RENEW

iNaturalistUK Survey 2024:

NBN Trust Question Summaries

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University of Exeter

National Trust

UKRI Natural Environment Research Council

Introduction

This report presents findings from a study conducted as part of the RENEW project (https://renewbiodiversity.org.uk), funded by the Natural Environment Research Council. The research was led by Emma Squire and Devmini Bandara from the RENEW team at the University of Exeter as part of their doctoral studies, in collaboration with the National Biodiversity Network Trust (NBN Trust), UK.

The study represents one of the first comprehensive efforts to explore the users of the iNaturalistUK platform, aiming to understand who the users are, how they engage with the platform, and what motivates their participation.

This report details the results of the analysis based on data collected through the iNaturalistUK user survey 2024.

Methods

iNaturalistUK registered users were invited via email to complete an online survey. via the survey platform Qualtrics. The survey comprised of six main sections, which asked questions about the participants:

1. Health and wellbeing,
2. Environmental profiles, attitudes and behaviour,
3. Participation in and motivation for iNaturalist use,
4. Outdoor visits,
5. Location,
6. Socio-demographics (e.g. work status, income, ethnicity, etc.)

Once participants had followed the link to the online survey using the survey interface run by Qualtrics, they were be presented with an information sheet about the survey and what participation entails. They were then required to respond to a series of items checking their consent before proceeding with the survey.

The survey was designed to take approximately 15 to 20 minutes to complete. The questions in the survey included existing reliable and valid measures, targeting determinants of environmental behaviour drawn from previous research, questions from existing large UK surveys with internationally recognised questions (e.g. People and Nature Survey), and validated socio-demographic and health and wellbeing measures from the Office of National Statistics.

The University of Exeter Medical School Research Ethics Committee approved the finalised survey (Ref: 5990606).

Sampling

iNaturalist users aged 18 and over and residing in the UK (~47,000) were invited to participate in the cross-sectional survey. The invite to the survey questionnaire was distributed via email to registered iNaturalistUK users July 2024 and was live for three months. The email addresses were provided by the NBN Trust, adhering to data usage rules and NBN Trust terms and conditions. Participants were offered the opportunity to be entered into a draw to win a £100 voucher of choice or to donate the equivalent amount to a charity of choice as an incentive to those registered users who may be less engaged with iNaturalist to complete the survey.

Only fully completed responses were included in the analysis reported here: a final sample of 2,587 participants. This is a self-selecting sample and therefore generalisations about the views or characteristics of the wider population cannot be made.

Results

The findings, accompanied by illustrative figures, are detailed across three main sections in the report:

- **Section 1** - Socio-Demographic Profile of the iNaturalistUK Users
- **Section 2** - Spatial Distribution of iNaturalistUK Users
- **Section 3** - Participation in and Motivation for iNaturalist Use

Each section outlines the objectives of the analysis and explains the results.

All data were analysed using appropriate descriptive statistical methods, with analyses conducted using R statistical software, version 4.3.3

Section 1 – Socio-Demographic Profile of the iNaturalistUK Users

The following section aims to understand the key trends and patterns in the socio-demographic characteristics of this sample of iNaturalistUK users.

For this analysis, comparisons were made using both 2021 and 2011 UK Census data to provide contextual insights and evaluate how representative the iNaturalistUK survey participants are relative to the broader UK population. UK-wide comparisons for age and gender were based on the combined 2021 Census data *(Annual Mid-Year Population Estimates for the United Kingdom 2021, Office for National Statistics).* For other socio-demographic variables, 2021 Census data were not yet available; therefore, data from the 2011 Census were used for comparison *(Population and Household Estimates for the United Kingdom 2011, Office for National Statistics).*

Age distribution

The results revealed a clear skew toward older age groups among respondents, with over 30% of respondents aged 65 and above, higher than their share in the 2021 UK population (Figure 1.1). In contrast, adults aged 18-44 were notably underrepresented, suggesting that if this sample is representative of the whole iNaturalist user base (see introduction for discussion), there is lower engagement among younger users.

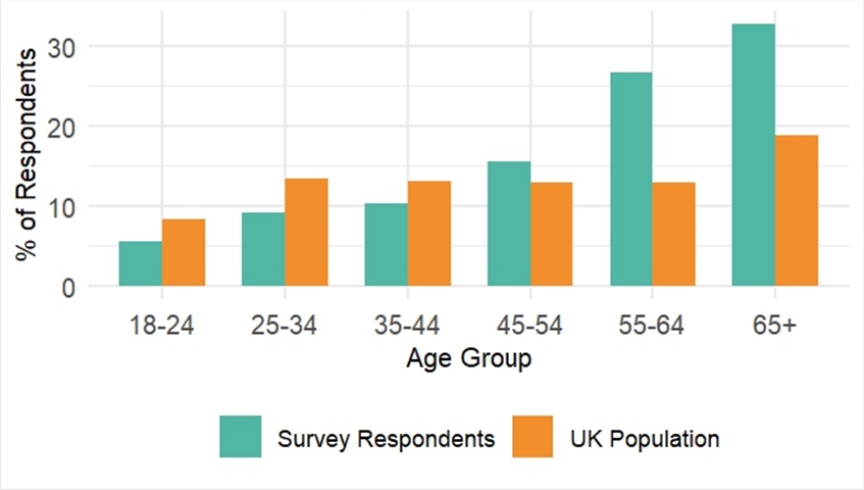


Figure 1.1 Percentage responses to age category compared with Census Data 2021. Participants were asked, *'What age did you turn on your last birthday?'*

Gender distribution

The results illustrated that respondents were almost evenly split in terms of gender. 49% were females, 49% were males, and 2% identified in another way, closely mirroring the gender distribution of the UK population in 2021 (Figure 1.2).

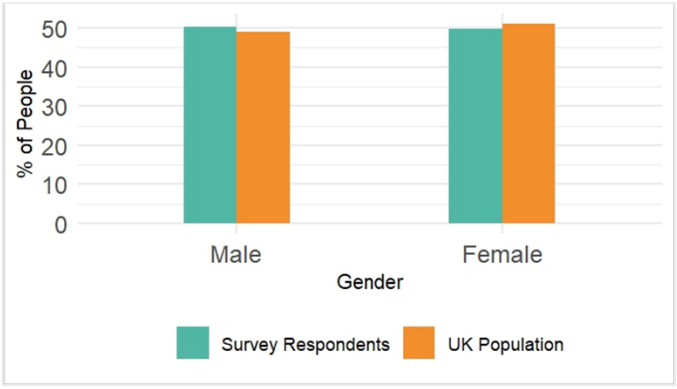


Figure 1.2 Percentage responses to gender category compared with Census Data 2021. Participants were asked, *'Which of the following describes how you think of yourself?'*

Age and gender composition

The largest group who responded to the survey were adults aged 55 and over. Within the age groups of 55-64 and 65+, male respondents were slightly higher than females. Conversely, within the 18-54 age range, males were consistently underrepresented compared to females. Further, the percentage of respondents aged 18-44 was noticeably lower across both genders. (Figure 1.3).

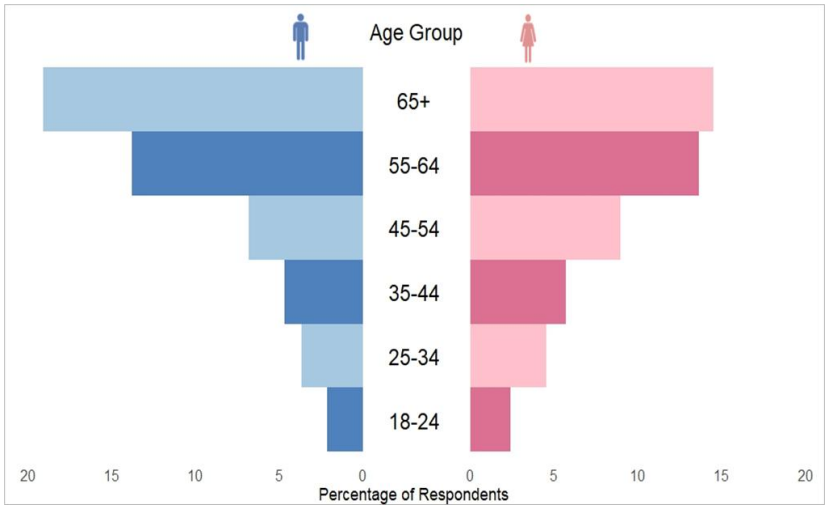


Figure 1.3 Age and gender composition of respondents (%) based on responses to survey questions on age and gender.

Sex orientation

As Figure 1.4 shows 80% of respondents identified as heterosexual or straight. In contrast, less than 5% identified as bisexual, gay or lesbian, or other sexual orientations, while a small portion (under 9%) preferred not to disclose.

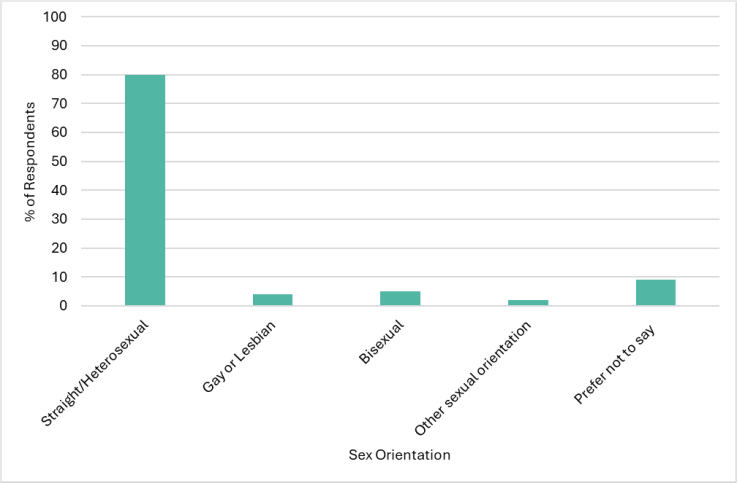


Figure 1.4 Percentage responses to sex orientation. Participants were asked *'Which of the following best describes your sexual orientation?'*

Marital status

The majority of respondents (52%) were married, a higher percentage than in the UK population in 2021. In contrast, those who were single made up a smaller percentage (17%) of respondents than in the UK overall (Figure 1.5).

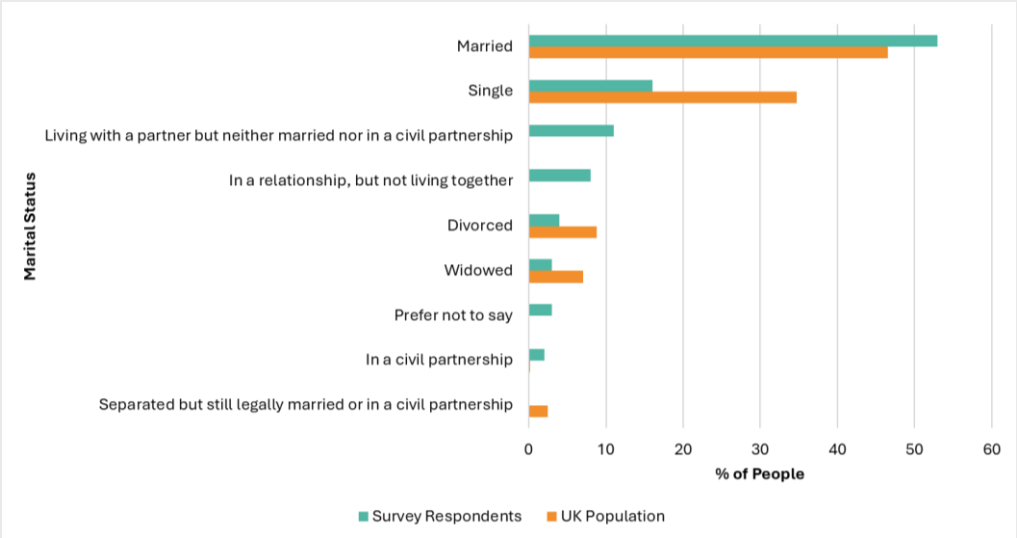


Figure 1.5 Percentage responses to marital status compared with Census Data 2011. Participants were asked, *'What is your current marital or relationship status?'*

Ethnicity

Figure 1.6 shows that most respondents were White, with 86% identifying as White English, Welsh, Scottish, Northern Irish, or British. 6% of respondents identified themselves as 'Any other White background', bringing the total White identifying group to over 90%. Representation from other ethnic groups was extremely low, with each non-White category including Asian, Black, Mixed, and other backgrounds accounting for less than 5% in total.

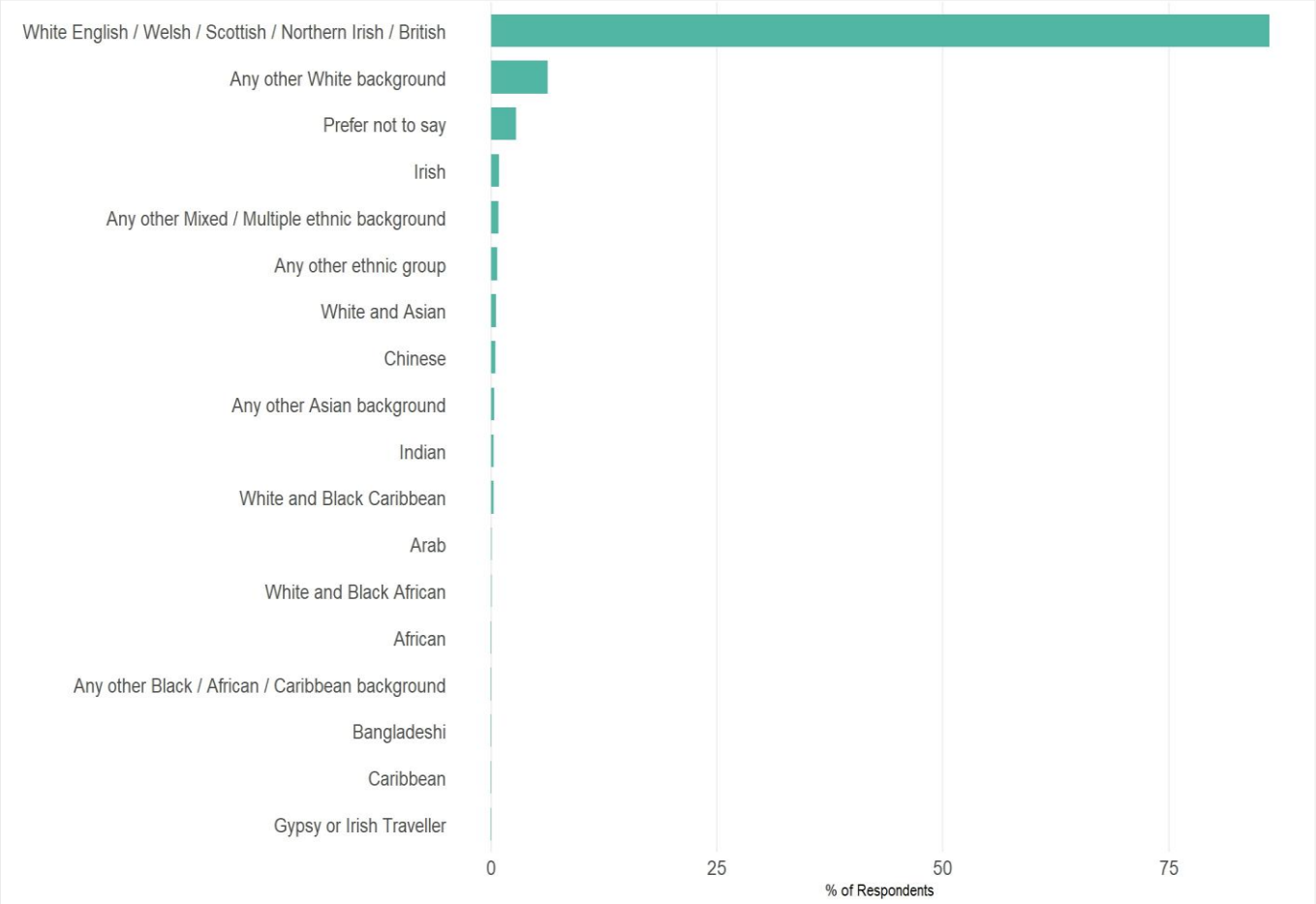


Figure 1.6 Percentage responses to ethnicity. Participants were asked, *'What ethnic group best describes you?'*

Education qualifications

The results revealed that respondents were highly educated compared to the UK population 2011. 72% of respondents reported that they held a university degree or higher, exceeding the national average (Figure 1.7). In contrast, less than 5% of respondents reported having no formal educational qualifications, considerably lower than the national figures.

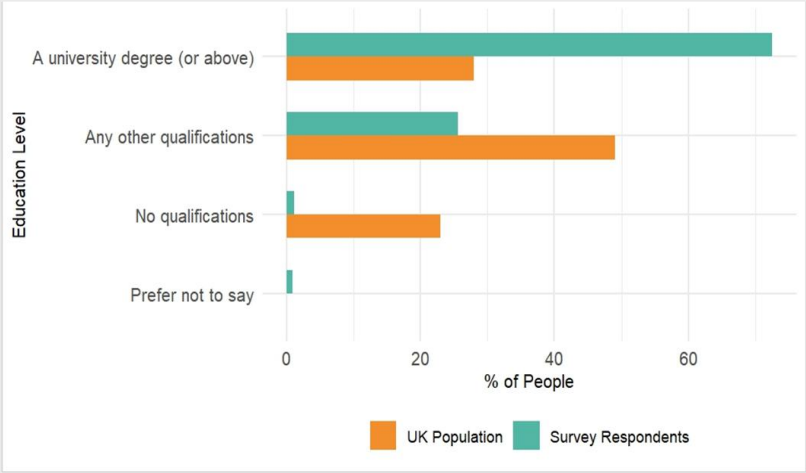


Figure 1.7 Percentage responses to education qualification compared with Census Data 2011. Participants were asked, *'What is your highest level of educational qualification?'*

The majority of the respondents (63%) did not have an educational or work-related background in environmental/ecological studies, research, or management, while only 33% reported having such a background, and 4% were not sure (Figure 1.8).

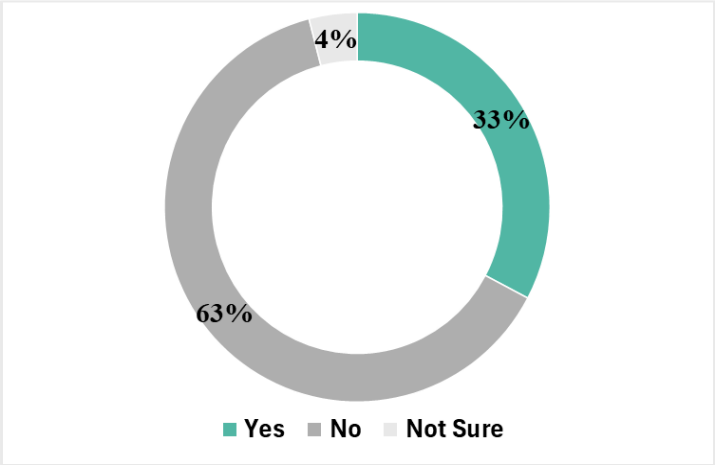


Figure 1.8 Percentage responses to educational or work-related background in environmental/ecological studies, research or management. Participants were asked, *'Do you have any substantial educational or work-related background in environmental/ecological studies, research, or management?'*

Household income

Most respondents reported being financially stable, with over half (53%) indicating they were *"living comfortably on their present income"* and 33% of respondents stated they were *"coping"*. In contrast, only a small minority (11%) reported experiencing financial hardship, with 9% finding it *"difficult"* and 2% reporting it was *"very difficult"* to manage on their present income (Figure 1.9).

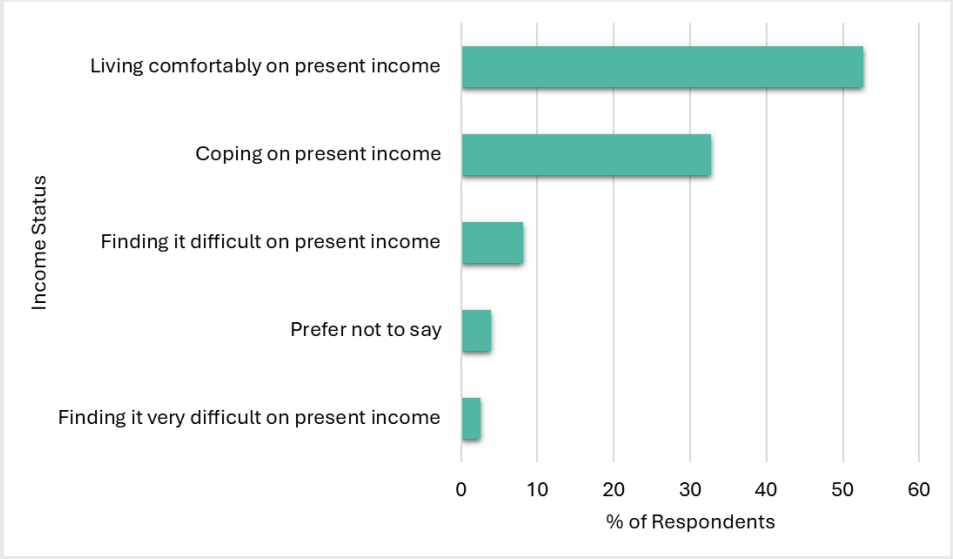


Figure 1.9 Percentage responses to household income. Participants were asked *'Which of the following comes closest to how you feel about your current household income?'*

Employment

35% of respondents were not employed or retired and 29% of respondents were in full-time employment. Each of these categories was slightly lower than found in the overall UK population. Additionally, there was a higher representation of 11% part-time, and 10% self-employed individuals, and a noticeably lower presence of (less than 5%) students, caregivers, and unemployed than in the wider population (Figure 1.10).

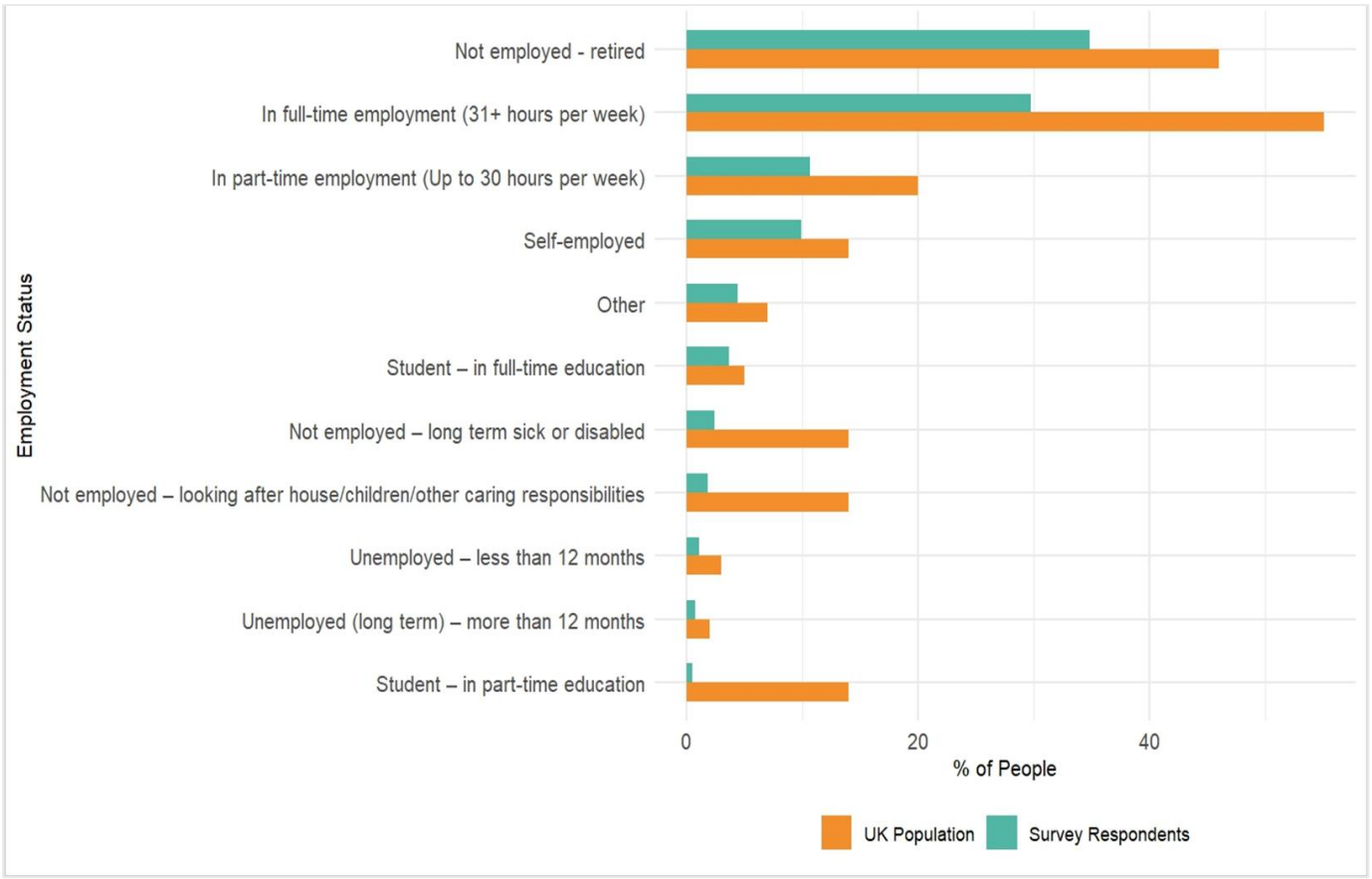


Figure 1.10 Percentage responses to employment status compared with Census Data 2011. Participants were asked *'Which of these descriptions best describes your situation?'*

Work industry

The majority of respondents who were employed, whether full-time, part-time, or self-employed, worked in knowledge-intensive sectors. 17.4% of respondents were found in *Professional, Scientific and Technical Activities*, closely followed by the *Education* sector (15.9%). Additionally, 12.7% of respondents reported that they worked in nature conservation, and another 12.7% were employed in other services. In contrast, industries such as real estate, mining, and transport were minimally represented (1.1% or below) (Figure 1.11).

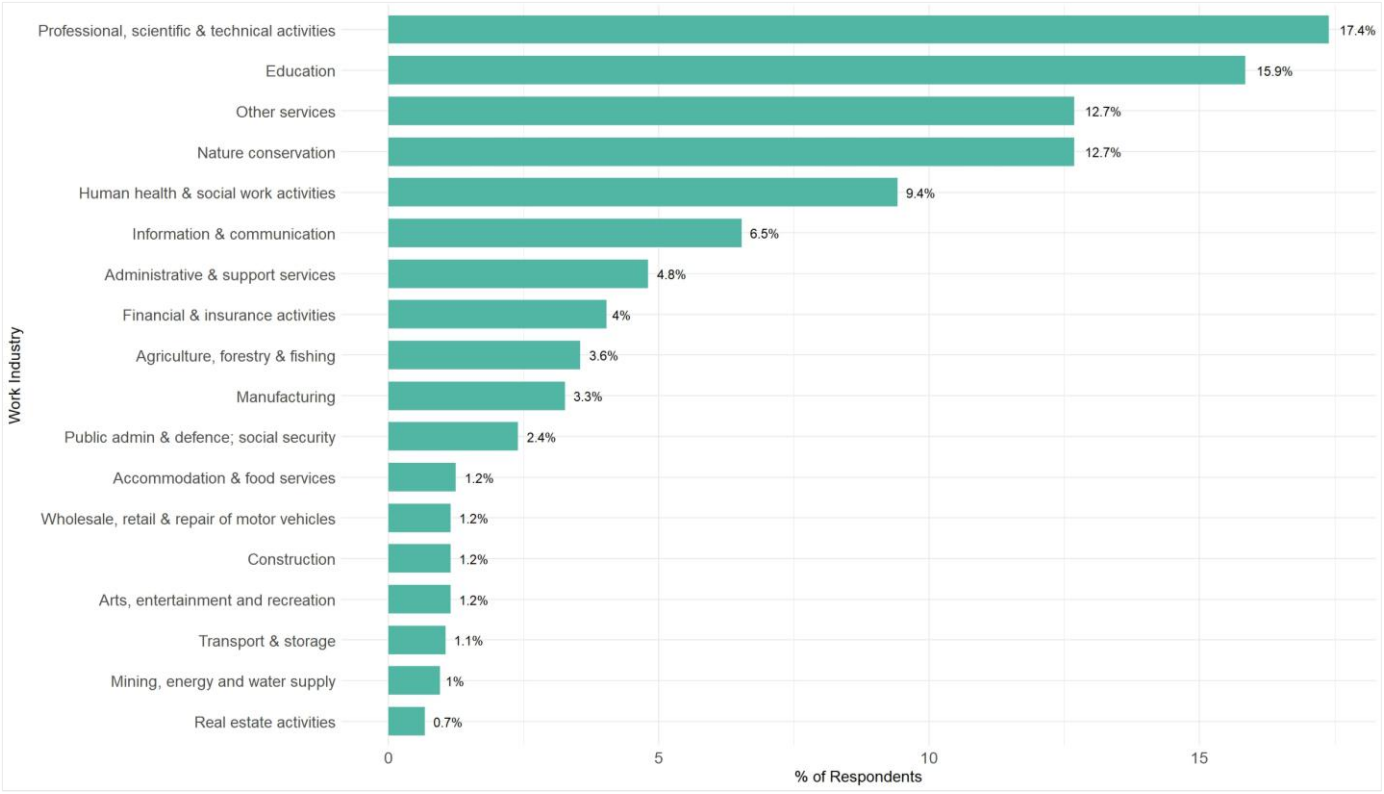


Figure 1.11 Percentage responses to work industry. Participants were asked, *'Which best describes the job you do?'*

Physical or mental health conditions

Among respondents, 70% identified as not having any physical or mental health conditions that limited their daily activities, 26% identified as having a physical or mental health condition that limited their daily activities, and 4% preferred not to disclose. (Figure 1.12).

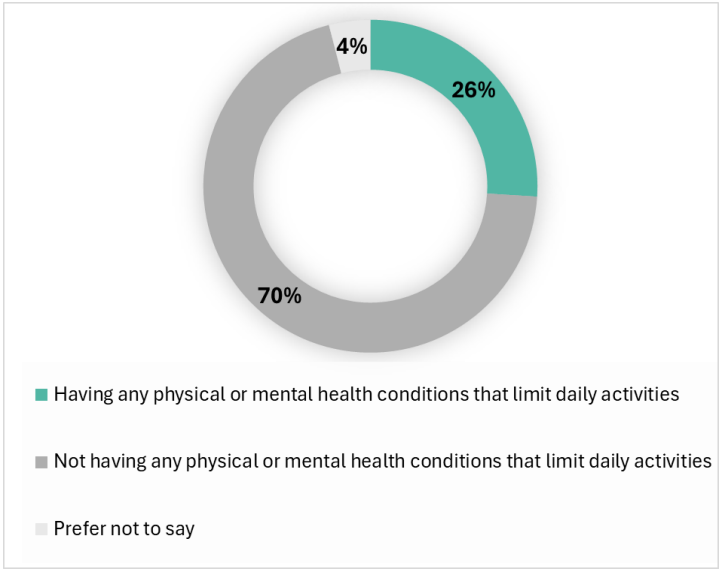


Figure 1.12 Percentage responses to any physical or mental disability. Participants were asked, "*Do you have any physical or mental health conditions that limit your daily activities?'*

Access to a car

78% of respondents reported that they normally had access to a car, van, or motorbike that they could use. A smaller percentage (7%) reported they occasionally had access, while 15% reported they did not have access to a car, van, or motorbike at all (Figure 1.13).

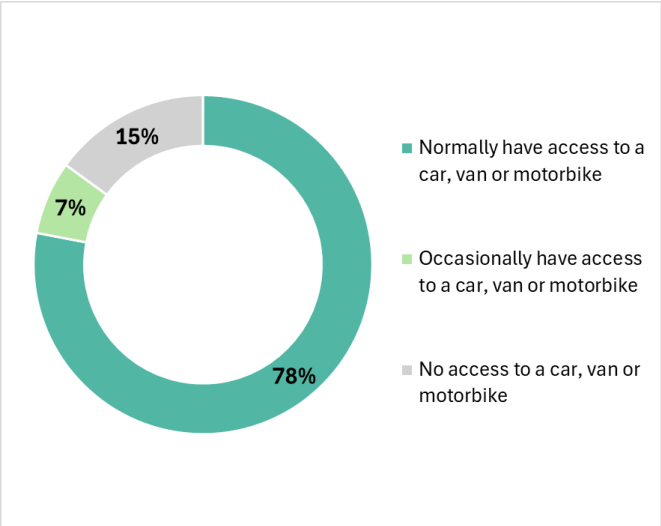


Figure 1.13 Percentage responses to accessibility to a car. Participants were asked, *'Do you normally have access to a car, van, or motorbike that you can use?'*

Access to a private garden

85% of respondents reported having access to a private garden. Additionally, 4% of respondents indicated having access to a private communal garden and 6% reported having access to a private outdoor space but not a garden, while just 5% reported having no access to any garden (Figure 1.14).

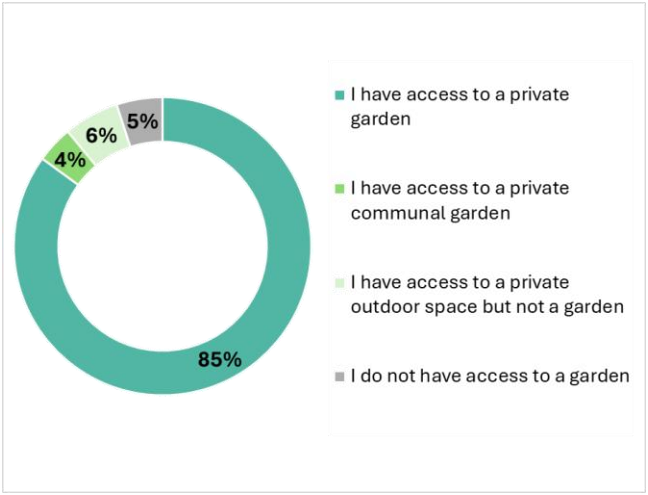


Figure 1.14 Percentage responses to accessibility to a private garden. Participants were asked, *'Which of the following best applies to you?'*

Dog ownership

26% of respondents reported having a dog in the household, while the majority (74%) reported that they do not have a dog (Figure 1.15).

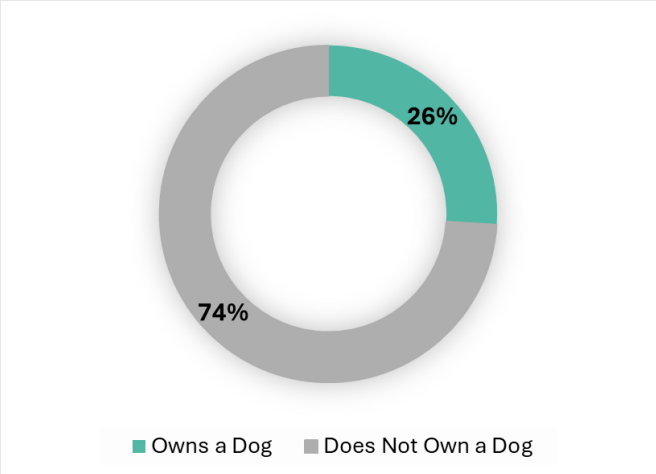


Figure 1.15 Percentage responses to having a dog in the household. Participants were asked, *'Are there any dogs in the household?'*

Section 2 – Spatial Distribution of iNaturalistUK Users

The following section aims to understand the spatial distributions of the respondents, aiming to determine regional variations and geographical patterns.

Spatial distribution of respondents

Figure 2.1 illustrates the spatial distribution of respondents across the UK at a 10x10km resolution, with user density ranging from 0 to 40 individuals per grid cell.

The spatial distribution of respondents was analysed based on the responses of respondents who either provided a valid postcode or answered survey questions regarding the region and urban context in which they lived. Further, 21 respondents from Northern Ireland are not represented in the below figure due to the unavailability of a downloadable shapefile at the postcode level for that region.

As Figure 2.1 shows, respondents were widely distributed throughout the UK, with the highest concentrations found in and around major urban centres, particularly London, the Midlands, and Bristol, which are highlighted in purple and blue. In contrast, Scotland and Wales display lower respondent counts, indicated by lighter green to white shading.

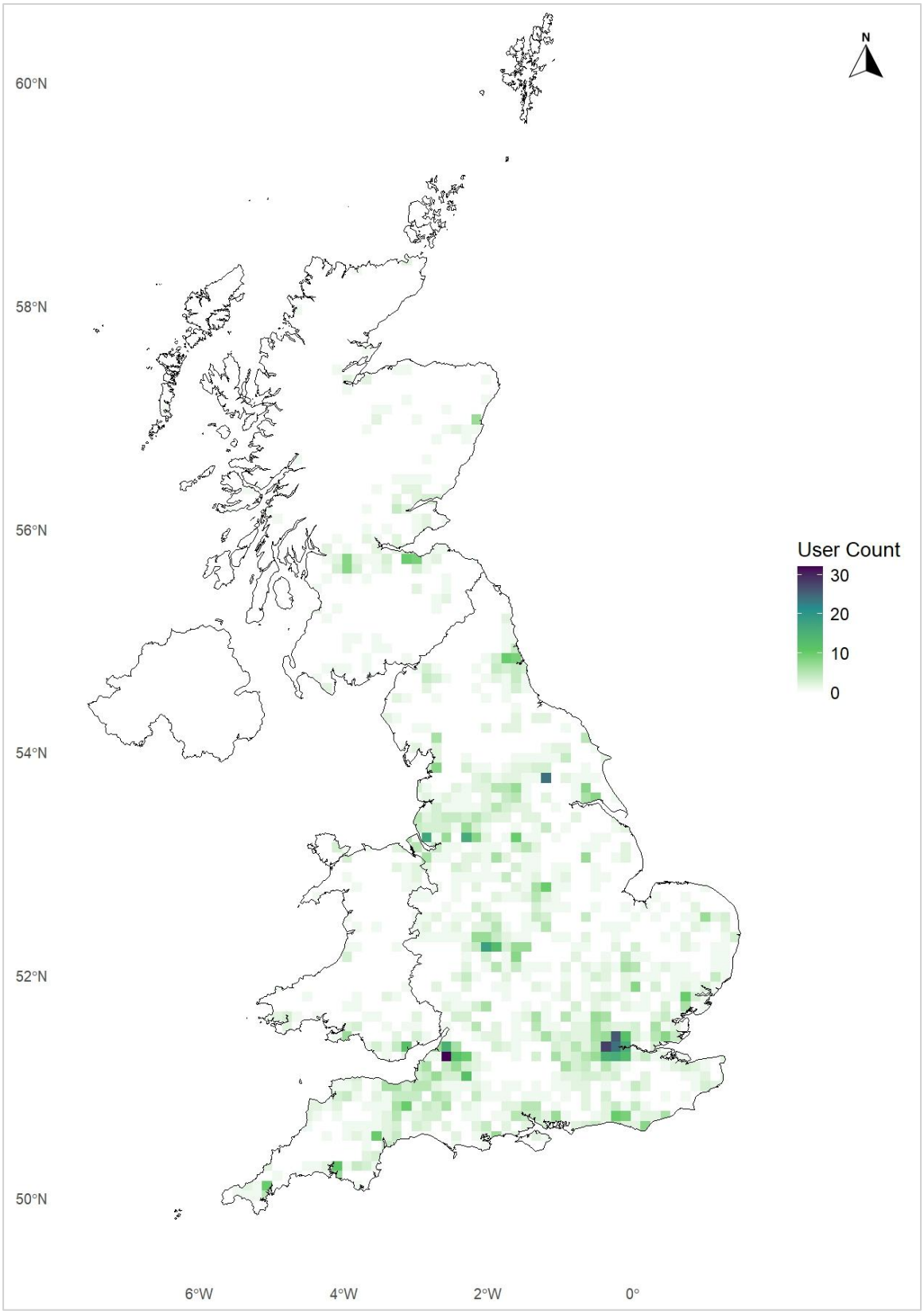


Figure 2.1 Respondent Spatial Distribution. Participants were asked the following questions: *Would you agree to share your postcode?* If yes, *please enter your valid UK postcode*. If not, *in what region/nation in the UK do you live?* and *Which of this best describes the general area where you live?'*

Section 3 – Participation in and Motivation for iNaturalist Use

The following section aims to understand respondents' usage of iNaturalist and their motivations for participating.

Connection to nature

The results show a strong appreciation for and emotional connection to nature. A majority of respondents (over 95% overall agreement) reported ‘always finding beauty in nature’ (67% strongly agree), consider ‘being in nature really amazing’ (58% strongly agree), say it makes them happy (66% strongly agree) and feel that ‘spending time in nature is important’ (74% strongly agree). Similarly, there is over 95% overall agreement that they always treat nature with respect, with 66% strongly agreeing. While feelings towards nature remain largely positive, the sense of belonging to the natural world shows slightly more variation. Although 90% of respondents agreed to some extent that they ‘feel part of nature’, only 38% strongly agreed (Figure 3.1).

Figure 3.1 Percentage responses to Nature Connection Index (NCI). Participants were asked *'How much do you agree or disagree with the following statements?'*

Finding out about iNaturalist

The most common ways respondents initially found out about iNaturalist were through existing users such as friends or family (24%) followed by conservation groups (13%). Social media (12%) and internet searches (11%) were also notable channels. The least common sources were via the National Biodiversity Network Trust website (2%) and through public presentations (1%) (Figure 3.2). Overall, the results highlight the importance of word-of-mouth and informal networks, while also showing that digital platforms and conservation organisations remain effective outreach tools.

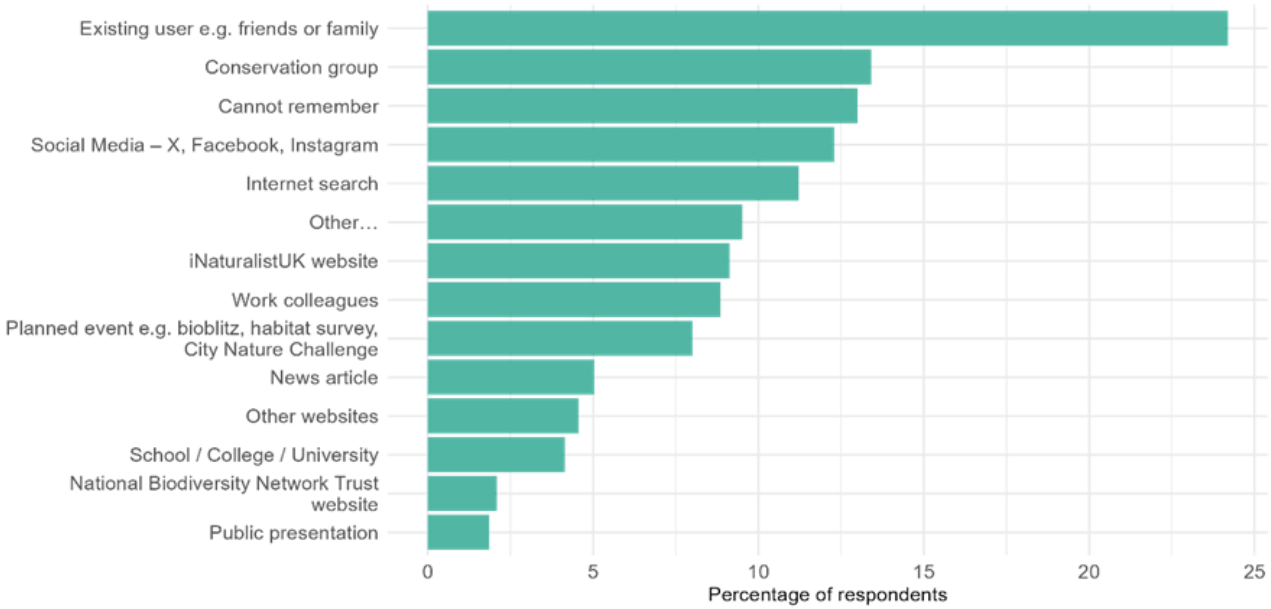


Figure 3.2 Percentage responses to the question *'How did you initially find out about iNaturalist?'* respondents were able to select more than one option.

User identity

The majority of the respondents identified as nature enthusiasts or hobbyists (67%). This was followed by those identifying as learners (39%), citizen scientists (35%) and naturalists (28%). Environmental and conservation-focused identities were also well represented, with environmentalists (23%), conservationists (22%), and ecologists (17%). A smaller group described themselves as outdoor pursuit enthusiasts (18%) (Figure 3.3).

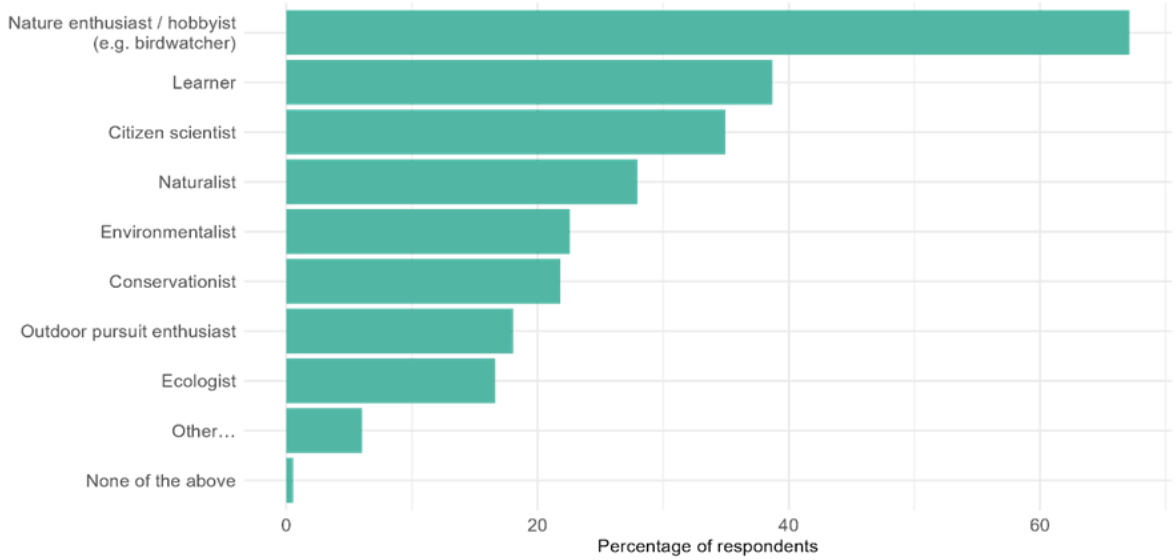


Figure 3.3 Percentage responses to the question *'In regard to being an iNaturalist user I think of myself as a:'* respondents were able to select more than one option.

Awareness of contribution to science and research

The majority of the respondents (93%) are aware that their submitted sightings to iNaturalist could be used to contribute to science and research.

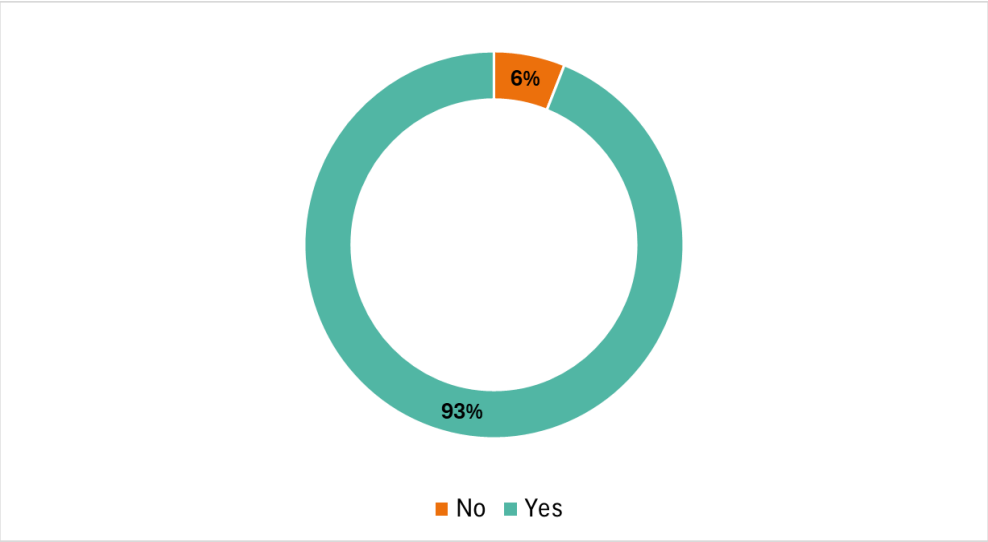


Figure 3.4 Percentage responses to the question *'Are you aware that your submitted sightings on iNaturalist could be used to contribute to science and research?'.*

Licensing choices

After providing the following information: *'Licensing your observations gives anyone the legal right to use it without asking your permission if they abide by the terms of the licence. By updating your observation licence from the iNaturalist default setting CC-BY-NC to CC0 or CC-BY you will give others permission to use your submitted sightings for science and research'*, the majority of the respondents indicated that they now plan to change their licence settings to enable others to use their submitted sightings for science and research (36%). A further 25% have already updated their licence settings. However, 27% would need more information before deciding and 12% have no plans to change. (Figure 3.5).

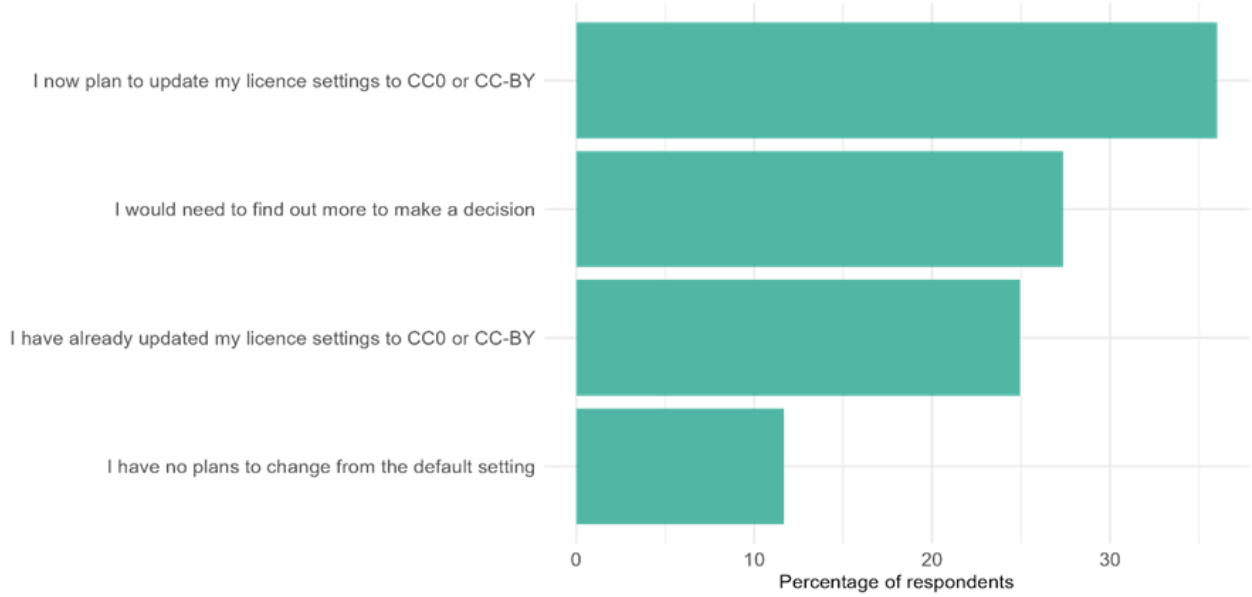


Figure 3.5 Percentage responses to the information shared and follow up question *'Licensing your observations gives anyone the legal right to use it without asking your permission if they abide by the terms of the licence. By updating your observation licence from the iNaturalist default setting CC-BY-NC to CC0 or CC-BY you will give others permission to use your submitted sightings for science and research. Considering this, which of the following statements applies to you:'.*

iNaturalist Community

Most respondents indicated that they did not interact with the iNaturalist community. However, a greater number reported that they feel part of the 'iNaturalist community'. There was more indifference in responses to the question of whether feeling part of the community was crucial to their involvement with the platform (Figure 3.6).

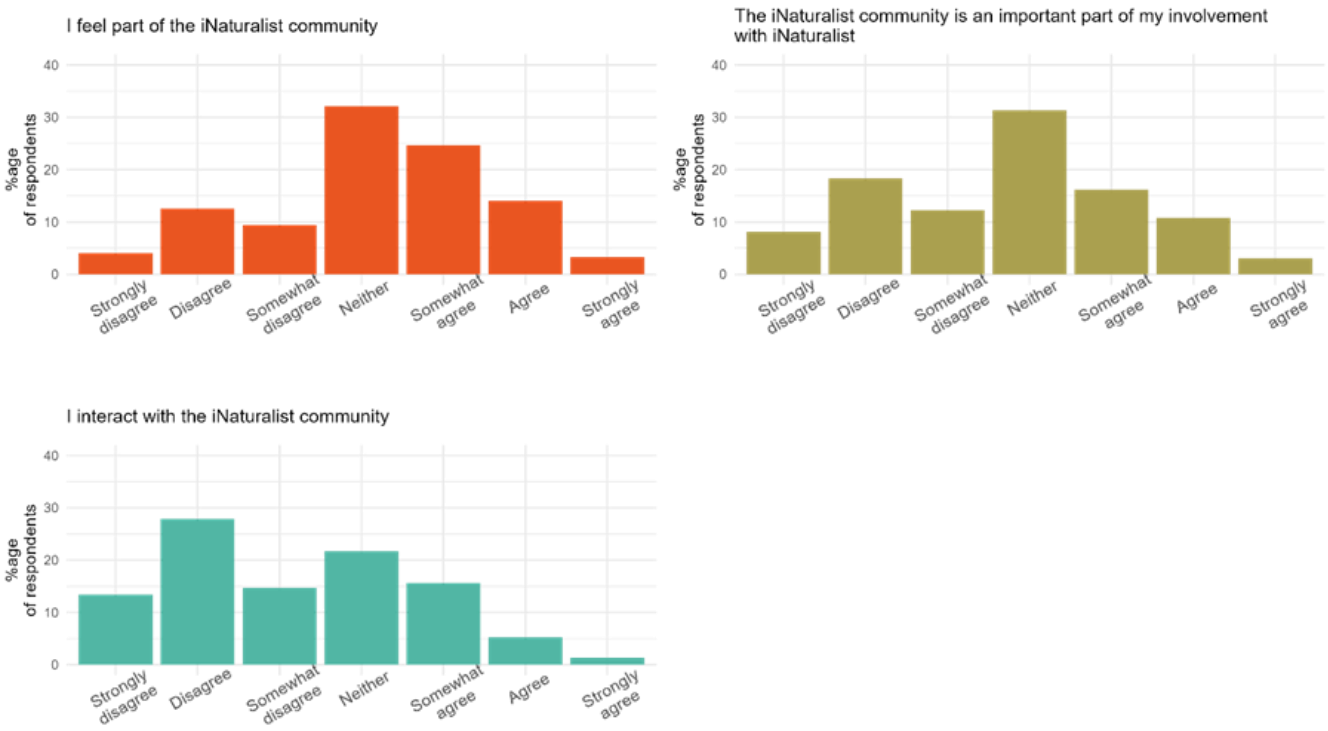


Figure 3.6 Percentage responses to the question *'How much do you agree or disagree with the following statements concerning the iNaturalist community of users (e.g. iNaturalist user leader boards, projects, journal posts and forums)?'.*

iNaturalist use

The majority of the respondents use iNaturalist to record and submit sightings for personal use (62%) and to contribute to biodiversity monitoring (58%). A substantial proportion indicated they submit sightings without engaging in identification or evaluation of others' records (33%), while many respondents also use iNaturalist to inspire others about nature (31%) and help others identify species (30%). Community and project-related motivations were also notable, with 25% submitting sightings for community interaction or leaderboard participation, and to contribute as part of project for a particular place or species. Participation in organisational or event-based projects (19%) was slightly less common.

Less frequent uses included identification without submission (14%), or as part of a job role (9%). A small portion use the platform (7%) for educational purposes, setting up monitoring

projects (6%), or engaging in the online forum (3%). Very few respondents (2%) only evaluate others' sightings without contributing their own. Nine percent are registered but inactive (Figure 3.7).

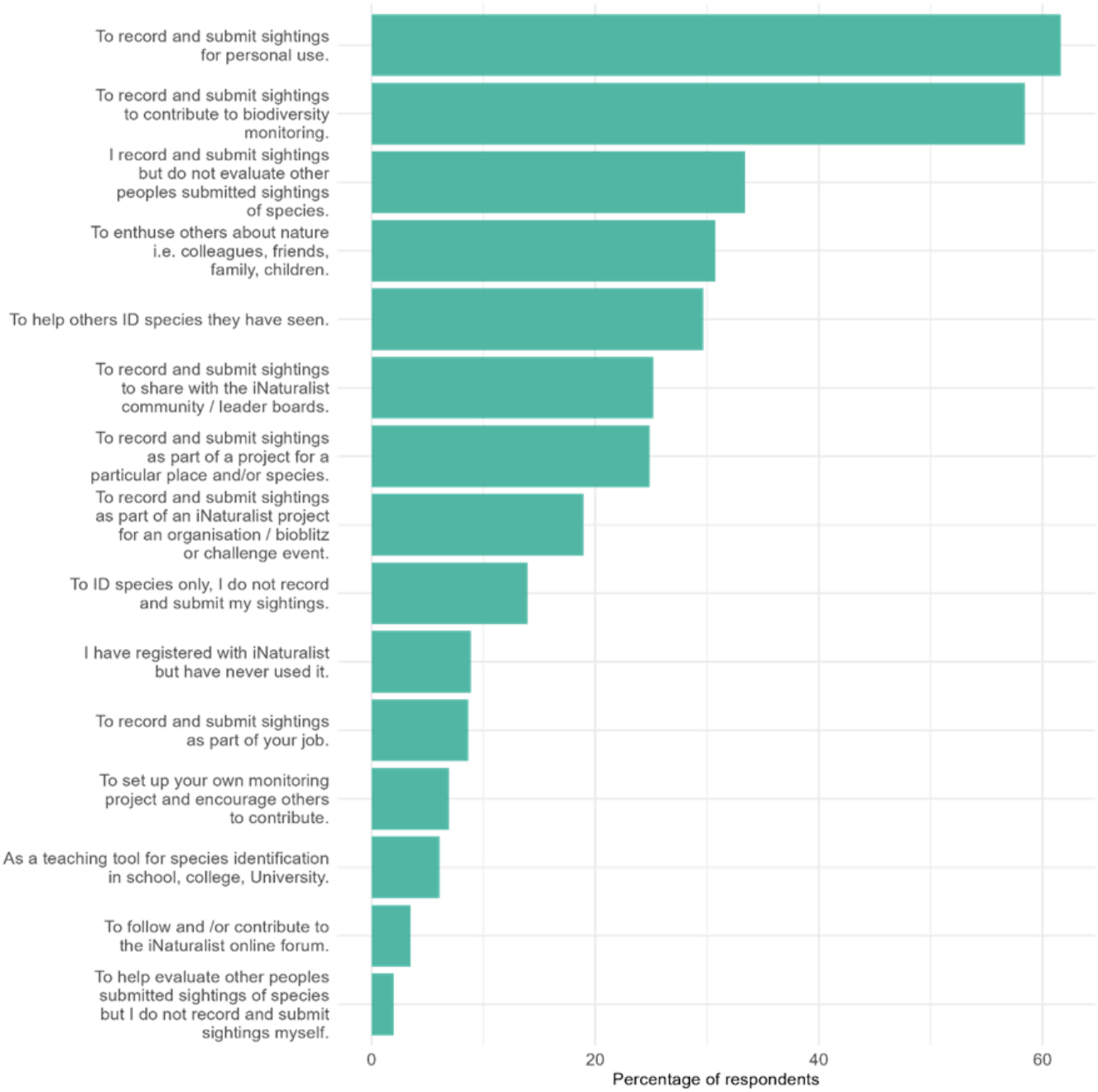


Figure 3.7 Percentage responses to the question *'Why do you use iNaturalist?'* (respondents were able to select more than one option).

Reasons why they do not evaluate others' submitted sightings

The reasons selected for not evaluating others' submitted sightings (n=799) included a lack of knowledge (20%), followed by a lack of confidence (15%). Other reasons included a lack of time (10%) and not being aware that evaluation was an option (7%). Less frequently mentioned reasons were shyness and avoidance of confrontation (2%).

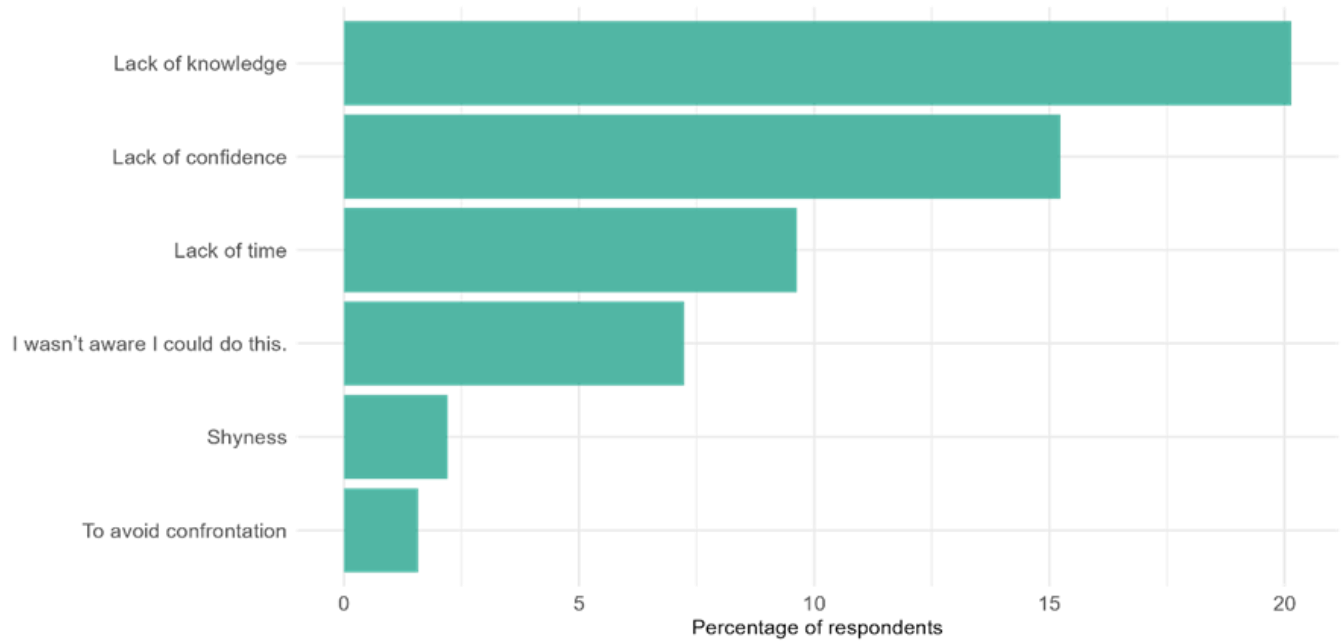


Figure 3.8 Percentage responses to the question *'Why do you record and submit sightings but do not evaluate other peoples submitted sightings on iNaturalist?'* (respondents were able to select more than one option).

Platform use

Among respondents who record and submit sightings to iNaturalist (n = 1957), the majority always use the iNaturalist app (Figure 3.9).

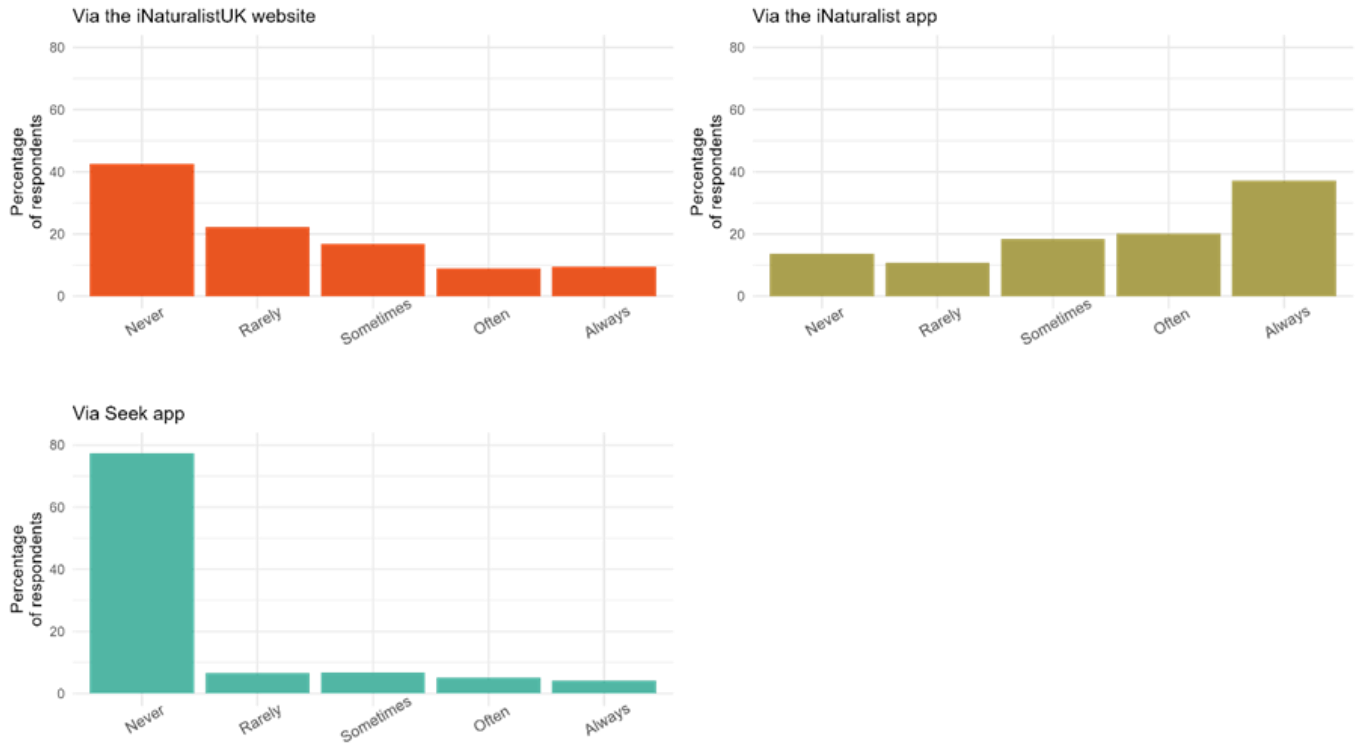


Figure 3.9 Percentage responses to the question *'How do you submit your sightings to iNaturalist?'*.

iNaturalist website use

Among respondents who record and submit sightings (n = 1957), 36% reported updating their submitted sightings via the iNaturalist website; however, 35% were not aware that this was possible (Figure 3.10).

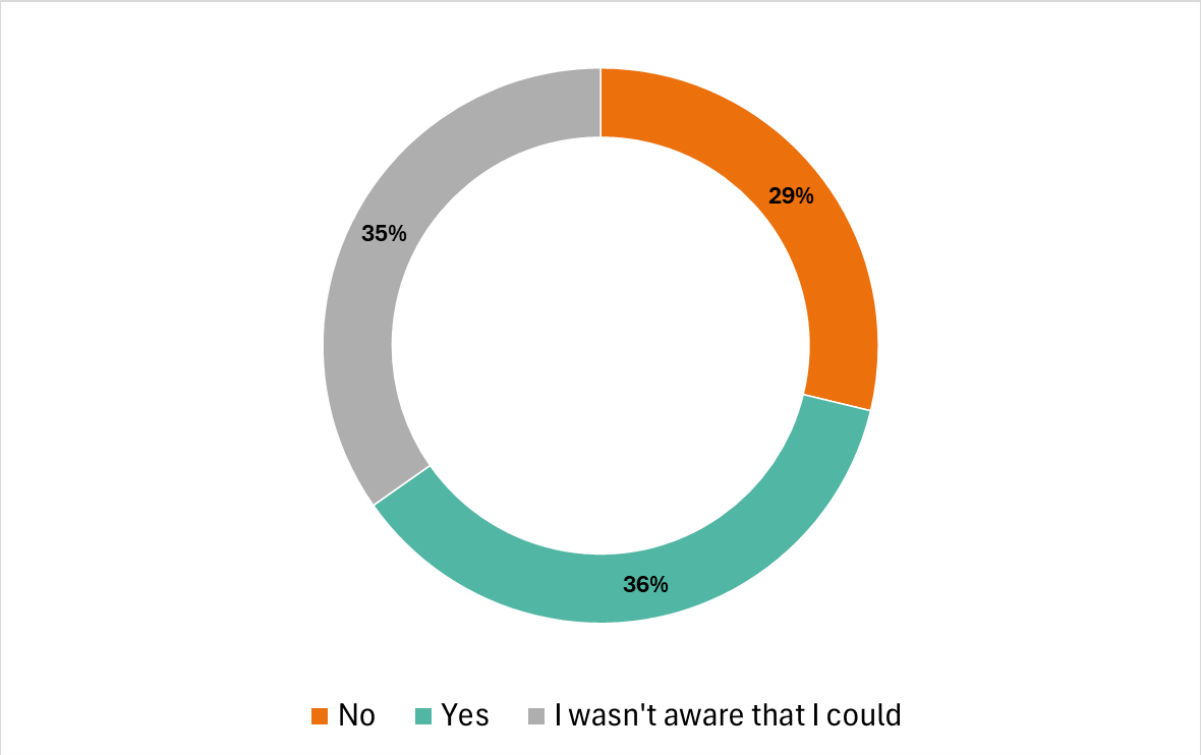


Figure 3.10 Percentage responses to the question *'Do you use the iNaturalist website to update your submitted sightings?'*.

Feedback on submitted sightings

Among respondents who record and submit sightings (n = 1957) the majority agreed that the feedback they received on their submitted sightings was useful and educational. Over 50% of respondents also agreed that the feedback motivated them to make more observations, while 35% were unsure if this was the case. They also indicated that the feedback did not discourage them from submitting future sightings. (Figure 3.11).

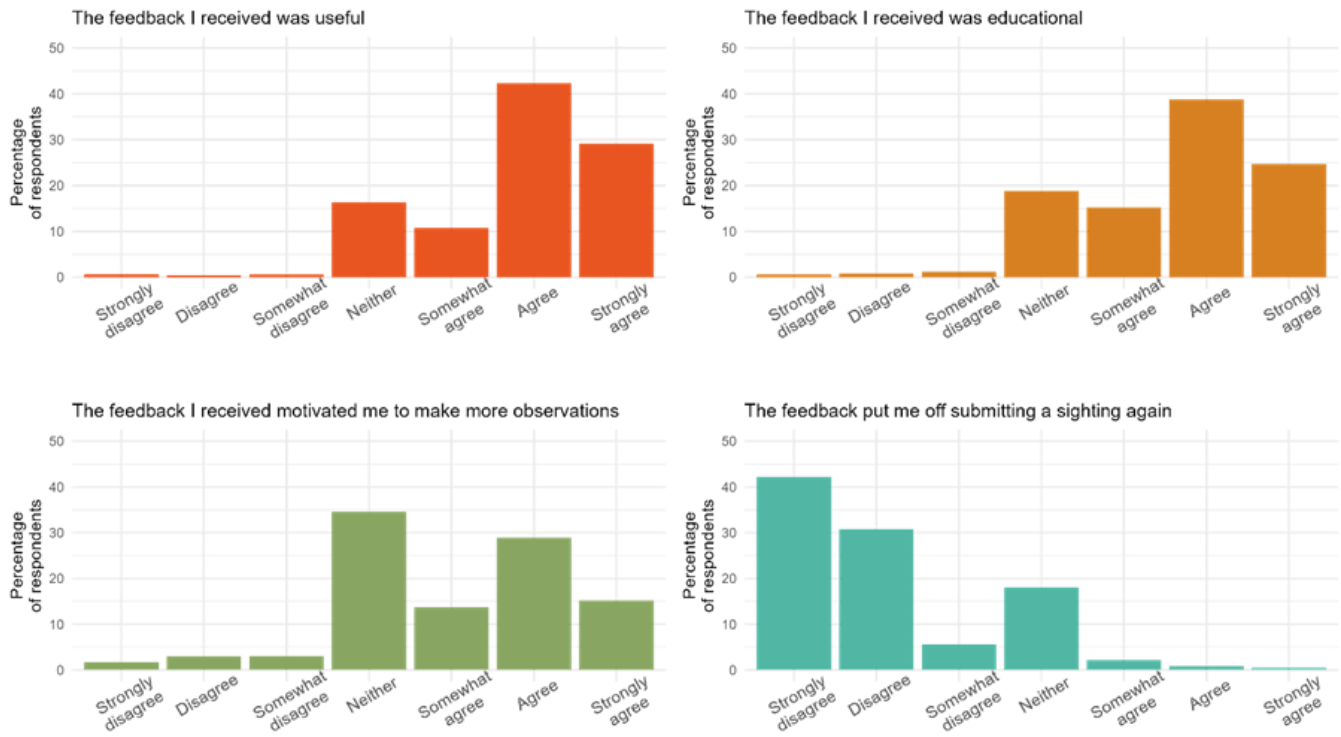


Figure 3.11 Percentage responses to the question *'If you have received feedback on your submitted sightings (e.g. on whether you identified a species correctly or any other comments), how much do you agree with the following statements?'*.

iNaturalist involvement

Among respondents who have used iNaturalist (excluding those who registered but never used it, *n* = 2357), 67% recommend iNaturalist to others, and 62% say their identification skills have improved. Additionally, 23% of respondents expressed interest in undertaking a training course related to species identification and biodiversity, while 8% reporting having already participated in such training. Furthermore, 6% have joined a national recording scheme / society as a result of their involvement in iNaturalist. However, 11% indicated that none of the listed outcomes were a result of their participation (Figure 3.12).

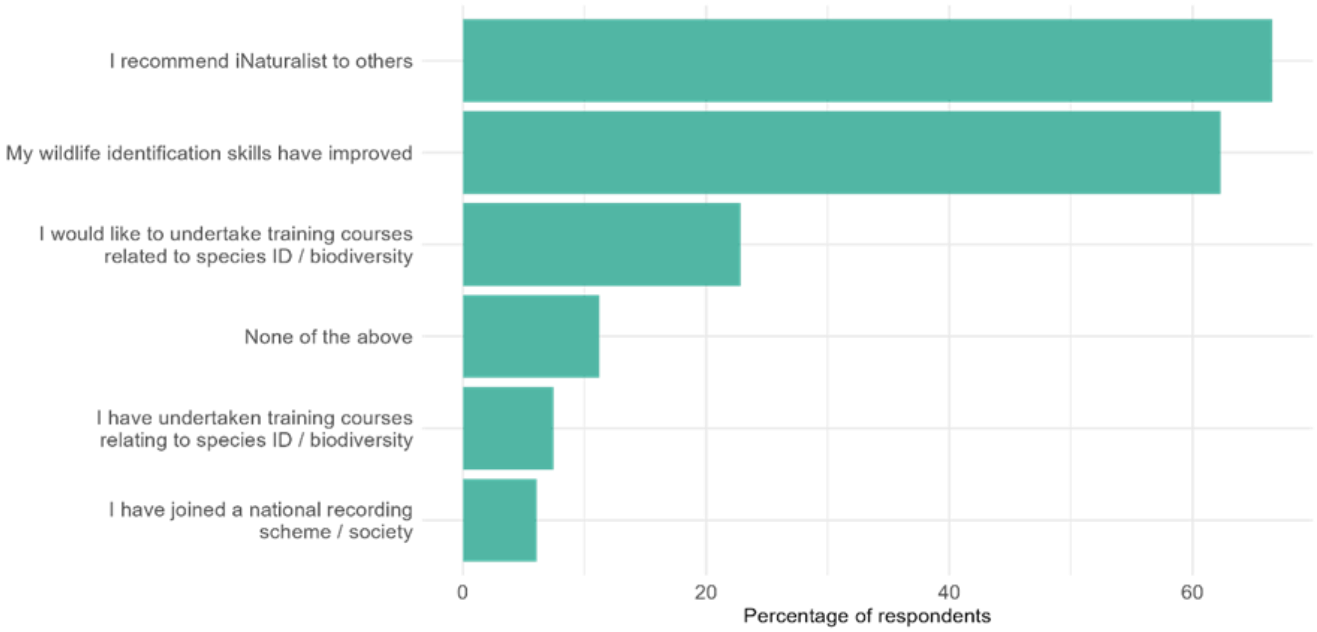
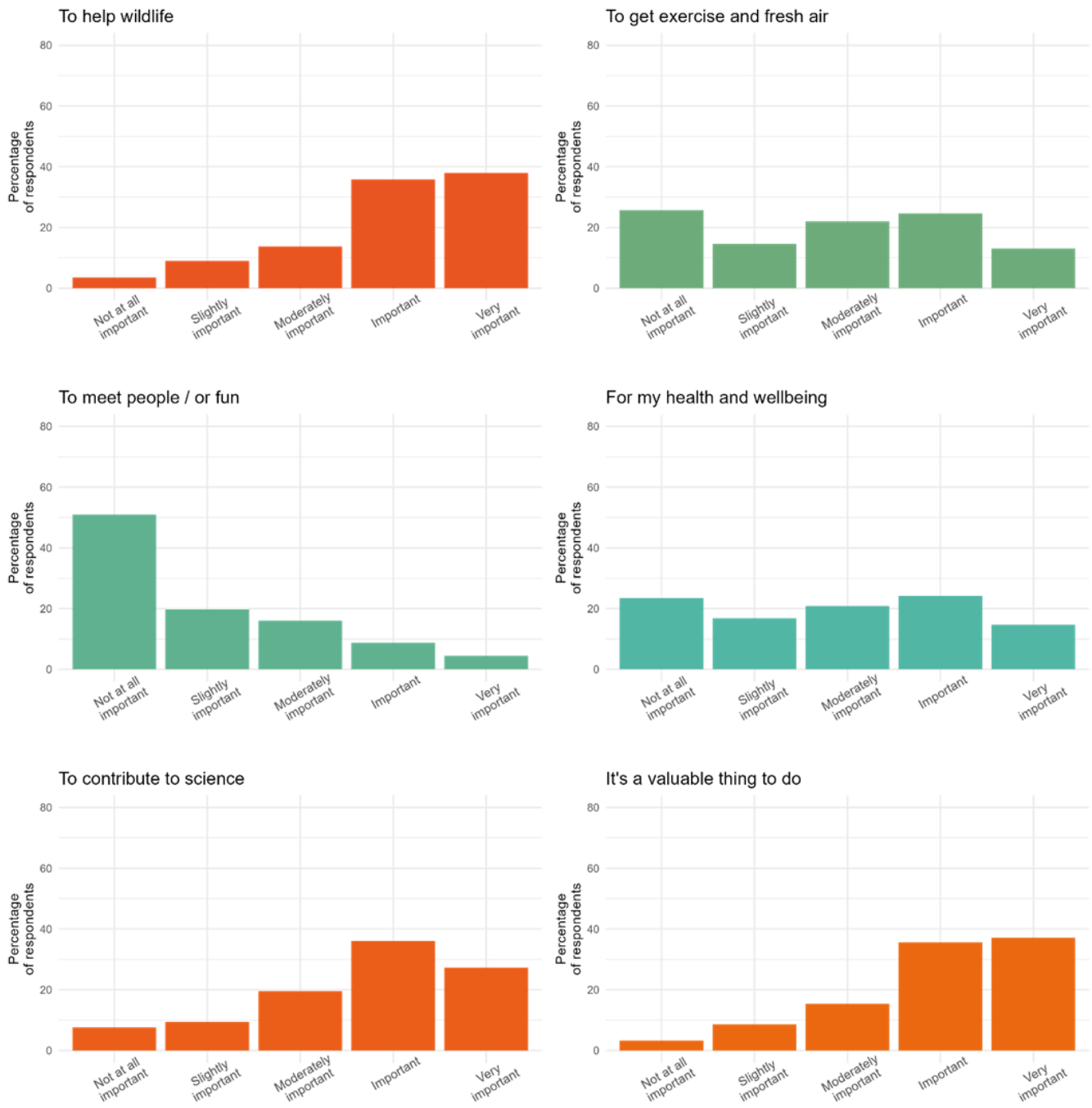


Figure 3.12 Percentage responses to the question *'As a result of your involvement with iNaturalist which of the following statements apply?'* (respondents were able to select more than one option).

Motivation

Important motivations for using iNaturalist were to help wildlife, contribute to science, learn something new, responding to someone's request, and feeling it's a valuable thing to do. An exception to this was helping a specific site, which 33% of the respondents did not report as an important motivation. Responses were more mixed regarding motivations such as getting more exercise and, supporting health and well-being. While the majority still considered these reasons at least somewhat important, a quarter of respondents felt they were not important at all. In contrast, most respondents did not view meeting people, having fun, or helping their future career as important motivations for using iNaturalist (Figure 3.13).



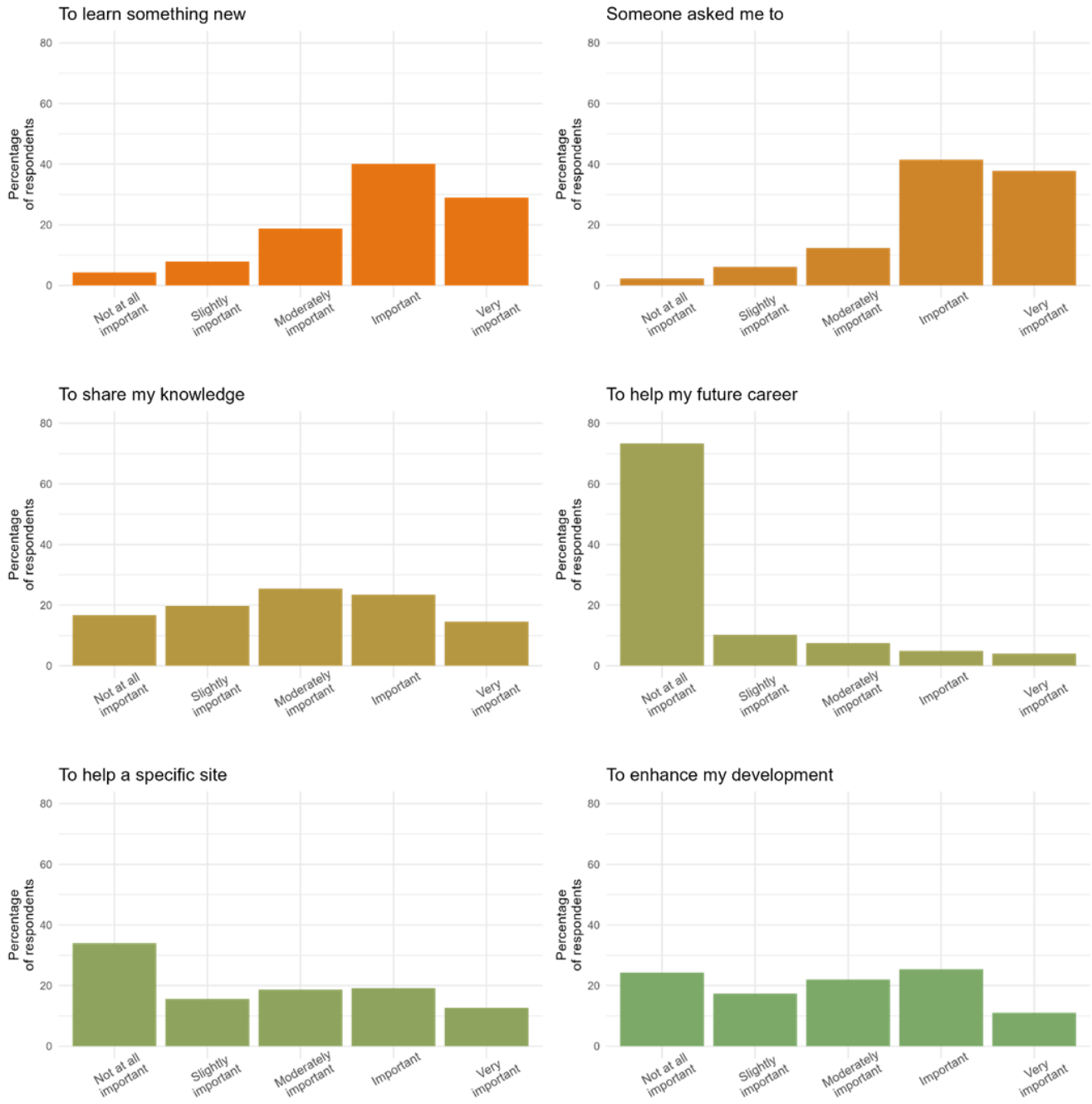
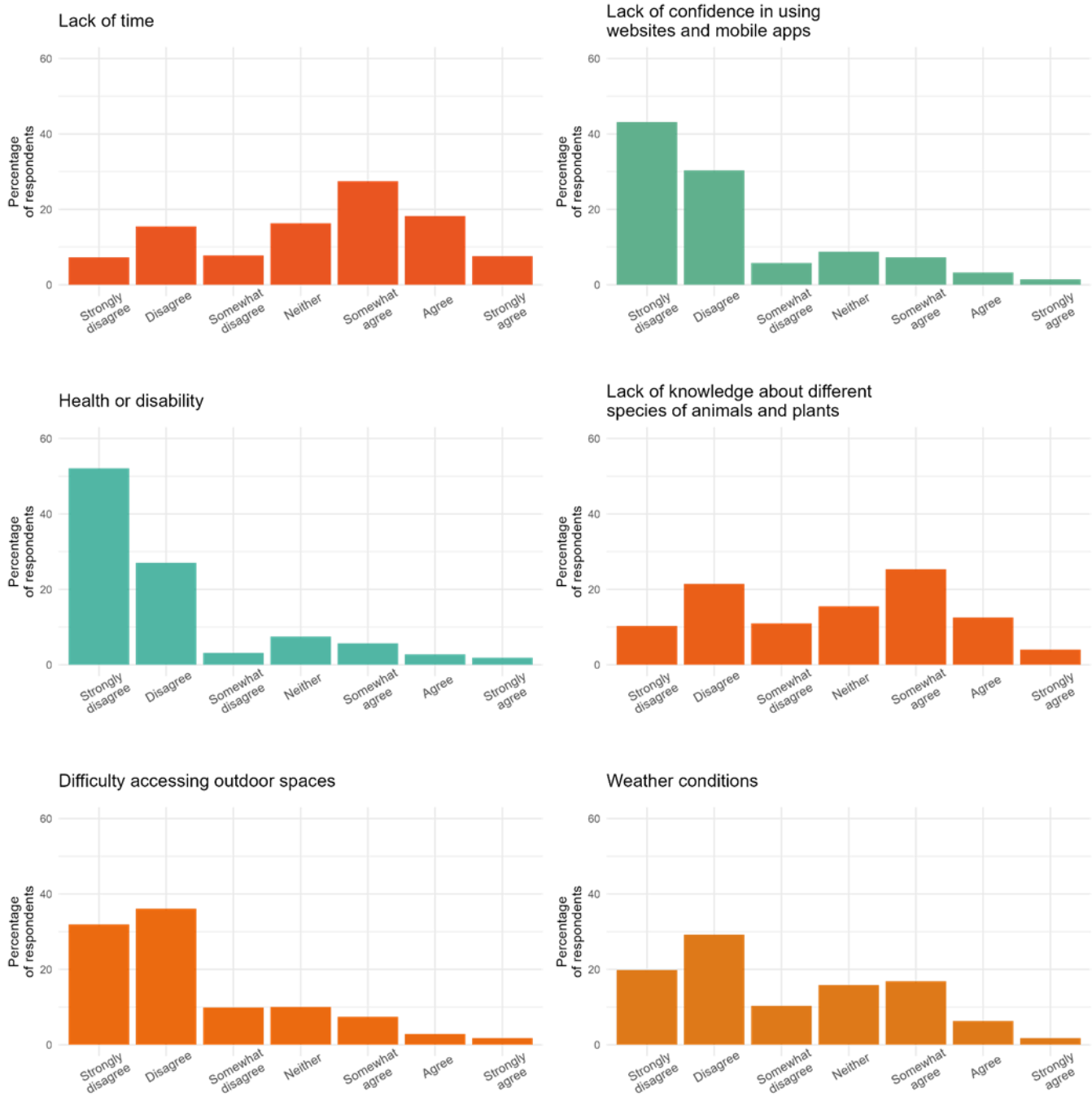


Figure 3.13 Percentage responses to the question *'Please rate how important each of the following reasons are for why you use iNaturalist:'*

Barriers to usage

Most respondents indicated that they did not consider health or disability, or difficulty accessing outdoor spaces, to be barriers to using iNaturalist. Similarly, a lack of confidence in using websites and mobile apps or finding the iNaturalist website too complicated for recording observations were not seen as significant obstacles. A lack of interest in recording biodiversity was also not seen as a barrier, nor was a lack of interesting projects to take part in. There were more mixed responses regarding lack of time, weather conditions, limited knowledge about different species of animals and plants and uncertainty about whether their contributions have value (Figure 3.13).



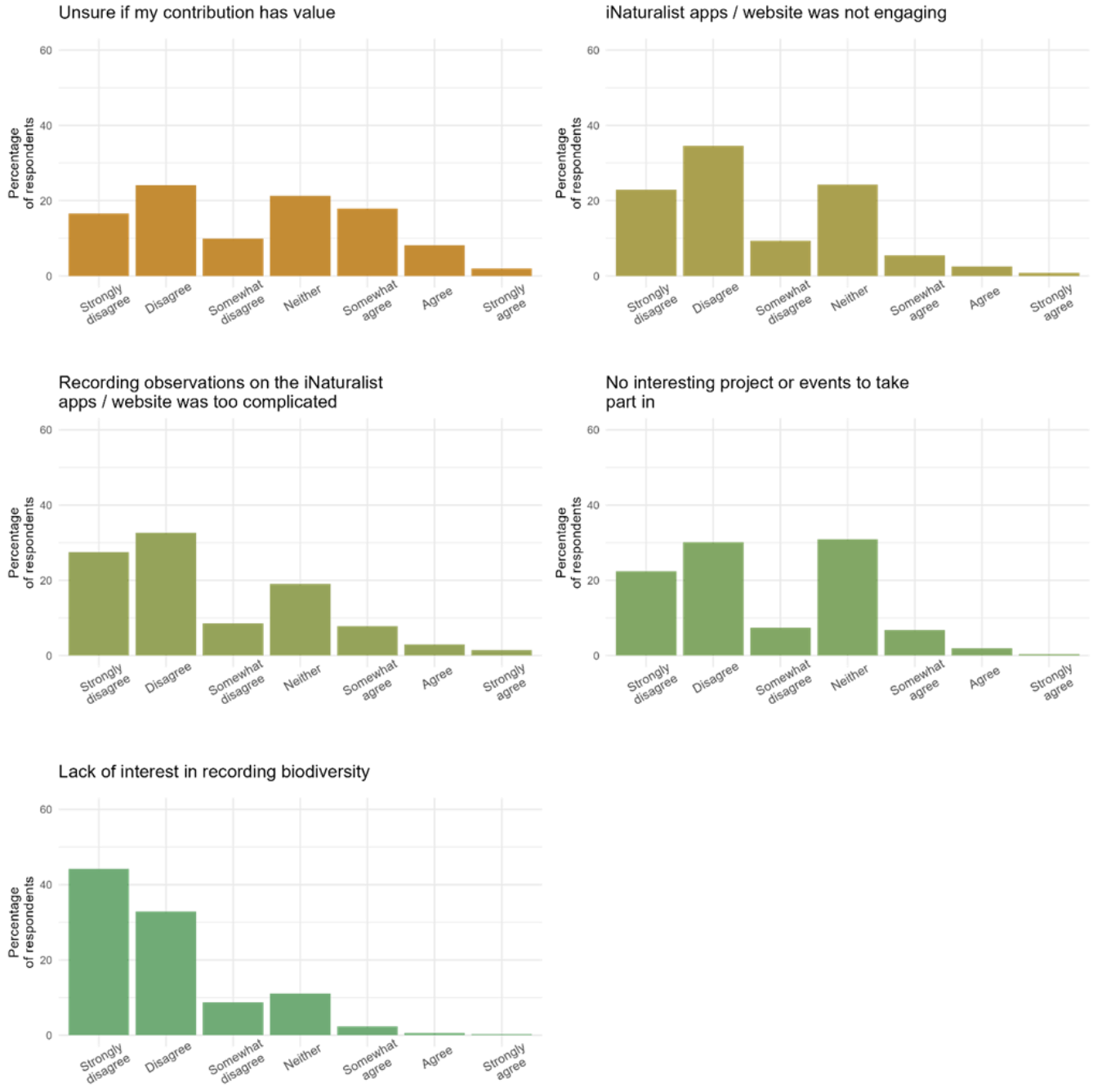


Figure 3.13 Percentage responses to the question *'For the next question, we would like to learn more about any barriers you feel are relevant to your usage of iNaturalist. To what extent do the following factors limit your usage of iNaturalist?'*

Reporting other wildlife sightings (where)

Respondent indicated low awareness and usage of other wildlife recording platforms, local environmental records centres, and focused societies for recording and submitting wildlife sightings. There was moderate awareness but low usage of other biodiversity recording apps and conservation organisations. The highest engagement was with events such as BioBlitz, Big Butterfly Count or Big Garden Birdwatch (Figure 3.14).

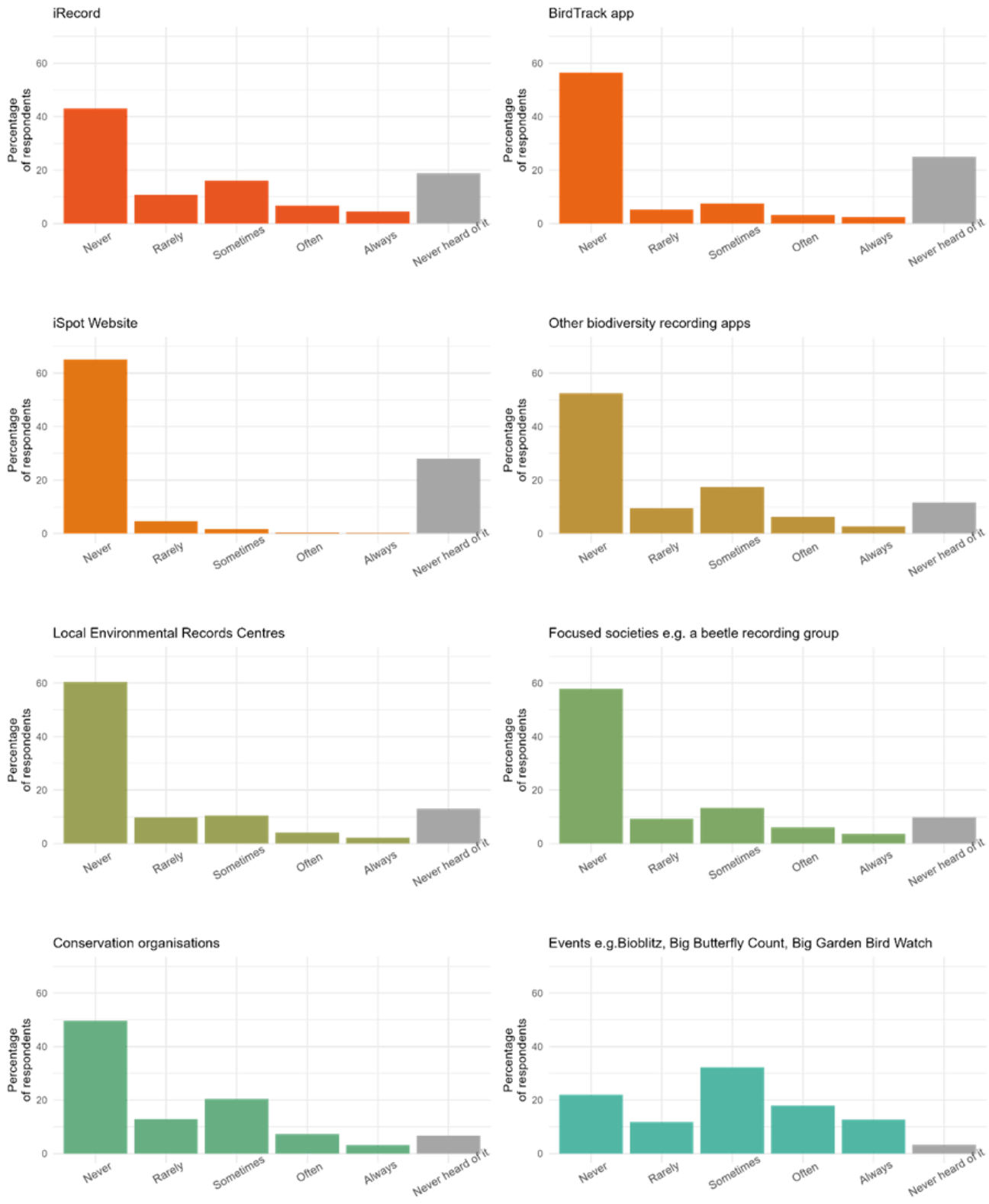


Figure 3.14 Percentage responses to the question *'Thinking about other wildlife recording you may submit separate from or instead of using iNaturalist please answer the following questions:'*

Reporting other wildlife sightings (how)

The majority of respondents indicated that they usually submit their wildlife sightings using smartphone apps (Figure 3.15).

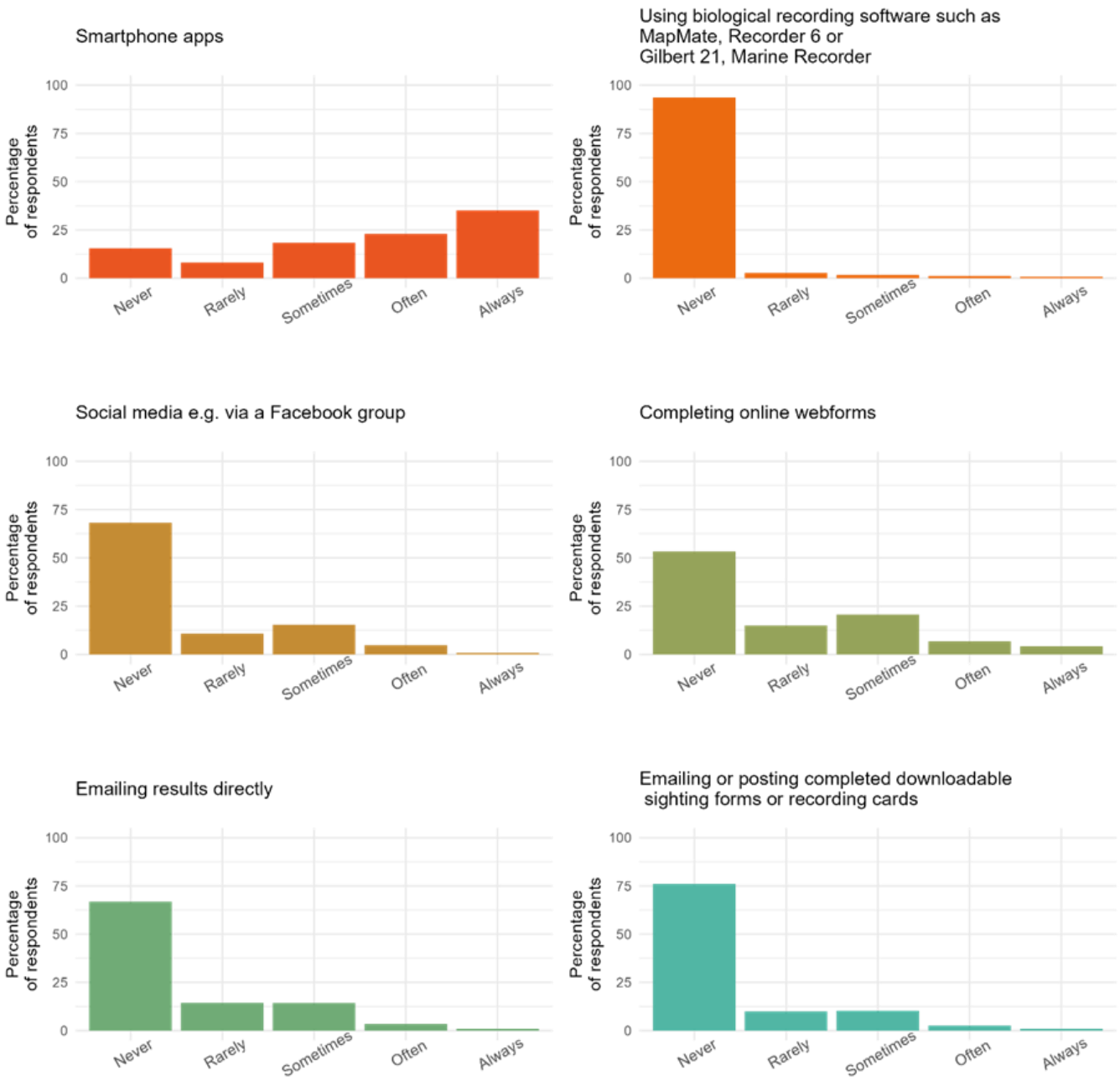


Figure 3.15 Percentage responses to the question *'How do you usually submit wildlife sightings?'*

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