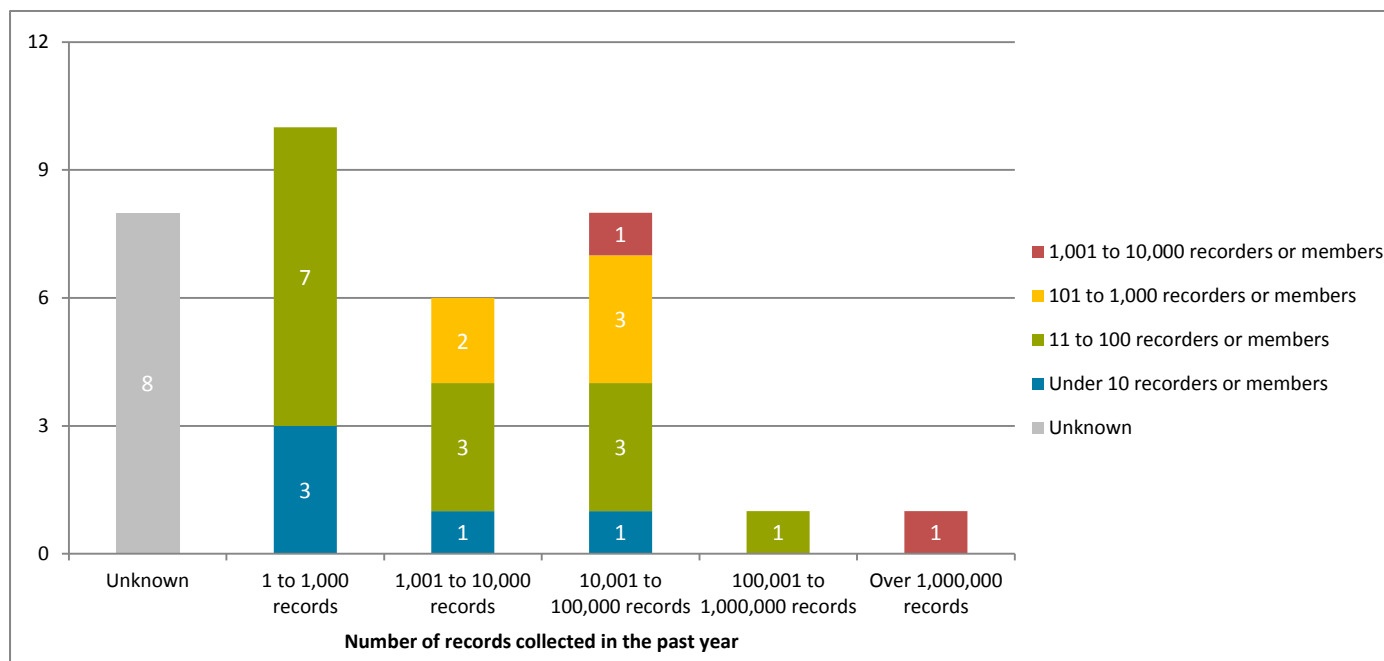
**Figure 44: The activity profile of Recorders (n=242) and Verifiers (n=71) by number of records collected or verified**



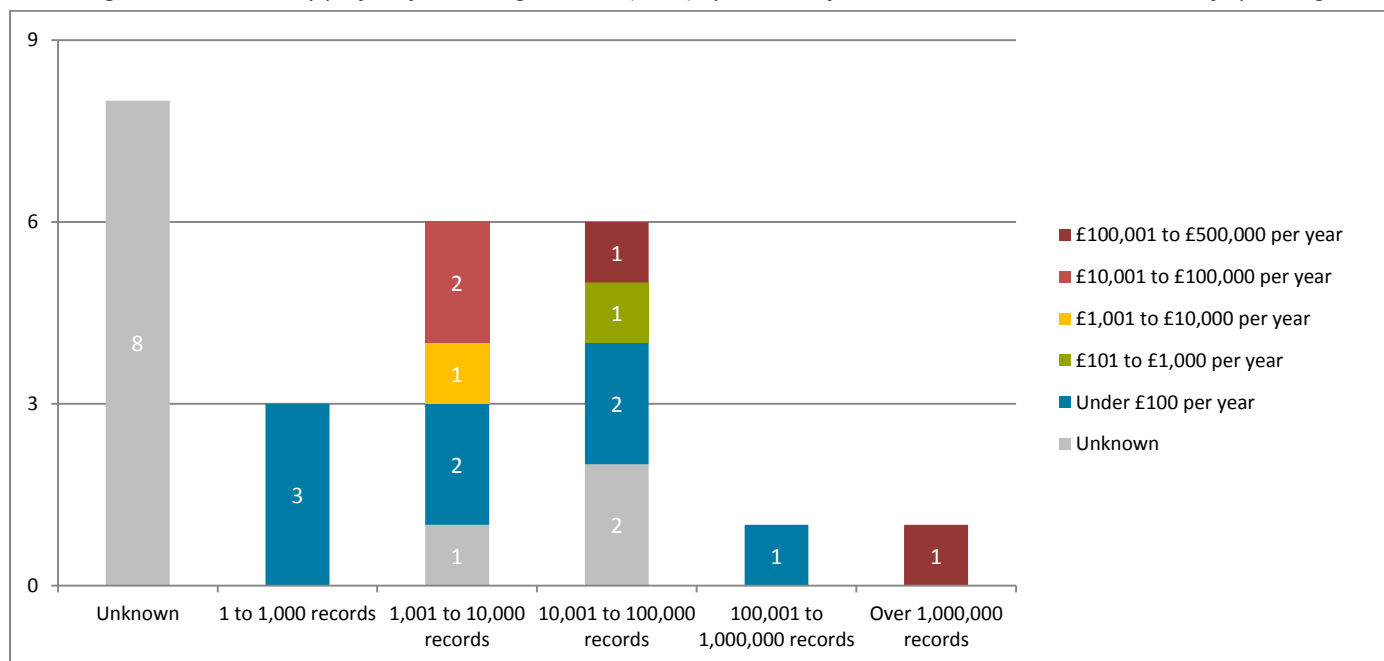
**Figure 45: The activity profile of Collection Curators by number of biological samples or specimens held (n=24)**



**Figure 46:** The activity profile of Recording Groups (n=34) by number of records collected and group size

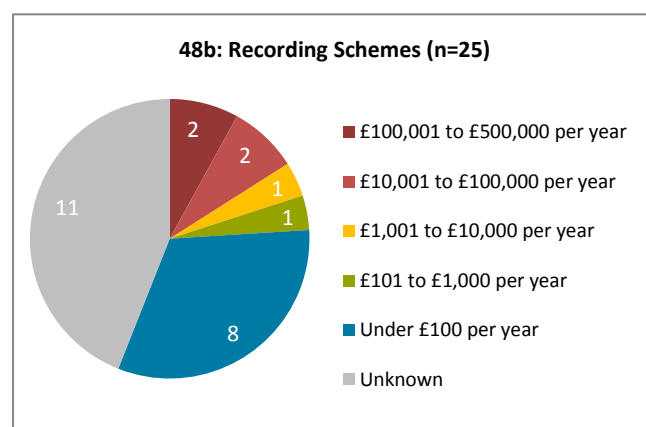
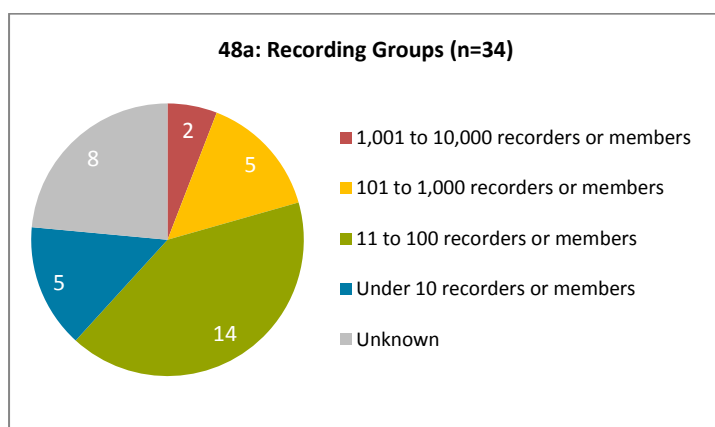


**Figure 47:** The activity profile of Recording Schemes (n=25) by number of records collected and annual costs of operating



**Figure 48:** Number of Recording Groups and Recording Schemes in each size class

Size classes are indicated by the size of the Recording Group (in terms of numbers of members) and the scale of the Recording Scheme (in terms of the level of operating costs per year) associated with each Recording Group Operator/Recording Scheme Operator responding





### viii. Motivation and morale

Across all roles, 495 responses (listed in **Appendix 3**) were received to the question ‘What motivates you to be a <ROLE>?’. All responses were classified as relating to, or being primarily motivated by, one of seven broad themes (**Table 10**). Respondents with the roles of Recorder and Recording Scheme Operator were primarily motivated by their passion for recording, wildlife, nature, the environment and conservation; those with the roles of Data Developer, Verifier, Data Provider, Facilitator, Service Provider and Collection Curator were primarily motivated by their desire to improve data quality, standards, skills or available knowledge; and, those with the roles of Service User, Funder, Recording Group Operator and Data User were primarily motivated by job satisfaction and effective fulfilment of their professional function (**Table 11**). Note that one role, Service Provider, had two motivators of equal priority (their desire to improve and their wish for job satisfaction and effective professional fulfilment).

**Table 10: Broad themes used to classify motivators for each role holder**

BROAD THEME	EXAMPLE RESPONSE
PASSION FOR RECORDING, WILDLIFE, NATURE, ENVIRONMENT, CONSERVATION	“Love of wildlife, find it fascinating and relaxing to be outside looking for and at wildlife. Knowing that records can help increase knowledge and conservation is why I submit records.”
IMPROVED DATA QUALITY, STANDARDS, SKILLS OR KNOWLEDGE	“The need to ensure that high quality data is available for those who want or need it. To ensure that decision makers have the information they should use to inform their actions.”
JOB SATISFACTION/PROFESSIONAL REQUIREMENTS	“It is a requirement of my job to ensure that information presented is correct and reliable. Being able to cross reference information presented with other record sources is invaluable.”
SCIENTIFIC CURIOSITY AND A WISH TO KNOW MORE	“Pure curiosity and a weird desire to collect information.”
DUTY AND RESPONSIBILITY	“When I took it on it was for professional development; the desire to increase our knowledge of the county's biodiversity; the desire to contribute to a well-respected national recording scheme; wanting to get more people involved in recording (and conservation); and because I liked organising things. Now I've been doing it for 8 or 9 years I don't feel massively motivated any more, to be honest! It's a lot of tedious work. Now I'm mainly motivated by the knowledge there doesn't seem to be anyone else who's prepared to take it on. But I do like working with the group of volunteers involved in running the recording scheme locally.”
NEEDING ACCESS TO DATA OF INTEREST	“The desire to use the most up-to-date and comprehensive information available on the distribution of organisms that I'm interested in and/or working on.”
LEAVING A LEGACY	“A biological collection is a vital tool to leave for future generations.”

**Table 11: Primary motivators (highlighted green): the most frequent theme across responses by role**

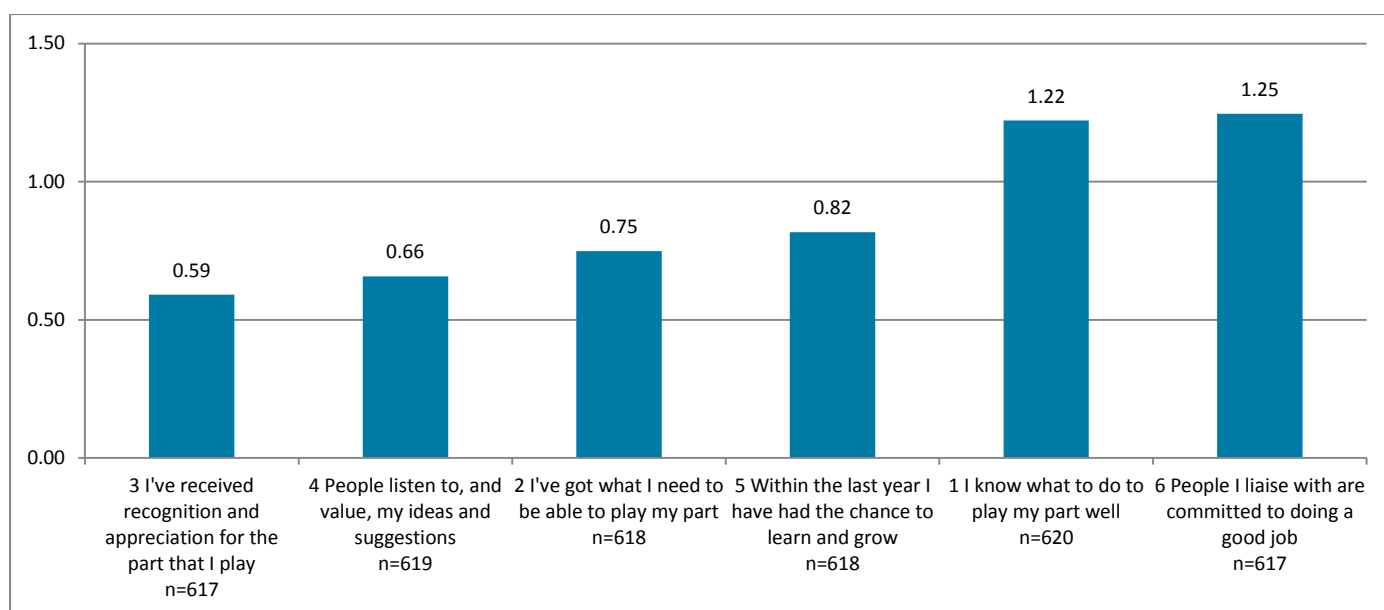
	PASSION FOR RECORDING, WILDLIFE, NATURE, ENVIRONMENT, CONSERVATION	IMPROVED DATA QUALITY, STANDARDS, SKILLS OR KNOWLEDGE	JOB SATISFACTION/PROFESSIONAL REQUIREMENTS	SCIENTIFIC CURIOSITY AND A WISH TO KNOW MORE	DUTY AND RESPONSIBILITY	NEEDING ACCESS TO DATA OF INTEREST	LEAVING A LEGACY	ALL
RECORDER	131 (60.4%)	50 (23%)	13 (6%)	20 (9.2%)	3 (1.4%)	(0%)	(0%)	217
SCHEME OPERATOR	6 (54.5%)	1 (9.1%)	1 (9.1%)	2 (18.2%)	1 (9.1%)	(0%)	(0%)	11
DATA DEVELOPER	1 (11.1%)	5 (55.6%)	2 (22.2%)	1 (11.1%)	(0%)	(0%)	(0%)	9
VERIFIER	8 (14.8%)	29 (53.7%)	4 (7.4%)	5 (9.3%)	6 (11.1%)	2 (3.7%)	(0%)	54
DATA PROVIDER	7 (22.6%)	15 (48.4%)	5 (16.1%)	1 (3.2%)	2 (6.5%)	1 (3.2%)	(0%)	31
FACILITATOR	2 (28.6%)	3 (42.9%)	2 (28.6%)	(0%)	(0%)	(0%)	(0%)	7
SERVICE PROVIDER	2 (14.3%)	6 (42.9%)	6 (42.9%)	(0%)	(0%)	(0%)	(0%)	14
CURATOR	(0%)	7 (38.9%)	6 (33.3%)	3 (16.7%)	(0%)	(0%)	2 (11.1%)	18
SERVICE USER	4 (18.2%)	2 (9.1%)	13 (59.1%)	1 (4.5%)	(0%)	2 (9.1%)	(0%)	22
FUNDER	1 (12.5%)	3 (37.5%)	4 (50%)	(0%)	(0%)	(0%)	(0%)	8
GROUP OPERATOR	3 (20%)	3 (20%)	6 (40%)	(0%)	2 (13.3%)	(0%)	1 (6.7%)	15
DATA USER	19 (21.3%)	13 (14.6%)	32 (36%)	17 (19.1%)	1 (1.1%)	7 (7.9%)	(0%)	89
TOTAL RESPONSES	184	137	94	50	15	12	3	495

In terms of morale, the possible average score that could be achieved varied from -2 (if everyone strongly disagreed with the morale statements) to +2 (if everyone strongly agreed with the morale statements). The average score for each statement for all roles varied from the lowest score of 0.59 for 'recognition and appreciation' to the highest score of 1.25 for 'people being committed to doing a good job' (**Figure 49**). Average scores for each individual role were also above zero (**Figure 50**), with the highest average scores being for Facilitators (1.26), Funders (1.17) and Service Providers (1.1); the three lowest morale scores (of 0.66 to 0.5) being for Data Users (0.66), Collection Curators (0.64) and Service Users (0.5). Sample size in **Figure 49** is larger than that in **Figure 50** because many respondents will hold more than one role and so the sample size reflects the number of responses in total rather than the number of individual respondents. The exact way in which respondents answered the morale statements is given in **Figures 51 to 56**.

Just over 40 respondents provided just over 100 additional comments to explain their answers for the morale statements (listed in **Appendix 4**). As the morale question came last in each section of the questionnaire, enthusiasm for providing a lengthy comment or indeed any comment at all by that stage of the questionnaire may have been much reduced. Not many comments were easily classifiable within broad themes. Overall, the comments were varied and ranged over a number of topics, but particularly on matters such as lack of funding, lack of job certainty, lack of a connected recorder community, lack of commitment from Government and not being listened to or recognised.

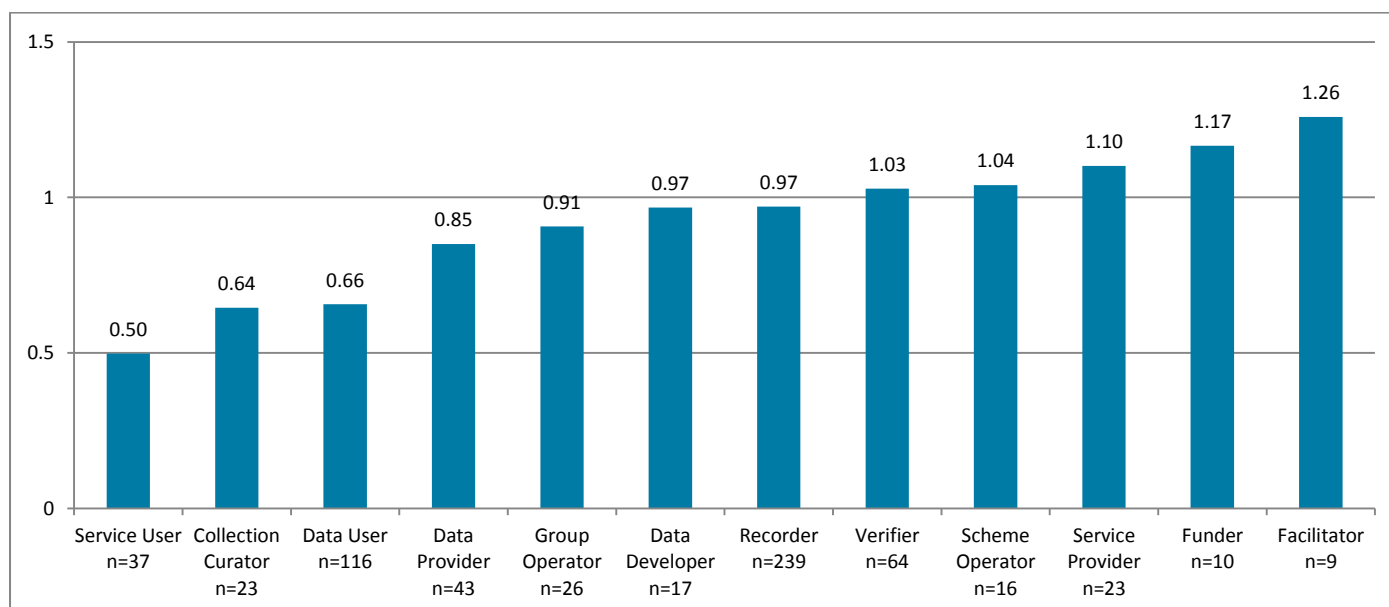
**Figure 49: Average 'morale score' for morale statements 1-6 across all roles**

Note: the highest possible score is 2.0 (if all respondents strongly agree, the lowest is -2.0 (if all respondents strongly disagree)

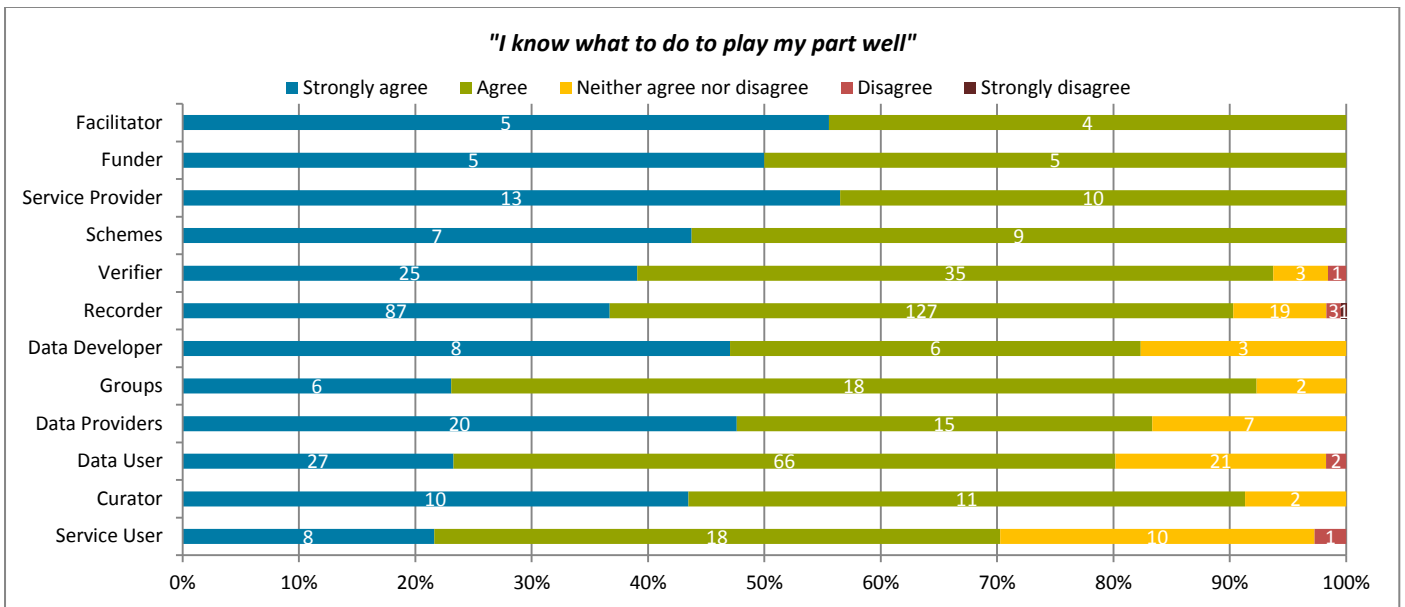


**Figure 50: Average 'morale score' across morale statements 1-6 by role**

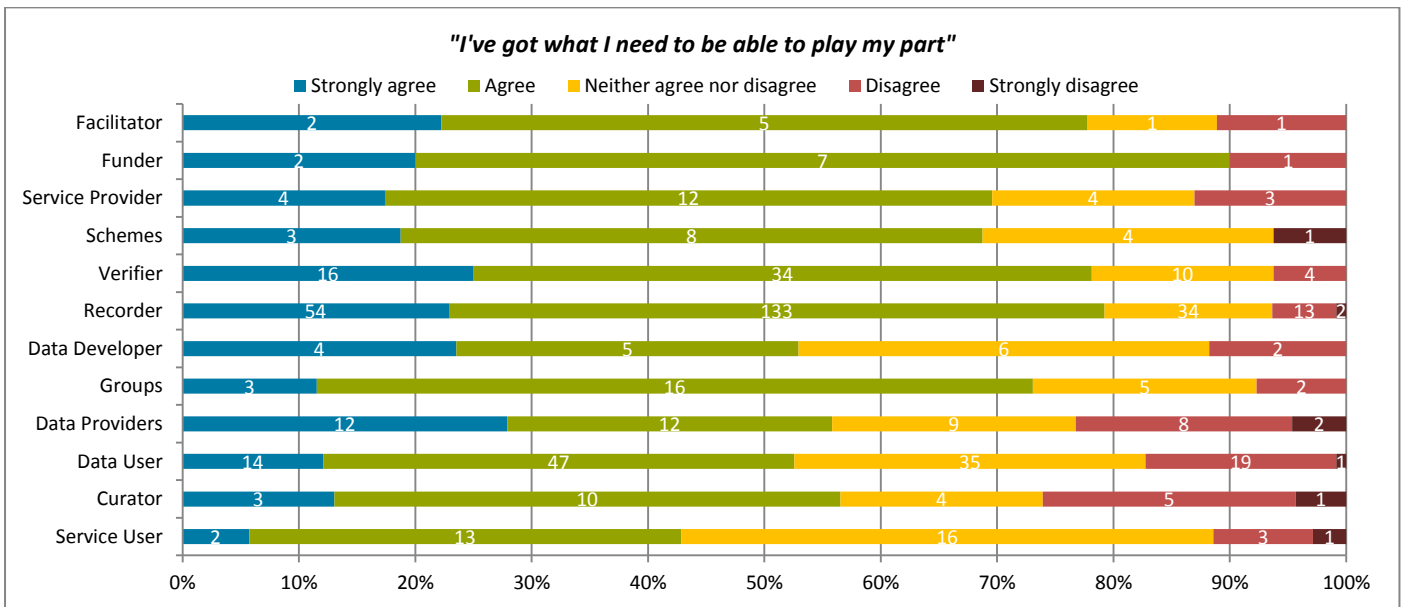
Note: the highest possible score is 2.0 (if all respondents strongly agree, the lowest is -2.0 (if all respondents strongly disagree)



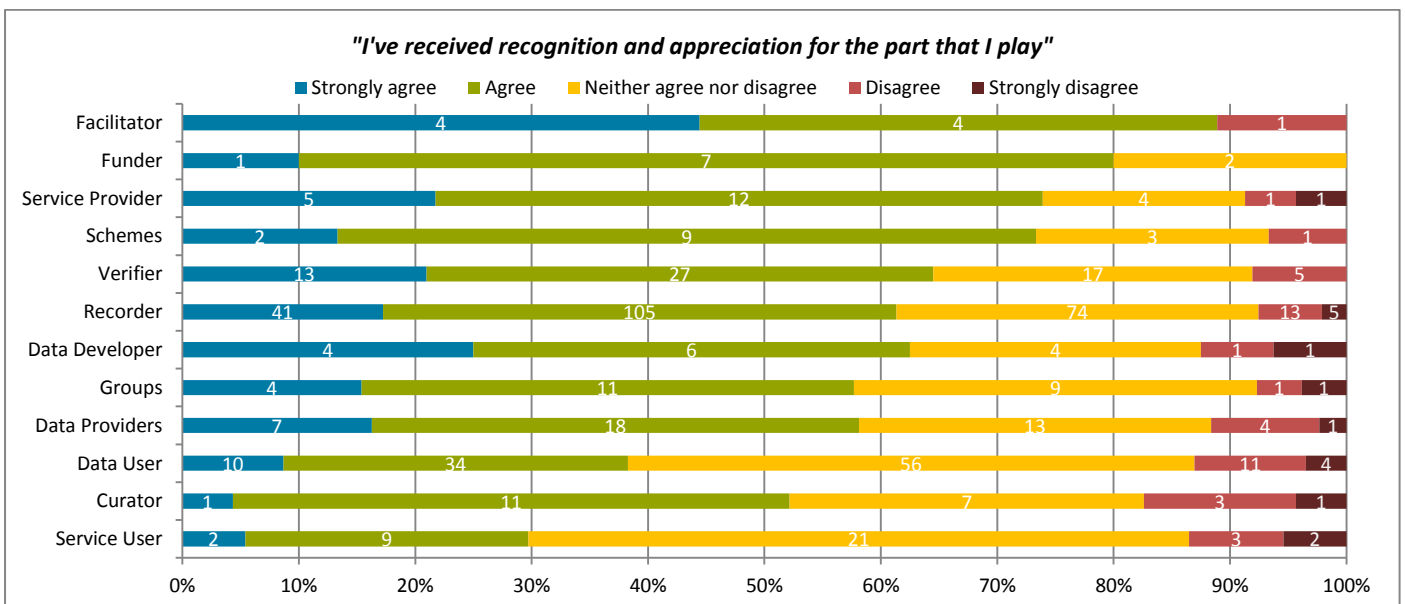
**Figure 51: Percentage and number of respondents by role agreeing with Morale Statement 1 (average score=1.22)**



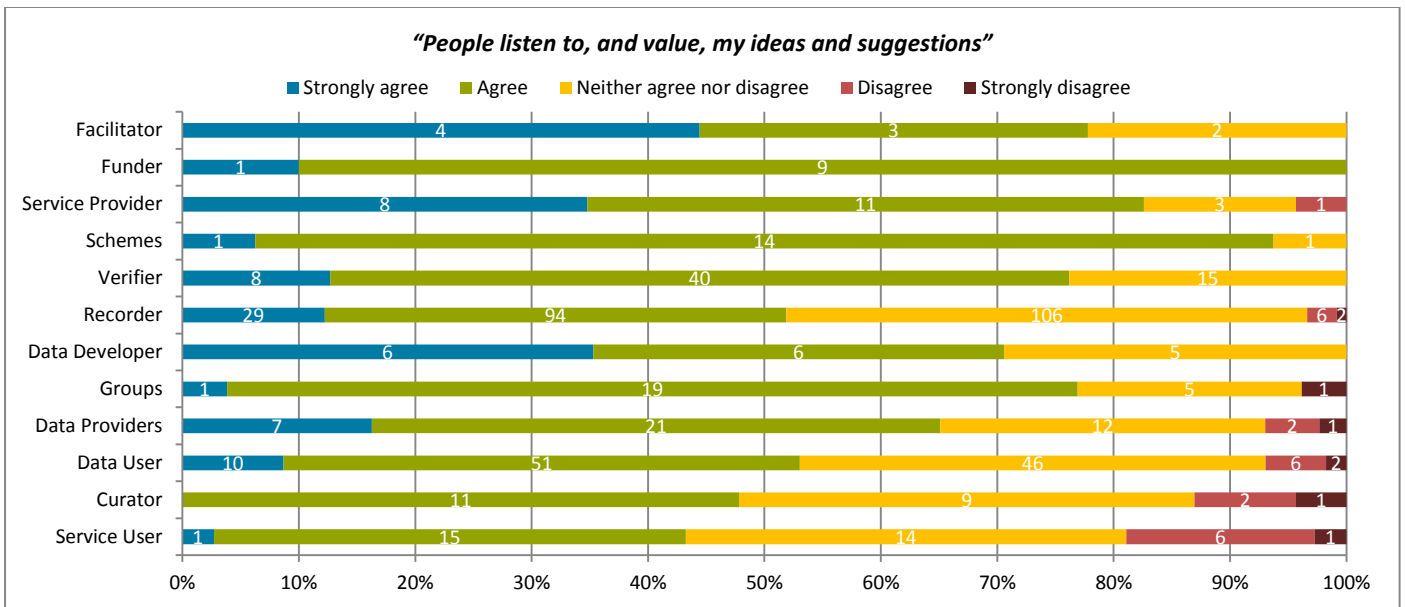
**Figure 52: Percentage and number of respondents by role agreeing with Morale Statement 2 (average score=0.75)**



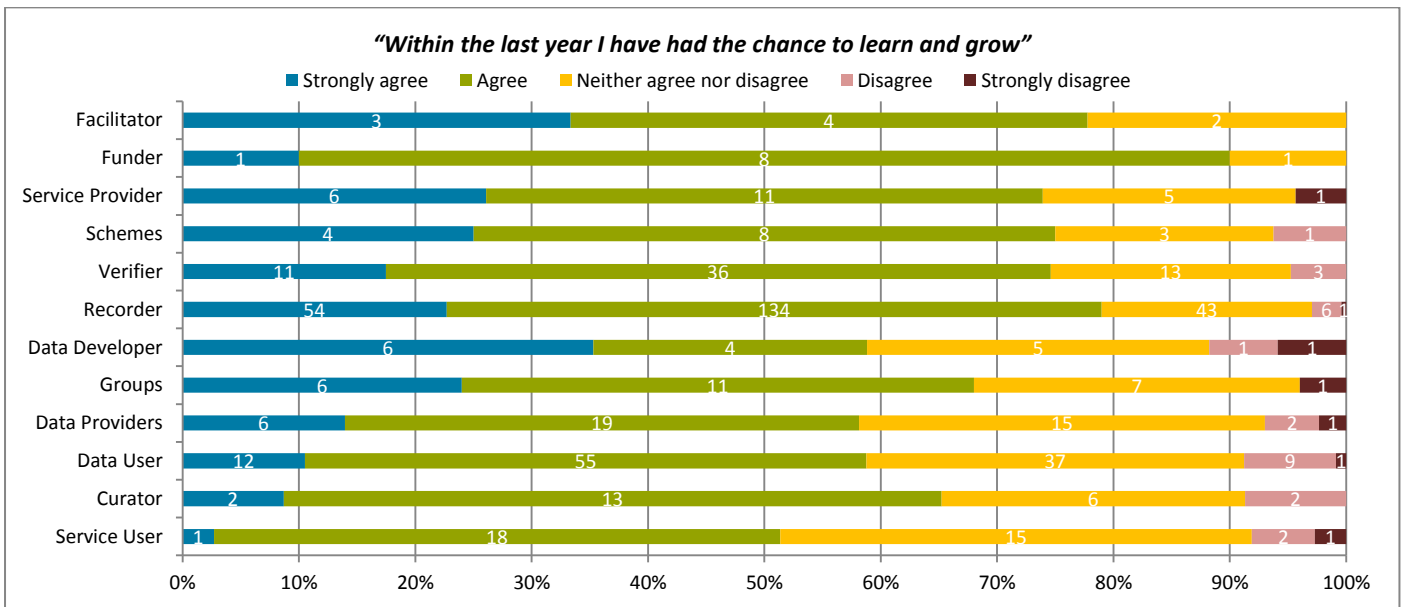
**Figure 53: Percentage and number of respondents by role agreeing with Morale Statement (average score=0.59)**



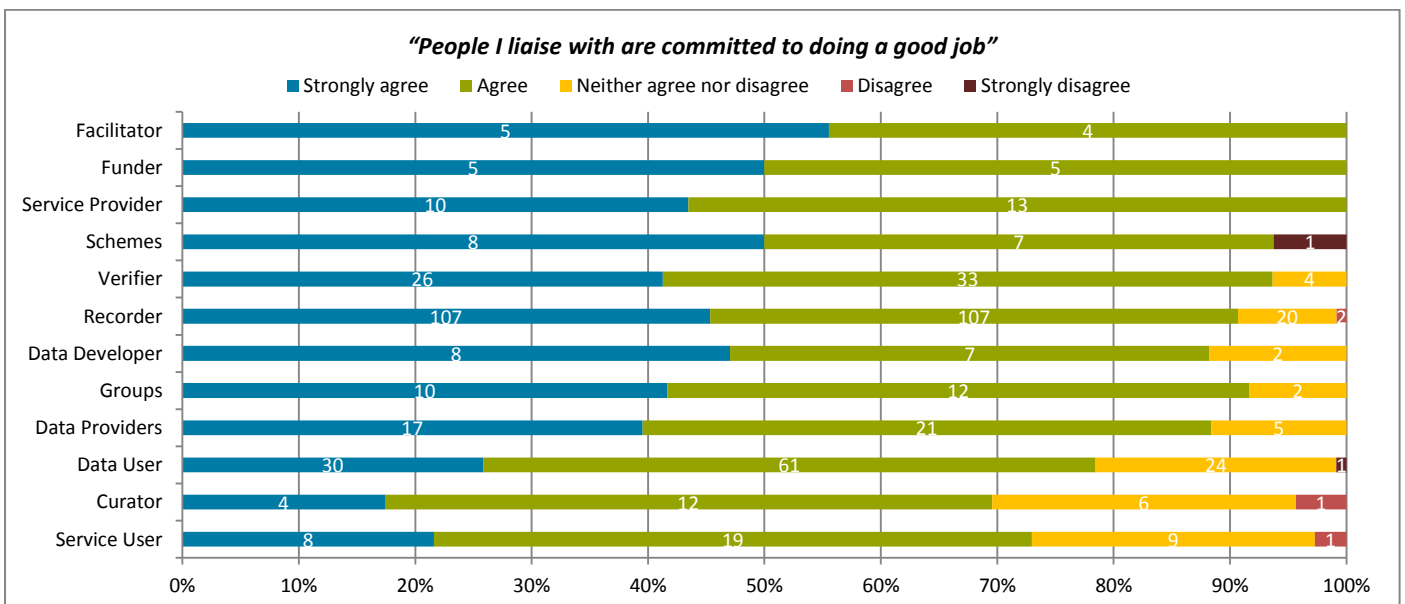
**Figure 54: Percentage and number of respondents by role agreeing with Morale Statement 4 (average score=0.66)**



**Figure 55: Percentage and number of respondents by role agreeing with Morale Statement 5 (average score=0.82)**



**Figure 56: Percentage and number of respondents by role agreeing with Morale Statement 6 (average score=1.25)**



## 3.2 Funding and facilitation

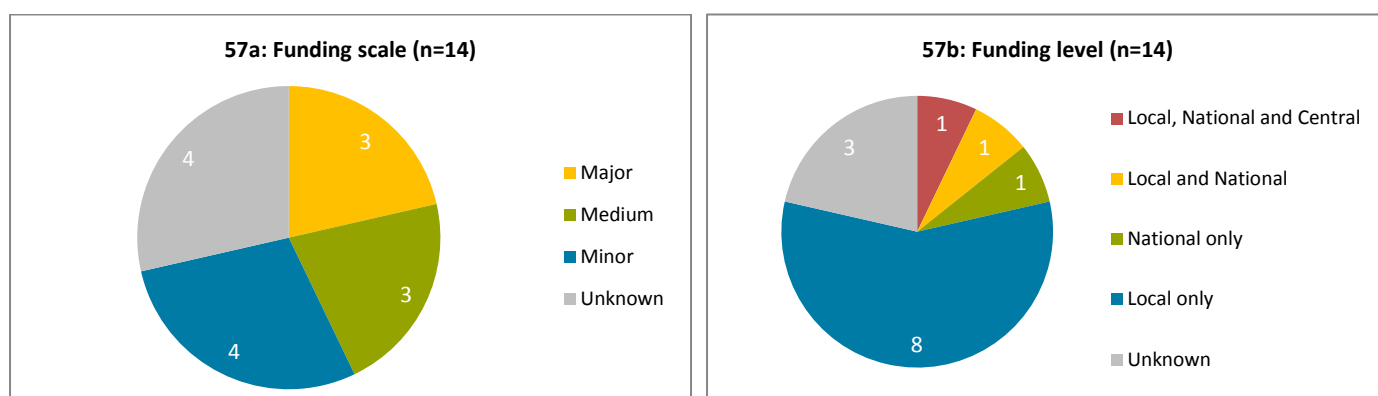
### i. Funding provision

Noting the small sample size of just 14 respondents who responded as a Funder, three identified themselves as being a Major Funder, three as a Medium Funder, four as a Minor Funder and four did not indicate their funding level (**Figure 57a**). Eight of these respondents provide their funding locally, while three support national level activities and one supports central activities (**Figure 57b**). Based on respondent comments, Minor Funders are providing funding of £1,000 to £5,000 as part funding or bursaries, while Major Funders are providing core funding for the data infrastructure as a whole.

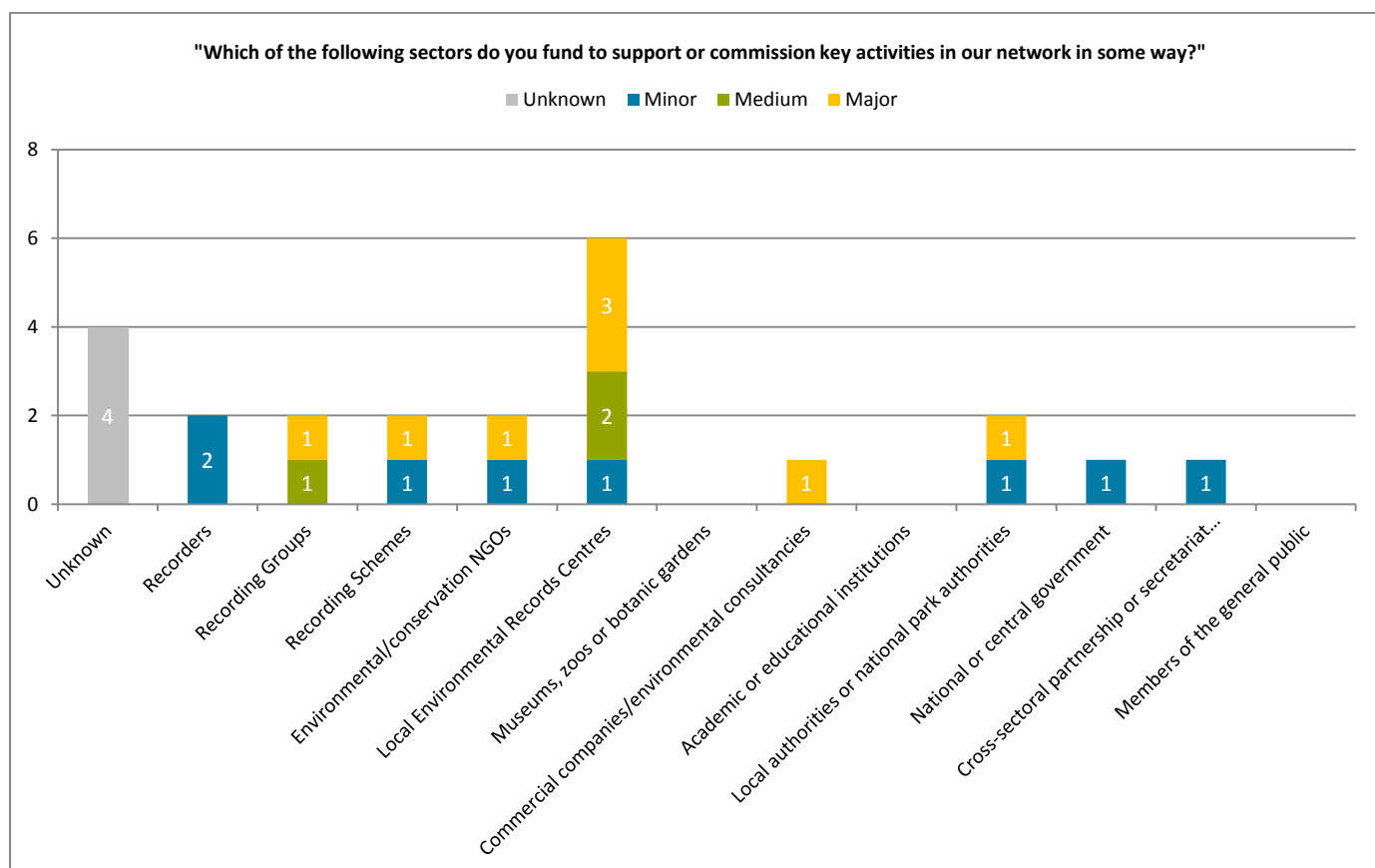
Analysis of the number and type of Funders (whether Minor, Medium or Major) per sector, role and activity area (**Figures 58 to 60**) showed that the most-funded of these, in terms of the number of Funders responding to this questionnaire, were Local Environmental Records Centres (6 Funders), Recorders and Data Providers (6 and 5 Funders respectively) and Data Collection and Data Curation (10 and 8 Funders respectively). None of the Funders responding provided funding to museum or academic sectors, nor to members of the general public.

Of 26 respondents who responded as a Recording Scheme Operator, and 28 who responded as a Service Provider, 14 and 24 respectively indicated the sources of funding that covered their operating costs (**Figures 61 to 62**).

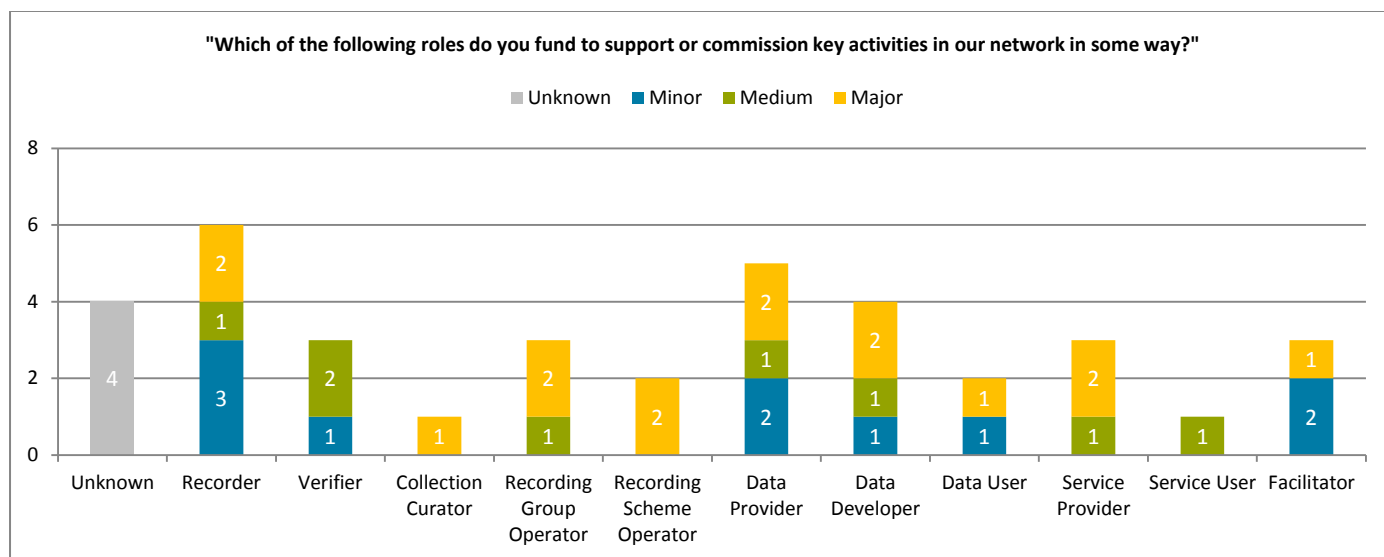
**Figure 57: Scale and level of funding provided by Funders**



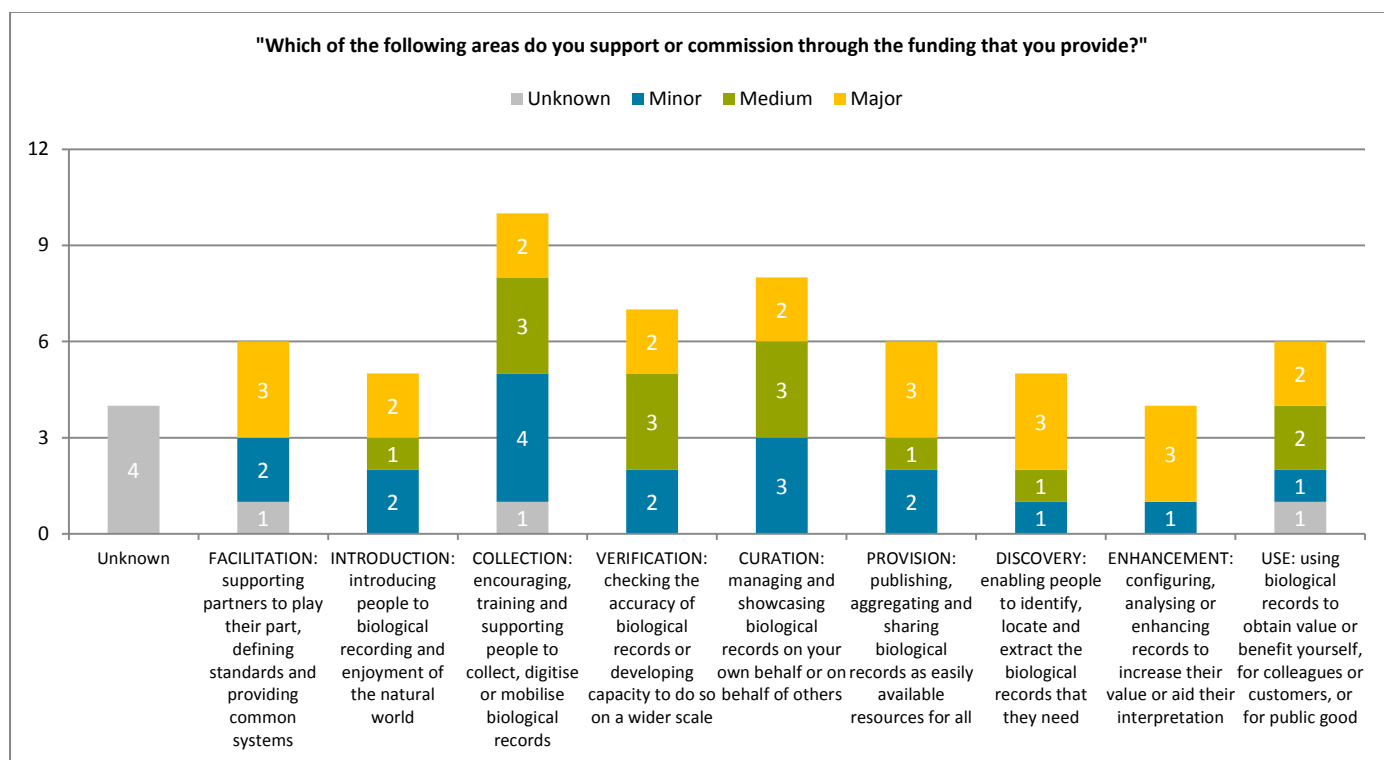
**Figure 58: Number and type of Funders per Sector**



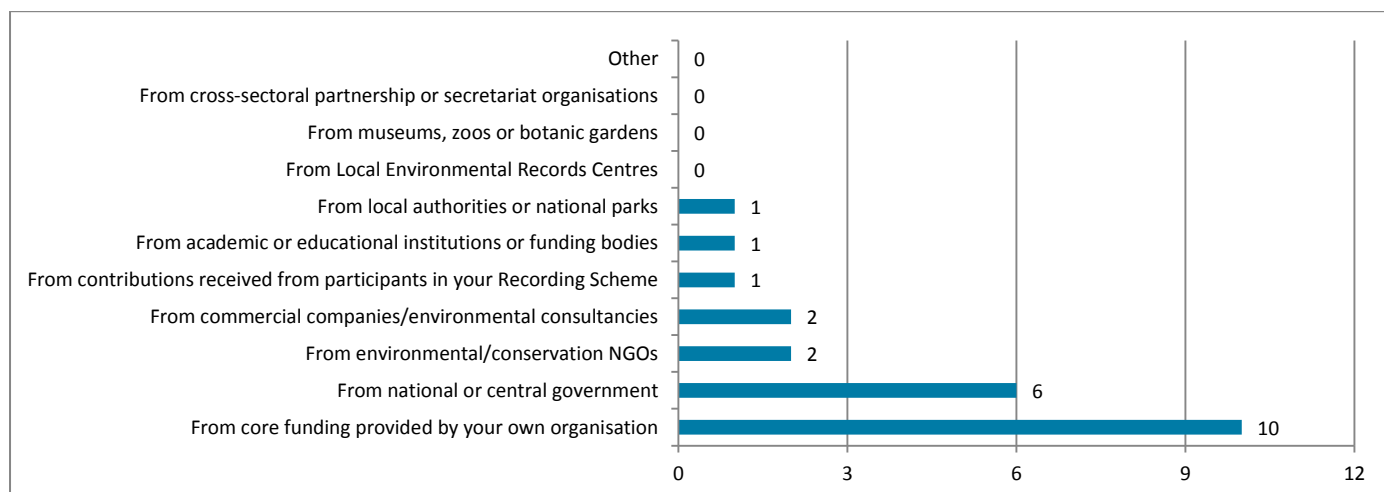
**Figure 59: Number and type of Funders per Role**



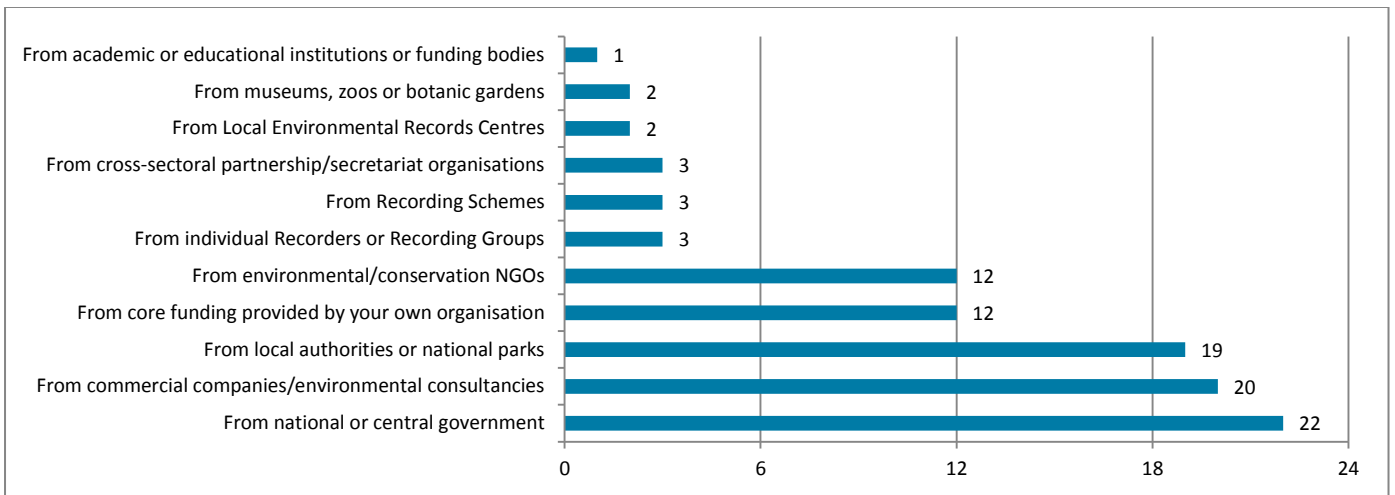
**Figure 60: Number and type of Funders per Activity Area**



**Figure 61: Number of Recording Scheme Operators receiving funding from each source or sector type**



**Figure 62: Number of Service Providers receiving funding from each source or sector type**



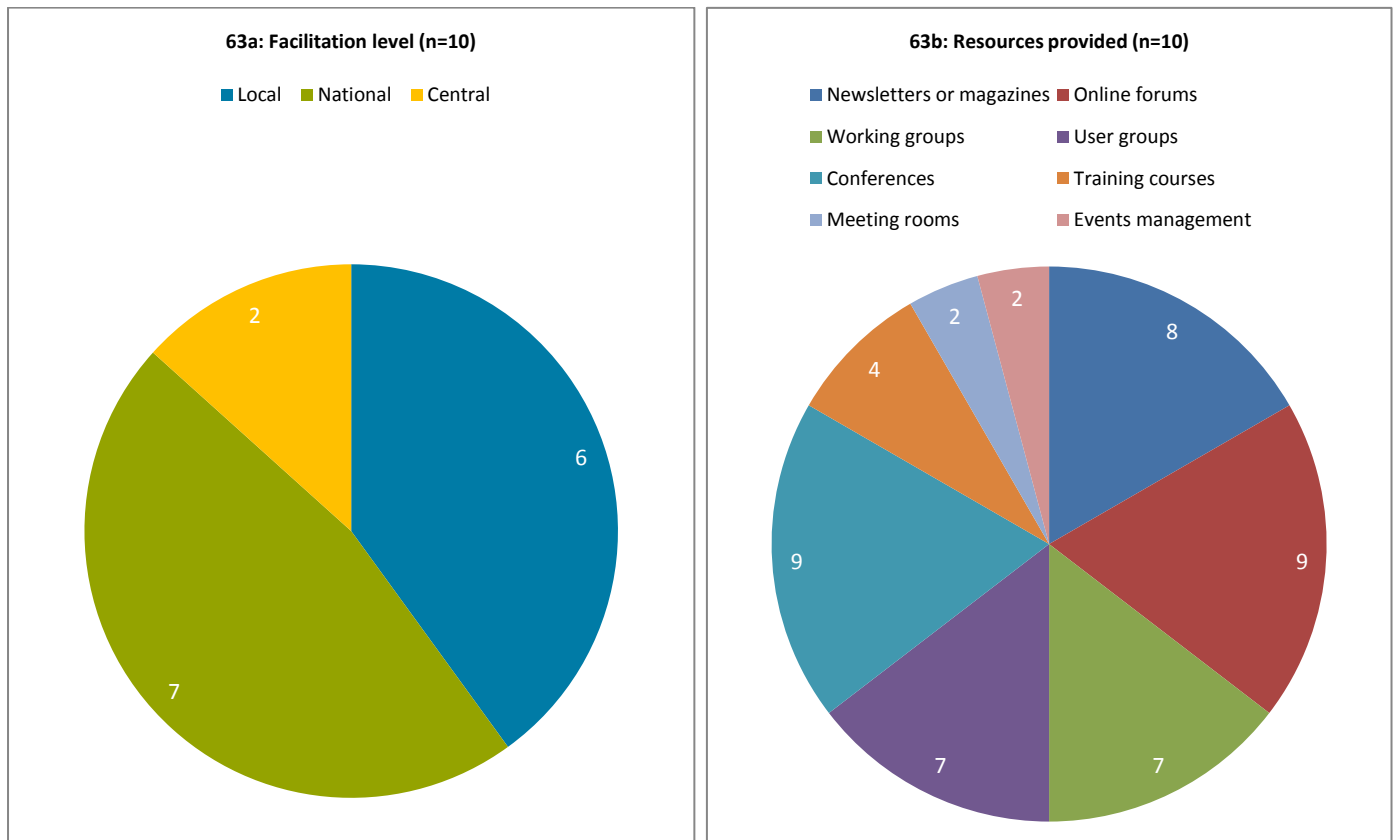
#### i. Facilitation

Noting the small sample size of just 10 respondents who responded as a Facilitator, six identified themselves as providing support locally, seven provided support at a national level and two provided support at a central level (**Figure 63a**). All resource types listed were provided by at least two respondents, except for that of ‘conference venues’ which no respondents provided (**Figure 63b**). The most frequently provided resource types were ‘online forums’ and ‘conferences’, while the least frequently provided were ‘meeting rooms’ and ‘events management’.

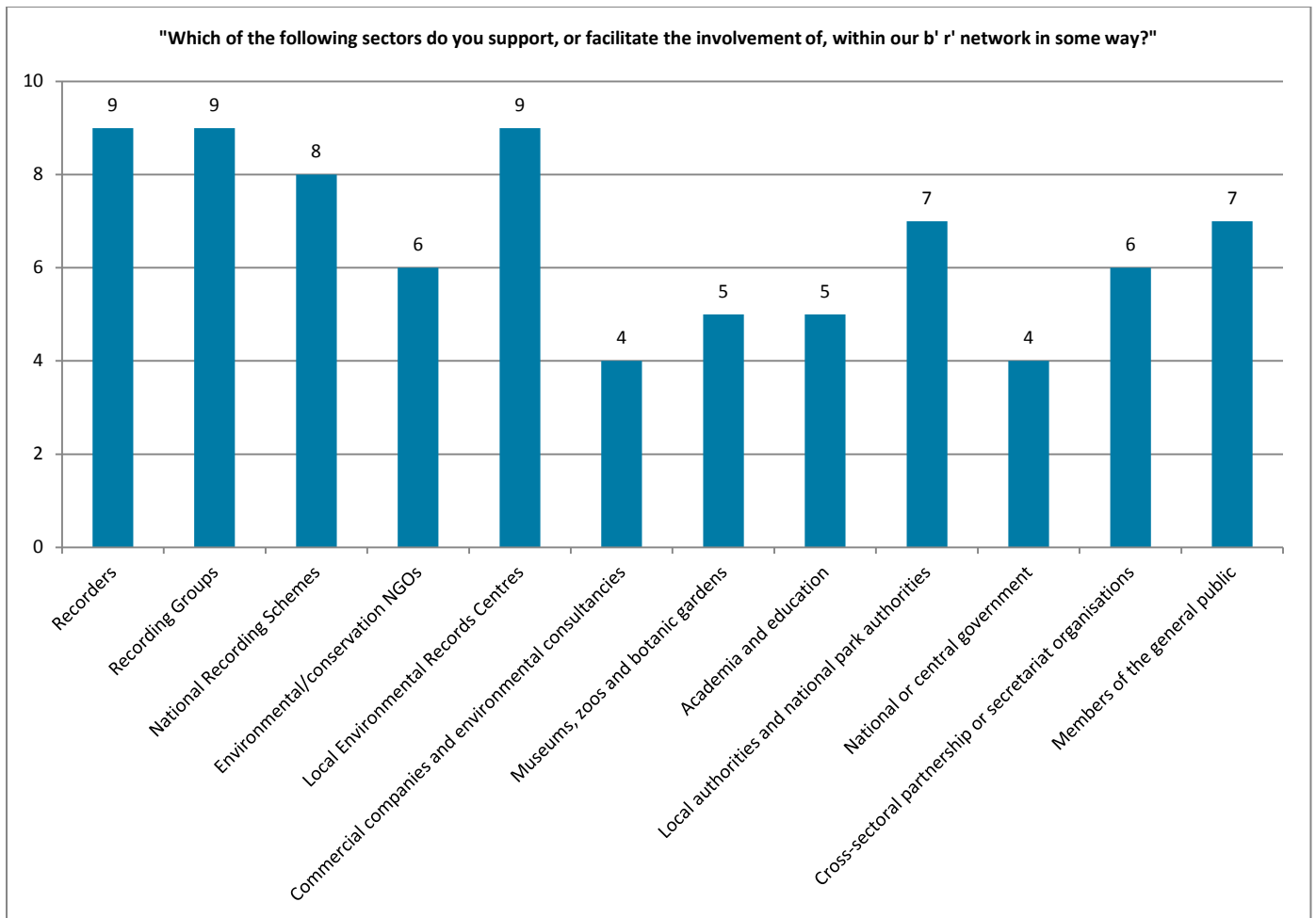
Analysis of the number of Facilitators per sector, role and activity area (**Figures 64 to 66**) showed that the most-supported of these, in terms of the number of Facilitators responding to this questionnaire, were Recorders, Recording Groups and Local Environmental Records Centres (9 Facilitators for each of these sectors), Service Providers (8 Facilitators for this role) and Facilitation, Data Collection and Data Verification (9, 8 and 8 Facilitators respectively for these activity areas). All sectors, roles and activity areas were supported by at least two Facilitators.

**Figure 63: Number of Facilitators acting at each level and providing each resource type**

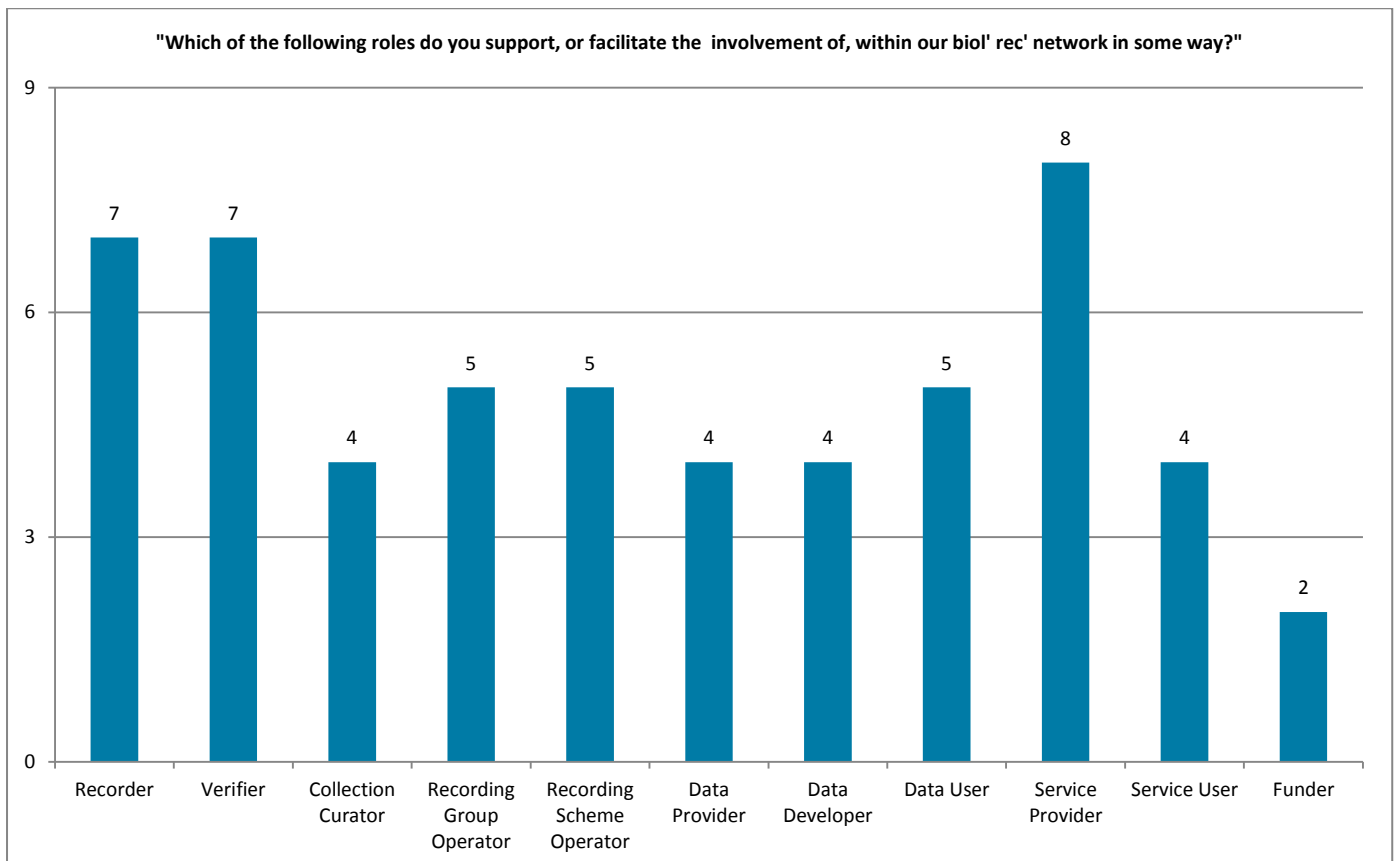
“Do you act as a Facilitator to provide secretariat support at a local, national or central level?”  
 “What types of activities or resources do you offer to coordinate and communicate with your network partners and other stakeholders?”



**Figure 64: Number of Facilitators supporting each Sector**

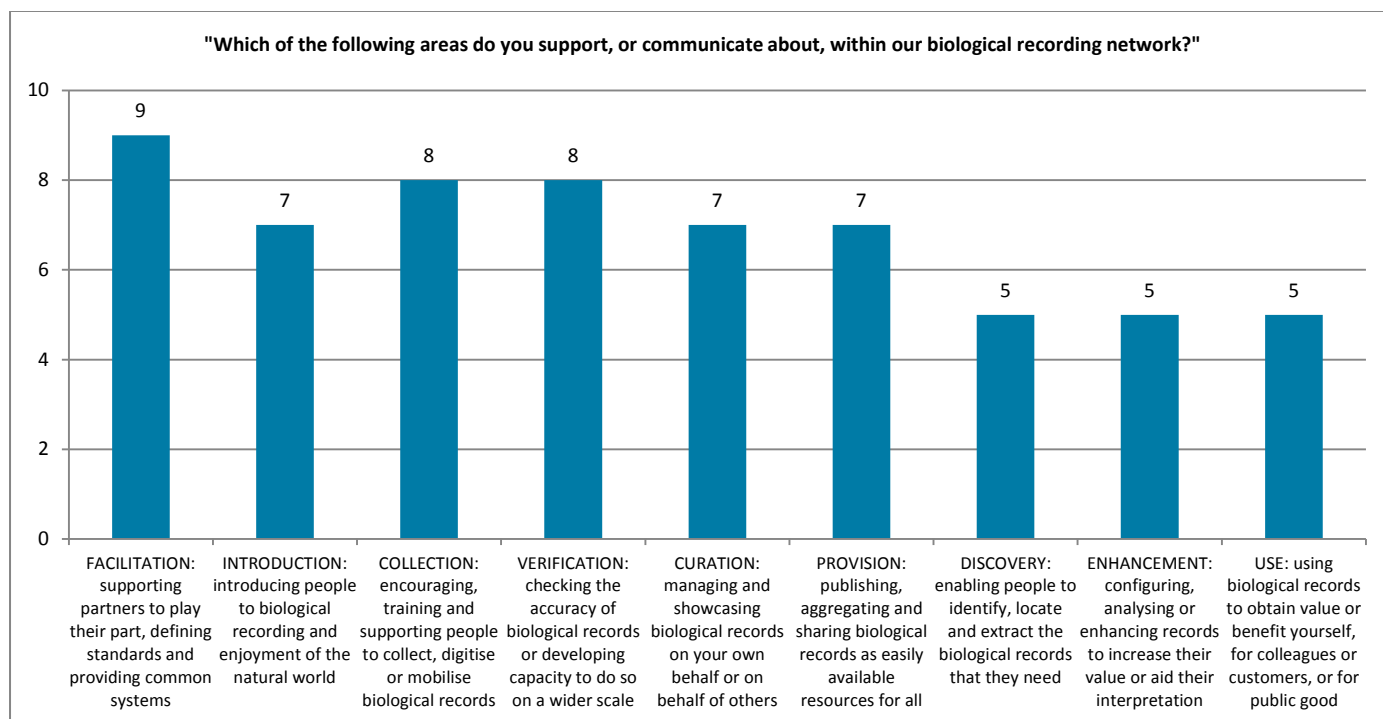


**Figure 65: Number of Facilitators supporting each Role**





**Figure 66: Number of Facilitators supporting each Activity Area**



### 3.3 Service provision and use

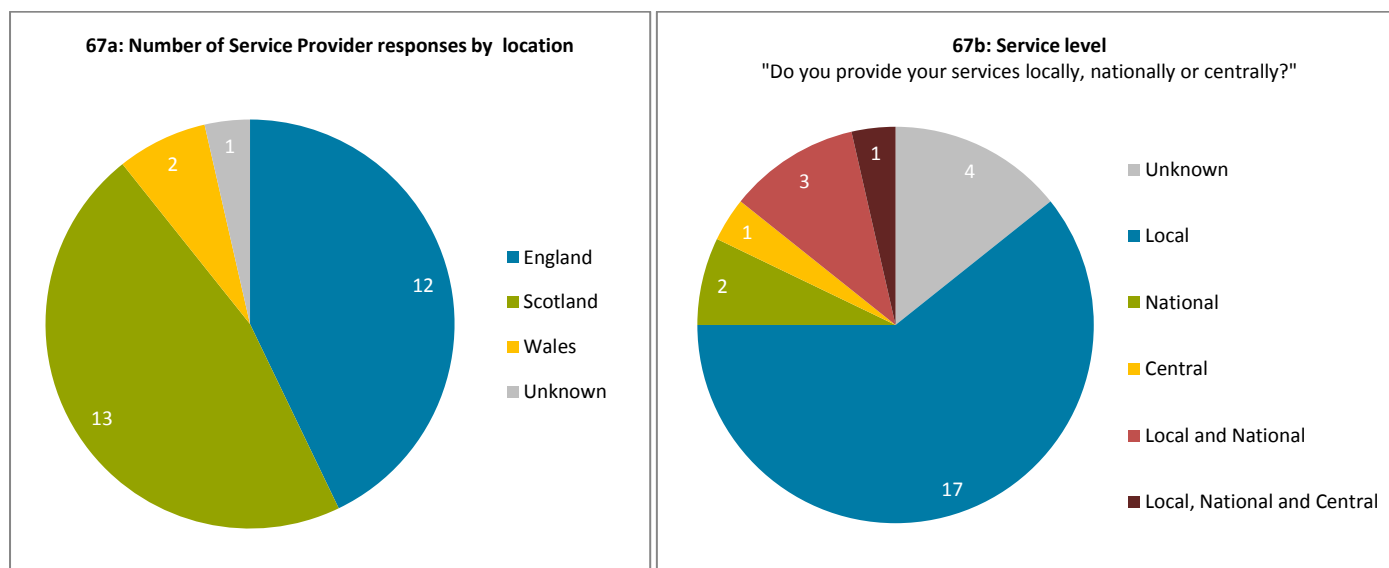
#### i. Service provision

Of 28 respondents who identified themselves as Service Providers, 13 (46%) were based in Scotland, 12 (43%) in England, 2 (7.0%) in Wales and 1 respondent did not give their location (**Figure 67a**). 21 of the 28 respondents provided their services locally (with four of these also providing national level services and one also providing services centrally); six respondents provided their services nationally (of which three also provided services locally and 1 centrally); and, two provided services centrally, of which one provided services at all three levels, locally, nationally and centrally (**Figure 67b**).

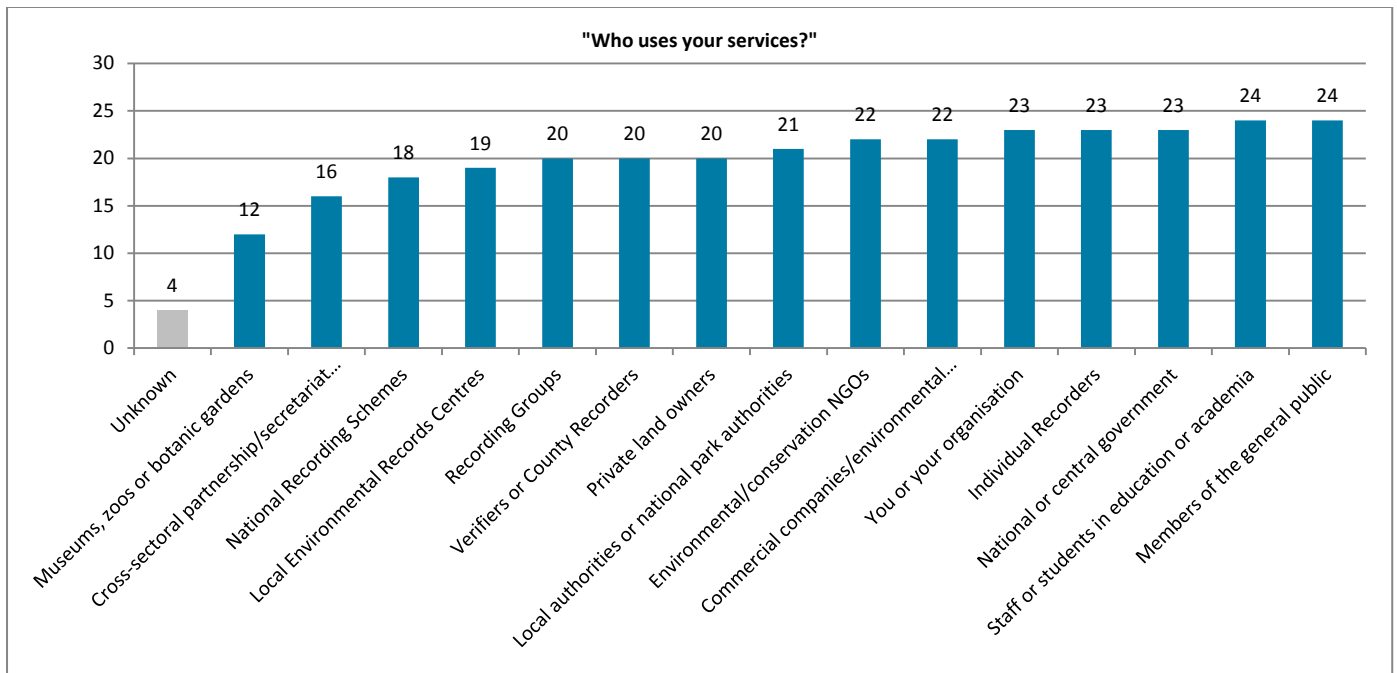
All sectors make use of the services provided, with over 80% of Service Providers indicating that the users of their services come from at least 10 of the sectors identified, and over 40% indicating that the users come from all 15 of the sectors identified (**Figure 68**). There was also considerable consistency in the range of activity areas in which services were provided, with between 79.2% and 95.8% of Service Providers supporting each of the nine activity areas identified (**Figure 69**).

Of 22 respondents who indicated their annual operating costs, over 80% (and 100% of respondents based in Scotland) operate at a cost of less than £150,000 per year, and just one had costs in excess of £300,000 (**Figure 70**).

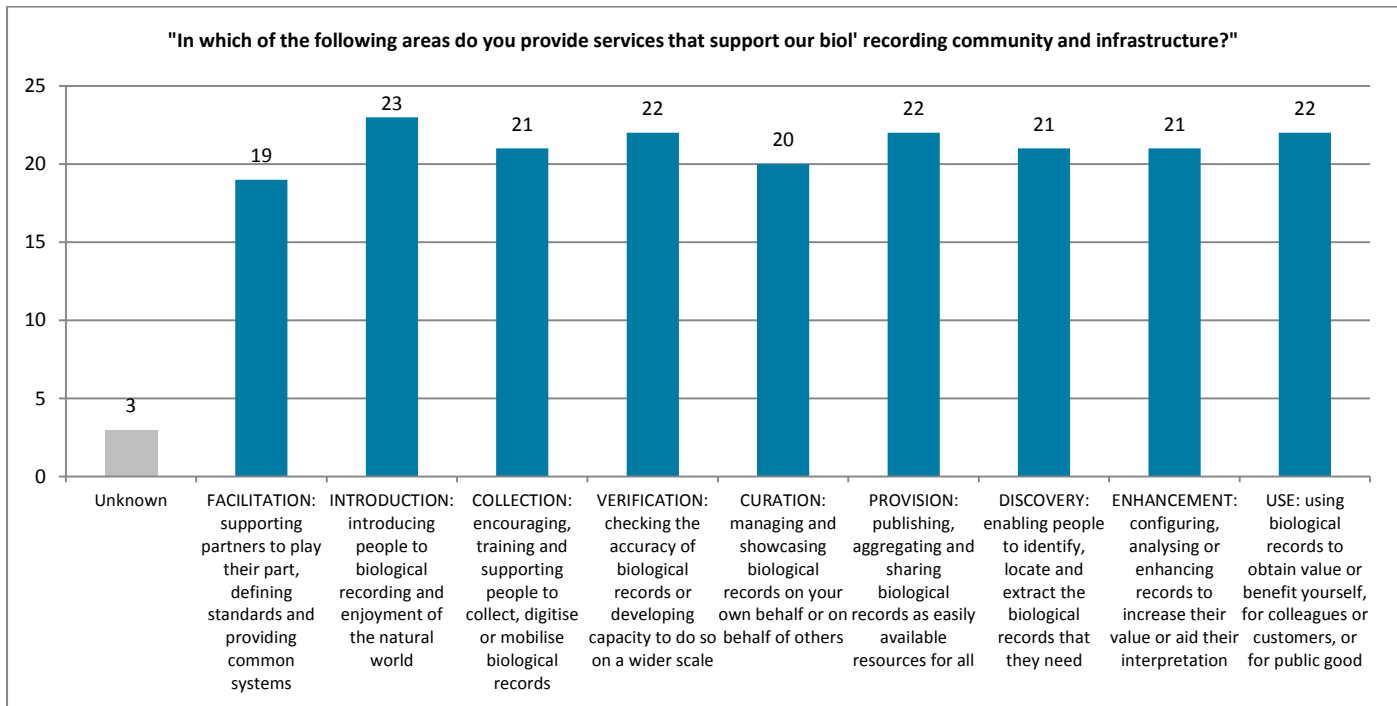
**Figure 67: Location and level of Service Providers**



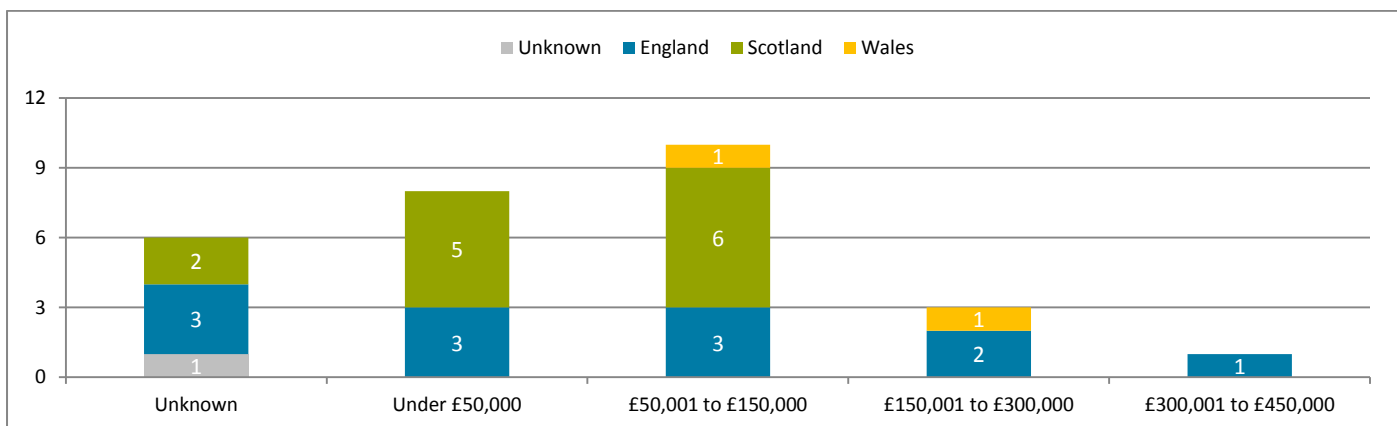
**Figure 68: Number of Service Providers providing services to each Sector**



**Figure 69: Number of Service Providers supporting each Activity Area**



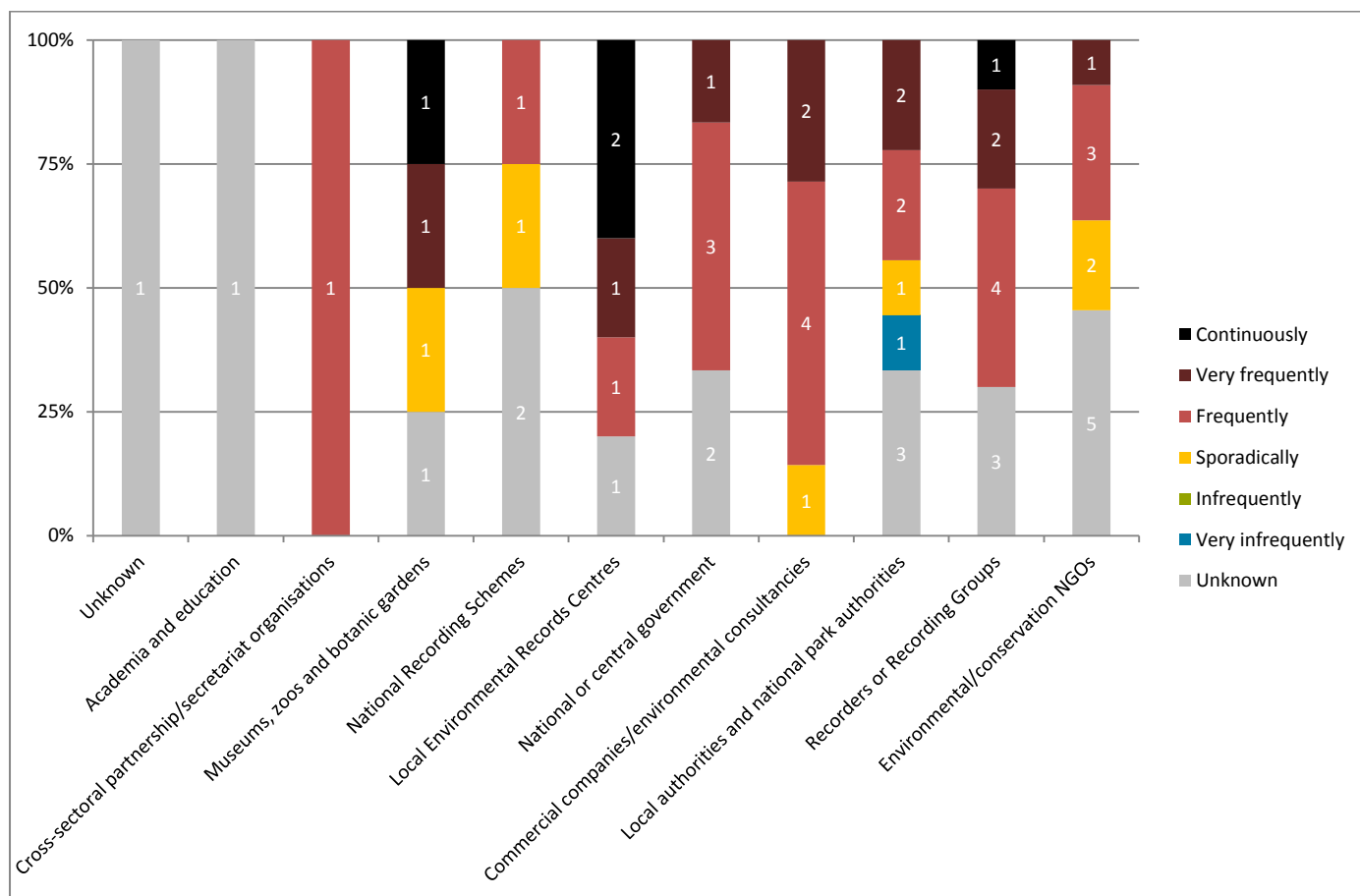
**Figure 70: Number of Service Providers by scale of operating cost**



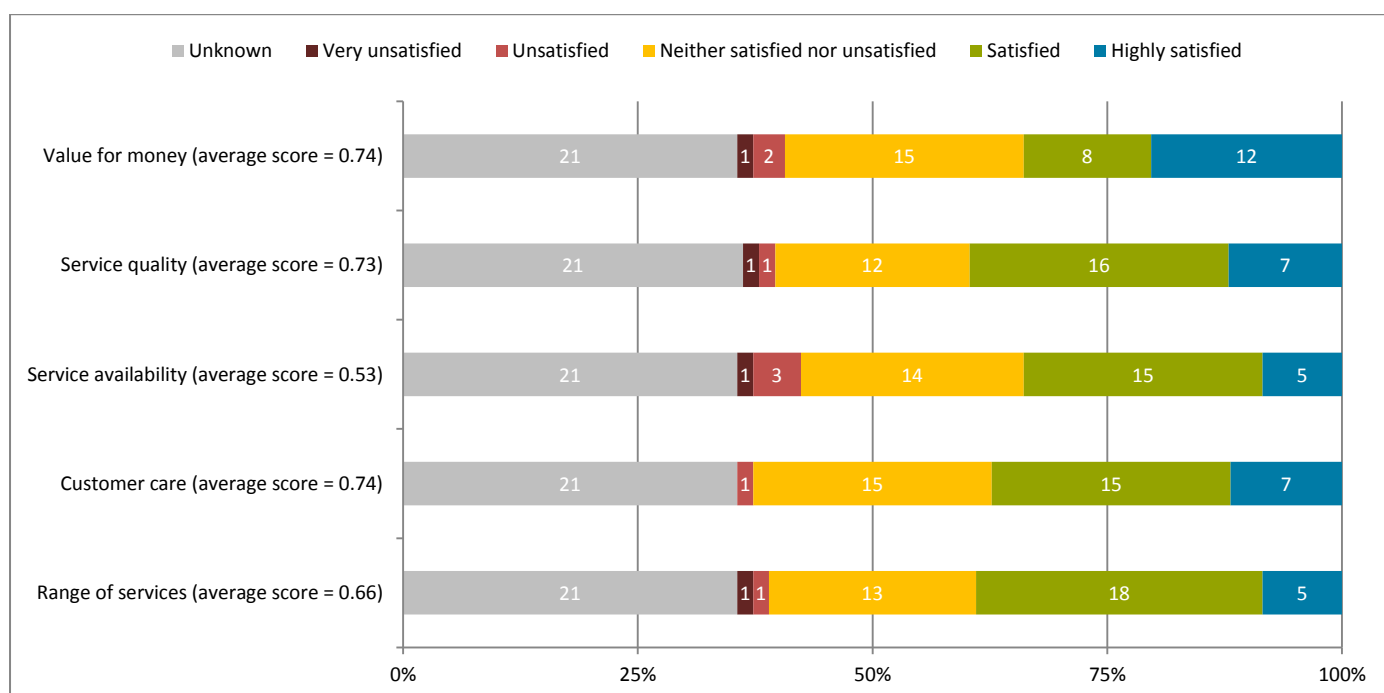
## ii. Service user satisfaction

Of 59 respondents who responded as a Service User, 40 indicated their level of use (**Figure 71**) and level of satisfaction with the services provided to them (**Figure 72**). The sectors with the highest proportion of continuous, very frequent or frequent users were those of Local Environmental Records Centres, Commercial companies/environmental consultancies and Recorders or Recording Groups; across all sectors, only 1 respondent indicated that their use was infrequent and none that their use was very infrequent. Average Service User satisfaction, determined by allocating a score from -2 (for responses of 'Very unsatisfied') to +2 (for responses of 'Very satisfied'), was lowest for service availability and equal highest for customer care and value for money (**Figure 72**).

**Figure 71: Level of service use**



**Figure 72: Level of satisfaction with value for money, quality, availability, customer care and range of services**

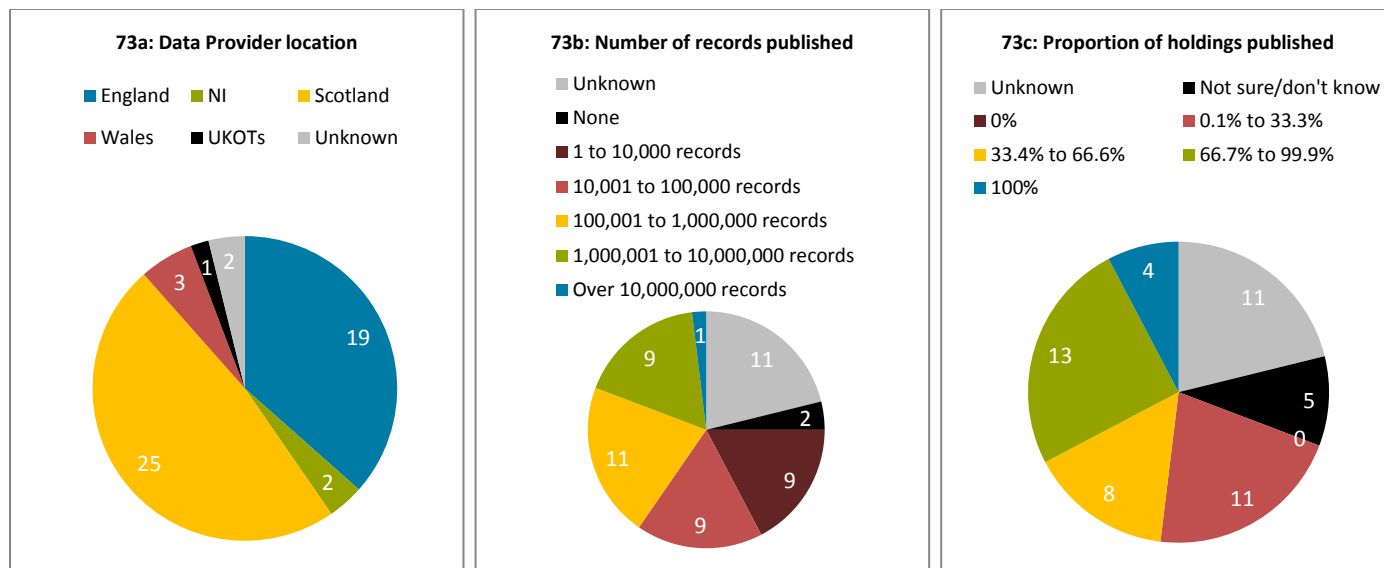


### 3.4 Data provision and use

#### i. Data provision

Of 52 respondents who identified themselves as Data Providers, 25 (48%) were based in Scotland, 19 (36%) in England, 3 (5.6%) in Wales and 1 (1.9%) in the UKOTs, with two respondents not giving their location (**Figure 73a**). Of the 41 Data Providers who indicated the number of records they had published, ten (24.4%) had published over a million records (**Figure 73b**). A small number had published their entire data holding, but most (90.2%) still had records that have yet to be published (**Figure 73c**).

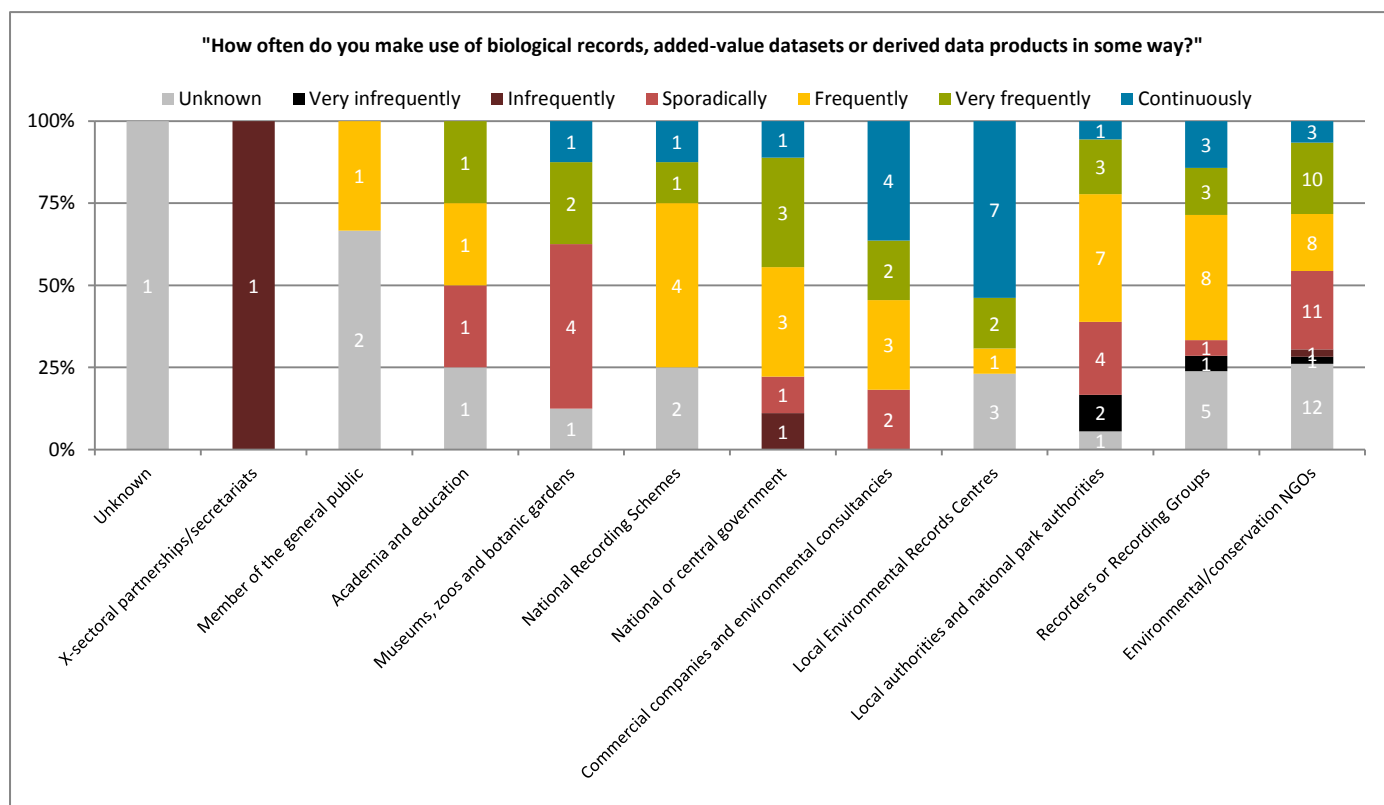
**Figure 73:** Location of Data Providers and the size and proportion of data holdings published



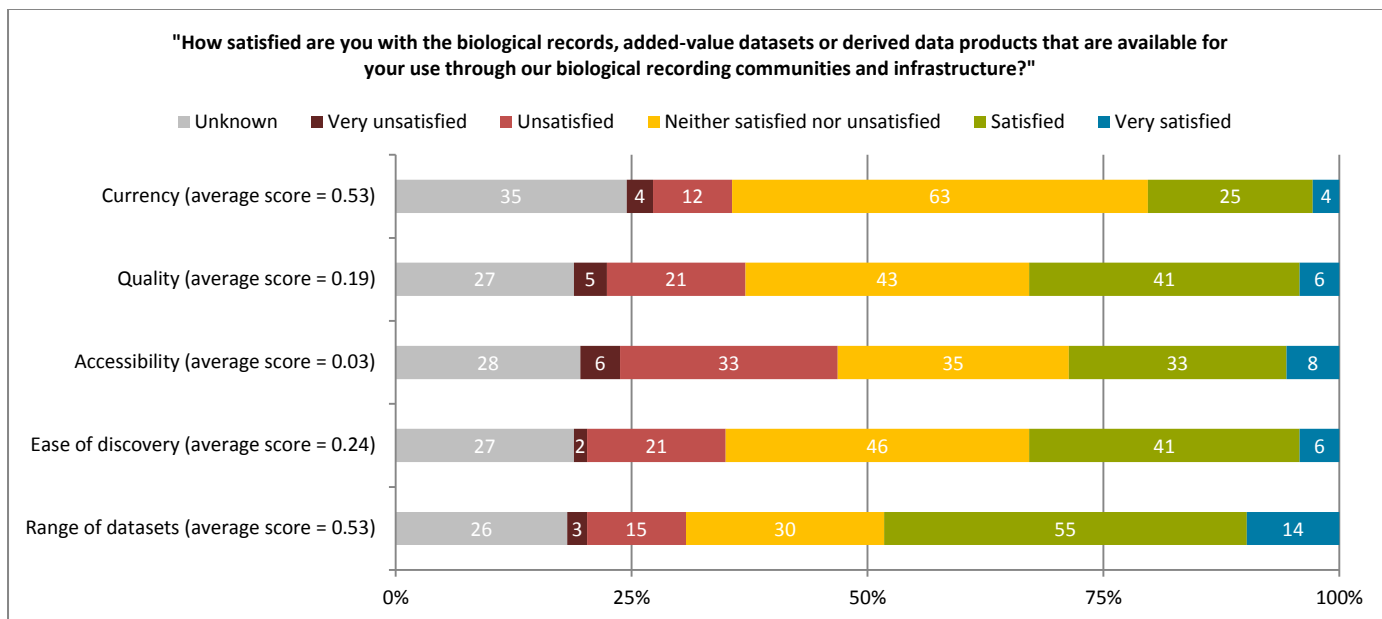
#### ii. Data user satisfaction

Of 143 respondents who responded as a Data User, 115 indicated their level of use of data; the sector with the highest proportion of continuous use was that of Local Environmental Records Centres (**Figure 74**). Of these 143 Data Users, 118 also indicated their level of satisfaction with the biological records, added-value datasets or derived data products available to them. Average Data User satisfaction, determined by allocating a score from -2 (for responses of 'Very unsatisfied') to +2 (for responses of 'Very satisfied'), was lowest for data accessibility and equal highest for currency and range of datasets (**Figure 75**). **Figures 76 to 80** show each measure of satisfaction by the level of use made by the Data User overall.

**Figure 74:** Level of use of biological records by Sector

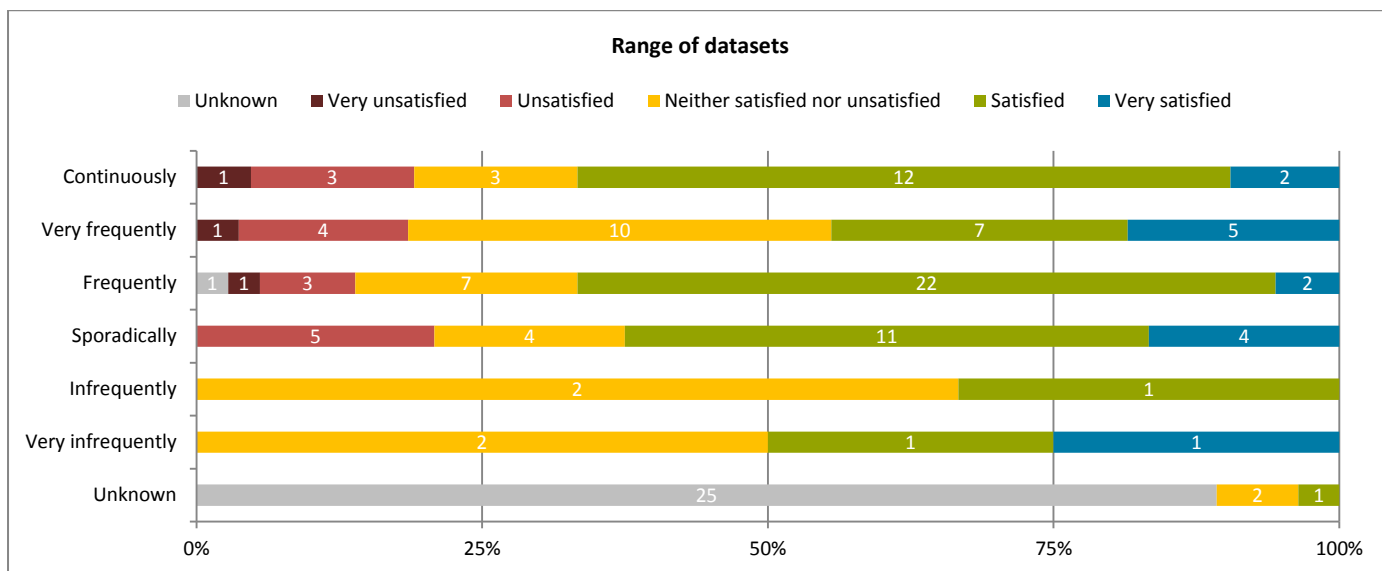


**Figure 75: Level of satisfaction with the currency, quality, accessibility, discovery and range of available datasets**



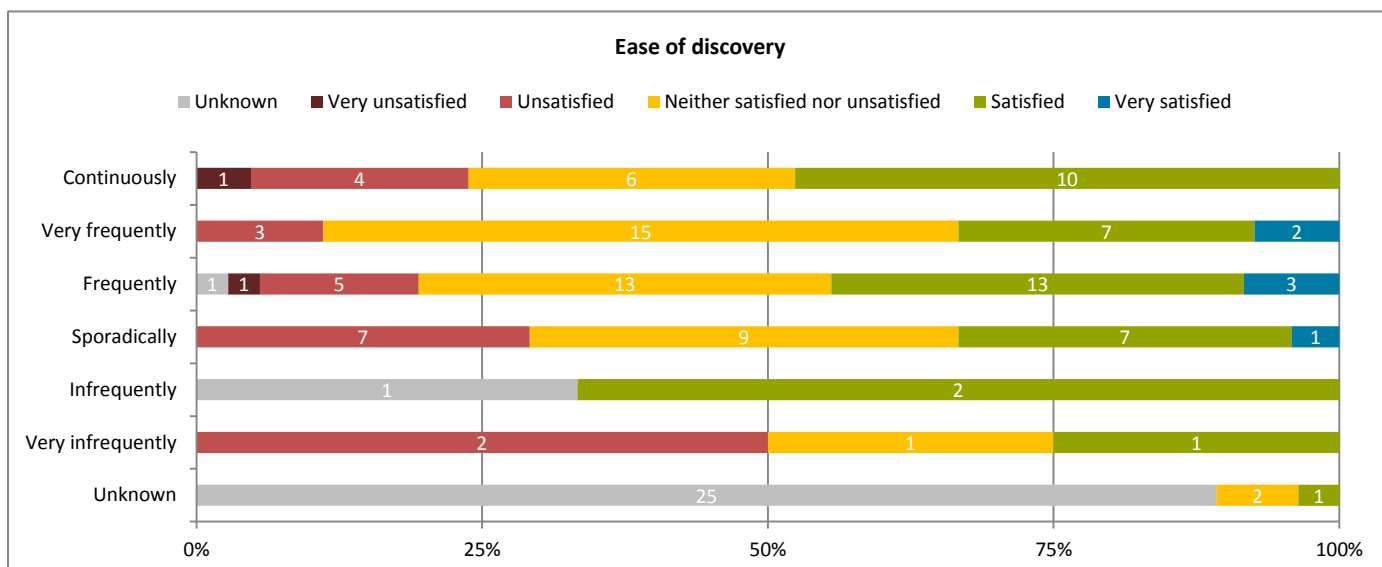
**Figure 76: Level of satisfaction with the range of available datasets by frequency of use class**

"How often do you make use of biological records, added-value datasets or derived data products in some way?"

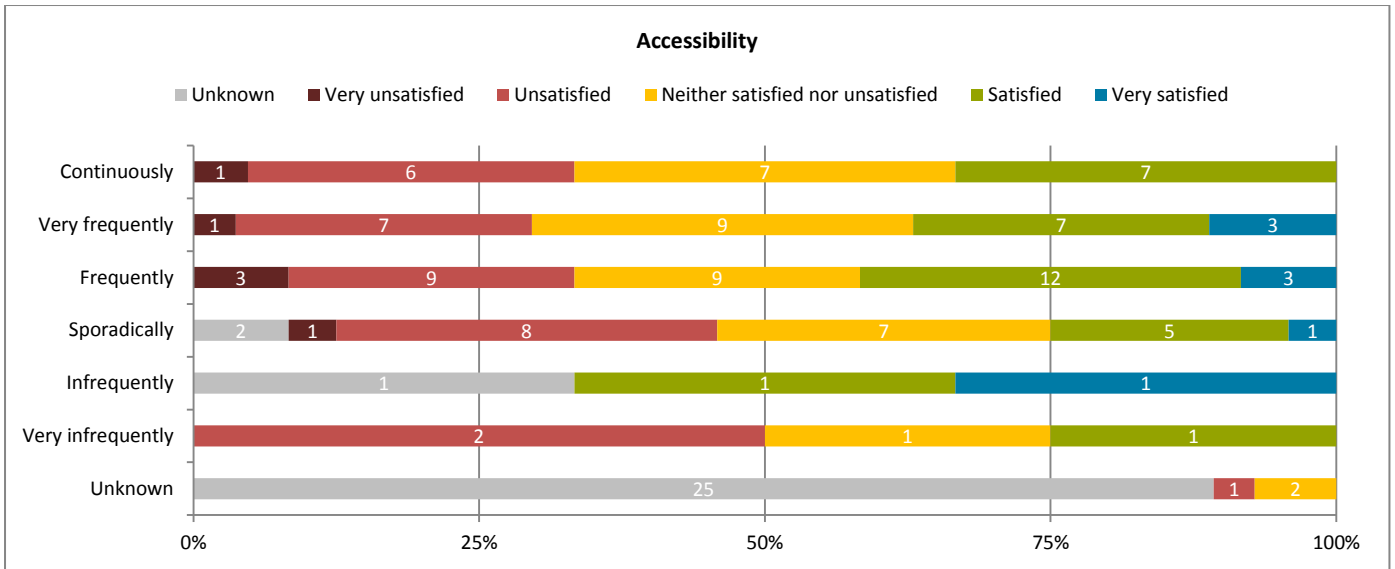


**Figure 77: Level of satisfaction with the ease of discovery of available datasets by frequency of use class**

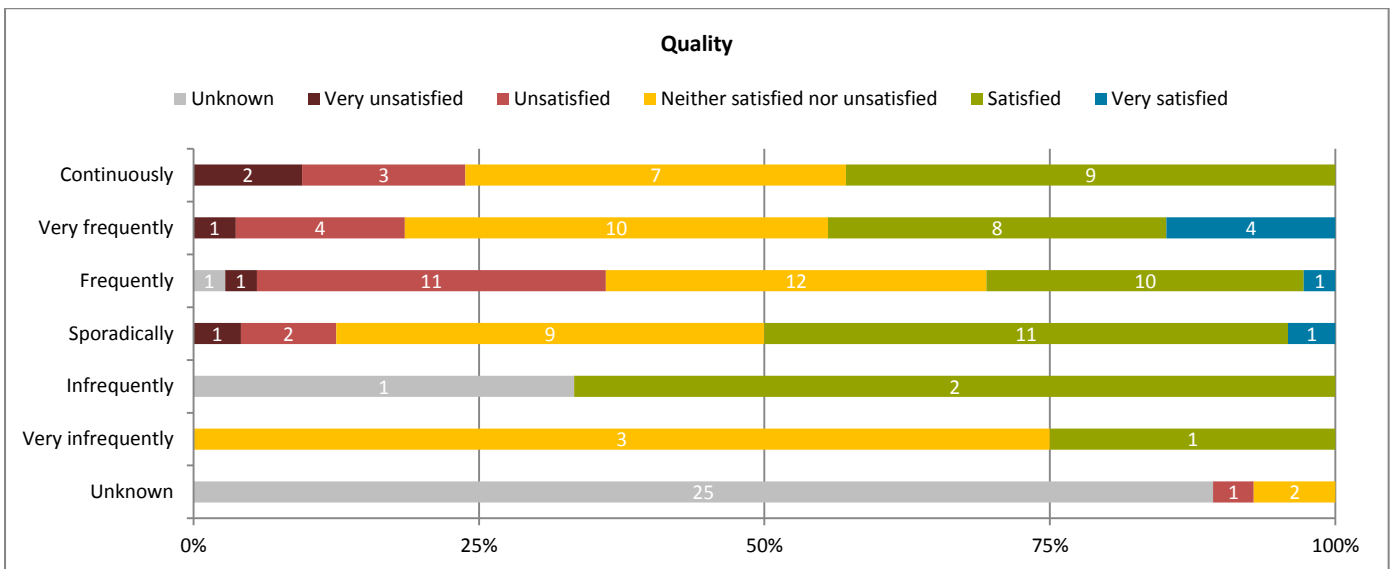
"How often do you make use of biological records, added-value datasets or derived data products in some way?"



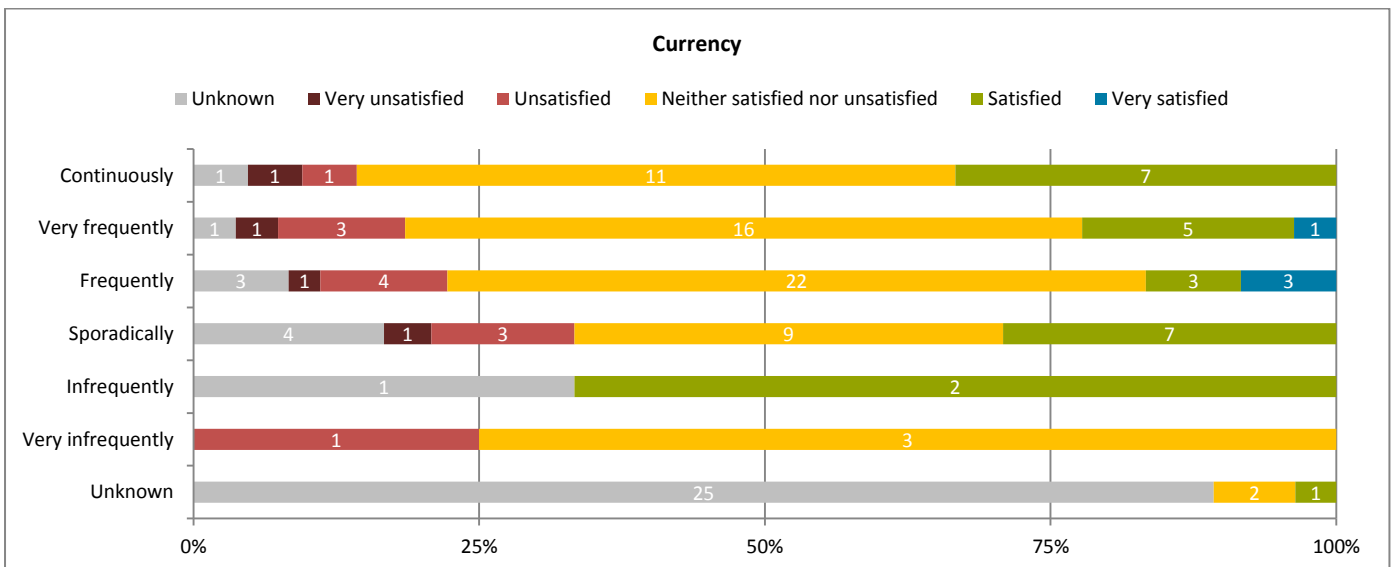
**Figure 78: Level of satisfaction with the accessibility of available datasets by frequency of use class**  
 “How often do you make use of biological records, added-value datasets or derived data products in some way?”



**Figure 79: Level of satisfaction with the quality of available datasets by frequency of use class**  
 “How often do you make use of biological records, added-value datasets or derived data products in some way?”



**Figure 80: Level of satisfaction with the currency of available datasets by frequency of use class**  
 “How often do you make use of biological records, added-value datasets or derived data products in some way?”



### 3.5 Data flows

#### i. Capture and collection

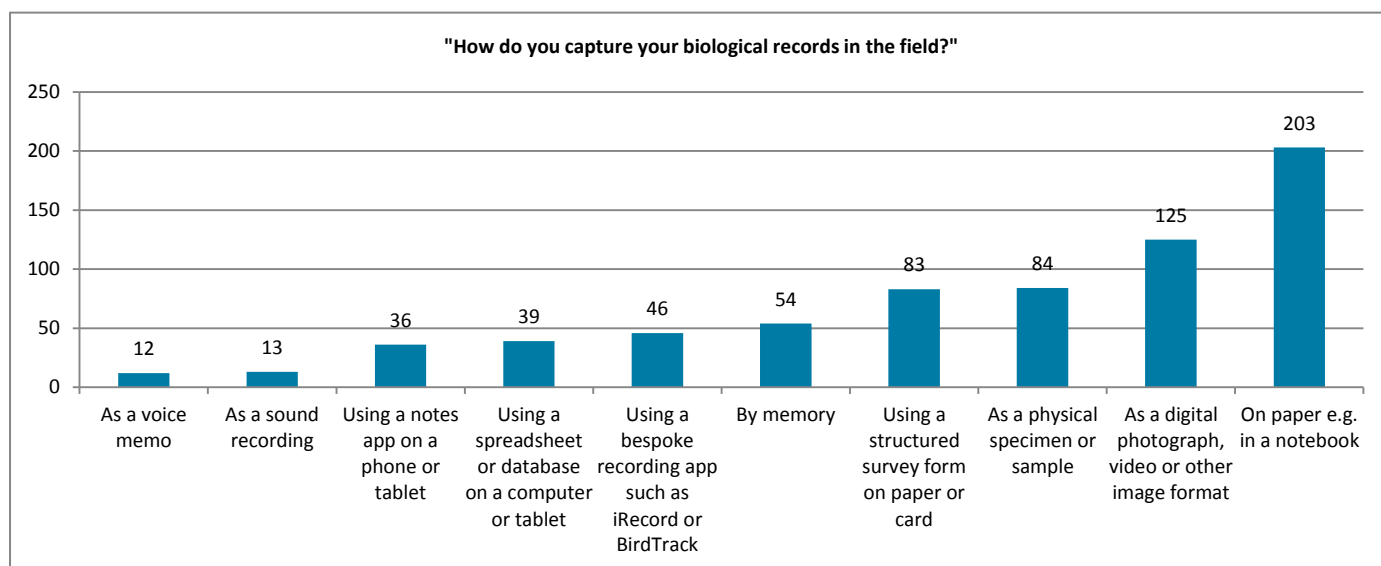
Two questions within the questionnaire related to the capture and collection of biological records in the field: Recorders were asked 'how' they captured their records and Recording Group Operators were asked 'who' collected records for their group. Of the 242 respondents who responded as a Recorder, 240 indicated the way in which they captured records in the field (**Figure 81**), and of 34 respondents who responded as a Recording Group Operator, 26 indicated who records were collected by on behalf of the group (**Figure 82**).

Almost 85% of the Recorders who responded collect records in the field on paper (203 of 240 Recorders), with over 50% (125 of 240 Recorders) taking a digital photograph or equivalent. Around 35% of the respondents (84 of 240 Recorders) indicated that they capture a physical specimen or sample, and a similar proportion (83 of 240 Recorders) use a structured survey form.

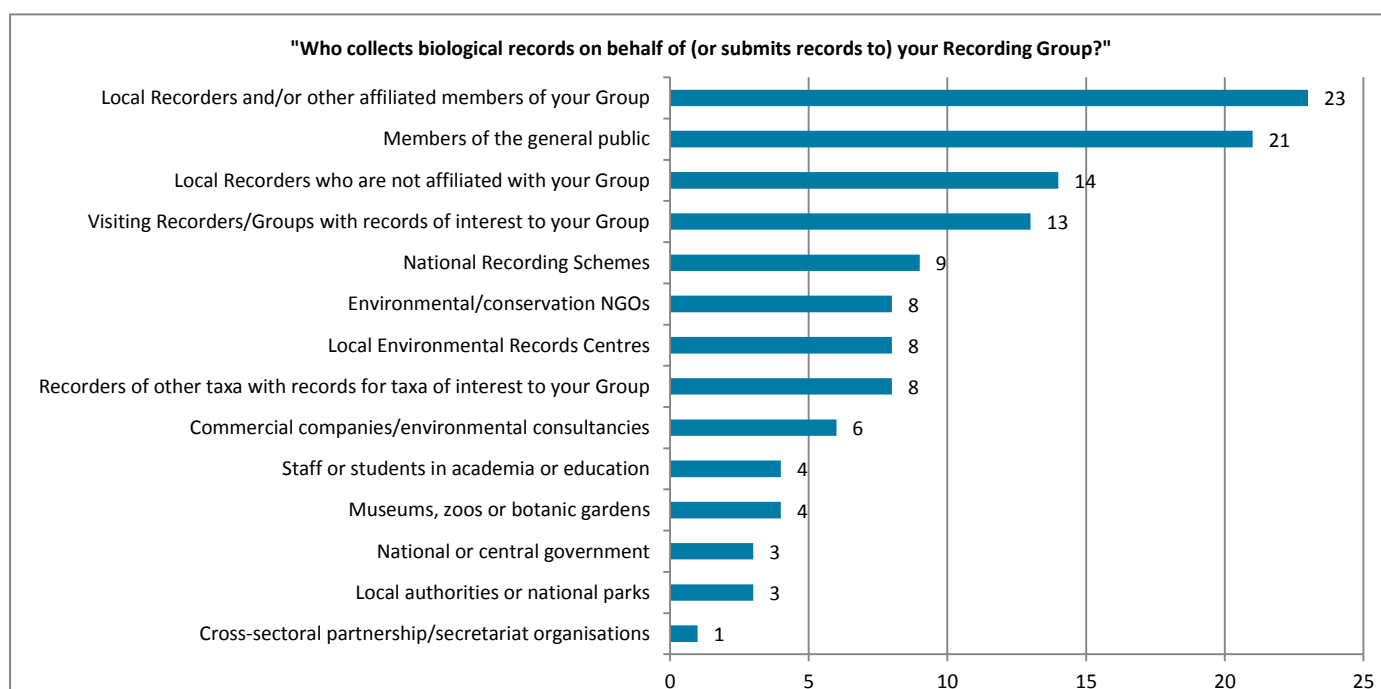
Two additional methods of data capture in the field were suggested by a small number of respondents – using a GPS to collect and store waypoints (3 Recorders) and using remote devices such as tracking tags (2 Recorders).

Almost 90% of the Recording Group Operators who responded receive records from their group's local recorders and/or affiliated members (23 of 26 Recording Group Operators), with local recorders and members of the public who are not affiliated with the group also contributing records (53.8% and 80.8% of Recording Group Operators respectively). Visiting Recorders and recording groups are also significant contributors with 50% of Recording Group Operators receiving records from these.

**Figure 81: Methods of data capture in the field**



**Figure 82: Recording Group Contributors**



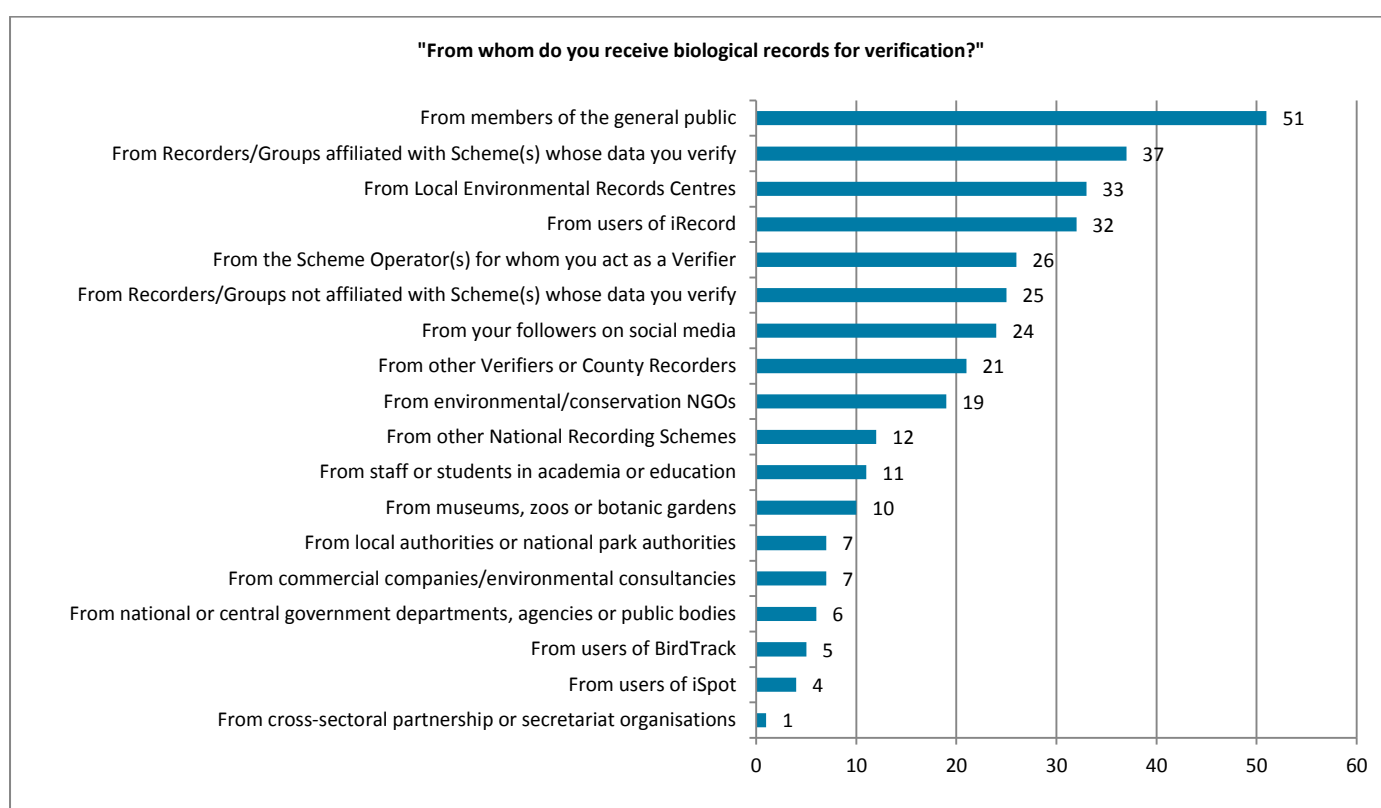
## ii. Obtain, receive and contact

Eight questions in the questionnaire related to how records were obtained (by Collection Curators) and received (by Verifiers or Recording Scheme Operators), including the way in which Recorders are contacted for verification purposes. Of the 71 Verifiers who responded, 65 indicated the source of the biological records that they verified (**Figure 83**) and the way in which they contacted Recorders supplying records to them (**Figure 84**).

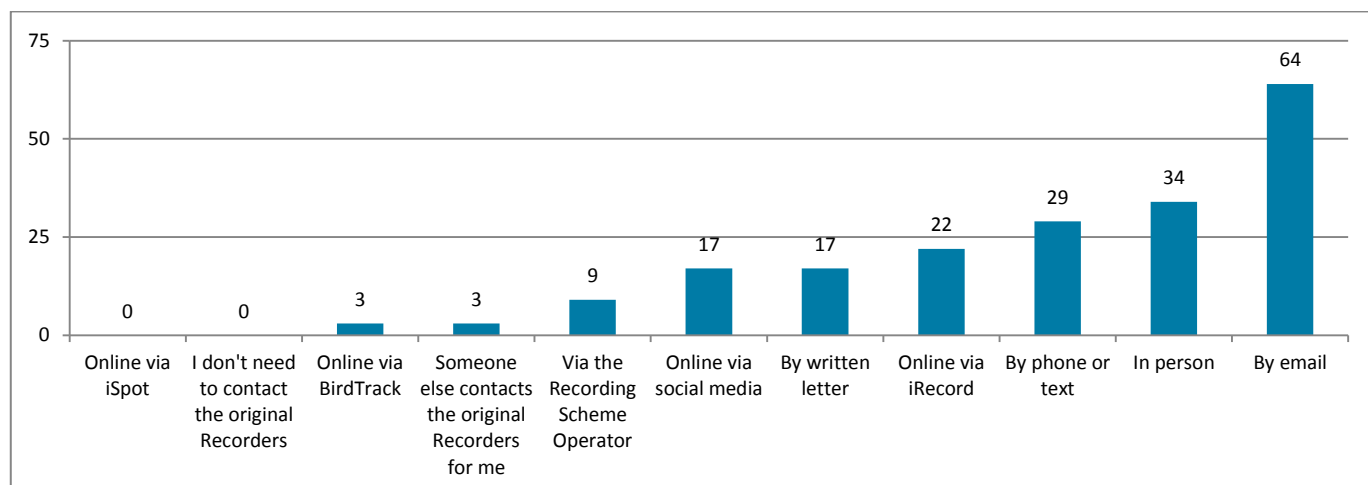
Overall, Verifiers used an average of 3 methods of communication (**Figure 85**), always including email (except for one Verifier for whom someone else contacted their Recorders if necessary). Over a third of the Verifiers responding indicated that they used more than three different methods of communication. Just over one third of Verifiers used iRecord to contact Recorders (22 of 65 Verifiers) although over half received records via iRecord (33 of 65 Verifiers). The same number of Verifiers corresponded by written letter and by social media (both 17 of 65 Verifiers). No Verifiers liaised with Recorders using iSpot directly.

Of the 24 Collection Curators and 25 Recording Scheme Operators who responded to the questionnaire, 23 and 17 indicated the source of biological records received by their collection(s) (**Figure 86**) or scheme(s) respectively (**Figure 87**). Over 80% of Collection Curators (19 of 23 respondents) obtain specimens or samples for their collections through their own activities, and over 56.5% (13 of 23 respondents) obtain specimens or samples from Recorders or Recording Groups. Over 75% of Recording Scheme Operators (13 of 17 respondents) receive records from their own affiliated Recorders, Recording Groups or County Recorders, although a large proportion (8 and 11 out of 17 respectively) receive records from unaffiliated Recorders or members of the general public.

**Figure 83: Origin of records for Verifiers**

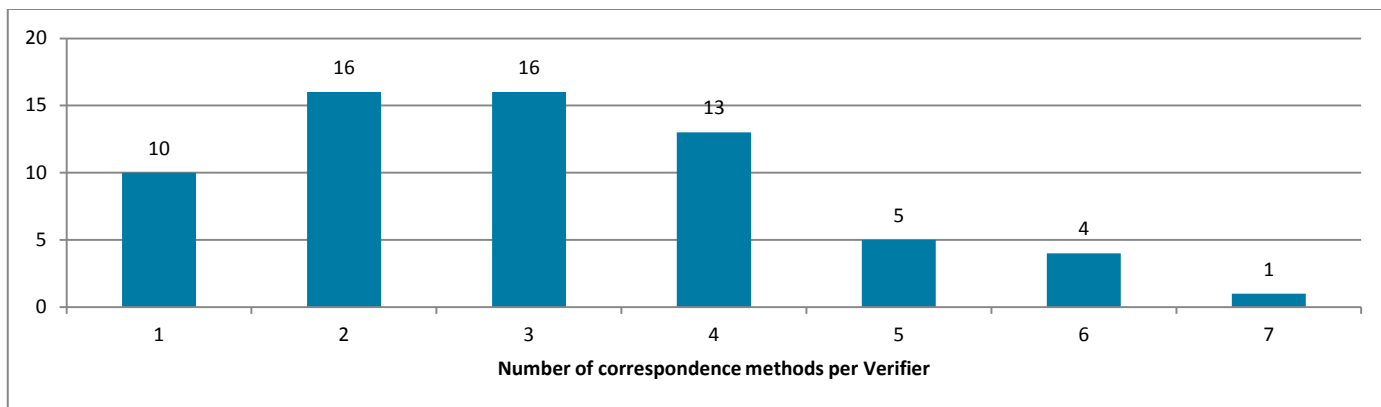


**Figure 84: Verifier-Recorder correspondence methods**

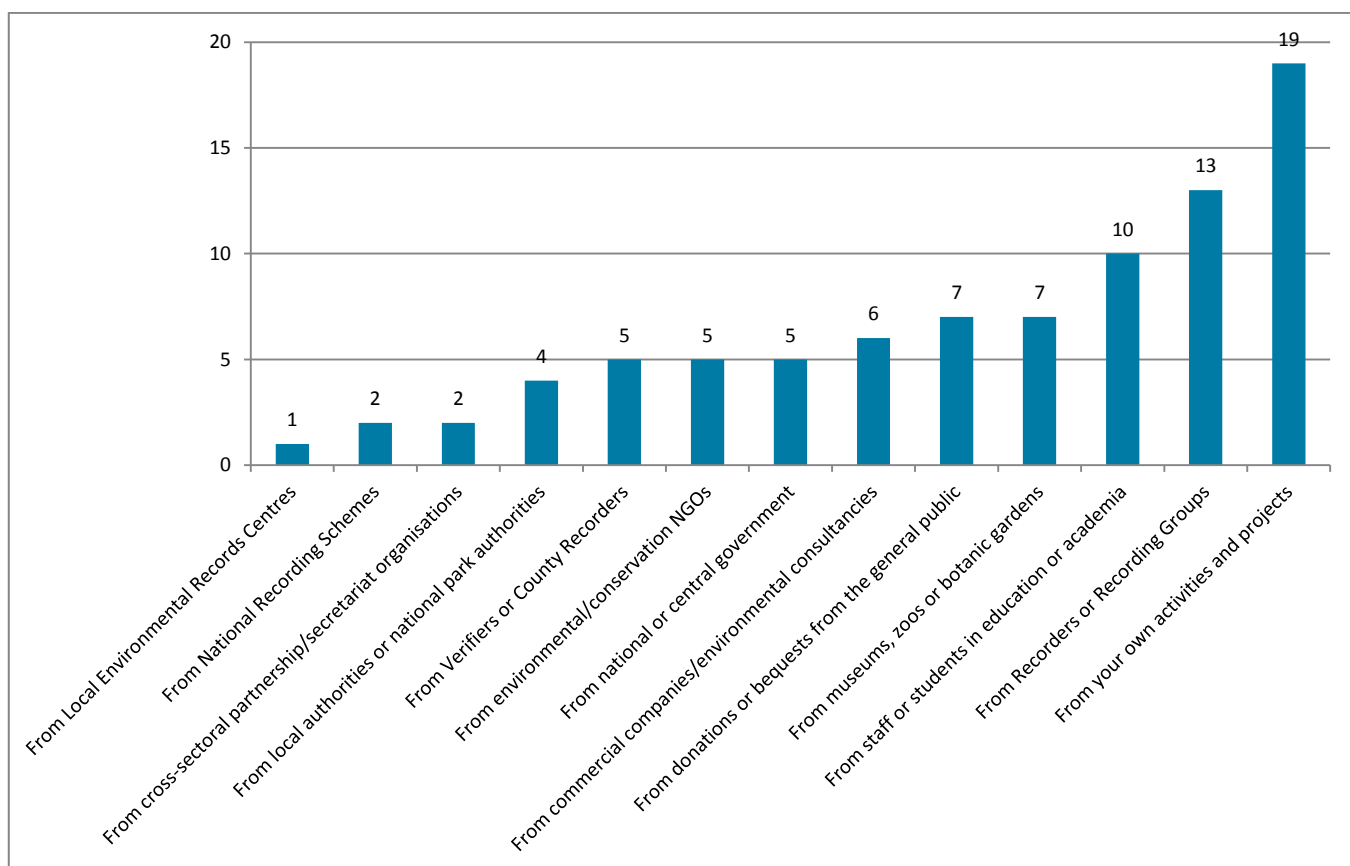




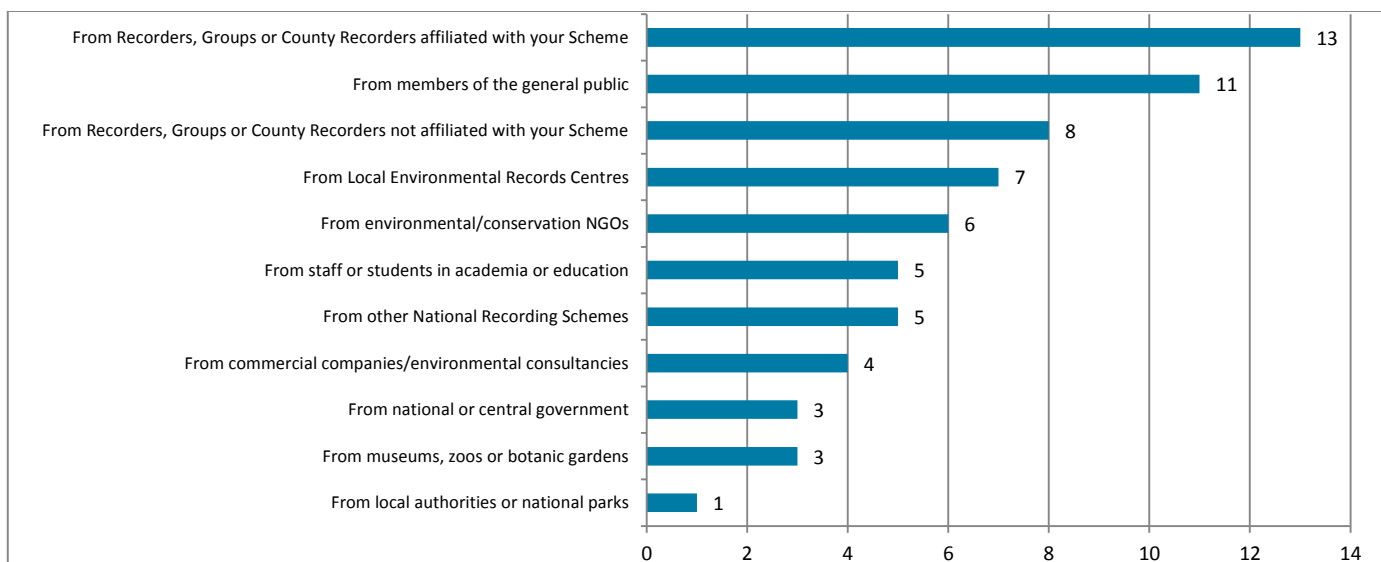
**Figure 85: Number of correspondence methods used per Verifier to contact Recorders**



**Figure 86: Origin of records for Collection Curators**



**Figure 87: Origin of records for Recording Scheme Operators**



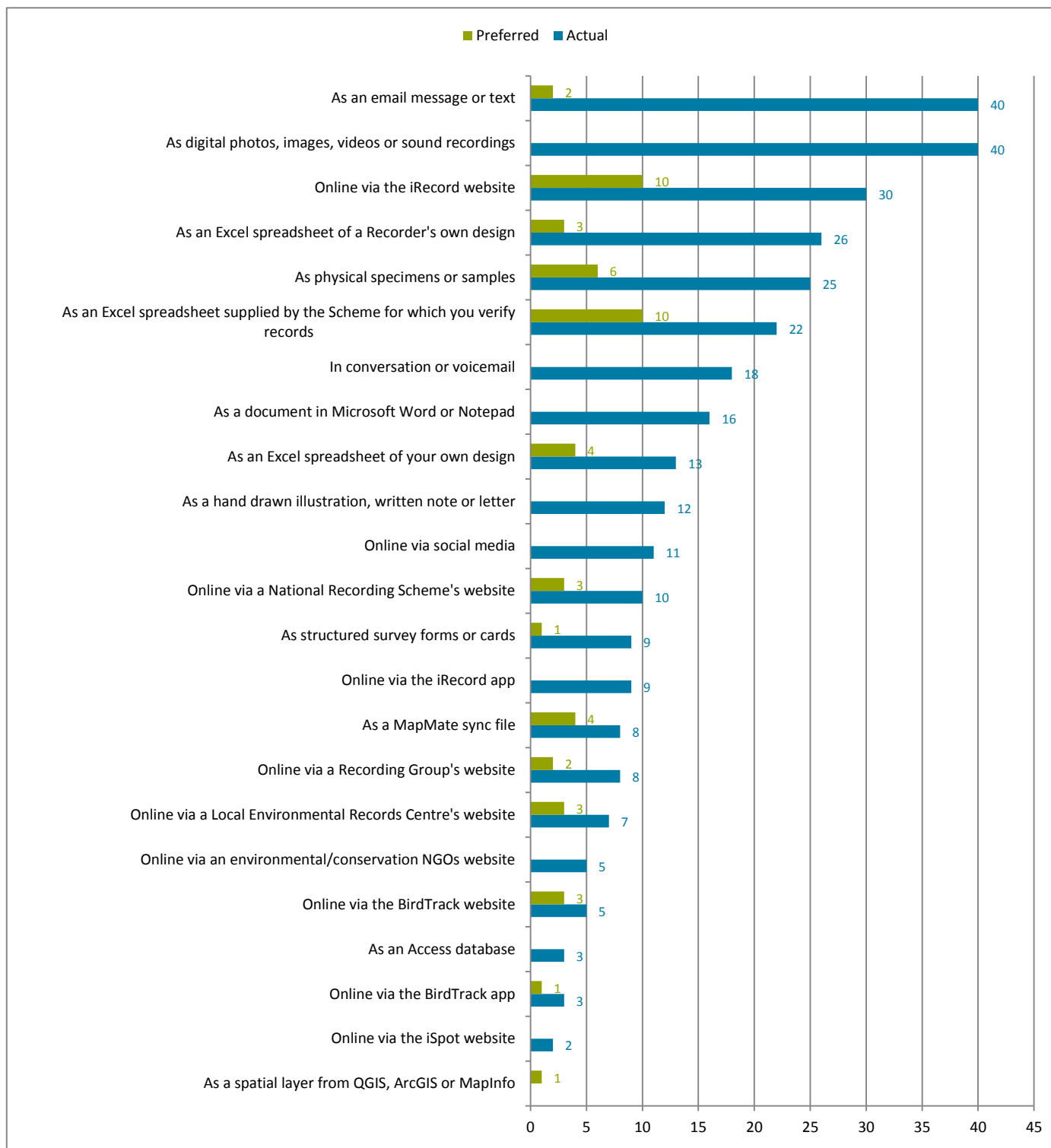
In terms of the formats and routes in which biological records are received by Verifiers and Recording Scheme Operators, a wide range of these are in use. Of the 64 Verifiers who indicated the formats that they receive and prefer (**Figure 88**), 22 formats were identified as being formats in which records were received for verification, but in response to being asked about their preferred format for receiving records for verification, just 14 of these formats were identified. The formats most preferred for verification were those of 'Online via the iRecord website' and 'As an excel spreadsheet supplied by the Scheme for which you verify records' with ten Verifiers voting for each of these.

Of the 17 Recording Scheme Operators who indicated the formats they receive and prefer (**Figure 89**), 18 formats were identified as being formats in which records were received for inclusion in their recording scheme, but in response to being asked about their preferred format for receiving records for inclusion, just 4 of these formats were identified. The most preferred formats were those of 'Online via the iRecord website' and 'Online via your Recording Scheme's own website' with six Recording Scheme Operators voting for each of these.

**Figure 88: Verification formats**

"In which formats do you receive biological records for verification?"

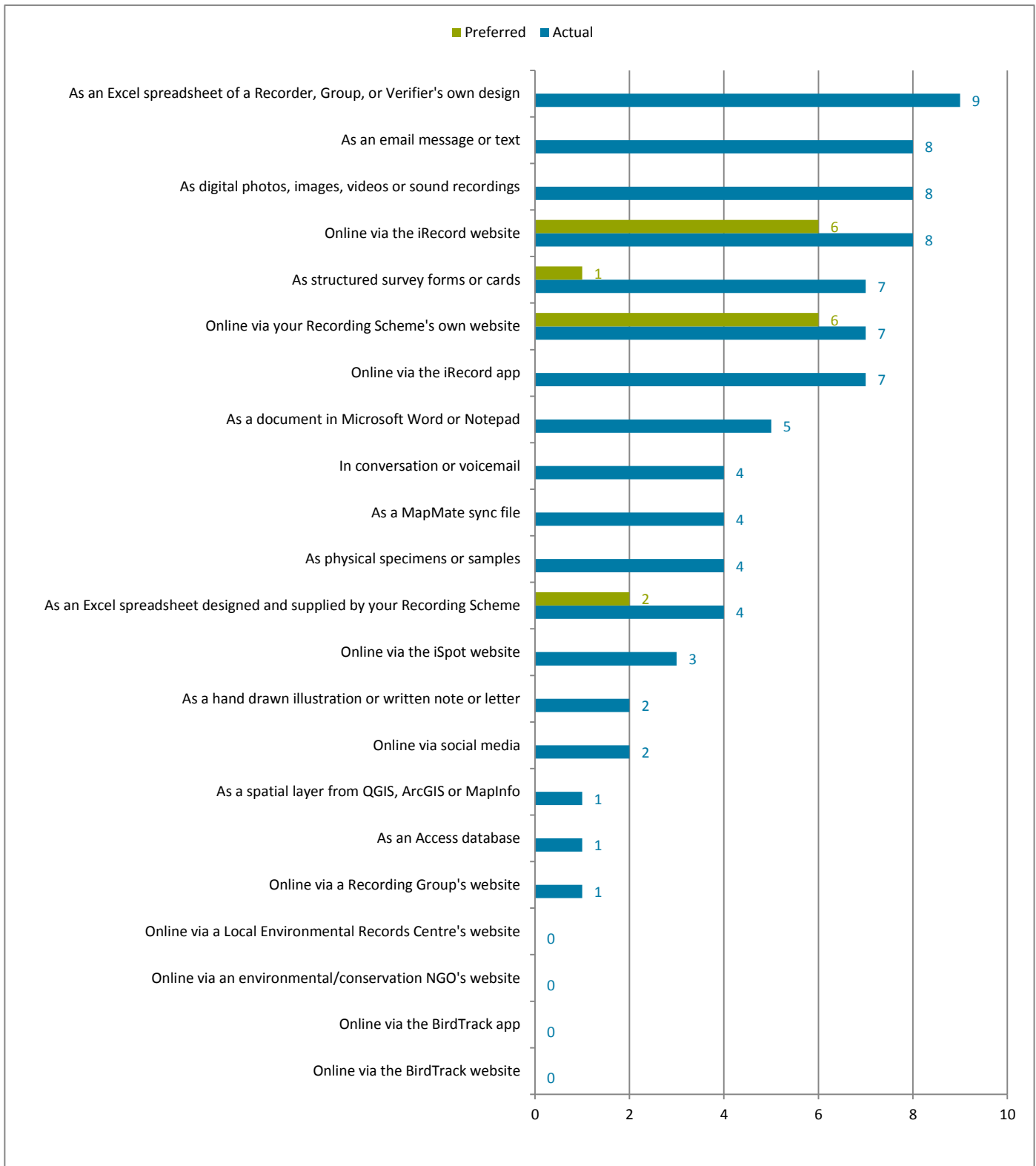
"In which format do you most prefer to receive biological records for verification?"



**Figure 89: Recording Scheme formats**

"In which formats do you receive biological records for your Recording Scheme?"

"In which format do you most prefer to receive biological records for your Recording Scheme?"

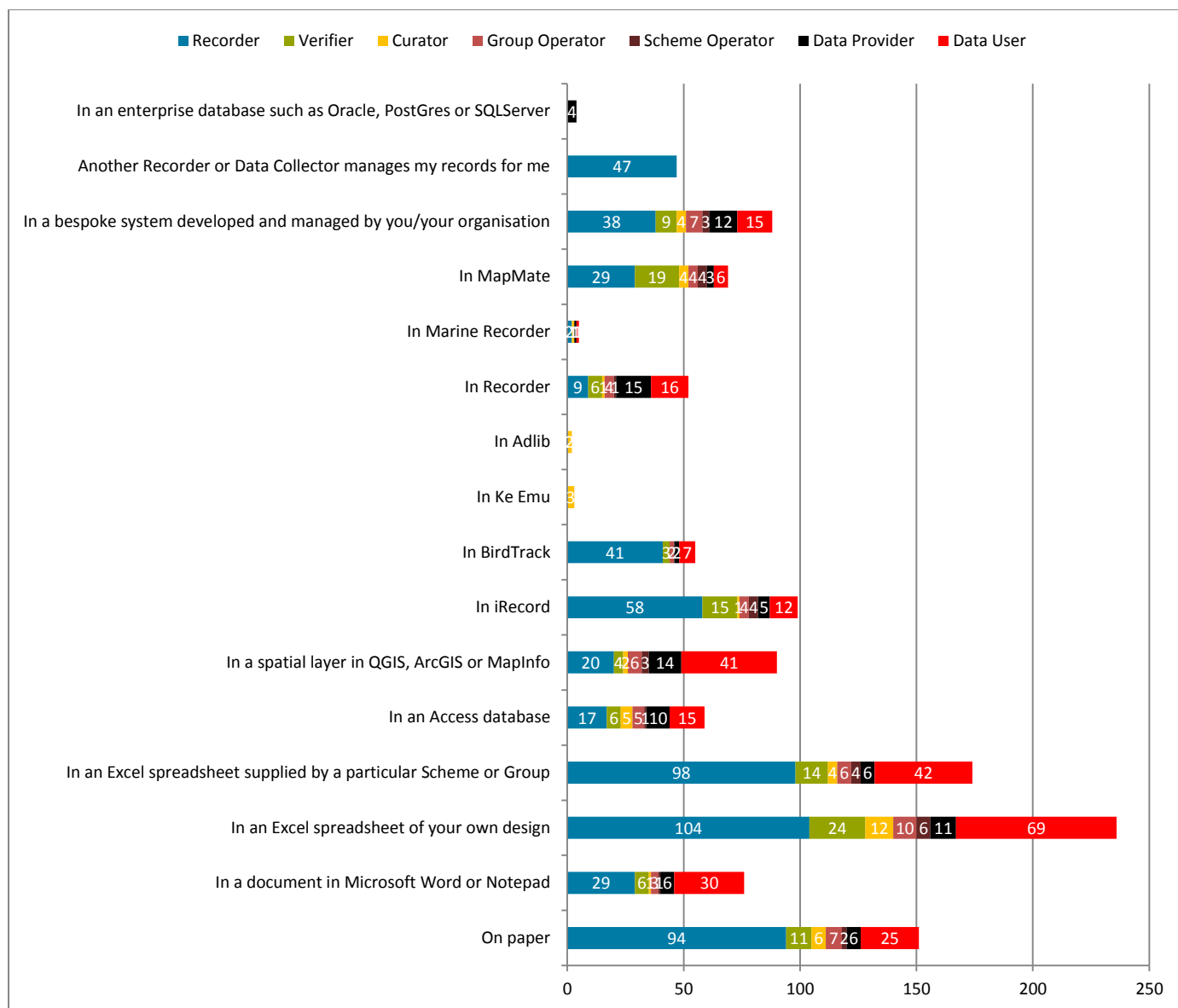


### iii. Manage

Seven questions in the questionnaire asked how particular role holders (those of Recorder, Verifier, Collection Curator, Recording Group Operator, Recording Scheme Operator, Data Provider and Data User) managed their records, in terms of the systems and formats in use (**Figure 90** and **Table 12**). The top three most frequently indicated formats overall were those of 'In a spreadsheet of your own design', 'In an Excel spreadsheet designed and supplied by a Scheme or Group' and 'On paper'.

A number of respondents indicated that their data were held in particular bespoke systems such as the BSBI database, Mimsy XG (for museum objects), databases developed by LERCs or recording groups, Recorder 3 or Gilbert 21.

**Figure 90: Data management systems and formats in use by Role**



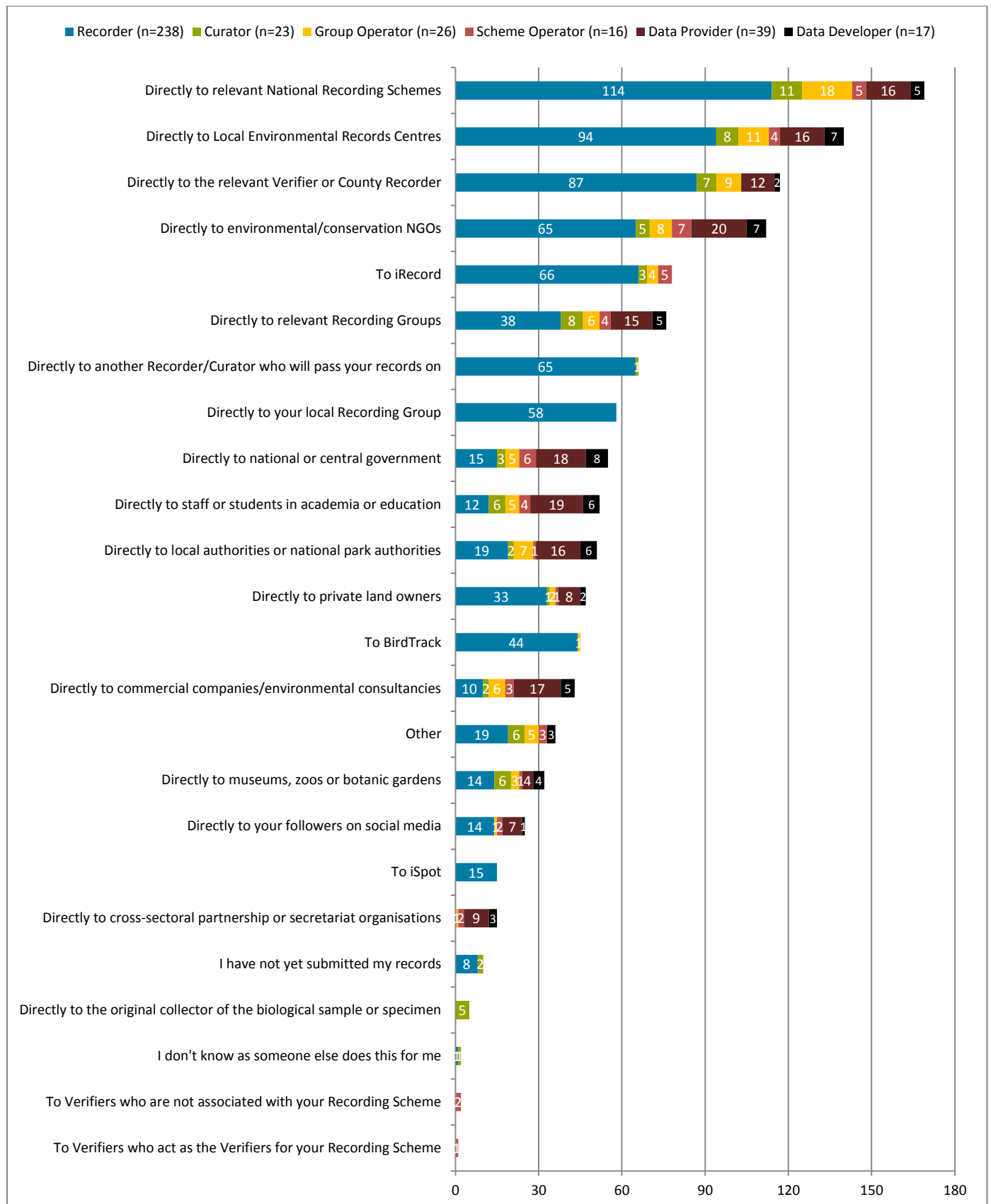
**Table 12: Top three (in yellow) data management systems and formats in use by Role and overall**

	Recorder	Verifier	Curator	Group Operator	Scheme Operator	Data Provider	Data User	ALL
On paper	94	11	6	7	2	6	25	151
In a document in Microsoft Word or Notepad	29	6	1	3	1	6	30	76
In an Excel spreadsheet of your own design	104	24	12	10	6	11	69	236
In an Excel spreadsheet supplied by a Scheme or Group	98	14	4	6	4	6	42	174
In an Access database	17	6	5	5	1	10	15	59
In a spatial layer in QGIS, ArcGIS or MapInfo	20	4	2	6	3	14	41	90
In iRecord	58	15	1	4	4	5	12	99
In BirdTrack	41	3		2		2	7	55
In Ke Emu			3					3
In Adlib			2					2
In Recorder	9	6	1	4	1	15	16	52
In Marine Recorder	2		1			1	1	5
In MapMate	29	19	4	4	4	3	6	69
In a bespoke system developed by you/your organisation	38	9	4	7	3	12	15	88
Another Recorder or Data Collector manages my records for me	47							47
In an enterprise database such as Oracle, PostGres or SQLServer						4		4

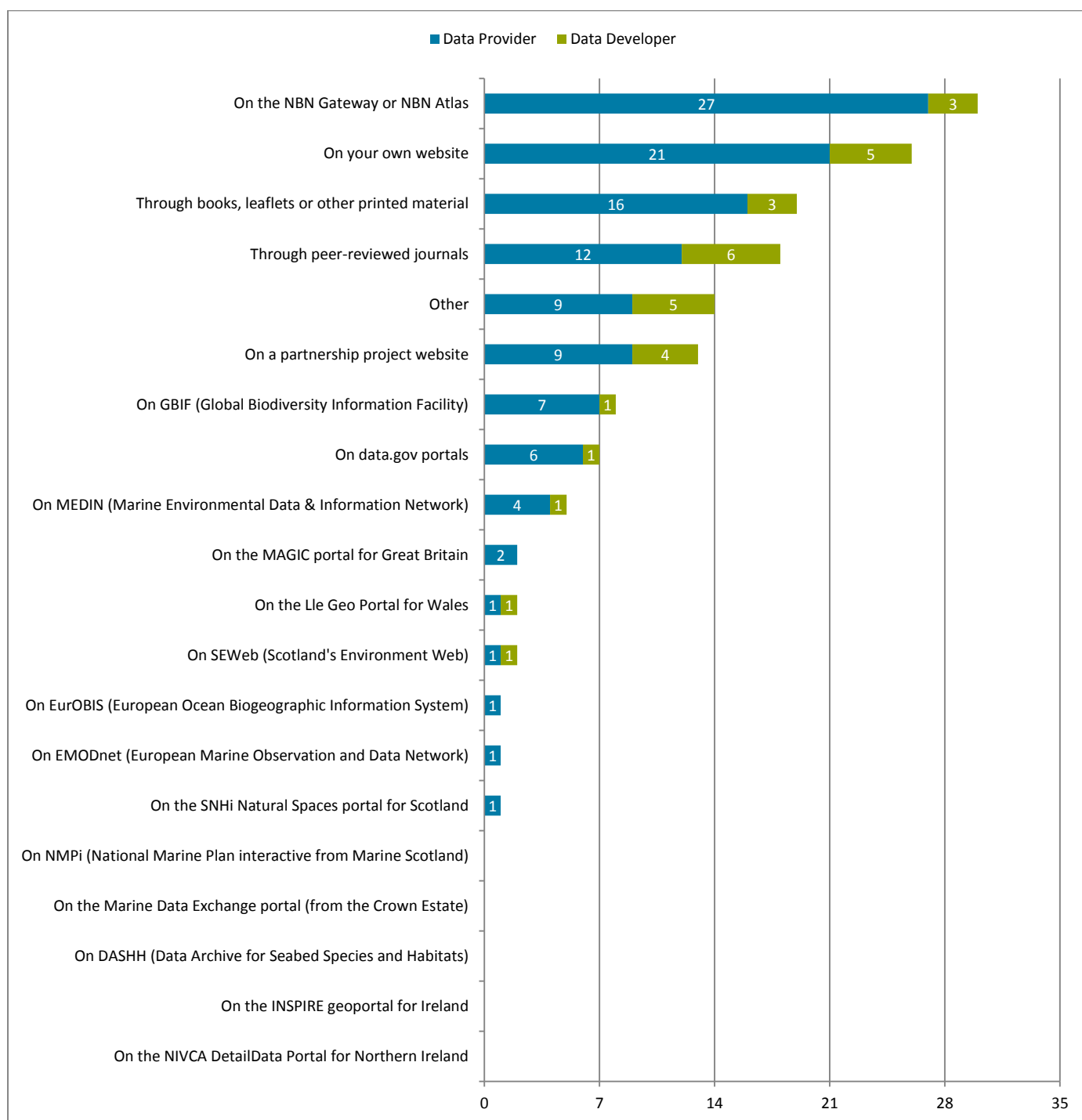
#### iv. Submit and publish

Eighteen questions in the questionnaire related to how and where biological records were submitted (primarily by Recorders, Collection Curators, Recording Group Operators and Recording Scheme Operators, but also by Data Providers and Data Developers) and published (by Data Providers and Data Developers). Across all roles and respondents, the primary routes for data submission are: national recording schemes, LERCs and Verifiers themselves (**Figure 91**), while the primary routes for data provision are the NBN Gateway or Atlas, organisations' own websites and books and peer-reviewed journals (**Figure 92**).

**Figure 91: Submission points for submitted biological records**



**Figure 92: Publication points used by Data Providers and Data Developers**



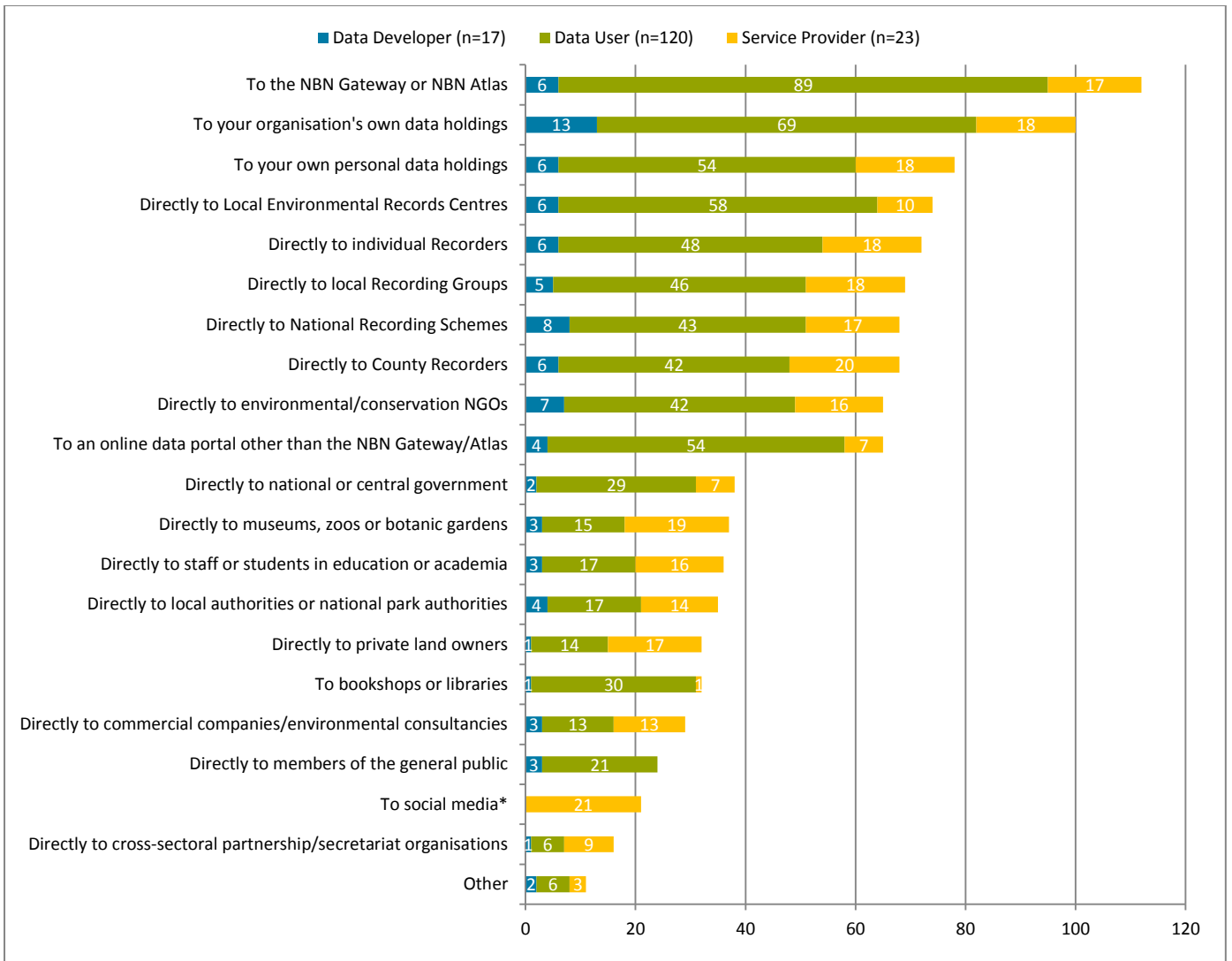
#### v. Source and use

Across all respondents for the roles of Data Developer, Data User and Service Provider, the primary routes for sourcing biological records were those of the NBN Gateway/NBN Atlas and organisations' own data holdings with 100 to 112 responses each. Eight secondary routes were also strongly identified with 65 to 78 responses (those of individuals' personal data holdings, LERC data holdings, plus other recorders/groups/schemes/county recorders/NGOs/other online portals). Ten other routes received between 16 and 38 responses each (**Figure 93**). Other sources mentioned were those of respondents' own bookshelves, Wikipedia, google and flickr.

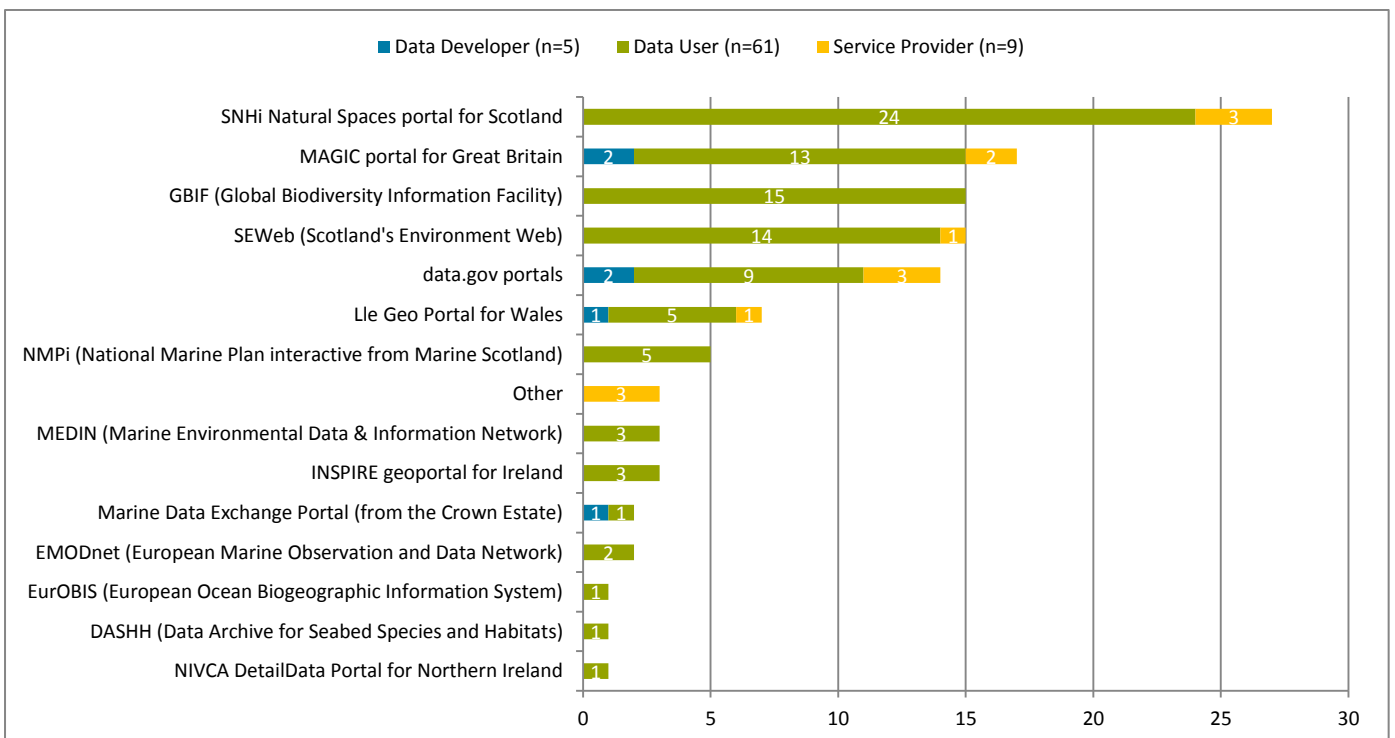
Respondents were able to indicate which online portals, other than the NBN Gateway or NBN Atlas, they visited to source biological records (**Figure 94**). The main portal indicated was that of SNHi with 27 responses, with MAGIC, GBIF, SEWeb and data.gov portals also receiving between 14 and 17 responses. Other online portals mentioned by respondents included: the Ancient Tree Inventory, BSBI database, LERC data portals, Antweb and Antbase, National Recording Scheme portals such as fungi or spider databases, Trektellen.org and JNCC's seabird monitoring programme website.

**Figure 93: Data sources used by Data Developers, Data Users and Service Providers**

\* social media was not available as an answer option for Data Users, it was only available for Data Developers and Service Providers



**Figure 94: Online data portals (other than the NBN Gateway/Atlas) used by Data Developers, Data Users and Service Providers**



### 3.5 The current situation

#### i. What is working well

In response to being asked what is already working well and what is making it so effective, 237 of 290 respondents provided a response for one or more roles each (listed in **Appendix 5**). Across all responses, 20 broad themes were identified as being mentioned in some way. Each response was then classified by which of these broad themes received a mention (**Figure 95**). For ease of reference, the scope of each broad theme (the range of topics mentioned), the nature of the responses received (through example quotes), and an overview of the main factors that were identified as working well and less well, are presented together on pages 32-39 below (**Table 13**).

Longer responses often mentioned up to five themes while shorter responses usually mentioned just one or two. In total, 803 'mentions' were identified through this classification and summarised using 'hotspot maps' (**Figures 96-98**). Although these hotspot maps show where each theme received the greatest percentage of mentions, it should be noted that some sample sizes are very small - please refer to the number of mentions and the number of respondents making them. For example, 10.6% of 423 mentions made by 196 recorders related to online recording. Because the sample sizes were largest for Recorders and Data Users (196 and 66 respectively), their perspective strongly influences the overall result; however, hotspot maps show the results by role, sector and country to allow different perspectives to be seen.

**Figure 95: Example of responses being classified as relating to one or more broad themes**

ROLE	WORKING WELL	THEME1	THEME2	THEME3	THEME4
Recorder	I volunteer with the BSBI - very experienced and knowledgeable botanists who are willing to teach others is why I find this recording group so great to work with. They are a very dedicated team, and are well organized with recording dates in the diary right from the beginning of the season.	ACCESS TO EXPERTS - who are willing to teach others (BSBI)	INDIVIDUAL DEDICATION - well-organised and great to work with (BSBI)	OPPORTUNITIES TO PARTICIPATE - recording dates in the diary from the beginning of the season	
Recorder	Butterfly monitoring scheme works well, records verified quickly for Essex, online system works well, data is made available promptly. online recording via EWT recording website - Indica websites generally are easy to use	NATIONAL SCHEMES - butterfly monitoring scheme via BC	ONLINE RECORDING - Indica websites easy to use via BRC and EWT website	ONLINE RECORDING - data available promptly	
Recorder	Being part of an online community to share records and assist with ID enquiries: - The online community (particularly for moths) is so inclusive and open and includes all levels of experience from beginners to experts.	RECORDER SUPPORT - being part of an online community that is inclusive and open to all	ACCESS TO EXPERTS - to assist with ID enquiries		
Recorder	Greatly increased opportunities for participation - more projects and schemes than ever before and better promoted.	OPPORTUNITIES TO PARTICIPATE - more projects and schemes available	OPPORTUNITIES TO PARTICIPATE - better promotion of projects and schemes		
Recorder	Submission of records to recording scheme. - Training and self-study - major incentive to collect data	TRAINING - including self study	NATIONAL SCHEMES - data submission		

Almost without exception, respondents for each role particularly mentioned things that were working well for the broad theme that related most to their role, i.e. the theme they would be most familiar with. For example, 15.1% of mentions of what is working well for Verifiers related to verification, and 39.8% of mentions by Data Users related to access to data. Overall, the 'top five' broad themes with most mentions of things that were working well were: 1) 'access to resources' with 89 mentions/11.1% of all mentions, 2) 'training' with 75 mentions/9.3% of all mentions, 3) 'LERC services' with 73 mentions/9.1% of all mentions, 4) 'online recording' with 60 mentions/7.5% of all mentions and 5) 'national schemes' with 56 mentions/7.0% of all mentions. A very small number of respondents, in response to being asked about what is working well, responded 'Very little!' or 'Not much' or equivalent, which equated to 7 mentions (0.7% of all mentions) overall.

#### ii. What is working less well

In response to being asked what is working less well and how is it problematic, 237 of 290 respondents provided a response for one or more roles each. Although this was the same number of respondents as for the converse question above, the set of respondents differed slightly; 13 of the 237 respondents for the 'working well' question did not respond to this 'working less well' question, while 13 respondents for the 'working less well' question did not respond to the 'working well' question. The same 20 broad themes as for 'working well' were used to classify the responses for 'working less well' (as described under 'What is working well' above, and presented in **Table 13**) with no additional themes arising; however, two of these broad themes ('facilitation' and 'individual dedication') were not mentioned in the context of what is 'working less well'. In total, 703 'mentions' were identified through this classification and again summarised using 'hotspot maps' (**Figures 99-101**). Again, it should be noted that some sample sizes are very small.

As with the response received for 'what is working well', respondents for each role particularly mentioned things that were working less well for the broad theme that related most to their role, i.e. the theme they would be most familiar with. For example, 45.2% of mentions of what is working less well for Verifiers related to verification, and 53.5% of mentions by Data Users related to access to data. Overall, the 'top five' broad themes with most mentions of factors that were working less well were: 1) 'access to resources' with 116 mentions/16.5% of all mentions, 2) 'access to data' with 106 mentions/15.1% of all mentions, 3) 'data submission' with 93 mentions/13.2% of all mentions, 4) 'training' with 61 mentions/8.7% of all mentions and 5) 'verification' with 56 mentions/8.0% of all mentions. A very small number of respondents, in response to being asked about what is working less well, responded 'It all works pretty smoothly' or 'No particular problems to report' or equivalent, which equated to 17 mentions (2.4% of all mentions) overall.



**Table 13:** List of what is working well and less well by broad theme (listed in alphabetic order)

WORKING WELL	WORKING LESS WELL
<p><b>ACCESS TO DATA</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Web services, online access, GIS compatibility, access to species data, internal access within organisations, access to national recording scheme data, access to data via LERC and NBN portals, access to data via NGOs, access to online species distribution maps, locally relevant data being available locally and national data nationally, recorders happy to share data, increasing quality and quantity of records, reduced staff time needed to fulfil data requests...</i></p> <p><u>Example quotes:</u></p> <p>“GROWING NETWORK OF LOCAL REGULAR MOTH RECORDERS WHO ARE HAPPY TO SHARE THEIR RECORDS. SUPPORT FROM LOCAL BRC NESBREC WHO HAVE REGIONAL INTERACTIVE SPECIES MAPS ON THEIR WEBSITE FOR AT A GLANCE LOCAL DISTRIBUTION CHECKS &amp; CAN SUPPLY EXTRACTS FROM THEIR DATABASE. FREE ONLINE ACCESS TO OTHER ONLINE DATASETS.” – <i>DATA USER</i></p> <p>“THE NBN GATEWAY PROVIDES A SUCCESSFUL PLATFORM TO ENHANCE THE ACCESSIBILITY OF OUR DATA. THIS GREATLY MOTIVATES THE COLLECTION AND COLLATION OF RECORDS WITHIN THE ORGANISATION AND INSPIRES VOLUNTEERS. ONLINE ACCESS TO RECORDS ALSO DECREASES THE STAFF TIME REQUIRED TO PROCESS DATA REQUESTS AS OFTEN THE CLIENT CAN BE DIRECTED TO THE NBN GATEWAY.” – <i>SERVICE PROVIDER</i></p> <p><u>Overview of what is working well:</u></p> <p>Access to data was mentioned as working well by seven roles, with over 10% of all mentions by Data Developers, Data Users and Service Users. Respondents commented that access to data via LERCs, where they exist, and the NBN Gateway worked well, enabling them to discover and access a more comprehensive range of data than ever for decision-making purposes and internal business use (particularly planning decision support and land management). It was also noted that data being available from a single central point saved Data Users time in searching for and obtaining data, and saved both Service Providers and Data Providers time in fulfilling data requests as all Data Users could be directed to the data online avoiding the need to process data requests individually.</p>	<p><b>ACCESS TO DATA</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Poor data currency, complex data discovery, lack of access to fully-attributed high resolution data, restrictive data licensing, poor coverage, lack of verified records, development data not being shared, inconsistent formats, limited budgets to obtain data, data being unavailable via the NBN, lack of open data, lack of high-quality data products, lack of definitive species distribution maps...</i></p> <p><u>Example quotes:</u></p> <p>“1) LICENSING OF DATA IS OVERLY RESTRICTIVE. 2) THERE'S NO SINGLE MECHANISM FOR REQUESTING DATA (YOU HAVE TO GO TO MULTIPLE ORGANISATIONS, MAKE MULTIPLE REQUESTS, PLAY BY MULTIPLE SETS OF RULES) . 3) DATA ON THE NBN ARE OFTEN NOT UP TO DATE OR THE DEFINITIVE VERSION (THIS IS NOT A CRITICISM OF NBN). 4) THE QUALITY OF DATA IS UNCLEAR OR POOR. 5) MANY DATASETS ARE NOT PUBLICLY DISCOVERABLE OR USABLE” –<i>DATA USER</i></p> <p>“AS A FUNGUS RECORDER... I NEED TO REFER TO NATIONAL DATASETS TO SUPPORT MY SPECIES IDENTIFICATIONS. THERE IS CURRENTLY NO SINGLE POINT OF REFERENCE I CAN USE TO FIND OUT IF A FUNGUS SPECIES HAS BEEN RECORDED IN MY AREA, AS RECORDS ARE SPREAD ACROSS DIFFERENT NATIONAL RECORDING SCHEME DATABASES. DUE TO DATA FLOW ISSUES, MY LOCAL LERC DOESN'T HOLD A COMPLETE LOCAL FUNGUS RECORDS DATASET EITHER...” – <i>DATA USER</i></p> <p>“THE MULTITUDE OF ORGANISATIONS AND PORTALS CREATES HUGE VARIATION IN ROUTES FOR ACCESSING DATA, DATA FORMATS AND LICENCE CONDITIONS. AS A NATIONAL ORGANISATION THIS IS A HUGE BARRIER TO USING THE DATA AS WE WORK ACROSS A NATIONAL EXTENT AND HAVE TO SEEK DATA FROM MANY DIFFERENT SOURCES. IN SOME CASES IT IS IMPOSSIBLE TO USE DATA FROM CERTAIN SOURCES DUE TO THE TIME REQUIRED TO ACCESS AND FORMAT IT...” – <i>DATA USER</i></p> <p><u>Overview of what is working less well:</u></p> <p>Access to data was mentioned as working less well by nine roles, and particularly by Data Users, Data Developers, Service Users and Funders. Respondents commented on the lack of high resolution data being openly available and discoverable from a single place; data flow issues mean that decision-makers and species distribution maps do not have all relevant data or may be using low res' or inaccurate data.</p>
<p><b>ACCESS TO EXPERTS</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Taxonomic expertise, help with species identification, Vice County Recorders, County Recorders, rarity/verification committees, sharing of reference material, national recording schemes, recording groups, expert verification, experience and knowledge, iSpot, personal contact/direct contact via email or social media, getting a second opinion, speed of feedback, community of experts ready and willing to help with identification, contact facilitated by LERCs, dedication...</i></p> <p><u>Example quotes:</u></p> <p>“PARTICIPATING AS PART OF A RECORDING GROUP IS EFFECTIVE. IT GIVES ME ACCESS TO EXPERTS IN TAXON GROUPS I AM UNFAMILIAR WITH AND IT GIVES ME THE OPPORTUNITY TO SHARE MY OWN KNOWLEDGE OF PARTICULAR TAXA AND AREAS.” – <i>RECORDER</i></p> <p>“FOR LEPIDOPTERA THERE IS A VERY STRONG SUPPORT GROUP OF EXPERTS WITHIN THE RECORDING COMMUNITY, ENCOURAGED BY BUTTERFLY CONSERVATION WHO MANAGE THE NATIONAL RECORDING SCHEMES FOR BUTTERFLIES AND MOTHS. WITHOUT THIS OVERALL ORGANISATION AND WILLING ASSISTANCE, IDENTIFICATION OF MORE DIFFICULT SPECIES WOULD BE NIGH IMPOSSIBLE.” – <i>RECORDER</i></p> <p>“THE SYSTEM OF VERIFICATION IS GETTING BETTER WITHIN MOST NATIONAL ORGANISATIONS I DEAL WITH. THE SYSTEM OF USING EXPERT ID HELP VIA THE WEB IS AN OUTSTANDING LEAP FORWARD AND ALLOWS EVEN THE NOVICE ACCESS TO THE BEST EXPERTISE BUT ALSO ALLOWS THE EXPERTS TO BE PUT TO THE BEST USE.” – <i>VERIFIER</i></p> <p><u>Overview of what is working well:</u></p> <p>Access to experts was mentioned as working well by Recorders and Verifiers in particular. Experts were valued for their knowledge and support in species identification and verification, especially for hard-to-identify species. Respondents acknowledged the role of national recording schemes. Recording groups, LERCs, social media and online recording were also noted for facilitating direct access to experts for all. Sharing of reference material and personal contact with County and Vice-County Recorders is particularly highly valued.</p>	<p><b>ACCESS TO EXPERTS</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Lack of local expertise, lack of investment and succession planning for collection curators, lack of taxonomic expertise in key organisations, difficulty of access to experts for remote parts of the country...</i></p> <p><u>Example quotes:</u></p> <p>“SPECIALIST CURATORS (ESPECIALLY IN NATURAL HISTORY) IN LOCAL MUSEUMS ARE NOW AN ENDANGERED SPECIES IN THEIR OWN RIGHT. THE VALUE OF EXPERTISE IN THIS FIELD OF WORK NEEDS GREATER SUPPORT FROM THE NATURAL HISTORY COMMUNITY OUTSIDE OF MUSEUMS” – <i>COLLECTION CURATOR</i></p> <p>“CHECKING SPECIES THAT ARE NEW TO ME AGAINST RELIABLY-NAMED SPECIMENS IS TIME CONSUMING SO HAVING A REFERENCE COLLECTION THAT IS NOT TOO FAR AWAY IS HELPFUL. SADLY WHAT WE'RE SEEING IS THE EFFECTIVE CLOSURE OF COLLECTIONS AND THE NON-REPLACEMENT OF STAFF WHEN THEY RETIRE OR WORSE ARE MADE REDUNDANT.” – <i>RECORDER</i></p> <p>“IT CAN BE HARD TO ATTRACT COURSE TUTORS TO RUN EVENTS (PARTICULARLY IF THEY LIVE SOME DISTANCE AWAY). MANY WILL DO THIS FOR FREE, BUT GIVEN THE TIME, EFFORT AND EXPENSES THEY INCUR, IT WOULD BE GOOD TO HELP FUND THESE EVENTS (ALLOWING THEIR EXPERTISE TO BE SPREAD TO NEW RECORDERS).” – <i>RECORDER</i></p> <p><u>Overview of what is working less well:</u></p> <p>Access to experts was mentioned as working less well by two roles, Collection Curators and Recorders. Respondents feared the continuing decline and loss of specialist curators and collections, and the lack of access to these resources at a local level. Access to local expertise is problematic, particular in remote locations where it is more costly to bring in experts to provide training and mentoring. One or two respondents felt that professionals with taxonomic expertise in publicly-funded roles and organisations have become fewer in number.</p>

WORKING WELL	WORKING LESS WELL
<p><b>ACCESS TO RESOURCES</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Museum collections, species distribution maps, OS mapping, specialist field equipment, meeting rooms, online species keys, survey packs, identification forums and species checklists, FSC guides, reference books, BTO and BSBI databases, UK Moths and BC online portals, entomological journals, NBN Gateway/EasyMaps/Record Cleaner, iRecord, iSpot, DragonFinder, GIS, TomBio, BRISC/GNHS bursaries, HLF/LIFE funding, recording group and LERC websites...</i></p> <p><u>Example quotes:</u></p> <p>“THE AVAILABILITY OF ONLINE SPECIES DISTRIBUTION MAPS IS INVALUABLE FOR GIVING ME AN IDEA OF WHAT TO LOOK OUT FOR, POSSIBLY HOW INTERESTING SOME OF MY OWN RECORDS ARE, AND CAN HELP GUIDE MY IDENTIFICATION. SEEING MY RECORDS DISPLAYED ON AN ONLINE MAP IS ALSO SATISFYING!” — <i>RECORDER</i></p> <p>“WE ARE STILL A VERY YOUNG GROUP, ONLY STARTED IN 2016. BUT THE VOLUNTEER BASE IS GOOD AND HIGHLY MOTIVATED, TRAINING COURSE WENT VERY WELL, AND MORE ACTIONS ALREADY PLANNED FOR THIS YEAR. SUCCESSFUL GRANT BID HAS JUST NOW FURTHER ENABLED US, AS WE NOW CAN BUY SOME EQUIPMENT.” — <i>GROUP OPERATOR</i></p> <p>“AS WE HAVE SUCH A LARGE NETWORK OF ORGANISATIONS WE CAN OFTEN CALL ON THESE TO HELP AND PROVIDE SUPPORT TO US IN RELATION TO MATTERS WHERE WE MAY NOT HAVE THE KNOWLEDGE AND EXPERTISE SUCH AS INTERNAL AUDITING, COLLECTING DONATED SERVICES, OFFERING MEETING ROOM PROVISION ETC.” — <i>FACILITATOR</i></p> <p><u>Overview of what is working well:</u></p> <p>Access to resources was mentioned as working well by every role except that of Recording Scheme Operator. Respondents seemed to particularly value online access to resources that aid species identification, whether keys and checklists, social media fora or species distribution maps provided by the NBN, LERCs or national recording schemes. Some respondents valued having access online via hosting arrangements (e.g. via a Local Authority) that facilitated ‘free’ access to scientific journals or Ordnance Survey data. Portals or tools that were most frequently mentioned included: iRecord, the BSBI species distribution database, BirdTrack, Butterfly Conservation portals, NBN Gateway and the FSC guides and TomBio. Facilitators also valued their access to resources such as meeting rooms or support in specialist subject areas that are provided through network partners.</p>	<p><b>ACCESS TO RESOURCES</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Lack of long term funding, reduced public and EU funding, lack of time to spend on creation of added value or data mobilisation, lack of access to scientific journals, lack of access to reference material, lack of (and stores for) field equipment, lack of access to consumables for specimen preservation, lack of access to technical support, lack of time to take part, lack of definitive species distribution maps, lack of staff or volunteer capacity for key activities...</i></p> <p><u>Example quotes:</u></p> <p>“DUE TO CUTBACKS, THERE ARE NOW CONSIDERABLY FEWER NATURAL HISTORY CURATORS THAN PREVIOUSLY. THIS MEANS THERE IS LESS CATALOGUING AND DIGITISATION OF THE NATURAL HISTORY COLLECTIONS THAN A FEW YEARS AGO” — <i>COLLECTION CURATOR</i></p> <p>“TECHNOLOGY IS THE KEY BARRIER AS IS UNCERTAINTY OF FUNDING. - I THINK THERE ARE ALSO KNOWLEDGE GAPS (MAINLY AROUND DATA MANAGEMENT) TO PROVIDE THE BEST POSSIBLE SERVICES TO DATA USERS TOO.” — <i>SERVICE PROVIDER</i></p> <p>“SNH HAS BEEN A MAJOR FUNDER OF NBN... THIS IS A SUBSTANTIAL FINANCIAL COMMITMENT TO MAINTAIN AT A TIME WHEN SNH’S OWN BUDGET IS, AS WITH OTHER PUBLIC SECTOR BODIES, EXPERIENCING CONTINUING YEAR-ON-YEAR CUTBACKS, AND THIS LEVEL OF SUPPORT MAY NOT BE SUSTAINABLE IN THE LONG TERM.” — <i>FUNDER</i></p> <p><u>Overview of what is working less well:</u></p> <p>Access to resources was mentioned as working less well by every role, but in particular by Collection Curators, Recording Group Operators, Recording Scheme Operators, Data Providers, Service Providers, Funders and Facilitators. Maintenance of public sector funding is a major challenge given year on year funding cutbacks. For some respondents, the issue related to funding for staff or running events or training, for others it related to lack of access to reference material for species identification, especially scientific journals and museum collections. A lack of access to equipment or premises can be problematic, as is access to technology and technical support (for recording groups and Service Providers). Lack of time to secure funding or to participate in key activities was also noted, as was a lack of long time volunteers able to commit to a high level of involvement.</p>
<p><b>DATA MANAGEMENT</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>BirdTrack, WeBS + BBS systems, BSBI Distribution Database, iRecord, metadata, LERC/BRC/NBN services, BMS Online, QGIS, MapMate, Recorder 6, Recorder 3, internal NGO data management systems, digitisation of museum collections, personal data management, use of notebooks for record keeping, use of Excel spreadsheets and Access databases, transition to online recording...</i></p> <p><u>Example quotes:</u></p> <p>“AS A LOCAL AUTHORITY WE COMMISSION HABITAT SURVEY WORK AND ON OCCASION PROTECTED SPECIES SURVEY WORK. ALL DATA COLLECTED IS PROCESSED, STORED AND MANAGED BY NESBREC WHO ARE OUR MAIN DATA CUSTODIAN.” — <i>SERVICE USER</i></p> <p>“HAVE EXTENSIVE RECORDS AND DATA MANAGEMENT SUPPORT FROM OWN ENGO ORGANIZATION. MANAGEMENT OF DATA IS IMPROVING.” — <i>DATA USER</i></p> <p>“DATA MANAGEMENT - IRECORD, BTO BIRDTRACK AND BMS ONLINE ALLOW ME TO CREATE MY OWN EXTRACTS, QGIS PROVIDES A GREAT MAPPING TOOL.” — <i>RECORDER</i></p> <p>“MANAGEMENT OF THE BIOLOGICAL RECORDS WE HOLD WORKS WELL, USING RECORDER6. OUR IN-HOUSE SYSTEMS, USING SQL SERVER, PRODUCE TAILORED BIODIVERSITY REPORTS AS PART OF OUR DATA REQUEST SERVICE.” — <i>SERVICE PROVIDER</i></p> <p><u>Overview of what is working well:</u></p> <p>Data management was mentioned as working well by seven roles but in particular by Recording Scheme Operators and Data Providers. Recent improvements in data management capabilities, and the move away from paper to spreadsheets and online systems was noted by many respondents. Lots of different systems and services were noted, with use of Recorder 6 working well for Service Providers and Recorder 3 still in use by one Recorder. BirdTrack, iRecord, the BSBI Distribution Database and MapMate work well for Recorders. Recording Scheme Operators mentioned that the use of recording scheme websites was also working well. Respondents appreciate having online access to tools that allow them to view and report their own records, e.g. BirdTrack, BMS Online and iRecord, and also value GIS capabilities.</p>	<p><b>DATA MANAGEMENT</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Lack of own data management capability and/or capacity, scale of time and effort involved, lack of access to tailored database solutions, inefficiency of transfer of notebook records to computer, computer literacy issues including a lack of know-how for synching data, inability of recording software to handle taxonomic revisions, incompatibility of differing formats, lack of automation for updating local copies of data...</i></p> <p><u>Example quotes:</u></p> <p>“CAN BE TIME-CONSUMING TO FORMAT RECORDS OBTAINED INTO A FORMAT COMPATIBLE WITH LERC DATABASE (THINKING PARTICULARLY ABOUT OTHER DATABASES AS OPPOSED TO USUAL RECORDS FROM RECORDERS). MEANS FEWER UPDATES ARE REQUESTED THAN WOULD BE IF COULD BE QUICKLY ADDED TO THE DATABASE. KNOCK ON EFFECT OF LESS TIME TO LOOK FOR OTHER DATA SOURCES.” — <i>SERVICE PROVIDER</i></p> <p>“I WOULD LIKE TO DO A NUMBER OF THE ACTIVITIES I HAVE NOT TICKED ABOVE, BUT LACK OF TIME AND RESOURCES PREVENT THIS, DUE TO THE TIME I HAVE TO SPEND ON DATA MANAGEMENT.” — <i>DATA DEVELOPER</i></p> <p>“MANAGEMENT OF OWN RECORDS - GETTING THEM FROM NOTEBOOK TO COMPUTER MORE EFFICIENTLY! USING BIRDTRACK WILL HELP GREATLY WITH THIS” — <i>RECORDER</i></p> <p>“MANAGEMENT OF OUR OWN RECORDS. WE ARE IN NEED OF A BESPOKE DATABASE, WHICH IS PROVING HARD TO FIND/CREATE, OR TO FIND TIME TO CREATE.” — <i>RECORDER</i></p> <p><u>Overview of what is working less well:</u></p> <p>Data management was mentioned as working less well by five roles, those of Recorder, Verifier, Data developer, Data User and Service Provider. Many of the issues related to the time entailed in managing data inefficiently which had the impact of reducing the time available for higher value activities. Data formats were mentioned as being an issue as was the lack of software with all of the functionality necessary for handling of taxonomic information well. Lack of local capability and capacity for data management is a key issue though there are already tools that aid personal data management (e.g. BirdTrack and iRecord).</p>

WORKING WELL	WORKING LESS WELL
<p style="text-align: center;"><b>DATA PROVISION</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Preparation of metadata, publication of data via the NBN Gateway for sharing, own organisation portals for data sharing, discovery/digitisation/mobilisation of records for publication...</i></p> <p><u>Example quotes:</u></p> <p>“NBN GATEWAY MAKES IT FAIRLY EASY TO PUBLISH DATA AND MANAGE REQUESTS FOR HIGHER-LEVEL ACCESS.” – DATA PROVIDER</p> <p>“IT HAS BEEN PLEASING TO SEE DATA FROM 'MY' RECORDING SCHEME APPEAR ON THE NBN GATEWAY - LOOKING FORWARD TO SEEING HOW THE NEW ATLAS PLATFORM OPERATES.” – DATA PROVIDER</p> <p><u>Overview of what is working well:</u></p> <p>Data provision was only mentioned as working well by one role, that of Data Providers. Out of 44 mentions made by Data Providers, seven related specifically to data provision. Four of these mentioned that the NBN Gateway – or a national portal (assumed also to be the NBN) - was working well and one mentioned that having their own organisation’s website to host data was working well. Two other mentions simply noted that all was working well but gave no further detail.</p>	<p style="text-align: center;"><b>DATA PROVISION</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Volume of data requests reduces time for anything else, fulfilment of data requests requires a high level of effort, difficulties in understanding and complying with legislation, lack of NBN Atlas access controls, backlog of records yet to be digitised with low capacity to do so...</i></p> <p><u>Example quotes:</u></p> <p>“DATA REQUESTS TAKE A LOT OF TIME TO PROCESS, IN WHICH WE COULD BE CARRYING OUT MORE USEFUL DATA MANAGEMENT ACTIVITIES.” – DATA PROVIDER</p> <p>“BACKLOG OF MATERIAL TO BE DIGITISED. LOW NUMBERS OF STAFF” – DATA PROVIDER</p> <p>“DIFFICULT + TIME-CONSUMING TO NAVIGATE LEGISLATION + ENSURE COMPLIANCE. CONSTANT WORRY ABOUT FUNDING + SUSTAINABILITY” – DATA PROVIDER</p> <p>“RESPONDING TO DATA REQUESTS IS TEDIOUS AND TIME CONSUMING. MAKING OUR DATA AVAILABLE TO ALL THOSE WE WOULD LIKE TO IS NOT POSSIBLE WITHOUT A MASSIVE AMOUNT OF RESOURCE TO CHURN OUT ALL THE REQUIRED DATA IN A MYRIAD OF FORMATS. LACK OF METADATA/ACCESS CONTROLS ON NBN ATLAS LIMITS THE USEFULNESS OF DATA WE CAN UPLOAD.” – DATA PROVIDER</p> <p>“THERE IS A LOT OF DUPLICATED RECORDS IN THE PUBLIC DATASETS. ONE ORIGINAL FIELD RECORD MAY HAVE 10+ RECORDS OF THIS (VARYING DEGREES OF MAPPING RESOLUTION) ARISING FROM DIFFERENT ORGANISATIONS AND LITERATURE SOURCES” – DATA USER</p> <p><u>Overview of what is working less well:</u></p> <p>Data provision was mentioned as working less well primarily by Data Providers but also by Data Users and Recorders. The majority of the issues appear to arise from the effort involved in providing data, particularly with the loss of NBN Gateway access controls which may mean that requests have to be made direct to a Data Provider rather than being entirely facilitated by the NBN Atlas. Some Data Providers have a backlog of records to mobilise but no capacity to do so.</p>
<p style="text-align: center;"><b>DATA SUBMISSION</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Submission of records to iRecord, BirdTrack, LERCs, Facebook and iSpot, submission of records to Recording Group or Natural History Society portals, submission of records to internal NGO systems, submission of records to OBIS SEAMAP, ease of uploading ad-hoc information, professional coordination, facilitation of onward submission to other parties...</i></p> <p><u>Example quotes:</u></p> <p>“THIS IS QUITE A SELF-CONTAINED ROLE. I WORK AS PART OF A PROJECT WHICH COLLECTS ITS OWN DATA. WE AREN'T RELIANT ON OBTAINING DATA FROM ANYONE ELSE. ONCE THE PROJECT IS COMPLETE, THE DATA WILL BE MADE PUBLICLY AVAILABLE, MOST LIKELY THROUGH OBIS SEAMAP. THIS IS WHERE PREVIOUS DATA SETS HAVE GONE. SUBMITTING THE DATA HERE WAS VERY STRAIGHTFORWARD LAST TIME.” – DATA PROVIDER</p> <p>“IRECORD IS REALLY HELPING THE VERIFICATION AND COLLATION SIDE OF THINGS. AS A COUNTY RECORDER, I ACTIVELY ENCOURAGE RECORDERS TO SUBMIT THEIR RECORDS THERE SO THAT IT IS A CENTRAL PLACE TO EXTRACT RECORDS FROM AT THE END OF THE YEAR AND ALSO SO THE RECORDS ARE VERIFIED. – IT IS USEFUL BEING A COUNTY RECORDER TO FIND RECORDS FROM RECORDERS THAT MIGHT OTHERWISE BE MISSED. IT IS ALSO A USEFUL WAY OF ENTHUSING NON-SPECIALISTS TO LEARN MORE ABOUT YOUR PARTICULAR TAXONOMIC GROUP AND TO ENCOURAGE RECORDING. BEING ACTIVE AT A LOCAL LEVEL IS GREAT FOR THAT.” – VERIFIER</p> <p>“SUBMISSION OF RECORDS TO MY LOCAL GROUP AND THENCE TO THE GATEWAY. THEY PROVIDE A FORMATTED SPREADSHEET WHICH MAKES THIS EASY.” – RECORDER</p> <p>“IRECORD HAS MADE IT A LOT EASIER TO SUBMIT RECORDS FOR A NUMBER OF TAXONOMIC GROUPS FROM ACROSS A WIDE GEOGRAPHIC AREA.” – RECORDER</p> <p><u>Overview of what is working well:</u></p> <p>Data submission was mentioned as working well by four roles, those of Recorders, Verifiers, Collection Curators and Data Providers. A number of respondents mentioned that submission is easier when using standard spreadsheets or online tools and when using iRecord-based portals. Some Recorders observed that submitting records direct to their County Recorder or LERC saved them from having the responsibility of managing their own records and their onward submission to other parties. Recorders particularly liked using iRecord and BirdTrack to submit records and valued having a single point of entry for them, with verification also handled within these systems.</p>	<p style="text-align: center;"><b>DATA SUBMISSION</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Too many competing channels, clunky web sites, lack of clarity on where to submit data, insufficient verification capacity for speedy data flow, poor user experience, lack of transparency in how records are shared and used, Recorders must submit records to multiple channels to reach all users, little feedback...</i></p> <p><u>Example quotes:</u></p> <p>“THERE ARE LOTS OF ONLINE SYSTEMS ALL COLLECTING BIRD RECORDS WHICH AREN'T JOINED UP. THERE ARE TOO MANY ONLINE LOCATIONS THAT A COUNTY RECORDER SHOULD GO TO HARVEST RECORDS. NOT ALL OF THEM COLLECT GOOD QUALITY RECORDS OR HAVE THE RIGHT ATTRIBUTES.” – VERIFIER</p> <p>“WHERE TO SUBMIT YOUR RECORD IS NOT IMMEDIATELY CLEAR TO SOME; BEST ROUTE(S) VARY WITH TAXON GROUP AND LOCATION OF RECORDER; THIS INHIBITS DATA FLOW. LACK OF TRANSPARENCY IN THE DATA FLOW - DO WE ALWAYS KNOW WHERE DATA COLLECTED GOES? WHO SHARES WITH WHOM AND HOW? NOT KNOWING THIS INHIBITS DATA SUBMISSION OR LEADS TO DUPLICATED EFFORT (SHARING MANY TIMES)” – FACILITATOR</p> <p>“TOO MANY DIFFERENT SYSTEMS FOR DIFFERENT TAXA. I RARELY PASS ON MY BUTTERFLY RECORDS AS I CAN'T ADD THEM TO BIRDTRACK, BUT I DO ADD SOME DRAGONFLY RECORDS. SO SOME OF MY DATA IS BEING LOST IN TERMS OF ITS BROADER USE. I DON'T HAVE TIME TO USE MULTIPLE SYSTEMS, AND ONLY USE BIRDTRACK” – RECORDER</p> <p>“FAR TOO MANY COMPETING ROUTES FOR SUBMITTING RECORDS (MOSTLY ONLINE NOW, BUT THE FEW REMAINING PAPER ONES AREN'T WITHOUT PROBLEMS TOO). HARDLY ANY COLLECT ALL INFO IN THE MOST USEFUL FORMAT; EVEN THE BEST OF THEM ARE UNNECESSARILY CLUNKY; THE WORST ARE AWFUL. SOME DON'T EVEN WORK WITH SOME COMMON WEB BROWSERS. (IF AMAZON + TESCO HAD SUCH POORLY-DESIGNED ONLINE FORMS, THEY'D NEVER SELL A SINGLE PRODUCT!)” – RECORDER</p> <p><u>Overview of what is working less well:</u></p> <p>Data submission was mentioned as working less well by ten roles but especially by Recorders and Verifiers. There are multiple channels with no easy way for a record to reach all Data Users quickly and securely. The user experience is often poor, both in terms of the user interface of online tools and in the lack of feedback. Recorders have no way to submit records with confidence that they will be of value through onward use in decision-making and production of species distribution maps. It is difficult for Verifiers to find and harvest all records and records can often lack crucial attributes and contact details.</p>

WORKING WELL	WORKING LESS WELL
<p style="text-align: center;"><b>FACILITATION</b></p> <p style="text-align: center;"><u>Range of topics mentioned:</u></p> <p><i>ALERC membership, NBN Trust and NBN network, data flows between national recording schemes and LERCs, reliability...</i></p> <p style="text-align: center;"><u>Example quotes:</u></p> <p>“ALERC IS AN EXCELLENT ORGANISATION TO HELP TACKLE DATAFLOW BETWEEN NATIONAL SCHEMES AND LERCs” – <i>DATA PROVIDER</i></p> <p>“WE ARE WELL KNOWN AND SEEN AS RELIABLE BODY.” – <i>FACILITATOR</i></p> <p>“...NATIONALLY - MEMBERSHIP OF ALERC, CLOSE WORKING WITH NBN, QUICK RESPONSES FROM BOTH ORGANISATIONS” – <i>RECORDER</i></p> <p style="text-align: center;"><u>Overview of what is working well:</u></p> <p>Facilitation was mentioned as working well by three roles, those of Data Provider, Facilitator and Recorder, but with a very small sample size of just three mentions, one per each of these roles (due to the small number of responses received to the questionnaire from Facilitators – note that the ‘Facilitator community’ is very small compared with that for Recorders and Data Users so this small sample size is expected). The value of ALERC for facilitating the flow of data between national recording schemes and LERCs was noted as working well, as was the relationship with both the NBN Trust and ALERC. Being well known seen as a reliable body were also noted as part of what is working well for facilitators.</p>	<p style="text-align: center;"><b>FACILITATION</b></p> <p style="text-align: center;">No mention was made of facilitation working less well.</p>
<p style="text-align: center;"><b>INDIVIDUAL DEDICATION</b></p> <p style="text-align: center;"><u>Range of topics mentioned:</u></p> <p><i>Intelligent/hard-working/passionate/inspirational/engaging people, long-standing recorders, skill and dedication of those involved, strong local voice, people willing to give up their time, keen to share knowledge, enthusiasm of the public and recording groups, working as a team, highly motivated volunteer base, County Recorders, committee members, well-organised, professional, general desire to work together with positive intent, long service, fun, excellence...</i></p> <p style="text-align: center;"><u>Example quotes:</u></p> <p>“THE GROUP LARGELY KEEPS GOING BECAUSE OF THE ENTHUSIASM OF THE COMMITTEE MEMBERS WHO ORGANISE IT, AND THE MEMBERS WHO PARTICIPATE IN ACTIVITIES. PEOPLE LIKE A SENSE OF BELONGING TO SOMETHING WITH A LOCAL FOCUS, WHERE THEY WILL MEET LIKE-MINDED PEOPLE WITH DIFFERENT EXPERTISE, AND LEARN FROM THEM.” – <i>RECORDING GROUP OPERATOR</i></p> <p>“I VOLUNTEER WITH BSBI - VERY EXPERIENCED AND KNOWLEDGEABLE BOTANISTS WHO ARE WILLING TO TEACH OTHERS IS WHY I FIND THIS RECORDING GROUP SO GREAT TO WORK WITH. THEY ARE A VERY DEDICATED TEAM, AND ARE WELL ORGANIZED WITH RECORDING DATES IN THE DIARY RIGHT FROM THE BEGINNING OF THE SEASON.” – <i>RECORDER</i></p> <p>“DEDICATED COUNTY MOTH RECORDERS AND LOCAL RECORD CENTRE MANAGERS.” – <i>VERIFIER</i></p> <p>“MASSIVE VOLUNTEER OPERATION WITH HIGH LEVEL OF EXPERTISE.” – <i>VERIFIER</i></p> <p style="text-align: center;"><u>Overview of what is working well:</u></p> <p>Individual dedication was mentioned as working well by most roles but in particular by Recording Group Operators. Many mentions were made of the expertise, enthusiasm and experience of everyone involved in biological recording. Respondents indicated that they were inspired by dedicated individuals, the enthusiasm of the public and the willingness of people to give up their time and share their knowledge. The positivity and positive intent of people, the sheer scale of the contribution made on a voluntary basis, and the team-working involved all came through strongly as contributing factors.</p>	<p style="text-align: center;"><b>INDIVIDUAL DEDICATION</b></p> <p style="text-align: center;">No mention was made of individual dedication working less well.</p>



WORKING WELL	WORKING LESS WELL
<p><b>LERC SERVICES</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Providing bespoke data/data products for local decision-making, greater use of technology freeing staff to improve quality and quantity of records, provision of local support to service users and recorders, model of private and public funding, local contacts, fast and cost effective, great staff, encouraging local interest in recording, effective partnerships, standard spreadsheets used by local recorders, ALERC membership/accreditation, provision of opportunities to participate...</i></p> <p><u>Example quotes:</u></p> <p>“AS A LOCAL AUTHORITY WE COMMISSION HABITAT SURVEYS AND ON OCCASION PROTECTED SPECIES SURVEYS. ALL DATA COLLECTED IS PROCESSED, STORED AND MANAGED BY NESBREC WHO ARE OUR MAIN DATA CUSTODIAN. NESBREC IN TURN SHARE DATA WITH NBN.” — <i>SERVICE USER</i></p> <p>“LERC HAS GREAT AND LONG STANDING RELATIONSHIPS IN THE AREA WITH A WIDE VARIETY OF RECORDERS, DATA USERS AND ORGANISATIONS. LOCAL CONTACTS, CONNECTIONS AND SUPPORT. CONNECTIONS VIA LERC CAN LEAD TO COLLABORATIVE AND PARTNERSHIP WORKING. CAN PUT PEOPLE IN TOUCH - INCLUDING PUTTING A RECORDER OR MEMBER OF THE PUBLIC IN TOUCH WITH AN EXPERT, SCHEME OR SOCIETY OR OTHER RESOURCE.” — <i>SERVICE PROVIDER</i></p> <p>“THE INTERNET AND SOCIAL MEDIA MAKES IT MUCH EASIER TO FIND OUT ABOUT RECORDING PROJECTS AND RECORDING GROUPS. LOCAL GROUPS ARE AN EXCELLENT WAY OF ACCESSING ADVICE AND SUPPORT; AS WELL AS SPECIES IDENTIFICATION EXPERIENCE WITH PEOPLE WHO KNOW WHAT THEY'RE LOOKING AT. MY LOCAL ENVIRONMENTAL RECORD CENTRE ACTS AS A FANTASTIC HUB FOR BIOLOGICAL RECORDING LOCALLY, HELPING TO CREATE A VIBRANT NETWORK OF LOCAL RECORDING GROUPS.” — <i>RECORDER</i></p> <p><u>Overview of what is working well:</u></p> <p>LERC services were mentioned as working well by all roles except the roles of Collection Curator, Recording Group Operator and Recording Scheme Operator. A third of both Service Providers and Service Users mentioned that LERC services are working well. Respondents seemed to value the local nature of LERC services, with local contacts and networks frequently mentioned. Support to recorders was much mentioned by Recorders and Recording Group Operators, and a number of Data Users mentioned that LERCs enabled them to access data that is not otherwise available to them. The ability of LERCs to fulfil bespoke data requests in response to the needs of local Data Users was also mentioned positively, as was ALERC membership and regional co-operation between LERCs and improvement and standardisation of services offered. A number of respondents also mentioned that submitting records to, or via, their LERC worked well.</p>	<p><b>LERC SERVICES</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Underfunding of LERC services, lack of appreciation for the value of LERC services, duplication of effort in maintaining local databases and licence arrangements, inconsistencies between data held by national schemes and the version held by LERCs, data management capabilities are variable, lack of technical support and know-how available in-house, currency of data holdings, cost of LERC services, lack of LERC services in some areas...</i></p> <p><u>Example quotes:</u></p> <p>“IT'S VERY EXPENSIVE FOR SMALL CONSULTANCIES. THE DATA PROVIDED IS SPARSE, UNVERIFIED + OFTEN OUT OF DATE + DOESN'T COVER KEY GROUPS OF SPECIES.” — <i>SERVICE USER</i></p> <p>“FUNDING IS INSECURE AND WE ARE LUCKY THAT OUR STAFF HAVE NOT MOVED ON. I THINK WE NEED TO DEVELOP ADDITIONAL SERVICES SO THAT NEW INCOME STREAMS CAN BE DEVELOPED TO MAKE THE CENTRE MORE ROBUST. THIS REQUIRES INVESTMENT WHICH IS HARD TO SOURCE AT THIS TIME. IT WOULD HELP IF THERE WAS A CONSISTENT POLICY ACROSS SCOTLAND SO THAT OUR LERC WAS SEEN TO BE PART OF A COHERENT PUSH TO PROVIDE SIMILAR SERVICE ACROSS THE COUNTRY. THIS WOULD ALSO MAKE IT EASIER TO GET LOCAL AUTHORITIES TO TREAT LERCs AS SERVICE PROVIDERS AND THEREFORE WORTHY OF SUPPORT.” — <i>SERVICE PROVIDER</i></p> <p>“CAN BE DIFFICULT AND TIME CONSUMING TO DISCOVER AVAILABLE DATA. ONCE PERMISSIONS ARE GRANTED FOR USE OF DATA FOR LERC BUSINESS, OFTEN TIME CONSUMING TO THEN FORMAT THE DATA TO BE COMPATIBLE WITH OUR OWN DATA HOLDINGS SO MAY NOT BE UPDATED OFTEN. NEGOTIATING LICENCE AND ACCESS CONDITIONS CAN BE TRICKY AND OFTEN NEED TO BE NEGOTIATED SEPARATELY (WHEN PROCESS POSSIBLY ALREADY GONE THROUGH BY OTHER LERCs)” — <i>SERVICE PROVIDER</i></p> <p><u>Overview of what is working less well:</u></p> <p>LERC services were mentioned as working less well by nine roles, and by Service Users and Facilitators in particular. The main issues seem to be with underfunding limiting the coverage, capability and capacity of each LERC, leading to under-investment in technology and innovation. No mentions commented negatively on the services provided by LERCs, except to lament the absence of services where no LERC is in situ. That said, some respondents felt that the maintenance of independent local databases duplicated data flows (Recorders feel the need to supply records to multiple LERCs for their records to be available to all users) with the result that some data are only locally available, and not nationally - or openly - available to protect the local income stream and financial viability of the LERC. Currency of LERC data can be problematic but may be a reflection of wider data submission issues.</p>
<p><b>LOCAL NETWORKS</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Data sharing, helpful local naturalists, recorders' events, social activities, access to experts, recorder support, local knowledge, peer groups, help for novices, Facebook groups, help from neighbouring Vice County Recorders, wide variety of skills and interests, contacts, local centres of expertise, committed volunteers, good relationships with recording groups and data providers...</i></p> <p><u>Example quotes:</u></p> <p>“OUR LERC IS SEEN AS A CENTRE OF EXPERTISE AND SKILL. IT IS THE PLACE TO GO TO FIND OUT ABOUT LOCAL SPECIES + TO GET INVOLVED IN RECORDING. IT IS ALSO THE HUB AROUND WHICH A NETWORK OF SPECIALISTS CAN WORK + SHARE DATA.” — <i>RECORDER</i></p> <p>“THE HIGHLAND BIOLOGICAL RECORDING GROUP IS A GREAT NETWORK WHERE I CAN GET SUPPORT AND ALSO SEND MY RECORDS TO, IN THE KNOWLEDGE THAT THEY WILL BE VALIDATED, VERIFIED, SENT TO THE NBN AND BACKED UP VERY PROFESSIONALLY. SOCIALLY IT IS A GREAT GROUP TOO.” — <i>RECORDER</i></p> <p>“GROWING NETWORK OF LOCAL REGULAR MOTH RECORDERS WHO ARE HAPPY TO SHARE THEIR RECORDS + HAVE THEM CHECKED - MANY TAKE PHOTOS AS A MATTER OF COURSE OR IF DOUBTFUL OF ID + ALSO SHARE KNOWLEDGE WITH ONE ANOTHER SO OTHER MORE EXPERIENCED RECORDERS INCLUDING NEIGHBOURING VC RECORDERS ALSO HELP NOVICES, WHICH MAKES IT EASIER FOR ME AS VERIFIER.” — <i>VERIFIER</i></p> <p><u>Overview of what is working well:</u></p> <p>Local networks were mentioned by respondents for nine roles (all except Recording Scheme Operators, Service Users and Funders). Recorders and Verifiers particularly appreciated a community of experts helping species identification, the breadth of expertise available and networking opportunities via events for Recorders. Discovery of the groups, events and experts that are local to a Recorder is working well through the use of social media, in particular Facebook groups. Where they exist, LERCs work well as centres of expertise and community hubs around which local networks can operate.</p>	<p><b>LOCAL NETWORKS</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Fears over holding contact details for volunteers due to Data Protection concerns, difficulty of reaching everyone with a common interest, insufficient local networking opportunities, lack of national or central recognition and support for local and regional level activities, difficulty of finding or having a nearby ringing trainer or County Recorder...</i></p> <p><u>Example quotes:</u></p> <p>“COMMUNICATION AND DATA-SHARING BETWEEN COUNTY RECORDERS, LERCs AND NATIONAL SCHEMES CAN BE SLOW, INCOMPLETE OR EVEN COMPLETELY ABSENT. AGAIN THIS MAY MEAN SUBMITTING THE SAME RECORDS MORE THAN ONCE AND MAY LEAD TO DUPLICATE RECORDS IN DATASETS.” — <i>RECORDER</i></p> <p>“...NATIONALLY DESIGNED ONLINE SYSTEMS (RECORDING AND DATA PROVISION) THAT SEEM TO BE THERE TO SERVICE NATIONAL BODIES RATHER THAN RECORDERS. LACK OF RECOGNITION OF THE WORK THAT GOES IN TO DEVELOPING RELATIONSHIPS WITH RECORDERS AND SUPPORTING THEIR WORK AT A LOCAL LEVEL. THIS CANNOT BE REPLACED BY NATIONAL ONLINE SYSTEMS. NSS AND LERCs KNOW THIS WELL BUT NATIONAL DECISION-MAKERS SEEM TO IGNORE IT.” — <i>RECORDER</i></p> <p>“LACK OF LOCAL RECORDERS. RECORDS NOT BEING SENT TO THE NATIONAL SCHEME. PEOPLE THAT DO NOT KNOW OF THE NATIONAL SCHEME OR RECORDERS.” — <i>VERIFIER</i></p> <p><u>Overview of what is working less well:</u></p> <p>Local networks not working well received few mentions but touched on: 1) local networks being non-existent due to a lack of Recorders, 2) communication between key players being missing or insufficient, 3) perceptions of national organisations failing to recognise the occurrence and value of local and regional activities, such that local organisations feel that national organisations overlook local needs and successes, and 4) the challenge of holding contact details for volunteers while complying with data protection regulations.</p>

WORKING WELL	WORKING LESS WELL
<p><b>NATIONAL SCHEMES</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Professionalism, access to experts, online recording, support to local clubs, networks of enthusiasts, support for species identification, taxonomic expertise, standard spreadsheets, good use of county recorders, records at capture resolution, prompt access to data, opportunities to participate, coordination of volunteers, confidence that submitted records are of value, massive volunteer contribution, clear procedures for dealing with data, feedback to Recorders...</i></p> <p><u>Example quotes:</u></p> <p>“FOR LEPIDOPTERA THERE IS A VERY STRONG SUPPORT GROUP OF EXPERTS WITHIN THE RECORDING COMMUNITY, ENCOURAGED BY BUTTERFLY CONSERVATION WHO MANAGE THE NATIONAL RECORDING SCHEMES FOR BUTTERFLIES AND MOTHS. WITHOUT THIS OVERALL ORGANISATION AND WILLING ASSISTANCE, IDENTIFICATION OF MORE DIFFICULT SPECIES WOULD BE HIGH IMPOSSIBLE.” – <i>RECORDER</i></p> <p>“BEING PART OF A WELL-RUN AND COMMITTED NATIONAL RECORDING SCHEME FILLED WITH ENTHUSIASTS AIDS MOTIVATION AND ENJOYMENT.” – <i>VERIFIER</i></p> <p>“PARTICIPATION OF EXISTING NATIONAL SCHEMES WORKS WELL, USUALLY BECAUSE THEY’VE BEEN GOING FOR SOME TIME AND HAVE A DEDICATED OFFICER TO MANAGE THE SYSTEM.” – <i>RECORDER</i></p> <p>“THERE IS A GOOD RANGE OF RECORDING SCHEMES FOR VARIOUS GROUPS WHICH ENABLES WIDE INVOLVEMENT IN RECORDING. THIS MAKES RECORDING WORTHWHILE AS YOU FEEL ABLE TO CONTRIBUTE TO THE BIGGER PICTURE.” – <i>RECORDER</i></p> <p><u>Overview of what is working well:</u></p> <p>National schemes were mentioned as working well by respondents for all roles except those of Service Provider, Service User, Funder and Facilitator. The range in operation was felt to be good, allowing wide involvement in recording and enabling recorders to feel that they contribute to a bigger picture. National scheme services, e.g. production of distribution maps and national trends and coordination of volunteer activities, are highly valued. A number of respondents commented on the professionalism of national schemes, the ease with which people can participate and the added-value from scheme websites. Both major and minor schemes were noted to work well, with respondents feeling that schemes have a clear process for record submission and that schemes managed submitted records well.</p>	<p><b>NATIONAL SCHEMES</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Underfunding of national monitoring schemes, promotion of schemes, data flows inhibited by permission issues and multiplicity of organisations and routes, national scheme data not always reaching the NBN and LERCs, having to submit records for multiple taxa to multiple schemes, lack of active VC recorders for some areas, lack of schemes for some taxa, lack of computer literacy and a lack of access to technical support...</i></p> <p><u>Example quotes:</u></p> <p>“RECEIVING + PASSING ON RECORDS IS DIFFICULT BECAUSE SOME PEOPLE OR LERCs DO NOT ALLOW US TO RELEASE THE RECORDS THEY GIVE US.” – <i>SCHEME OPERATOR</i></p> <p>“LEAST SUCCESSFUL AREA FOR ME IS CONCERNED WITH KEEPING ABREAST OF NATIONAL SCHEMES + THEIR REQUIREMENTS. I WOULD PREFER TO SUBMIT MY RECORDS IN ONE LUMP + THEY OFTEN SPAN ACROSS A DOZEN NATIONAL SCHEMES.” – <i>RECORDER</i></p> <p>“RECRUITING, SUPPORTING, TRAINING + MENTORING YOUR SCHEME’S RECORDERS + VERIFIERS – VOLUNTEERS HAVE MANY MORE OPTIONS FOR PARTICIPATING IN CITIZEN SCIENCE THAN EVER BEFORE, SO EXTRA EFFORT IS REQUIRED TO RECRUIT THEM + KEEP THEM ENGAGED IN OUR PROJECTS. HOWEVER FUNDING TO SUPPORT + ENCOURAGE VOLUNTEERS IS EXTREMELY DIFFICULT TO COME BY...” – <i>SCHEME OPERATOR</i></p> <p>“...LOCAL COORDINATORS ALL HOLD A LOCAL ‘MASTER COPY’ OF THE DATABASE. THE NATIONAL SCHEME THEN TAKES A COPY EACH YEAR, TO BE COMBINED INTO ONE NATIONAL DATASET. I’VE FOUND IT QUITE CHALLENGING AT TIMES ADMINISTERING MY OWN DATABASE SYSTEM (I CURRENTLY USE MapMATE) LOCALLY, AS IT CAN BE DIFFICULT TO ACCESS TECHNICAL SUPPORT WHEN THINGS GO WRONG, OR IF YOU’RE TRYING TO UNDERTAKE SOME COMPLEX DATA ANALYSIS.” – <i>SCHEME OPERATOR</i></p> <p>“BTO DATA MOSTLY NOT ON NBN, SO MOST BIRD DATA MUST BE SOURCED SEPARATELY AND REQUIRES A SEPARATE BILATERAL LICENCE AGREEMENT. LARGE AMOUNTS OF DATA HELD UP IN RECORDING SCHEME DATABASES (INCLUDING INDICIA), NOT YET (IF EVER?) AVAILABLE ON NBN.” – <i>DATA DEVELOPER</i></p> <p><u>Overview of what is working less well:</u></p> <p>National schemes not working well received relatively few mentions; from a Scheme Operator’s perspective, issues relate to underfunding, data flow and access control issues and lack of access to technical support. For Recorders, it is currently laborious and off-putting to submit records to multiple schemes for multiple taxa. Not all scheme data are openly available given the need to cover operating costs.</p>
<p><b>NBN SERVICES</b></p> <p><u>Range of topics mentioned:</u></p> <p>NBN Gateway, NBN Atlas, interactive tools, distribution maps, NBN Record Cleaner, data request and access administration, single point of access, easy downloads, data visualisation, national overview, independent, trusted brand, data searches, data sharing, data discovery, data collation, NBN Easy Maps, latest taxonomic lists, data users directed to the NBN, motivating data collection and sharing, network news, NBN forum, public resource...</p> <p><u>Example quotes:</u></p> <p>“THE NBN ATLAS WORKS WELL AS A SINGLE POINT OF ACCESS TO BIOLOGICAL DATA. IT IS EFFECTIVE AS IT GIVES A NATIONAL OVERVIEW, AND IS NOT RESTRAINED BY COUNTRIES OR COUNTIES.” – <i>SERVICE PROVIDER</i></p> <p>“THE NBN GATEWAY IS A TREMENDOUS RESOURCE IN TERMS OF BEING ABLE TO FIND OUT THE DISTRIBUTIONS OF ORGANISMS AND THE CONTRIBUTION WHICH MY/OUR DATA MAKES TO THIS. WE ALSO USE THE NBN’S EASYMAPS TO PUT MAPS ON OUR LOCAL GROUP’S WEBSITE. I USE THE NBN GATEWAY TO CHECK ON THE LATEST TAXONOMY OF ORGANISMS AND ENSURE I AM USING THE CORRECT SCIENTIFIC NAME.” – <i>DATA USER</i></p> <p>“NBN GATEWAY, THOUGH IT HAD ITS ISSUES, WAS A USEFUL WAY TO DISCOVER DATASETS + ARRANGE BETTER ACCESS. ONCE PERMISSIONS (TO USE FOR LERC PURPOSES) + FULL ACCESS IN PLACE, DATASETS COULD BE DOWNLOADED AS NEEDED” – <i>DATA USER</i></p> <p><u>Overview of what is working well:</u></p> <p>NBN services were mentioned by respondents for seven roles and in particular by Service Providers and Data Users. NBN portals and web services were felt to be effective as a single point of access to biological data, and highly valuable for their provision of interactive species distribution maps and verification tools such as NBN Record Cleaner. Some Service Providers noted that online access via the NBN minimised the time that they would otherwise spend managing data requests. The ease of discovery of, and of arranging better access to, biological data and having definitive taxonomic information available via the NBN was also mentioned. The NBN brand was noted as being trustworthy; the NBN is recognised as offering centralised access to biological data.</p>	<p><b>NBN SERVICES</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Underfunding of the NBN Secretariat, performance issues of the NBN Gateway, lack of access controls in the NBN Atlas, perceived low quality of data due to lack of verification/low resolution data/inaccurate data/duplicated data, incomplete/out of date species distribution maps due to missing data sources and poor frequency of updates, composition of the NBN Board of Trustees, complexity of licensing, no means of giving feedback on record quality...</i></p> <p><u>Example quotes:</u></p> <p>“LOSS OF ACCESS CONTROLS FROM THE NBN INFRASTRUCTURE INTRODUCES SOME PROBLEMS: AS A DATA PROVIDER, WE NO LONGER HAVE A STRAIGHTFORWARD WAY TO SHARE HIGH RESOLUTION DATA WITH PARTNERS. AS A DATA USER, WE NO LONGER HAVE A STRAIGHTFORWARD WAY FOR ACCESSING HIGH RESOLUTION DATA FROM RECORDING SCHEMES, FOR USE IN OUR SERVICES.” – <i>SERVICE PROVIDER</i></p> <p>“...THERE IS AN EXPECTATION THAT WE SHOULD BE DELIVERING MORE THAN WE DO. IT IS NOT WIDELY UNDERSTOOD THAT WE ARE A SMALL TEAM WITH NO GUARANTEED FUNDING. MANY MEMBERS DO NOT CONTRIBUTE FINANCIALLY BUT EXPECT SERVICES FOR A REDUCED COST... MANY USERS EG ACADEMICS AND CONSULTANTS ARE NOT CONTRIBUTING TO THE NBN BUT ARE SIGNIFICANT USERS.” – <i>FACILITATOR</i></p> <p>“THE NBN BOARD STRUCTURE + GOVERNANCE AS A WHOLE NEEDS SOME THOUGHT... IT WOULD BE TIMELY TO LOOK AT RESTRUCTURING THE BOARD TO MAKE THIS AS EFFECTIVE + INCLUSIVE AS POSSIBLE” – <i>FACILITATOR</i></p> <p>“NATIONAL DATA SHARING IS POSSIBLE AND ACHIEVABLE (IE NBN GATEWAY/ATLAS) BUT THE TECHNOLOGY + ITS SUPPORT IS CURRENTLY UNDERFUNDED.” – <i>FACILITATOR</i></p> <p><u>Overview of what is working less well:</u></p> <p>NBN services were mentioned as not working well by eight roles and in particular by Facilitators, Data Providers, Data Users and Service Providers. Data Users are frustrated by data being unavailable via the NBN which means data discovery remains onerous and species distribution maps fail to be definitive; licensing is perceived to be complex; the loss of access controls means that data flows have become more problematic. Underfunding of the NBN Secretariat goes unnoticed; users seek a level of service that cannot be fulfilled with existing resources. NBN governance may need a refresh.</p>

WORKING WELL	WORKING LESS WELL
<p><b>ONLINE RECORDING</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Smartphone apps, Indicia websites, iRecord, BirdTrack, BMS Online, BRC support, online verification tools, local group/LERC websites, simplicity of use, time-saving, use of photos, rapid responses via social media, ease of data entry, ease of obtaining grid references, ease of verification, ease and quality of feedback, ease of personal data management, ease of submission of data to county recorders/verifiers/national schemes, ease of harvesting/collating all records...</i></p> <p><u>Example quotes:</u></p> <p>“IT’S EASY TO ENTER RECORDS ON WEB SITES IN THE KNOWLEDGE THEY GO TO NATIONAL CENTRES WHERE THEY ARE AVAILABLE TO A RANGE OF ORGANISATIONS.” — <i>RECORDER</i></p> <p>“BIRDTRACK IS A USABLE SYSTEM THAT ENABLES VERIFICATION OF RECORDS. BIRDTRACK HAS ENABLED THE VOLUME OF RECORDS I COLLECT AND LOOK AFTER A MUCH EASIER JOB AS IT HAS BUILT-IN TOOLS THAT HELP VERIFICATION + EASY DATA ENTRY FOR DATA RECORDERS. IRECORD HAS MADE WILDLIFE RECORDING FROM YOUR PHONE AN EASY TASK AND THIS MEANS MORE RECORDS AVAILABLE TO HARVEST.” — <i>VERIFIER</i></p> <p><u>Overview of what is working well:</u></p> <p>Online recording was mentioned by respondents for all roles except those of Data Developer, Service Provider, Service User and Funder. It seemed to be most valued by Recorders who appreciate the ease of data entry via websites and apps, especially where the effort of data management is much reduced and reporting and feedback (to the original recorder and to national schemes) are much enhanced, e.g. by enabling the user to extract their own records and by facilitating onward submission to national schemes. Verifiers mentioned the greater ease of locating, harvesting and managing records for verification particularly where sufficient information (recorder contact details and having grid reference and location names plus good photographic evidence) accompanied the record. Online recording tools that provide information on species identification and distribution were also frequently mentioned positively.</p>	<p><b>ONLINE RECORDING</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Clunkiness of user interfaces, proliferation of unaffiliated apps and websites, lack of clarity over data flows and lack of repatriation, difficulty in harvesting all records, lack of clear contact details that are inter-operable across platforms, lack of ability to import multi-scheme and multi-taxa batches of records, broadband/server performance issues, offline access, underfunding of software development for biological recording...</i></p> <p><u>Example quotes:</u></p> <p>“LACK OF ISSUE- FREE ONLINE RECORDING SOFTWARE” — <i>RECORDER</i></p> <p>“...IN MY VILLAGE, WE HAVE A VILLAGE PAGE LINKED TO IRECORD; WE ARE IN THE NATIONAL PARK WHICH HAS A PAGE LINKED TO IRECORD; WE ARE IN THE HIGHLAND BIOLOGICAL RECORDING GROUP AREA AND THEY HAVE THEIR OWN COLLECTION; I HAVE AN APP THAT LINKS TO THE MAMMAL SOCIETY...” — <i>RECORDER</i></p> <p>“GROWTH IN THE NUMBER OF ONLINE RECORDING/OBSERVATION WEBSITES AND APPS NOT AFFILIATED TO A RECORDING SCHEME AND VERIFICATION/VALIDATION OF DATA AND REPATRIATION OF LOCAL DATA” — <i>RECORDER</i></p> <p>“THE POTENTIAL OF THE INTERNET AND ONLINE RESOURCES IS ONLY AT A FRACTION OF ITS POTENTIAL. RECORDING APPS ARE IMPROVING BUT COVER LIMITED TAXA. HABITAT - RELATED CROSS-TAXA RECORDING APPS + RESOURCES ARE VIRTUALLY NON-EXISTENT. AN NVC IDENTIFICATION APP WOULD BE GREAT TO GUIDE RECORDING.” — <i>RECORDER</i></p> <p><u>Overview of what is working less well:</u></p> <p>Online recording was mentioned as not working well by seven roles but mostly by Recorders, Verifiers and Recording Scheme Operators. The main issues related to the proliferation of online tools confusing already unclear data flows, and the difficulty of repatriating or harvesting records. Some respondents mentioned the clunkiness of user interfaces and performance issues over slow connections. There seems as yet to be no tool that aids Recorders with multi-taxa record submission to all schemes through a single upload.</p>
<p><b>OPPORTUNITIES TO PARTICIPATE</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Citizen science, SpringWatch, Big Garden BirdWatch, recording group activities, recorder events, mentoring and support, national recording schemes and local branches, training courses, field trips, publicity materials, social media, entry level surveys, LERC activities, OPAL, iSpot, outreach in schools, improved promotion via the internet, accessible identification books, BRISC bursaries, engaging online tools such as iRecord, BirdTrack, DragonFinder and iSpot...</i></p> <p><u>Example quotes:</u></p> <p>“OPAL CITIZEN SCIENCE IS VERY USEFUL WHEN WORKING WITH GROUPS OF SCHOOL CHILDREN. PERSONALLY I FIND IRECORD VERY USEFUL FOR RECORDING AD HOC RECORDS. THE HOVERFLY RECORDING SCHEME HAS AN EXCELLENT PRESENCE ON FACEBOOK + MAKES LEARNING IDENTIFICATION + RECORDING REALLY FRIENDLY + STRAIGHTFORWARD. THERE ARE SOME EXCELLENT ID BOOKS FOR HOVERFLIES + BEES NOW WHICH HAVE MADE THESE GROUPS MUCH MORE ACCESSIBLE TO THE BEGINNER.” — <i>RECORDER</i></p> <p>“BIG 'WEEKEND' OR 'WEEK' WHERE PEOPLE HAVE A THING TO LOOK FOR &amp; COUNT EG BIG GARDEN BIRDWATCH OR WORM WEEK. THIS IS GREAT BECAUSE IT IS SET UP + PUBLICISED + PEOPLE ARE DOING A GROUP TASK. SPRINGWATCH IS ALSO GOOD.” — <i>RECORDER</i></p> <p>“I AM FORTUNATE TO “WORK” IN AN AREA WITH AN EXCELLENT LOCAL RECORDS CENTRE - NESBREC. NESBREC HAS A VERY ENGAGING ANNUAL RECORDERS FORUM, RUNS REGULAR ID TRAINING SESSIONS, RUNS LOCAL PROJECTS (E.G. THEIR RECENTLY PUBLISHED MAMMAL ATLAS). THEY MAKE SURE THERE IS SOMETHING WITHIN THEIR RANGE OF OFFERINGS TO APPEAL TO ALL LEVELS + DEGREE OF INTEREST, KNOWLEDGE + EXPERTISE. ALSO THEY DO THINGS IN A WAY TO ENGAGE PEOPLE WHO WOULD NORMALLY CONSIDER WILDLIFE RECORDING E.G. THEIR “WHAT THE CAT BROUGHT IN” PROMOTION AS PART OF THE MAMMAL ATLAS. THEY ARE ALSO NOT TOO PRECIOUS ABOUT THEIR STATUS + ARE GREAT AT WORKING IN COLLABORATION WITH THE LOCAL BIODIVERSITY PARTNERSHIP, OPAL CITIZEN SCIENCE PROJECTS ETC. THEY HAVE A GREAT WEBSITE, DATA LOGGING IS EASY + ACCESS TO RECORDS ONLINE IS ALSO EASY. IT IS JUST SO MUCH FUN WORKING WITH THEM + IT’S FOR A GOOD CAUSE. LONG MAY THEY CONTINUE.” — <i>RECORDER</i></p> <p><u>Overview of what is working well:</u></p> <p>Opportunities to participate were mentioned by respondents for six roles and in particular by Recording Scheme Operators, Recording Group Operators and Recorders. The range of opportunities across all abilities, interests and locations is much appreciated, and where activities are accessible (by virtue of being open to all, free or local) it is especially valued. The positive role of social media was much noted.</p>	<p><b>OPPORTUNITIES TO PARTICIPATE</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Low value of some citizen science, lack of clarity on which organisations or groups are best to join, competition for participants, large number of inexperienced recorders relying on a small pool of experienced people for support, poor promotion of opportunities, lack of feedback on the value and impact of having participated, lack of regular volunteers or people who go on to become Recorders...</i></p> <p><u>Example quotes:</u></p> <p>“WHILE IT IS QUITE EASY TO GET PEOPLE INTERESTED IN WATCHING AND PHOTOGRAPHING WILDLIFE, IT IS A BIT LESS EASY TO GET THEM INTERESTED IN RECORDING, AND A LOT LESS EASY TO GET THEM INTERESTED IN SPECIMENS AND MICROSCOPES!” — <i>COLLECTION CURATOR</i></p> <p>“DIFFICULT TO RECRUIT NEW RECORDERS + A STRUGGLE TO MAKE VISITING RECORDERS/ACADEMIC/ SURVEYORS AWARE OF OUR EXISTENCE” — <i>RECORDING GROUP OPERATOR</i></p> <p>“SOMETIMES THERE ARE SEVERAL DIFFERENT ORGANISATIONS OR GROUPS THAT COVER THE SAME OR SIMILAR SUBJECTS, AND IT BECOMES DIFFICULT TO KNOW WHICH TO JOIN OR ASSIST WITH. THERE IS USUALLY NO OBVIOUS STATEMENT OF HOW THE DIFFERENT BODIES COLLABORATE OR SHARE DATA.” — <i>RECORDER</i></p> <p>“THE HIGH DEGREE OF INTEREST + THE FUNDED PROJECTS THAT HAVE FOCUSED ON ENCOURAGING NEW RECORDERS ARE WELCOME BUT HAVE RESULTED IN LARGE NUMBERS OF RELATIVELY INEXPERIENCED RECORDERS WANTING TO GET INVOLVED, OFTEN RELYING ON A SMALL POOL OF MORE EXPERIENCED PEOPLE TO PROVIDE OR CHECK IDENTIFICATIONS, VERIFY RECORDS, + PROVIDE MENTORING + TUITION. THIS IS REWARDING BUT IT IS NOT ALWAYS POSSIBLE TO KEEP UP WITH DEMAND.” — <i>VERIFIER</i></p> <p>“GETTING MORE PEOPLE TO RECORD WHAT THEY SEE IS GREAT, BUT THERE COMES A POINT WHEN THE DATA IS OF LITTLE OR NO USE; IT TAKES A LONG TIME TO SIFT THROUGH THE CHAFF TO FIND THE WHEAT. AND THERE IS OFTEN A LOT OF CHAFF.” — <i>VERIFIER</i></p> <p><u>Overview of what is working less well:</u></p> <p>Opportunities to participate were mentioned as working less well by six roles, mostly Recording Group Operators, Verifiers and Recorders. Respondents noted the issue of low value activities increasing the demand for expert support and verification, and it being challenging to bring on participants to make a higher value contribution. A lack of publicity and feedback on the value of participating may make it harder to know which groups or projects (or participants!) are worthwhile.</p>



WORKING WELL	WORKING LESS WELL
<p style="text-align: center;"><b>OWN RECORDING</b></p> <p style="text-align: center;"><u>Range of topics mentioned:</u></p> <p><i>Can manage own time, easy access to sites, gives purpose to outdoor activities, local, not too time consuming, improving skills, own reference material to hand, own data management, self-sufficiency, no pressure, useful tools e.g. iRecord, Recorder 6, MapMate, training others, self-motivated, personal interest, ad-hoc recording, simple methods...</i></p> <p style="text-align: center;"><u>Example quotes:</u></p> <p><i>"CASUAL COLLECTION OF AD HOC RECORDS WORKS WELL BECAUSE I CAN MANAGE MY OWN TIME AND ACCESS TO SITES THAT ARE EASY TO DO SO. ALSO I CAN BRING ANOTHER PURPOSE TO MY OUTDOOR ACTIVITIES." – RECORDER</i></p> <p><i>"DATA COLLECTION AND SPECIES RECORDING IN MY LOCAL AREA WHICH IS SHARED WITH MY LOCAL RECORDS CENTRE. I WORK ON MY OWN DURING LOCAL WALKS AND CAR TRAVEL. I ALSO TAKE PART IN SPECIFIC RECORDING PROJECTS SET UP NATIONALLY OR THROUGH MY LOCAL RECORDS CENTRE. - IT IS EFFECTIVE BECAUSE IT SUITS MY INTERESTS AND LIFESTYLE AND IS GENERALLY NOT TOO TIME CONSUMING." – RECORDER</i></p> <p><i>"I AM PRINCIPALLY CURATING MATERIAL FOR MY OWN PRIVATE REFERENCE COLLECTION. THE MORE IDENTIFIED MATERIAL I ADD TO IT, THE BETTER I GET AT IDENTIFICATION. THIS HELPS ME WITH REFEREE SPECIMENS FOR THE LOCAL RECORDING SCHEME AND ALSO HELPS WITH MY JOB IN CONSERVATION SCIENCE." – COLLECTION CURATOR</i></p> <p style="text-align: center;"><u>Overview of what is working well:</u></p> <p>Activities relating to respondents own recording or collection management were mentioned as working well by six roles and in particular by Recorders, Collection Curators, Recording Group Operators, Recording scheme Operators. Being self-sufficient and self-motivated and focusing on personal interest areas were frequently mentioned, and the value of having reference material such as voucher specimens to hand was also noted. Recording and collecting locally, giving outdoor activities purpose and interest, and not feeling pressured were also mentioned as factors in what is working well.</p>	<p style="text-align: center;"><b>OWN RECORDING</b></p> <p style="text-align: center;"><u>Range of topics mentioned:</u></p> <p><i>Expense of acquiring equipment, old age, lack of feedback having submitted records, lack of computer literacy, maintaining personal specimen collections, access problems arising from muir burning and unregulated fencing...</i></p> <p style="text-align: center;"><u>Example quotes:</u></p> <p><i>"IT'S FRUSTRATING TO SUBMIT RECORDS AND NOT THEN SEE DOTS APPEAR ON MAPS. NOT EVERYONE IS PICKING UP RECORDS FROM IRECORD, AND I DON'T HAVE TIME TO SUBMIT MY RECORDS IN A NUMBER OF FORMATS TO A NUMBER OF PEOPLE ACROSS TAXONOMIC GROUPS AND GEOGRAPHIC AREAS." – RECORDER</i></p> <p><i>"FOR ME AS A PRIVATE INDIVIDUAL THE PROBLEM IS HOUSING THE MATERIAL SAFELY. I WAS A PROFESSIONAL CURATOR FOR OVER TWENTY YEARS AND KNOW THE STANDARDS. IT IS DIFFICULT FOR AN INDIVIDUAL TO MEET THESE... HAVING MY OWN REFERENCE MATERIAL AND EQUIPMENT MEANS A QUICKER AND MORE CONVENIENT RESOLUTION OF QUERIES BUT INVOLVES MUCH EXPENSE AND SPACE." – COLLECTION CURATOR</i></p> <p><i>"MY TIME TO PROCESS THE RECORDS AND MY LACK OF COMPUTER SKILLS" – RECORDER</i></p> <p><i>"I AM ALSO INCREASINGLY CONCERNED ABOUT SPORTING ESTATE MUIR BURNING METHODS AND UNREGULATED FENCING WHICH MAKES WALKING AND SPECIES RECORDING DIFFICULT." – RECORDER</i></p> <p><i>"IT CAN BE AN EXPENSIVE HOBBY AND ALTHOUGH MOTH TRAPS AND GENERATORS ARE AVAILABLE TO BORROW FROM BUTTERFLY CONSERVATION, IT WOULD BE GOOD TO BE ABLE TO ACCESS "CITIZEN SCIENCE" FUNDING FOR PERSONAL PURCHASES." – RECORDER</i></p> <p><i>"MY INCREASINGLY POOR MANUAL DEXTERITY [IN OLD AGE] MAKES MICROSCOPY AND FINE MANIPULATION OF SPECIMENS INCREASINGLY DIFFICULT. GENITALIA DISSECTION AND OTHER DELICATE PROCEDURES ARE NOW BEYOND ME."</i></p> <p style="text-align: center;"><u>Overview of what is working less well:</u></p> <p>Issues relating to respondents own recording or collection curation were raised by a number of Recorders. The main issues relate to problems with expense of equipment, time and space to operate, lack of feedback having submitted records, old age, site access issues (on sporting estates) and the lack of clarity over data flows.</p>
<p style="text-align: center;"><b>RECORDER SUPPORT</b></p> <p style="text-align: center;"><u>Range of topics mentioned:</u></p> <p><i>Being part of a community, having help with species identification, inclusivity, open to all, access to experts, recorder networking events, forums, Facebook groups, data management support, local LERC 'hub', BRISC bursaries supporting taxonomic study, local branches of national recording schemes, national scheme support to County Recorders, targeting data collection of under-recorded sites or taxa, training and mentoring, opportunities to participate...</i></p> <p style="text-align: center;"><u>Example quotes:</u></p> <p><i>"BEING PART OF AN ONLINE COMMUNITY TO SHARE RECORDS + ASSIST WITH ID QUERIES; THE ONLINE COMMUNITY (PARTICULARLY FOR MOTHS) IS SO INCLUSIVE + OPEN + INCLUDES ALL LEVELS OF EXPERIENCE FROM BEGINNERS TO EXPERTS." – RECORDER</i></p> <p><i>"I COLLECT AD HOC RECORDS FOR NESBREC. THAT ORGANISATION AND ITS LINKS TO OTHER LOCAL GROUPS PROVIDES A NETWORK OF MORE EXPERT PEOPLE TO ENSURE RECORDS ARE AS ACCURATE AS POSSIBLE TO SPECIES IDENTIFICATION. THIS IS VERY SUPPORTIVE OF THE INDIVIDUAL RECORDER." – RECORDER</i></p> <p><i>"THE BRITISH DRAGONFLY SOCIETY IS A GREAT PLACE TO SEND RECORDS TO AND THE FEEDBACK FROM THE COUNTRY RECORDER IS EXCELLENT IF YOU HAVE ANY QUESTIONS. THE VOLUNTEER EVENTS THAT IT RUNS ARE ALSO A GREAT WAY OF MEETING LIKE-MINDED PEOPLE AND THE APPOINTMENT OF A SCOTLAND OFFICER HAS HELPED INCREASE ITS PROFILE AND REACH TO THOSE INTERESTED IN DRAGONFLIES. OCCASIONAL ID TRAINING COURSES ARE RUN AS WELL, WHICH ARE VERY POPULAR." – RECORDER</i></p> <p><i>"THERE ARE SOME EXCELLENT TRAINING RESOURCES AVAILABLE TO RECORDERS (MATERIALS, COURSES, INITIATIVES) + SUPPORT FROM RECORDING GROUPS. THE USE OF SOCIAL MEDIA BRINGS INTERESTED INDIVIDUALS TOGETHER TO FORM RECORDING COMMUNITIES. IRECORD WEBSITE/APP MAKES RECORDING IN THE FIELD QUICK + EASY. IT ALSO BENEFITS THE RECORDER THROUGH REPORTS + TOOL + CAN SIMPLIFY DATA SUPPLY TO VERIFIERS." – RECORDER</i></p> <p style="text-align: center;"><u>Overview of what is working well:</u></p> <p>Recorder support was mentioned as working well by seven roles and in particular by Recorders, Verifiers and Recording Group Operators. The support provided by national recording schemes, recording groups and LERCs is highly valued by Recorders and Verifiers. From focusing recorder activities to helping species identification and provision of training and mentoring, the support facilitates an inclusive, active and expert recording community overall.</p>	<p style="text-align: center;"><b>RECORDER SUPPORT</b></p> <p style="text-align: center;"><u>Range of topics mentioned:</u></p> <p><i>Cooperation...</i></p> <p style="text-align: center;"><u>Example quotes:</u></p> <p><i>"CO-OPERATION AT AN ORGANISATIONAL LEVEL BETWEEN THE VOLUNTARY RECORDING COMMUNITY AND CONSERVATION BODIES IS NOT ALWAYS AS EFFECTIVE POSITIVE AS IT SHOULD BE. THERE IS MORE RIVALRY AND LESS MUTUAL UNDERSTANDING THAN THERE SHOULD BE. I'D LIKE TO SEE VOLUNTARY RECORDING SERVING THE NEEDS OF CONSERVATION BETTER AND CONSERVATION BODIES BEING MORE DIRECTLY SUPPORTIVE OF RECORDING GENERALLY." – RECORDER</i></p> <p style="text-align: center;"><u>Overview of what is working less well:</u></p> <p>Recorder support was only mentioned as working less well by one respondent, quoted above, who was concerned that positive cooperation is not always in evidence.</p>



WORKING WELL	WORKING LESS WELL
<p style="text-align: center;"><b>RECORDING GROUPS</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Focused recording, networking events, promotion of survey opportunities, recording group website and social media, working as a team, motivated volunteers, training courses, grant funding, access to field equipment, recorder support, social events, mentoring, good relationships with data providers and LERCs, field trips, community of interest, screening of planning proposals, enthusing others, local atlases...</i></p> <p><u>Example quotes:</u></p> <p>“BY WORKING WITHIN SEPARATE GROUPS WE ARE ABLE TO FOCUS ON SPECIFIC SPECIES, I.E. AMPHIBIANS, SWIFTS, BARN OWLS, SMALL BLUE BUTTERFLY ETC. RUNNING A RECORDERS' DAY EVERY YEAR HIGHLIGHTS WHAT OTHER NGOS ARE SURVEYING IN THE AREA AND WE CAN HELP PUBLISCE THESE OR RUN JOINT EVENTS TO HIGHLIGHT THEM” – <i>RECORDING GROUP OPERATOR</i></p> <p>“THE LOCAL INTEREST, IDENTIFICATION + RECORDING GROUPS I AM INVOLVED WITH HAVE VERY COMMITTED MEMBERS WITH A HIGH LEVEL OF KNOWLEDGE WHO ARE VERY ENCOURAGING TO THOSE NEWER TO ID + RECORDING, LIKE MYSELF.” – <i>RECORDER</i></p> <p>“IMPROVED IT SUCH AS SMARTPHONE APPS. LOCAL GROUPS RUNNING TRAINING DAYS AND FIELD TRIPS. STRONG LEADERSHIP IN LOCAL GROUPS PROVIDING SUPPORT AND ORGANISATION.” – <i>RECORDER</i></p> <p>“WE ARE A SMALL GROUP SO WE CAN MANAGE OUR ACTIVITIES EFFECTIVELY, BUT THIS LARGELY DEPENDS ON WORKING AS A TEAM.” – <i>RECORDING GROUP OPERATOR</i></p> <p><u>Overview of what is working well:</u></p> <p>Recording groups were mentioned as working well by five roles but in particular by Recording Group Operators. The organisation and activities of recording groups are highly valued, providing a significant level of support to local Recorders and working well with Data Providers and Service Providers such as LERCs and the NBN. Being part of a recording group gives recorders access to experts, opportunities to participate, networking and social events, field trips and training. Recording group websites and social media pages are much used and appreciated.</p>	<p style="text-align: center;"><b>RECORDING GROUPS</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Lack of commitment and willingness to participate, lack of local groups, having time to maintain interest and levels of activity, lack of funding for record keeping and record collating, recruiting people to take on group roles, lack of clarity on data flows, lack of funding/paid staff to carry out operational activities, lack of national recognition for existing successful local cooperation and partnerships...</i></p> <p><u>Example quotes:</u></p> <p>“RECRUITING NEW PEOPLE TO TAKE ON ROLES WITHIN THE RECORDING GROUPS IS ALWAYS DIFFICULT.” – <i>RECORDING GROUP OPERATOR</i></p> <p>“DATA FLOW CAN BE CONFUSING. LOCALLY MANY RECORDING GROUPS ARE NOW USING IRECORD TO CAPTURE DATA AND SHARE IT WITH THE LOCAL ENVIRONMENTAL RECORD CENTRE. HOWEVER IT'S NOT ALWAYS EASY TO FIND OUT IF IRECORD DATA IS BEING PICKED UP AND USED BY NATIONAL SCHEMES AND SOCIETIES, OR IF YOU SHOULD SUBMIT THE RECORDS VIA ANOTHER ROUTE. MORE TRANSPARENCY AROUND DATA FLOWS AND VERIFICATION WOULD BE HELPFUL.” – <i>RECORDER</i></p> <p>“LACK OF NATIONAL RECOGNITION FOR THE SUCCESSFUL LOCAL DYNAMICS OF DATA FLOW, COOPERATION AND JOINT EFFORTS BETWEEN RECORDERS, GROUPS, LERC AND PARTNERS” – <i>RECORDING GROUP OPERATOR</i></p> <p>“LACK OF FUNDING FOR RECORD KEEPING / COLLATING FOR RECORDING GROUP.” – <i>RECORDING GROUP OPERATOR</i></p> <p><u>Overview of what is working less well:</u></p> <p>Recording groups were not much mentioned as working less well, but where they were it was primarily by Recording Group Operators. The main issues related to the difficulty of having sufficient time to sustain group activities and to collate the group's records, and it being difficult to recruit people with the level of time and commitment needed to take on formal roles for the group. It was also felt that national organisations did not realise that local cooperation and partnerships involving local groups already work well. One Recorder mentioned the lack of transparency around data flows given that it is not easy to know whether a group's data reached national schemes and verifiers.</p>
<p style="text-align: center;"><b>STANDARD METHODS</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Standard recording forms and spreadsheets, standard data capture methods, simple and repeatable methods, protocols to ensure verifiers work to the same standards, standards for biological specimen preservation, museum standards for collection curation, LERC accreditation, training standards, well-written data collection guidance, methods statements and metadata...</i></p> <p><u>Example quotes:</u></p> <p>“STANDARD METHODS OF DATA CAPTURE AND TRAINING TO ENSURE HIGH-QUALITY DATA AND CONFIDENCE IN MONITORING SEABIRD POPULATIONS” – <i>RECORDER</i></p> <p>“THE SOCIETY FOR WHICH I VERIFY RECORDS HAS PUT A LOT OF EFFORT INTO AGREEING PROTOCOLS TO ENSURE THAT ALL VERIFIERS ARE WORKING TO THE SAME STANDARD. (THIS WAS LARGELY DONE BY VOLUNTEERS.)” – <i>VERIFIER</i></p> <p>“USEFUL TO BE ABLE TO SEE RECORDS FROM IN AND AROUND PARTICULAR SITES, I DON'T ALWAYS NEED TO DOWNLOAD OR USE THE DATA, IT'S PRIMARILY FOR PRE-SITE VISIT INFO CHECKS. UNDERSTANDING COLLECTION METHODS HELPS WITH DESIGNING MY OWN SURVEYS, AND IF THERE ARE ANY POTENTIAL BIAS IN THE RECORDS SUPPLIED.” – <i>DATA USER</i></p> <p>“DEVELOPING LIAISON WITH, AND TRAINING FOR, UNIVERSITIES TO INSTIL IN STUDENTS (UNDER AND POST GRAD) THAT IF UNDERTAKING STUDIES WHICH INVOLVE COLLECTING SPECIMENS THAT THIS SHOULD BE DONE TO MUSEUM STANDARDS SO THAT THE MATERIAL CAN BE DEPOSITED IN A MUSEUM AND NOT DISCARDED AFTERWARDS.” – <i>COLLECTION CURATOR</i></p> <p><u>Overview of what is working well:</u></p> <p>Standard methods were mentioned by five roles but in particular by Collection Curators for whom standard methods are especially crucial and effective. The simplicity of methods was of value for citizen science participants. ALERC accreditation is working well for LERCs, particularly for developing standard services for a regional area.</p>	<p style="text-align: center;"><b>STANDARD METHODS</b></p> <p><u>Range of topics mentioned:</u></p> <p><i>Variation in methods in use for a taxon group, conflicting requirements due to differing needs and purposes, lack of collections care awareness, lack of a single common submission format for ease of verification, lack of consistency in the UKOTs, lack of access to professional facilities for home/local use...</i></p> <p><u>Example quotes:</u></p> <p>“QUALITY OF CETACEAN METHODS VARY AND STANDARDISATION IS A GREATER ISSUE DUE TO WIDE RANGE OF STAKEHOLDERS THAT COLLECT THESE DATA FOR DIFFERENT PURPOSES...” – <i>RECORDER</i></p> <p>“COLLECTION FOR NATIONAL DATASETS CAN BE PROBLEMATIC AS EVEN THOUGH YOU COLLECT THE DATA IN THE CORRECT WAY COMPETING PROJECTS WANT YOU TO CHANGE YOUR WAYS OF RECORDING TO FIT WITH THEIR PARTICULAR AIMS” – <i>RECORDER</i></p> <p>“ACROSS THE UKOTS, THERE IS NO CONSISTENCY IN ANY MONITORING PROGRAMS, DATA COLLECTION OR CURATION APPROACH” – <i>RECORDER</i></p> <p>“THE IDEAL WOULD BE FOR COLLECTIONS AND RECORD CENTRES TO BE CLOSE BY EACH OTHER (AS THEY ONCE WERE IN THE NATURAL SCIENCES SECTIONS OF LOCAL AUTHORITY MUSEUMS, EVEN IF NOT ALWAYS WELL SUPPORTED) AND FOR CURATORIAL STANDARDS TO BE PART OF THE TRAINING OF RECORD CENTRE STAFF. THE COLLECTIONS THEMSELVES SHOULD BE COVERED BY FIRM COLLECTIONS CARE STANDARDS AND APPROPRIATE DISPOSAL POLICIES IN THE CASE OF A CENTRE FOLDING” – <i>COLLECTION CURATOR</i></p> <p>“A STANDARD FORMAT FOR SUBMISSION TO [COUNTY] RECORDERS THAT IS USED BY ALL TO SUBMIT RECORDS WOULD MAKE VERIFYING MORE EFFICIENT” – <i>VERIFIER</i></p> <p>“LACK OF A COMMON STANDARD IN THE FORMATTING + COMPONENTS OF RECORDS, THE SAME (OR SLIGHTLY ALTERED) RECORDS ARRIVING FROM MORE THAN ONE SOURCE, THUS INCREASING THE RISK OF DUPLICATION IN OUR DATABASE” – <i>SERVICE PROVIDER</i></p> <p><u>Overview of what is working less well:</u></p> <p>Standard methods were mentioned as not working well by a small number of respondents, mostly Recorders but also Collection Curators, Data Users and Service Providers. Issues mostly related to the lack of consistency in the methods used, the lack of a common submission format for recorders that could ease the effort involved in verification, and a lack of awareness of the standards needed in curating voucher material. Differing purposes for data collection means that standard methods can impose unnecessary restrictions or requirements that can be difficult for Recorders to comply with. Growing popularity of photography can make it appear that specimens are no longer needed, but they remain essential for some identifications.</p>

WORKING WELL	WORKING LESS WELL
<p style="text-align: center;"><b>TRAINING</b></p> <p style="text-align: center;"><u>Range of topics mentioned:</u></p> <p><i>Species identification courses, mentoring by experts, self-study, BTO training, local training via LERCs and local recording groups, free or low cost courses, education in the value and techniques of collecting physical specimens to museum standards, liaison with universities and schools, training in how to submit data and in use of the NBN Gateway, more opportunities in Scotland and for less well-known taxa, BRISC bursaries, TCV apprenticeships, accreditation...</i></p> <p style="text-align: center;"><u>Example quotes:</u></p> <p>"LOTS OF VERY GOOD TRAINING COURSES AND MATERIALS NOW AVAILABLE. HAS DEFINITELY INCREASED OVER LAST 10 YEARS MAKING MANY MORE TAXONOMIC GROUPS ACCESSIBLE." – <i>RECORDER</i></p> <p>"THE BRISC/GNHS SMALL BURSARY SCHEME TO SUPPORT TAXONOMIC STUDY - SMALL BURSARY (MAX £200) CAN REALLY MAKE A DIFFERENCE TO AN INDIVIDUAL'S ABILITY TO ACCESS PROFESSIONAL (EG FIELD STUDIES COUNCIL) COURSES." – <i>FACILITATOR</i></p> <p>"WE HAVE RUN/ARE RUNNING A NUMBER OF PROJECTS TO TRAIN/SUPPORT RECORDERS IN BOTH SPECIES ID AND SUBMITTING RECORDS. THESE HAVE BEEN VERY SUCCESSFUL. FUNDING TO SUPPORT OUR RECORDERS FORM HLF AND LIFE (AMONGST OTHERS) HAS BEEN KEY IN THIS." – <i>DATA PROVIDER</i></p> <p>"IDENTIFICATION TRAINING DAYS ARE AN INVALUABLE RESOURCE." – <i>DATA PROVIDER</i></p> <p>"MUSEUMS PROVIDE EXCELLENT RESOURCES FOR HOLDING IDENTIFICATION COURSES (THESE ARE OFTEN FREE OF CHARGE). BEING ABLE TO USE THEIR EXPENSIVE MICROSCOPES AND SPECIMENS IS VERY IMPORTANT FOR TEACHING." – <i>RECORDER</i></p> <p style="text-align: center;"><u>Overview of what is working well:</u></p> <p>Training was the only theme to be mentioned as working well by every role, with the giving of, and the receiving of, training both being mentioned positively. Respondents seemed to particularly value local training that was free or low cost to attend. Training courses and mentoring related to species identification received the greatest positive mention, but many respondents mentioned self-study using online resources and through participating in local recording group excursions. Both LERC and local group training were frequently mentioned positively, as was the availability of training in biological recording facilitated by bursaries or apprenticeships.</p>	<p style="text-align: center;"><b>TRAINING</b></p> <p style="text-align: center;"><u>Range of topics mentioned:</u></p> <p><i>Some Recorders and others being technophobes, time and commitment needed for receiving training, limited time availability for delivering training and mentoring, distance and travel time involved, limited professional development opportunities, cost of training, limited (or no) access to professional reference material, unintuitive software and online help, bias towards south of England for training provision, lack of succession planning to replace ageing trainers...</i></p> <p style="text-align: center;"><u>Example quotes:</u></p> <p>"IT CAN BE HARD TO ATTRACT COURSE TUTORS TO RUN EVENTS (PARTICULARLY IF THEY LIVE SOME DISTANCE AWAY). MANY WILL DO THIS FOR FREE, BUT GIVEN THE TIME, EFFORT AND EXPENSES THEY INCUR, IT WOULD BE GOOD TO HELP FUND THESE EVENTS (ALLOWING THEIR EXPERTISE TO BE SPREAD TO NEW RECORDERS)." – <i>RECORDER</i></p> <p>"MANY OF THE GIS COURSES THAT WOULD ALLOW ME TO BETTER PROVIDE ENHANCEMENTS TO DATASETS ARE VERY EXPENSIVE + NOT WITHIN THE REACH OF A SMALL COMPANY LIKE OURS." – <i>DATA DEVELOPER</i></p> <p>"I NEED SOME INDIVIDUAL TRAINING ON THINGS AS SIMPLE AS LOADING PHOTOGRAPHS BUT SUCH SKILLS SEEM TO BE ASSUMED THESE DAYS" – <i>RECORDER</i></p> <p>"ACCESSING LOW COST TRAINING IN SOFTWARE + DATA ANALYSIS. AS A COMMUNITY LED RESEARCH GROUP WE HAVE NO DIRECT ACCESS TO ACADEMIC LIBRARIES." – <i>RECORDER</i></p> <p>"GETTING ACCESS TO TRAINING COURSES AS I AM SO FAR FROM WHERE MOST OF THEM OCCUR. FUNDING ATTENDANCE OF THOSE COURSES." – <i>VERIFIER</i></p> <p>"LACK OF FUNDING FOR SCHEME ORGANISERS TO RUN IDENTIFICATION TRAINING WORKSHOPS. WE WANT THEM TO BE FREE TO ENCOURAGE MORE NEW RECORDERS, BUT COST ARE UNAVOIDABLY INCURRED BY US AS THE ORGANISERS." – <i>RECORDER</i></p> <p>"TRAINING + MENTORING OTHERS IS CRUCIAL TO GET MORE PEOPLE INVOLVED BUT I HAVE ONLY SUCH TIME AND I NEED TO MAKE A LIVING AS A PRIORITY. MORE FUNDING BY GOVT/LOTTERY FOR TRAINING/MENTORING WOULD BE APPRECIATED." – <i>RECORDER</i></p> <p style="text-align: center;"><u>Overview of what is working less well:</u></p> <p>Except for Academia, Cross-Sectoral organisations and members of the general public, training was mentioned as being problematic by all other sectors, and particularly for LERCs, Recorders and Recording Groups plus Recording Group Operators. The cost of training and its availability within a reasonable distance were often mentioned as being an issue, and the lack of funding for covering travel expenses.</p>
<p style="text-align: center;"><b>VERIFICATION</b></p> <p style="text-align: center;"><u>Range of topics mentioned:</u></p> <p><i>Online tools such as iRecord and BirdTrack, access to experts, NBN Record Cleaner, social media, reference materials and websites, species distribution information, help from academics, use of reference specimens, saving of time and effort, contact with Recorders, community of experts, growing awareness among recorders of what is needed to secure a record...</i></p> <p style="text-align: center;"><u>Example quotes:</u></p> <p>"BEING A VERIFIER ON IRECORD IS VERY STRAIGHTFORWARD. IT IS PARTICULARLY USEFUL THAT YOU ARE ABLE TO CONTACT THE RECORDER TO QUERY A RECORD." – <i>VERIFIER</i></p> <p>"BIRDTRACK SAVES ME TIME AND EFFORT BY ACCUMULATING IN A SINGLE ARCHIVE (STILL NEEDS VERIFIED, AND OUT-OF-AREA RECORDS SCREENED OUT)" – <i>VERIFIER</i></p> <p>"WEBSITES AND NEW REFERENCES ARE CONTINUALLY IMPROVING OUR ABILITY TO IDENTIFY AND VERIFY SPECIES. SOCIAL MEDIA IS MAKING COMMUNICATION EASIER BUT IS NOT USED COMPREHENSIVELY AND THERE IS A DEGREE OF AN AGE GAP." – <i>VERIFIER</i></p> <p>"NBN RECORD CLEANER IS USEFUL FOR INITIAL SCREENING OF RECORDS. - SCHEMES AND SOCIETIES ARE VERY WILLING TO HELP WITH VERIFICATION QUERIES." – <i>VERIFIER</i></p> <p>"AVAILABILITY OF DISTRIBUTION INFORMATION AVAILABLE VIA NBN AND OTHER SOURCES E.G. BSBI - AVAILABILITY OF ON-LINE IDENTIFICATION RESOURCES. ABILITY TO CONSULT OTHER EXPERTS VIA ON-LINE GROUPS AND SOCIAL MEDIA . WILLINGNESS OF SOME ACADEMIC INSTITUTIONS TO HELP WITH VERIFICATION FROM SPECIMENS" – <i>VERIFIER</i></p> <p style="text-align: center;"><u>Overview of what is working well:</u></p> <p>Verification was mentioned as working well by four roles but especially by Verifiers. Online verification is working well, with greater ease of managing records and contacting Recorders. There is a growing awareness of the need to submit photographic evidence and the use of reference material such as physical specimens is highly valued, as is the willingness of museums and academic institutions to help. Use of NBN Record Cleaner, iRecord and BirdTrack is working well for Recorders and Verifiers alike.</p>	<p style="text-align: center;"><b>VERIFICATION</b></p> <p style="text-align: center;"><u>Range of topics mentioned:</u></p> <p><i>Discovery of ad hoc records, detection of duplicates, lack of recorder contact details, grid references lacking place names, use of iSpot, lack of integration across all systems, limit to available time for discovering and amalgamating data and problem-solving, broadband being slow for photos, lack of verifiers for all taxa and regions, few verifiers for obscure taxa, postage costs to return specimens, out of date species list and verification rules, handling of taxonomic revisions, backlog of records for verification, reliance on genitalia preparation...</i></p> <p style="text-align: center;"><u>Example quotes:</u></p> <p>"LOW SCIENTIFIC VALUE OF THE RECORDS I AM BEING ASKED TO VERIFY" – <i>VERIFIER</i></p> <p>"AS A VERIFIER I STILL HAVE TO SPEND LOTS OF TIME MANAGING AND COLLATING DATA THAT ARRIVES IN DIFFERENT FORMATS FROM DIFFERENT PLACES, WITH MISMATCHES IN SPECIES NAMES BEING ESPECIALLY PROBLEMATIC." – <i>VERIFIER</i></p> <p>"RECORDS CAN BE UNLOADED WITH RECORDER ALIASES THAT ARE EFFECTIVELY ANONYMOUS SO THE RECORDER CANNOT BE CONTACTED FOR VERIFICATION PURPOSES. MANY GOOD COUNTY RECORDS ARE IGNORED OR LOST AS A RESULT." – <i>VERIFIER</i></p> <p>"THE ABILITY TO EASILY TO IDENTIFY AND RECOVER RECORDS FROM OTHER SCHEMES - IS A PROBLEM. NOBODY WITHHOLDS RECORDS BUT YOU CAN SPEND AN AWFUL LOT OF TIME GETTING TO SUCH RECORDS AND ASSESSING THEM." – <i>VERIFIER</i></p> <p>"GETTING DIFFICULT SPECIMENS IDENTIFIED BY REFEREES: THE POST OFFICE IS NOT ALWAYS WILLING TO SEND SPECIMENS IN THE POST AND HAS A BAD RECORD FOR DAMAGING THEM. COURIERS OR LARGER, SAFER PACKAGING ARE EXPENSIVE." – <i>VERIFIER</i></p> <p>"IT IS DIFFICULT TO GET ACROSS TO YOUNGER PEOPLE THE NEED FOR ACCURATE VERIFICATION/IDENTIFICATION AND THE LIMITATIONS OF PHOTOGRAPHY." – <i>VERIFIER</i></p> <p>"MY [AGE-RELATED] INCREASINGLY POOR MANUAL DEXTERITY MAKES MICROSCOPY AND FINE MANIPULATION OF SPECIMENS INCREASINGLY DIFFICULT." – <i>VERIFIER</i></p> <p style="text-align: center;"><u>Overview of what is working less well:</u></p> <p>45.2% of all mentions by Verifiers of what is working less well for them related to verification itself. Multiplicity of systems and formats, lack of adequate evidence or contact details, lack of verifiers for obscure taxa, out of date species lists/verification rules, plus the time commitment involved were all mentioned as being problematic.</p>

**Figure 96:** The number and percentage of mentions of what is ‘working well’ by broad theme and sector

WORKING WELL	Academia and education	Commercial companies and consultancies	Cross-sectoral partnership or secretariat organisations	Environmental/conservation NGOs	Local authorities and national park authorities	Local Environmental Records Centres	Museums, zoos and botanic gardens	National or central government	National Recording Schemes	None of these - I'm a member of the general public	Recorders or Recording Groups	ALL	n
ACCESS TO RESOURCES	20.0%	6.9%	18.2%	10.7%	12.3%	10.2%	29.4%	13.0%	8.0%	15.6%	8.2%	11.1%	89
TRAINING	20.0%	10.3%	0.0%	7.9%	9.2%	5.5%	11.8%	8.7%	13.3%	9.4%	10.8%	9.3%	75
LERC SERVICES	0.0%	17.2%	27.3%	1.1%	20.0%	22.8%	0.0%	6.5%	2.7%	12.5%	7.0%	9.1%	73
ONLINE RECORDING	0.0%	3.4%	9.1%	10.7%	3.1%	9.4%	2.9%	6.5%	6.2%	15.6%	5.7%	7.5%	60
NATIONAL SCHEMES	10.0%	24.1%	0.0%	9.0%	3.1%	0.8%	2.9%	2.2%	13.3%	3.1%	7.0%	7.0%	56
ACCESS TO EXPERTS	0.0%	0.0%	0.0%	5.1%	4.6%	4.7%	5.9%	4.3%	6.2%	9.4%	10.1%	6.0%	48
RECORDER SUPPORT	0.0%	6.9%	0.0%	6.7%	3.1%	5.5%	0.0%	4.3%	8.8%	6.3%	7.0%	6.0%	48
ACCESS TO DATA	0.0%	6.9%	0.0%	9.6%	20.0%	4.7%	2.9%	8.7%	1.8%	0.0%	1.3%	5.9%	47
LOCAL NETWORKS	0.0%	3.4%	9.1%	2.8%	3.1%	7.1%	5.9%	4.3%	7.1%	3.1%	8.2%	5.5%	44
OPPORTUNITIES TO PARTICIPATE	0.0%	0.0%	9.1%	6.2%	4.6%	4.7%	8.8%	2.2%	8.8%	6.3%	4.4%	5.5%	44
NBN SERVICES	0.0%	20.7%	9.1%	4.5%	3.1%	5.5%	0.0%	8.7%	0.0%	3.1%	5.1%	4.6%	37
OWN RECORDING	10.0%	0.0%	0.0%	3.9%	3.1%	3.1%	0.0%	4.3%	7.1%	6.3%	5.1%	4.2%	34
DATA SUBMISSION	10.0%	0.0%	0.0%	5.6%	1.5%	2.4%	5.9%	4.3%	2.7%	3.1%	3.2%	3.5%	28
INDIVIDUAL DEDICATION	10.0%	0.0%	0.0%	3.9%	4.6%	2.4%	2.9%	2.2%	2.7%	6.3%	3.2%	3.2%	26
RECORDING GROUPS	0.0%	0.0%	9.1%	2.8%	1.5%	0.8%	2.9%	2.2%	0.0%	0.0%	7.6%	2.7%	22
DATA MANAGEMENT	0.0%	0.0%	0.0%	2.8%	1.5%	3.9%	5.9%	2.2%	3.5%	0.0%	1.9%	2.6%	21
VERIFICATION	0.0%	0.0%	0.0%	2.2%	1.5%	1.6%	8.8%	4.3%	4.4%	0.0%	2.5%	2.6%	21
STANDARD METHODS	10.0%	0.0%	0.0%	3.4%	0.0%	0.0%	2.9%	8.7%	0.9%	0.0%	0.6%	1.7%	14
DATA PROVISION	0.0%	0.0%	0.0%	0.6%	0.0%	1.6%	0.0%	2.2%	2.7%	0.0%	0.0%	0.9%	7
FACILITATION	0.0%	0.0%	9.1%	0.0%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	3
NOT WORKING WELL	10.0%	0.0%	0.0%	0.6%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	1.3%	0.7%	6
ALL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Number of Mentions	10	29	11	178	65	127	34	46	113	32	158	803	803
Number of Respondents	6	14	4	62	26	19	9	11	30	15	41	237	

**Figure 97:** The number and percentage of mentions of what is ‘working well’ by broad theme and role

WORKING WELL													ALL	n
	Recorders	Verifiers	Collection Curators	Group Operators	Scheme Operators	Data Providers	Data Developers	Data Users	Service Providers	Service Users	Funders	Facilitators		
ACCESS TO RESOURCES	9.5%	10.8%	6.7%	9.4%	0.0%	6.8%	29.4%	13.6%	16.7%	17.2%	37.5%	16.7%	11.1%	89
TRAINING	10.2%	7.5%	26.7%	6.3%	8.3%	9.1%	17.6%	3.4%	6.7%	13.8%	12.5%	8.3%	9.3%	75
LERC SERVICES	6.9%	4.3%	0.0%	0.0%	0.0%	11.4%	11.8%	12.5%	33.3%	34.5%	12.5%	8.3%	9.1%	73
ONLINE RECORDING	10.6%	5.4%	6.7%	6.3%	8.3%	6.8%	0.0%	2.3%	0.0%	0.0%	0.0%	8.3%	7.5%	60
NATIONAL SCHEMES	8.0%	10.8%	6.7%	12.5%	16.7%	2.3%	5.9%	3.4%	0.0%	0.0%	0.0%	0.0%	7.0%	56
ACCESS TO EXPERTS	7.8%	12.9%	0.0%	0.0%	0.0%	2.3%	0.0%	1.1%	3.3%	0.0%	0.0%	0.0%	6.0%	48
RECORDER SUPPORT	8.3%	7.5%	0.0%	6.3%	0.0%	2.3%	0.0%	1.1%	3.3%	0.0%	0.0%	8.3%	6.0%	48
ACCESS TO DATA	0.2%	0.0%	0.0%	3.1%	0.0%	4.5%	11.8%	39.8%	6.7%	13.8%	0.0%	0.0%	5.9%	47
LOCAL NETWORKS	4.7%	14.0%	6.7%	3.1%	0.0%	4.5%	11.8%	1.1%	6.7%	0.0%	0.0%	16.7%	5.5%	44
OPPORTUNITIES TO PARTICIPATE	7.6%	3.2%	0.0%	15.6%	16.7%	0.0%	0.0%	0.0%	0.0%	3.4%	0.0%	8.3%	5.5%	44
NBN SERVICES	2.6%	3.2%	0.0%	0.0%	0.0%	6.8%	5.9%	12.5%	20.0%	6.9%	0.0%	0.0%	4.6%	37
OWN RECORDING	6.1%	0.0%	20.0%	6.3%	8.3%	0.0%	0.0%	1.1%	0.0%	0.0%	12.5%	0.0%	4.2%	34
DATA SUBMISSION	5.9%	1.1%	6.7%	0.0%	0.0%	2.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.5%	28
INDIVIDUAL DEDICATION	2.8%	3.2%	6.7%	12.5%	8.3%	2.3%	0.0%	1.1%	0.0%	3.4%	12.5%	8.3%	3.2%	26
RECORDING GROUPS	3.1%	0.0%	0.0%	18.8%	8.3%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%	8.3%	2.7%	22
DATA MANAGEMENT	2.1%	0.0%	0.0%	0.0%	16.7%	13.6%	5.9%	1.1%	3.3%	3.4%	0.0%	0.0%	2.6%	21
VERIFICATION	1.2%	15.1%	0.0%	0.0%	0.0%	2.3%	0.0%	1.1%	0.0%	0.0%	0.0%	0.0%	2.6%	21
STANDARD METHODS	1.9%	1.1%	13.3%	0.0%	0.0%	2.3%	0.0%	2.3%	0.0%	0.0%	0.0%	0.0%	1.7%	14
DATA PROVISION	0.0%	0.0%	0.0%	0.0%	0.0%	15.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	7
FACILITATION	0.2%	0.0%	0.0%	0.0%	0.0%	2.3%	0.0%	0.0%	0.0%	0.0%	0.0%	8.3%	0.4%	3
NOT WORKING WELL	0.2%	0.0%	0.0%	0.0%	8.3%	2.3%	0.0%	2.3%	0.0%	3.4%	0.0%	0.0%	0.7%	6
ALL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Number of Mentions	423	93	15	32	12	44	17	88	30	29	8	12	803	803
Number of Respondents	196	50	11	18	5	24	10	66	15	21	7	7	237	

**Figure 98:** The number and percentage of mentions of what is ‘working well’ by broad theme and country

WORKING WELL	Northern					ALL	n
	England	Ireland	Scotland	Wales	Unknown		
ACCESS TO RESOURCES	12.9%	13.6%	10.4%	12.9%	0.0%	11.1%	89
TRAINING	9.3%	18.2%	9.3%	6.5%	0.0%	9.3%	75
LERC SERVICES	9.8%	0.0%	8.6%	19.4%	14.3%	9.1%	73
ONLINE RECORDING	12.4%	0.0%	6.2%	3.2%	14.3%	7.5%	60
NATIONAL SCHEMES	5.2%	18.2%	7.3%	6.5%	0.0%	7.0%	56
ACCESS TO EXPERTS	3.1%	13.6%	6.9%	3.2%	0.0%	6.0%	48
RECORDER SUPPORT	5.7%	0.0%	6.6%	3.2%	0.0%	6.0%	48
ACCESS TO DATA	3.1%	0.0%	7.3%	3.2%	0.0%	5.9%	47
LOCAL NETWORKS	5.7%	13.6%	5.3%	3.2%	0.0%	5.5%	44
OPPORTUNITIES TO PARTICIPATE	6.7%	0.0%	5.6%	0.0%	0.0%	5.5%	44
NBN SERVICES	2.1%	0.0%	5.5%	6.5%	14.3%	4.6%	37
OWN RECORDING	4.6%	4.5%	3.5%	9.7%	28.6%	4.2%	34
DATA SUBMISSION	3.1%	4.5%	3.1%	9.7%	14.3%	3.5%	28
INDIVIDUAL DEDICATION	3.1%	9.1%	3.3%	0.0%	0.0%	3.2%	26
RECORDING GROUPS	3.6%	0.0%	2.7%	0.0%	0.0%	2.7%	22
DATA MANAGEMENT	3.6%	0.0%	2.0%	6.5%	14.3%	2.6%	21
VERIFICATION	2.6%	0.0%	2.7%	3.2%	0.0%	2.6%	21
STANDARD METHODS	0.0%	0.0%	2.6%	0.0%	0.0%	1.7%	14
DATA PROVISION	1.0%	0.0%	0.9%	0.0%	0.0%	0.9%	7
FACILITATION	1.0%	0.0%	0.0%	3.2%	0.0%	0.4%	3
NOT WORKING WELL	1.5%	4.5%	0.4%	0.0%	0.0%	0.7%	6
ALL	100%	100%	100%	100%	100%	100%	
Number of Mentions	194	22	549	31	7	803	803
Number of Respondents	47	6	172	9	3	237	

**Figure 99: The number and percentage of mentions of what is 'working less well' by broad theme and sector**

WORKING LESS WELL		Sector											ALL	n
		Academia and education	Commercial companies and consultancies	Cross-sectoral partnership or secretariat organisations	Environmental/conservation NGOs	Local authorities and national park authorities	Local Environmental Records Centres	Museums, zoos and botanic gardens	National or central government	National Recording Schemes	None of these - I'm a member of the general public	Recorders or Recording Groups		
ACCESS TO RESOURCES	30.0%	13.9%	28.6%	11.9%	17.2%	23.4%	26.8%	13.3%	8.5%	20.7%	15.9%	16.5%	116	
ACCESS TO DATA		30.6%	21.4%	16.3%	20.3%	14.4%	7.3%	26.7%	4.9%		17.5%	15.1%	106	
DATA SUBMISSION		11.1%	7.1%	15.0%	7.8%	9.9%	9.8%	10.0%	20.7%	41.4%	9.5%	13.2%	93	
TRAINING		5.6%		8.1%	9.4%	12.6%	9.8%	3.3%	9.8%		10.3%	8.7%	61	
VERIFICATION		2.8%		10.6%	7.8%	3.6%	9.8%	10.0%	14.6%	6.9%	6.3%	8.0%	56	
NBN SERVICES	20.0%	11.1%	21.4%	5.6%	6.3%	9.0%	4.9%	3.3%	3.7%		7.1%	6.7%	47	
OWN RECORDING		5.6%		6.3%	4.7%	2.7%	2.4%		4.9%	10.3%	8.7%	5.3%	37	
LERC SERVICES		8.3%	21.4%	0.6%	9.4%	3.6%	7.3%	6.7%	3.7%		7.1%	4.8%	34	
ONLINE RECORDING				7.5%	6.3%	4.5%	7.3%	3.3%	7.3%	10.3%	5.6%	5.8%	41	
NATIONAL SCHEMES		5.6%		4.4%		3.6%		3.3%	6.1%		0.8%	2.8%	20	
OPPORTUNITIES TO PARTICIPATE				1.3%	6.3%				6.1%	3.4%	4.0%	2.4%	17	
DATA PROVISION	10.0%			3.1%		3.6%	2.4%	6.7%	1.2%		1.6%	2.3%	16	
STANDARD METHODS				1.3%		2.7%		13.3%	2.4%		0.8%	1.7%	12	
DATA MANAGEMENT				3.8%		2.7%			1.2%			1.4%	10	
LOCAL NETWORKS	10.0%			2.5%		1.8%			1.2%			1.1%	8	
RECORDING GROUPS	10.0%			0.6%	1.6%	0.9%	2.4%				1.6%	1.0%	7	
ACCESS TO EXPERTS		2.8%					7.3%					0.6%	4	
RECORDER SUPPORT									1.2%			0.1%	1	
FACILITATION													0	
INDIVIDUAL DEDICATION													0	
WORKING WELL/NO PROBLEMS	20.0%	2.8%		1.3%	3.1%	0.9%	2.4%		2.4%	6.9%	3.2%	2.4%	17	
ALL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Number of Mentions	10	36	14	160	64	111	41	30	82	29	126	703	703	
Number of Respondents	6	14	4	62	26	19	9	11	30	15	41	237		



**Figure 100:** The number and percentage of mentions of what is ‘working well’ by broad theme and role

WORKING LESS WELL	Role												ALL	n
	Recorders	Verifiers	Collection Curators	Group Operators	Scheme Operators	Data Providers	Data Developers	Data Users	Service Providers	Service Users	Funders	Facilitators		
ACCESS TO RESOURCES	13.1%	8.6%	45.5%	22.7%	33.3%	26.7%	20.0%	4.0%	43.3%	18.5%	85.7%	40.0%	16.5%	116
ACCESS TO DATA	9.3%	3.2%	0.0%	0.0%	6.7%	8.9%	40.0%	53.5%	6.7%	22.2%	0.0%	20.0%	15.1%	106
DATA SUBMISSION	22.4%	10.8%	4.5%	4.5%	6.7%	4.4%	0.0%	3.0%	3.3%	3.7%	0.0%	10.0%	13.2%	93
TRAINING	9.0%	8.6%	13.6%	18.2%	6.7%	6.7%	10.0%	4.0%	13.3%	14.8%	0.0%	0.0%	8.7%	61
VERIFICATION	2.8%	45.2%	9.1%	4.5%	0.0%	2.2%	0.0%	1.0%	0.0%	0.0%	0.0%	0.0%	8.0%	56
NBN SERVICES	3.4%	3.2%	0.0%	9.1%	0.0%	13.3%	0.0%	16.8%	13.3%	11.1%	0.0%	10.0%	6.7%	47
OWN RECORDING	10.6%	1.1%	4.5%	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.3%	37
LERC SERVICES	3.7%	1.1%	4.5%	4.5%	0.0%	2.2%	0.0%	7.9%	6.7%	25.9%	0.0%	10.0%	4.8%	34
ONLINE RECORDING	8.1%	7.5%	0.0%	4.5%	6.7%	4.4%	0.0%	3.0%	3.3%	0.0%	0.0%	0.0%	5.8%	41
NATIONAL SCHEMES	3.7%	3.2%	0.0%	0.0%	26.7%	0.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.8%	20
OPPORTUNITIES TO PARTICIPATE	2.8%	3.2%	4.5%	9.1%	6.7%	0.0%	0.0%	0.0%	0.0%	0.0%	14.3%	0.0%	2.4%	17
DATA PROVISION	0.6%	0.0%	0.0%	0.0%	0.0%	24.4%	0.0%	3.0%	0.0%	0.0%	0.0%	0.0%	2.3%	16
STANDARD METHODS	1.9%	0.0%	4.5%	0.0%	0.0%	0.0%	0.0%	2.0%	6.7%	3.7%	0.0%	0.0%	1.7%	12
DATA MANAGEMENT	1.9%	1.1%	0.0%	0.0%	0.0%	0.0%	10.0%	1.0%	3.3%	0.0%	0.0%	0.0%	1.4%	10
LOCAL NETWORKS	1.2%	1.1%	0.0%	0.0%	6.7%	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%	10.0%	1.1%	8
RECORDING GROUPS	1.2%	0.0%	0.0%	13.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	7
ACCESS TO EXPERTS	0.6%	0.0%	9.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	4
RECORDER SUPPORT	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	1
FACILITATION	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
INDIVIDUAL DEDICATION	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
WORKING WELL/NO PROBLEMS	3.1%	2.2%	0.0%	4.5%	0.0%	4.4%	10.0%	1.0%	0.0%	0.0%	0.0%	0.0%	2.4%	17
ALL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Number of Mentions	321	93	22	22	15	45	10	101	30	27	7	10	703	703
Number of Respondents	197	50	15	17	9	27	8	70	16	24	7	6	237	

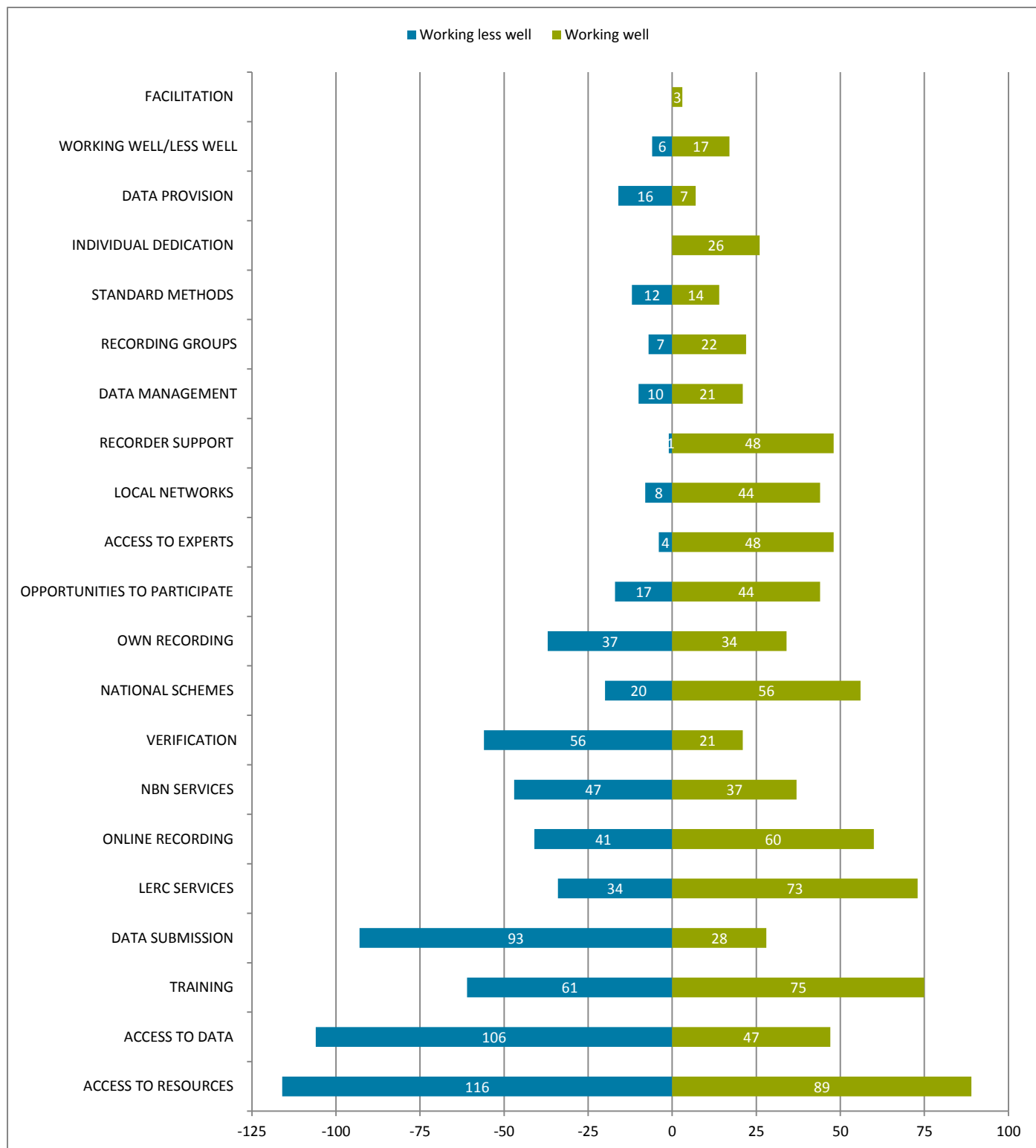
**Figure 101:** The number and percentage of mentions of what is ‘working well’ by broad theme and country

WORKING LESS WELL	Country					ALL	n
	England	NI	Scotland	Wales	Unknown		
ACCESS TO RESOURCES	15.8%	17.6%	16.7%	22.2%	0.0%	16.5%	116
ACCESS TO DATA	12.8%	11.8%	15.7%	27.8%	20.0%	15.1%	106
DATA SUBMISSION	14.3%	0.0%	13.5%	11.1%	0.0%	13.2%	93
TRAINING	6.4%	11.8%	9.6%	11.1%	0.0%	8.7%	61
VERIFICATION	9.9%	17.6%	7.2%	0.0%	0.0%	8.0%	56
NBN SERVICES	7.4%	5.9%	5.9%	11.1%	40.0%	6.7%	47
ONLINE RECORDING	7.4%	0.0%	5.7%	0.0%	0.0%	5.8%	41
OWN RECORDING	5.4%	0.0%	5.7%	0.0%	0.0%	5.3%	37
LERC SERVICES	3.9%	23.5%	4.6%	0.0%	20.0%	4.8%	34
NATIONAL SCHEMES	3.9%	0.0%	2.6%	0.0%	0.0%	2.8%	20
OPPORTUNITIES TO PARTICIPATE	2.0%	0.0%	2.4%	11.1%	0.0%	2.4%	17
DATA PROVISION	3.4%	0.0%	2.0%	0.0%	0.0%	2.3%	16
STANDARD METHODS	1.5%	0.0%	2.0%	0.0%	0.0%	1.7%	12
DATA MANAGEMENT	2.0%	5.9%	1.1%	0.0%	0.0%	1.4%	10
LOCAL NETWORKS	1.5%	0.0%	0.9%	0.0%	20.0%	1.1%	8
RECORDING GROUPS	1.5%	0.0%	0.7%	5.6%	0.0%	1.0%	7
ACCESS TO EXPERTS	0.5%	0.0%	0.7%	0.0%	0.0%	0.6%	4
RECORDER SUPPORT	0.0%	5.9%	0.0%	0.0%	0.0%	0.1%	1
FACILITATION	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
INDIVIDUAL DEDICATION	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0
WORKING WELL/NO PROBLEMS	0.5%	0.0%	3.5%	0.0%	0.0%	2.4%	17
ALL	100%	100%	100%	100%	100%	100%	
Number of Mentions	203	17	460	18	5	703	703
Number of Respondents	48	5	174	8	2	237	

### iii. Overall contentment of each role

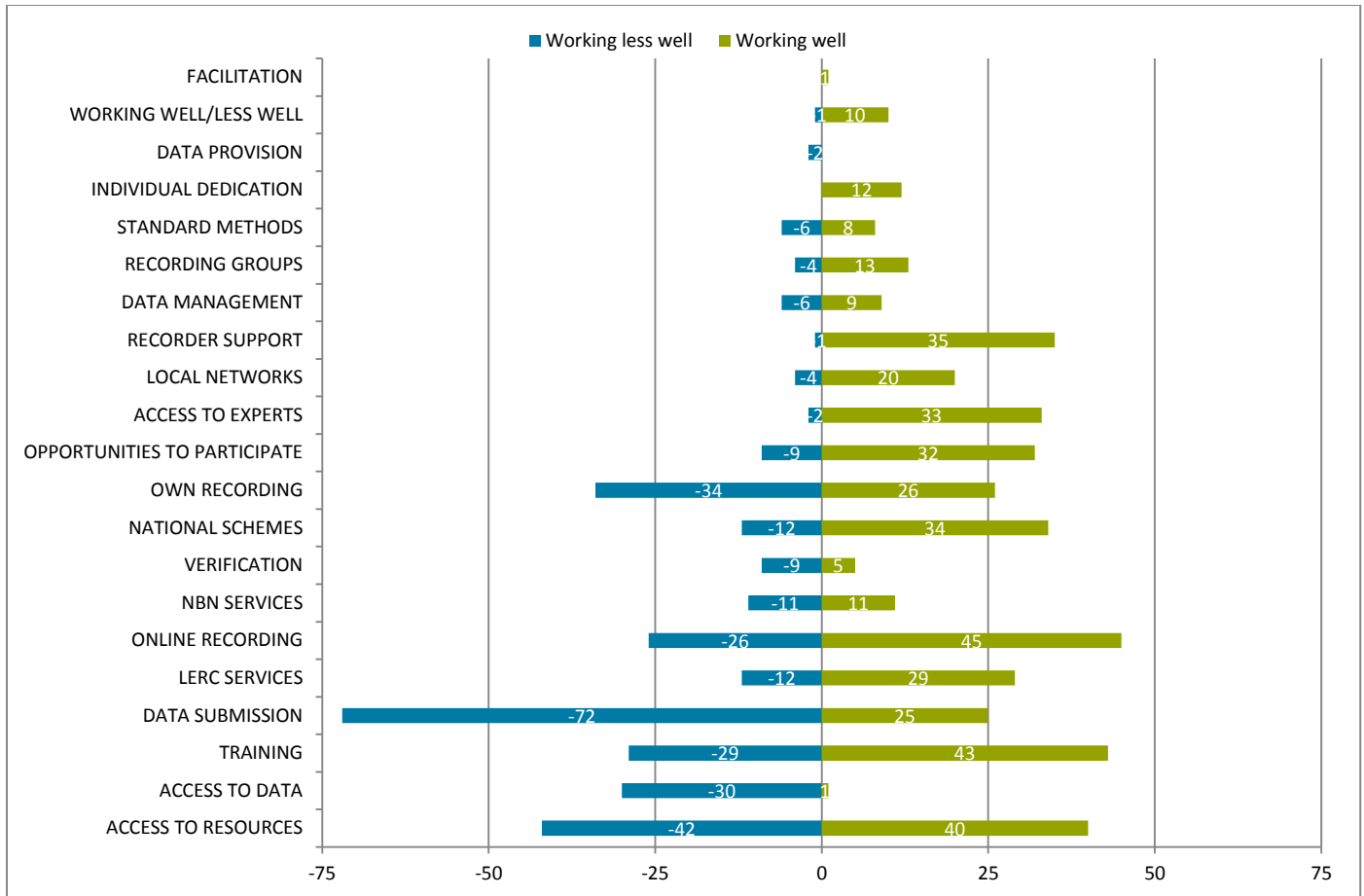
The number of mentions for 'what is working well' and 'what is working less well' for each broad theme, when presented together, show the current situation and level of contentment by role (**Figures 102 to 114**). The proportion of 'working well' mentions to all mentions provides a comparative measure of overall contentment for each role (**Figure 115**). Note that the horizontal axis on each graph ranges between '-125 to 125' and '-15 to 15' so the graphs may not be directly comparable.

**Figure 102: Number of mentions of 'what is working well' and 'less well' overall for all respondents**  
Overall level of contentment across all roles: 54.1% 'working well' (814 mentions) to 45.9% 'working less well' (692 mentions)



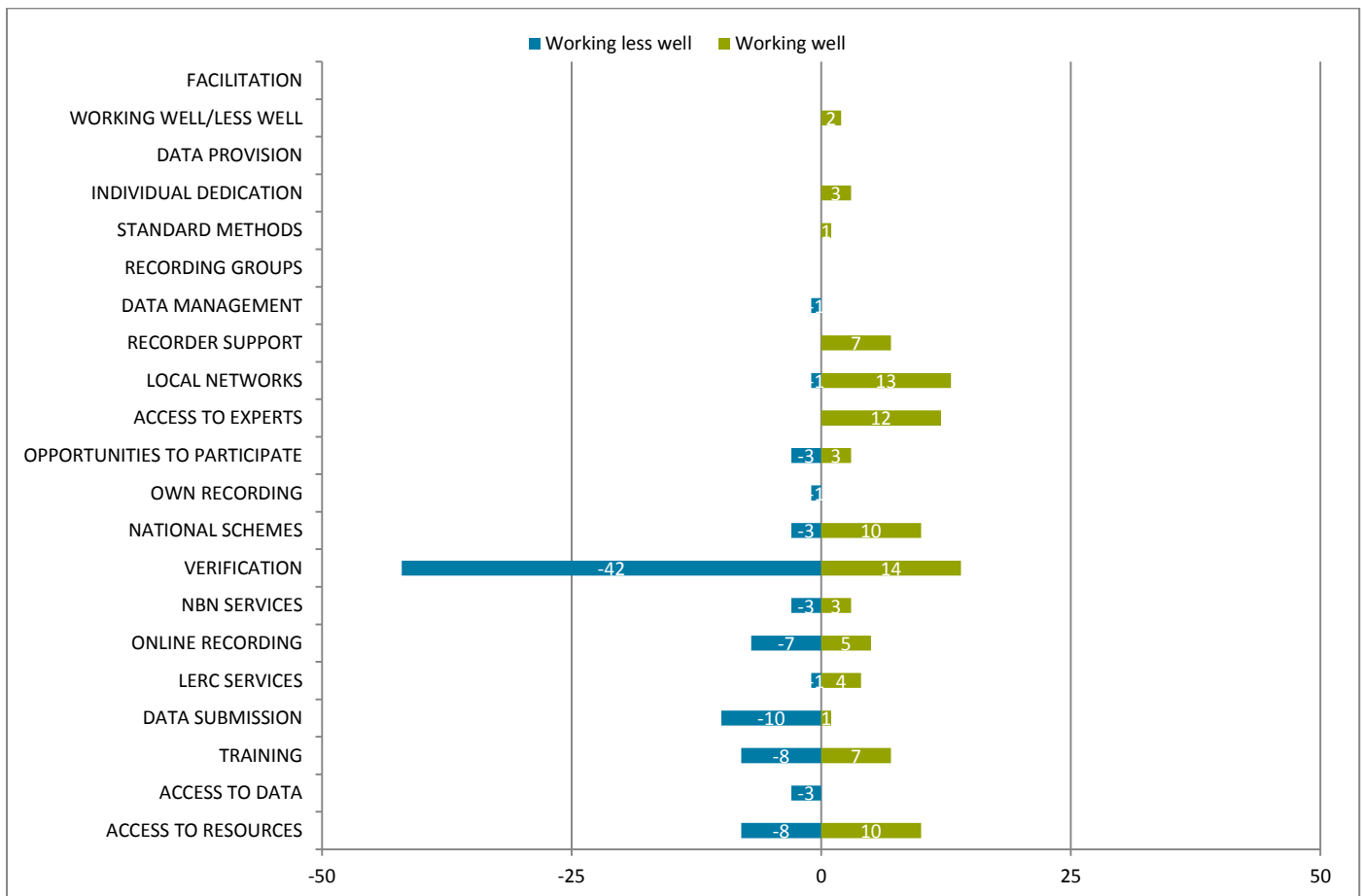
**Figure 103:** Number of mentions of ‘what is working well’ and ‘less well’ overall for Recorders

Overall level of contentment for Recorders: 58.1% ‘working well’ (432 mentions) to 41.9% ‘working less well’ (312 mentions)



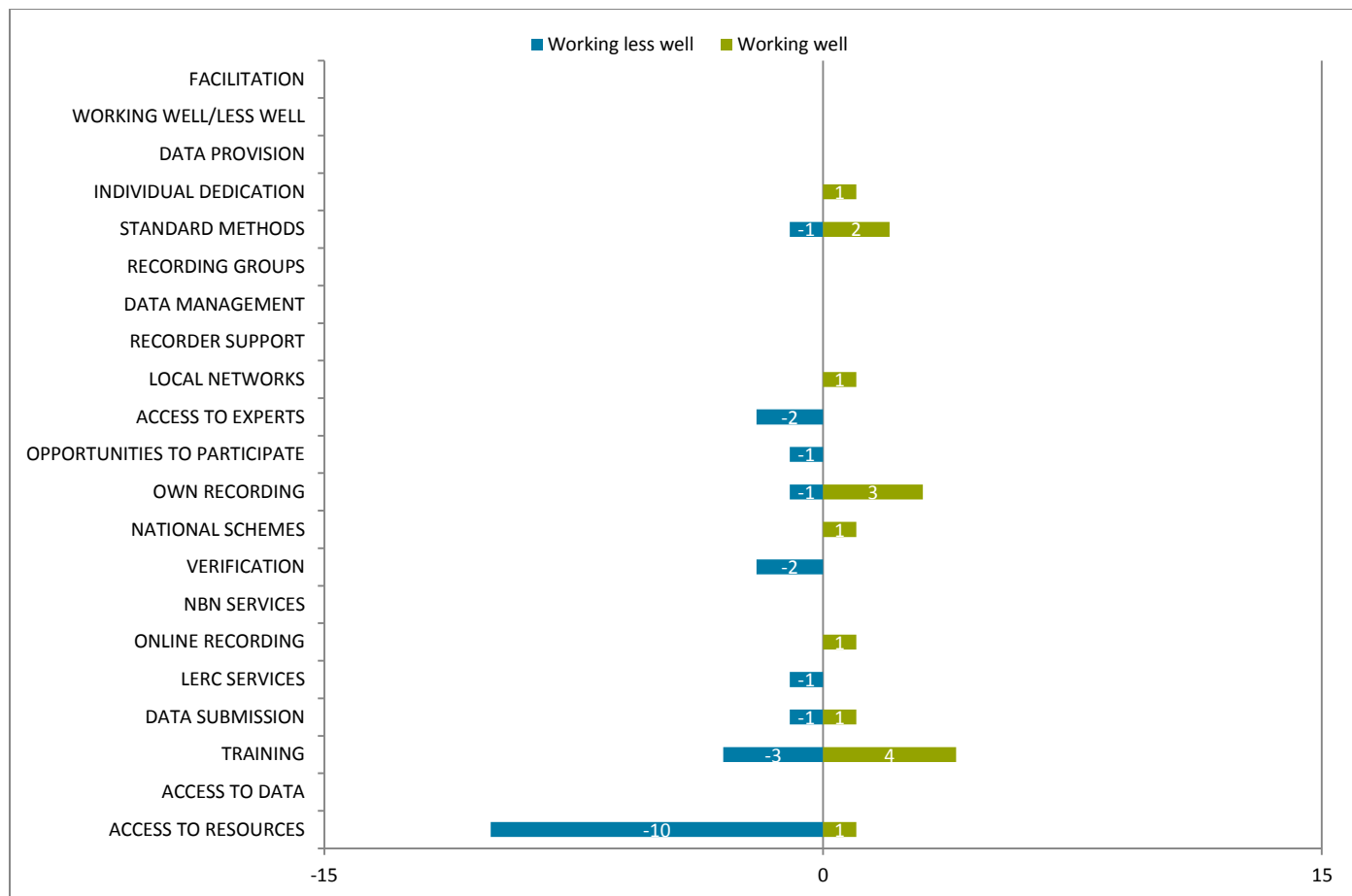
**Figure 104:** Number of mentions of ‘what is working well’ and ‘less well’ overall for Verifiers

Overall level of contentment for Verifiers: 51.1% ‘working well’ (95 mentions) to 48.9% ‘working less well’ (91 mentions)

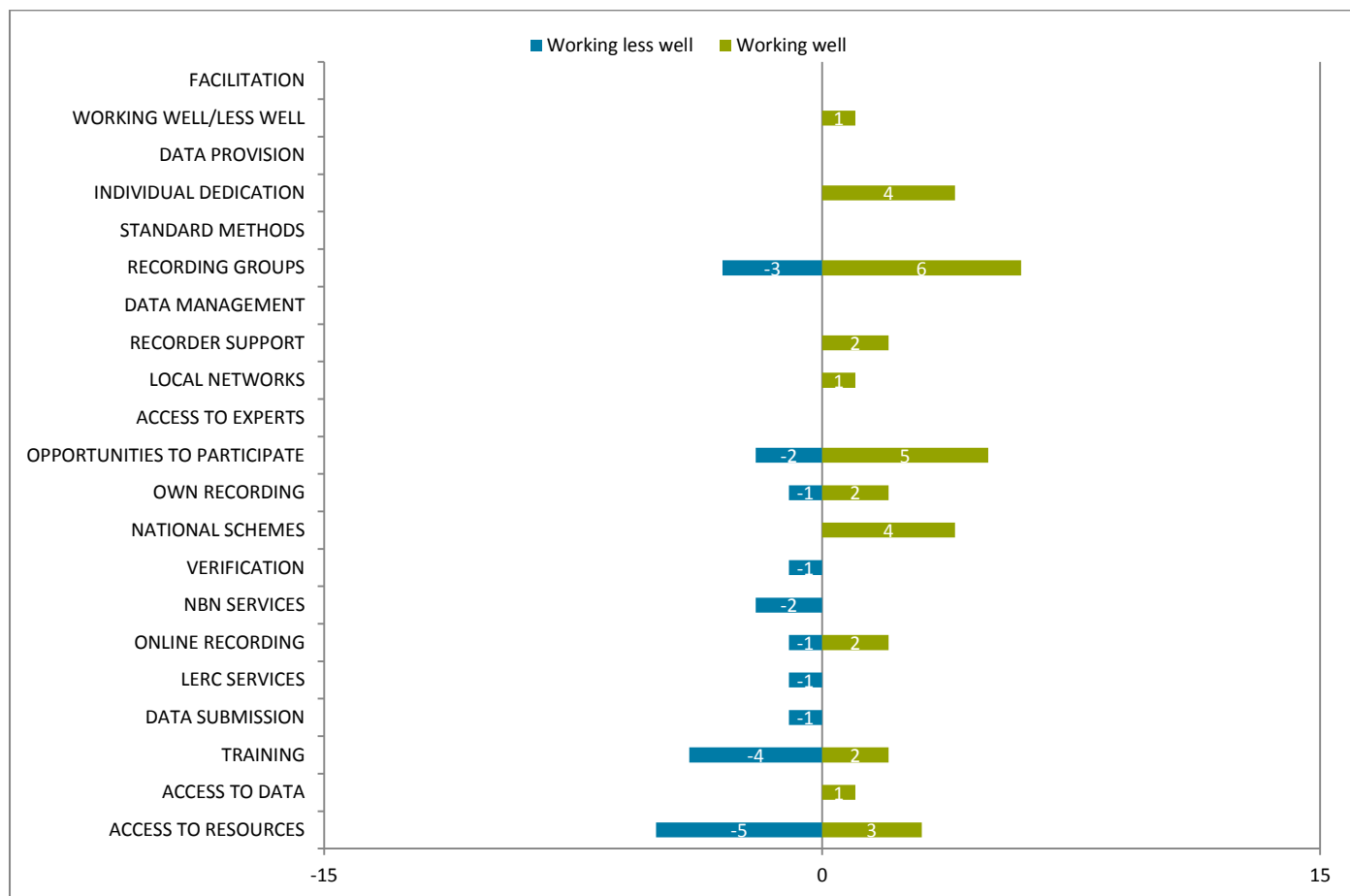




**Figure 105:** Number of mentions of ‘what is working well’ and ‘less well’ overall for Collection Curators  
Overall level of contentment for Collection Curators: 40.5% ‘working well’ (15 mentions) to 59.5% ‘working less well’ (22 mentions)

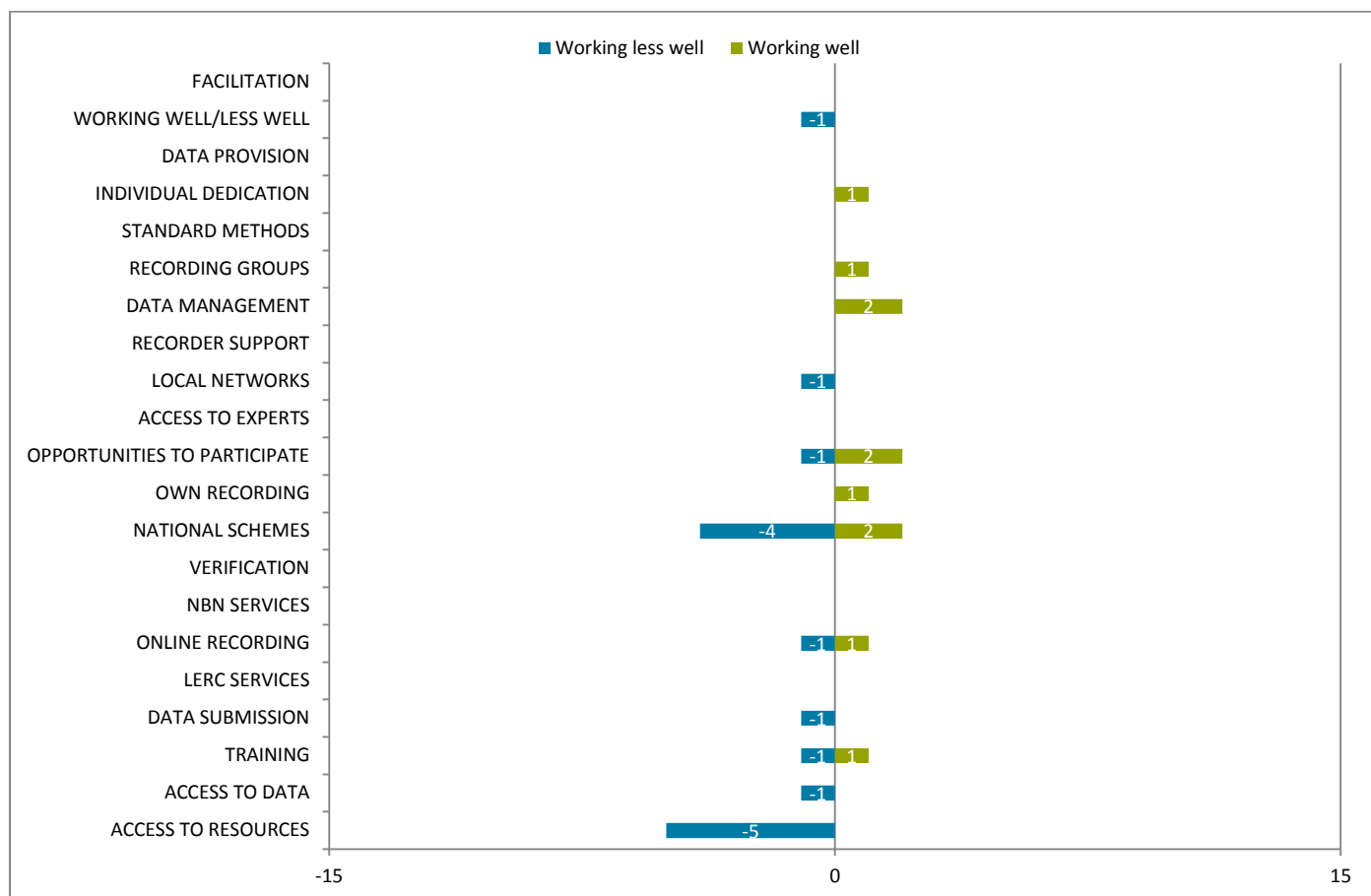


**Figure 106:** Number of mentions of ‘what is working well’ and ‘less well’ overall for Recording Group Operators  
Overall level of contentment for Recording Group Operators: 61.1% ‘working well’ (33 mentions) to 38.9% ‘working less well’ (21 mentions)



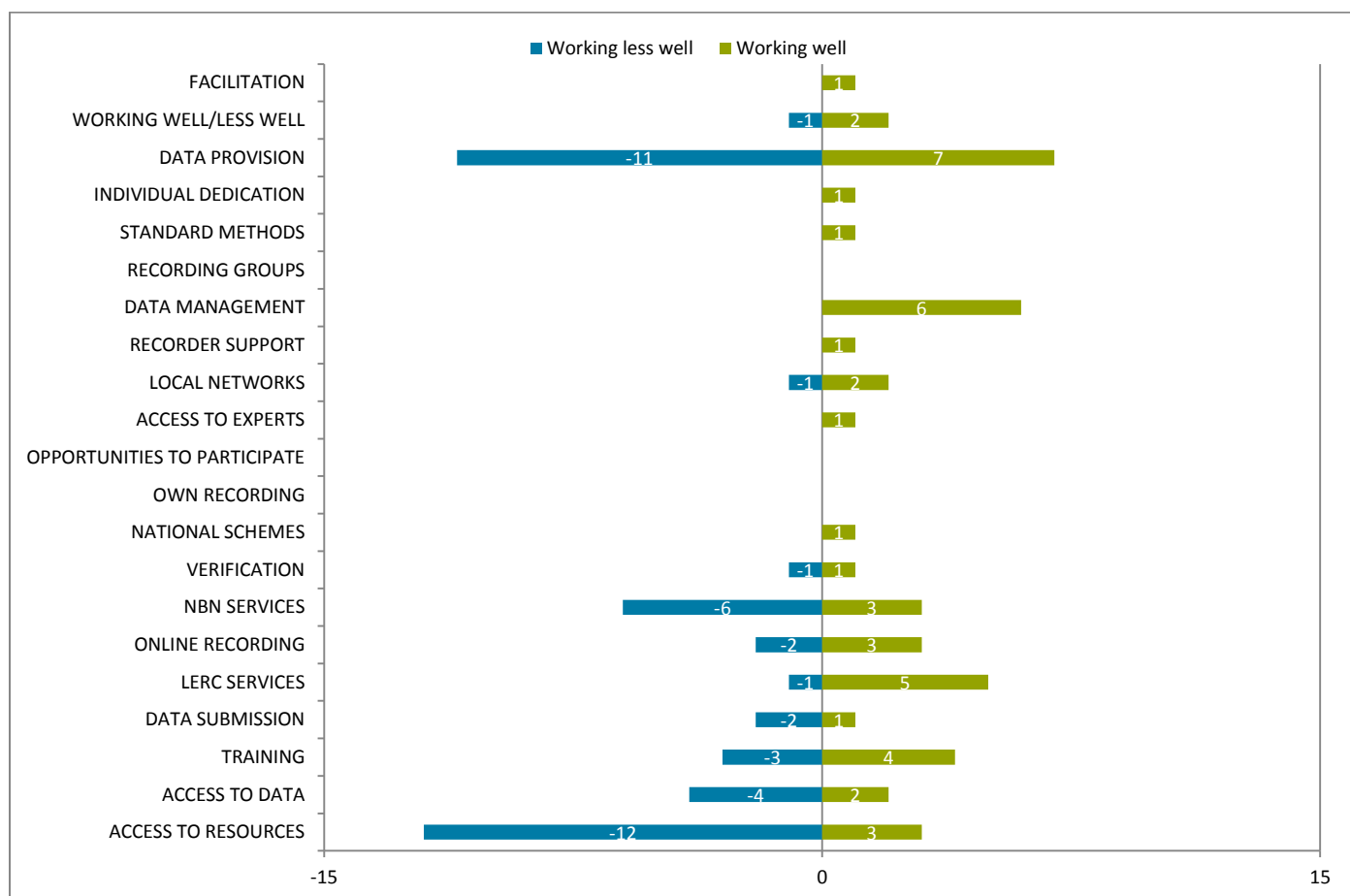
**Figure 107:** Number of mentions of 'what is working well' and 'less well' overall for Recording Scheme Operators

Overall level of contentment for Recording Scheme Operators: 40.7% 'working well' (11 mentions) to 59.3% 'working less well' (16 mentions)

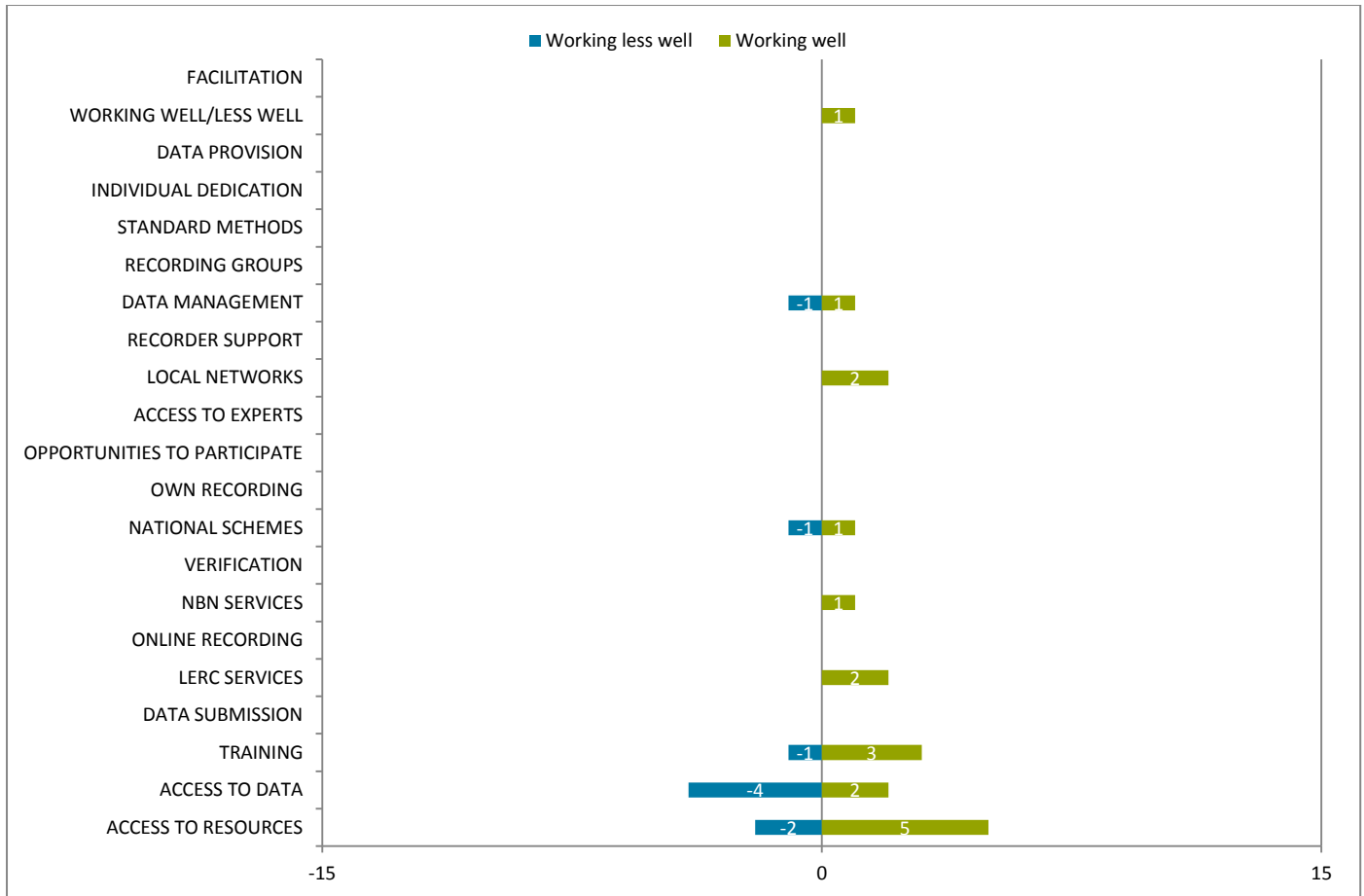


**Figure 108:** Number of mentions of 'what is working well' and 'less well' overall for Data Providers

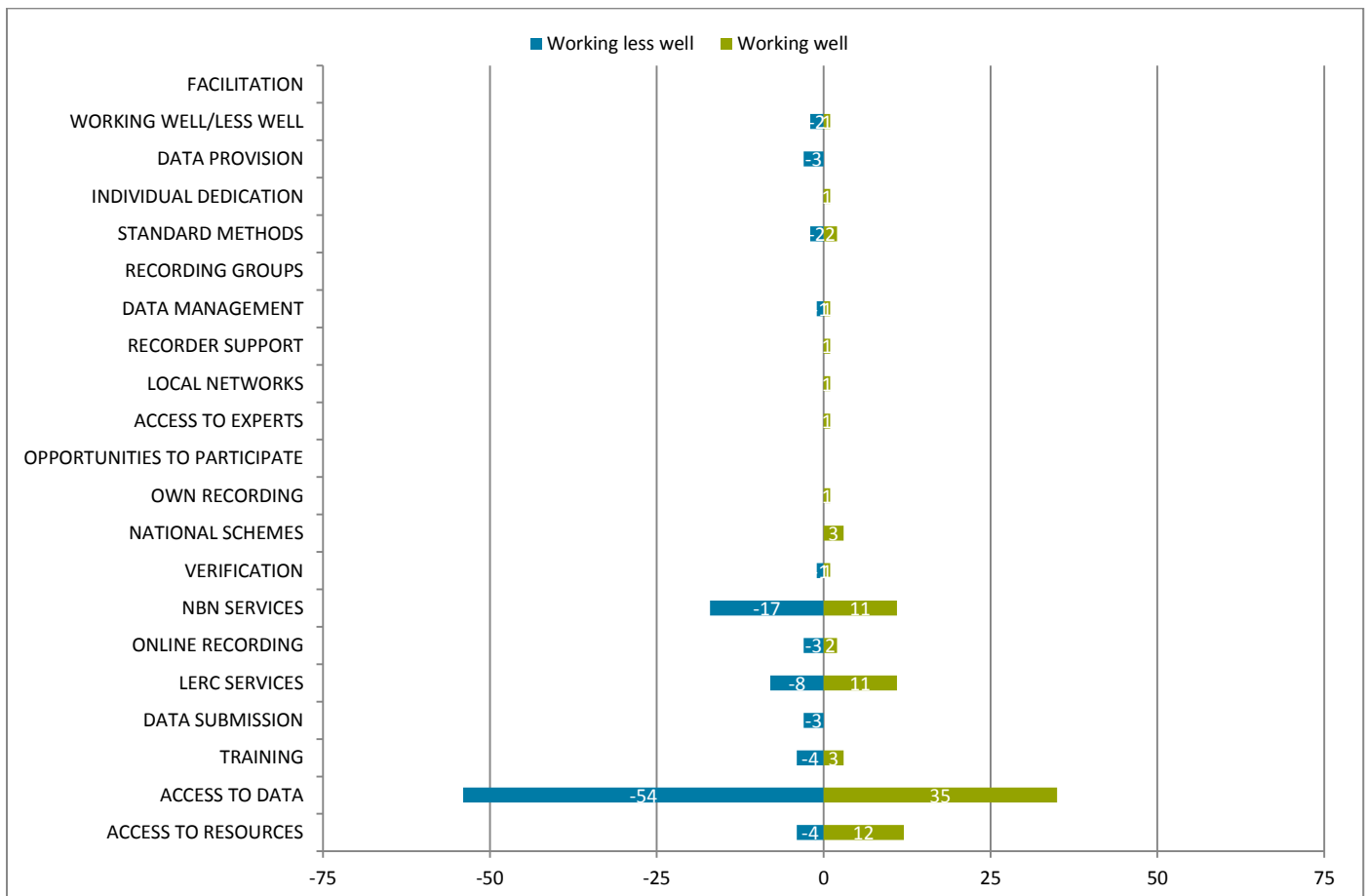
Overall level of contentment for Data Providers: 66.7% 'working well' (18 mentions) to 33.3% 'working less well' (9 mentions)



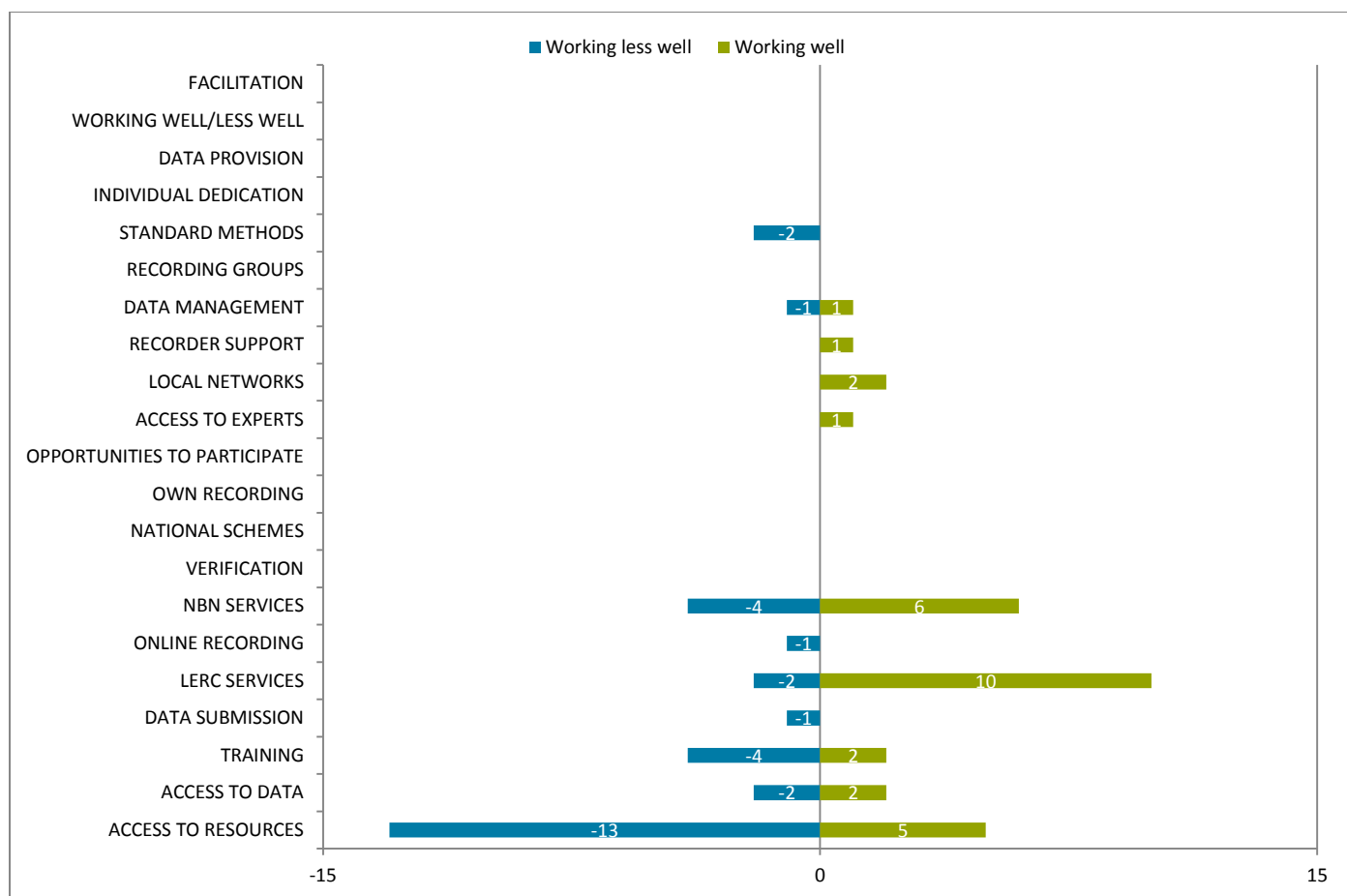
**Figure 109:** Number of mentions of 'what is working well' and 'less well' overall for Data Developers  
Overall level of contentment for Data Developers: 61.1% 'working well' (33 mentions) to 38.9% 'working less well' (21 mentions)



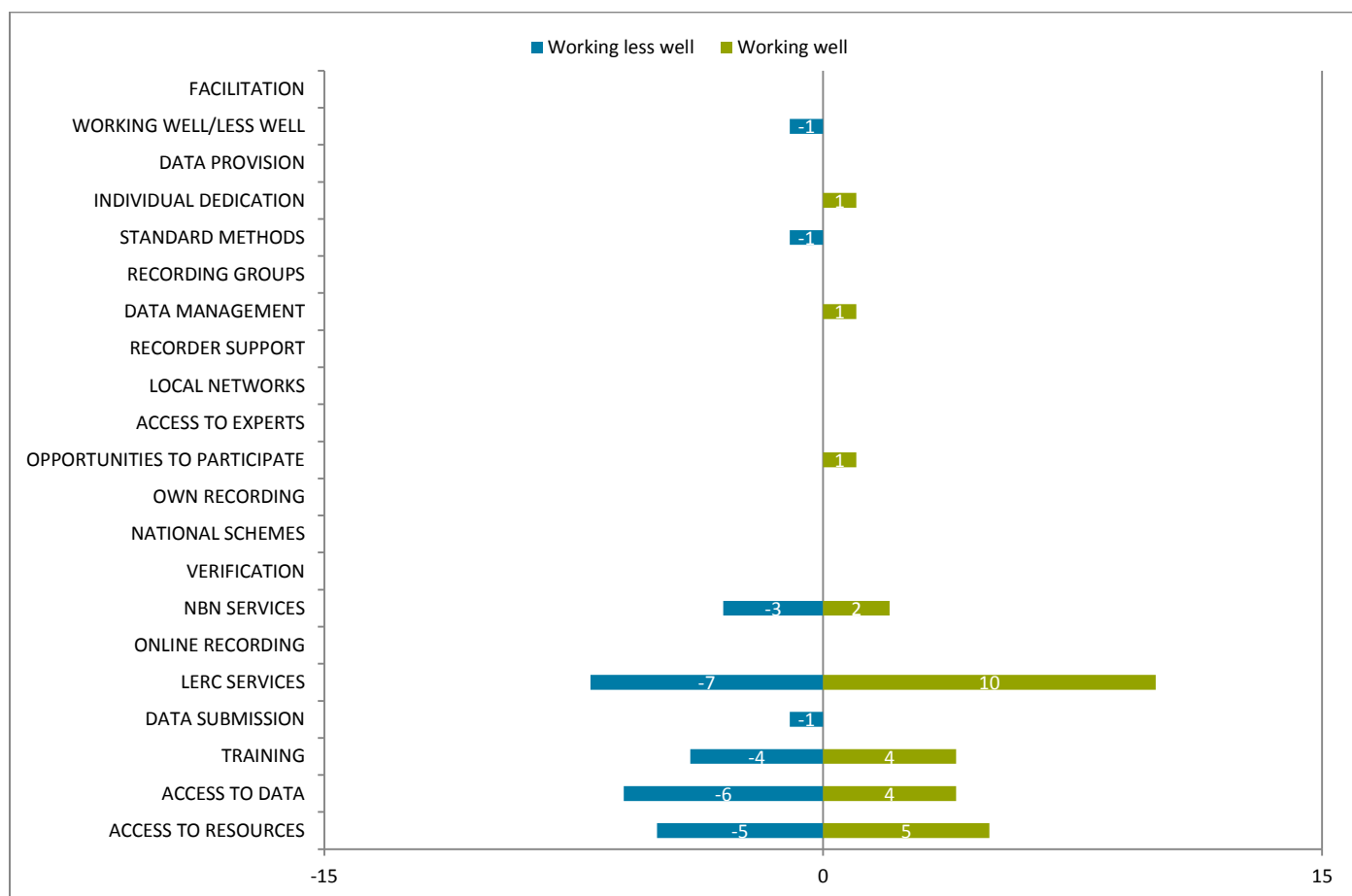
**Figure 110:** Number of mentions of 'what is working well' and 'less well' overall for Data Users  
Overall level of contentment for Data Users: 46.0% 'working well' (87 mentions) to 54.0% 'working less well' (102 mentions)



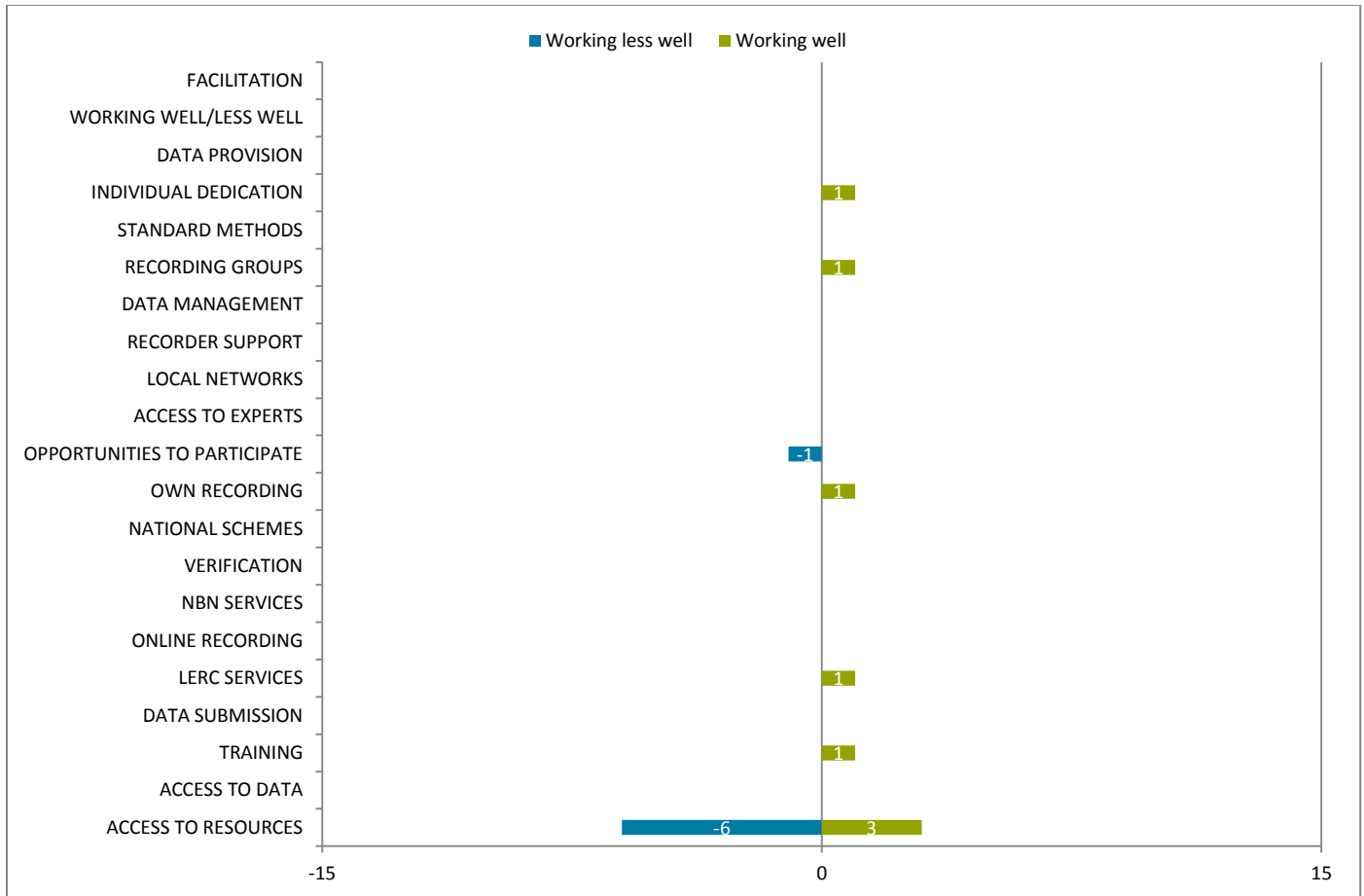
**Figure 111:** Number of mentions of 'what is working well' and 'less well' overall for Service Providers  
Overall level of contentment for Service Providers: 50.0% 'working well' (30 mentions) to 50.0% 'working less well' (30 mentions)



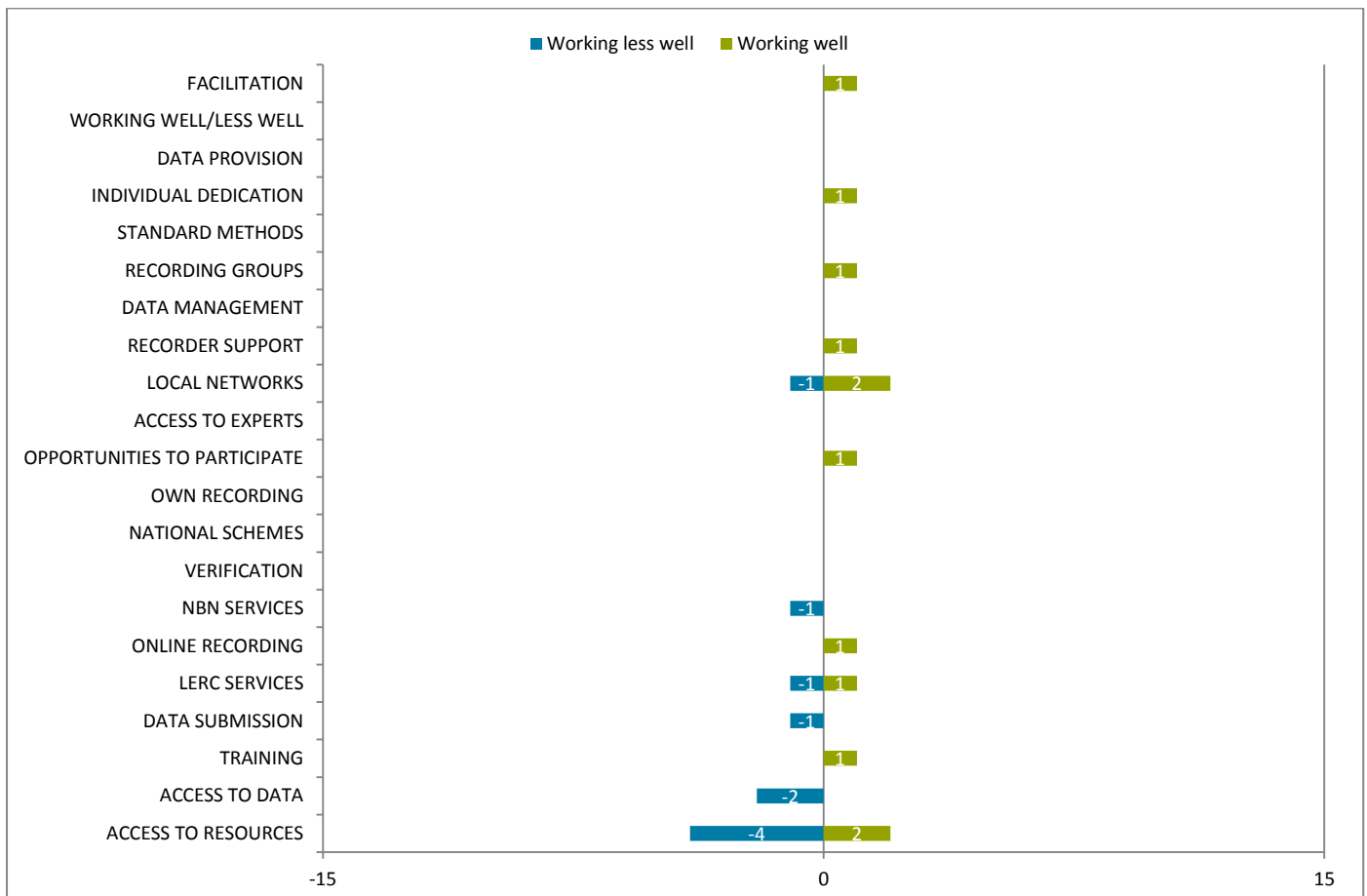
**Figure 112:** Number of mentions of 'what is working well' and 'less well' overall for Service Users  
Overall level of contentment for Service Users: 50.0% 'working well' (28 mentions) to 50.0% 'working less well' (28 mentions)



**Figure 113: Number of mentions of 'what is working well' and 'less well' overall for Funders**  
Overall level of contentment for Funders: 53.3% 'working well' (8 mentions) to 46.7% 'working less well' (7 mentions)

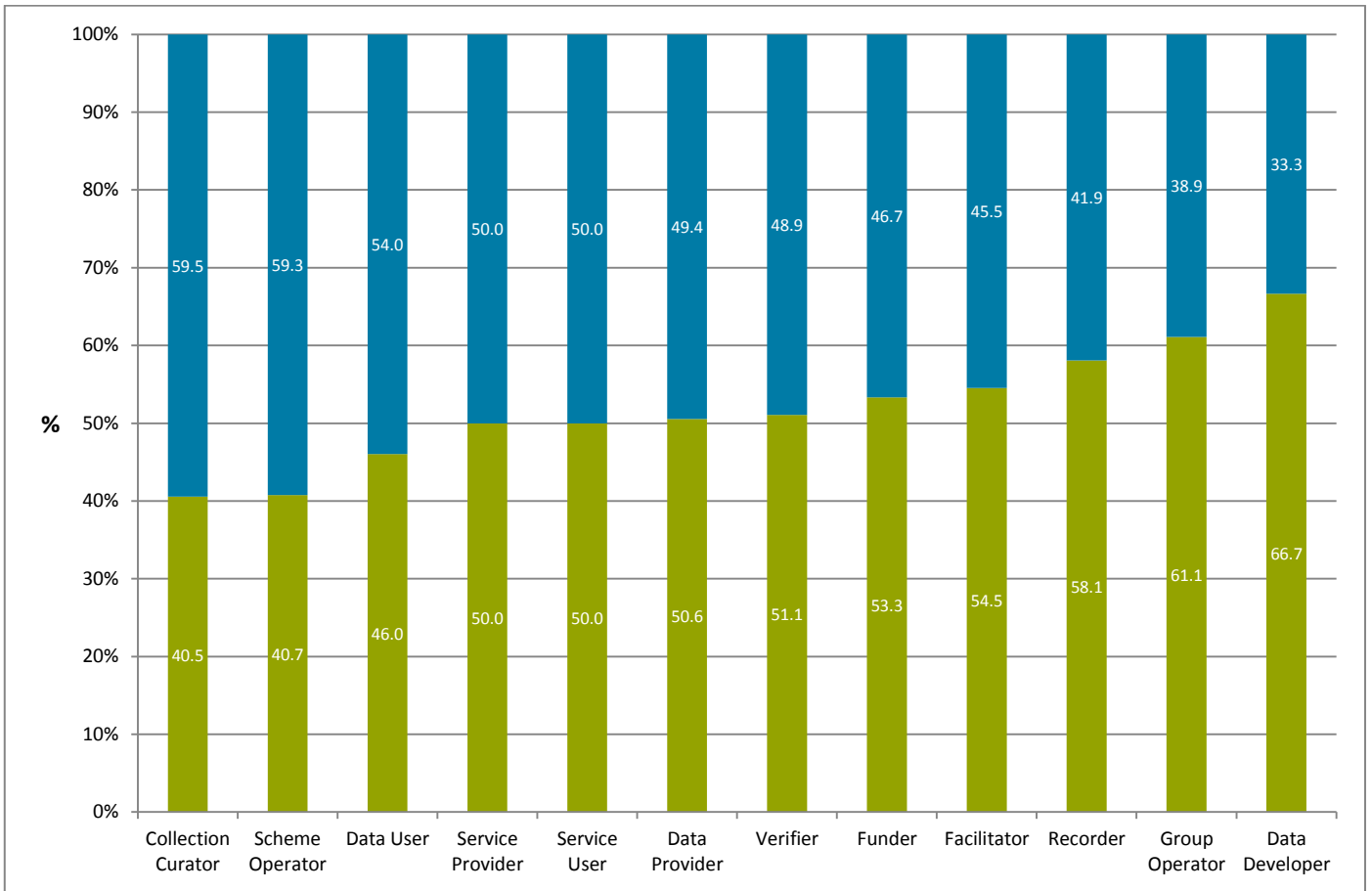


**Figure 114: Number of mentions of 'what is working well' and 'less well' overall for Facilitators**  
Overall level of contentment for Data Users: 54.5% 'working well' (12 mentions) to 45.5% 'working less well' (10 mentions)



**Figure 115: Overall level of contentment across all roles**

Overall: 54.05% 'working well' (814 mentions) to 45.95% 'working less well' (692 mentions)



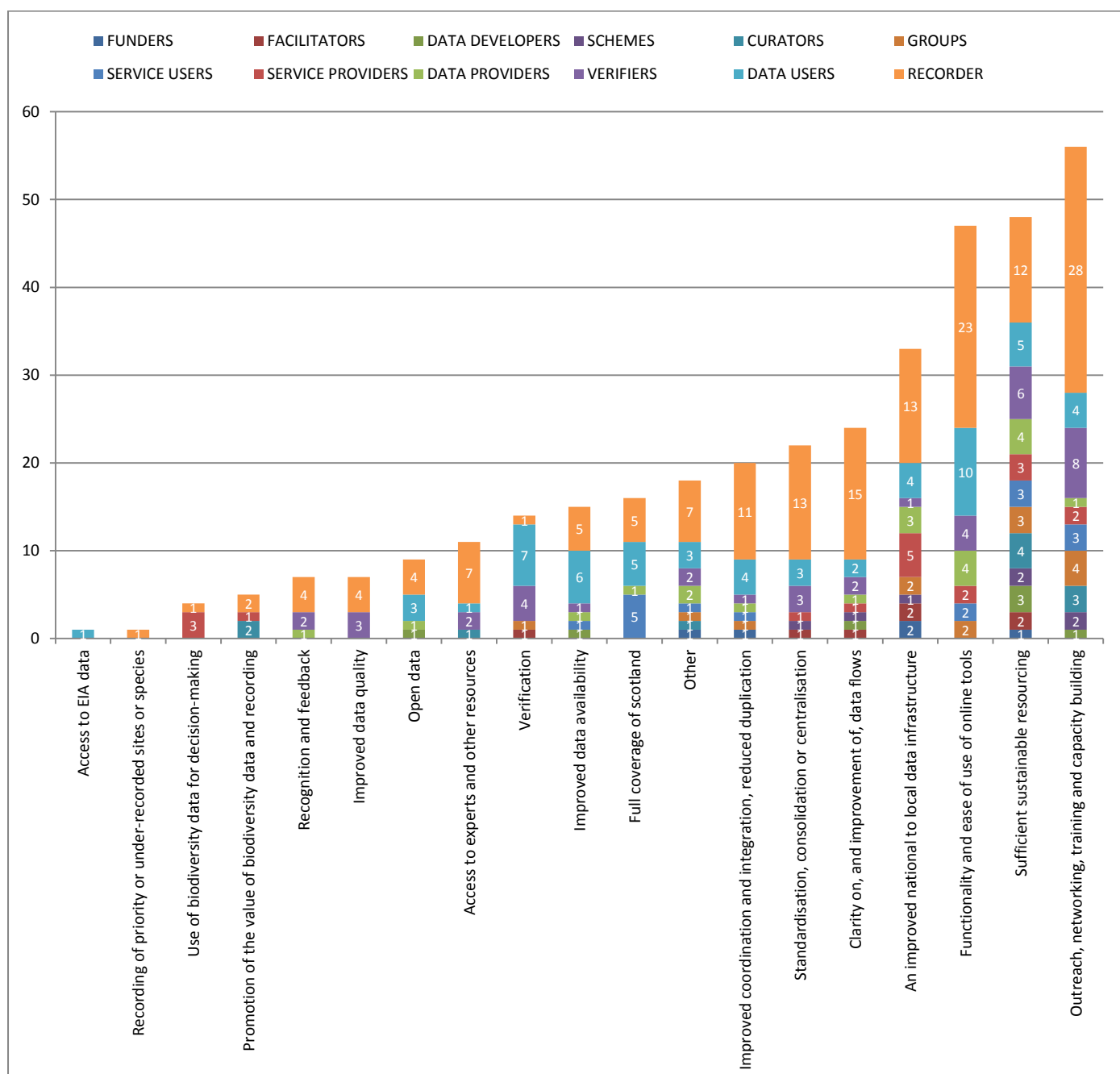
### 3.6 Ideas and priorities for improvements

#### i. Ideas

In response to being asked for ideas that would help improve the current situation for each role, 196 respondents made 345 suggestions. Each suggestion was classified as being primarily related to one of twenty broad themes used to classify the priorities for SBIF attention (in the next section of this report) for ease of reference to the ideas for each attention area (**Figure 116**). In many instances, especially where suggestions covered multiple topics at length, it was difficult to map the suggestion to a single theme, and so a 'best fit on first assessment' approach was used. A small number of long responses were subdivided for ease of mapping, leading to 358 suggestions that were assessed overall. To illustrate the range of ideas arising from these 358 suggestions, three overall areas that could be key to improving the current situation for each role were defined from all the suggestions (listed in **Table 14**). A full list of the suggestions made for each broad theme is available in **Appendix 6**.

Across all roles, ideas were largely complimentary overall, with the 'top three' themes receiving the most suggestions being 1) 'outreach, networking, training and capacity building', 2) 'sufficient sustainable resourcing' and 3) 'functionality and ease of use of online tools' (**Table 15**). Other themes in the 'top three' for individual roles were a) 'an improved national to local data infrastructure', b) 'clarity on, and improvement of, data flows', c) 'full coverage of Scotland', d) 'improved data availability', e) 'verification' and f) 'promotion of the value of biodiversity data and recording'. Note that Service Users in particular gave ideas relating to 'full coverage of Scotland', while Data Users gave ideas relating to 'improved data availability' and 'verification', and Curators gave ideas relating to the 'promotion of the value of biodiversity data and recording'.

**Figure 116:** Number of suggestions made by broad theme and role



**Table 14:** Summary of three areas per role arising from suggestions for improving the current situation for that role

ROLE	KEY AREA
RECORDER	Improve access to online keys, digital reference specimen collections and trainers and provide a rolling, travelling training programme
	Reduce the plethora of online tools/submission methods and ensure that main ones are easy to use well, with offline capabilities also available
	Promote joined-up data flows that allow records to reach all schemes and users so that Recorders know their records are in use and of value
VERIFIER	'National>county>local' tiers of verification in iRecord so National and County Recorders can check what is accepted at county and local level
	Automated, online tools with fewer systems and better data flows and user training so that Verifiers can easily find/receive and verify records
	Grow verification capacity: increase training and funding for kit/expenses/training/specimen postage+storage; encourage iRecord use+updates
COLLECTION CURATOR	A funding model that values taxonomy and reference collections, resources museum staffing and digitisation and allows for succession planning
	Greater use of volunteers to aid digitisation and other activities at scale (subject to staff capacity to develop and manage volunteer activities)
	Use of museums to facilitate the use and sharing of specialist natural history equipment through sales and lending so that kit is accessible to all
RECORDING GROUP OPERATOR	A resource hub for Recording Group Operators with courses on group leadership and delegation to encourage more people to share the load
	A funding model or long term grant scheme through which data users contribute to the costs of both data collection and recorder training
	Improve online tools to facilitate easier digitising and management of data while also providing tools and guides of local use and relevance
RECORDING SCHEME OPERATOR	Those who profit from using data should share their gains (e.g. commercial or academic) with schemes to ensure scheme viability/sustainability
	Clarify and simplify data flows to the major, online open ones with a common data warehouse and shift recording community culture to this
	Increase the capacity and capabilities for developing training materials and/or coordinating local volunteers (e.g. through use of Facebook)
DATA PROVIDER	Open data flows so that records are submitted and verified once then automatically provided to relevant schemes, groups or organisations
	Development of the NBN Atlas to facilitate local portals, access controls/data sharing, ease of record submission/viewing of records submitted
	More funding from data-using stakeholders for recurrent core costs such as data mobilisation and curation, and to increase access to training
DATA DEVELOPER	Maintain funding so that Service Providers can focus on developing data products and services rather than having to generate income
	Increase the level of open data so that more data is available for any use
	Better data management support and clarity on data flows so that Service Providers have more time for developing data products and services
DATA USER	Invest in key tools such as the NBN Atlas to make it user-friendly for common tasks such as data discovery, download, presentation and query
	Make data openly available through a 'one-stop shop' to aid data discovery and accredit responsible data users to allow access to sensitive data
	Allow unverified, incorrect and duplicate records to be flagged so that data users can make an informed choice about which records to use
SERVICE PROVIDER	Strategic model for the whole of Scotland to deliver an improved and expanded range of standard services locally as part of a national system
	Larger, regional centres - with sufficient capacity and all necessary capabilities - and the ability to bring a voice from each region
	Stronger drivers for data to be taken into account by decision-makers and for local authorities to more actively fulfil their biodiversity duty
SERVICE USER	Full coverage of Scotland and an improved and expanded range of services on offer
	Improved functionality and ease of use of online tools to meet Service User requirements
	Independent funding so that local services are resourced sustainably and consistently provided across Scotland
FUNDER	Better understanding and coordination across various stakeholders and commitment to achieving shared objectives
	Commitment from Scottish Government required to valuing, determining and funding an improved national to local infrastructure
	Full coverage of Scotland
FACILITATOR	Review the NBN Board of Trustees for capacity/capability; improve dialogue with stakeholders so that we consult well and take opportunities
	Centralise/pool technology and data management but facilitate distributed access and local content, resource key roles (e.g. verifiers)
	Create a funding model that does not conflict with open data and that facilitates a sustainable network for all



**Table 15: The number of responses with ideas for improvements per broad theme and role**

**“What ideas do you have for specific changes or general improvements that could help resolve any of these issues for you as a <role>?”**

(where the issues referred to are those suggested by the respondent in a prior question)

BROAD THEME (with dark blue shading to show the ‘top three’ per role where at least two comments were received; pale blue shading shows equal 3 <sup>rd</sup> place; dark green shows the ‘top three’ overall while pale green highlights themes present in at least one role’s ‘top three’)	FUNDERS	FACILITATORS	DATA DEVELOPERS	SCHEMES	CURATORS	GROUPS	SERVICE USERS	SERVICE PROVIDERS	DATA PROVIDERS	VERIFIERS	DATA USERS	RECORDER	Total:
Outreach, networking, training and capacity building			1	2	3	4	3	2	1	8	4	28	56
Sufficient sustainable resourcing	1	2	3	2	4	3	3	3	4	6	5	12	48
Functionality and ease of use of online tools						2	2	2	4	4	10	23	47
An improved national to local data infrastructure	2	2		1		2		5	3	1	4	13	33
Clarity on, and improvement of, data flows		1	1	1				1	1	2	2	15	24
Standardisation, consolidation or centralisation		1		1				1		3	3	13	22
Improved coordination and integration, reduced duplication	1					1	1		1	1	4	11	20
Other	1				1	1	1		2	2	3	7	18
Full coverage of Scotland							5		1		5	5	16
Improved data availability			1				1		1	1	6	5	15
Verification		1				1				4	7	1	14
Access to experts and other resources					1					2	1	7	11
Open Data			1						1		3	4	9
Recognition and feedback									1	2		4	7
Improved data quality										3		4	7
Promotion of the value of biodiversity data and recording					2			1				2	5
Use of biodiversity data for decision-making								3				1	4
Recording of priority or under-recorded sites or species												1	1
Access to EIA data											1		1
Total:	5	7	7	7	11	14	16	18	20	39	58	156	358

## ii. Priorities for SBIF attention

In response to being asked for the top three priorities for earliest or greatest SBIF attention, 226 respondents made 564 suggestions. Each suggestion was classified as being primarily related to one of twenty broad themes (**Table 16**) and the relative priorities (calculated as the percentage of responses within each role that related to each theme) for all respondents was then compared with that for each role (**Figure 117**). Note that as percentages for each role were calculated by dividing the number of suggestions related to a given theme by the total number of suggestions from respondents holding that role, responses from respondents holding more than one role would be counted multiple times.

Across all respondents and for Recorders, Recording Group Operators and Data Users, the three broad themes with the largest number of suggestions were 1) 'outreach, networking, training and capacity-building', 2) 'sufficient, sustainable resourcing' and 3) 'functionality and ease of use of online tools'. However for other roles priorities differed slightly, for example: Services Providers' top 'three' were 1) 'sufficient sustainable resourcing', 2) 'an improved national to local data infrastructure', and equal third 3) 'clarity on, and improvement of, data flows' and 'full coverage of Scotland'. Funders' top 'three' were 1) 'an improved national to local data infrastructure', 2) 'sufficient sustainable resourcing' and equal third 3) 'outreach, networking, training and capacity-building' and 'clarity on, and improvement of, data flows'. Scheme Operators' top three were equal first 1) 'clarity on, and improvement of, data flows' and 'outreach, networking, training and capacity-building' and 2) 'sufficient sustainable resourcing'.

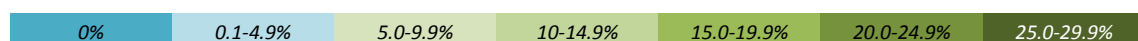
**Table 16: Broad themes used to classify priorities for SBIF attention**

**Given that the SBIF Review could potentially identify and facilitate many key improvements across our biological recording network, what would be your top three priorities for earliest or greatest attention?**

BROAD THEME	EXAMPLE COMMENT
OUTREACH, NETWORKING, TRAINING AND CAPACITY BUILDING	"Taxonomic training programmes for all to produce future expertise"
SUFFICIENT SUSTAINABLE RESOURCING	"Sustainable funding for the kind of services provided by LERCs and for recording (short-term and uncertain funding is problematic)"
FUNCTIONALITY AND EASE OF USE OF ONLINE TOOLS	"A workable national online platform where recorders can easily view the product of their efforts"
CLARITY ON, AND IMPROVEMENT OF, DATA FLOWS	"Provide a clear data path for recorders related to all the different ways data can be submitted to a plethora of schemes"
AN IMPROVED NATIONAL TO LOCAL DATA INFRASTRUCTURE	"Develop and propose an integrated national to local structure to deliver SBIFs aims."
IMPROVED COORDINATION AND INTEGRATION, REDUCED DUPLICATION	"Bringing independent data aggregation and supply organisations together to work with, not against, each other"
IMPROVED DATA AVAILABILITY	"Increased access to datasets e.g. from ecological consultancies, government organisations and recording groups"
STANDARDISATION, CONSOLIDATION OR CENTRALISATION	"Standardised recording criteria and clear, unambiguous data flow pathway to assist in data mobilisation"
FULL COVERAGE OF SCOTLAND	"Provision of the kind of service provided by LERCs (including data searches and recorder support, etc.) for all areas in Scotland"
IMPROVED DATA QUALITY	"improved location resolution of records"
VERIFICATION	"Remove the reliance on volunteer verification and provide a funded scheme of approved professionals"
OPEN DATA	"Open Data- investigating an appropriate way for it to operate within the sector"
PROMOTION OF THE VALUE OF BIODIVERSITY DATA AND RECORDING	"Recognition by local and Scottish governments of the importance of biological data"
OTHER	"Keep listening to recorders"
RECOGNITION AND FEEDBACK	"Greater feedback on how data is used - I get lots from BirdTrack eg - just the opening screen can be inspiring"
USE OF BIODIVERSITY DATA FOR DECISION-MAKING	"Strengthen the duty on public and private organisations to use biological data in decision making"
ACCESS TO EIA DATA	"Engage commercial developers to share their biological data, especially from EIAs, by showing them the benefits that can be gained (e.g. from adjacent developments, case studies, etc.). Developers are not necessarily opposed to data sharing but need to be proactively approached."
ACCESS TO EXPERTS AND OTHER RESOURCES	"Access to local experts and equipment"
RECORDING OF PRIORITY OR UNDER-RECORDED SITES OR SPECIES	"Increase data for under-recorded areas and taxa"
IMPROVE RECORDING OF EFFORT AND ABSENCE	"Developing the systematic recording of recording effort as well as records"

**Figure 117: Relative priorities for SBIF attention by broad theme and role**

	All	Recorder	Verifier	Curator	Group Operator	Scheme Operator	Data Provider	Data Developer	Data User	Service Provider	Service User	Funder	Facilitator	n
Outreach, networking, training and capacity building	16.3%	17.8%	11.6%	20.6%	22.1%	18.8%	11.1%	6.1%	9.8%	6.2%	7.4%	11.1%	3.7%	92
Sufficient sustainable resourcing	12.1%	12.0%	14.4%	9.5%	19.5%	14.6%	18.5%	18.4%	15.4%	29.2%	14.1%	22.2%	22.2%	68
Functionality and ease of use of online tools	10.6%	12.0%	4.1%	6.3%	11.7%	6.3%	6.5%	6.1%	10.8%	4.6%	10.4%	0.0%	7.4%	60
Clarity on, and improvement of, data flows	9.6%	9.2%	12.3%	7.9%	10.4%	18.8%	14.8%	12.2%	9.8%	7.7%	9.6%	11.1%	11.1%	54
An improved national to local data infrastructure	6.9%	6.4%	10.3%	4.8%	7.8%	4.2%	9.3%	12.2%	7.2%	12.3%	10.4%	25.9%	18.5%	39
Improved coordination and integration, reduced duplication	6.9%	7.5%	8.9%	6.3%	5.2%	0.0%	2.8%	4.1%	7.2%	4.6%	8.9%	3.7%	7.4%	39
Improved data availability	6.6%	6.9%	4.8%	6.3%	0.0%	8.3%	4.6%	10.2%	8.5%	3.1%	8.9%	0.0%	0.0%	37
Standardisation, consolidation or centralisation	5.1%	5.2%	7.5%	9.5%	1.3%	8.3%	2.8%	4.1%	3.6%	3.1%	2.2%	3.7%	3.7%	29
Full coverage of Scotland	4.4%	3.4%	2.1%	3.2%	2.6%	2.1%	3.7%	2.0%	5.2%	7.7%	6.7%	7.4%	0.0%	25
Improved data quality	3.7%	3.2%	4.1%	7.9%	1.3%	2.1%	2.8%	8.2%	4.3%	1.5%	4.4%	0.0%	3.7%	21
Verification	3.5%	3.4%	5.5%	4.8%	3.9%	4.2%	4.6%	2.0%	3.6%	4.6%	3.7%	3.7%	3.7%	20
Open Data	2.8%	2.8%	3.4%	1.6%	2.6%	6.3%	8.3%	4.1%	3.0%	4.6%	4.4%	3.7%	7.4%	16
Promoting the value of biodiversity data and recording	2.8%	3.0%	2.7%	6.3%	3.9%	4.2%	1.9%	2.0%	3.3%	4.6%	1.5%	3.7%	3.7%	16
Other	2.3%	1.9%	2.7%	1.6%	2.6%	0.0%	0.9%	2.0%	2.6%	0.0%	1.5%	3.7%	0.0%	13
Recognition and feedback	1.8%	1.7%	2.1%	0.0%	2.6%	2.1%	1.9%	2.0%	1.3%	3.1%	3.0%	0.0%	7.4%	10
Use of biodiversity data for decision-making	1.4%	0.6%	2.1%	1.6%	0.0%	0.0%	1.9%	4.1%	1.6%	3.1%	2.2%	0.0%	0.0%	8
Access to EIA data	1.1%	0.6%	0.7%	0.0%	2.6%	0.0%	2.8%	0.0%	1.3%	0.0%	0.7%	0.0%	0.0%	6
Access to experts and other resources	0.7%	0.9%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%	0.0%	0.0%	4
Recording of priority or under-recorded sites or species	0.7%	0.6%	0.7%	0.0%	0.0%	0.0%	0.9%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	4
Improve recording of effort and absence	0.5%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	3
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
n	564	466	146	63	77	48	108	49	305	65	135	27	27	



## 4. List of Contributors

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Ian Malcolm  
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Jimmy McKellar, HBRG  
Ali McKnight, Agroecosystems Ltd  
Colin McLeod, Scottish Natural Heritage  
Steve J. McWilliam  
Alan Millar  
Stephen Moran, Highland Biological Recording Group  
Innes Muir, Self-employed ecologist  
Wendy Murray, East Haven Together

**- N -**

David Nairn, Clyde Porpoise CIC - Clyde Marine Mammal Project  
Sam Neal, Norfolk Biodiversity Information Service (NBIS)  
Peter Norman, Dumfries and Galloway Council

**- O -**

Christine Oines, National Trust for Scotland  
Steffen Oppel, RSPB Centre for Conservation Science  
Alan Outen, Beds Invertebrate Group, Herts and Beds Fungi Group  
Outer Hebrides Biological Recording

**- P -**

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Nicole Pearson  
Dr William S. Penrice, Fife Council  
Allan Perkins, RSPB Scotland  
Gill Perkins, Bumblebee Conservation Trust  
Anna Perks, Falkirk Council  
Bruce Philp  
Bernard Picton, National Museums Northern Ireland  
John Pitts  
Mark Pollitt, DGERC

**- Q -**

**- R -**

Neil Redgate, Northern Highlands Ecological Research Centre  
Glenn Roberts, North East Scotland Biological Records Centre  
Colin Russell, West Wales Biodiversity Information Centre.  
Kevin Rylands, Dawlish Warren Recording Group; Devon Birds

**- S -**

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Scottish Natural Heritage  
Roy Sexton, Stirling and Clacks SWT Group  
Reuben Singleton, Tweed Ecology Limited  
David Slade, Glamorgan Moth Recording Group

Matthew Smith, Tachinid Recording Scheme  
Richard Smith, Fife Council  
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Malcolm Storey  
Sustrans  
Richard Sutcliffe, Glasgow Museums

**- T -**

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**- U -**

**- V -**

**- W -**

J. Waclawski, Sustrans  
Jeff Waddell, BSBI, Butterfly Conservation & RSPB  
Alice Walters, WDC Shorewatch Programme  
April Warburton, RSPB  
Fiona Ware, National Museums Scotland  
Stephen Welch, The Scottish Ornithologists' Club (Lothian branch)  
Ashleigh Whiffin, National Museums Scotland  
Laura White, Sustrans  
Simon Whitworth, Aberdeen City Council Countryside Ranger Service  
Jonathan Willet, BRISC  
Emma Williams, Aberdeenshire Council  
Jill Williams, Plantlife Scotland  
Jeremy Wilson, RSPB Scotland  
Elaine Wright, SEWBReC  
Tony Wilson

**- X -**

**- Y -**

Mark Young

**- Z -**

## 5. List of appendices

The following appendices are available separately:

- APPENDIX 1: List of questions used in the questionnaire
- APPENDIX 2: List of Open Data comments
- APPENDIX 3: List of motivation comments
- APPENDIX 4: List of morale comments
- APPENDIX 5: List of what is working well and less well by broad theme
- APPENDIX 6: List of ideas and priorities for improvements