Drivers of taxonomic bias in ecology and evolution: insights from ethologists and behavioural ecologists

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Abstract

Taxonomic bias (i.e. the disproportionate attention given to some taxa relative to their diversity) remains a major barrier to achieving generality in ecology and evolution, yet its underlying causes are poorly understood. We propose a framework explaining taxonomic bias along three major axes, supported by evidence from a survey of 868 researchers' experiences. First, rational considerations, such as logistical ease and societal relevance, were associated with the choice of research organisms within major animal groups but rarely across them. Second, emotional factors, including taxonomic affinities, closely mirrored taxonomic patterns in the literature. Third, contextual factors, like the prominence of certain organisms within peer networks or early-career exposure to specific taxa, were also associated with which taxa are chosen as study systems. Based on these findings, we suggest actions to mitigate taxonomic bias, including promoting (i) outreach initiatives featuring neglected taxa, (ii) taxonomically equitable education, and (iii) taxonomically diverse research experiences.

Key-words: charismatic species, knowledge imbalance, model organism, model system, research bias, taxonomic chauvinism, taxonomic hyperfocus.

Introduction

One of the main goals of ecology and evolution is to comprehend biological processes and patterns across Earth's vast diversity of life. This goal is hindered when certain taxa receive disproportionally more attention than their diversity warrants, a pattern known as taxonomic bias or taxonomic chauvinism (Shine and Bonnet 2000; Bonnet et al. 2002). Taxonomic bias leads to the accumulation of knowledge on few organisms at the cost of the perpetuation of ignorance on all others, ultimately precluding theoretical generality (Bonnet et al. 2002; Dochtermann et al. 2025) and innovation (Ng et al. 2021; Broeckhoven and du Plessis 2022; Penick et al. 2022; Stuart-Fox et al. 2023; Snell-Rood and Smirnoff 2025). Unfortunately, taxonomic bias is widespread in ecology and evolution (Bonnet et al. 2002; Clark and May 2002; Seddon et al. 2005; Leather 2009; Stahlschmidt 2011; Zuk et al. 2014; Rosenthal et al. 2017; Titley et al. 2017; Troudet et al. 2017; Mammola et al. 2020*b*; Pollo et al. 2024, 2025*a*; Guénard et al. 2025; Mizuno et al. 2025; Pollo and Kasumovic 2026). For instance, even though birds and mammals comprise less than 1% of animal biodiversity (Zhang 2013), these animals dominate both conservation efforts (Seddon et al. 2005; Mammola et al. 2020*b*; Guénard et al. 2025) and scientific articles in most subpockets of ecology and evolution (Bonnet et al. 2002; Clark and May 2002; Leather 2009; Stahlschmidt 2011; Rosenthal et al. 2017; Titley et al. 2017; Pollo et al. 2024, 2025*a*; Mizuno et al. 2025; Pollo and Kasumovic 2026). Taxonomic bias also extends to finer taxonomic scales, with a handful of genera or species concentrating much of the research attention given to entire clades (Zuk et al. 2014). Investigations of the literature on specific animal groups (e.g. amphibians: Silva et al. 2020; birds: Fischer et al., 2025; Murray et al., 2015; Yarwood et al., 2019; mammals: dos Santos et al., 2020; Tam et al., 2022; primates: Ellison et al. 2021; Chen et al. 2023; see also Mammola et al. 2023) have shown that organisms' traits (e.g. size and colour), range, and location can influence the amount of attention they receive, shedding some light on the drivers of taxonomic bias. However, such literature assessments present only indirect and taxon-specific evidence regarding the origins of taxonomic bias, highlighting the absence of a general framework spanning multiple taxonomic levels and empirical support for it. In other words, why ecologists and evolutionary biologists choose the organisms they study largely remains a conundrum. Understanding this question requires understanding the scientists that perform this research.

Scientists are often expected to be entirely rational in their research choices (Fig. 1) but, in reality, their emotions and context can play major roles in such decisions (Damasio 1994). For instance, researchers may be drawn to particular organisms out of fondness for them (Lorimer 2007). Opinions about organisms, such as vertebrate animals being more valuable than invertebrate ones (Miralles et al. 2019; Possidónio et al. 2019), often arise from societal perceptions that develop from a young age. For example, children asked to draw natural landscapes are much more likely to depict vertebrates, particularly mammals and birds, than invertebrates (Strommen 1995; Snaddon et al. 2008). This skewed perception is then reinforced by the media (e.g. documentaries, Wei et al. 2024) and educational materials (e.g. textbooks, Gangwani & Landin, 2018), helping to cement the idea that certain organisms are more important or interesting than others well into adulthood. It is thus plausible that the image that biologists have of nature, which is subjected to cultural factors and constructed before even joining academia, can influence their research choices. In fact, feelings of admiration and fascination towards certain taxonomic groups potentially entice early-career biologists to work with these groups or may even encourage people to pursue a career in biology in the first place. By contrast, organisms that produce anxiety, fear, or disgust (i.e. biophobias, Simaika and Samways 2010; Soga et al. 2023) may suffer from disinterest and avoidance from the general public and, consequently, have a lower research effort directed at them.

While some emotional links to taxa arise from society at large, others can be a product of habits and perceptions restricted to smaller social spheres. For instance, having hobbies that involve particular organisms (e.g. hunting or bird watching) may help construct positive feelings towards these organisms (Casola et al. 2026) and therefore skew research effort in their favour. Similarly, preferences for certain work-related aspects, such as a strong inclination toward fieldwork (a sentiment shared by many biologists and reflected in the popularity of field courses; Fleischner et al. 2017), can influence researchers' taxonomic focus. This is because some organisms (e.g. many mammals and birds) can only be studied in the field, potentially attracting scientists that enjoy spending their time outdoors. Furthermore, although researchers may have predilections for certain organisms, their choice of study species can also be driven by other personal motivations. For example, researchers may be primarily motivated to investigate a particular topic (e.g. sexual selection), making the selection of a particular study organism less important to them. Understanding researchers' preferences and motivations then becomes pivotal to grasp drivers of taxonomic bias.

Science is built on prior research, so the popularity of an organism in an academic context may reinforce and amplify its own popularity, generating a feedback loop. This process partly stems from pragmatism: as more resources become available for an organism, further research on it becomes easier. However, there is also a subjective element to this process, as scientists may come to view certain organisms as "ideal" study systems because of their established reputation rather than their intrinsic characteristics. This is essentially how so-called model organisms arise (Leonelli and Ankeny 2012, 2013). While the intense use of such organisms have allowed important insights into biological mechanisms (Fields and Johnston 2005), ecologists and evolutionary biologists not necessarily interested in mechanistic questions have also frequently used model organisms in their research, leading to an unnecessary accumulation of knowledge on a few species (Zuk et al. 2014). Moreover, scientists' individual context may also influence the choice of research organisms. Researchers who continue working with the same taxa (often introduced by their supervisors early in their careers) enjoy a logistical advantage over those who attempt to study unfamiliar taxa. At the same time, fear of failure may also play a role in maintaining this focus, particularly as careers progress and the practical advantage of studying a familiar taxon over a new one diminishes. Ultimately, this form of taxonomic inheritance can perpetuate or even exacerbate existing taxonomic biases.

Here, we explored potential overarching drivers of taxonomic bias in ecology and evolution by directly surveying researchers (specifically ethologists and behavioural ecologists) about their experiences, preferences, and perceptions regarding different taxa. We hypothesise that multiple rational, contextual, and emotional factors are associated with the selection of research organisms (Fig. 1), leading to a variety of predictions (Table S1; preregistered in Pollo and Kasumovic 2025). Based on our findings, we then suggest interventions to reduce taxonomic bias in the field of ecology and evolution.

Material and methods

Deviations from the preregistration

Our methodology was described in our preregistration (Pollo and Kasumovic 2025). Although we adhered to it as much as possible, we included several post-hoc analyses in our study. We also note that part of our original plan was used to generate a separate study assessing existing patterns of taxonomic bias in ecology and evolution (Pollo and Kasumovic 2026). Aside from this, two main deviations from our pre-registration occurred. First, although some of our predictions were pre-registered (Table S1), many relationships we tested were not explicitly made in our pre-registration. Second, we initially planned to assess relationships between variables using a 7-point Likert scale with polychoric multivariate analyses. However, because applying this method on several pairs of variables from our dataset often violated statistical assumptions related to this method, we opted to use Spearman's correlations instead.

Survey with ethologists and behavioural ecologists

PP and MK formulated a survey with three sections: (1) demographics, (2) preferences, experiences, and feelings, and (3) perceptions regarding species used by participants for behavioural research (Appendix 1). This survey was available online from 27 May 2025 to 21 August 2025 to any person that desired to participate, was at least 18 years old, and had directly collected behavioural data from at least one non-human organism that led to at least one research output of which they were an author (e.g. conference poster or presentation, preprint, peer-reviewed publication, dissertation, thesis, book). No financial incentives were provided to participants, and anonymity was maintained by collecting only their survey responses. Ethical approval for this study was obtained from the University of New South Wales' Human Research Ethics Committee (reference number iRECS8512).

PP recruited participants by sharing the link to the survey on the social media site *Bluesky*, through email chains, and via a targeted email list. This email list was obtained by extracting the emails associated with articles published in specific behaviour journals since 2015 and in certain general ecology and evolution journals since 2020 (see Table S2). This resulted in a list containing

20,818 unique email addresses, albeit 2,879 were invalid (i.e. undeliverable) and another 708 generated automatic replies indicating that their users were unavailable (e.g. out of the office) at the time of delivery. After accounting for these, 17,231 emails were considered to have most likely reached their intended recipients.

The survey was completed by 946 individuals, representing approximately 5.49% of the recruitment emails sent that likely reached recipients. However, an exact estimate of the recruitment success for our survey could not be calculated as the identity of participants was not collected and the total number of individuals that were reached and were eligible to participate in the survey was unknown. For instance, emails associated with studies published in ecology and evolution journals may have reached researchers that had never collected behavioural data.

PP carefully examined the responses obtained and excluded 77 of them from the dataset: 31 from participants that incorrectly answered the attention question in the survey (i.e. selected other options than agree for the question "please select the option agree"); seven responses with dubious veracity (a 99 years old participant, a participant that was 18 years old when they completed their PhD, and five participants with editorial experience despite not having a PhD); 37 contradictory responses (nine participants that worked with a greater number of taxonomic groups than of species, 28 participants that collected behavioural data of a species from a taxon they reported having no experience with); and three visibly duplicated responses (identical age, gender, country, year of PhD, species mentioned). As a result of these exclusions, 868 responses (91.75% of all responses obtained) were used for most analyses in the present study.

Participants mentioned up to two species for which they collected behavioural data in the survey (question 14, Appendix 1). PP only considered these specific responses as valid for analyses involving them when they represented a genus or a species (common names were transformed to latin names when possible). Consequently, PP excluded 86 answers out of the 1,666 obtained (5.16%) that were too vague (e.g. "insect" instead of a specific insect species or genus), contained multiple species, or were repeated by a participant (i.e. most and least recent species mentioned were the same).

Statistical analyses

First, PP fitted two similar generalised linear models (GLMs): one with a negative binomial error distribution and the other with a Poisson error distribution. The response variable in the first GLM was the number of species that participants experienced, while the response variable in the second GLM was the number of taxonomic groups experienced (out of 11 options). Participant age (continuous), gender (men *vs*. women *vs*. other or unknown), editorial experience (binary: with *vs*. without), preference for fieldwork, and motivation from taxa served as predictor variables (the last two were treated as continuous variables even though participants provided responses in discrete increments of 10, ranging from 0 to 100). Additionally, the first GLM included the number of taxa experienced as a predictor variable, and the second GLM included the number of species experienced as a predictor variable.

Second, PP fitted cumulative linked models (CLMs) with a logit link on participants' feelings for each of the nine animal groups included in the survey ("other invertebrates" and "other organisms" were not included in question 11, Appendix 1). In addition to the variables used in GLMs aforementioned (i.e. age, gender, editorial experience, preference for fieldwork, motivation from taxa), these CLMs also included experience with the taxon in question as a predictor variable (binary: with *vs*. without). Furthermore, to compare fondness for distinct taxonomic groups across participants, PP fitted a cumulative linked mixed model (CLMM) on all nine responses of how participants felt towards distinct taxa together, using participant ID as random factor and taxonomic group as a predictor variable in these CLMMs.

Third, PP fitted a separate GLM for each of the 11 taxonomic groups included in the survey (amphibians, arachnids, birds, crustaceans, fish, insects, mammals, molluscs, other invertebrates, other organisms, and reptiles), all using a binomial error distribution. The response variable in each of these GLMs indicated whether a participant had experience with the taxon in question. All of these GLMs included the same predictors aforementioned (age, gender, editorial experience, preference for fieldwork, and motivation from taxa) and, except for "other invertebrates" and "other organisms", participants' feelings for the taxon in question (factor with up to 7 levels).

Fourth, PP fitted a generalised linear mixed model (GLMM) using a binomial error distribution on whether species mentioned by participants were recommended to them for research purposes by their supervisor *vs*. others (i.e. other people or themselves). Predictor variables in this GLMM included whether the species mentioned was the most or least recently experienced by them, and when participants first worked with the species they mentioned (factor with three levels: during/before their PhD, during postdoc, or after obtaining a permanent position). Participant ID was then used as a random factor.

Fifth, PP fitted a distinct CLMM for each participants' agreement (7-point Likert scale) to a statement made in our survey related to the species they most recently experienced (questions 19-31, Appendix 1) as well as to the species they least recently experienced (only questions 27 and 28, Appendix 1). In these CLMMs, the taxonomic group of species mentioned by participants served as the only predictor variable. The genus of the species mentioned was used as a random factor in all CLMMs, while participant ID also served as a random factor for the CLMMs related to questions 27 and 28 (as there were up to two responses from each participant).

Sixth, PP fitted another set of CLMMs, again on participants' agreement to several statements, but particularly those involving easiness to work with the species mentioned (questions 19-23, Appendix 1). Two predictor variables were used in these CLMMs: (1) the number of participants mentioning the genus that the species belonged to, and (2) participants' preference for fieldwork. In addition, the genus of the species mentioned was used as a random factor in CLMMs.

In all models described above, continuous predictor variables were scaled by subtracting the mean from each value and then dividing the result by the standard deviation. PP identified predictor variables associated with response variables tested using model selection. He selected models whose Akaike Information Criterion corrected for small sample sizes (AICc) was within two units of the model with the lowest AICc. He then fitted simplified versions of these models by including only predictor variables that appeared in all selected models, i.e. he assumed that only these variables were associated with response variables. Lastly, PP used Spearman's correlations to verify pairwise relationships between variables that were on a 7-point Likert scale. Unless otherwise stated, means were presented with standard error.

PP conducted all analyses using R (R Core Team 2025) v. 4.5.1. GLMMs were fitted using the package *glmmTMB* (Brooks, Mollie et al. 2017; McGillycuddy et al. 2025) v. 1.1.12 and ordinal regressions (CLMs and CLMMs) were conducted using the package *ordinal* (Christensen 2023) v. 2023.12.4.1. PP verified GLMMs' assumptions using the package *DHARMa* (Hartig 2016) v. 0.4.7. and computed model predictions using the package *emmeans* (Lenth 2025) v. 1.11.2.8. PP used the package *MuMIn* (Bartoń 2023) v. 1.48.11 to obtain and compare all possible candidate models from complex models.

Results

Participant profile

Participants in our survey (N = 868) were, on average, 42.89 ± 11.56 years old (mean ± SD). 52.76% of them identified as men, 44.82% as women, 1.73% as another gender identity (e.g. gender-fluid, non-binary), and 0.69% did not disclose their gender identity. We asked each participant to name the country where they spent most of their life before and after reaching adulthood (18 years old), to which we obtained 68 unique countries before age 18 and 59 after age 18 (Fig. S1), with 80.65% of participants selecting the same country for both periods. Most participants (89.97%) held a PhD degree and more than a third of all participants (36.52%) had editorial experience (question 8, Appendix 1).

Preferences and overall experience collecting behavioural data

On a scale from 0% to 100%, we asked participants to determine how they would split their time collecting behavioural data between the field and the lab based purely on personal enjoyment (hereby *preference for fieldwork*; question 9, Appendix 1), and how much their desire to work with certain taxa drove their behavioural research interests compared with other motivations (hereby *motivation from taxa*; question 10, Appendix 1). On average, preference for fieldwork was 59.27% ± 1.02% and motivation from taxa was 50.76% ± 0.96%, but responses to these questions varied across participants (Fig. S2A, B).

Participants experienced (i.e. directly collected behavioural data that led to at least one research output in which they were an author; question 13, Appendix 1), on average, 9.48 ± 0.45 species (Fig. S2C). However, this estimate would be higher if we had not (unintentionally) set a maximum of 80 in the survey platform for this question (16 participants answered this maximum number; Fig. S2C). From the 11 taxonomic groups listed in our survey as options (amphibians, arachnids, birds, crustaceans, fish, insects, mammals, molluscs, other invertebrates, other organisms, and reptiles), participants experienced, on average, 2.1 ± 0.04 of them (Fig. S2D). Participants that experienced more species, on average, also experienced more taxonomic groups (Fig. 2; Table S3). Age and motivation from taxa were associated with both the number of species and the number of taxonomic groups experienced, while gender and editorial experience were only related to the number of species (Fig. 2A, C; Table S3, S4). By contrast, field preference was unrelated to the number of species or taxonomic groups experienced (Fig. 2; Table S3, S4).

Feelings towards animal groups

We asked participants how they felt towards distinct taxonomic groups ("other invertebrates" and "other organisms" were not included in this question) on a spectrum ranging from negative (e.g. fear, anxiety) to positive (e.g. cuteness, fascination) feelings, with ambivalent feelings in between (question 11, Appendix 1). All animal groups mostly elicited positive feelings from participants, although some more than others (Fig. S3). On average, participants declared more favourable perceptions of taxa they experienced than of other taxa ($\beta = 2.52 \pm 0.07$, $z = 33.91$, $p < 0.001$; Fig. 3A; Fig. S3B, C; Table S5). Multiple other factors were also associated with how participants felt about certain taxa (Fig. 3A; Table S5).

Experiences with taxonomic groups

Birds and mammals were the taxa that participants most frequently experienced (each by 42.58% of participants), followed by insects (35.21%) and fish (24.05%; Fig. S4). Unsurprisingly, participants that experienced more taxonomic groups were more likely to experience any given taxon (Fig. 3B; Table S6). We also found associations between experience with certain taxa and other factors, especially preference for fieldwork (Fig. 3B; Table S6).

Experiences with specific species

We asked participants to name the species they most and least recently experienced (question 14, Appendix 1), for which we obtained 839 and 741 valid responses, respectively. We then asked participants several questions related to the species they mentioned, beginning with when they first worked with these species (question 17, Appendix 1) and who advised them to do so (question 18, Appendix 1). Regardless if the species named was the most or least recently experienced by the participant, it was suggested by supervisors as a research system in most cases, except when participants already held a permanent position (Fig. 4; Table S7).

The taxonomic group of species mentioned by participants in our survey (Fig. S5A) followed a similar pattern to the one shown for participants' overall experience (Fig. S4). However, we noted that many researchers mentioned the same species and genera. For example, *Drosophila melanogaster*, *Rattus norvegicus*, and *Parus major* were mentioned by 22, 21, and 17 participants, respectively. In fact, only 65.29% and 49.68% of all responses (for organisms experienced by participants) represented unique species and genera, respectively. The most popular taxonomic groups, especially mammals, were the ones with the relatively fewest unique species (Fig. S5B) and genera (Fig. S5C).

We additionally asked participants to rate their agreement with 13 statements related to the organism they most recently experienced on a 7-point Likert scale (from "completely disagree" to "completely agree"; two particular statements were also rated for the organism least recently experienced; questions 19-31, Appendix 1). The first five statements tackled the ease of accessing and working with the organisms mentioned, in which we found distinct average scores across taxonomic groups (Fig. 5). Furthermore, after controlling for the genus and the taxonomic group of the species mentioned by participants, a stronger preference for fieldwork was associated with perceiving the species experienced as easier to observe in the field (though not necessarily easier to find there), and harder to buy, rear, or observe in the laboratory (Tables S8, S9). Lastly, within taxonomic groups, the number of times a genus was mentioned by distinct participants was positively related to all aspects aforementioned regarding how easy they are to work with (Tables S8, S9).

No universal taxonomic patterns emerged from participants' agreement with other statements regarding the organisms they most and least recently worked with (Fig. 6). We also found that participants' perception that the species they most recently experienced is a model organism was positively related to multiple other attitudes about the same species with varying magnitudes: (1) strongly related to the impression that the behavioural literature on the species is extensive (r_s = 0.643); (2) moderately related to the impression that the species is easy to buy (r_s = 0.456), rear (r_s = 0.404), and observe in the laboratory (r_s = 0.401); (3) weakly related to the impression that the species is easy to find (r_s = 0.184) and observe in the field (r_s = 0.119). Furthermore, we also noted that participants' agreement that the research they conducted (with the most recently experienced species mentioned) was applied was moderately linked to their perception that the species is economically important (r_s = 0.331) and weakly associated with their perception that the species is endangered or threatened in the wild (r_s = 0.241).

Discussion

In the present study, we hypothesised that several factors (stemming from reason, context, or emotion, Fig. 1) are related to the selection of research organisms and thus drivers of taxonomic bias. The survey we conducted with ethologists and behavioural ecologists provides evidence in favour of this framework, although, in some cases, only at certain taxonomic levels. Below we discuss each of our main findings in detail, but see Appendix 2 for the discussion of our secondary results.

The taxonomic experiences of participants in our survey mirrored patterns of taxonomic bias present in the animal behaviour literature (Rosenthal et al. 2017; Pollo and Kasumovic 2026). For instance, birds and mammals were the taxonomic groups participants in our survey were most likely to have worked with (Fig. S4; Fig. S5A). Conversely, with the exception of insects, participants rarely used invertebrates as research organisms (Fig. S4; Fig. S5A) despite their immense diversity (Zhang 2013; Eisenhauer and Hines 2021). Moreover, we observed that certain organisms (at the species or genus level) concentrated much of the attention given to their taxonomic group (Fig. S5B, C), reiterating that taxonomic bias also occurs at fine taxonomic levels (Zuk et al. 2014).

The popularity of taxonomic groups among participants in our survey was rarely associated with how easy they are to access and work with, showing that organisms' logistic aspects do not appear to be associated with their research use at high taxonomic levels. For example, with some exceptions, birds and (especially) mammals were considered as equally or more difficult to find, observe, rear, or buy than other taxonomic groups (Fig. 5). As a counterpoint, molluscs, which were rarely used by surveyed scientists for research purposes (only 5.88% of participants worked with them; Fig. S4), were largely perceived as easy to work with both in the field and in the lab

(Fig. 5). These results are not surprising as the necessary fieldwork duration to collect data from overlooked taxa (beetles and moths) is usually shorter than from popular taxa (mammals and birds)(Pawar 2003). Nonetheless, within taxonomic groups, genera mentioned more frequently by participants tended to be perceived as easier to work with. This suggests that organisms with logistic advantages may be selected over other closely related taxa, a result that is congruent with studies investigating literature patterns related to specific taxonomic groups (Yarwood et al. 2019; dos Santos et al. 2020; Silva et al. 2020; Ellison et al. 2021; Tam et al. 2022; Chen et al. 2023; Fischer et al. 2025).

We hypothesised that researchers also consider the possible applications of organisms to society, such as their economic relevance or conservation status, when deciding which research to pursue. We found that insects and mammals were deemed more economically important than arachnids and birds (mammals were also considered more economically important than reptiles). By contrast, insects were less frequently deemed as threatened or endangered in the wild than most taxonomic groups (including mammals, which were also more frequently deemed as endangered than arachnids). This finding is worrisome as invertebrates are under severe threat (Cardoso et al. 2020) yet remain underrepresented in biodiversity databases (e.g. IUCN's red list; Cardoso et al. 2012) as most biodiversity assessments focus on birds and mammals, making the decline and extinction of invertebrates unnoticed (Régnier et al. 2015). This represents a striking example of the taxonomic bias vortex, in which lack of data generates the impression that no problem exists, leading to even less attention to the issue. Participants were also more likely to state that they had conducted applied research with species they deemed more economically important or more endangered in the wild. Strangely, the likelihood of participants conducting applied research was greater for mammals than for arachnids and insects (Fig. 6G) despite the latter being perceived as economically important as the former. Within taxa, the number of participants working with a genus was positively related to its perception as economically relevant, but not with its perception as endangered in the wild. Our results indicate that organisms' aspects connected to their explicit usefulness to society can be involved in researchers' taxonomic decisions, but this influence seems to be weak, at least among ethologists and/or behavioural ecologists.

Participants appear to let their emotions lead their choice of research organisms as stronger affection for a taxonomic group corresponded with a higher likelihood of working with it among participants in our survey (Fig. 3B; Fig. S3). Given that the most popular taxonomic groups (e.g. birds and mammals) overwhelmingly elicited positive feelings from researchers (including those that never worked with them; Fig. S3), we argue that positive views of a taxon make researchers more likely to work with that taxon. Importantly, the patterns of fondness for distinct taxonomic groups we observed from surveyed researchers echoes values present in society, in which vertebrates are generally more well perceived than invertebrates (Miralles et al. 2019; Possidónio et al. 2019). We also found that participants' experiences with an organism stimulated more positive perceptions of its taxonomic group (Fig. 6B), whereas this effect was stronger for arachnids than for birds and mammals, and also stronger for fish than for mammals. The relationship between fondness and experience appears to be reciprocal: appreciation of a taxonomic group increases the likelihood of working with it, while experience with a taxonomic group enhances appreciation of it. This self-reinforcing cycle resembles a positive counterpart of the conceptual framework for biophobia, in which exposure to negative information about organisms causes fear and avoidance, leading to disconnection from nature, fortifying the cycle by strengthening the belief in and impact from negative perceptions of feared organisms (Soga et al. 2023). Outreach programs thus remain crucial to promote awareness and appreciation of neglected taxonomic groups among the general public, countering fear-based narratives commonly perpetuated by the media that only aggravate this dire situation (Mammola et al. 2020*a*; Soga et al. 2023). Moreover, endorsing diverse taxonomic experiences in teaching and supervision within academia may also allow researchers to evaluate their options with less interference from damaging and alienating taxonomic perceptions.

Specific activities and preferences also appear to be connected to researchers' taxonomic choices. For example, participants were more likely to have engaged in (the equivalent of) birdwatching prior to working with a bird species than of having engaged in a similar hobby with an invertebrate taxon before having an experience with that taxon (Fig. 6A). This bolsters the idea that positive exposure to a taxonomic group elicits individuals to work with that group, highlighting that encouraging activities involving neglected taxonomic groups (e.g. bugwatching; Eaton 2025) can generate research interest in the organisms involved. Furthermore, we found that surveyed researchers were diverse in their preference for fieldwork over lab work, ranging from complete to no preference (Fig. S2A). Greater preference for fieldwork was not associated with how many species or taxonomic groups a surveyed researcher worked with (Fig. 2), but it was positively related to greater appreciation of arachnids and vertebrates other than fish (Fig. 3A). Yet, greater preference for fieldwork was only positively related to the likelihood of working with birds and mammals, but not with amphibians and reptiles, and negatively related to the likelihood of working with fish and invertebrates other than molluscs (Fig. 3B). These findings suggest that professional preferences may influence scientists' fondness for certain taxa and their choices of research organisms (sometimes in conflicting ways).

Researchers also appear to vary in what motivates them, as some participants in our survey were exclusively driven by specific taxa while others were fully motivated by other factors (e.g.

particular topics, professional prospects) (Fig. S2B). The more participants were motivated by taxa, the more species but the fewer taxonomic groups they worked with (Fig. 2). This suggests that researchers primarily motivated by taxa are open to expanding their experience towards other (preferably neglected) species from the same taxonomic group, while their counterparts can be more easily inspired to diversify their experiences at a higher taxonomic level. Additionally, although motivation from taxa was not associated with fondness for any taxonomic group (Fig. 3A), the fact that it was positively related to the likelihood of working with amphibians and arachnids (Fig. 3B) indicates that these two taxonomic groups are more likely to receive attention from researchers specifically interested in studying only them or few other taxa.

In our survey, participants frequently deemed several species as model organisms (e.g. barn swallows, crab-eating macaques) despite them not being officially listed as such (by USA's National Institute of Health; NIH 2025). Participants' agreement that an organism is a model system was positively related to the number of distinct participants mentioning the genus of that organism, indicating that this term is loosely applied to commonly studied species in a certain context (in our case, behavioural research). Species considered model organisms by participants in our survey were also more likely to be deemed easy to work with in the lab than in the field, confirming the connection of this term with experimental and laboratory work (Leonelli and Ankeny 2012, 2013; Dietrich et al. 2014; Matthews and Vosshall 2020). Despite this, the only difference across taxonomic groups we found was between fish and arachnids (Fig. 6C), which is surprising given that they are perceived as similarly accessible to work in the laboratory (Fig. 5C, D).

Given that the model organism label propulses taxonomic bias by rewarding and promoting species that have acquired an arbitrary status among researchers, we argue that this term should be abolished in most spheres of ecology and evolution. Moreover, even though species considered model organisms have generated breakthroughs in science (Fields and Johnston 2005), they cannot replace the hidden gems that biodiversity has to offer (e.g. bioinspired designs and materials; Ortiz and Boyce 2008). We should thus facilitate research with different species, both in the field and in the laboratory, instead of re-using the same ones as a cheap trick to bypass a broken funding system. Recent technologies (e.g. drones, minute tracking devices; Farine et al. 2024) and data sources (e.g. citizen science; Niemiller et al. 2021; Mason et al. 2025) can certainly help with this, allowing ecology and evolution to reach its full potential.

Precedence effects can also occur at the individual level. Most participants in our survey mentioned working, in multiple stages of their career, with species that were suggested by their supervisors, albeit this pattern was weakened after participants obtained a permanent position (Fig. 4). This means that the taxonomic experiences of early career researchers (ECRs) are largely influenced by late-career researchers (LCRs) they work with. ECRs often interact with few LCRs who can act as their mentors and/or supervisors (e.g. those employed by the university in which they study), representing a major bottleneck for ECRs' possible experiences, especially if LCRs only accept supervising research projects with a specific taxon. Because few LCRs work with neglected taxonomic groups, ECRs desiring to work with such groups are less likely to find supervisors who can support their interests. ECRs that manage to work with their predilected taxonomic group or those that do not have taxonomic preferences are then mostly bound to the specific organism suggested by the LCR supervising them. These processes can then dramatically reinforce existing taxonomic biases if researchers continue to work with the same taxonomic group or species throughout their career. Our findings suggest that researchers commonly take this route, stagnating or even amplifying taxonomic biases at multiple taxonomic levels. Fortunately, there are several tools that can help researchers to diversify their taxonomic experiences. For example, citizen science data (e.g. iNaturalist) can show species that are abundant in a given researcher's area, and enthusiasts (e.g. photographers, social media influencers) and other researchers (e.g. taxonomists) may be happy to suggest species to study and ways of investigating them in the field and in the lab. To ameliorate this precedence effect, we recommend that (1) institutions consider the diversity of taxonomic experiences of LCRs when recruiting them, (2) LCRs adopt a flexible approach, supporting and motivating ECRs to engage with diverse taxa, (3) ECRs to search for distinct sources of information to expand their experiences.

Taxonomic bias generates a skewed perspective of natural processes and patterns, but it is only one of many biases affecting the study of ecology and evolution (Winder et al. 2025). For example, biases in our perceptions of the sexes likely produce stereotypic portrayals of them (Pollo and Kasumovic 2022) (e.g. coy females and eager males), which are common in the literature (Green and Madjidian 2011; Ah-King 2022*a*, 2022*b*; Spaulding and Fuselier 2023). Misrepresentations of taxa, sexes, and other biological aspects curb the power of studies attempting to draw broad conclusions about nature. On one hand, gaps in the available data, if properly detected, only allow part of the puzzle to be revealed. For example, lack of data on sexual signals expressed by females and animals other than birds precludes a holistic understanding of the evolution of these traits (Pollo et al. 2025*a*). Studies pointing out gaps in the literature can then direct researchers to collect data that is urgently needed (Pollo et al. 2025*b*). However, researchers may infer erroneous conclusions when they fail to recognise that the data they analyse are biased. This is apparently a frequent issue in meta-analyses related to animal behaviour, in which the underrepresentation of invertebrates leads to improper generalisations (Dochtermann et al. 2025). Awareness of biases in science is essential for their detection and mitigation (Winder et al. 2025) and thus an important first step. However, we argue that we need to go beyond theoretical discussions by implementing actions that minimise the existing biases in ecology and evolution. Similar to pleas made by researchers combating biases in how sexes are represented in science (Ah-King 2013; Hughes 2022; Zemenick et al. 2022), we advocate for a more taxonomically equitable education (as early as childcare) and data collection. We hope that our recommendations throughout the present study can then influence ecologists and evolutionary biologists to strive for such endeavour (but see also Pollo and Kasumovic 2026).

Code and data accessibility

All data and code used in this study are available at https://zenodo.org/records/18719247.

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Author contributions

PP: conceptualisation, methodology, formal analysis, investigation, data curation, writing - original draft, writing - review & editing, visualisation, project administration.

MK: methodology, writing - review & editing.

Competing interests

The authors declare no conflicts of interest.

Declaration of AI use

The authors declare that they occasionally used GPT-5 (OpenAI) to improve the clarity and readability of this work. After using these tools, the authors reviewed and edited the content as needed and took full responsibility for the content of the publication.

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Figures

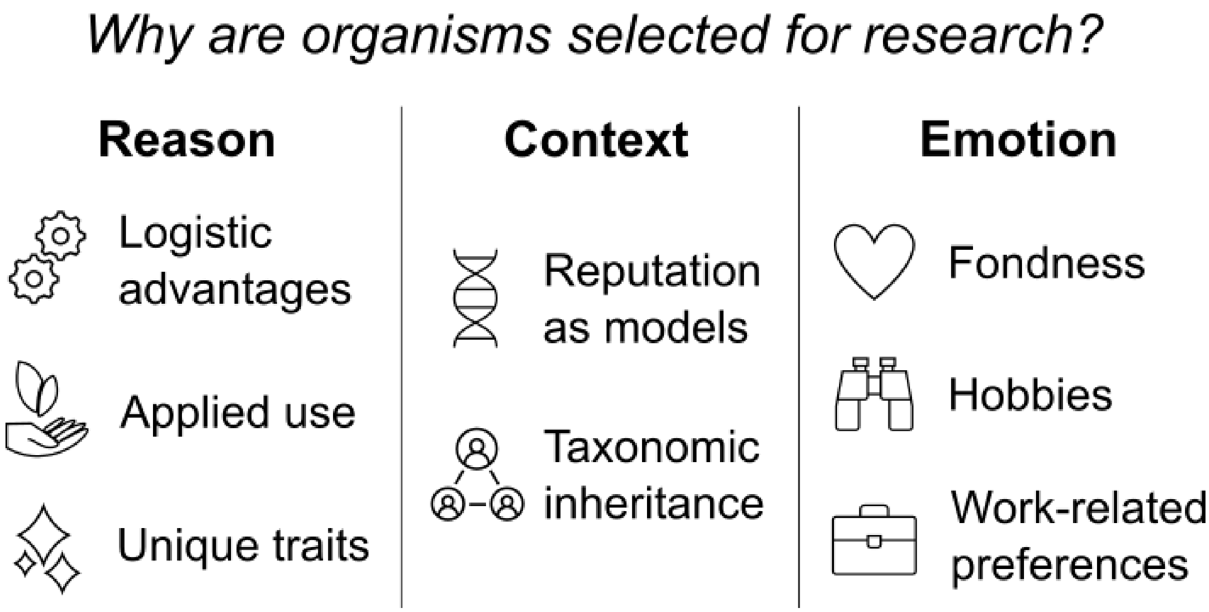

Figure 1.

Factors hypothesised to be associated with the selection of research organisms in ecology and evolution.

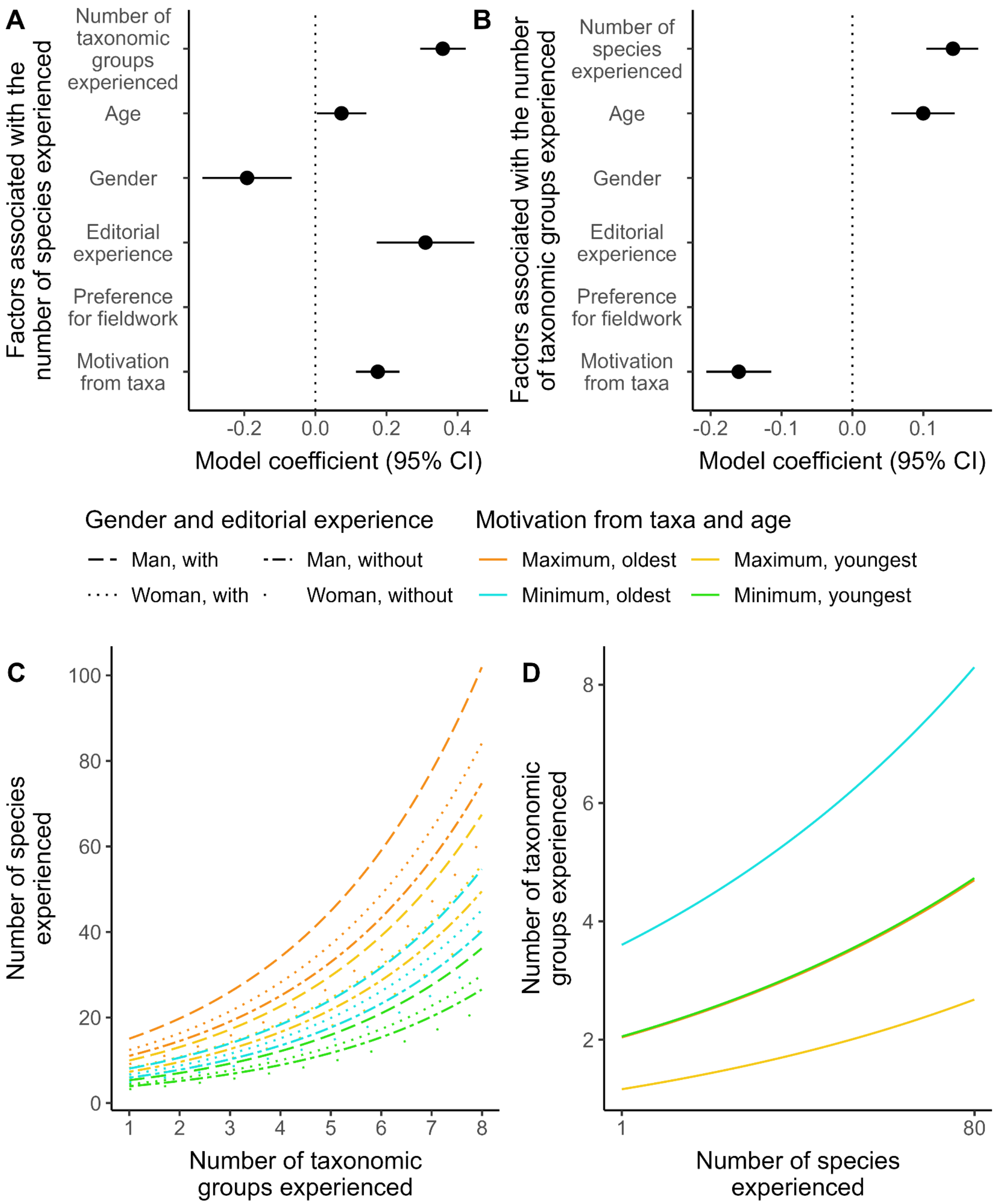

Figure 2.

Factors associated with participants' experiences. Top panels show coefficient values for factors associated with the number of species (A) and taxonomic groups (B) that participants worked with.

Gender refers to the comparison of women vs. men (comparisons with other or unknown gender identities are not shown). Note that only coefficients from factors included in all selected models are shown. Bottom panels show the number of species (C) and taxonomic groups (D) that participants worked with predicted by selected models. Maximum and minimum motivation from taxa refer to 100% and 0% of this variable (respectively), while oldest and youngest represent 82 and 21 years old individuals (respectively).

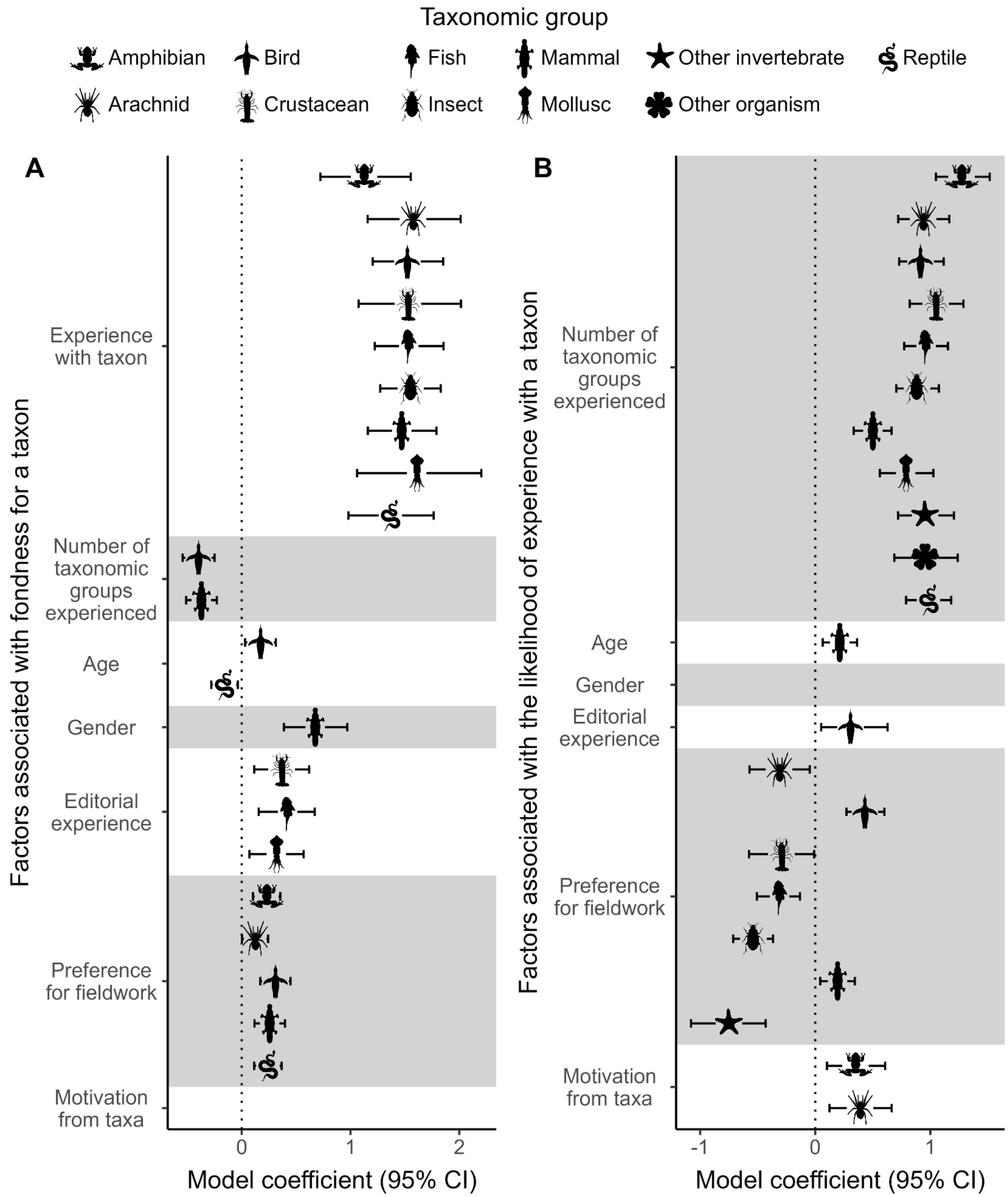

Figure 3.

Factors associated with fondness for (A) and experience with (B) a given taxonomic group. Gender refers to the comparison of women vs. men (comparisons with other or unknown gender identities are not shown). Fondness for a taxon was also included as a predictor in models exploring the factors associated with the likelihood of experience with that taxon (B), but coefficients are not shown. Background colours highlight coefficients associated with different factors.

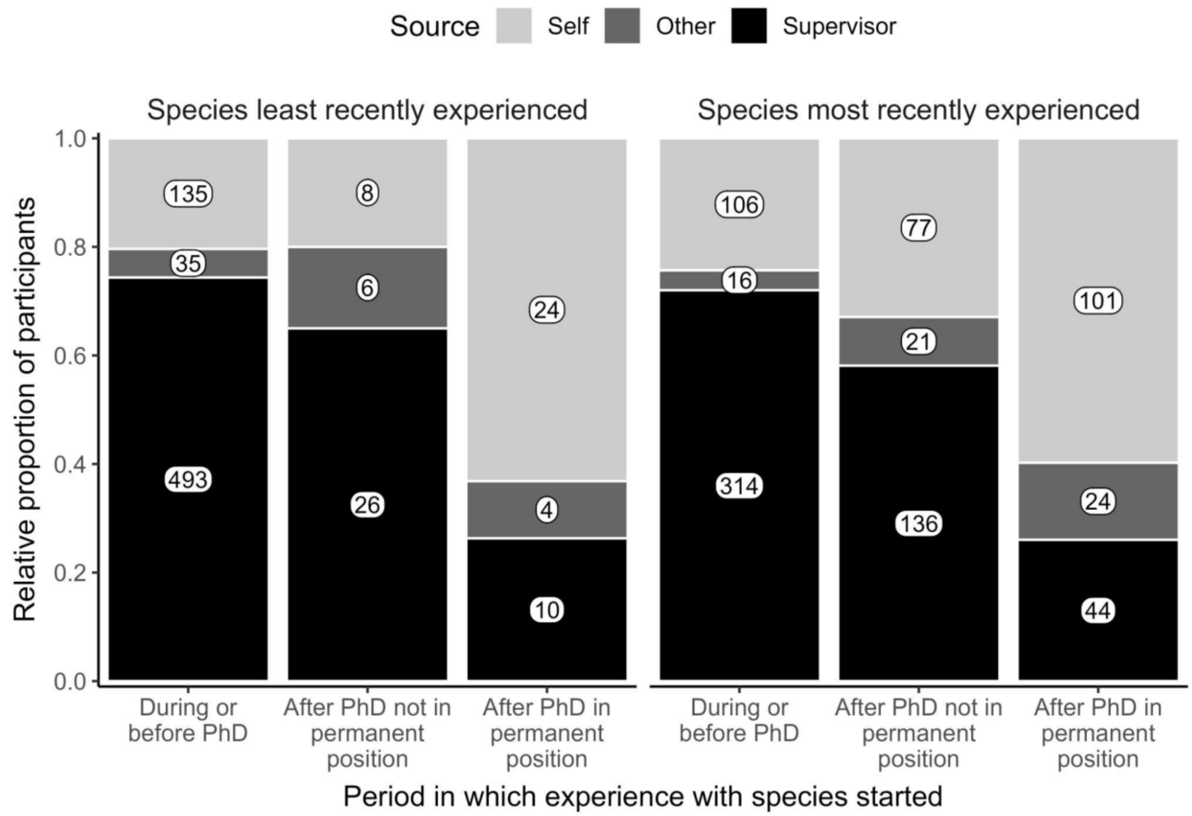

Figure 4.

How and when participants started working with certain species. Numbers within bars represent the number of participants within that category.

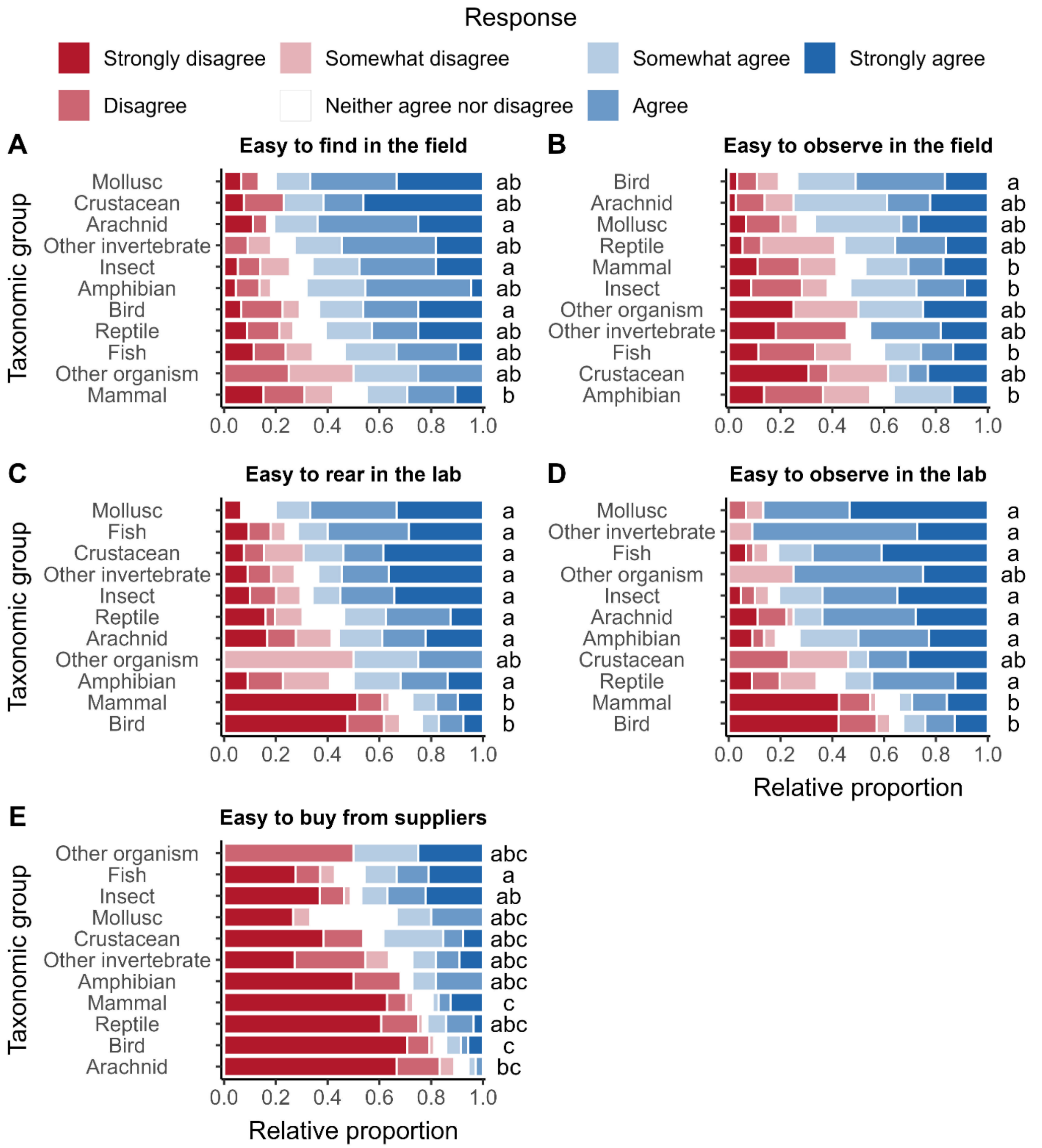

Figure 5.

Ease of working with certain organisms. Regarding the organism they most recently worked with, participants' agreement with statements related to the ease to locate it in the field (A), observe it in the field (B), rear it in the lab (C), observe it in the lab (D), buy it from suppliers (E). Distinct letters on the right-side of bars represent statistical differences between taxonomic groups within that panel (z-values with $p < 0.05$ for all pairwise comparisons).

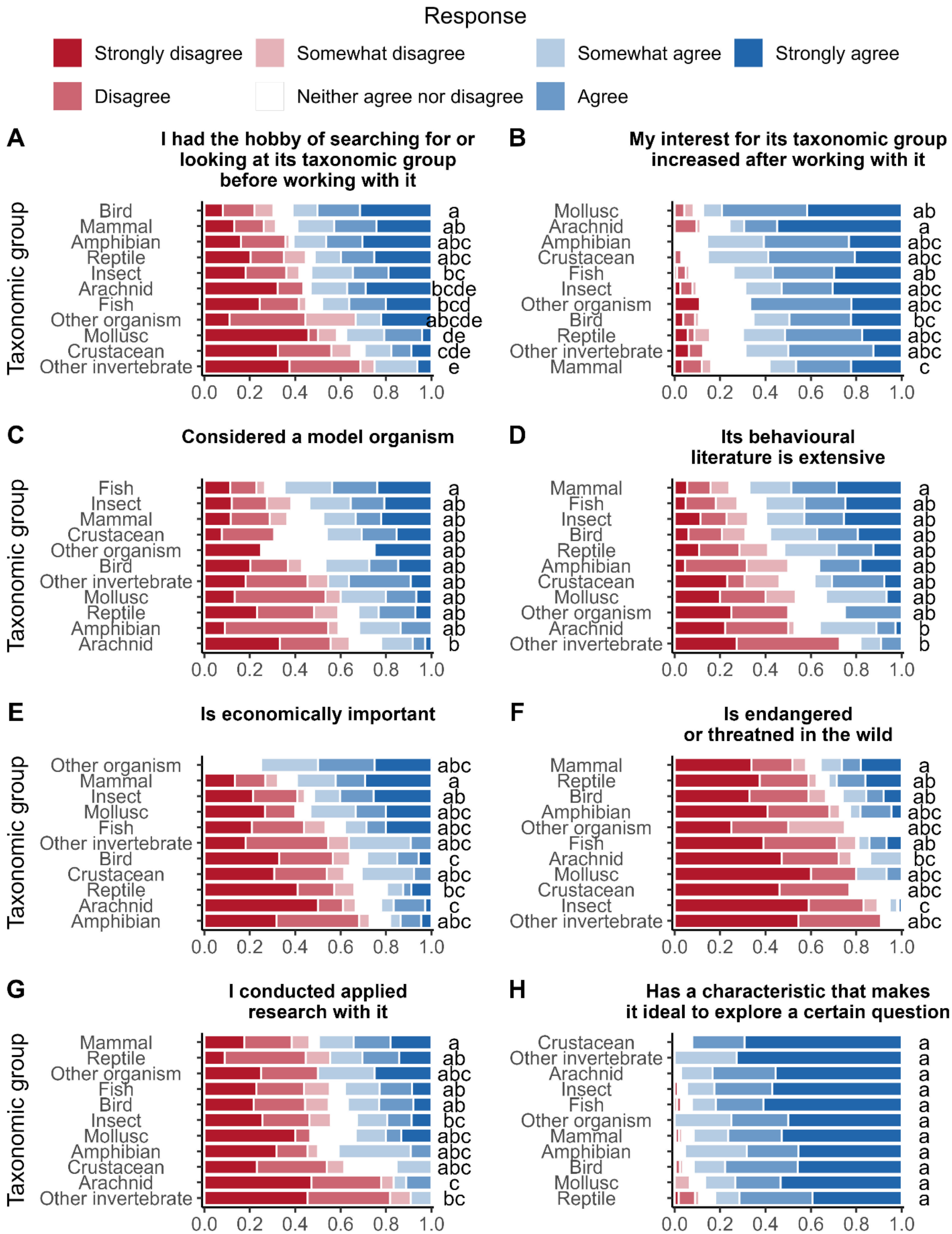
Response
Strongly disagree
Disagree
Somewhat disagree
Neither agree nor disagree
Somewhat agree
Agree
Strongly agree
A
I had the hobby of searching for or looking at its taxonomic group before working with it
Bird a
Mammal ab
Amphibian abc
Reptile abc
Insect bc
Arachnid bcde
Fish bcd
Other organism abcde
Mollusc de
Crustacean cde
Other invertebrate e
B
My interest for its taxonomic group increased after working with it
Mollusc ab
Arachnid a
Amphibian abc
Crustacean abc
Fish ab
Insect abc
Other organism abc
Bird bc
Reptile abc
Other invertebrate abc
Mammal c
C
Considered a model organism
Fish a
Insect ab
Mammal ab
Crustacean ab
Other organism ab
Bird ab
Other invertebrate ab
Mollusc ab
Reptile ab
Amphibian ab
Arachnid b
D
Its behavioural literature is extensive
Mammal a
Fish ab
Insect ab
Bird ab
Reptile ab
Amphibian ab
Crustacean ab
Mollusc ab
Other organism ab
Arachnid b
Other invertebrate b
E
Is economically important
Other organism abc
Mammal a
Insect ab
Mollusc abc
Fish abc
Other invertebrate abc
Bird c
Crustacean abc
Reptile bc
Arachnid c
Amphibian abc
F
Is endangered or threatned in the wild
Mammal a
Reptile ab
Bird ab
Amphibian abc
Other organism abc
Fish ab
Arachnid bc
Mollusc abc
Crustacean abc
Insect c
Other invertebrate abc
G
I conducted applied research with it
Mammal a
Reptile ab
Other organism abc
Fish ab
Bird ab
Insect bc
Mollusc abc
Amphibian abc
Crustacean abc
Arachnid c
Other invertebrate bc
H
Has a characteristic that makes it ideal to explore a certain question
Crustacean a
Other invertebrate a
Arachnid a
Insect a
Fish a
Other organism a
Mammal a
Amphibian a
Bird a
Mollusc a
Reptile a
Taxonomic group
0.0 0.2 0.4 0.6 0.8 1.0

Figure 6.

Participants' agreement with various statements related to one or two organisms they worked with. Distinct letters on the right-side of bars represent statistical differences between taxonomic groups within that panel (z-values with $p < 0.05$ for all pairwise comparisons)

Supplementary figures

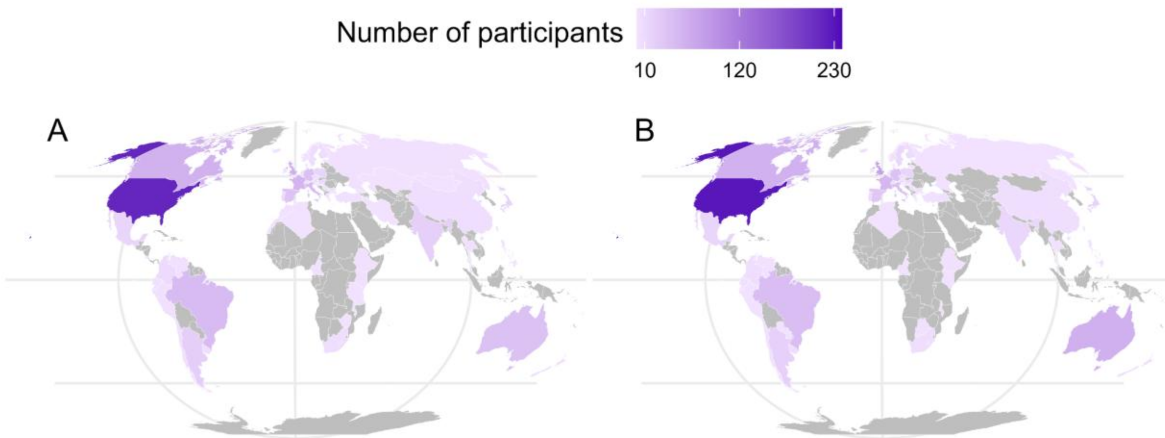

Figure S1.

Participants' country. Country in which participants spent most of their life before (A) and after (B) being 18 years old. No participants mentioned countries or regions in grey.

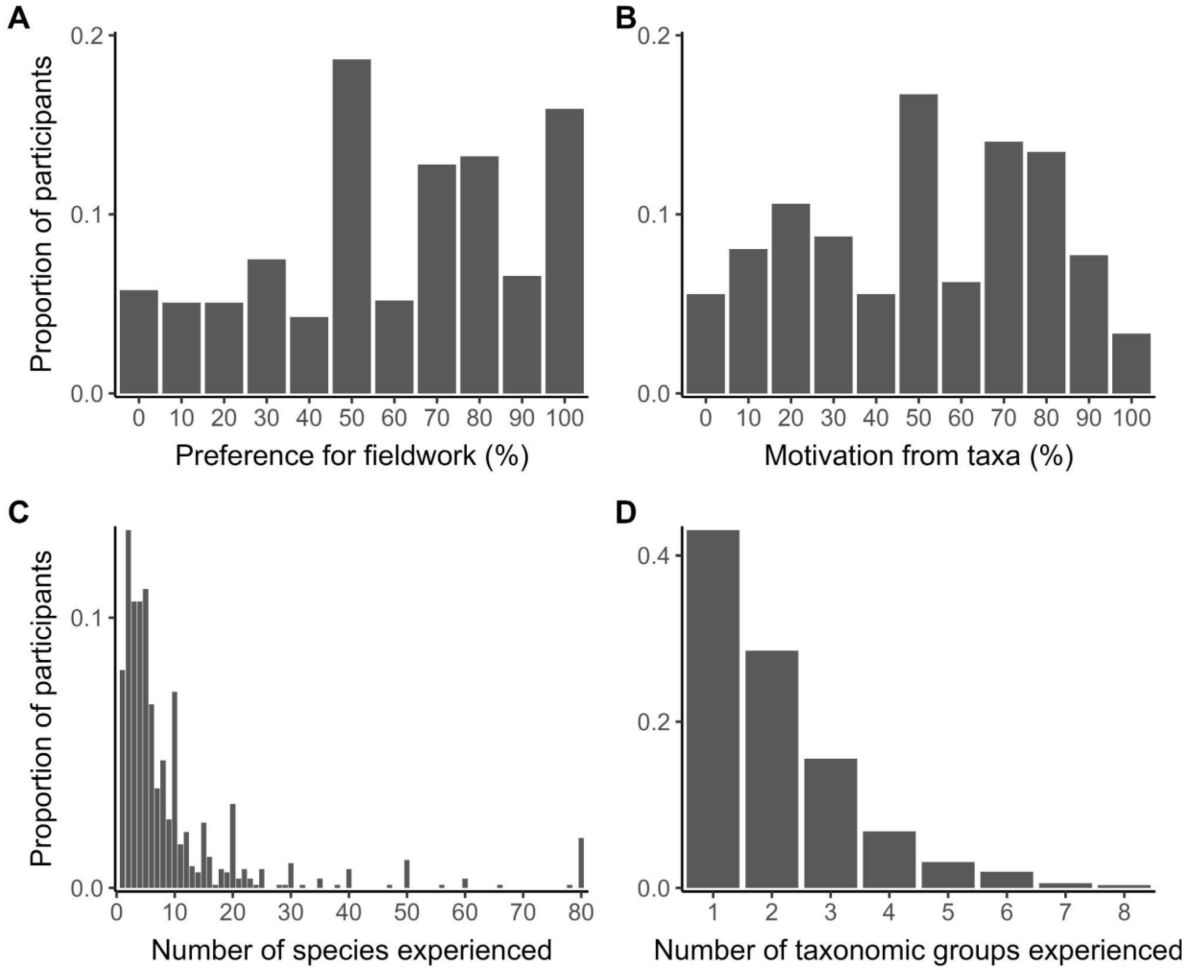

Figure S2.

Participants' preferences, motivations, and overall experiences. Proportion of participants expressing their preference for fieldwork over lab work (A) and their motivation from taxa over other factors (B). Proportion of participants that experienced (i.e. collected behavioural data from) distinct numbers of species (C), and of taxonomic groups (D).

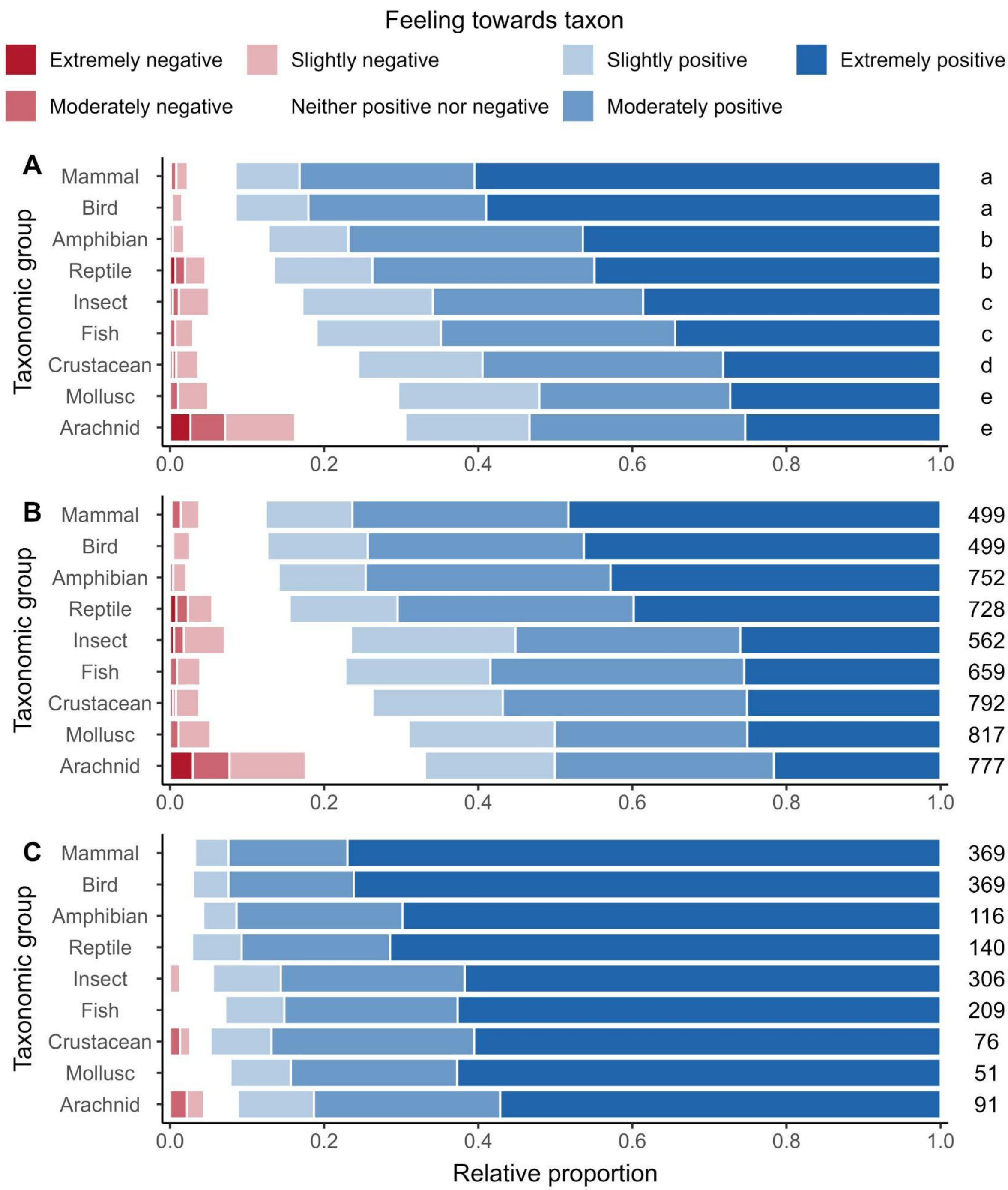

Figure S3.

Participants' feelings towards distinct animal groups. Responses from all participants together (A) or by experience with the taxon in question (B: without, C: with). In panel A, distinct letters on the right-side of bars represent statistical differences between taxonomic groups within that panel (z-values with $p < 0.05$ for all pairwise comparisons). In panels B and C, numbers on the right-side of bars represent the number of participants for each taxon in the subset presented, with a total of 868 for each taxon.

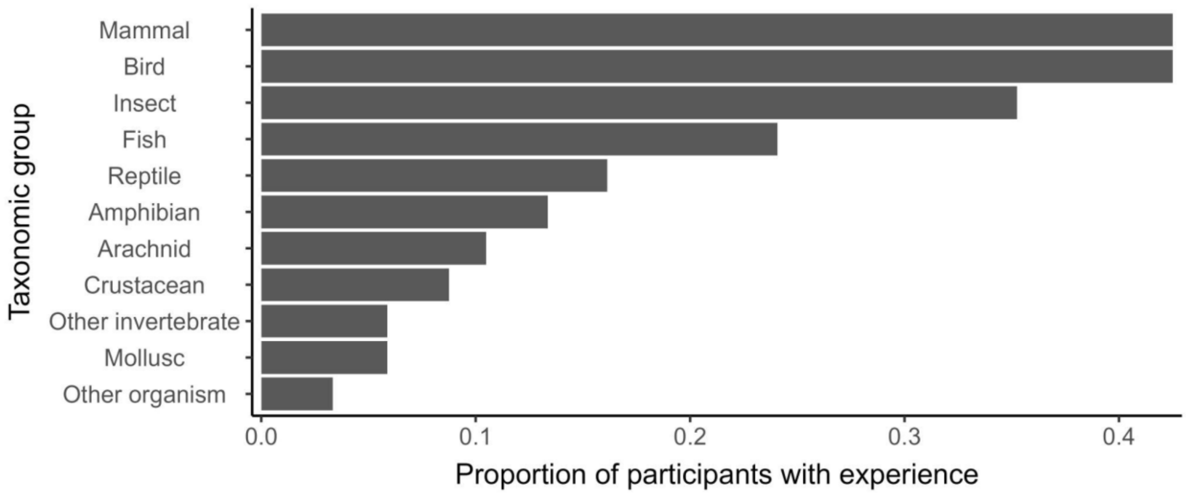

Figure S4.

Taxonomic groups with which participants had experience with. Note that each participant could have experience with multiple taxa.

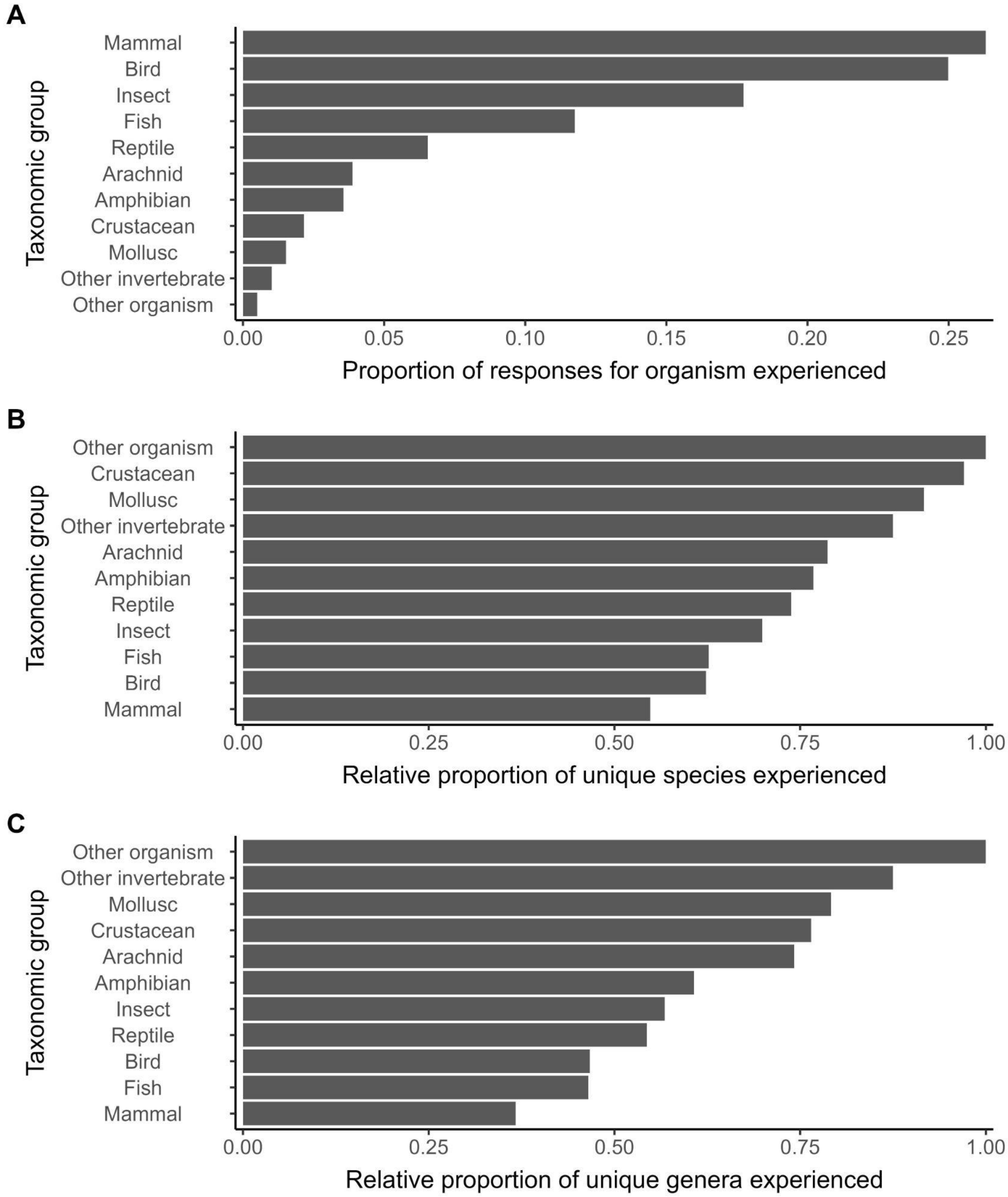

Figure S5.

Taxonomic groups of specific species that participants had experience with.

Supplementary tables

Table S1.

Pre-registered predictions (see Pollo & Kasumovic 2025).

Prediction	Supported?
Participants that work with vertebrate animals, especially birds and mammals, disclose that their interest is more strongly driven by taxon (opposed to other motivations) than other participants	No
Vertebrate animals, especially birds and mammals, elicit more positive feelings from participants than other taxa	Yes
Taxa that participants worked with elicit more positive feelings from them compared with other taxa	Yes
An employer, supervisor, or collaborator is responsible for selecting research species in most cases, except when the participant holds a permanent research position mentioning their most recently studied species.	Yes
Vertebrate animals, especially birds and mammals, are perceived as harder to rear and maintain in the lab, and easier to observe or record in the field, compared with other taxa	Mixed
Participants working with birds are more likely to have engaged in cultural activities involving the observation of their study organism before conducting research on it than participants working with other organisms	Mixed
Participants from anglophone countries are more likely to have engaged in cultural activities involving bird observation (i.e. birdwatching) before conducting research on birds than participants from non-anglophone countries.	No
A participant's preference for data collection in the field opposed to in the lab is positively related to their opinion of the species they mention being easy to be located/attracted and recorded/observed in the field, and negatively related to their opinion of the species being easy to be maintained and reared in the lab.	Yes
A participant's opinion that a species is considered a model organism by the scientific community is positively associated with their opinion of how extensive the behavioural literature on that species is.	Yes
A participant's opinion that a species is considered a model organism by the scientific community is positively associated with their opinion of how easy and accessible it is to obtain, maintain, and observe that species in the lab or in the field, but rarely both	Mixed
Organisms perceived as economically relevant are more frequently used in applied research than those perceived as economically irrelevant	Yes

Table S2.

Journals specialised in ethology and/or behavioural ecology (i.e. behaviour journals) or general ecology and evolution (i.e. E&E journals) used in our study to retrieve researchers' emails. ISSN stands for International Standard Serial Number.

Set	**Journal**	**Publisher**	**Supporting society or institution**	**ISSN(s)**
Behaviour	Acta Ethologica	Springer Nature	Portuguese Ethological Society	0873-9749, 1437-9546
	Animal Behaviour	Elsevier	Association for the Study of Animal Behaviour, Animal Behavior Society	1095-8282, 0003-3472
	Animal Cognition	Springer Nature	-	1435-9448, 1435-9456
	Behavioral Ecology	Oxford University Press	International Society for Behavioral Ecology	1045-2249, 1465-7279
	Behavioral Ecology and Sociobiology	Springer Nature	-	0340-5443, 1432-0762
	Behaviour	Brill	-	0005-7959, 1568-539X
	Behavioural Processes	Elsevier	-	0376-6357, 1872-8308
	Ethology	Wiley	Ethological Society	0179-1613, 1439-0310
	Ethology Ecology and Evolution	Taylor & Francis	-	0394-9370, 1120-6705, 1828-7131,
	Journal of Comparative Psychology	American Psychological Association	-	0735-7036, 1939-2087
	Journal of Ethology	Springer Nature	Japan Ethological Society	0289-0771, 1439-5444
E&E	BMC Ecology and Evolution	BMC	-	2730-7182
	Current Zoology	Oxford University Press	China Zoological Society	1674-5507, 2396-9814
	Ecology and Evolution	Wiley	British Ecological Society	2045-7758
	Ecology Letters	Wiley	Centre National de la Recherche Scientifique	1461-023X, 1461-0248
	Evolution	Oxford University Press	Society for the Study of Evolution	0014-3820, 1558-5646
	Evolution Letters	Oxford University Press	Society for the Study of Evolution	2056-3744
	Functional Ecology	Wiley	British Ecological Society	0269-8463, 1365-2435
	Journal of Animal Ecology	Wiley	British Ecological Society	0021-8790, 1365-2656

Journal of Evolutionary Biology	Oxford University Press	European Society for Evolutionary Biology	1010-061X, 1420-9101
Nature Ecology and Evolution	Springer Nature	-	2397-334X
The American Naturalist	The University of Chicago Press	American Society of Naturalists	0003-0147, 1537-5323

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Table S3.

Model comparison regarding the number of species experienced by participants in our survey. Several possible predictor variables were tested (see main text for details). "+" represents that the predictor variable was included in models shown. *AICc* and *W* stand for models' Akaike information criterion for small sample sizes and their weight, respectively. Only selected models (i.e. *ΔAICc* < 2) are shown.

	Predictor variables								
Rank	**Number of taxonomic groups experienced**	**Age**	**Gender**	**Editorial experience**	**Preference for fieldwork**	**Motivation from taxa**	***AICc***	***ΔAICc***	***W***
1	+	+	+	+		+	5510.72	0.00	0.50
2	+	+	+	+	+	+	5512.45	1.73	0.21

Table S4.

Model comparison regarding the number of taxonomic groups experienced by participants in our survey. Several possible predictor variables were tested (see main text for details). “+” represents that the predictor variable was included in models shown. *AICc* and *W* stand for models’ Akaike information criterion for small sample sizes and their weight, respectively. Only selected models (i.e. *ΔAICc* < 2) are shown.

Rank	**Predictor variables**						***AICc***	***ΔAICc***	***W***
	Number of species experienced	**Age**	**Gender**	**Editorial experience**	**Preference for fieldwork**	**Motivation from taxa**			
1	+	+		+		+	2681.64	0.00	0.25
2	+	+				+	2682.02	0.39	0.21
3	+	+		+	+	+	2683.16	1.53	0.12
4	+	+	+	+		+	2683.16	1.53	0.12
5	+	+	+			+	2683.49	1.86	0.10
6	+	+			+	+	2683.59	1.96	0.09

Table S5.

Model comparison regarding the fondness by participants in our survey for each taxonomic group. Several possible predictor variables were tested (see main text for details). "+" represents that the predictor variable was included in in models shown. *AICc* and *W* stand for models' Akaike information criterion for small sample sizes and their weight, respectively. Only selected models (i.e. *ΔAICc* < 2) are shown.

Taxon	Rank	Predictor variables							*AICc*	*ΔAICc*	*W*
		Experience	Number of taxonomic groups experienced	Age	Gender	Editorial experience	Preference for fieldwork	Motivation from taxa			
Amphibian	1	+				+	+		2186.14	0.00	0.09
Amphibian	2	+			+	+	+		2186.35	0.21	0.08
Amphibian	3	+					+		2186.40	0.26	0.08
Amphibian	4	+		+		+	+		2186.58	0.44	0.07
Amphibian	5	+	+		+	+	+		2187.30	1.16	0.05
Amphibian	6	+			+		+		2187.38	1.24	0.05
Amphibian	7	+	+				+		2187.44	1.30	0.05
Amphibian	8	+	+			+	+		2187.49	1.35	0.04
Amphibian	9	+	+	+		+	+		2187.51	1.37	0.04
Amphibian	10	+		+	+	+	+		2187.55	1.41	0.04
Amphibian	11	+	+		+		+		2187.94	1.81	0.03
Amphibian	12	+				+	+	+	2188.10	1.97	0.03
Arachnid	1	+		+			+	+	2958.94	0.00	0.08
Arachnid	2	+		+			+		2959.60	0.66	0.06
Arachnid	3	+					+	+	2960.18	1.24	0.04
Arachnid	4	+				+	+	+	2960.51	1.57	0.04
Arachnid	5	+		+		+	+	+	2960.61	1.67	0.04
Arachnid	6	+	+	+			+	+	2960.67	1.74	0.03
Arachnid	7	+	+	+			+		2960.74	1.8	0.03
Arachnid	8	+					+		2960.78	1.84	0.03
Arachnid	9	+		+	+		+	+	2960.78	1.85	0.03
Bird	1	+	+	+			+		1846.31	0.00	0.26
Bird	2	+	+	+	+		+		1846.94	0.63	0.19
Bird	3	+	+	+		+	+		1847.96	1.65	0.11
Crustacean	1	+				+			2544.91	0	0.14
Crustacean	2	+				+		+	2545.31	0.4	0.12
Crustacean	3	+	+			+			2545.65	0.74	0.10
Crustacean	4	+	+			+		+	2546.59	1.68	0.06
Crustacean	5	+		+		+			2546.85	1.94	0.05
Fish	1	+				+			2399.70	0.00	0.10
Fish	2	+				+	+		2399.97	0.28	0.09
Fish	3	+		+		+			2400.10	0.40	0.08
Fish	4	+		+		+	+		2400.50	0.80	0.07
Fish	5	+				+	+	+	2400.97	1.27	0.05
Fish	6	+				+		+	2401.11	1.41	0.05
Fish	7	+	+			+			2401.39	1.69	0.04
Fish	8	+		+		+	+	+	2401.47	1.77	0.04
Fish	9	+		+		+		+	2401.48	1.78	0.04
Fish	10	+	+	+		+			2401.51	1.82	0.04
Fish	11	+	+			+	+		2401.62	1.92	0.04
Insect	1	+				+			2425.11	0.00	0.07
Insect	2	+							2425.51	0.40	0.05
Insect	3	+	+			+			2425.64	0.52	0.05
Insect	4	+				+	+		2426.12	1.01	0.04
Insect	5	+					+		2426.49	1.38	0.03
Insect	6	+	+			+	+		2426.50	1.39	0.03
Insect	7	+	+						2426.55	1.43	0.03
Insect	8	+		+					2426.79	1.67	0.03
Insect	9	+			+				2426.88	1.77	0.03
Insect	10	+			+	+			2426.96	1.85	0.03
Insect	11	+				+		+	2427.04	1.93	0.03

Insect	12	+		+		+			2427.08	1.96	0.02
Mammal	1	+	+		+		+		1812.87	0.00	0.29
Mammal	2	+	+		+	+	+		1813.39	0.51	0.22
Mammal	3	+	+	+	+		+		1814.46	1.58	0.13
Mollusc	1	+				+			2629.47	0.00	0.09
Mollusc	2	+			+	+			2630.14	0.67	0.06
Mollusc	3	+				+		+	2630.27	0.80	0.06
Mollusc	4	+	+			+			2630.31	0.84	0.06
Mollusc	5	+			+	+		+	2630.70	1.23	0.05
Mollusc	6	+				+	+		2630.88	1.41	0.04
Mollusc	7	+	+		+	+			2631.02	1.54	0.04
Mollusc	8	+				+	+	+	2631.36	1.89	0.03
Reptile	1	+		+			+		2343.39	0.00	0.22
Reptile	2	+		+		+	+		2344.82	1.43	0.11
Reptile	3	+		+	+		+		2345.21	1.82	0.09
Reptile	4	+		+			+	+	2345.34	1.95	0.08

Table S6.

Model comparison regarding whether participants in our survey had experience with each taxonomic group. Several possible predictor variables were tested (see main text for details). "+" represents that the predictor variable was included in in models shown. *AICc* and *W* stand for models' Akaike information criterion for small sample sizes and their weight, respectively. Only selected models (i.e. *ΔAICc* < 2) are shown.

Taxon	Rank	Predictor variables							*AICc*	*ΔAICc*	*W*
		Fondness	**Number of taxonomic groups experienced**	**Age**	**Gender**	**Editorial experience**	**Preference for fieldwork**	**Motivation from taxa**			
Amphibian	1	+	+	+				+	504.54	0.00	0.28
Amphibian	2	+	+	+		+		+	506.13	1.59	0.12
Amphibian	3	+	+					+	506.37	1.83	0.11
Amphibian	4	+	+	+			+	+	506.43	1.89	0.11
Arachnid	1	+	+	+	+		+	+	463.99	0.00	0.17
Arachnid	2	+	+	+			+	+	464.48	0.49	0.13
Arachnid	3	+	+	+	+	+	+	+	464.81	0.82	0.11
Arachnid	4	+	+			+	+	+	464.99	1.00	0.10
Arachnid	5	+	+		+	+	+	+	465.30	1.31	0.09
Arachnid	6	+	+	+		+	+	+	465.39	1.40	0.08
Arachnid	7	+	+				+	+	465.56	1.58	0.08
Bird	1	+	+	+		+	+		969.83	0.00	0.28
Bird	2	+	+			+	+		970.79	0.97	0.17
Bird	3	+	+	+		+	+	+	971.43	1.60	0.13
Crustacean	1	+	+			+	+		385.54	0.00	0.19
Crustacean	2	+	+				+		386.71	1.17	0.11
Crustacean	3	+	+			+	+	+	387.00	1.47	0.09
Crustacean	4	+	+	+		+	+		387.39	1.86	0.08
Fish	1	+	+	+			+		732.05	0.00	0.15
Fish	2	+	+	+	+		+		732.49	0.44	0.12
Fish	3	+	+	+		+	+		732.79	0.73	0.10
Fish	4	+	+		+	+	+		732.8	0.74	0.10
Fish	5	+	+	+	+	+	+		733.27	1.21	0.08
Fish	6	+	+			+	+		733.52	1.47	0.07
Fish	7	+	+		+		+		733.64	1.59	0.07
Fish	8	+	+	+			+	+	733.94	1.88	0.06
Insect	1	+	+				+		868.92	0.00	0.19
Insect	2	+	+				+	+	869.39	0.47	0.15
Insect	3	+	+	+			+		869.64	0.72	0.13
Insect	4	+	+			+	+		870.03	1.12	0.11
Insect	5	+	+	+			+	+	870.28	1.37	0.09
Insect	6	+	+			+	+	+	870.56	1.64	0.08
Mammal	1	+	+	+	+		+		1057.46	0.00	0.2
Mammal	2	+	+	+			+		1058.16	0.7	0.14
Mammal	3	+	+	+	+		+	+	1058.31	0.85	0.13
Mammal	4	+	+	+	+	+	+		1058.61	1.15	0.11
Mammal	5	+	+	+			+	+	1058.76	1.3	0.1
Mammal	6	+	+	+		+	+		1059.36	1.90	0.08
Mollusc	1	+	+				+		318.33	0.00	0.12
Mollusc	2	+	+	+		+	+		318.68	0.36	0.10
Mollusc	3	+	+			+	+		318.74	0.41	0.10
Mollusc	4	+	+	+			+		319.48	1.16	0.07
Mollusc	5	+	+						319.68	1.35	0.06
Mollusc	6	+	+				+	+	319.81	1.48	0.06
Mollusc	7	+	+	+		+			320.06	1.73	0.05
Mollusc	8	+	+			+			320.10	1.77	0.05
Reptile	1	+	+						607.85	0.00	0.14
Reptile	2	+	+				+		608.20	0.35	0.12
Reptile	3	+	+			+			609.31	1.46	0.07
Reptile	4	+	+					+	609.31	1.46	0.07
Reptile	5	+	+			+	+		609.75	1.90	0.06

Other invertebrate	1	+				+		314.41	0.00	0.21
Other invertebrate	2	+			+	+		314.65	0.23	0.19
Other invertebrate	3	+	+			+		316.20	1.79	0.09
Other invertebrate	4	+				+	+	316.37	1.96	0.08
Other organism	1	+						211.88	0.00	0.13
Other organism	2	+	+					212.14	0.25	0.11
Other organism	3	+		+				212.76	0.88	0.08
Other organism	4	+	+	+				213.75	1.87	0.05
Other organism	5	+				+		213.77	1.89	0.05
Other organism	6	+			+			213.79	1.91	0.05
Other organism	7	+					+	213.82	1.93	0.05

Table S7.

Model comparison regarding whether the species mentioned by participants in our survey were suggested by a supervisor (*vs.* other people or themselves). Two possible predictor variables were tested (see main text for details). "+" represents that the predictor variable was included in models shown. *AICc* and *W* stand for models' Akaike information criterion for small sample sizes and their weight, respectively.

Rank	**Predictor variables**		***AICc***	***ΔAICc***	***W***
	Period	**Version**			
1	+		1871.87	0.00	0.61
2	+	+	1872.73	0.86	0.39
3		+	2013.53	141.66	0.00
4			2042.80	170.93	0.00

Table S8.

Model comparison regarding five statements (response variables) about the easiness to work with the most recent species experienced by participants in our survey. "+" represents that the predictor variable was included in models shown. *AICc* and *W* stand for models' Akaike information criterion for small sample sizes and their weight, respectively.

Response variable	Rank	Predictor variables		*AICc*	*ΔAICc*	*W*
		Genus mentions	Preference for fieldwork			
Easy to buy	1	+	+	2182.53	0.00	1.00
Easy to buy	2		+	2193.97	11.43	0.00
Easy to buy	3	+		2219.78	37.25	0.00
Easy to buy	4			2234.16	51.63	0.00
Easy to find in the field	1		+	3112.52	0.00	0.70
Easy to find in the field	2	+	+	3114.45	1.92	0.27
Easy to find in the field	3			3119.07	6.55	0.03
Easy to find in the field	4	+		3120.6	8.08	0.01
Easy to observe in the field	1	+	+	3139.08	0.00	0.93
Easy to observe in the field	2	+		3144.53	5.44	0.06
Easy to observe in the field	3		+	3148.09	9.00	0.01
Easy to observe in the field	4			3151.57	12.49	0.00
Easy to observe in the lab	1	+	+	2631.58	0.00	1.00
Easy to observe in the lab	2	+		2674.9	43.32	0.00
Easy to observe in the lab	3		+	2675.63	44.05	0.00
Easy to observe in the lab	4			2721.03	89.45	0.00
Easy to rear in the lab	1	+	+	2675.73	0.00	1.00
Easy to rear in the lab	2	+		2709.14	33.41	0.00
Easy to rear in the lab	3		+	2717.62	41.89	0.00

Table S9.

Coefficients from models selected regarding five statements (response variables) about the easiness to work with the most recent species experienced by participants in our survey (see also Table S8).

Response variable	**Predictor variable**	**Coefficient**	**SE**	**z-score**	**p-value**
Easy to buy	Genus mentions	0.45	0.07	6.02	<0.001
Easy to buy	Preference for fieldwork	-0.35	0.10	-3.68	<0.001
Easy to find in the field	Genus mentions	0.14	0.05	2.90	<0.001
Easy to observe in the field	Genus mentions	0.11	0.04	2.68	0.01
Easy to observe in the field	Preference for fieldwork	0.24	0.07	3.33	<0.001
Easy to observe in the lab	Genus mentions	0.39	0.06	6.64	<0.001
Easy to observe in the lab	Preference for fieldwork	-0.58	0.09	-6.76	<0.001
Easy to rear in the lab	Genus mentions	0.35	0.06	5.92	<0.001
Easy to rear in the lab	Preference for fieldwork	-0.57	0.09	-6.63	<0.001

Appendix 1 – Survey

[Participant Information Sheet and Consent was applied before the survey]

PART 1: Eligibility

1. Have you ever directly collected behavioural data from non-human organisms that led to at least one research output* of which you were an author?

*Research outputs include conference posters or presentations, preprints, peer-reviewed publications, dissertations, theses, or books.

○ Yes [proceed]
○ No [terminate the survey]

PART 2: Demographics

2. How old are you?

__[fill]__

3. How do you identify?

○ Agender
○ Gender fluid
○ Man
○ Non binary
○ Woman
○ Other (please specify) __[fill]__

4. In which country have you spent most of your life UNTIL you were 18 years old? (please elect only one country if multiple countries apply)

__[fill]__

5. In which country have you spent most of your life AFTER turning 18 years old? (please elect only one country if multiple countries apply)

__[fill]__

6. What is your current highest level of education? (i.e. obtained degree; do NOT consider current studies)

- o High school/Technical school
- o Undergraduate/Honours degree
- o MSc/Master's degree
- o PhD/Doctoral degree

7. [if Q6 is PhD/Doctoral degree] In what year did you complete your PhD?

__[fill]__

PART 3: General preferences and experiences

8. Are you or have you ever been an editor of any scientific journals that at least occasionally publish ethological or behavioural research?

- o Yes
- o No

9. Based purely on personal enjoyment, how would you split your time collecting behavioural data between the field and the lab?

- 100% in the field, 0% in the lab
- 90% in the field, 10% in the lab
- 80% in the field, 20% in the lab
- 70% in the field, 30% in the lab
- 60% in the field, 40% in the lab
- 50% in the field, 50% in the lab
- 40% in the field, 60% in the lab
- 30% in the field, 70% in the lab
- 20% in the field, 80% in the lab
- 10% in the field, 90% in the lab
- 0% in the field, 100% in the lab

10. How much does your desire to work with certain taxonomic groups drive your behavioural research interests compared with other possible motivations (e.g. exploration of specific topics pertinent to most organisms, professional prospects, etc)?

- 100% driven by certain taxonomic group(s), 0% driven by other motivations
- 90% driven by certain taxonomic group(s), 10% driven by other motivations
- 80% driven by certain taxonomic group(s), 20% driven by other motivations
- 70% driven by certain taxonomic group(s), 30% driven by other motivations
- 60% driven by certain taxonomic group(s), 40% driven by other motivations
- 50% driven by certain taxonomic group(s), 50% driven by other motivations
- 40% driven by certain taxonomic group(s), 60% driven by other motivations
- 30% driven by certain taxonomic group(s), 70% driven by other motivations
- 20% driven by certain taxonomic group(s), 80% driven by other motivations
- 10% driven by certain taxonomic group(s), 90% driven by other motivations
- 0% driven by certain taxonomic group(s), 100% driven by other motivations

11. How would you rate your feelings towards the following animals on a spectrum ranging from negative (e.g., anxiety, disgust, fear) to positive (e.g., admiration, cuteness, fascination), with ambivalent feelings in between?

Taxonomic group	**Extremely negative**	**Moderately negative**	**Slightly negative**	**Neither positive nor negative**	**Slightly positive**	**Moderately positive**	**Extremely positive**
Amphibians							
Arachnids							
Birds							

Crustaceans							
Fish							
Insects							
Mammals							
Molluscs							
Reptiles							

12. From how many different non-human organisms (at the species level) have you directly collected behavioural data that led to at least one research output* for which you were an author?

*Research outputs include conference posters or presentations, preprints, peer-reviewed publications, dissertations, theses, or books.

__[fill]__

13. Select all taxonomic groups from which you directly collected behavioural data that led to at least one research output* of which you were an author.

*Research outputs include conference posters or presentations, preprints, peer-reviewed publications, dissertations, theses, or books.

- Amphibian
- Arachnid
- Bird
- Crustacean
- Fish
- Insect
- Invertebrate not on this list
- Mammal
- Mollusc
- Non-animal organism
- Reptile

PART 4: Experiences and opinions regarding specific studied organisms

If q12 answer is equal or greater than 2, some of the following questions (q15-18 and q27-28) will be asked twice. However, repeated questions will be related to the species that the participant worked with least recently (see q14).

14. Specify the scientific name (genus and epithet, e.g. *Homo sapiens*) of the [most/least] recent non-human species from which you directly collected behavioural data that led to at least one research output* of which you were an author (elect one species if multiple apply).

*Research outputs include conference posters or presentations, preprints, peer-reviewed publications, dissertations, theses, or books.

__[fill]__

15. [q14 answer] is a/an

- ○ Amphibian
- ○ Arachnid
- ○ Bird
- ○ Crustacean
- ○ Fish
- ○ Insect
- ○ Invertebrate not on this list
- ○ Mammal
- ○ Mollusc
- ○ Non-animal organism
- ○ Reptile

16. Approximately how many peer-reviewed articles have you published involving behavioural data that you directly collected from [q14 answer]?

- ○ 0
- ○ 1
- ○ 2

- 3
- 4 or more

17. When did you first directly collect behavioural data from [q14 answer]?

- During or before my PhD
- After my PhD, but not while holding a permanent research position (e.g. unemployed, postdoc)
- After my PhD, while holding a permanent research position (e.g. lecturer, professor)

18. Which of these situations best describes how you INITIALLY decided to work with [q14 answer]?

- My employer, supervisor, or collaborator used this species for research and/or suggested me to use this species in my research
- Someone, but NOT my employer, supervisor, or collaborator, showed or told me about this species and/or suggested that I used it in my research
- I had the idea to use this species in my research before anyone else directly suggested it or influenced me to do it

<u>Questions below are answered in a 7-point Likert scale (i.e. strongly disagree to strongly agree):</u>

19. Reaching the place where [q14 answer] individuals are expected to be, and then locating or attracting them in the field is easy/accessible.

20. Once [q14 answer] individuals are located or attracted, observing or recording their behaviours in the field is easy/accessible.

21. Obtaining [q14 answer] individuals from suppliers (e.g. other research teams, farms, fisheries, pet stores) is easy/accessible.

22. Rearing and maintaining [q14 answer] individuals in the lab is easy/accessible.

23. Observing or recording [q14 answer] individuals in the lab is easy/accessible.

24. [q14 answer] is considered a model organism by the scientific community.

25. The behavioural literature on [q14 answer] is extensive.

26. [q14 answer] possesses a specific characteristic that makes it an ideal species to answer a question I am or was interested in.

27. I already had the hobby of going out specifically to search for or look at [q15 answer]s before I started working with [q14 answer].

28. My interest for [q15 answer]s increased after working with [q14 answer].

29. [q14 answer] is an economically important species (e.g. used commercially, provides ecological services, considered a pest or a disease vector).

30. [q14 answer] is endangered/threatened in the wild.

31. The behavioural research I have conducted with [q14 answer] can be considered applied (e.g. pest control, conservation).

32. Please select the option “agree”. [attention question]

Appendix 2 – Additional discussion

Contradictory results we found, such that preference for fieldwork was positively related to fondness for arachnids but negatively related to the likelihood of working with them, may indicate that researchers are unaware that they can use neglected taxa to pursue their preferences (e.g. work with arachnids in the field), indicating that a diverse taxonomic education is key to addressing taxonomic bias in ecology and evolution. At finer taxonomic levels, participants with a stronger preference for fieldwork were more likely to report that the species they most recently worked with is easy to observe in the field, but harder to work with in the laboratory. This suggests that researchers select specific organisms to match their professional preferences also within a taxonomic group.

Justifying the choice of study species has become a staple in research manuscripts (Mann 2015), which may explain why most surveyed researchers agreed that the species they most recently worked with possesses a specific characteristic that makes it ideal to explore a certain topic. However, it is possible that other species could be equally useful for addressing the same questions, as similar traits often occur across diverse taxa, including (apparently) unique characteristics. For example, biologists would intuitively use mammals to understand the evolution of milk-like secretions as a form of parental care (Clutton-Brock 1991), but species of other taxonomic groups can also express this behaviour (e.g. cecilians: (Mailho-Fontana et al. 2024); cockroaches: (Stay and Coop 1974); spiders: (Chen et al. 2018). We thus argue that we could discover more species with astonishing features by exploring the existent biodiversity, which would grant us new ideal organisms to study, instead of simply marketing a few species as ideal for a topic (especially those that have been investigated for decades by several people).

We also investigated the relationship between age and gender on researchers' taxonomic preferences and experiences, even though we had no hypotheses on how these variables relate to taxonomic bias. We found that, on average, older participants in our survey worked with more species and taxonomic groups than their younger counterparts, which may simply reflect that they had more time to do so. However, it is also possible that researchers have been recently using fewer taxa in their research, making their experiences less taxonomically diverse compared with researchers in previous decades. We also observed that increasing age was related to greater fondness for birds, lower fondness for amphibians, and greater likelihood of having worked with mammals, which might show that distinct generations of researchers have different perspectives. Women that participated in our survey worked with fewer species and taxonomic groups than men, possibly reflecting the difficulties women face in academia (Casad et al. 2021; Spoon et al. 2023) if these obstacles limit their opportunities for taxonomic diversification. Although the literature suggests that women are more likely to have animal phobias than men (Fredrikson et al. 1996), we found no gender differences in the perception of different taxonomic groups, except for mammals, which women viewed more favourably than men (Fig. 3A).

In our survey, we also verified the relationship between participants' editorial experience and their taxonomic focus. Given that editors are the main gatekeepers in the publishing system, they have more power than other individuals to change patterns of taxonomic bias in the literature. Participants with editorial experience worked with more species but not with more taxonomic groups than other participants (Fig. 2), showing that these individuals are not specifically selected because of the diversity of their experiences at a high taxonomic level. Despite participants with editorial experience having a more favourable perception of some animal groups (crustaceans, fish, molluscs) than others, they were more likely to work with birds than their counterparts. If editors are more likely to accept research manuscripts that match their personal experiences for publication, then taxonomic bias in the literature can worsen. This is certainly possible as biases in the publication process within ecology and evolution have been documented (Fox et al. 2023; Srivastava et al. 2024), highlighting the need for greater transparency in editorial decisions to assess whether individual preferences and experiences influence publication patterns.