



## D2.4 Love, Learning and Care for Birds

<b>Grant agreement number</b>	872557
<b>Project acronym</b>	EnviroCitizen
<b>Project title</b>	Citizen Science for Environmental Citizenship: Backyard Birding and the Potential for Cultivating Green Engagement
<b>Start date of project</b>	01/04/2020
<b>Duration of the project</b>	42 months
<b>Date of submission of the report</b>	26-04-2022
<b>Version</b>	Final
<b>Project website address</b>	<a href="https://www.envirocitizen.eu/">https://www.envirocitizen.eu/</a>



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 872557

# Love, Learning and Care for Birds

Ornithological citizen science as a pathway to  
environmental citizenship

EnviroCitizen Deliverable D2.4

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**“At the end of each day, I write down the names of all birds seen and read them out loud, regardless of who is there. It's like throwing a party and afterwards talking about who came. There are always those you can count on and those who will surprise you. And once in a blue moon, an accidental guest will arrive.”**

Terry Tempest Williams, *Refuge* (1992, p. 88)

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## Part I: Goals and theoretical background<sup>1</sup>

### 1.1 Introduction

The goal of WP2.3 is to investigate how environmental citizenship is enacted in the volunteer work carried out by amateur birders. Specifically, we used a combination of ethnographic fieldwork and interviews with amateur birders to explore the links between participation in ornithological citizen science and a broader sense of environmental citizenship. We paid specific attention to the dimensions of knowledge and learning: what do participants learn, and how? What knowledge do they bring? What do they aim to learn? And like all work packages in EnviroCitizen, we related this to in- and exclusion as well, for instance in terms of gender. In other words, relevant questions to ask there are how knowledge demands, learning activities, and individual and group concerns regarding birds and nature may in- or exclude participants.

Six countries carried out empirical work in the work package: Estonia, Norway, Romania, Spain, Sweden and The Netherlands (with the latter being lead partner). As such, while things inevitably play out differently in each country, we aimed to achieve a measure of comparability in order to be able to analyse similarities and differences between the countries.

The investigation in WP2.3 focuses on the interlinkages between knowledge, learning and environmental citizenship in present-day participation in amateur birding (observation and ringing). These are very broad notions that require some specification. These topics should be considered as sensitizing concepts (Boeije, 2014, p. 23) rather than a fixed analytical framework.

One dimension that is important in EnviroCitizen is that we are interested in how interviewees have developed in their birding, what they have learned and how birding relates to changes in their motivations and relationships to nature and place. This dynamic view can be expressed through questions such as how volunteers started birding, how they joined their group, how they (wish to) learn and develop in terms of knowledge and skills, and their changing relationships to place and birds.

### 1.2 On relational values, stewardship and care

A starting point of EnviroCitizen is that, since many nature-related citizen science activities (including birding) combine playing an active role in scientific inquiry with being outdoors in nature, they could have the potential to stimulate or strengthen environmental citizenship. As argued in the proposal, counting and ringing birds may even lead to citizen scientists raising questions about “what it means to be a citizen of this planet” (p. 3). In line with the understanding of environmental citizenship advanced in Hadjichambis et al. (2020), EnviroCitizen also recognises that environmental citizenship concerns “more than just recycling or turning off the lights”, and instead “requires new ways of thinking and acting in all aspects of life to promote environmental sustainability” (p. 3). This echoes sentiments from the literature on leverage points for sustainability transformation, which has also argued that many system interventions are aimed at effecting easy but weak changes, while

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<sup>1</sup> The text of Part 1 is copied, in slightly edited form, from project deliverable D2.1: *EnviroCitizen Work Plan WP 2.3 Comparative Ethnographic Studies*

insufficiently engaging with deeper issues such as underlying values and worldviews (Abson et al., 2017). It follows from this perspective that lasting changes in thinking and acting can best be reached through explicitly incorporating the more reflective philosophical level.

In the context of environmental citizen science, one promising avenue to addressing this deeper philosophical level would be to elicit participants' ideas on the human-nature relationship and their reflection on their connectedness with nature. These are particularly relevant for EnviroCitizen's emphasis on citizen science and learning, as Zylstra et al. (2014, p. 125) argue that connectedness with nature has cognitive, experiential, and affective or spiritual dimensions.

Here we see a highly promising link to the literature on **relational values**. Relational values are those pertaining to "all manner of relationships between people and nature, including relationships that are between people but involve nature" (Chan et al., 2016, p. 1462). These relationships could include prominent ones from writings on human-nature relationships, such as stewardship and care, as well as attachments to place or spiritual bonds with nature. Riechers et al. (2020, p. 2602) highlight how relational values are expressed at an individual level (such as personal identification with nature or religious wonderment) but also at a more collective level (for instance social bonds mediated by nature or a sense of cultural identity tied to natural landscapes). The authors also note the importance of **responsibility**, as prominent relational values may include both an individual feeling of responsibility for taking care of nature, as well as a collective sense of responsibility experienced within groups. Chan et al. (2016, p. 1464) argue that an explicit focus on relational values may offer opportunities to bring together scientific ways of knowing nature with those rooted in people's lived experience, which has clear relevance to studying citizen science as a practice.

From relational values and the idea of environmental citizenship, we thus arrive at the notion of **care** and **environmental stewardship** (Enqvist et al., 2018; Jax et al., 2018; West et al., 2018). For Nassauer (2011) stewardship is a specific form of care that extends beyond personal property and to large geographic and temporal scales, which bears similarities to Chan et al.'s claim that "using relational values might extend care for our places into care for other people's places" (2016, p. 1464). The word care encompasses two central aspects of environmental citizenship (Jax et al., 2018, p. 23): to **care about something** (which we can link to knowledge, awareness, attitude and motivation) and **caring for something** (i.e. learning how to do something, taking action, wanting to contribute, feeling responsible). This links to the environmental citizenship literature in terms of its emphasis on **willingness** and **competence** (ENEC, 2018), or **attitude** and **behaviour** in terms of Dobson (2007), or **values** and **behaviour** (Jagers & Matti, 2010).

Besides caring for and caring about, the project also adopts the perspective of **becoming with** (Haraway, 2008). *Becoming with* suggests the understanding that humans and nonhumans (in our case birds) co-evolve in terms of what and who they are. The relevance to a relational perspective is clear, as this fundamentally addresses how humans and birds become related to each other, an example of interspecies relationality (Laing, 2021). The concept of *becoming with* draws our attention to the many bigger and more minute ways in which different beings (among them humans) influence each other (in their bodies, minds, daily routines). In addition, it foregrounds the way a citizen, an environmental citizen, cannot emerge *without* other species. This emphasizes that the concept of environmental citizen holds within itself not just the human citizen, but the myriad other beings that make this citizen, not only conceptually but in a very bodily way (e.g. the food we eat or the bacteria we need to digest). *Becoming with* also means that we think about what birds become with people, or what happens when people single-mindedly focus on birds or some birds at the expense of others. This *becoming with* is also in constant movement: people or the birds are never just that, but are constantly making each other and the world.

Here we can also link to the ‘shadow side’ of birding in terms of how it may also erode rather than stimulate environmental citizenship. For instance, it could be that through their birding activities birders increasingly narrow their gaze onto certain ‘good’ birds that they co-evolve with, but they may also exclude certain birds they consider ‘bad’ (e.g. invasive species). Or think of twitching, and its focus on ‘new’ species for lists at the possible expense of other birds. Where is environmental citizenship in focus, e.g. in group activities, and where is it not?

In other words, ‘caring about’, ‘caring for’ and ‘becoming with’ are crucial components for environmental citizenship. As noted above, EnviroCitizen is interested in the degree to which ornithological citizen science inspires new ways of **thinking** and **acting** for nature, for which the notions of caring about, caring for and becoming with offer a fruitful lens. Jax et al. (2018), for instance, offer the following explanation of care:

Caring is not only an attitude of concern for the well-being of another, but also and foremost a practice (...) that seeks to tend to another’s needs (with or without benefit to oneself), be the other a human or a non-human entity (p. 23).

### 1.3 Citizen science and environmental citizenship through a relational lens

In terms of how birding may contribute to a broader sense of caring about, caring for and becoming with nature, Jørgensen and Jørgensen (2021) offer three routes through which environmental citizen science may contribute to environmental citizenship:

- **Collectiveness**, which highlights the social dimension of citizen science activities. The authors argue that “collaboration reinforces existing feelings of responsibility and care for nature and the willingness to act” (p. 3)
- **Situatedness**, attachment and care through local and place-based activities. This links up with the aforementioned potential of a relational values lens to do justice to birders’ own perspectives on the human-nature relationship, rooted in their lived experience
- **Connectedness**, by linking local phenomena to broader and more structural causes. We should be aware that here the term connectedness means something different from how it is used in the aforementioned literature on human-nature connectedness

Considering all the above, we feel a framework paying attention to the relationships between birders and birds, places and nature in general, as well as the values they attribute to these relationships, offers space to talk about these issues with birders that aligns well with their lived experience. Actions and feelings of care and stewardship may be more tangible for our interviewees, and could thus offer an effective starting point for discussing citizen science and environmental citizenship. For instance, in their study of care Byg et al. (2020, p. 5) found that gathering data on the natural environment was an important practice of care, as a way for participants to become more familiar with the landscape. Practices of care and stewardship can range from very active to more passive engagement in nature conservation, can be individual or carried out with others, and can be at different scales (linking with several of the abovementioned dimensions of Jørgensen & Jørgensen, 2021). For instance, for some volunteers ringing could be associated with increasing concerns regarding ecosystems and conservation all along the bird migration route. Recognising interdependencies has been noted to be important to studying care (Cox, 2010), and stewardship “links the immediacy of a particular place and time with more extensive scales of space and time” (Nassauer, 2011, p. 322).

People's experiences with birds, and how they learn about birds, also points to "sensory ethnography" (Pink, 2009) as a promising angle. Birds can initially be quite invisible to people, especially in an urban setting. Birding makes birds increasingly visible and audible to participants (Cherry, 2019), so in participants' narratives we look for expressions related to the sounds, colours and movements of birds. Birding, in other words, can be about developing a new way of looking at one's environment, which links to both scholarly work on significant nature experiences (Ganzevoort & van den Born, 2019) as well as nature writing and ecofiction.

From the perspective of *becoming with*, there is also great value in a multispecies approach to birders and birds (Hamilton & Taylor, 2017; Kirksey & Helmreich, 2010). Instead of considering birds a passive background to birders and citizen science, we aim to bring birds centrally to the topic of our project. This approach redefines what it means to be human and how relationships between humans and nonhumans are built (Ogden et al., 2013), for instance by inquiring who gets to speak for nature (van Dooren et al., 2016, p. 8). Multispecies ethnography also argues for 'activists who advocate for new kinds of ethical, multispecies world making' (Ogden et al., 2013, p. 8). This approach is valuable as our project also has an activist component - we plead for environmental citizenship. We are also attentive to the 'contact zones' between humans and birds. The concept of contact zones is used by Haraway to denote that nature-culture places are made through the entanglement, the relationship of many beings (Haraway, 2008, p. 4): 'If we appreciate the foolishness of human exceptionalism, then we know that becoming is always becoming with—in a contact zone where the outcome, where who is in the world, is at stake.' (Haraway, 2008, p. 244). So here we can ask, what (kind of) places are made through the meeting of people and birds? And what kind of people and birds emerge from these entanglements? (Bull et al., 2017; Urbanik, 2012).

Through a relational lens, the social dimension of citizen science (Jørgensen & Jørgensen's (2021) collectiveness) is given due consideration. A key strength of a relational values perspective lies in the inclusion of environmentally mediated social relationships between individuals and groups of people (Chan et al., 2016). We therefore explicitly include the group dimension, in terms of communal learning processes and how birding groups as a collective care about and for birds and nature. As Chan et al. (2016, p. 1464) note:

The bond between parent or mentor and child can serve as a conduit for social norms of respect for, knowledge of, and passion about nature, via activities including fishing and hunting, foraging or gardening, hiking, or bird-watching. It is also possible to cultivate values and relationships through prolonged and repeated experiences with peer groups, via laboring on the land or outdoor adventure.

As such, the way peer groups (in our case, birding groups) mediate nature experiences, learning and practices of stewardship and care is something that we give specific attention.

Furthermore, considering the importance throughout EnviroCitizen of analysing gendered patterns of in- and exclusion in birding, it is important to note that the notion of care especially has been argued to be relevant from a gendered perspective as well, linked to ecofeminist theories. It has been suggested to leave room for emotion and connection as motivating forces for conservation (Byg et al., 2020; Jax et al., 2018) such as in the field of affective ecology (Foster, 2018). In terms of exclusion, it is also relevant for us to ask: what activities do birders dislike? Who is doing those things, and why? (e.g. hunting or poaching).

Finally, we want to be conscious of the bidirectional relationship between citizen science and citizenship: participation in amateur birding may cultivate environmental citizenship, but this care for nature may also be a motivation for people to get involved in birding in the first place.

# Part 2: Interviews

## 2.1 Methodology

In each of the six countries, fieldworkers carried out between 11 and 17 interviews, with the total amounting to 91 (see Table 1). Interviewees were generally selected using a ‘sampling for diversity’ approach: for each country the aim was to speak to different types of birders. Most importantly, this included speaking to birders with a diverse repertoire of birding activities: each country team made sure to interview both bird ringers and bird counters, as well as birders involved in other different activities such as nature writing, activism and organising excursions or environmental education. Many interviewees are thus involved in a diverse set of birding activities. In addition, our sampling kept diversity in terms of age, gender, birding experience and other characteristics into account. The region where each researcher lives and works offered a starting point for reaching out to interviewees, though sampling did not have to limit itself to that region only, and especially in the smaller countries taking part (Estonia and the Netherlands) it was relatively easy to involve birders from across the country. Interviewees were approached in different ways: email contacts (either directly or through approaching birding groups), meeting them at fieldwork activities, and open calls in e.g. newsletters. We also made use of snowball sampling, acquiring promising contacts through previous interviewees.

Table 1: Brief summary of interviews. For detailed overview of interviewees, see Appendix 1.

	<b>Estonia</b>	<b>Netherlands</b>	<b>Norway</b>	<b>Romania</b>	<b>Spain</b>	<b>Sweden</b>	<b>Total</b>
<b>Interviews</b>	<b>15</b>	<b>16</b>	<b>15</b>	<b>17</b>	<b>17</b>	<b>11</b>	<b>91</b>

Based on the workplan for task 2.3 (EnviroCitizen deliverable D2.1) the research team collaboratively finalized an interview guide, which was used to conduct semi-structured interviews. This meant sufficient space was provided for the interviewees to tell their story, while making sure the key themes of task 2.3 were given sufficient attention. Where possible we used open ended questions that prompted narrative responses. As interviewers, we familiarised ourselves with the questions but adapted them to the situation and the person we interviewed. This way we obtained rich narrative life story-like interviews. The main topics of the interviews were the birders’ journeys into birding, their motivations for birding, to what degree they are involved in different groups and projects, their reflections on diversity and inclusion in birding, how they learn and what they learn about, and their degree and ways of caring about and for birds. In addition, researchers in different countries sometimes included some optional topics that were of interest to them or their interviewees (such as arts and literature or tourism). Interviews were generally held in the native languages of the fieldworkers and interviewees, with some interviews conducted in English. Interviews generally lasted over an hour, with some shorter ones and some long interviews lasting over two hours. Interviews took place in different settings: sitting down outside in public spaces or inside, on a walk (so-called ‘walking interviews’) or online through platforms like Zoom.

Each research team made sure ethical procedures at their institute were followed. Interviewees were sent an information document and most received a consent form before the interview, to ensure informed consent; in some cases verbal consent was recorded. This included consent for recording the audio of the interviews for later transcription; almost all interviews were audio-recorded.

The fieldworkers composed verbatim transcriptions of the interviews, which were first either uploaded into the automated translation software DeepL Pro, or translated by hand (mostly for the Spanish and Norwegian data). Automated translations were checked and edited for accuracy, and for all transcripts any identifying information remaining was removed to ensure anonymity. Translated transcripts were then uploaded into the qualitative analysis software package ATLAS.ti (or, for the Norwegian data, NVivo), which allowed the researchers to code each interview; for the Spanish data, coding was done by hand. The code list was collaboratively developed by the project team and discussed in a meeting, after which an interview from one of the countries was sent around and each fieldworker used the draft code list to code this interview. Differences in interpretation, and suggestions for adjustment of the code list, were discussed in a second meeting, after which the final code list was agreed upon. During the coding process, two meetings were also held to discuss emerging findings in each country's data. Each country team then produced a country report that formed the basis for this final report.

## 2.2 Life stories

Gathering 91 rich life stories gives us the opportunity to gain insight in the role of nature and birds in these narratives. Besides the themes we distilled out of the interviews and describe in section 2.3, we could look at these stories as life stories and look for particular patterns that emerge over the life course.

### 2.2.1 Puberty dip narrative

When we look at the role of nature, and in particular birds, over the life course, we recognize – among a richness of all kinds of stories – at least three emerging patterns. First, we see a group of bird lovers who grow up with nature. Nature is very present in their childhood and their interest in birds already awakens during their younger years. However, when they enter into puberty and after that get a busy job, sometimes a family with kids, nature and birds move to the background somewhat. However, later in adulthood, sometimes after a particular event or because of meeting someone, they rediscover their love for nature and birds and they invest a lot of time and energy in birding and being active for nature.

This puberty dip is nicely illustrated in this quote, where we see that other interests become more important and also how the image of birding can be influential in a phase of your life: *“I noticed when I started studying that it became a bit less, because your time is different, your age is different, you also get to go out and buy nice clothes and well, studying takes a bit more time of course. I also noticed that at primary school, schoolmates often thought I was weird, because I wore green clothes, I had binoculars, and I went bird-watching, and I didn't think that interested me so much at the time, but during my studies, yes, I am perhaps more aware of this, so that, yes, I thought it was a bit weird to show it off, so yes, it was diluted a little, it never completely disappeared, but it was a little less*

*then. I think it has purely to do with the phase you are in and the, yes, other interests you have around you” (NL8).*

Likewise, an Estonian interviewee also said: *“...and the birds were also a bit in the background. But when I went to Tartu to the gymnasium and at some point, I started folk dancing, and then there were two boys in the same group interested in birding. And from there we became very good friends, and from there my interest in birds got going again. I started to go to the ringing station and watch birds” (E15).*

For a Romanian birder (RO16), this pattern of nature being important in childhood, not so important in young adulthood but finding it back in later life, is connected to the political situation. Having been born in the 1960s in a Hungarian-speaking village in the North-Western part of Romania, he stays with his nature loving grandfather for part of his early childhood from whom he learns about plants, mushrooms, birds and other animals. As he moves away from his grandfather, it becomes increasingly difficult to hold on to this ‘love of nature’. After the regime change, in the 1990s, he talks about everyone’s rush for money, a rush in which the gap between him and nature becomes ever greater. He remembers being a truckdriver, and driving somewhere abroad through a forest, realising that he had not stepped into one for five or seven years by then. He explains *“then for me, this love of nature would have almost withered”*. Then a professional birder, a biology professor, moved into their village, with whom he became acquainted, this acquaintance being his way back to nature. Today he is a dedicated amateur birder helping professional biologists in many of their projects.

Several interviewees also had a birding pause because of work and family. *“But then there was a period in my 30s and up to, for 20 years, it was pretty much down. There were so many other things that came into play then” (SW1); “And then... Then there was family and work and other things, so it's clear that my interest in birds has always been with me and I've always had binoculars with me when I'm out and about and so on. But there were quite a few decades in between that I wasn't so very active” (SW5).*

Also, school can be a reason nature temporarily moves to the background, as was the case for a Romanian birder: the amount of high-school work made her love for nature dwindle, until she found it again almost by chance after getting into the biology faculty (RO8), while others met during their studies but became too busy with work and family after that: *“And a pretty good community developed like that which, after graduating from the university, kept in touch as much as we could [...] but it took many years for the family to develop a little, people to have a financial situation to get a motorcycle or a car or whatever. And only after that they could really retake their birding and nature conservation activities” (RO10).*

Kids can also be a reason for not having time to practice their birding hobby: *“...then I had a very, very long break between when my children were little and when I was doing other things, I brought up two children on my own for a long time, and then there was not so much money or time left” (E14).* A Spanish interviewee also acknowledges family responsibilities as a reason for not having enough time to go birding or being as involved into it as before: *“all the girls with whom I shared an interest in botany or zoology during my university studies have gradually disengaged from biology. They have focused on their family lives or have moved on to something else. Some of them are still involved in botany, but they tell me that they have not been out in the field for years. In this case, family and responsibilities have pulled women down, because it is almost incompatible to share many things” (SP16).* This interviewee also connects this with gender roles: *“If it is already difficult for a*

*man to set aside time to dedicate himself to nature, it is much more difficult for a woman” (SP16). More on this subject can be found in section 2.3.7. on Diversity and Inclusion.*

However, other Spanish interviewees identify the school period as a turning point in their interest in birds and nature. One birder, for example, describes how he became fascinated by biology during his stay at a boarding school: *“There is a curious fact, there was a moment in that boarding school, at the age of 11, in Cheste, when a young boy and girl came to give a talk about whales. That stuck with me, it impacted me a lot and I think I remember that it was at that moment when I decided to study something that had to do with biological sciences” (SP7).* Another interviewee also remembers how he and his classmates pretended to shoot nature documentaries as a game: *“I remember that in 4th or 5th grade we played at recess that we were Rodríguez de la Fuente, going out with cameras and following the lion of the Serengeti, the Ngorongoro, or going to see the bears in the Cantabrian mountain range. In other words, I began to be interested in nature when I was maybe 10 or 12 years old” (SP12).*

Company seems very important in adolescence to avoid a puberty dip. A number of Estonian examples show that teenagers form groups that share a common interest like birding, if there is a place that supports and encourages the development of that interest (E8, E9, E13, E15). Sometimes a hobby is also an exciting way to stand out and get the attention of other young people: *“And ringing, too, which I did in such a way that there were boys in my home village who got interested and were happy to help me. To this day, when I meet them somewhere, they remind me of that” (E4).*

### 2.2.2 Turning point narrative

After the aforementioned puberty dip, some people restarted birding because someone brought them in contact with birds again, forming a sort of turning point. This idea of a turning point becomes visible in more life stories, sometimes in the form of a peak experience that forged a much stronger bond with birds and birding afterwards. We can observe this trend in the stories of two Spanish birders for whom birding became a way of finding solace after a traumatic life event. The first noticed how meaningful cranes were for her while recovering from breast cancer surgery (SP2): *“Cranes first caught my attention because they flew above my house on their migration route, they passed through my town. Hearing them pass by, I was surprised to see these birds, with that sound, with those flights, with that force. I think at that moment I experienced an awakening concerning cranes”.* This event triggered an emotional response which helped her overcome the challenge of a serious illness. Another interviewee was already interested in birding before an accident that put him in a wheelchair. He confessed how birding became a more crucial activity for him after this traumatic event: *“For me, being able to hold up the banner of conservation and being with the birds opened a window at a time when I had an accident that was a very stressful experience. My interest in the world of birds was already there, but once this problem occurred, it became much more intense. I spend every day going out into the countryside” (SP12).*

Most Romanian stories follow the line of having been close to nature as children, a closeness which would usually dwindle or at least not gain strong proportions (except in the case of biologists) throughout their young adulthood, or most adulthood, when some event prompts their very strong interest in birds (see RO16 above). Such events that open up the birding world for them could be going to a birdwatching tour in the city and being in awe at the number of different species living close by (RO17) or signing up to maintain birdfeeders (RO6) in a particularly hard time in one’s life (RO5).

Another form of a turning point can be seen with regards to one's choice of job: at a certain point in their lives some interviewees made a conscious decision to choose a job or occupation that could allow them enough spare time to go birding. This is clearly the case for a nurse whose shifts give him plenty of opportunity to lead the crane counting campaigns in Spain. He has also written a book on this bird species (SP14).

### 2.2.3 Life evolves with birds narrative

Another narrative shows a continuous line in birding, a life in which interest for and love for birds is growing steadily over one's lifespan. An interesting example is an Estonian birder (E14), as he is a complete autodidact. He started watching birds as a boy, more as a reaction to the hostile way some birds were treated then, and luckily found activities that helped his interest develop, such as ringing and counting. Acceptance into the ornithological society at the age of 14 also helped. Since then, he has found ways to relate his activities to bird and nature conservation in some way, almost without interruption, even when he was working in a different field (businessman, music entrepreneur). Now, in early retirement, he contributes a great deal to popularising birdwatching, for example, writing popular science articles and even books about birds.

Another Estonian birder with a full timeline has moved to the place he has known since he started birdwatching with his father as a little boy and continues monitoring the area: *“which has led to the fact that I myself now live here, right in the middle of this area, and I chose to live here because this is a place I’ve known since I was a kid”* (E13). He draws parallels with those who have inherited a farm from their father and have to continue to run it: *“If some people have this obligation or inner compulsion to do agriculture, I have the same feeling that I definitely know this raptor’s area here, that I have to do it even if I don’t want to do it”* (E13).

Several Estonian birders have gone to study natural sciences because of their childhood interest in birds and nature. Similar stories of one's life being completely entangled with birds are told by professional birders in Romania, most of whom started birding as children, continued during their high-school years and ended up in biology faculties and then did environmental conservation activities (RO11, RO12, RO13). It is possible that such a timeline will be followed by an 18-year-old (RO6), who at the time of the interview was still in high-school, very active in local birding and other environmental protection events, planning to attend a biology faculty after graduation.

In the Spanish case, there are a few significant examples of life evolving with birds. One interviewee has gone from amateur birder to leading a local group that fights for the protection of swifts (SP1). A birder who is also part of this group comments on how his own life and professional development has evolved also guided by his passion for birds: *“Therefore, it has always been an important part of my life to have injured animals at home, especially birds, and to heal and release them. Over the years I learned that there was a profession that was dedicated to healing wildlife and I decided to pursue studies that would allow me to do internships and work in a bird recovery centre, so I did professional training in forestry”* (SP5). Another example is a female birder who began her career researching ducks and unexpectedly ended up working on the harpy eagle in the Amazon rainforest: *“At first, I studied ducks, which seemed calmer to me, and little by little I also began to participate in the rescue centres, where many birds of prey arrive. That's when I began to have a closer relationship with them, to differentiate them better, to understand them better, and ended up focusing on the harpy eagle”*. Eagles constituted a turning point in her life, since she joined a research project that allowed her current collaboration with indigenous communities to gather data.

Another interesting example is a birder who initiated a lifelong environmental commitment due to his interest in birds. Although he had been trained as a geographer, his love of birds led him in a different direction and he ended up becoming both a well-known naturalist and nature writer. Two of the birding guides (SP4 and SP10) interviewed in Spain have also evolved in their lives inspired by their love of birds. They both describe birding as a lifestyle so it can be said that birding has become the very core of their existence.

#### 2.2.4 Expanding scales

In some narratives the scale of birding becomes larger over the lifetime, for instance from garden to surrounding area, and from their own country to international birding. This expanding scale can also relate to technology.

These expanding scales can be found in relation to space: *“Yes, it’s a continuous process, and in that sense it’s interesting because it’s a completely different environment and it’s exciting. In this sense, the thing about birding is that once you’ve seen something here in Europe, in Estonia too, many people conclude that they could go abroad somewhere to see different birds. That’s how it develops”*. (E5). Another excellent example is a birder (SP10) whose birding focus sprang up from his interest in local urban birding. Interestingly enough, this has led him to become an international celebrity of urban birding. He, together with other birding guides, showed a transition from birding as hobby in the early years of their life to birding as an occupation and as well as seeing it as a lifestyle over the years (SP10). Notice as well this comment in this respect: *“Sometimes I say that, for me, it is not a hobby, it is a lifestyle, it is much more than a hobby. Not only birds, it is rather nature as a whole, because birds are what attract me the most, but it is contact with nature that does this”* (SP4). These interviewees also epitomize how birding ends up taking you from a local geography to a global one since they admit that travelling both nationally and internationally is needed in order to carry out their professional lives.

#### 2.2.5 Growing care

Related to expanding scales, from local to national to international or from amateur to professional birder, we also notice that for a lot of birders, awareness about environmental problems, environmental behaviour and care for nature seem interrelated and grow over the life course. In this context Jørgensen and Jørgensen (2021) talk about 'linking local phenomena to broader and more structural causes' as a route through which environmental citizen science may contribute to environmental citizenship. The caring about and for birds seems to develop and become increasingly important over time. Some birders say that they see this development also among many of their birding friends, for instance a Swedish birder who is increasingly concerned about the decrease of untouched nature (SW4) and observes that other birdwatchers become more and more aware over the years, for example as follows: *“birdwatching after an age let's say, is no longer about the list and what species you tick off [...], but others will resonate with the way you talk about nature [...] it's about how you feel and how you make others feel or relate to I don't know, your own life, society, evolution, our place in the universe”* (RO3). An Estonian birdwatcher began birdwatching for the Garden Bird Count about 10 years ago, determining tits and bullfinches (*“I didn't know that there are so many water birds”*) and now feels responsible for her surrounding coastal area: *“the more the*

*years go by, the more I'd like to let the others know that there are birds here", adding observations to the database almost daily for conservational purposes – with growing care (E11).*

This growing care can become manifest in a change in birding activity. Several interviewees explain that previously they used to go for special birds but not anymore. They sort of got over it, got to appreciate all birds or started to dislike the culture around twitching. *"I think the passion [of twitching] has really receded, and the practice of noting down lifer points or species is also in a bad light nowadays" (E2), and "I don't bother twitching anymore, I don't get as excited about it" (E8).*

## 2.3 Main themes

### 2.3.1 Beginning

#### **Role of nature & birds in youth**

Nature was already present in the early lives of a great majority of our interviewees. They grew up surrounded by nature or with a garden in which they noticed all kind of animals and insects, they were taken into nature, on excursions and birdwatching by family members (mostly fathers and grandfathers), or they had mothers who shared their love for nature with them. There is also a large group of birders who did not have parents or siblings interested in nature. They came into contact with nature in diverse ways, but they express an interest in and love for nature that 'has always been present' in themselves. Most of the times this love for nature is facilitated and stimulated by parents, but it sometimes took a while before they met like-minded peers.

The few interviewees that were not yet interested in nature in childhood came into contact with birds later in life, via classmates, friends or colleagues. Or they had a peak experience that opened up a new world for them. In this section we will provide an insight into the different starting points of birding and the role of nature and birds in childhood by elaborating on these three routes: nature present in context and family from the start, innate love for nature, and a route in which love for nature and birds came later in life.

#### *Nature present in context and family*

The overwhelming majority express that nature and a nature-loving family were present in their early youth. A Romanian birder lived with his nature-loving grandfather as a young child and has taken walks in the forest with him since he was four years old, learning to love nature and *"how to behave in the forest"* (RO16). A young Estonian male biology student started birding in early adolescence because his father introduced him into this world. His father was a very active birdwatcher, ran a ringing station and was a mentor and leader for a lot of young birders, including his son (E8). Another example of an important father is from this Estonian birder: *"It's very easy for me, I can only point to my own father, who, for one thing, offered no other childhood pastime than riding a bicycle and going to the woods to do bird counts"* (E13). For a Spanish birder her grandfather was the one who fuelled her interest in birds: *"my grandfather was a hunter, he hunted and sold birds in order to deal with the precarious economic situation after the civil war. At home, he kept telling us how many more birds there were in the past, he told us what they were like and even brought them home to us. He often brought sparrows and we ate them fried, that was a reality of my close environment. I always asked*

*my grandfather about birds.*" (SP2). This presence of nature in childhood is also found in Van den Born et al. (2018) who interviewed 105 committed actors for nature in Europe.

The Norwegian life stories are very illustrative for the diverse roles families can have in transferring love for and knowledge about birds. In one case, the mother is the knowledge-keeper and inspired our interviewee. Still today, she consults her mother about both botany and birds (NO3). This is similar to the experience told by American nature writer Terry Tempest Williams in her memoir *Refuge: An Unnatural History of Family and Place* (1992) where her grandmother Mimi is the person who introduces her into birding and plays the role of mentor throughout Williams' life. For another birder, it was her older brother who inspired her and included her in a very male-dominated sphere (NO4), and a young birder started taking pictures and birding at the same time with his father (NO8).

There are many more examples of intergenerational bonds. Interviewees not only talk about how their own connectedness with nature is rooted in childhood experiences with nature, they also want to convey it to their own children. Knowledge and love are transmitted across generations as the birders in turn are trying to convey their passion to their children and grandchildren, for instance by introducing them to the garden bird count (NO13). A Norwegian birder who first inspired and included his children in birding, now organizes a yearly ringing trip with his son and his grandson (NO14). A female birder married to a birder mentions that *"We have the goal that they [the kids] have an interest in nature and that they would respect nature, know how to behave and pay attention to it, that we would like to raise their environmental awareness. [...] But if they like birds even a bit, that's just a bonus for us."* (E5) or *"My own children have been involved as much as possible in hiking and traveling, in nature. They've been out in nature a lot, both have an interest because of it, maybe from different angles, but they appreciate it and care about it"* (E9).

#### *Innate connection with nature*

Some birders explicitly state that there were no other birders in their family and environment but that they always have felt an interest in and a love for nature (also seen in e.g. Van den Born et al., 2018, p. 848). This idea can be connected with E.O. Wilson's biophilia hypothesis which he develops at length in *Biophilia* (1984). A Norwegian birder talks about himself as a child always having been interested in birds as something he was born with (NO12). An example of an interviewee whose interest in birds came out of herself is a birder who lived in a big city all her life: *"I heard the story from my parents, I seem to have had that already in the cradle, that I was fascinated by everything that walks by, and stuck my head out of the pram outside. My parents have no interest at all in nature or birds, they are people who work in the hospitality industry, so where I picked it up, how I picked it up, I don't know, but what I do remember is that it has always fascinated me. If I saw a bird somewhere, I always wanted to look at it, that was a certain attraction"* (NL8). A male birder, around 50 years of age, also urban, did not have a family of active nature lovers, but they had binoculars and a bird book and his grandfather gave him his collection of cigar bands, which were decorated with images of wildlife: *"there were bands about birds, mushrooms, all sorts of things. And those birds intrigued me enormously. I can remember seeing a cigar band with a bright red, bright yellow and white shelduck on that picture, and I thought 'oh my, what a beautiful bird that is, I'd like to see that"* (NL6). And one day he went birding and saw a lot of birds and that's where it started for him.

### *Nature at a later stage*

A nice example of a person who discovered the joy of birding later in life comes from a female urban birder aged between 40 and 50 who tells about this moment that she vividly remembers during a walk-along interview in the park: *“Well, my adventure with birds started in this very park, 4-5 years ago. The Romanian Ornithology Society posted a notice on their Facebook page, looking for a volunteer to maintain the bird feeders in winter. [...] And I thought that was interesting, especially since it was also happening at a time when I was so unhappy with myself [...]. I had bought a bird guide a couple of years before. [...]. And I took on this task of maintaining this feeder during the winters [...] I said OK, I take on the job, I'll do it. And I remember it was the 24th of January, right on the day of the Small Union. I was coming with the first shipment of sunflower seeds to the feeder that I had been given to maintain, and suddenly, I had such an epiphany that wait a minute, it's not all sparrows and crows around us. And that's when it all started”* (RO5).

A Swedish interviewee also told us about how birding started later in life: *“Actually, it was at a late age. We didn't even have a bird book at home or anything like that. So, it wasn't natural for me to have it and at the same time I also had family members who were interested in nature [...] But then it was actually when my brother passed away, so in a way there was some kind of affinity that I had with him because he was a bit interested in nature and so on, and all of a sudden, I saw that something was flying and there. I saw the birds, which I had never seen before”* (SWE7).

A Romanian male birder even starts his story by saying that for sure a lot of people will start birding in childhood, but he can't say he was interested in birds in childhood, he was not interested at all (RO15). A Spanish male birder started birding when he was around the age of 18. He went on a field trip to the mountains with a group of boy scouts and they found a Bonelli's eagle nest. *“We found it and after that experience of seeing people hanging over the nest to ring it, I got hooked. So, I started to go out with them, to accompany them on ringing days and to learn about birds. Then different activities followed, ringing campaigns of white storks, of passerines with nets, it was something that got me hooked little by little”* (SP14).

NO6 explains that she started birding at the age of 50. She sold her rifles in order to buy a camera and a large lens and is today a photographing birder who likes to go for random trips of 7-10 hours at a time. An Estonian female birder regrets only discovering birding in her mid-twenties (E12).

### **Parents and other mentors**

In the section above on the role of family, we already encountered a lot of parents and grandparents who functioned as a mentor or role model that guided them into the world of nature and birds or taught them how to care. For example, a Spanish birder mentions how she learned to treat animals with respect by watching her parents caring for animals on their farm (SP2). The importance of mentors for instilling a love of nature as well as a sense of wonder for it was already highlighted by Rachel Carson in her book *The Sense of Wonder* (1965, p. 30) where she writes: ‘If a child is to keep alive his inborn sense of wonder without any such gift from the fairies, he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement, and mystery of the world we live in’.

There are also other people who mentored our interviewees towards birding or inspired them to explore the route towards nature and birds. A lot of Spanish interviewees (e.g. SP7, SP12, or SP17) allude to Félix Rodríguez de la Fuente, a famous naturalist and broadcaster. A Swedish birder comes back to a (distant) relative that was a renowned nature writer and artist in Sweden during the second

half of the 20th century: *“we looked up to him. You had different idols back then than young people have now, right? So, I had him and some other naturalist as idols”* (SW5).

Other types of mentors include excursion leaders and, in Spain, leaders of the conservation association ADENEX (SP14). In Estonia, teachers or leaders of the ornithology circles are mentioned as important inspirators (E2, E8, E9, E14), also biology teachers are mentioned (E9, E10, E13, E14). Top (hobby and professional) ornithologists are mentioned often by name, as well as the leaders of the ornithology society as people who guided them into the world of birds: *“It's this involvement, this encouragement, that's so important”* (E1).

One of the founders and president of one of the Romanian birding NGOs talks about how he and his friends started getting into watching birds as children and young teenagers: *“And then, as we started to get interested [...] there was a museologist in the museum [...] who was a birder and we got to him. And he was the first one to take us on the field with real optics and you can start loving [birding] like that very quickly. [...] From then on, it's very easy to fall in love with it all”* (RO13). It was in the kitchen of the same museologist that they then founded their NGO when he and his friends were 16-17 years old.

Some of the Romanian interviewees (like RO15) were mentor figures for others who came into birding later on (like RO14, RO5, RO7). This mentor figure started birding as an autodidact and finds great joy in being able to convey his knowledge to newcomers to birding. He expressed a great satisfaction now looking back that many who started learning from him (*“learning from me because they had no one else... I was blind in the country of the sightless”*) are now professionals in the field (i.e. ornithologists), saying that he wished he had some guidance when he started out.

### 2.3.2 Charisma and noticing nature

#### Charisma

What is it that attracts those people to birds? More-than-human geographer Jamie Lorimer (2015) has used the term ‘charisma’ for species(groups) such as birds to explain this attractiveness. A first form of charisma is ecological charisma; people like birds because they are easy to observe. We find a lot of references to this; birders state that they especially liked birds because they are ‘everywhere’, they are easy to observe yet they can fly away which makes birding for some birders more exciting than studying flora. A Romanian birder explains his own passion and the abundance of bird enthusiasts also in this way: *“It's very easy to observe birds, yes, birds fly, birds can appear everywhere. They're very mobile, there's a lot of species. You practically can't leave the house without seeing a bird. Birds are accessible to everyone in the city, in the town or in the countryside, you can always see them”* (RO6). A Swedish interviewee talks about birding in a park close by his home in Gothenburg: *“Because it's exciting. Anything can fly by. But this particular thing of not always having to go out far on some big thing... For me, I feel a great need to have something small all the time. [...] For myself, I shy away from a lot of that idea, that you kind of have to make an expedition to go off and do birding”* (SWE6) or *“As I live in Stockholm, I also live in an urban area and I like to watch birds in urban areas, in some way, in everyday life”* (SWE4). This can also relate to practical reasons, such as fitting birding into their daily work routine. One Romanian birder has a flexible work schedule that allows her to walk in the park in the morning watching birds (RO2) or *“while it was the pandemic – and I worked from home – but even now, I wake up earlier and before going to the office, I quickly go to the park”* (RO5).

Many birders are consciously urban birders (Lindo, 2018), they don't like to take the car or travel long distances to see a special or rare bird and like to focus on the birds in their vicinity as there are enough interesting birds to observe in urban environments: *"It's a ten-minute bike ride from home to the river meadows and the polder"* (E12). In Tallinn, Estonia's capital, there is a highly valued nature reserve on the seafront, the Paljassaare Special Conservation Area, and the local bird club also played an important role in its founding. There are walking trails and birding towers and it is easily accessible by bike and bus, and BirdLife Estonia organises events and bird walks there (E9). Urban neighbourhoods with gardens also offer sites for easily accessible encounters with birds: *"we ring birds in the garden, even in the Tartu city garden, and in the countryside, it's nice in winter, you can ring, there are lots of birds. And during the migration there is more hope to catch birds. This ringing thing plus my husband listens, and records the night voices, migratory voices - during migration listens and that's why we have mysterious species here in Tartu"* (E5). Urban birding is becoming more popular in Extremadura (Spain) as a way of combining preservation of bird habitat and that of cultural heritage. Bird festivals such as the *Festivalino de las Aves* of Cáceres include urban birding as one of its key activities to educate the general public into birding.

A second form of charisma is aesthetic charisma, meaning birds are aesthetically pleasing. Birders refer to colours, sounds and the variety of shapes. One example is this birder, for whom the charisma of birds became apparent when he bought a telephoto lens: *"distances suddenly got very, very short and I discovered birds. Shapes, colours, sizes and I started to pay attention to the sounds."* (RO4) or *"Birds are strikingly beautiful, disappear quickly from view and therefore generate interest in learning more about them"* (E7). A Swedish birder refers to both ecological and aesthetic charisma by saying that birds are everywhere, and that he is fascinated by flying, and find birds incredibly varied in colour and shape (SWE4).

In Estonia, reference has been made to the connection between migratory birds and the seasons and the enjoyment this brings: *"how happy people were when the first swallow or the first starling was finally here in spring, that it was still surprising [---] at last the winter was over and my barn swallow was finally back, or even the northern house martin was very welcome. Not to mention the starling"* (E10).

Finally, people can experience the corporeal charisma of birds when experiencing a bond with birds through interactions such as birdwatching. This bodily connection with nonhuman animals has already been eloquently explored by Shapiro (1990) and Smuts (2001) although in reference to other species, namely dogs and bonobos respectively. David Abrams in *Becoming Animal* (2011) also explores how there is room for a bodily interspecies connection which often comes alive when observing other animals close to us. We found two beautiful examples of how bonds with birds were formed through interacting with them in the stories of the birders. A Romanian couple tell a story of how birds came to their feeder at their flat: *"They watched us, we watched them"*. They became like family members, they said, and *"when we put the feeders away, the doves kept coming back, looked inwards from time to time, checking upon us, or I don't know what"* (RO1). A young Estonian birder talks about how the interactive nature of nest cams creates an emotional connectedness between people and birds, and tells about his own experience with ringing birds: *"seeing the life of these birds up close in a way that other people don't normally see [...] it created a kind of emotional connection with the subject and with birds in general"* (E8). This aspect of ringing, the unique opportunity to see birds so close by and to hold it in your hand, is mentioned by other ringers as well. The founder and president of a birding NGO seems to refer to all three forms of charisma: *"Very often I'm face to face with the birds. Whether I'm looking at them through binoculars, scope or very close, I am always in front of them and they are in front of me and every meeting is so emotional for me. [There are]*

*moments when I look at a bird through binoculars, how it does its job and I notice its feathers, for example I know that I was looking at a, a Nuthatch, a small bird, it walks like that upside down on the bark of the tree, it is not very beautiful or spectacular, but I was watching that strip of the eye, how well placed it is, how it was made and how fine the feathers are. And this [...] impresses me a lot, when I have the freedom to look at this bird, how nice it looks" (RO9).*

### *Rare, common and special birds*

Birders are very aware of how different birds are characterized as 'common', implying a lack of charisma, or 'rare' referring to birds with lots of charisma because of their rareness or protected status. Both can be considered 'special' to our interviewees; birds that are a birder's favourite can be so because of several reasons, such as their looks or their (projected) character: *"There is never any wrong time of the day to observe the crows waking up in the morning and let out its first «caw», which I hear from the bedroom, since I have a crow living up here on the hill and I feel very close to this particular crow year-round" (NO15).* In line with this, Elizabeth Cherry speaks of how 'Birders defy the dualism between ordinary and extraordinary. They admire the small, the plain, the humble. They appreciate the mundane by observing the everyday, common birds with as much rigor and excitement as rare and uncommon birds' (2019, p. 69). She explains that this happens thanks to developing or participating in 'the naturalist gaze' which involves a non-anthropocentric appreciation of bird life.

For some, their birding adventure started thanks to total amazement that a particularly beautiful bird turned out to be (after they looked it up in a bird guide or other people telling them) a very common bird. This is the case for a Romanian female birder when she realized that what they thought were very special birds were just common birds: *"How could they be common? I never saw them before!" (RO14).*

A lot of birders name common birds as their favourites, like tits and blackbirds, for various reasons, for instance the season in which they appear (RO1). RO16, for instance, feels attracted to the common species, especially in his own surroundings, he calls himself a local birder. His favourite bird is the tree sparrow. A Romanian birder likes crows for their characteristics: *"Well, I think I really like crows, because they are very smart and have an air of 'je m'affiche'. And because they're very good harassers. They harass everyone" (RO5).* A Norwegian birder says: *"I really like magpies. I think they are funny. They are smart, fun and they nest in the trees around the neighbourhood" (NO1).* A Dutch birder explicitly states that she doesn't value rare birds over common birds: *"But I do not go on my bicycle to [the dunes] to see the blackcap, because that costs me too much time, and then I'd rather see the blue tit here for the thousandth time because I find it just as cool" (NL3).* And a Swedish male birder doesn't make a distinction at all: *"I appreciate everything and value everything, even the common ones, so to speak" (SWE3).* Finally, for this Estonian birder the choice of her favourite bird is connected to her life story: *"The golden eagle is definitely one of my favourites, of course, because I have a history with it. It's been very important in the process of how I became deeply involved with birds" (E1).*

Within birding practice a variety of activities and cultures can be distinguished. One birding activity that seems to be a unique culture in itself, as a lot of birders explain to us, is twitching. The term twitching is an old English expression meaning 'to go out in pursuit of a rare species of bird for the sole purpose of observing it' (dailybirder.com). It is also called 'chasing' and it is often highly competitive. For twitchers their lists of observed species are very important. While those interviewees who call themselves twitchers refer to the adventure of it and the kick they get out of it,

other birders show resistance towards this kind of birding and stress that they appreciate all birds, also the common ones. They also sometimes voice dislike towards the practice of twitching, stressing how twitchers travel long distances just to be able to put that one on their list. An Estonian birder says *"Twitching offers me nothing; to go following somebody else's observation, no, [...] I want to look for my own bird instead"* (E1) and compares it with bird photographers: *"I think some of them are too specialized, some twitchers, I think they don't see anything apart from their species list. Or, I don't know, bird photographers - I sometimes feel that they don't care about anything else, just to get their picture"* (E1). This is recognized by Romanian birders who do twitching themselves (RO5, RO6, RO7, RO17) when they talk about how some twitchers come too close, especially people who are adamant about taking high-quality photographs. There was a big uproar in 2021 in Romania about flamingos showing nesting behaviour but being bothered by the many people who went to see them, some chasing them with drones, until they did not nest in Romania.

The birders we spoke to often profess an attachment to common bird species, yet they also share their perception of how this attachment might not be universal; some interviewees perceive a lack of enthusiasm about everyday birds among their fellow birders. The awareness of birders about the image of their favourite birds is clearly visible in this Dutch birder's words, whose favourite bird is the stork and is very active in observing and protecting storks: *"I know that, yes I think it's a bit of a shame that the stork is not a very roaring species, and that has to do with the fact that the bird has been extinct here and has been reintroduced. Because of that, there is still a hint among some birders that 'it's not really a wild bird' [...] So it could be that the stork, precisely because it is so common, is less interesting for researchers to study"* (NL8). She also thinks charismatic birds get more attention in research and at the yearly Sovon day: *"So you notice that the research that is being done, if you look at a Sovon day and the lectures that are held there, for example, these are bird species that often appeal to the public"* (NL8). This is a frustration shared by several birders, such as a Swedish birder who talks about reporting common species that he appreciates, but that others don't seem to appreciate: *"Some people are very uninterested and wary of too common species. [...] Which is very sad, I think. So it's very hard when you really appreciate the species and want to share, and then no one really cares. But you want to help"* (SW10).

The downside of a lack of appreciation of common species is that they are less reported. In Romania, both representatives of birding NGOs and amateur birdwatchers mentioned the importance of uploading data about common birds into databases, because there is a lack of data about them: *"For us, even the observation of a sparrow introduced in Ornitodata is useful [...]. For example, at the Night of the Nightingales two years ago, when we did it in four cities, [...] we made lists of birds with the species that were in those areas and we tried to overlap the data so that we can make a common list for all four cities [...] I went to Ornitodata and checked [...] And then [...] I had a dilemma, "Dude, the House Sparrows are not listed!" So being so mundane, observers put in only things, only specialties, only rarities, only things of finesse, you know that kind of personal pride and I ... I somehow talked to them and made them understand. That I need them to introduce sparrow populations. Projects can be very diverse"* (RO17).

## **Noticing nature**

Related to the birds' charisma, birders talk about how they became attentive to birds. For some, this started with aesthetics, but soon they got interested to know the species name and its behaviour. One birder was amazed all birds have names and they have beaks specialized in eating seeds out of cones for instance, so she started to pay more attention to birds. She was also amazed at how many birds there were and that if you look attentively, they have all sorts of colours (RO14). An Estonian

birder describes similar experiences (E11). A next step is often recognizing sounds. For example, the Romanian couple, who became aware of all the birds surrounding them after they put up a birdfeeder, say: *“If you sit next to the window, their voice is so strong, it is impossible not to pay attention to them. They were here and they asked for our attention”* (RO1).

Some birders see this attentiveness as a possibility to escape everyday life and noise: *“because the birds require so much focus, that you actually disappear”* (SW7). For a female Dutch birder this is also the reason to go birding alone, she wants to concentrate on the birds: *“you want to be able to dissolve a little, just like what I loved about diving, that you float on the ebb and flow along the dike, ‘hello lobster, hello!’, you know, that you aren’t really human anymore. You dissolve in the water, and then out of the water you dissolve in the air”* (NL3). An Estonian engineer mentions also a kind of escapism: birding *“makes me forget about other things, because I work in a completely different area. I close the door behind my back and in half an hour I’m going to see the spotted eagles of Harjumaa, so then I’m not thinking about how stupid my boss was or what a mess it is at work”* (E1). All in all, the abovementioned remarks coincide with what Cherry refers to as reaching a state of flow thanks to birding (2019, pp. 34-39) or ‘slipping into a different world, rooted in an unusually intimate and absorbing connection with nature’ (Bell et al., 2008, p. 3449).

The moment that this noticing nature starts is described by several interviewees as a moment of awakening or as **‘a world opening up’**: *“Hence, I remember, after getting the scopes, the world of birdwatching really opened up for us”* (E2). For some this moment is manifested as an epiphany, such as for the Romanian birder we quoted earlier, who started volunteering to take care of a birdfeeder in the park: *“and suddenly, I had such an epiphany that, wait a minute, it’s not all sparrows and crows around us. And that’s when it all started. In the sense that I began to notice them [...] a whole universe opened up to me”*. She continues by saying that *“[...] it is interesting, that [...] not only does a whole world open up to you, but every time, every trip down the street, no matter whether it is [...] on the way to work, or on a short walk, it is different than the trips before, because you’re always alert and [...] you have to pay attention”* (RO5). For this birder her desire to learn also started at that moment, she realised that they behaved differently and became aware of the way they communicated with each other. She started trying to understand the connection between the bird and its environment. One interviewee talked about how for her a world opens up: *“I was fascinated by every bird I saw, I just wanted to see it, what does this creature look like, then the link with the name. Well, if you know the name, then a whole new world opens up for you”* (NL8). And for her it is also related to learning: *“I once saw, I think it was a species of gull, that had a ring around its leg. Yes, I noticed that then, thinking ‘what is that animal wearing on its leg, oh a ring’. Then you start reading more about that, and another whole new world opens up to you. I am still hooked on birds that wear such a ring, because if you report it, I get really fantastic responses back saying, well this animal is from Norway, [...] really fantastic!”* (NL8). A last beautiful example of how noticing nature is connected to learning and a world opening up is from a Swedish birder: *“The more you learn, you see nature in a different way when you can identify all the sounds and stuff. Then it becomes.... You get a bit of a bigger world in a way”* (SW9).

### 2.3.3 Motivations

#### Motivations to bird

Beyond the fun and excitement of the birding activities, and the obvious love for birds, most birders have deeper motivations why birding is important for them. From the interviews two main drivers clearly stand out. The first is **learning**. Previous studies have also highlighted learning as a key motivation for citizen science participation (e.g. Bell et al., 2008; Johnson et al., 2018). In general, learning about birds constitutes a driving force for all interviewees. It becomes a motivation and a way of enhancing their connection with birds through a deeper understanding of what they find before their eyes. Birders crave this learning experience and this leads to wanting to share more and hence learn more with others. This drive to learn is reflected in many terms: *“I had a lot of questions to solve”* (SP2) or *“there is an intrinsic quest for knowledge”* (SP16). A Romanian interviewee started observing birds and *“I was hooked, now all I hear and all I see: What's that? What's that? Where is that? Who is singing and who is flying? Like that”* (RO7).

The birders express how this thirst for knowledge leads to noticing birds even more: *“I just want to know everything there is to see. Because you also know that the moment you put a name to it, it gets imprinted, (...) Then you also see it, you know 'oh, there's the hawkweed', just an example, and if you don't know that, that's what it's called, then you walk past it, you don't see it. So, the moment it has a name and you are interested in learning about it, then yes, it comes to life, you recognize it and then you can enjoy it more”* (NL13) and *“The more you learn them, the more you start to recognize them and meet them”* (RO2). This knowledge is related to birds but also often to other species and nature in general. In several interviews birding was specifically framed as way to learn about trends of how birds are doing, and birds as an indicator of how nature or the world in general is faring: *“yes, you became a birder for a reason, and you also started doing bird research for a reason, which is that you hope that those birds will continue to do well”* (NL12).

This strongly relates to the second motivation that drives many birders: they want to contribute to **nature protection**. Here mainly two pathways emerge: via activism and via sharing observations.

In the first route, **activism**, birders want to contribute to the protection of birds and nature through their own action, often at a local level, and also often via education. Those educators often mention how important it is for the wellbeing of nature to engage children with birds and nature. This desire to teach others, to share knowledge, passion and enthusiasm, was noted as a key motivation to do birding linked to this offering the opportunity to make a positive contribution to the world. *“By sharing my enthusiasm and my passion, I hope that people also become more aware of it and, yes, also take it into account in their choices and such”* (NL16).

A lot of birders are also very aware of the importance **sharing the data** they gather via their monitoring and/or ringing work. They know their data has a scientific value and can be important for nature conservation policy and this motivates them to enter the data in platforms and share the data with scientists or birding organisations. Examples include collecting data on swift nests and migrations in order to track and preserve swift populations (SP1) or recording data from crane censuses and ringing activities in order to share information with the conservation association Grus Extremadura, dedicated to crane protection (SP12 and SP14). This engagement with nature protection often seems to grow the longer people are involved in birding activities: *“When I first started, I didn't think further than this being a hobby and an interest. But as the years passed, I started thinking about the environment more and more, which became an ever increasingly important topic to me [...] it has become increasingly apparent for me, through my studies, that the*

*protection part is perhaps what's most important" (E2). "You know you are participating in important scientific research. And birds are important to me, so it is important to know how they are doing, (...), important to do the scientific research, to know what factors influence their decline, and it's very obvious that many birds are in very serious decline at the moment" (NL1).*

Other studies on motivations of nature volunteers also find 'value motivations', such as helping wildlife and contribute to scientific knowledge, to be the most common drivers for citizen science participation (Alender, 2016; Koss et al., 2009; Larson et al., 2020; Pages et al., 2019; West et al., 2021). See section 2.3.5 for more information about reporting data, the motivations to do so and its relation to learning.

#### 2.3.4 Human-nature relationships & connectedness

##### **Images of Nature & importance of nature**

Nature is very important to the interviewees. That the lives of the interviewees revolve around nature and birding is an expression of this. As one birder says: *"For me, nature is probably the most important thing" (SW8).* A Swedish birder recalls a conversation with a colleague when asked what nature is to her: *"I said that if birds would stop singing and stuff like that, people would feel so bad. So that we need like the seagulls and the crows and the forest birds singing, it's extremely important" (SW7).* They feel that humans cannot do without nature, people need nature and it makes them very happy.

Nature is on the one hand referred to as a 'place' in contrast to the city or society; a place to visit, admire, to appreciate its beauty, learn about, a place of rest and peace, good for people's health and the interviewees stress its importance, and often link it to feeling connected to nature: *"Because what really matters to me is the, yes, the natural aspect, I really enjoy seeing special birds and identifying birds, but what really matters to me is simply seeing the beauty of nature and feeling connected with nature" (NL7).*

Another view on nature is nature as all-inclusive, nature as everything; nature as the home for humans and other species: *"Yeah, I haven't really thought about it a lot, because it has become so obvious, or such a, like a, yeah, it's such a natural part of my every day now. It hasn't been ever, but now it really is and I'm always there. So, I guess it's like a home to me" (SW10).*

A Swedish nature lover seems to combine both views on nature: *"It is recovery, it is habitat. Both for me and many people but also for everyone else: insects, butterflies, mammals and birds [...] I think it is something that we all need: nature" (SW4).* In this inclusive worldview we can have wonderful encounters with nature. A Swedish birder talks about these interactions, which imply something more than just watching, it is about really seeing each other. He also says he feels vulnerable when the animals look back at him: *"Well, I, yes, I guess I really want those interactions again, with nature. Sometimes the bird doesn't see you. So, you're like an observer, which is kind of cool, to let them do their own thing. But sometimes you really see each other and get this interaction where you feel very vulnerable. Like if you see a roe deer really close by or a goshawk in the tree or something, where you actually see each other" (SW10).*

### *Humans as part of nature*

When nature comes up in the sense of a home to all species, the interviewees reject an overly instrumental view of nature, such as this interviewee who adapts and strongly agrees with a well-known quote: *“Ask not what nature can do for you, but what you can do for nature”* (SW5), and who adds in his own words (although he uses the word ‘resource’): *“Nature: is [...] an amazing resource that we have too little respect for. Without it we are nothing. It's as simple as that. We don't own it; we have a place in it and we should respect it and take care of it”* (SW5). Similar sentiments are shared by a Dutch birder: *“If you look carefully at birds, then you realise that you yourself are not really all that important”* (NL1).

This more ecocentric outlook on nature often goes hand in hand with a discourse of a nature that is severely jeopardized and threatened due to human actions. Human actions or obsessions were framed as disturbing the balance of nature and threatening nature’s resilience. The notion of human hubris or self-obsession was mentioned in a few interviews, also related to who is impinging on whom: *“‘Yes, that deer is crossing the road’ and I think, no, we have laid that road through that forest. ‘Yes, that stupid bird flies into the building’, no, it has been flying from A to B in its migration for 100 years, and then we put a building there or a windmill, and the animal flies into it”* (NL8).

A Romanian birder talks about how the landscape is changing from a mosaic landscape towards an agricultural desert and how birdsong will disappear, which he links to our human-nature relationship by saying: *“We're part of nature whether we want to be or not. When, in fact, we're beginning to live as if we're not part of nature, or at least we pretend not to be”* (RO16). A similar sentiment can be noticed in this quote from an Estonian birder: *“The gap between man and nature is already so huge”* (E9).

### **Connectedness with nature**

This ecocentric and deep bond with nature is also expressed not only as a life changing and driving force but also as a spiritual connection with nature. This is especially significant in the case of the two nature writers we interviewed. For instance, one of them personifies nature when speaking about how she discovered cranes as a very meaningful species: *“Yes, and it happened accidentally, I was not especially looking for anything and it seems that life placed them before me as a gift of nature. The truth is, it was easy to fall in love with cranes”* (SP2). In this she also coincides with another Spanish interviewee who phrases it very similarly: *“When I have an encounter with a bird, I always think ‘how lucky I have been, how lucky I am, it's a gift from nature and I think that all of us who like the countryside value those encounters a lot”* (SP3). And the second nature writer identifies his own life with nature: *“By this I mean that it is almost inseparable, [...] in reality, my whole life has been about nature”* (SP15).

Others say that *“It has defined my whole life, both who I know and what education I have chosen”* (NO7) or that birding *“is half of my life. Literally, if you take the hours of my day. It is more and more important. Or rather, no longer just birdwatching. I've formulated it for myself once. I'd like to give back to the nature what it gives to me”* (E1). This example is often characteristic: the more a person is involved in birding, the deeper is his/her relationship with nature.

Interviewees express belonging through the love for birds they observe both close to home and in the greater area of the county: *“I believe sometimes birding, or birds, have become identity makers. Something so important to who I am and my attachment to place and belonging [...] Much later I have read that Indians and Indigenous peoples have such a relation with animals. This meaning is*

*something totally different than the meaning we refer to, because they include them in their lives as a kind of presence. I feel similar [...] Some species, they mean so much to me that I choose to call them identity makers” (NO15).*

### **Meaningfulness**

A Spanish interviewee makes a call for reconnecting with nature in order to have more fulfilling lives: *“We are very disconnected from the earth and we need to reconnect with the natural environment, with life. I think that now it is an issue that is very polarized: the respect previously paid to the countryside has been lost with the arrival of new technologies and now the majority of society is completely isolated from nature” (SP4).* This fulfilling or meaningful life is also expressed by a Norwegian birder: *“I hope that I would be able to produce data which could be useful. I hope to feel joy and belonging to nature and to feel meaning, that it should be meaningful. I feel that birds are a good source of meaning in my life” (NO15).* This interviewee adds: *“Why do we need these birds and animals? I like this quote, maybe no one even said it, but supposedly an Indigenous leader in the Amazon, once said that without animals and birds, people would die from loneliness of the soul. I think that this is so poetic and eloquent. This is what it is all about. Precisely this” (NO15).* The pursuit of a meaningful life was previously shown to be crucial for understanding committed action for nature (Admiraal et al., 2017; Van den Born et al., 2018).

### **Birders’ connectedness to place**

In terms of how birding links to a connection to place, a common expression involved a connection to the immediate vicinity or local environment. Some interviewees specifically mention the importance of their windows and/or gardens for offering an opportunity to encounter birds close to home (RO1, NO1). Just beyond the borders of the home, several interviewees talk about how birding is linked to an attachment with the local area where they bird a lot (E2, NL15) and how it lets them see local places in a new light. For the latter, a Romanian interviewee mentions that she initially considered Bucharest a grey city before discovering all that it has to offer in terms of birds, noting that while egrets might be found often in the Danube Delta, *“you can see the Little Egret in Tineretului, in the middle of the city, you can see it in Herastrau, you can see it in Bordei Park” (RO2).*

For those who have lived in or near the area for a long time, or grew up there and returned later (such as NO1), this attachment seems linked to memory: since these interviewees have recollections of what the place once was, they identify changes in birds and nature, both positively and negatively. Birding is one way in which these changes can be rendered visible (NL11). For instance, a Swedish interviewee mentions how *“it’s always a bit of fun in the home municipality, what’s seen and how it goes for them like that, in the nature you’ve been birding in the past” (SW4),* and an Estonian interviewee claims that *“I have a history of this place, ten years, so I know who nests where” (E1).* This way of constructing place memories can also be ruptured; some Estonian birders mention that they are not involved in monitoring birds because they have moved around a lot, preventing them from building up observations in one spot.

This place memory can lead to emotional responses as a form of caring about birds and nature: *“It is sadder now of course to look at every new clearing, because this was my childhood forest number eight and that was my childhood forest number ten, everything is so personal here” (E13),* and *“From the maps you can also see how Hiiumaa is more and more like a kind of rag quilt. There isn’t any untouched place anymore” (E15).* Similar sentiments are echoed by some Romanian interviewees, for instance: *“[...] in the area where I live now, I remember when I was little, 6 years old, 7 years old [...]*

*there was a big clearing at the edge of the forest. [...] there were a lot of birds coming from the forest to feed. There were a lot of animals, there were birds nesting here. Now it's house next to house, villa next to villa [...]"* (RO6).

Some interviewees discuss birds that they have come to identify as representing or connected to this local environment. A Dutch birder (NL8) has a strong connection to her urban environment, and her connection to storks was further strengthened when she found out the stork is part of her city's coat of arms. A Norwegian interviewee offers the following reflection on how certain birds have come to represent a feeling of 'home': *"I believe sometimes birding, or birds have become identity makers. Something so important to who I am and my attachment to place and belonging. (...). I have a list of 25 birds, and their presence symbolize to me home, and if I add five species then I feel even more at home and if I add 5 more species, well, then I have arrived at where I feel the most at home. These are species which were normal and numerous, or in some other way were part of Molde in my childhood."* (NO15)

This local attachment can also lead to stewardship and place-protective actions, such as efforts to protect or raise awareness about local species or biodiversity in general (NO3, NL3), feeding birds in local spots (RO2, RO5, RO6, RO16), conservation volunteering (SW05) and trying to prevent unwanted construction in the area (NO15). Several Spanish birders discuss how they themselves protect, or try to inspire and advocate for protection, for specific sites of cultural and ornithological relevance (SP1, SP2, SP5), including festivals as a way to link local place identity to specific birds. Romanian biologists also link storks and gathering data about stork nests and ringing storks with local identity (RO12, RO13).

However, birding does not only relate to local places. Birders also discuss favourite places to visit for a change of scenery, to observe birds or experience environments that are markedly different from 'home' (NO2); a Swedish interviewee mentions having *"some favourite places that other people don't look so much at. But they are nice"* (SW3). Some interviewees specifically highlight how birding offers them the opportunity to discover new places (SW1, RO5, RO7), the latter referring to a lake they discovered and describe as *"Ali Baba's pond"*. Others, like NL3, have a specific place that they return to time and time again.

While the above examples are within a national context, birding is also international, which pops up both in terms of birding trips taken by interviewees, and in how some forms of birding (like ringing and migration counting) make it clear that birds don't care about human national borders. In terms of ringing, several interviewees with a passion for reading and reporting bird rings, or getting notifications back of birds they've ringed, mention how ringing makes the great distances birds cover much more tangible. One Dutch birder notes that a stork she got an alert from *"hatched from an egg on the roof here, in [city], and is now in Morocco!"*, and reflects on ringing and migration as follows: *"You've read something about bird migration, yes well birds come here, such as the sanderling on the beach, yes it can come all the way from Greenland, yes okay, nice. But if you actually walk on the beach and you see, among all those birds, one with a little ring and you see that little flag and you think 'no way, that's actually a bird from Greenland, and it's just walking over there!' So, it's, well, not that I didn't believe it before, but it's so fascinating to actually see it in real life"* (NL8).

In terms of the international ties between birding and place, birding also intersects with tourism. This can also be linked to elements of national pride, such as ecotourism in birding hotspots such as Extremadura, or how several Dutch interviewees note that they had to learn how impressive the Netherlands is as a birding location. On the other hand, the migration of birds across borders can also raise issues in protecting these birds. A Romanian interviewee (RO16) for instance expresses his

worries about storks being protected in Romania but being shot in other countries, and talks about the tradition of hunting migratory birds in Malta as “*the Maltese Massacre*”.

### 2.3.5 Learning

#### Learning as a process

Learning, both on different topics and using different ways of learning, was discussed throughout the interviews, as were technologies that support learning and strategies for dealing with uncertainty and doubt. In general, learning about birds constitutes a driving force for all interviewees. As expressed by the Spanish birder who asked all her questions to her grandfather who was a hunter (see section Beginning): *“But the truth is that my grandfather could tell me very few things. Sometimes I was not satisfied and wished to know more: where they come from, where they go, where they usually are, what they eat... and I always had that search and there were no answers”* (SP2). The interviewees stress the process of learning in their stories. An example of such a description of the learning process is: *“after looking at them for a while, you really start [seeing them] ... I think it's a progression, a bit of a slightly logarithmic progression like that, you suddenly start to see a lot of birds, you realize that they are not all sparrows, you realize the differences in the song, that is, it's an explosion [...] After you have a small accumulation at the beginning and then suddenly your world opens up”* (RO7). Another example of learning as a process is: *“I think it was just a very natural curiosity. ‘Oh, that's a bird, oh now it's flying away, ok, oh what a beautiful creature, oh does it have a name, oh a bird book, oh my goodness there are so many in it, oh let's find it'. With me, it actually developed quite naturally”* (NL8). Later this same birder explains how she got a bird guide and so the learning process started with naming the birds and she relates this to what we saw before, a **world opening up**: *“And then one day I got a bird book, and then the sport for me was to put a name to the bird. And then a whole new world opened up for me”*. A Swedish birder describes a similar experience, yet with sounds: *“You see nature in a different way when you can identify all the sounds and stuff. Then it becomes, you get a bit of a bigger world in a way”* (SW9) or *“Recognising the voices of birds is very important anyway, you have to be able to learn them yourself, then you will see and understand the world much better”* (E5).

Learning becomes a motivation and a way of enhancing their connection with birds through a deeper understanding of what they find before their eyes (Cosquer et al., 2012). Cherry (2019) talks in this context about the development of a ‘naturalist gaze’ informed by field guides and scientific and conservation information, a gaze that places wild birds in a broader ecological context and which allows birders to instruct others. We encountered this learning in a multitude of forms (e.g. personal routes and strategies) and styles (e.g. solitary or group; with books or on a smartphone). Thanks to the ability to map out the journeys and survival of individual birds, birders involved in ringing often describe the way ringing research adds an extra dimension to their learning process. The ringing makes them aware of the importance of data, of how the lives of birds evolve and of the international scale, for instance for migrating birds. As explained by a Dutch ringer and counter: *“I really like that research [...], you provide data to people who might be able to use it afterwards. Maybe not now, maybe in 50 years, maybe I don't know how long. So that attracts me very much [...] that you just create an extra step of clarity in why a certain bird chooses a certain strategy, or why some succeeds and others don't. I find that very interesting and I also see that it adds a lot to the whole story. Just by counting birds you don't get those insights. It allows you to take certain management measures a bit more logically or easier”* (NL12).

### *From individual to group learning*

Birders can go birding on their own, with their partner or friends or they can join a birding group, and of course they can do all of these. The social or solitary nature of their birding activity clearly influences their learning trajectory. A broad variety of how individual and group learning relate to each other is visible and likely differs per country. With some exceptions, most of the Romanian birders started birding through groups. In the stories of the Spanish interviewees, there was the realization that most of the interviewees make a transition, at some point of their lives, from the solitary practice of birding to feeling the need to belong to a larger structure that can facilitate them both learning about birds and having a further impact on their protection. For the Swedish birders, a pattern is visible of a transition from first noticing birds, to then looking up an association or organized excursions of some sort in order to learn more, and then to stay in that group as a member. But when they have reached a certain knowledge level connected to species identification, they tend to go out more on their own again and deepen the learning on their own. So, several interviewees stress the importance of learning from others, from excursion leaders for instance, at the very beginning.

### *Individual/solitary learning*

Some birders express a preference for birding alone because they want to concentrate, have all the time to observe and find it more relaxing alone. Moreover, they don't want to become distracted by the conversations between people. In terms of the solitary practice of birding, interviewees generally underline how this allows for a sensorial noticing of nature where every detail becomes meaningful. The following quote shows a preference for going birding on your own, but at the same time the importance of contact with other birders for other purposes, for instance for advice or sharing emotions: *"Alone you don't have to think about whether the other person is dressed properly and is not tired, bored, whatever. Alone you control what you do. But at the same time - most of the monitoring is like that, you don't need anybody else with you, you get all the things done alone and then you get together with other people when everybody [has] been running around in the woods alone for days, and then we get together around the campfire and talk about emotions"* (E1). This seemingly contradictory preference is also found by Bell et al. (2008) in a study on volunteer monitors, who expressed a desire to be alone with nature and at the same time experience the pleasure of socialising with like-minded people and share their enthusiasm (p. 3449).

An Estonian birder does not belong to any bird club but gets their mailing lists and participates in online events (identification contests). She likes the possibility of asking for advice if in doubt, or of sending photographs of bird encounters: *"I'm an individualist. That I'm not a society person. It's not my cup of tea, I'm willing to do anything, but I like to interact with people in the sense that I have a kind of support. People with the same interests, with whom I can then share my emotions"* (E11).

### *Learning with others and in groups*

When talking about birding with others, whether it is family, friends or in a birding group, most interviewees describe how they like to be able to learn a lot from more experienced birders, or birders with a particular expertise (particular bird species or expert in sounds): *"How to look for birds in the landscape and how to identify them, that's the whole point of being together, when you go on a trip with somebody you always learn something from somebody who is a little bit more experienced, and then you can be more attentive next time"* (E5). Similarly, a Spanish interviewee talks about how *"you learn, you always learn from others and you can teach things and they teach*

*you things. Many times, I am with friends who are a bit complementary. I may have better or worse hearing, or some people have better or worse eyesight, because in ornithology there are many personal characteristics that not all people have, and the fact of sharing the activity means enriching it for different people” (SP17). A Romanian birder refers to how the learning curve profits from birding with a very experienced birder: “This year I was lucky to be able to volunteer with one of the biologists from the Romanian Ornithology Society [...] it was six days that I stayed with a real ornithologist who really makes a living out of it and I saw species with him that I hadn't seen before at all or that I hadn't seen this year and I learned more tricks for differentiation, what to look at quickly for identification and after I saw flycatcher with him and I saw a lot of raptors, I came home and started seeing them. [...] And compared to a course and compared to individual study when you're with someone in the field with an ornithologist or at least a good birder, you learn infinitely more. So, the learning curve is tied in with the contact with those who know” (RO7).*

This complementarity is also nicely illustrated with this father and daughter experience: *“That is why I am very happy that I can do this together with my father, because, yes, we often say, okay, my father has the knowledge and I have the good eyes, you know, then we really do it together” (NL7). A Swedish birder refers in this context to a mutual exchange: “I very often go birdwatching with my friend [...]. And we have such a mutual exchange, [...] I think he's a bit more talented than I am. He's really good at sounds especially. But we help each other a lot and watch together and look from different angles and stuff like that” (SW2). Besides sharing knowledge, you can share love for birds: “The social part is also important: walking, talking, taking a route, talking to people. Discovering the worlds of birds together with other people who love them and who have more experience in the field” (SP2). Birders refer to the benefits and the pleasure of learning from others instead of having to learn everything by yourself: “I think it also highlights one of the important aspects of this kind of activity, which is that it's not very easy to get to know the bird world, if you start to go out alone or read a book, whatever, so if you have a couple of people to go out with - especially when they're smarter than you, then the learning process or the process of figuring things out is so much easier and more fun. I think that plays a very important role. So that it's like learning from somebody, not just messing around on your own” (E8).*

However, it can also be frustrating when others learn more easily than you do, as explained by this Romanian birder, who always goes birding with her husband: *“[...] being with [my husband] for example all the time in the field, it became annoying that [...] he always learned them very quickly and [...] very easily and only from what people explained; they explained it to him, and done, he knew five species. And for me these five birds were still all the same. Well, little by little, I started to take the bird guide and start comparing. I would be like: I want to be able to distinguish these five species this week. Here they are. And I would choose five species, let's say, all the warblers or all the tits. And I took them like that and I looked at them and I also drew sketches, that is, a kind of summary. The Great Tit, yellow with black stripe, white and black head. Blue Tit, blue head, also has yellow on the belly. And that helped me pinpoint them” (RO14).*

Furthermore, a Swedish interviewee explains why he thinks that especially birdwatching is very convenient as a group activity. He compares his interest in beetles with his interest in birds: in his view, birdwatching works better as a social activity than beetles (which he identifies in his home): *“But birdwatching, then I like to go in a group because then I learn. I have a bit of trouble memorizing birdsong, especially calls. That's why it's nice to always have someone with you to tell you ‘That's a...’, whatever it is, ‘bush warbler’ or something. I almost always have to relearn every year, then in itself you have very good help nowadays from the app. [...]. But if you're out for five or six hours, it's nice to have a group with you. And have a social contact, especially during pandemic times. [...] And that's*

*the thing about being able to discuss and sometimes it gets a bit nerdy, but that's the way it is. Discussing birds we've seen and so on, so it's an exchange there. And then there are enough people who are very good and then some who are less good, but then it's a give and take and back to that there are no stupid questions. There can be stupid answers [laughter]" (SW5).*

Some Spanish interviewees see birding in groups almost as a sort of meditation: *"Going out to the countryside together in a group is like doing meditation in a group, it gives a boost of energy, it is very nice to discover together and get into the world of birds and nature" (SP11).* Thus, it could be argued that learning about birds in a group is such a rich experience that becomes an energizing and spiritual practice for some. The spiritual character is not something we heard often, but we did encounter more references to the feeling of being able to share your passion with others or even the idea of a group that felt like a family: *"And on this occasion, I also had access to a world of interesting people, passionate about what they do, and I do not mean only biologists [...] there's such a pretty active group and [...] we managed to coagulate such a small family [...]" (RO5).*

On the side of the experienced birders or the excursion guides there is a lot of willingness to share their knowledge. This wish to share their knowledge is described in section 2.3.6 Care, under Education.

### *Learning birdsongs*

When talking about the learning process, there are a lot of references to learning the sounds of birds. A lot of interviewees acknowledge the identification of bird sounds as an important part of their learning process. For most birders it is a difficult part of birding, and can be frustrating: *"but I experienced an annoyance that I don't know who it is that's making the sound" (SW1).* However, most of the time it is experienced as an extra challenge, a level up: *"So, I really want to learn that, because I think sounds are fun. And then I have the recorder and some people have one of those big funnels too. You can keep... whatever the hobby is, you can keep at it for as long as you like. You can dig down as deep as you like [laughs]" (SW1).* A similar sentiment is voiced by a Romanian interviewee: *"And these friends of mine, the ornithologists who study ornithology since elementary school, [...] they don't even have to see the bird, that is, they make their mental list just by hearing them. I'm not at that level yet because there are some sounds, sounds that I don't know exactly. I don't know their origin and then I know I still have to learn" (RO8).*

Just like birdwatching in general, birders describe learning the sounds as a real **learning process**, like this Dutch birder: *"I didn't have enough knowledge to be able to do everything right from the start, it just slowly crept in, and mainly through, what do you call it, self-training, just gaining knowledge by trying (...). And what you actually have to do is try to memorise those sounds in your head and then look not only for the sound but also the bird that goes along with it. Because you see, I often walk around and then I only hear a sound and then I think 'oh yes, that's that species' and then I just walk on without seeing the bird at all, but I think it's very important in the beginning that you also see the bird that goes along with it. Because that also gives a confirmation of 'hey I was right or wrong' if you know at a certain point what those birds look like" (NL15).*

And again, being able to identify birdsongs **opens up a new world** for the birder, reinforcing the motivation to learn more: *"yes, especially sounds that is really, a lot to learn. But we are not so conscious of that sense. As humans we are very visually oriented. And if you just polish that sense, as it were, that it comes on, that you start to listen very consciously, then a whole new world really opens up for you, I think that is very special. And that is exactly the nice thing that birding can offer*

*you, that you just become more aware of your surroundings by just using your ears. [...] to do it in an even more focused way is really very cool” (NL5).*

Some interviewees say that for sounds, if you didn't start when you were young, you can never catch up. For example, a Dutch birder stresses the challenge but at the same time feels that it is sometimes out of her league: *“I do exercises and quizzes and tests on apps every day, yes, I really do that every day. Recognising sounds and species, yes. Also because you know that if you don't do that then it gets diluted so quickly, that's something... Look, if you didn't get spoon-fed with it from an early age, like a lot of good birders who often got it from their fathers when they were a little boy and went along with them into nature, and you just know that you're never going to catch up with that level, you're never going to achieve that, but you can come a long way by studying, of course, yes” (NL13).* Some birders seem to have given up the idea that they will ever learn to recognize birds from their sound: *“It's not my cup of tea, I should have musical education for this, I guess” (E11), and “mum laughed that I've learned quite a lot of music and then she thought that I must remember the sounds of birds very easily. But for some reason I get very confused by some of the different peeps and hisses” (E15).* Others explicitly mention they are focused more on visual observation: *“I am not a big listener; I like to watch” (E9), and “The voices are complicated; I think it's easier to know birds from appearance” (E15).*

Those who do want to learn birdsongs use different tools for that. Apps and quizzes have already been mentioned above, and also CDs are mentioned. Some birders share their learning strategy with us, such as a Spanish birder who explained that he found the field guides were too difficult for that and he discovered SEO Birdlife: *“they even created tools, such as a CD that includes an interactive game to identify bird songs. It is on the SEO website; you choose an environment and a level of difficulty on the computer and you appear at the centre of a dartboard and listen to sounds coming from different species of birds. You have a list of possible species in that habitat with pictures of their heads, which are the illustrations that we have in our guide, and you have to drag the correct species to each sound” (SP9).* Others put on bird sounds on the speakers when they get home (RO8). An Estonian birder stresses the need for repetition: *“In the spring you just have to rehearse everything, new birds coming, not all of them I could remember from the last year” (E12).*

Finally, it is nice to share this beautiful story of a Norwegian birder about the birdsong of a blackbird, and how these birds have their own regional dialects: *“I spoke to an ornithologist recently who told me that the blackbird has a unique ability to pick up local dialects. It sounds different in Våland compared to Hundvåg. I have to admit that I sometimes open up the patio doors and play Beethoven for the blackbird and I sometimes whistle to it” (NO13).*

### **How technology facilitates learning**

Birders crave learning experiences and that's possibly what leads them into wanting to share more and hence learn more with others. Such sharing processes are facilitated today by the use of tools such as eBird, a very well-known birding app, as well as WhatsApp groups, email and online forums. Some years ago, learning depended more on regular contact among participants in birding groups and occasional international gatherings.

Birders use different technologies to support them in their learning. For instance, some birders read magazines to learn more about recent research and several use apps to learn and train identification of bird appearance or especially sounds. Interviewees specifically note that this technological development has lowered the threshold to learning bird sounds quite a bit. Scopes are also mentioned as a technology that helps add an entirely new layer to birding and other technologies

like photo cameras helps birders see birds in entirely new ways. Usually, binoculars are the instrument considered most important to take with you, but one Estonian interviewee prefers a camera to binoculars: *"thanks to that camera there was a sudden leap" and "I've got a light and very good zoom camera, with optical zoom of 125x. You can walk around with it, and then you come home, you can see all the birds that you have taken pictures of"* (E11). Hardcore birders sometimes have a lot of equipment to take with them: *"When we go out with my husband, we have this equipment with us: there's a directional microphone, he has it, and then there's the "pan" so you can get one specifically, we have several different ones. And then there are the tape recorders. It's quite a hassle in the meantime, you can get a lot of these things, but you never really know when you go out into the wild what situation you're going to find yourself in, so you don't go and think that I want to get a good photo right now. No, in certain cases this situation will arise and then you must react quickly, so that I can record a beautiful song or a voice. Or maybe I'll take a picture instead. Yes, it is in our standard equipment, we certainly have the ability to record, but for those who do not have things for recording or a microphone, modern cameras you can also put on a video regime, then you will have the voice on top, you can convert it into an audio file"* (E5).

All these apparatuses have to be carried into the field. *"We usually use our phones for making notes. My husband has a camera and I carry the telescope. And we both have binoculars"* (NO2), *"I always carry my telescope, my binoculars and my Collins bird guide"* (SP3), *"I always use a telescope, I never move without it, it is attached to my shoulder, although it is heavy"* (SP11) and *"slowly, over time, we got our second pair of binoculars, we got our own telescope and it seemed like we started to see them [the birds] differently"* (RO14).

All these tools can sometimes become a bit of a burden in the field: *"I haven't had a spotting scope for that long. No, I haven't really gotten used to carrying it around either. Usually someone else is always bringing one. So, I can always use one. But I still haven't gotten used to dragging my own around"* (SW9). The people who go out by bike or on foot sometimes have a tool for carrying the scope: *"the scope carriers were a real life-saver"* (E2); *"Good stuff. Those who drive around by a car, they don't need a carrier, they take the scope from the car. But we walk and cycle while we watch birds"* (E12).

Interestingly, this Swedish birder used a camera in the beginning to learn how to identify birds but now he does not feel he needs it for that purpose anymore: *"And I also sometimes think that I'm going to get better at not bringing the camera because I bought this camera to be able to identify bird species. Take a picture up close. Just to see, "Yeah, that's one of those." As a tool. [but now] I've gotten so good at it that I can more easily identify species without bringing the camera and taking pictures"* (SW2).

### *Apps/platforms*

Many interviewees use digital platforms such as eBird (all), Artportalen / Artsobservasjoner (Sweden; Norway), eElurikkus (Estonia), Ornitodata, OpenBirdMaps and Rombird (Romania), Avefy and BirdNET (Spain) and Waarneming.nl (The Netherlands). The birders refer to their manifold functions and how they use it; for instance, entering their observations, making personal lists, checking which birds are present in a targeted area, choosing areas to visit, and narrowing down identification (both sight and sound). A Norwegian birder says: *"We look at Artsobservasjoner on the internet, at what can be found in the different places. And if we see that there is a species we have not yet seen this year, then it is a bit more exciting to go there"* (NO2).

A Swedish birder gives several reasons for using platforms and mentions all kind of questions that the platforms can answer such as: *“have these birds arrived now? What can I expect to have arrived in spring? See how they spread from day to day? That’s fun, that’s the pleasure I get out of it anyway; the learning I get out of it”* (SW4). This birder also notes that before the platforms you needed to be a member of a birding group in order to obtain such information.

These platforms are thus very helpful for sharing information among birders, and in that sense digital platforms can also strengthen the connection of people with their surroundings, as noted by De Souza e Silva (2013, p. 117) who noted that ‘Mobile devices could help strengthen people’s connection to surrounding space, rather than removing people from it. By using the mobile’s location-aware capacities, users could annotate locations, [...] and access information connected to specific locations’. A Dutch birder developed his own website for birding trips internationally, with birders themselves suggesting hotspots (NL10).

An Estonian birder uses the app sometimes to find out where to go to see migrating geese in spring and recognizes the value of the databases for science. But they also see a downside: *“it kind of evokes that consumer feeling in me, you look up where someone has already seen something and put it on a map, just go and watch it. As a hobby ornithologist, I think self-discovery is cooler”* (E9). Others use digital and non-digital tools side by side, like a Swedish birder who keeps a nature journal for making notes, and uses books and birding guides to look things up, but is at the same time very active on Artportalen to learn a lot and search for places and birds (SW1).

Other downsides and criticism on platforms relate to whether they are user-friendly. An example of criticism of how the platform functions comes from Estonia: *“But the e-Biodiversity system was moved to a new platform a couple of years ago, and since then it is so inconvenient and unpleasant and complicated, and no one in Estonia wants to change the system so that it would be more convenient for the user and the output would be convenient and easy and attractive”* (E10). This can be a reason not to enter observations anymore: *“So, in the last couple of years, I haven’t probably practically added observations in there as a protest. How much this ‘hunger strike’ is having an effect? It’s not having an effect as you can see! The same filth is still up there, nobody is doing anything. I certainly won’t be putting up any observations until it becomes a bit more modern”* (E10). This has led to a situation where some birdwatchers use alternative databases.

In addition, criticism can be levelled regarding whether platforms are bird-friendly, in the sense that they may not offer the possibility to obscure locations of protected species. As a tourist manager specialized in birding tours brings up, a platform like eBird can give places visibility, which at the same time can become a risk: *“In Switzerland they use Ornito, which I trust more because they treat these issues with more delicacy. It is better regulated and controlled. For instance, the locations of protected birds are not published. Citizen science is great, but many times there is a lot of ego and this can be bad for birds”* (SP11).

Regarding another point of contention, one interviewee complains that the excessive use of technology in today’s society also acts as a barrier that separates kids from connecting with nature in general and birding in particular: *“I’ve had a boy working with me on the eaglet issue and it surprised me because we were looking at bustards and other emblematic species with a boy who was just starting out and he was immersed in his phone and didn’t see the birds. That caught my attention, I wondered how it is possible that he doesn’t live birdwatching in situ and is more into the subject of technology. And it’s the same with cameras, as soon as they see a rarity, they go for the camera before they take a good look at it”* (SP12).

We end this section about the role of platforms with a story of a very enthusiastic Romanian birder couple: *“For example, this year, we decided after many weekends of going out that we're staying home this weekend. On Sunday we wake up late to be lazy all day preparing for the next week. That was around 7-8 in the morning and we open Rombird [...] the power of habit, and we see in Dobrogea on the seaside, in a quarry ... Blue Rock Thrush! We never saw her... ‘Hmh, hmh’ I said to my husband, ‘we said we were staying home this weekend’. ‘Yeah, but did you see what is on Rombird?’ ‘Mhm. What do we do?’ ‘Let’s go’. In 5 minutes, we got dressed and went to the sea. [...] We’ve been like that to see many species. It has its charm. That adventure... So even if you get there and don't see it, it's worth it. Yes, we like it”* (RO14).

### *Dealing with uncertainty & doubts*

The platforms above have a main focus on data and therefore the importance of valid observations and the quality of the data is explicitly and implicitly communicated. On Waarneming.nl for instance the entered observations are checked and validated by an expert which can be reassuring if you have doubts about your observation but can also cause stress as you don't want to enter erroneous observations. For a Dutch birder having the option of choosing ‘starter’, ‘average’ or ‘experienced’, in an urban bird count was a comfort and relieved the stress and anxiety of making mistakes (NL3). That this stress can be very present is illustrated by this anecdote of the same person: once in the field, she reported a very rare bird and realised that this couldn't be true; she wanted to change the observation on the platform as soon as possible and quickly biked back home.

In Sweden birders are obliged to write a “rarity report” if they report certain species on Artportalen. A female birder explains what she hopes for when she goes out birding: *“Then of course you hope to find something a bit more unusual. Usually something that's easy to identify right away. So, you don't have to identify it afterwards or be questioned. That it's easy to say; that's the one”* (SW08). When she did observe a bird species that is rare within the area she saw it in, she was encouraged to present photographic evidence: *“that's when you wish you had the camera with you. And you know how it is. It's that mentality or mood among birdwatchers. If you don't have it on camera, you can't show that it was what you claim it was”* (SW08). This is a reason for another Swedish birder (SW1) to wait for others to report rarities so that she does not have to write the rarity report.

How do birders handle this uncertainty? As already mentioned above, birders try to photograph it, or try to record the call or make notes: *“It feels very individual. Yeah, I think it depends on what it is. Is it a bird flying by then there's not much I can do about it. It's just accepting that you don't know what it is. And is it a bird that are still or moving in the area, then I would probably try to record the call or try to photograph it or make notes of characters that I can think are possibly distinguishing”* (SW9). They also often ask others, and hope that a more experienced birder can confirm their observation. And of course, birding guides and other books are also consulted a lot, whether in the field or afterwards at home. Besides consulting books and asking other birders directly, birders consult other birders on this topic through a forum and this contributes to their learning process. Other interviewees share their doubts on social media, birding apps, mailing lists, or through research networks.

Also, on dealing with uncertainty and doubts, we see several examples of how this contributes to the learning process, for example in the following passage: *“At first, I didn't make squares for the Atlas. I didn't try because I said, I don't have enough experience. [...] But the ornithologists said: Do you know ten species? [...] are there ten species that you don't confuse, I mean you're 100 percent sure of them. [...] If you know those, you only enter those, because every observation is valuable. Then as you learn more, you don't just introduce ten species, you introduce fifteen. If you have any doubts, before you*

*upload the data, anyway the data can be edited permanently, you have a picture, [you say] Sir, I don't know what that is, it seems to me it would be... You ask"* (RO5).

Uncertainty often seems related to gender issues, since several female interviewees talk about how women tend to be more insecure about their birding skills and do not feel confident enough to ask questions or share information in groups in which there are more men. The quotes used in this section also appear to be mainly of female birders. A Spanish ornithological tourism guide comments on how women tend to be more insecure: *"I notice many times, especially in women, who are now much more involved in the world of ornithology, that they think 'I know very little'. So, I always encourage them because some of them are very good observers and they discover something, they perceive movement. They don't know how to name it, but they see it. I tell them: 'it's equally valid, I can tell you the name of that little bird, but you have discovered it'"* (SP11). Similarly, another Spanish interviewee also mentions women's insecurities: *"Perhaps it is because of the fear of being judged, of being evaluated, which would not happen to a male expert"* (SP3).

### *Bird guides*

Despite all the digital technologies available nowadays, some interviewees still stress the importance of their bird guide. The digital technology such as apps did not supplant the handbooks and bird guides: *"I prefer learning from the books, not the phone"* (E12). The books and the digital guides and apps are also used in parallel. *"The most important one for me is the Collins bird guide, which I have as a book, but nowadays it's also available as a phone app"* (E3). For a Dutch birder the bird guide serves as inspiration: *"When you glance through the bird guide, you just get 'wish birds', you think, for instance the oriole, a bright yellow bird, of if I could see that one once"* (NL10). Nearly all Swedish interviewees use the Collins Bird Guide app, but some also bring a book in addition to the app. Spanish interviewees mention several bird guides which were useful in their early learning stages, including the Collins Bird Guide (SP03), Peterson's Field Guide to the Birds, and the SEO Birdlife Guide (SP7). Some of them now prefer to use apps and downloadable bird guides in PDF instead of carrying books on field trips (SP4, SP7, SP9, SP16). One bird guide is mentioned in almost every Estonian interview: *"if you look at why we had so many ornithologists or birdwatchers here in the seventies and eighties, thanks to two things, in 1984 the Kumari bird guide with colour pictures came out, but in fact, in those times, different bird stations were also very actively operating and people went ringing a lot"* (E3). Almost all Romanian birdwatchers own the Collins bird guide in the book form, referring to it simply as 'the Collins' and some have it as an app. One birder laughingly tells the story of how, after having carried the guide in book form with her everywhere in a cover so as not to tarnish it, she didn't have it with her when visiting some relatives and walking on a hill she could hear a bird she could not identify (RO7). She got annoyed, downloaded the Collins app and managed to identify the bird very quickly.

### *Reasons for sharing data*

Most birders we spoke to give two main reasons for sharing data: 1) for themselves and others, to keep track of what they've seen and for others to see, and 2) to help science and nature and bird conservation purposes.

A Swedish birder shares a nice story about how she started sharing data. *"We moved to a house in 2008 and then they were going to put up a wind turbine nearby a bit later and then I was called up by the people who did the EIS [environmental impact statement] and they asked a bit about what we had observed and what they had seen on Artportalen. And at that time, I hadn't started reporting"*.

She felt embarrassed that they might think that it is poorly reported in that area as if no birdwatchers are living there and then they “*can kind of throw one of those [wind turbines] up there*”. “*But then I started and I also understood the importance of this that... that it's not a personal diary with reporting, but it's the functionality of it*” (SW7).

A Dutch birder started to find recording data interesting after reading a book by a very fanatic birder: “*I like to discover the differences in a playful way. And I really like it that something happens with those observations, without me having to go into that rigid uniform of scientific research*” (NL3).

### **Learn and care about nature through the birds**

“*You learn a lot about nature through the birds*” (SW2). This quote shows how birding and learning about birds can give insights in the state of nature. Seeing how species flourish over time or witnessing the decline of a certain species in a particular area makes birders think about possible reasons for this wellbeing or decline, and seeing relationships between the state of birds and the state of the environment. The following two quotes reflect the same learning processes:

“*And practically, a whole universe opened up for me, which still continues to offer me surprises (...). Trying to understand what the birds' connection with the environment is. Yes, if you have a lot of birds, you also have a healthy environment. The moment you start to have problems with the bird population, it means that you start to have very serious environmental problems. How do all these things go together?*” (RO5).

“*Yeah, but I think, the most important thing with identifying is that it's a very practical first step, I think, to understanding what type of creature you're looking at, so that you then can understand its behaviour and maybe its role in the ecosystem and how everything is tied together*” (SW10).

Many Spanish interviewees observe changes in the ecosystem through birdwatching and express feelings of eco-grief. They often lament the loss of biodiversity: “*And this, when you know about the subject, is not something pleasant because almost everything goes backwards and, when you know about nature, you see the loss of biodiversity in the countryside at a fairly accelerated rate and the truth is that it is not very encouraging. [...]. So, in society, ornithologists and naturalists in general are people who sound the alarm about the state of conservation*” (SP4).

In particular, animals and birds are brought up as indicators of the state of nature: “*Animals are indicators of how what we are doing is affecting them regarding the destruction of ecosystems, poisonous chemical products in agriculture, pollution*” (SP7) and “*For me, birds have always been an indicator to know if things are going right or wrong. On the one hand, my heart beats for a large number of birds, but I also like to visit places for many years and simply watch ... Unfortunately, in many places they disappear, but, from time to time, there is a beautiful story of a recovered species and that is very gratifying*” (SP11). Also this Estonian birder refer to birds as indicators of the state of the environment: “*It is easy for people to understand that birds are a direct reflection of the state of our environment. If the birds are doing well, so are we*” (E7), as does another Spanish interviewee: “*Birds are the most attractive, the most visible, the best heard. It is the great representative of nature, it is an ambassador. If you understand a little ornithology, behind each bird there is a whole landscape. Each bird tells you how that landscape is, it is an ecological indicator of the environmental health of places*” (SP15).

The interviewees see how everything is connected and depends on each other and this can cause concern and a drive to come into action: “*You wonder about temperatures, if they arrive too early then they don't have enough food, insects you know. You learn to appreciate how everything is*

*connected. So, it is not only the birds, because birds depend on insects who depend on worms and so forth. It is natural that many birders also are interested in butterflies. Because you expand those horizons all the way” (NO4). Here we also see how the interest in birds expands to other species or nature in a broader sense, as becomes evident in these quotes from a Swedish and a Norwegian birder: “Because you can stand and look at a bird, and think “what kind of tree is that sitting in? Is that a lime tree? Or what is that?” So, you learn about other things as well. Or about a biotope. Well, this bird only lives in this environment, it would never be there. It's here because it's a forest bird or whatever” (SW2) and “You learn to take care of nature, actually. You get a sense of awe. You become very upset when you see too much tree felling here and there, and people who just do their own thing [...] then I think it is cool to look at types of trees, flowers and get to know more than just birds” (NO2).*

### 2.3.6 Care

#### **Environmental citizenship**

In our work plan the rather complex concept of ‘environmental citizenship’ was operationalised in ‘care about’ and ‘care for’. We asked the interviewees whether and in what way they are concerned about how birds are doing, and about the state of landscapes and nature in general (care about). Their sometimes years of monitoring in a particular area might have given them insights in changes in the bird population or changes in the landscape, which in turn could lead to optimism in case of positive changes, or give rise to concern in case of changes that are perceived as negative, for instance common birds becoming rarer. The aspect of ‘caring for’ was assumed to possibly arise from ‘care about’, i.e. ways in which birders transform their concerns into actions for birds and nature.

#### **Care about**

Some birders say they do not really perceive a lot of changes when it comes to the presence or wellbeing of birds on the basis of their own observations (as was also found by Vroom et al., submitted). They are, however, aware of a decreasing trend as they read a lot about it. Some birders do witness changes themselves when it comes to the presence of birds in their area. They often name a few examples of bird species that have disappeared or became rare, but at the same time have witnessed species returning or new species arriving. A lot of these birders express their observations in a rather similar way, using phrases like: ‘species come and species go’. They refer to the dynamics and recurrent balance in nature. There are of course exceptions, but a lot of birders don’t explicitly express a great deal of concern over the overall trends in bird populations. Their concerns instead seem implicit and present under the surface, because at the same time, when talking a bit more about this topic, they start expressing some doubts, asking themselves questions such as ‘are these changes really natural?’ and ‘is there still a balance?’. One birder for instance refers to the cycle of nature, but sees humans as too dominant a factor: *“you see that nature has a certain cycle, and then we as humans are stirring things up with a stick, and changing this and raking that and modernising that, and then I think, yes, where does it all end?”* (NL8). When asked about the causes of these changes, interviewees do not hesitate to point at human behaviour, as in the quote above. They are convinced that human actions cause the changes of landscapes and nature and the decline or disappearance of particular bird species. Some birders refer to the metaphor of birds as the ‘canaries in the coal mine’; they see the world changing at such a rapid pace that birds and nature can no longer adapt to that and so the balance is disturbed. So, these groups of birders are hesitant to draw conclusions on the trends in bird populations on the basis of their own observations, their counting and/or ringing activities. They do, however, care about birds and nature a lot, but more based on what they hear and read and how they feel about the (unbalanced) human-nature relationship.

Some interviewees express concerns about both birds and nature, while for others their main concern appears to be birds specifically. Those interviewees who do express their concerns explicitly, refer to agricultural birds and are very concerned about agricultural practices, deforestation and climate change, biodiversity loss and the decrease of untouched nature and plastic in the oceans. For example, one woman is monitoring to ensure the preservation of the natural environment of the whole area: *“To give back as much as I can”, “the more the years go by, the more I’d like to let the others know that there are birds here. Because I have noticed that, for example, the marsh tit and the willow tit disappeared for three or four years, because one after the other the trees were taken down*

*from the creek in front of my house, houses were built there, the forest was taken down, and they disappeared” (E9).*

#### *Loss and emotions*

Looking for the emotions the interviewees express when telling their birding stories, we find a lot of excitement, happiness, rest and relaxation. However, related to care, we also find a lot of concern and sadness about the decline or loss of landscapes and species (Albrecht, 2006; Van Dooren, 2014): *“when you know about nature, you see the loss of biodiversity in the countryside at a fairly accelerated rate and the truth is that it is not very encouraging. Many times, when I go to the field, I come back depressed and angry, rather than renewed..... I perceive changes and impacts on the species. For example, ditches are sprayed with herbicides and I see the changes in those ditches, that were previously full of life and then they are dead. Forest clearing, crop changes, new reservoirs, industrial projects, windmills, almost daily I see some impact on the environment, sometimes small, other times serious. The loss of biodiversity depresses me sometimes” (SP4).* Or for example a birder who still has notes about his observations of 40 years ago and notices the changes; *“Yes, that makes me sad of course. In my birding days, I've also seen a lot of things change. So yes, it's not something of a far-off event, but it's just really something that I've seen happen in my life until now” (NL6).* While this birder is able to talk about it, he at the same time acknowledges that it *“is quite difficult to convey actually, that, well, your feelings about it, about what that means to me or what that feeling is that you have seen it change so much, and that you don't see so many things anymore that you used to see very often” (NL06),* which probably is the case for more birders. As we already mentioned, the awareness of the decline of birds and nature don't always come to the fore, so it might be even harder to find the words for this, even more so as it sometimes concerns a loss that has not happened yet, but is already anticipated on. Most birders feel a form of sadness and link the loss to human causes: *“Yes, you can really see that the environment is changing, that there is really less nature, especially if you look in the city, many paved gardens, many buildings, yes, that attracts other types of birds, and other types of birds will disappear as a result. When I look at the old days, the dunes that I used to walk through, well that's no longer possible because it's all built up. So, I can imagine that the birds that used to have their own place there will no longer have that place and will die out or disappear. As sad as that may be, because that's what I think, especially if it's because of people, I think 'well, we're are a bit ruling over everything now” (NL8).*

A Spanish birder calls this ‘inner suffering’ and it causes her stress: *“It is necessary to care for the environment. For example, in Cáceres, I have had moments of considerable inner suffering with regard to the mining project designed in the Sierra de la Mosca. I have written about that, I don't know if I'll publish it, but I have great inner suffering, because I don't understand how these problems can go unnoticed. Sometimes, I even need to take some distance to process it all, because I feel trapped by the stress” (SP2).* When she noticed an abrupt change, from one year to the next, concerning cranes in the landscape of the meadow, she says that she became more aware of environmental problems. *“I was feeling these changes in all the pores of my skin. The meadow was in a worse state, there were many sick trees, and many areas were being removed to irrigate olive trees” (SP2).* She also writes about these things and hopes to raise broader awareness this way.

Likewise, it is emphasized how *“We are producing changes in biodiversity at alarming rates, in some cases we are at the point of no return. Action must be urgent and forceful, with the climate and biodiversity, because everything is related” (SP7),* and another interviewee laments: *“There are times when I feel a little let down by the human condition. When you go to places where you have seen an enormous number of birds in the past, you see that man is transforming them and that diversity is coming to an end” (SP12).*

For these birders we see already how this sadness about loss and decline leads to personal suffering and stress. Some birders even call it 'eco-grief' or 'eco-sorrow': *"And it is like this, the concept which has been mentioned here too: Eco sorrow. It is a reality for many. Including me. I feel sad and upset (his voice breaks) when I see how things have changed and how many species has receded. Population decline is one huge topic like this. And population change. And I am super worried and aware of these changes and therefore I participate in projects which measure whether these changes take place. I find it much more interesting than to observe a North American visitor"* (NO15). Just as for the Spanish writer, here the birder tries to transform his concerns into actions. However, for some, it leads to the feeling of powerlessness to do anything about it: *"I don't have any illusions about anything, especially about humans caring for nature"* (E9). This same birder refers to the movies of David Attenborough that so many people have seen, but wonders whether *"people will do something different afterwards; everything seems so out of grasp and hopeless"* (E9). Another example of eco-stress is a young Estonian birder. When asked whether he is concerned about nature he says: *"unfortunately, unfortunately, I am pretty much inside that world, unfortunately a bit too aware of it myself to overlook it"* (E8), he points at his childhood by saying that he has been brought up that way. This awareness *"causes a lot of stress"* as he feels like *"it's already too late"* and *"I don't see any perspective at all"* (E8). His engagement is expressed on the global scale and is ever-present, even when he is drinking a beer with his friends: *"It is there all the time in my whole life, I don't have moments where I cannot talk about these things"*. For him, this eco-stress could even damage his own health: *"Conservationists tend to burn out very quickly and I feel that if I were to go down a very extreme path with my own great activism on conservation, it could doom me in the same way"*. However, he also feels that if he would do something different with his life, he would not be happy, *"When you are already so in it, it is a bit too late to let go"* (E8).

As we see, this sorrow and concern can lead to despair and powerlessness, but can also be turned into action: *"I am moved by a concern for a protected species, so that concern moves me to preserve birds"* (SP1). This birder is an example of someone who is motivated by care about decline and loss and her activism takes so much time that she has considerably less time to bird herself. Others turn their care about loss into action in terms of education, hoping to make others enthusiastic for birds (e.g. NL6). Here we move from care about to care for nature and birds.

## Care for

The interviewees express a lot of ways in which they care for birds. For different birders in different countries this led to different kind of actions for birds and actions for nature, on different scales. Types of actions we encounter are **education**, often especially focused on children; **activism for the protection of birds**, and **environmental behaviour**, things people can do (or refrain from) individually, for instance in their own households. **Feeding birds** is a small-scale caring action that popped up frequently in some of the countries as well.

## Education

The birders we spoke to were often very passionate about sharing their knowledge by giving all sorts of education: excursions, lectures and courses. They hope to be able to transfer their love for birds to other people and are very passionate to explain everything about birds, their behaviour and their needs. Their hope in doing so is to arouse more understanding, love and respect for birds with other people, leading to more care for and protection of birds: *"Well, I think it's nice to make people enthusiastic about bird watching, to show them the subtleties of, yes, why is this bird here or why is*

*this bird no longer here, and also to show them a little of what an indicator birds can be for the environment, for example. Because, well, today I happened to read in an English newspaper that the European bird population has declined enormously and in some places is on the brink of extinction, yes that's something that all of us are causing. I want to tell something about that" (NL6).*

Besides these more formal ways of education and transferring love and care, interviewees also seize any opportunity to use informal conversations and encounters to share their love and knowledge about birds. The following quote is from a birder from Romania, who learned to bird alone because he did not know anyone else, and in the beginning of the 2000s it was harder to find other birders: *"Already about 4-5 years after [my first memory of being interested in birds], I was already having, let's say, disciples. So, you do realize that after four years of birding at the level from which you could progress then, I was still not very knowledgeable. So, the fact that I had disciples means that there were some who were even less knowledgeable than I was. Now looking back, I am very pleased to find that of those who then learned from me, learning from me because they had no one else... I was blind in the country of the sightless. Today they are professionals in the field, some now even better than me [...] I have the great satisfaction to know that I have also contributed to their progress. I wish I had some guidance when I was a beginner. It wasn't to be, that's the way it was. That's how it was back then, but to this day I've kept that desire to ... to pass on the little I know to others who start doing this thing" (RO15).*

#### *Activism for Protection of birds*

Many birders try to contribute to the protection of birds. We see two main routes in how our interviewees aim to contribute to bird protection. First, they share their observation data because these data can be valuable for science and policy (see also section 2.3.3 on motivations). Second, they initiate or help with protection activities in their own neighbourhood or region. *"I've been twice helping with black stork volunteer works; Estonian Nature Foundation and the Eagle Club organise them. In Karula there was a stream to be cleaned from the bush. We got a pretty good job done" (E12).* Often, they are upset or irritated that things don't go the right way, meaning not aligned well with the needs of birds. For instance, a Dutch birder (NL9) recalls being very irritated that his village was full of unsuitable nesting boxes. They were installed by the housing cooperative, so he immediately contacted them (*"I instantly grabbed the phone"*). Sometimes, birders' involvement and help are very welcome, as was the case in the nesting boxes example above, yet others encounter more resistance, lack of knowledge and indifference. Two Spanish interviewees (SP1 and SP5) decided, for example, to coordinate their efforts in order to found an association for the protection of swifts' nesting sites on the walls of the Old Town of Cáceres while this was being renovated. Their care about and for birds translated into political action against some of the initiatives undertaken by the municipality. Other interviewees (SP12 and SP16) are deeply involved with the protection of the Montagu's harrier during their breeding season and declare to willingly endure very hard environmental conditions - extremely high temperatures during the summer months - in order to protect their nests from the action of farmers who see them as an obstacle.

#### *Environmental behaviour*

Most interviewees try to contribute to doing something good for nature and the environment in their own household, e.g. making their own garden more bird-friendly or adapting their consumer behaviour. They feel a sort of duty or responsibility to do such things on a small scale to contribute in their own way; it is somehow perceived as the least you can do. The interviewees refer to eating no

or less meat, not travelling by plane (for birding trips or other vacations), recycling, saving electricity, and not using the car too much.

When asked whether they see this kind of environmental awareness and behaviour also among other birders, the responses are mixed, however in general it appears to them that other birders are not noticeably thinking or acting in a more environmentally friendly way, and that it is not a very prominent topic with them. There are exceptions of course, such as some Estonian birders and twitchers carpooling for environmental reasons (E12).

### *Bird feeding*

One expression of caring for birds on a small scale is bird feeding (Macdonald, 2020, pp. 196-199), often done in the interviewees' own garden or balcony or through maintaining a bird feeder in a nearby (nature) park. However, while the activity of feeding birds and discussions around it are very present in Norway, Romania and Sweden, this is less the case in Spain and the Netherlands. In the countries where bird feeding is a lively practice, there are also discussions going on about the do's and don'ts of it: what should be in a bird feeder (is bread good for birds or not, and some interviewees even talk about giving the birds home food leftovers) and when to feed the birds (only in wintertime or year-round). Typically, interviewees from Spain and The Netherlands don't mention bird feeding at all; we know that for instance in The Netherlands it does happen, but it seems not such a big thing as in the other countries such as Norway, where all interviewees mention feeding birds. Another small-scale activity related to care for birds is installing nesting boxes, an activity very present in Romania and Estonia especially: *"Everyone can put up nest boxes for the birds, feed them in cold winters and look after their habitats. In our villages, this is something we are increasingly doing"* (E7).

### 2.3.7 Diversity and inclusion

In all of the interviews the topic of diversity and inclusion was discussed, and interviewees reflected on it in different degrees. Topics of reflection (raised by the interviewer or offered spontaneously by the interviewees) include what an 'average' birder looks like, if interviewees notice changes in the birding world and who they meet in the field, and to what degree birding groups foster and think about diversity and inclusion.

One observation that popped up in interviews in several countries is that birding seems to be becoming increasingly popular and less 'niche' compared to when they were growing up, which is promising for getting people engaged in it. An interest in broader engagement can also mean that birding groups and organisations will start to take a somewhat different approach, such as a birder's observation that in Spain there are now lower knowledge demands placed on amateur birders to become members of Birdlife; in other words, to shake off a certain 'elitist' image (SP15). A Swedish interviewee notes that *"today there is a very wide range of birdwatching, from beginner to expert. It didn't really exist before because there weren't that many people doing it, like that"* (SW4).

This influx of a larger and broader community of birders also affects the makeup and role of birding groups, which quite a number of interviews touched upon. Several interviewees in different countries note that their birding groups are increasingly focused on creating a welcoming atmosphere (e.g. NL10), which some interviewees also attribute to helping them feel welcome (e.g. E2). Birding groups organise activities to stimulate inclusion of less experienced birders (SP9), and

interviewees make several efforts to make excursions low-threshold activities (RO13, RO14, RO17). Some examples we encountered of interviewees describing their groups' commitment are as follows:

*"We must certainly not be patronizing when we have our excursions. There are no stupid questions. That's what we usually say, that we're all starting from scratch. And that's something to remember. (...) It has and still is an important part of our business. Being welcoming, inclusive, as they say these days" (SW5).*

*"When taking the step from being an amateur to getting involved in more serious things, the problem is the age gap, because young people often don't dare to do it. [...] It seems to them that they are comparing themselves to people who know a lot and feel overwhelmed. We try to eradicate this fear in order to encourage people, showing them that we can offer tools for them to train, to improve, we are not going to compare them to anyone" (SP9).*

*"The threshold to enter and become accepted can be a bit high. I notice that sometimes at the meetings the new ones who are clearly interested may end up sitting alone and nobody makes contact and tries to include them, because they are themselves so busy sharing information and socially with people they already know. (...) And then you may end up being that person who only goes there one time, because you did not feel very welcome. We need to make an effort for the new ones, when we see a new face, really connect, look at them, recognize them" (NO15).*

*"I've heard that a lot of the old guard, those 60/70+ year-olds, think it's an enrichment that women have joined the club, yes. They like the fact that there are women there. Because men among themselves create a different atmosphere than when there are a few women among them. Different dynamics, group dynamics" (NL2).*

However, several interviewees also note that the commitment to inclusion can differ markedly between different birding groups and types of birding (as experienced by SW3), but also within a group, based on the distinct personalities of individual members. In terms of ethnoracial diversity, for instance, one Swedish interviewee (SW6) experienced some resistance among the 'old guard' in their birding group on committing to more diversity. Another recurring dimension of this is the requisite social skills: some birders are described as rather individualistic and not oriented towards creating a welcoming environment, which is sometimes even hinted at in terms of autism or related conditions. While one Dutch interviewee describes birders as generally sociable people with a strong awareness of group dynamics (NL13), others notes that birders sometimes *"do not have the best developed social antennas"* (NO15), and that *"there's quite a few people who obviously maybe have some kind of diagnosis, in a heartfelt wonderful way, but are difficult to communicate with"* (SW2), and several Dutch birders (NL1, NL9 and NL10) all explicitly describe how some birders come across as 'autistic' in their strong focus on birds above other interests or social considerations.

When asked about who a 'typical' birder is, interviewees give different responses, but recurring aspects include being male, being of an older age (40+, 50+) and being white. This image appears to align with broader literatures on citizen science participation, which often report relatively high ages, overrepresentation of men and a lack of ethnoracial diversity (e.g. National Academies of Sciences, Engineering, and Medicine, 2018, pp. 165-166; Wright et al., 2015). One illustrative description of the 'typical birder' is found in the following response of a Norwegian interviewee: *"It is a middle-aged man. Well, that is what the ones I see going past with the giant lenses are, out by where I live. It's a man around 40-50. He wears a green outdoors coat and has photography kit with him. That's what the one's I see are like, mostly" (NO1).*

Of course, opinions differ, and ideas about who birders are and who is welcome can differ between countries. In addition, diversity and inclusion in the birding community may be changing over time, stereotypes can become outdated, and the makeup of the birding community is connected to broader societal developments. The rest of this section highlights some recurring reflections on the topic of diversity and inclusion as arising from the interviews.

### **The challenge of engaging young people**

Across the interviews, a recurring dimension of lacking diversity concerns age; interviewees notice that birders are often somewhat older and that they see few young people at activities. In addition, in several countries interviewees mention examples of efforts by birding groups to redress this lack of young members and enthruse youngsters, for instance through school activities. Aside from school projects, other networks enthruse youngsters for birds and nature; for example, in Estonia so-called nature circles have spurred the rise of a group of young birders, whose members in turn popularise birds among their fellow students. It should be noted that the fieldwork in Romania presented a somewhat different picture compared to some countries in the project, since birding is a relatively recent pastime there, meaning the group of older birders is relatively smaller and there are a lot of young people and women among birdwatchers. Still, Romanian interviewees also discussed a strong commitment to promotional activities and school projects to enthruse youngsters (e.g. RO3, RO13, RO17). For instance, a professional birder and former university professor (RO12) does a lot to promote birding in rural areas through bird ringing events and especially through projects with storks, the latter being especially popular among children. Another Romanian interviewee describes his approach as follows: *“So, children help you to study more these complicated things about the biology of birds and then I can explain to them in very, very simple words that the passion (...) if you want to pass it on. Then you must somehow empty your vocabulary of scientific terms and Latin feather names. There are 22 people who care about this stuff, but if you want to make birdwatching a mainstream sport you have to speak the language of the masses, and that's what really made me lean into the legends and stories, anecdotes, proverbs with, with birds, that way it's easier to get to, I don't know, the soul of the person if you start with something familiar”* (RO3).

Different explanations for these patterns are offered by our interviewees; for example, a Spanish interviewee points at perceived high knowledge thresholds, noting that young people *“perceive birding as some kind of competition, they think they are going to get into a league where they are going to be uncovered because they do not know enough about birds, the typical insecurities of youth. It seems to them that they are comparing themselves to people who know a lot and feel overwhelmed”* (SP9).

One factor of exclusion related to birding groups that gets raised in several countries is a broader societal change in terms of the increased availability of different leisure pursuits these days, and a diminished attractiveness of formal association membership specifically. For instance, several Swedish interviewees note that people might simply be losing interest in formal associations, with a birder noting that *“there's a group of younger people who are perhaps mainly there to go birdwatching for themselves and are perhaps not really involved in the association as such”* (SW9). A Dutch interviewee voices a similar concern when he claims that people are *“more and more individually oriented, and while they are interested in birds, they want to do that in their own time in their own moment at their own place. And no longer in an association context, with a number of people at the same time”* (NL11). In terms of how younger people might simply have other priorities, a Norwegian interviewee feels that *“something happens in the teenage years, where many choose other activities and sport becomes super important and all of that. If they could only have both*

worlds” (NO4); similarly, it is noted that younger people “are at a stage in life in which they are experiencing many things, so they do not focus much” (SP9).

A desire to make activities more inclusive for younger people might require significant interventions, and can sometimes come into tension with established way of running projects. The struggle to navigate this balancing act is beautifully illustrated by a Spanish interviewee: “For example, the Sacre census used to be by car, with 20 listening stations at 20 stops half a kilometre apart, at least. That is already a limitation because there are many people who do not have a car, especially young people. So we've had to change that to have more young people involved. This year, we have introduced a new Sacre method that is done on foot, with 10 sections of 500 meters. This is going to completely change the program, we are going to have a statistical problem, but we are so concerned with generational replacement that, although we are going to get into a statistical and mathematical mess, we believe that it is important to change that and make the method accessible to anybody. Now, perhaps, it is worse for older participants, now those in their 60s have complained, saying that they'd rather continue by car because they prefer not to have to walk 5 km roundtrip. So, we are going to have a duplicity of methods and it is going to be a mess, but we do it so that young people are encouraged to sign up” (SP9).

### **The rise of the female birder**

Far and away the most discussed aspect of diversity and inclusion concerns gender, which arose prominently as a topic of conversation in almost all countries. Once again Romania forms somewhat of an exception, as only one interview extensively tackled the topic of gender. The number of active Romanian female birders seems relatively high, especially these days.

An increasing prominence of visibility of female birders is something that interviewees in all countries talk about. For instance, a Norwegian interviewee mentions that “another change over time is the number of women participating. It is not so male-dominated anymore. This is definitely positive. We need all kinds of birders to take care of birds and birdlife” (NO10). The rise of the female birder is also linked to several broader societal developments. An important one includes changing societal gender norms, specifically the historically emphasis on female responsibilities for household and childcare which echo onto today, which can also make it more difficult for women to find time for birding. One Estonian birder, for instance, notes the following: “Socially and historically, women have been left with a huge mental and physical burden of household and family care that men are not used to dealing with. Because of the enormous burden on women, it is very difficult for women to find free time to pursue their interests, for example to go birdwatching for several hours over the weekend. (...) It is easy and natural for men to take time off, which is not the case for women, and women are historically and socially perceived as secondary, which is why we see few women in leadership positions” (E2).

Interestingly, while children and childcare did sometimes pop up in interviews as barriers to birding for women, this was hardly universal. Most interviews with female birders did not specifically elicit stories about this, though some note that birding took a backseat when they started a family (e.g. E2, E5 and E14). Some birders (such as SP13) explicitly balance motherhood and birding by taking their kids along in the field. In the Romanian interviews the picture emerged that some activities are rather child-friendly, while others (such as long bird counts) are not.

Education may also play a role in gendering birding, with an interviewee noting that “at the university, at least in my time it was relatively standard to divide students by gender: girls went to study botany and lichens; boys – birds, for example” (E9). Practically all of the female Spanish

interviewees reflected on how birding has traditionally been considered a male pursuit, with women seemingly not participating. Interestingly, in the Spanish interviews several male interviewees seemed to assume that women would often enter the field of birding inspired by male relatives or companions, whereas several of the female birders actually became active on their own. Instead, their recent visibility might have more to do with being more welcome in birding groups, rather than female birders not having been active before. Related to birding groups, two Swedish interviewees (SW1, SW7) are active in a network specifically for female birders, while an Estonian birder was quickly accepted in a birding group when she successfully demonstrated that she “*did not want special treatment*” (E1). A Dutch female birder (NL13) also talks about gaining recognition of male birders she encountered, though she experienced this as a form of achieving equality. Perceptions of country differences also appear; someone notes that she experienced the birding community in the United Kingdom as more progressive and welcoming for women than the one in Norway (NO4).

In terms of role models, one of the first female Estonian birders dedicated to eagles (E1) feels her efforts have also played a role in inspiring other women. In other countries (e.g. Spain) it was noted in interviews that there are few public female role models, and in the Netherlands a male birder (NL10) discussed how a birding organization he worked for deliberately championed a female role model to inspire women to go birding.

A related gendered factor of exclusion concerns knowledge demands and the degree to which women are seen as equals in the field. A Romanian birder who works as an ornithologist (RO9) reflects on her experience of publishing research and not being taken seriously by her male peers. A Spanish interviewee explicitly reflects on sexist behaviour in the birding world: “*I, as a woman, have suffered. Often, working in promotion and in fairs around the world, when I'm with colleagues at a booth, people turn to them for information and not to me*”, and “*Sometimes I feel invisible when we are at a stand, now it affects me less because I understand that it is a very masculine world, but it has been hard. It is also difficult to be integrated into a conversation about birds. For example, once, in a conversation about collared pratincoles, I was standing right next to the other birders and it seemed that it was taken for granted that I was not going to be interested. I was not encouraged to participate in this men's conversation, even if I asked questions, there was no inclusiveness*” (SP3).

As noted in an earlier section of uncertainty and doubt, several interviewees note that women might be more reluctant to risk making incorrect identifications; one of them suggests that their reluctance may arise from “*something that makes it seem like a competition, they might fear that their field data will be compared to others' results*” (SP9). A similar gendered barrier is noted by a Swedish interviewee: “*I've noticed the difference. Because men often want you to be able to say everything, every beep and every bird that flies over, what kind of bird it is. Whereas a girl is more accepting of you saying something wrong [...]. They accept that you say, 'I don't know this'*” (SW7).

This aspect of competitiveness ties into a point about how different activities can be coded as more appealing to men or women. In many countries the observation was made (by interviewees or, as described later, by the researchers during fieldwork) that excursions seem to draw relatively more female birders, as contrasted with other forms of birding where “*It's kind of solitary; men do things on their own and are supposed to know everything about it*” (SW2). Activities like twitching seem to draw more men, which is sometimes linked to e.g. the competitive or ‘hunting’-like nature of the activity (NL2). However, exceptions abound, and we encounter differences in opinion or country setting; for instance, a female Estonian birder (E5) chairs a twitching organisation (though she does notice women are generally underrepresented there), and while a Swedish birder (SW6) finds that ringing activities draw many women, a Dutch interviewee (NL12) finds that ringing is currently a rather male-dominated activity. On the topic of birding activities, one factor that may aid the

increasing visibility of female birders is a broader perception of what ‘counts’ as birding and being a birder, as voiced by a Norwegian interviewee: *“I remember that when I was young, it wasn’t called birding if you watched birds on the feeder in the garden. Birding was going on long hikes and a bit exclusive for nerds. It was boys and men. They were not very keen on including the women. This is how I experienced it”* (NO15).

Another gendered factor of exclusion involves safety, and perhaps most prominently perceptions of safety and risk. A female Spanish birder (SP17) voices a degree of envy over the freedom men have to walk through remote birding locations, while women might feel decidedly less safe to do so, and some female birders in Romania took the reputation of certain areas into account in terms of their participation in an urban bird atlas project. A Dutch female birder (NL13) loves birding on her own but always feels a certain tension when encountering men in the field, which is hard to shake off and makes it difficult to fully enjoy nature; she doesn’t feel that male birders or birding groups are aware of this gendered experience. Another Dutch birder (NL2) suggests that COVID-19 might have slightly lowered the barrier for women to go into the forest alone, as during the lockdowns this was a bit more common than usual. However, these experiences of gendered risk perception were not encountered in all countries; no Norwegian interviewees mentioned security reasons as something which kept them from birding.

### **Language and ethnoracial diversity**

In terms of ethnoracial diversity, interviewees could be found in each country that commented on a lack thereof, though not all interviews dealt with the topic. Some interviewees (RO3, NL05) shared anecdotes about encounters during counts with people of underrepresented communities inquiring into what they were doing, for instance during urban birding. Among the interviewees themselves there were few members of racial minorities, with a UK birder interviewed as part of the Spanish fieldwork (SP10) being an exception (and being very aware of racial patterns of exclusion in birding). He notes that immigrant communities may have different priorities and be more oriented towards spending time in urban environments. Similarly, in Norway it is noticed that while immigrants from other western European countries visit activities, Asian and Arab immigrants do so much less, which the interviewee links to a much lower level of familiarity with nature and the outdoors (NO4).

Another aspect of ethnic diversity that did pop up in several countries relates to language. For example, present-day patterns in birding engagement in Romania are partly shaped along language lines of Hungarian and Romanian language communities, with deliberate efforts underway to try and address this. Something similar was found in Estonia, where there is an increasing societal trend of interaction between those who speak Estonian and some Russian-speaking communities, but where the birding community does prioritise Estonian as a running language. A Swedish interviewee (SW6) also notes that he wishes the association he is involved in would pay more attention to multilingualism as a route towards greater inclusion of underrepresented or minority groups. On the other hand, birding also seems to be a site where language communities interact more, and birding can be an international pursuit; a Dutch birder (NL8) talks appreciatively about how birding brought her together with local enthusiasts when making birding trips, and Spanish and Estonian interviewees talked about how birding can foster international contacts, cooperation and mobility.

### **Access and affordability**

Aside from age, gender and ethnocultural diversity, exclusion can also relate to mobility and affordability. For instance, in several countries, interviewees emphasised that optics (binoculars,

scopes, cameras) are wonderful and truly add more layers to birding, yet these are also expensive tools that can become quite a barrier. Activity costs may also function as a deterrent, especially for young people (NL6). Some forms of birding (e.g. twitching) or some locations also practically necessitate owning and driving a car, which presents a potential barrier; for example, a young birder from Estonia notes that *“now another friend of mine also got the licence, but before it was always my boyfriend who drove the car, who took the lead, when he could, we all came together and went somewhere to watch the birds”* (E15), and a Romanian interviewee (RO12) mentions that having a car makes birding easier compared to when he was young in the 80s and 90s, when they went by train and foot everywhere, or had to pack up all their gear in one small car. It is thus clear that citizen science volunteering can cost quite a bit of money (RO13), with others (NO8 and NL11) adding that ringing volunteers need to invest quite a bit money into all of their rings and other materials as well. Some organisations thus try and take steps to lower these barriers, for instance by having optics available for borrowing, as is done for instance by the Bucharest branch of the Romanian Ornithology Society, or organising carpooling to activities.

Physical differences in terms of the quality of the senses can also offer barriers, especially for older birders. A Dutch interviewee (NL10) doesn't take part in bird counts because his hearing is rather bad, and some older interviewees rely on hearing aids to still hear birds. Finally, we spoke to few birders with a disability themselves, which in some cases (such as in the case of an Estonian birder in a wheelchair) was due to health-related concerns. There were a few exceptions however, such as a Spanish birder (SP12) who was interviewed and who greatly benefited from birding in helping him to cope with the accident that landed him in a wheelchair, though he also experiences access as a barrier to birding. Similarly, a Norwegian interviewee who can no longer leave the house much anymore due to physical pains mentions that for him *“bird watching has been extremely significant comfort and joy. I feel the bird encounters very intensely, almost like falling in love. Sometimes I feel such intense joy that tears run down my chin”* (NO5).

## Part III: Fieldwork

### 3.1 Methodology

Partners started visiting fieldwork activities at different months, with some starting in spring 2021 and others in the summer or autumn. Fieldwork ended in January 2022. For fieldwork sampling, the project team once again followed an approach of sampling for diversity, though each team also had to take their local specificities into account, and the opportunities for fieldwork this presented. Activities of interest included counting / census activities (such as migration counts, garden bird counts or counts of specific areas), bird ringing activities (such as songbird ringing, birds of prey or waterfowl), birding excursions, artistic or educational activities (e.g. at a museum), bird festivals or fairs, training events for birding or ringing projects, or birding volunteer meetings. As can be seen in Table 2, each country team ensured joining at least a counting / census activity, a ringing activity (except in Sweden) and excursions.

Table 2: Brief summary of fieldwork visits

	Estonia	Netherlands	Norway	Romania	Spain	Sweden	Total
<b>Fieldwork event</b>	<b>16</b>	<b>12</b>	<b>16</b>	<b>25</b>	<b>15</b>	<b>13</b>	<b>97</b>
<i>Counting/census</i>	5	3	2	2	2	2	16
<i>Ringing</i>	2	3	1	8	2	--	16
<i>Festival/fair</i>	1	--	--	1	4	1	7
<i>Volunteer meeting</i>	4	2	--	5	--	1	12
<i>Excursion/tour/birdwatch</i>	3	2	13	9	2	4	33
<i>Other</i>	1	2	--	--	5	5	13

The procedures for joining the fieldwork differed depending on the context; sometimes organisers or coordinators were contacted to explore opportunities, for some activities fieldworkers simply joined as a visitor or participant themselves. Most activities were free to visit, in some cases a ticket needed to be bought. In terms of informed consent procedures, approaches differed depending on the specific activity and context (e.g. in-person or online). Where possible, organisers or coordinators were informed of the study and the researcher's aims, in other cases brief introductions were made at the start of an activity, and in some cases the researcher took part in an activity as a participant without divulging their role as researcher.

No recordings were made during the fieldwork. Each fieldworker kept notes that they later wrote up into extensive fieldnotes, sometimes supported by photographs (in which case participants' privacy was safeguarded). In addition, each country team completed brief fieldwork templates for each event to summarise the key insights for each of the main themes of the task. The fieldwork notes were not coded like the interview transcripts were, as they are already an interpretation of the researcher rather than 'raw' data like an interview transcript.

The COVID-19 situation in Europe also needed to be taken into account specifically in the case of the fieldwork. In some of the countries, there were periods of time in which opportunities for fieldwork were very limited because of cancellations due to COVID-19. Other periods had limited opportunities

to visit, in line with restrictions or lockdowns. It also meant that some activities that would normally take place in person were visited as online events instead, which affected the way in which researchers could participate and the sort of data they could collect.

## 3.2 Fieldwork Results

### 3.2.1 Birding activities & motivations for joining

In general, across the different types of fieldwork and the different countries, it was notable that participants differed in the degree of centrality of birding in their lives (Hvenegaard, 2002; Scott & Thigpen, 2003); i.e. some participants might be classified as 'hardcore' birders for whom birding is central in their life, others might be more recreational birders, or very occasional birders. Some activities catered to all these groups, others were focused on some of these groups more than others. For example, some large public events are focused on both hardcore and more recreational and occasional birders (like the Festival of the Cranes in Navalvillar de Pelas, Spain), while other big events (like the Dutch Sovon day and Ringing day) focus on the more hardcore community, with strong scientific emphasis in the content of the day. During the Romanian fieldwork, it was noticed that at almost every meeting with the SOR Bucharest branch there was discussion of how to make events easily available to less experience birders, with easily accessible birding trips being organised with the explicit purpose of getting new, less experienced members and sometimes non-members from the general public to take part. The BirdLife Estonia Summer Days are usually a bit of a promotional event: non-members are also welcome.

Of course, these different groups are not clearly distinct and have fuzzy and actively constructed boundaries, as was experienced in the Romanian fieldwork at a migration count, where the 'amateur' birders seemed to have a great amount of experience and expertise. Nevertheless, distinguishing between more occasional and 'hardcore' birders does provide a relevant lens when looking at the fieldwork experiences in terms of the types of participants and their drivers. In addition, while some birding activities are mostly aimed at existing birders (ranging from beginning to experienced) other activities are also aimed at involving the broader public (e.g. Garden Bird Counts, as discussed later on).

For excursions, the most common type of activity in the fieldwork, many participants appreciated them as a learning opportunity, especially at those excursions that were oriented towards beginning birders or the broader public. Participants highlighted the opportunity to learn from the excursion leaders and other knowledgeable birders present. Of course, also for more experienced birders there is plenty to learn during excursions, but approaches may differ in an excursion focused on beginners (e.g. using learning materials for recognising birds, learning how to use binoculars). In addition, people taking part in excursions professed social motivations, with excursions offering a chance to meet and interact with like-minded people (e.g. sharing a passion for birds, or a broader nature or environmental interest). In Romania it was notable that many activities drew families with young children. In some countries participants specifically mentioned that COVID-19 was a factor as well, with birding excursions offering a social activity permissible within the extant legal measures. It should be noted that participation in ringing and counting projects can feature social motivations too, both in person but also mediated through technology (e.g. ringing stations or migration counting spots keeping an eye out for each other's interesting finds). In one of the Swedish fieldwork activities, a monthly excursion around a lake, several participants were active members of a

conservation organisation dedicated to that lake and met there every week, so they had specifically developed a bond with the location of the activity.

For more committed birders specialising in specific types of birding, other motivations may be involved. For 'listers' and/or 'twitchers' seeing new birds for their list might be a motivation to join an excursion, with the fieldwork trip to the Norwegian island of Utsira involving a ritual of twitchers eating a specific chocolate bar upon seeing a new species for their list. For committed photographers, excursions may offer opportunities for unique photographs. In addition, excursions may specifically orient themselves on seeing specific species, for instance charismatic, rare or characteristic species, or huge numbers of a specific species; seeing them may then become a motivation of the participants of the activity (including the excursion leaders). For instance, the birding trips in the Danube Delta in Romania were in a location relatively difficult to get to, but abounding in species that would be hard to see elsewhere. On a Dutch excursion there was discussion of the risk of such an approach, as birds may not always be present or perceptible and there is thus a risk of an excursions turning into a 'failure'.

Several of these motivations may also draw people to join counting events; for instance, migration counts offer opportunities for seeing great numbers of birds. At counts, however, other motivations come in, specifically related to the use of bird counting to understand developments and patterns in their numbers, which can help understand factors in bird occurrence and distribution. For birders involved in counting activities these can thus form an important motivation. In e.g. the Spanish fieldwork this linked up to a form of environmental activism since most of the counts were organized by two local grassroots groups, ADENEX and Swifts in Extremadura, both of which promote bird protection and environmental education. There can also be differences in counting projects depending on how 'scientific' they frame themselves: for example, in the Dutch fieldwork the waterfowl and winter bird censuses were framed as very scientific, but the migration count coordinator was more sceptical of that label, rather describing the migration count as an opportunity to see what flies by on a given day.

Similarly, at EuroBirdWatch, a European initiative for the broader public to visit migration counts, which several fieldworkers did, different types of participants can be distinguished. There can be a difference between the regular migration counters, strongly focused on the count itself, and visiting birders and members of the public more interested in learning about this type of count, seeing interesting birds and the general fun of experiencing something like that. In the Romanian fieldwork in preparation for Eurobirdwatch, some interviewees considered it more scientific while others mostly considered it a form of public engagement and promotion of birdwatching. Several fieldworkers also joined a national version of a Garden Bird Count, which is often a very low-threshold count and as much aimed at public awareness and interest than data collection.

Ringling activities constitute another interesting activity in this regard. In some countries, certain visited ringling activities were open to the public and drew in many interested individuals to see what bird ringling is like and allow children to see the birds up close (e.g. in Estonia and Romania), though other ringling activities there were more oriented towards ringlers and harder to access. In other countries, e.g. Spain and the Netherlands, ringling activities are generally less open to the general public and more focused on the ringling volunteers themselves. For the ringlers, ringling events can be sites of learning from each other and feeling part of a group, and with a strong focus on collecting useful data for understanding bird migration and survival, which can also be used in e.g. advocacy. In terms of learning, ringling in a group can help to train ringlers in techniques, and in countries with volunteer ringling certification it is part of the requirements of the certification process. Since becoming a certified volunteer ringler is a rather high-threshold commitment, the involved volunteers

may have ringing rather central in their life, and e.g. in the Dutch fieldwork ringing itself, as a hobby and passion, repeatedly arose as a motivation for ringing as well. In other countries, ringing is mostly carried out by biologists, while volunteers focus on supporting them through e.g. taking the birds out of the nets and doing data registration.

In terms of other activities, training workshops for counting or ringing projects logically aim to explain the formal and informal rules of taking part. Bird fairs and festival are often sites that draw in a large audience, which offer opportunities for both learning, feeling part of a community and taking part in a nature-oriented leisure activity.

### 3.2.2 Learning

Learning was an important theme during the interviews, but also in the fieldwork activities. We witnessed several examples of learning in different ways. Since most of the visited fieldwork activities were social activities, in many cases this involved ways in which participants learn from each other.

At excursions, and counts open to the public, we encountered abundant examples of how excursions leaders taught participants, including us researchers, about birding. In addition, experienced birders participating in excursions may join in on offering information and instruction and teach each other about the tricks of the trade. Topics of learning at excursions included learning how to identify birds based on appearance, recognising bird sounds, and learning how to use optics such as binoculars and scopes. Another form of learning involves learning how to 'hone the senses', for instance how to be alert to bird sounds, how to distinguish small details about birds' appearance, to distinguish between species that are easily confused, and learning how to use landscape markers (trees, signposts) to have your eyes be directed towards a bird. Excursion leaders and other experienced birders use different techniques to teach this, including explaining it, showing things in a field guide or pointing it out in the field, mimicking movements or flight patterns, or using mnemonics to help remember bird sounds. As one illustration, at the Midwinter water bird census in Romania there was a long back and forth discussion between a more and a less experienced birdwatcher about telling the difference between the Yellow-legged and the Caspian Gull, which neither of them could easily tell apart. They solved this by analysing what they saw, talking out loud, taking pictures, discussing, looking in their online field guide several times, all in a joint effort to learn to differentiate the two gulls.

The opportunity to learn and be encouraged was also mentioned in some interviews as a boon of being part of a birding group. At one of the Swedish excursions, the organising group had the rule that only birds seen or heard by at least two participants were listed, both as a way of strengthening the quality of the count, but also to promote cooperation within the group. During some excursions or counts the topic of care also appeared, with excursion leaders talking about (causes of) declines in certain bird species, making excursions and counts a site of environmental education too.

The approach to learning and teaching can also be different based on the intended audience of the activity, which is where learning and inclusion interact. For instance, the role of optics in birding activities can sometimes depend on the kinds of optics available to participants, if these are not provided by the host. In addition, excursions aimed at beginning birders may pay more attention to explaining how to arrive to an identification, whereas those aimed at more experienced birders may rather just call out species names and directions. During one of the Dutch excursions, a participant added that this can also depend on the personal style of the excursion leader(s) and how sensitive they are to the needs and interests of participants who are not yet very experienced in birding. This

links to the importance of matching with the energy and enthusiasm of the group; at one of the Spanish field trips visited, participating students did not seem to share the excursion leader's enthusiasm, with students spending most of the field trip chatting loudly and checking their phones instead of listening to the teachers' comments on cranes and the surrounding landscape.

Ringling activities also provide a prominent site of learning, which can differ significantly depending on whether activities are aimed at ringling volunteers or open to (or visible for) the general public. For the latter, education can involve inspiring a sense of wonder among visiting kids, as we encountered in the Romanian fieldwork, or explaining the purpose of ringling to concerned passers-by, as in Dutch swan ringling. At the Summer Days ringling events organised by BirdLife Estonia, target groups included both potential ringling volunteers, but also kids who could experience birds up close and help in their own way. For ringling activities focused on ringling volunteers, ringlingers have an opportunity to learn from each other, on topics such as how to come to an identification, how to accurately assess size and weight, how to responsibly handle and ring birds, and how to accurately report the data. In Spain, most ringling events are training events where those willing to be certified train themselves into the ringling skills you need to pass the corresponding exam. Despite this, one of the events visited as part of the Spanish fieldwork took a more festive approach, including a shared meal. In addition, ringling is international and different ringling stations and countries can have different ways to approach the practice, meaning ringling at other stations can be a very educational part of a ringlinger's training. In both counting and ringling events, situations of doubt provide a promising opportunity for learning, as it tends to trigger discussions among birders on how to confirm or rule out possible identifications.

Aside from ringling and counting activities and excursions, also activities like national days, museum exhibitions, fairs and festival are sites of learning in at least two ways. Such days often involve presentations, lectures or stands which allow for learning, though this is a form of learning where the visitor decides themselves what it is they want to learn about and pick topics or sessions they find interesting. In addition, some of these events offer a site of building connections between birders to share knowledge and research ideas; for example, the Dutch Sovon day can lead to birding groups teaming up with statisticians to analyse collected data. However, the COVID-19 situation does affect opportunities for this kind of networking at national days, fairs and festivals.

As a final note on learning, not just birders but also birds can learn from birding activities. For instance, during swan ringling, swans will learn from failed attempts and no longer fall for the tricks ringlingers use to try and capture them, and we encountered a similar phenomenon in terms of birds learning to locate and avoid the mist nets used to catch songbirds. At the Kabli ringling station in Estonia, a bullfinch was caught which was greeted as 'an old friend' after the second recapture, but the long-tailed tits flying in flocks were very cautious and waited for the release of flock members who were captured, constantly tweeting.

### 3.2.3 Diversity and inclusion

The diversity of participants and public at the birding activities differed significantly depending on the country setting and (perhaps more so) the specific activity. In several countries, including Romania and Estonia, activities such as some ringling events and excursions draw families with kids, and some parents with kids were also seen at the Norwegian and Swedish fieldwork; the new observation platform visited in Sweden has 'guiding children' as one of its aims. On the other hand, kids were not very present in the fieldwork in Spain and the Netherlands. In general, some fieldwork activities had

participants of diverse ages, while others drew in a more specific age group; for instance, in Norway the activity oriented at ringing and twitching drew in a group of older men mostly, and a Spanish ringing activity drew a younger crowd of visitors while the experienced ringers were largely 50+. Some of the ringing activities visited in the Netherlands featured a relatively young crowd, though coordinators stressed that this might not reflect the overall ringer's guild.

In terms of gender, the aforementioned pattern of women in birding being underrepresented but on the rise in many countries was also witnessed and explicitly acknowledged at some fieldwork events; at one of the Norwegian events a sense of relief was even expressed over the increasing presence of female birders. Some activities also purposefully offered a platform for prominent female birders (e.g. at one of the Spanish festivals). Excursions specifically seem to draw relatively many women. Then again, this also differs per activity, with a more twitching-oriented activity in Norway drawing a mostly male crowd, and while in Spain visitors to ringing events were quite evenly distributed along gender lines there was a complete absence of female certified ringers. This lack of female ringers also aligned with the Dutch fieldwork.

While ethnicity and language were not mentioned in some country's data, some initiatives towards inclusion were encountered: some of the excursions in Norway drew immigrant participants and people who don't speak Norwegian, with one of the walks organised in both Norwegian and English, and in Sweden the new observation platform was also cited as intending to draw in recent immigrants to Sweden. At other events there were few signs of (at least visible) minority participation (e.g. in the Spanish or Dutch fieldwork) or language diversity. Many events take place in the native language of the country, which complicates participation of those who don't speak the language. During the Romanian fieldwork the researcher twice ended up translating and guiding for some fellow tourists since the guide had to focus on speaking Romanian. In a Dutch ringing event, there was a mention of inclusion in terms of language working the other way around: much literature on ringing is in English, which apparently presents a barrier to some Dutch ringers.

Aside from age, gender and ethnicity / language, other aspects of in- and exclusion were encountered in the fieldwork. In terms of physical accessibility, some of the activities took place in locations that were rather physically demanding to move around in, such as clambering over rocks and fences, which offers a barrier to people with physical frailty or disabilities. Disabilities were not an explicit area of attention in most of the fieldwork, though at one of the Spanish festivals a specific workshop on nest construction for people with cognitive disabilities was organised. Reaching birding locations is another possible barrier: for instance, in the Swedish fieldwork being able to drive a car was practically a necessity for reaching some birding spots, and excursions offer a way to visit such locations since they often involve carpooling.

Another technology that can affect inclusion is optics; some activities visited in the different countries were hard to enjoy without a scope, and while sharing scopes is common it is not ubiquitous. Such equipment is rather expensive, presenting a barrier. Optics quality is also a way to distinguish beginning or occasional birders from the more 'hardcore' or committed birders, and this distinction in experience or centrality also appeared in some of the fieldwork. For instance, at the Romanian EuroBirdwatch which was organised as a birdwatching marathon, the fieldworker's amateur team had an old scope that would have been insufficient to see the distant flamingos. One of the professional teams, which later won the marathon, risked being late to a different location in order to lend their scope to the amateur team to let them see the flamingos. The fieldworker later witnessed two hardcore birdwatchers from the same professional team having a lengthy and complicated discussion about the technical specificities of different binoculars. While in the Estonian fieldwork it was noted that excursion leaders were very patient in guiding inexperienced birders, at

one of the Swedish fieldwork activities inexperienced participants seemed to feel more reluctant to ask questions: they lacked expensive equipment and mostly stayed quiet, while more experienced birders with powerful optics seemed more comfortable with shouting out identifications or uncertainties. This was also linked to the degree to which people are aware of the 'code of conduct' of being at a birding activity.

Finally, while many of these examples highlight dimensions of in- and exclusion, it is also relevant to note that the very action of organising a birding activity may arise from a sense of community driven by a common cause. This was perceived in many of the fieldwork events the Spanish team attended, especially in the case of an urban bird festival independently organized by the local community after discovering that they did not have the townhall's support.

### 3.2.4 Care

During both counting activities / workshops and excursions, it was not uncommon for participants to talk with each other about declines in certain species, or for coordinators or excursion leaders to explicitly bring up this topic. Different countries have different potential causes of decline that received significant attention, including forestry and logging (Estonia, Sweden, Romania), agriculture and insect dieback (Netherlands, Romania, Spain) and predation by mink (Norway). Some fieldworkers noticed a strong connection here between learning and caring about, with knowledge about birds being shared with the aim of stimulating care: recognition as a starting point for care. One example is a birdwatching tour in Romania paying a lot of attention to the role the Danube Delta plays for birds and the whole ecosystem, with the project having the explicit aim to stimulate forms of sustainable tourism. Then again, these aspects of care about did not pop up during all counting activities or excursions; for instance, during some migration counting events the focus was more on making observations than on patterns in migration.

'Birding responsibly' was occasionally encountered during counts and excursions as well, such as a Swedish and an Estonian excursion leader teaching the group how to observe without scaring off birds, or a Dutch excursion leader forbidding the use of sounds to lure birds. The need for having good optics so as not to scare birds off was also a constant topic in Romania. At the Estbirding winter seminar in Estonia, birders reflected on how twitching can be organised in a more responsible way, to mitigate fuel use and bird disturbance. In addition, while the preceding focuses strongly on the cognitive dimension, caring about is also emotional, as encountered e.g. in the Spanish fieldwork, where some activities featured strongly emotional and spiritual connections with birds, including a crane festival tying the bird to the core place identity.

For counting projects, the data collected were also sometimes framed as an action to help birds, with the value of good-quality data stressed. This also informed some reflection at some events on the degree to which certain projects are scientific (as mentioned earlier) or offer useful data; for example, a Romanian birder stressed the importance of also reporting common birds. The data from counts can inform certain actions of care, such as them forming the basis for reports and policy advice or legal proceeding; examples include an interviewee in Estonia surveying raptor nests to prevent logging, and a Dutch waterfowl volunteer pursuing legal action against local governments and developers. Other actions of care also could be found, including restoring a deciduous forest to return certain species of birds to the area, the installation of nesting boxes and feeding stations in excursion areas (Sweden) and campaigning for swift conservation in urban areas (Spain). At one of

the excursions in Norway, participants were given suggestions for how to help make habitats more suitable for birds.

Ringling is also an activity that is rather data-driven, with interviewees in several countries highlighting the importance of the data derived from ringling for understanding patterns in migration and survival of different birds. At the ringling course organized by ADENEX in Spain, participants demonstrated a clear concern for the environment, not only regarding birds but also other animals and plants, and data collected through these ringling activities is used for the study and protection of endangered species. We also found examples of ringers actively using their data for advocacy, such as the Dutch swan ringers and their lobbying against provincial permits for shooting swans. Furthermore, we encountered many ways in which ringers took great care in handling birds, both while measuring and ringling them and while removing them from the nets or nests. However, in several countries we were also confronted with the 'shadow side' of ringling, both in general considering the stress it puts on birds, or the sight of dozens of birds collected into bags, or instances of birds in the nets being eaten (Romania) or dying from stress (Netherlands). These occurrences did not leave the ringers unmoved, though clashes between emotional and scientific logics were also encountered.

## Part IV: Conclusions

### 4.1 Summarizing the main results

We start the conclusion section with a brief recapitulation of the main findings. The preceding results section offers a much more extensive explanation of these results, richly illustrated by quotations.

The role of nature and birds is highly prominent in the childhood of the interviewees, through different routes (or combinations hereof). Some interviewees describe an innate interest in bird and/or wider nature, others spent so much time in nature that their interest in it gradually grew, and plenty of interviewees had mentors or other inspirational individuals who nurtured and supported their growing interest. Regardless of how birds and nature become important to them, this early importance forms the foundation for a love for and connectedness with nature in later life. Although the birders we spoke with were often also interested and invested in other species and nature in general, they have a special interest in birds. They attribute this special interest to the specific charisma of birds, their approachability even in human localities, and number of diverse species (for instance as opposed to amphibians). Their growing attentiveness to birds leads several birders to an increasing focus and ability to perceive and notice nature, birdlife and bird behaviour, leading to moments of experiencing a 'world opening up', reinforcing their love and interest in nature.

For most birders, their connectedness with nature goes hand in hand with a more ecocentric view on the human-nature relationship. An instrumental view of nature, as a purely functional resource for humans, is clearly rejected and a more reciprocal relationship is preferred. According to this ecocentric view, humans are part of nature, and respect and protect it. This conviction makes their care and action for nature meaningful for them.

In terms of motivations to bird, we find two main motivations overwhelmingly present in all interviews and fieldwork, independent of the specific country. First, it is the desire to learn about birds and nature. This learning enhances their understanding of birdlife and reinforces their connection with birds. Second, they are motivated to contribute to nature protection, either via activism or by sharing observations and data.

Learning appears to be not only a driving force to start birding but also a treasured outcome. The variety of ways in which learning occurs in their birding activities becomes a continuous process, a positive feedback loop. By learning more, your world opens up, which means you notice more. In turn this increased noticing leads you to feel more wonder, love and connectedness, motivating you to learn even more. In this way, learning also reinforces the motivation to bird. Many birders also participate in activities organized by birding groups, which offer a setting for collective learning.

Technology, in a broad sense, can play a stimulating role in this learning process. Several people notice how binoculars and scopes lead to moments of the 'world opening up', and different digital platforms also provide birders with additional learning opportunities. At the same time, the emphasis platforms place on the importance of collecting data, and the knowledge needed to provide reliable data, can have a downside. When birding is carried out with the aim of recording observations on a platform, it can cause uncertainty and doubt about observations. This uncertainty can form a barrier to enjoying birding and being in nature in a relaxing way. Moreover, many birders experience the use of mobile phones during birding as a disturbing factor and decide to enter their data and engage with a platform afterwards, at home. Traditional field guides are therefore still considered indispensable.

A starting point of our theoretical approach to the fieldwork was to understand the role that relational values play in birding. Previous research has highlighted how relational values are crucial drivers of conservation action (Chan et al., 2016; Knippenberg et al., 2018). In line with this earlier work, relational values were abundant all across our interviews and fieldwork with birders. These include the importance of love for birds, connectedness with birds, nature and landscape, as well as the omnipresence of learning about birds and nature in birders' stories. Furthermore, relational values in the form of care and stewardship were shown to be influential factors in directing actions for birds and nature, with local efforts to protect birds also linking to Jørgensen and Jørgensen's (2021) 'situatedness' route of how citizen science inspires environmental citizenship. There is an overwhelming energy present amongst these birders to care for nature, resulting in actions such as education, activism and environmental behaviour.

As many actions taken for birds are channelled and reinforced via birding groups, it is relevant to look at how these groups operate in terms of providing a welcoming atmosphere for birders with different profiles and backgrounds. Our research shows that this dimension has received increasing attention and clearly changed for the better over recent years. One prominent example is the increasing number of female birders present and active in birding groups. In many countries with a birding tradition it has been a male-centred activity for quite some time, and signs of change were discussed readily by our interviewees. At the same time, diversity and inclusion remain a point of attention, not just in terms of gender but also in regard to engaging young people and in terms of minority group participation (e.g. ethnoracial diversity).

## 4.2 Main conclusion

### 4.2.1 Love and learning as main drivers to care for birds

An important finding in our material is the interrelation between the love for birds and love for nature. For many birders, watching birds makes them aware of the importance and beauty of nature. For others, their love for birds is part of a broader passion for nature. This strengthens one of their primary motivations, namely **contributing to the protection** of birds and nature. Before anything else, it seems to be birders' **love for birds and nature**, more than their concerns about nature, that inspire their **care** for birds and turns it into **action**. This whole process is reinforced by the second key motivation, namely **learning**. Their curiosity and interest in birds and nature lead to a continuous drive to learn more. The amazing drive to learn and curiosity of birdwatchers signifies a willingness to open themselves up to other-than-human "practices of meaning and place-making" (Van Dooren, 2014, p. 137) and is what ultimately can lead to caring about and for birds. As birdwatchers pursue their passion, their caring becomes open "to the unsettling obligation of curiosity, which requires knowing more at the end of the day than at the beginning" (Haraway, 2008, p. 36). This learning often leads to '**a world opening up**', which leads to more 'noticing' (Abram, 2012) and more love. Ultimately, this becomes a positive feedback loop, in which the motivations of learning and protection are reinforced. This leads them to care for nature in a way that fits their lives and capacities. Some become active in sharing love and knowledge with others, some start feeding birds fanatically. Others want to share their data and contribute to scientific projects or become active in bird protection projects themselves. As such, we can observe that participating in citizen science in the form of bird counting or bird ringing can be a pathway to environmental citizenship.

In terms of the tools used by birders, technology can strengthen the learning feedback loop in at least two ways. Firstly, birders credit binoculars and scopes with playing an essential role in causing this process of a 'world opening up', granting an opportunity to notice birds in entirely new ways that enhance their learning process. Secondly, most birders use online platforms such as eBird, Artportalen and Waarneming.nl for diverse reasons, which can reinforce their learning process. Birders not only enter data themselves but also use the platforms to check observations reported by others, using that information to try and see a particular bird at a particular place. In a similar manner, checking others' observations can be a way to discover new promising birding spots.

#### 4.2.2 Citizen science as a pathway to environmental citizenship

A valid question is whether participating in ornithological citizen science indeed strengthens environmental citizenship, or whether people start birding because of existing engagement in different forms of environmental citizenship. Our research shows that a broader love for and connectedness with nature, often rooted in childhood, is a powerful influence to start birding. In turn, birding strengthens this love for and connectedness with birds and nature, which for most leads to gradually developing a broader environmental citizenship over time. This broadening environmental citizenship results in actions of care to protect birds, and educational activities to share knowledge about and love for birds. Ultimately, these are intended to improve respect for and protection of birds in the present and future.

Another question raised by this conclusion is why care for birds and nature seems to be much more strongly driven by love and learning than by concerns about birds and nature. As explained before, many birders put the decline of birds into perspective by stressing that while some bird populations decline, they also see the arrival of new species. Many seem to wish to avoid focusing too much on these kinds of concerns, stating variations of 'it's supposed to be fun' and voicing how focusing only on the negative could get demotivating or preachy. Cultural differences appear to also play a role herein, as interviewees in Estonia and Spain seemed to express emotions of eco-grief more readily than in the Netherlands, for instance. In addition, partly this may be influenced by the degree to which emotions can be put into words. Care about nature and related concerns are present for the majority of the birders, yet some acknowledge that they lack the words to describe these emotions, also stating that it is not a common topic for birders to discuss. At the same time, we do notice a lot of critical reflection and dissatisfaction when we talked about the human influence on nature and the underlying human-nature relationships. This indicates that birders do worry about how human behaviour and issues like climate change and deforestation negatively affect nature and birds. The group of birders who do express a strong level of caring about nature experience grave concern, sometimes accompanied by inner suffering and eco-grief. These birders feel they cannot ignore this form of caring anymore, at which point it can start to dominate their birding activities and their relations with fellow birders and other people. We could hypothesize that this is a reason why many birders take a more 'positive route' towards environmental citizenship and action for nature via love for birds and their drive to learn about birds and nature, instead of the more 'negative and heavy route' and get absorbed by worries, concerns and emotions concerning loss (Goodall et al., 2021; Mauch, 2019).

How birding stimulates environmental citizenship is affected by the social dimensions of being a birder. It is important to reflect on how inclusive the world of birding is to optimize the potential of birding as a pathway to environmental citizenship. In our research we encountered a world that appears to be changing rather rapidly. In many countries, interviewees talk about how birding

appears to be slowly shedding its reputation as a 'niche' or 'nerdy' pastime. Efforts are made by birding organisations to address the high thresholds that can be experienced when entering the world of birding. Interviewees mention a more welcoming atmosphere towards starting birders, while low-threshold projects like garden bird counts entail a wider definition of what counts as 'birding'. The rise of the female birder is mentioned in many countries, linked to these increasing efforts to address exclusion. Efforts to motivate and engage children and youngsters are abundant, e.g. through environmental education, with the hope that participants will go on in their life to have the same love for and connectedness with nature.

At the same time, our interviewees signal some concerning developments. Despite the aforementioned efforts to motivate and engage children and youngsters, in several of the participating countries we encounter plenty of concern about a lack of younger birders, and especially younger members of birding groups. In some countries, younger birders might be very active but are seen as uninterested in membership or becoming active in birding groups, which raises concerns about the continuity of these groups. Considering the positive role that birding groups can play in stimulating and reinforcing learning, caring about, and love for birds, the future of the social world of birding is an important point of attention. Jørgensen and Jørgensen (2021) also point to the importance of 'collectiveness' as a route to reinforcing responsibility and care. The social world of birding is thus essential in creating more possibilities for ornithological citizen science to strengthen environmental citizenship.

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## Appendix 1

Table A1: Detailed overview of interviewees. For gender, F = female and M = male. For 'life' the column indicates if this person mostly grew up and lives in an urban or rural environment; arrow indicates that this differed between place of growing up and current place of living.

	Age	Gender	Life	Occupation
<b>Estonia</b>				
E1	30s	Female	Urban → Rural	Engineer
E2	30s	Female	Rural → Urban	Nurse/PhD student
E3	30s	Male	Urban	Nature guide
E4	60s	Male	Rural	Music entrepreneur
E5	40s	Female	Urban	Species protection specialist
E6	40s	Male	Rural → Urban	Head of logistics
E7	80s	Female	Rural	Teacher (retired)
E8	20s	Male	Urban	Student (BSc level)
E9	40s	Male	Urban	IT specialist
E10	30s	Male	Urban → Rural	Conservation specialist
E11	50s	Female	Urban	Designer
E12	30s & 30s	Female & Male	Urban	Student; Woodworker
E13	30s	Male	Urban → Rural	Ornithologist
E14	60s	Female	Rural → Urban	Teacher
E15	20s	Female	Rural → Urban	Student (MSc level)
<b>Netherlands</b>				
NL01	60s	Male	Rural	Retired
NL02	50s	Female	Rural → Urban	Medical science
NL03	40s	Female	Urban	Teacher (maths)
NL04	20s	Female	--	Paraveterinary
NL05	40s	Male	Urban	Teacher (arts)
NL06	50s	Male	Urban	Optics shop

NL07	20s	Female	Urban	Student (hospitality)
NL08	50s	Female	Urban	--
NL09	60s	Male	Urban → Rural	Retired
NL10	50s	Male	Rural	Nature organisation
NL11	60s	Male	Rural	Retired
NL12	20s	Male	Rural	Ecologist
NL13	50s	Female	Urban	Teacher
NL14	20s	Male	--	Teacher (biology)
NL15	20s	Male	Rural	Ecologist
NL16	40s	Male	Urban	Civil servant
<b>Norway</b>				
NO1	40s	Female	Rural	Private business
NO2	40s	Female	Urban	Radiologist
NO3	40s	Female	Rural	Kindergarten Teacher/ Social worker
NO4	50s	Female	Urban	Child & Youth Worker
NO5	60s	Female	Urban	Retiree
NO6	60s	Female	Urban	Chemist (PhD)
NO7	20s	Male	Urban	County Biodiversity Officer
NO8	20s	Male	Rural	Veterinary Student
NO9	50s	Male	Rural	Nurse
NO10	50s	Male	Rural	Theologist/ Teacher
NO11	60s	Male	Urban	Retiree/ Petroleum Engineer
NO12	70s	Male	Urban	Retiree/ Teacher/ Petroleum administration
NO13	70s	Male	Urban	Retiree / Journalist
NO14	70s	Male	Rural	Retiree/ Teacher/ public administration
NO15	60s	Male	Urban	Retiree/ Educator
<b>Romania</b>				

RO01	30s & 30s	Male & Female	Both Urban	Software engineer; Project manager at an NGO
RO02	30s	Female	Urban	Cultural event organiser
RO03	30s	Male	Urban	Herpetologist
RO04	50s	Male	Urban	Software engineer
RO05	40s	Female	Rural → Urban	Translator and editor
RO06	18	Male	Urban	High-school student
RO07	40s	Female	Urban	Microbiologist
RO08	30s	Male	Urban	Molecular geneticist
RO09	30s	Female	Urban	Ornithologist, founder of a birding association
RO10	60s	Male	Urban → Rural	Pensioner veterinarian, Ornithologist, founder of a birding association
RO11	30s	Male	Urban	Ornithologist at a birding association
RO12	50s	Male	Rural	Ornithologist at a birding association former professor of biology
RO13	40s	Male	Urban	Ornithologist, founder of a birding association
RO14	30s	Female	Rural → Urban	Geography teacher at elementary school level
RO15	50s	Male	Urban	Team manager at a multinational company
RO16	50s	Male	Rural	Owner of a small construction company
RO17	40s	Female	Rural → Urban	Communication manager at a birding association
<b>Sweden</b>				
SWE1	60s	Female	Urban	Retiree/Economist
SWE2	40s	Male	Rural → Urban	Teacher
SWE3	60s	Male	Rural	Retiree/office worker
SWE4	40s	Male	Rural → Urban	Social worker
SWE5	60s	Male	Rural	Retiree/civil engineer
SWE6	20s	Male	Urban	Student in biology

SWE7	50s	Female	Rural	Seller/consultant at an IT-company
SWE8	30s	Female	Rural → Urban	Nature educator/Forester
SWE9	30s	Female	Urban	Animal welfare officer/biologist
SWE10	20s	Male	Urban	Biology student
SWE11	60s	Male	Rural	Handyman
<b>Spain</b>				
SP1	50s	Male	Urban	Veterinarian
SP2	50s	Female	Rural → Both	University professor
SP3	40s	Female	Rural → Both	Tourism manager
SP4	50s	Male	Rural	Bird guide leader
SP5	30s	Male	Rural	Wildlife keeper
SP6	30s	Female	Urban	Tourist guide
SP7	50s	Male	Rural → Urban	University professor
SP8	40s	Female	Urban → Rural	Wildlife keeper
SP9	50s	Male	Urban	SEO Birdlife rep
SP10	50s	Male	Urban	Wildlife broadcaster, nature writer, bird guide leader, speaker and urban wildlife educationalist
SP11	60s	Female	Urban → Rural	Bird guide leader
SP12	50s	Male	Rural	Retired army veteran
SP13	40s	Female	Rural → Urban	Field ornithologist
SP14	50s	Male	Urban	Nurse
SP15	70s	Male	Urban → Rural	Environmental activist, nature writer, ornithologist, and television and radio broadcaster
SP16	50s	Female	Rural	High school teacher
SP17	60s	Female	Rural	High school teacher