Evidence use in conservation practice

Using interviews to understand the opinions of conservation practitioners on the use, availability, and diversity of evidence in conservation practice

Raf Jansen

Stockholm Resilience Centre

MSc in Social-ecological resilience for sustainable development

Word count: 7048
Acknowledgments

First off, I would like to thank my main supervisor, Tilman Hertz, who offered nothing but good advice and was always very supportive of me during the whole thesis, especially during those difficult last days. I’d like to thank Vanessa Masterson, my co-supervisor, who initially pitched this interesting topic to me and gave some great advice for my final thesis drafts. And I’d like to thank Simon West, my last co-supervisor, who really helped me flesh out the methods and questionnaire, and gave helpful commentary on the text drafts.

My thanks to Shauna Mahajan, Gabriella Church, and Hannah Becker, contacts from the respective NGOs who helped me recruit participants for my study, really got me on track with the topic in the first months and proposed this research topic. I thank Laura Pereira for her helpful comments on my ethics review.

And finally, a big thank you to my family, who were always there to support me and cheer me on for this challenge.
**Contents**

Abstract ................................................................................................................................. 4

Introduction ............................................................................................................................. 5

1.1. A lack of scientific evidence use .................................................................................... 6
1.2. Alternative evidence types ............................................................................................. 7
1.3. Gaps in research ............................................................................................................. 9

Methods .................................................................................................................................. 10

2.1. Study design .................................................................................................................... 10
2.2 Study process .................................................................................................................. 12
2.3. Reflections ...................................................................................................................... 13

Results .................................................................................................................................... 15

3.1. The nature of evidence .................................................................................................. 15
3.2. Scientific knowledge ...................................................................................................... 15
3.3. Local ecological knowledge .......................................................................................... 18

Discussion ................................................................................................................................ 20

Diversity of evidence use ...................................................................................................... 20
The use of peer-reviewed knowledge ................................................................................... 21
Locally sourced knowledge .................................................................................................... 22

Conclusion .................................................................................................................................. 24

Literature cited ........................................................................................................................ 26

Appendix A: Ethics review .................................................................................................... 31
Appendix B: Collaboration Agreement .................................................................................... 54
Appendix C: Plain Language Statement ................................................................................ 56
Appendix D: Consent Form ..................................................................................................... 59
Appendix E: Non-disclosure agreement ................................................................................... 61
Appendix F: Questionnaire ..................................................................................................... 65
Abstract

There has been a discussion in the last decades about a perceived lack of scientific evidence use in conservation practice, affecting its legitimacy and efficiency. Some researchers argue that peer-reviewed science is rarely used in conservation practice. Others argue that more engagement with different evidence types is needed to make informed decisions, especially local ecological knowledge (LEK). However, little is known about the types of evidence that conservation practitioners use in their decision-making, nor what they think about their usability and accessibility. This study uses a grounded theory approach to explore this issue by conducting semi-structured interviews with eight NGO practitioners engaged in community-based conservation, asking questions about what they consider evidence and how they engage with different types of knowledge. The results show that conservation practitioners engage with a wide range of evidence types, such as peer-reviewed science, LEK but also expert opinion, grey literature, and NGO-generated data. The popularity of expert opinion and LEK suggests that locally sourced knowledge, regardless of whether it is peer-reviewed science, LEK or another knowledge type, is especially valued by practitioners. Participants value peer-reviewed evidence but criticize its availability and accessibility, mainly focusing on a lack of relevant research, paywalled content, and use of inaccessible language by scientists. Some practitioners working in developed areas do not feel the need to engage more with science, suggesting that a degree of “evidence saturation” is happening in developed countries. All participants value LEK, many considering it at least equally important to scientific knowledge, and want it to be more valued and respected in conservation practice. These results suggest that practitioners use a wide range of evidence types which should be held into account by academics and NGOs who wish to improve conservation outcomes. NGOs could equip their practitioners with more tools to engage with this variety of evidence types, and promote the generation of locally sourced knowledge. More research is needed to understand how and how often practitioners engage with evidence.
Introduction

Human activity is degrading the biosphere at an accelerating rate, and urgent action is needed to ensure it continues to function for future generations (IPBES 2019). As a result, conservation science has often been called a “crisis discipline” since it exists to support important decisions in a limited timeframe and with inadequate information (Soulé 1985, Iacona et al. 2017). In recent decades, scientists have voiced their concerns that conservation decisions are often not grounded in scientific evidence, which they define as knowledge derived from peer-reviewed journals (conservation science) (Pullin and Knight 2001, Pullin et al. 2004, Sutherland et al. 2004, Sutherland and Wordley 2017, Pullin et al. 2020). According to these authors, striving for more (peer-reviewed) evidence-based decision-making in conservation should lead to a higher quality of decisions and improve outcomes in conservation projects.

Conservation practitioners, defined as decision-makers whose main occupation is not research but the implementation of conservation actions to protect and manage natural resources, are reported to rarely use scientific literature to inform their decisions and instead rely on other forms of knowledge such as previous work experience, opinions from colleagues and non-peer-reviewed sources (Pullin et al. 2004, Cvitanovic et al. 2014, Sutherland and Wordley 2017). A number of scholars argue that more engagement with scientific evidence will lead to more effective and efficient conservation practices, calling for an evidence-based approach to conservation (Pullin et al. 2004, Cook et al. 2010, Cvitanovic et al. 2014, Matzek et al. 2014, Walsh et al. 2015). This is based on earlier success in the implementation of evidence-based medicine, a movement in the 1990s that aimed to ensure that medicine practice used the best available scientific evidence in patient care (Sackett and Rosenberg 1995, Sackett et al. 1996). A few years after its start, articles such as Pullin and Knight (2001) and Sutherland et al. (2004) started calling for a similar movement in conservation practice, citing the effectiveness of evidence-based medicine.

Others questioned this approach, discussing the validity of different evidence types (Adams and Sandbrook 2013, Bennett 2016, Salafsky et al. 2019), while others push for the acceptance of other evidence types (Malmer et al. 2020, Adams and Sandbrook 2013, Tengö et al. 2014, Tengö et al. 2017). Adams and Sandbrook (2013) argue that a wide range of evidence types should be considered to give space to information coming outside of academia, which is sidelined in the discourse. They also question the supposed neutrality of evidence in policymaking, proposing a change in terminology from evidence-based to evidence-informed...
decision-making. These debates show that the understanding of evidence and its importance to decision-making is contested. For this reason, I did not adopt a particular definition of evidence for this study.

It is important that conservation decisions are taken with the best possible knowledge and evidence that is available to maximize efficiency, especially since funding for conservation initiatives is widely reported to be inadequate to stop biodiversity decline (Waldron et al. 2013, Watson et al. 2014), which was exacerbated by the COVID-19 pandemic (McCleery et al. 2020). For that to be done, however, we need to better understand what evidence and how evidence is used in conservation practice. There has been little research on the opinions of conservation practitioners themselves on this issue (Tanner et al. 2020) while they are ultimately the ones who decide what types of evidence they use and how they engage with it. This study aims to better understand the opinions of conservation practitioners on the use of evidence in conservation. More specifically, the research questions are: What do practitioners consider as “evidence” for making decisions? How do they engage with these evidence types? What could NGOs do to help practitioners make better decisions?

1.1. A lack of scientific evidence use

Proponents of evidence-based conservation argue that there are multiple causes for why scientific evidence isn’t frequently used by conservation practitioners. One reason is the lack of transfer of scientific knowledge between scientists and practitioners, often called the “knowledge-action” or “evidence-implementation” gap (Walsh et al. 2019). This issue hurts the legitimacy of conservation science, as it creates the perception that funds invested into it rarely lead to actual change and also limits its effectiveness, as conservation practice does not always follow the latest scientific evidence on a given topic (Knight et al. 2008).

This perceived gap has multiple causes: scientists are not incentivized or do not have the time nor skills to ensure that their work is picked up by practitioners (Matzek et al. 2014); scientific research is not often relevant to practitioners or is impractical to apply (Braunisch et al. 2012, Laurance et al. 2012, Rose et al. 2018, Roche et al. 2021); it is difficult to find relevant information in the vast body of scientific knowledge (Pullin et al. 2020); knowledge is unavailable to practitioners due to paywalls (Roche et al. 2021); practitioners have poor scientific literacy or insufficient expertise (Sunderland et al. 2009); practitioners are not incentivized to report back on the outcomes of specific conservation measures, preventing
evaluation of their merit (McIntosh et al. 2018, Pressey et al. 2021); scientific research is disproportionately biased towards certain taxa and geographic regions (Christie et al. 2021), practitioners lack the time to engage with peer-reviewed science (Curzon and Kontoleon, 2016). While there has been noticeable progress in the accessibility of scientific research in recent years, the gap continues to hinder progress towards an evidence-based approach (Sutherland and Wordley 2017, Pullin et al. 2020). There have been efforts to create open-access tools and databases for practitioners, providing summaries of relevant research on specific conservation interventions. Two examples are conservationevidence.com and environmentalevidence.org, databases designed to offer an accessible platform for syntheses of scientific peer-reviewed studies (Haddaway and Pullin 2013, Sutherland et al. 2019). The conservationevidence database has been shown to change practitioners’ opinions on the effectiveness of specific management techniques (Walsh et al. 2015). However, these initiatives offer no solutions to the issue of taxonomical and geographical bias in conservation research (Christie et al. 2021).

Another perceived issue is so-called “evidence complacency”, where relevant scientific knowledge is not being sought out or is insufficiently valued by practitioners (Sutherland and Wordley 2017). A study that disseminated questionnaires to practitioners in the humanitarian aid sector found that they think of their decisions as, on average, high-quality, whether or not they engaged with scientific literature (Campbell 2020), suggesting that they did not feel the need to engage more with it. A majority of surveyed California conservation practitioners from a wide range of organizations involved in decision-making on invasive plant management did not consult peer-reviewed journals, judging them to be largely irrelevant to their work (Matzek 2014).

1.2. Alternative evidence types

Other scientists object to the perceived superiority of scientific evidence over different knowledge types, discussing what can be considered evidence (Salafsky et al. 2019; Adams and Sandbrook 2013; Bennett 2016). Salafsky et al. (2019) define evidence as “relevant information used to assess one or more hypotheses related to a question of interest.” They acknowledge that there are multiple sources of evidence: basic data, primary studies, evidence syntheses/decision support systems and theory/principles. Conservation practitioners work in complex situations where there might be little knowledge derived from case studies or
controlled trials and, as such, not many relevant primary studies (Bennett 2016, Mayne et al. 2018). Bennett (2016) defines evidence as “any information that can be used to come to a conclusion and support a judgment or to make decisions that will improve conservation policies, actions, and outcomes [...]”. He argues that positive perceptions, i.e. the manner in which local inhabitants perceive conservation initiatives, should be considered as evidence, as they enable local inhabitants’ support and are a critical factor for long-term conservation success. Adams and Sandbrook (2013) took issue with the term ‘evidence-based’, proposing to promote ‘evidence-informed’ decision-making instead since it is a complex, political process that is never truly neutral and purely based on evidence. Policymaking can, at best, be evidence-informed if the evidence is appropriately communicated (Mayne et al. 2018).

One particular source of knowledge that has received increasing attention in the last decades is local ecological knowledge (LEK) (Berkes et al. 2000, Aswani et al. 2018). LEK, also known as traditional ecological knowledge, local knowledge or indigenous knowledge, is defined as “understandings, beliefs, and practices that human societies develop longitudinally in relationship with their natural environment, and which are dynamic and co-evolving with social and ecological changes” (Aswani et al. 2018). LEK has proven to contribute to conservation projects in a number of case studies, offering complementary knowledge about ecosystem functioning and providing efficient and cost-effective methods to measure biodiversity (Silvano and Valbo-Jørgensen 2008, Anadón et al. 2009, Joa et al. 2018). Taking LEK into account and properly attributing its use can also be considered “just”: conservation science and practice are increasingly aware of the need to not only protect or restore nature but also strive for the rights of the local population and social justice (Martin et al. 2013, Shoreman-Ouimet and Kopnina 2015, Martin et al. 2016). IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services) has recognized that there is a need to engage with diverse sources of knowledge and respect the rights of the local populace (IPBES 2019; Malmer et al. 2020). Supporters of this stance argue that collaborative approaches to conservation must recognize the knowledge, claims, and rights of the local population, as doing so is not only a moral obligation but also increases the efficiency of conservation initiatives (Pascual et al. 2014, Brondizio and Le Tourneau 2016). This change in conservation science has not been without conflict regarding the balance between local’s rights and conservation goals (Sterling et al. 2017). Many argue for further integration of LEK in conservation decision-making (Tengö et al. 2017; Adams and Sandbrook 2013; Tengö et al. 2014; Malmer et al. 2020). One proposed approach is to adopt a multiple evidence base approach, combining scientific and
local/indigenous knowledge with an emphasis on complementarity and equal validity between knowledge systems (Malmer et al. 2020; Tengö et al. 2014).

1.3. Gaps in research

In general, the perspective of conservation practitioners is inadequately reported on (Tanner et al. 2020; Mahajan, personal communication). Studies that investigate their point of view do not engage in qualitative research but are restricted to quantitative methods like surveys (Cook et al. 2010; Cvitanovic et al. 2014; Matzek et al. 2014; Pullin et al. 2004; Rose et al. 2018; Sutherland et al. 2004). Studies that did interview practitioners focused mainly on the policy-science interaction and did not ask how they engaged with it or how they perceived its relative value compared to other types of evidence (Rose et al. 2018, Walsh et al. 2019). Only asking set questions without allowing participants to steer the conversation risks ignoring issues that researchers did not think of themselves (Seidman 2006). Little is known about the types of evidence practitioners consider or how they engage with it (Tanner et al. 2020). These questions need to be answered to guide effective action for improving evidence use.

Understanding practitioners’ viewpoints are of particular importance to conservation NGOs, who are facing increased pressure from donors and academia to engage in evidence-based or evidence-informed decision-making (Conservation Measures Partnership 2020, Tanner et al. 2020) (Mahajan, personal communication). Likewise, government conservation departments face similar pressures to be “accountable” and evidence-based as part of a wider push towards the use of results-based governance models (Sutherland et al. 2004, Putansu 2020).

Because of this research gap, two major NGOs reached out to the Stockholm Resilience Centre, resulting in this study. They were interested in learning what types of evidence their practitioners used for making decisions and how their international support teams could help the local branches with making informed decisions. They hoped to provide more efficient aid, given their strained resources to help but also facilitate donor organizations who put a lot of value on actionable conservation, requiring NGOs to prove that the provided funds lead to measurable change.
Methods

2.1. Study design

This study focused on community-based NGO conservation projects - an approach that looks to incorporate the views and goals of local inhabitants when deciding on conservation measures (Brooks et al. 2013). The types of decisions and the evidence used vary widely based on the operational level they are taken on, be it field, program or strategic (Tanner et al. 2020). This study sought to interview practitioners working across these operational levels to obtain a diversity of perspectives. Semi-structured interviews were conducted with practitioners working for NGOs, asking questions about the decision-making process and how they perceive the evidence issue (See
Appendix F: Questionnaire).

To allow practitioners to shape the narrative, their opinions on the use of evidence and scientific knowledge were explored using grounded theory, which seeks to inductively develop a theory from a body of data (Glaser and Strauss 1999, Corbin and Strauss 2014). Scoping interviews allow the researcher to get acquainted with the participants’ work. By asking open-ended questions, participants are encouraged to answer at length on issues they think are important. Interviews are coded and re-coded when new categories emerged and data collection aims to continue until theoretical saturation is reached. Recurring themes in the interviews that surface during the coding process are crafted into a narrative. After drafting the narrative, the results are compared to the available literature.

Community-based conservation practitioners were recruited from two conservation NGOs, herein referred to as Org A and Org B, over 2021-2022. This was done with the help of two employees from said organizations who used purposive sampling and the snowball method to reach practitioners, specifically appealing to those who considered themselves decision-makers. Participants from all over the world and occupying different positions in projects were considered to capture different issues encountered between geographical regions and job positions. This was augmented with convenience sampling, looking up community-based conservation projects on the websites of both organizations, and contacting the representatives of these projects. Before interviews took place, participants were asked to fill in a short survey and enter a number of personal details, as well as their job title and place of work.

Understanding the context in which decisions are made is an important first step to comprehending the decision-making process (Tanner et al. 2020) so I started with unstructured scoping interviews to better understand the context in which practitioners work, as well as their opinion on the general topic of evidence use. After introductions, participants were invited to talk about their job description and describe a typical workday. After that, they were encouraged to steer the conversation, allowing me to understand their values and their motivations for conservation. I emphasized co-production and encouraged participants to bring up issues or themes unknown to me, so they could be incorporated into the next round of interviews. Then, the interviews concluded with an invitation to the next round. The participant controlled how long each interview took, ranging between 20-60 minutes. Within two weeks, this was followed up by a 60-min long semi-structured interview where all participants were
asked the same set of questions, focusing on their opinion on the evidence issue and the main barriers that they encountered to using certain types of evidence during their work.

The majority of the interviews were transcribed by me; three were outsourced to a SU-certified company (Accent Sweden AB, see Appendix E: Non-disclosure agreement). The transcripts were coded using MAXQDA 2020 (VERBI Software 2019) to identify common themes and narratives from the interviews, following the grounded theory framework. First, open coding was used to create a set of content-based codes that meaningfully summarize parts of the text. This was followed by axial coding wherein codes were re-examined, merged, and grouped together under relevant categories. Finally, using selective coding, core categories were selected and used to create a new grounded theory, which was then discussed and compared to existing literature.

Participants were pseudonymized to ensure their privacy and to allow them to answer without fear of repercussions from employers or colleagues. The main organizations that we recruited from were also pseudonymized, so as to not appear to level specific accusations against any of them. The explicit consent of participants has been sought again if they were to be quoted in any publication. This research was approved by the Stockholm University ethics committee. To contribute to closing the knowledge-action gap, I committed to writing a summary of the conclusions for the practitioners and the NGOs they work for.

2.2 Study process

12 community-based practitioners responded to a call for volunteers. Out of this group, 10 people completed the first interview and 8 people (three men, five women) completed both the first and second interviews. The participants’ ages ranged from 26 to 59, with varying levels of previous experience in conservation work and educational backgrounds (Table 1). All of them worked at the project level, with some carrying out fieldwork while others were in managerial positions. Participants worked in Canada, Pakistan, French Guiana, Portugal, Greece, Scotland, and Kyrgyzstan (Figure 1). Six participants were employed by org A and two by org B.

Table 1: list of participants who completed both interviews, with information on gender, education, self-described job description, years of experience in working for conservation NGOs, and current place of work.
<table>
<thead>
<tr>
<th>Name</th>
<th>Gender</th>
<th>Degree/Field</th>
<th>Position/Role</th>
<th>Years</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daniel</td>
<td>M</td>
<td>BA, social sciences</td>
<td>Senior Specialist, Marine Ecosystems and Government Engagement</td>
<td>2-5 years</td>
<td>Canada</td>
</tr>
<tr>
<td>Kathy</td>
<td>F</td>
<td>MSc, rural development</td>
<td>Community-led Conservation Support</td>
<td>5-10 years</td>
<td>Scotland</td>
</tr>
<tr>
<td>Anna</td>
<td>F</td>
<td>Msc, veterinary sciences</td>
<td>Oceans projects manager</td>
<td>Less than 1 year</td>
<td>France</td>
</tr>
<tr>
<td>Maria</td>
<td>F</td>
<td>MSc, environment. sciences</td>
<td>Data Analyst and Research Associate</td>
<td>1-2 years</td>
<td>Pakistan</td>
</tr>
<tr>
<td>Olof</td>
<td>M</td>
<td>MSc, forestry management</td>
<td>Central Asia Ecologist</td>
<td>2-5 years</td>
<td>Kyrgyzstan</td>
</tr>
<tr>
<td>Adele</td>
<td>F</td>
<td>MSc, environment. sciences</td>
<td>Wildlife Conservation Manager</td>
<td>10-20 years</td>
<td>Pakistan</td>
</tr>
<tr>
<td>Stephen</td>
<td>M</td>
<td>PhD, population ecology</td>
<td>Senior Marine Conservation Officer</td>
<td>20+ years</td>
<td>Greece</td>
</tr>
<tr>
<td>Rosie</td>
<td>F</td>
<td>PhD, marine sciences</td>
<td>Oceans and Fisheries Program Leader</td>
<td>20+ years</td>
<td>Portugal</td>
</tr>
</tbody>
</table>

**Figure 1:** Countries where respondents worked in their capacity as NGO practitioners. Highlighted regions are Canada, Pakistan, French Guiana, Portugal, Greece, Scotland and Kyrgyzstan.
All interviews were done between February and April, with the coding process concluded at the end of May. In the end, around 250 unique codes were created. After transcribing and coding the interviews, the data was distributed across a number of major themes based on the research questions and interview questions. Subsequent grouping was done inductively, based on themes from the answers that participants gave.

2.3. Reflections

Choosing interviews as a method was done to capture as many narratives as possible and to allow practitioners to offer input on issues they feel are important, which is hard to achieve with questionnaires. I found no previous research that interviewed practitioners on their epistemological beliefs nor how they engage with different types of knowledge. Semi-structured interviews are time-consuming, constraining the amount of data that one can gather. Other methods like questionnaires or short, structured interviews could have allowed for a greater number of participants, increasing the possibility of reaching theoretical saturation, albeit with a more narrow scope. Other in-person methods like workshops or participant observation would have been interesting, but impractical given that I sought participants from all over the world.

Focusing on community-based NGO conservation practitioners was done partly due to the availability of the data source, as the NGO representatives were able to access a wide network of potential participants. Community-based conservation has become more and more popular in recent years, and initiatives like enhancing local agency and community participation are increasingly carried out by major organizations (Calfucura 2018, Mahajan et al. 2021).

The recruiting of participants was not random, which could have caused issues in finding people with overly negative perspectives. The NGO representatives reached out to project leaders they knew and asked them to forward our invitation to team members and other project leads. Nevertheless, a lot of individuals were ultimately contacted, and participating in the study was completely anonymous and voluntary. I expected that practitioners with negative perceptions of this issue would be eager to reach out and voice their frustrations.

It would have been interesting to interview practitioners working for governmental conservation departments as well, to see how experiences and concerns varied between organizational contexts. Departments work with annual budgets and are not dependent on
donor organizations to fund projects, which may lead to different approaches for long-term projects (Sutherland 2008). They might favor a more top-down approach to conservation management, compared to an NGO supporting grassroots initiatives (Mackie and Meacheam 2016). These factors could significantly influence their definition of evidence and how it is to be used. However, due to the time and resource constraints of a Master’s thesis, it was not possible to include the experiences of governmental actors in this study.
Results

3.1. The nature of evidence

When asked what they thought of as “evidence”, participants gave a broad range of answers. “Scientific evidence” was often mentioned, but not explicitly defined. Specific examples were given, such as peer-reviewed literature, internal (NGO-generated) data, textbooks, government data banks, and policy papers. “Academic papers would be one source” (Kathy). Some examples given were less specific, but generally alluded to “data”: “[...] it can be western science [...]” (Daniel), “[...] data and really having something credible in hand in terms of the information that I generate [...]” (Adele), and “So, basically for me evidence could be data evidence [...]” (Adele). Olof saw personal observation as a possible source of evidence: “[...] I think personal observations are also valuable”. Adele saw evidence as even broader: “Evidence could be something that we could use, maybe using satellite-based imagery or a map. [...] So, it is basically all around research and really having access to information, credible information and data”. Maria mentioned the perceived impact of previous interventions as a valuable source: “[...] if we are having an intervention that is successful then [we] like to replicate it and scale up that intervention”. Other sources of evidence mentioned by Anna and others were expert opinion, which could include local inhabitants, individual academics, advisory bodies, and other practitioners: “Then I will talk with my colleagues on the field. So that might include fishermen, fisheries engineers, marine biologists, researchers, I rarely do anything on my own so I will always ask for opinions [...]. Which counts for me as knowledge and then we write a protocol and then validate it and then we go on with whatever we decided.”. LEK knowledge was spontaneously mentioned by Daniel, stating that evidence “[...] can be traditional knowledge of communities that we work with, indigenous peoples. And just like local knowledge, like not even necessarily this is traditional that we know for a long time but just bringing in anecdotal evidence from folks that are directly exposed to or directly implicated in our research”. Others did mention that evidence could be “stakeholder stances” or “the needs of the community”.

3.2. Scientific knowledge

Participants were asked what they thought about the usefulness of scientific knowledge, with the latter explicitly defined by the interviewer as "knowledge derived from peer-reviewed
science”. Participants strongly valued this knowledge and considered it indispensable to conservation decisions. However, there was no consensus on whether there is a need to engage more with peer-reviewed knowledge in conservation. Stephen agreed, seeing practitioners as intermediaries between decision-makers and academia: “I think that [more engagement with scientific knowledge] is needed. Being a member of an environmental NGO, I think one of our roles is to, let’s say, digest science. And disseminate it. In a way that it’s understood by decision-makers.”. Yet two practitioners opined that they already engaged enough with it, and saw little use in doing more. “I do not really feel like more [engagement with scientific knowledge] is needed, but I think that is because we actually did quite a lot already” (Kathy). “[…] I think that I engage enough already [with scientific knowledge] just because I’m […] well integrated in the scientific world here […]” (Anna).

The practitioners that worked in Pakistan, French Guiana and Canada all mentioned the lack of available scientific peer-reviewed knowledge as an obstacle to engaging more with science. They contended that there is not enough interest from academia on either the topics they address or their geographical region in general. For Daniel, who works in the Canadian Arctic, this was a major reason to engage more with local knowledge: “[…] in the work that I do, I put more weight on the local knowledge and the traditional knowledge than I do often in the western science. Because there is so little available and there has been so little research in these areas”.

Every participant of org. A had access to most major peer-reviewed publications thanks to a subscription, but this was not the case for people working for org. B. Olof perceived this as an issue, responding to the need for access as “[…] really necessary and talking to my previous experience where I struggled to get those scientific papers because you need to pay for them and at that moment I had no funds to pay for that.”. The other employee stated that she managed without a subscription, getting access to desired papers by using ResearchGate and directly messaging authors to obtain a copy.

The use of research syntheses and synopsizes was generally considered useful by practitioners. Daniel saw them as helpful tools to better understand science: “I love research syntheses cause I do not necessarily understand everything […] in the full papers. I think that the research synthesis can be very helpful […] to see if there are systemic issues in similar research.”. Some mentioned having access to NGO databases and newsletters which summarized available literature on topics. The conservationevidence.com website was only known by two out of eight
participants, who said they used it sporadically. When shown and explained to those who had no prior knowledge of it, they all considered it a potentially valuable tool.

All participants mentioned the usefulness of being connected with academia and regularly engaged with scientists in some way, either as partners on projects or having them as consultants on specific issues. Adele mentioned hosting students from local academia, who could potentially become practitioners later on: “[...] working with academia also gives us the leverage to find good brains in students who could come and work with us as future leaders of conservation”. NGOs sometimes acted as intermediaries between academia and local inhabitants, helping them link up and share their knowledge. Anna remarked that some scientific knowledge is not written down (yet), which is a good reason to contact the relevant experts: “[...] I have calls with [researchers] because sometimes they know things that they have not written down yet. Or that they can't really write down because it's not politically correct or stuff like that”. Adele, working in Pakistan, even mentioned how they would support and help build capacity for local research institutions: “[It is part of our system] that we encourage local scientists, sometimes you work in those areas which are the remotest of all. They are really important but also the institutions which are there probably are not working to a very high level. So, while we encourage engagement with the researchers we also try to invest into building those institutional capacities at the local level”.

Opinions on the accessibility of scientific knowledge were divided. A majority said that scientists and academia should do more to make peer-reviewed science more accessible to practitioners and laymen, some arguing that the incentive structure must change as well. Others disagreed, seeing it as (at least partially) their responsibility to make peer-reviewed science more accessible, for example writing policy briefs or layman's summaries for local inhabitants. As Anna stated: “[...] I consider myself at the crossroads between science and the field. So I'm the person in charge of summarizing the science and then getting something useful out of it.”

Every participant was positive about the support that their organization gives to accessing scientific knowledge, by providing internal databases, research newsletters, or connecting practitioners to experts. Anna specifically found that her organization made efforts to keep her up to date with the latest science in her field: “I think they are useful to me just because I receive a lot of invitations to like talks or like conferences or presentations that are about science and like the last evidence that we have about this or this. So they're helping [me] being on top of what's happening... globally.”
3.3. Local ecological knowledge

All participants stated that they greatly valued LEK and its use in conservation (although reflecting the diversity of the literature, participants used different terms to describe such knowledge), but only when prompted specifically by the interviewer on its perceived use in conservation. Adele stated: So, local ecological knowledge [...] is something which we recognize as an organization, a very important asset of the work that we do. That has pretty much been our inspiration to start many of our bigger projects since the very beginning”. Stephen described the regular use of such knowledge among conservation practitioners and scientists in his organization: I think that it’s very important. Working with marine systems, and marine issues, I have lots of experience with fishermen, for example. They have spent more time at sea than anybody else. Any scientist that I know, even the hard, really hardcore marine scientists. So it is important to value that it exists. To try to find ways to extract it. And it is important to consider it in your decision-making”. Anna mentioned how locals see changes in an ecosystem before science can record and publish them, which can take several years. “I think [local and indigenous knowledge] is definitely just as important as the scientific knowledge, especially with like climate change right now, because, in my experience, they feel things first, [local inhabitants] experience changes that they can explain and [...] speak of before the science is put out about this change, basically”. Three participants explicitly stated that they generally saw LEK as more valuable than scientific peer-reviewed knowledge. Maria found that the locals’ experience of living in the area made LEK “more correct”: “Yeah, local knowledge is more correct because they are, they are living their things or they are living their lives. They are more hands on, more knowledgeable about their work, what we, what we are trying to, what we are trying to teach them”. Daniel argued for the importance of contesting often implicit hierarchies between scientific and local and Indigenous knowledge: “And there may be points where we often kind of backwardly talk about using formalized science to back up indigenous knowledge. and say, “well, now we did the science and it matches what indigenous knowledge had to say, so now we can believe the indigenous knowledge”. I think given the narrow view that formalized science particularly in the arctic often has… I think we kind of need to look at it more the other way around. That we can use indigenous knowledge to back up what this very particular formalized science research exercises have to say”. Kathy saw LEK as analogous to local agency, stating that they considered themselves engaged with the former as locals' concerns and needs were considered in project decision-making. ”I will be introduced to a community or work with a community and they will tell me their perception
of […] how their natural resources are in threat or how they are declining. I will listen to them and then we will formulate action around all of that”.

Despite its perceived usefulness, there was a general consensus between participants that more engagement with LEK was needed. For example, Anna stated: “Right now, it’s not... not heavy enough. Not present enough. Not, not enough taken into account at the moment. I think it really deserves more attention, more listening [...]”. To Adele, LEK is widely used in their reports, “[...] there is a lot of information if you start to look at the publications, data in our reports, in our proposals. A lot of information already comes from [LEK]. So, this is a tested and tried method.”. But, according to Adele, its use is not properly attributed as such. [...] we do not really document it in a way where it should be reflected as traditional knowledge. And this [suppresses] the importance and significance of this kind of information coming to our work and making it more impactful”. Stephen mentioned that he did not feel adequately trained to access and record local knowledge, “We are not trained so much to go out and bring that knowledge in our system. We value it, we try, but we have not been so well trained or so robustly trained. It’s a different technique, which means different methodologies, different schemes, different... It’s a different discipline, almost”.
Discussion

Diversity of evidence use

The diversity of evidence types used by participants stands in contrast to the narrow view of evidence that supporters of the evidence-based approach have (Sutherland and Wordley, 2017). While some participants wished to engage more with peer-reviewed scientific knowledge, they all appreciated the use of other evidence types, especially local ecological knowledge (LEK). Therefore, it seems that mainly focusing on peer-reviewed science as advocated by proponents of the evidence-based approach would not be supported by the participants of this study. They seem more in line with the suggestion of Adams and Sandbrook (2013) that “[…] evidence-based conservation should adopt a broad definition of evidence to give meaningful space for qualitative data and local and indigenous knowledge”.

The usefulness of LEK has been asserted by a number of authors (Tengö et al. 2014; Tengö et al. 2017; Berkes et al. 2000; Berkes 2004; Adams and Sandbrook 2013; Malmer et al. 2020). The speed at which LEK can confer information about a change is especially valuable in the context of the climate crisis, where local inhabitants can use their LEK to respond to rapid changes in the environment (Hosen et al. 2020). Participants were divided on whether LEK or peer-reviewed knowledge was inherently superior over the other, with some even considering LEK to be more valuable. This seems to be reflective of the discussion in academia between evidence-based and evidence-informed decision-making (Adams and Sandbrook 2013; Haddaway and Pullin 2013). Participants did not mention LEK spontaneously when asked what they defined as “evidence”, indicating that they did not always see it as such. However, they said it was greatly valued when specifically asked, which indicates that “evidence” can be a privileged term that is not necessarily indicative of its value in conservation decision-making. The viewpoints of practitioners on this subject seem to give support to the Multiple Evidence Base approach advocated by Tengö et al. (2014). In this approach, different knowledge systems do not co-opt each other, as this usually means that all knowledge needs to be validated through scientific means. Instead, different types of evidence are presented on their own, which creates an enriched picture of the issue. Furthermore, presenting LEK gives local inhabitants a voice in the decision-making process and ensures that their opinions are heard (Brondizio and Le
The ways in which we define evidence and frame conservation problems will influence how conservation practitioners use and value evidence (Ofir et al. 2016, Evans 2021). Almost all participants reported that they used some form of expert opinion, often directly consulting scientists or collaborating with research institutions on projects. Previous studies have confirmed its usefulness in decision-making (Runge et al. 2011, Martin et al. 2012, MacLeod et al. 2022), although these studies focused on more formalized ways of using expert opinions such as the Delphi method or advisory bodies. Individuals seeking opinions from a colleague or outside experts have not been reported on in-depth (Sutherland and Burgman, 2015). Still, it is understandable that practitioners make frequent use of individual expert opinions. Finding specific information in articles can be hard and experts do not always write down everything they know about the subject. Contacting them is often straightforward, as most researchers have their contact details listed on institutional websites. Once a relationship has been established with an expert, it may be convenient to contact that person for future questions, which does risk getting one-sided advice. More research is needed on how exactly conservation practitioners engage with expert opinion.

Participants who had no prior knowledge of the conservation evidence database were interested to try it in the future. One previous study that presented conservation practitioners with synopsizes from this source found that they changed their likelihood of using 45% of possible management interventions, being more likely to implement effective interventions and avoid ineffective ones (Walsh et al. 2015). The project for this database is done in collaboration with a number of NGOs (Sutherland et al. 2019). The database focuses mostly on ecological outcomes, e.g. reducing bycatch or increasing biodiversity, while community-based conservation has social objectives as well, e.g. ensuring that locals are heard in decision-making or increasing the resilience of a community to environmental change (Malmer et al. 2020). This might limit its usefulness for use in community-based conservation. Still, given its reported obscurity, the existence of such databases should be communicated better to practitioners so they can judge their usefulness for themselves.

The use of peer-reviewed knowledge

There was criticism on the availability and accessibility of peer-reviewed knowledge. Many found that this was often not available on their subject, and what existed was of limited relevance, corroborating previous studies on the knowledge-action gap (Braunisch et al. 2012;
Laurance et al. 2012; Roche et al. 2021). Participants working in developing countries or with marginalized communities found this to be especially true, indicating that these regions continue to be underrepresented in research (Meijaard et al. 2015, Wilson et al. 2016). A study by Rose et al. (2018) that conducted a global survey of practitioners and policymakers identified “lack of policy-relevant science” as the main barrier to the use of more scientific evidence in conservation practice. Some participants argued in favor of increased open access to journals and articles, corroborating Roche et al. (2021). When it came to the accessibility of the writing itself, all participants thought that they had the required skills and expertise to understand the material, contradicting Sunderland et al. (2009), who saw this as a potential issue. Participants did complain that the academics themselves did not make their writing accessible to practitioners and laymen, corroborating Matzek et al. (2014), although there was disagreement on possible solutions. Some argued that it was the role of practitioners to interpret and translate scientific documents while others argued that this was something that writers of peer-reviewed articles should do themselves.

Some participants find that they engage enough with peer-reviewed science, which Sutherland et al. (2019) saw as an issue for improving the efficiency of conservation measures, viewing this behavior as “evidence complacency”. However, I would argue that this term is misplaced. Participants seemed well-informed on the types of evidence available and some of them choose purposefully to not engage more with peer-reviewed science. Therefore, evidence saturation is a more correct description, acknowledging that practitioners have limited time and a wide range of valid evidence types on which to base their decisions (Evans et al. 2017). Participants who work in developing countries or, in one case, with a marginalized group in a developed country, all stated the need for more research on their subjects and wish to engage more with peer-reviewed knowledge, indicating that there is still a need to close the knowledge-action gap, albeit in specific contexts.

**Locally sourced knowledge**

Instead of the dichotomy of peer-reviewed science vs other evidence types, it might be more interesting to look at evidence and knowledge from a different viewpoint. It can be argued that participants place special emphasis on knowledge that was locally sourced, regardless of the type. This can explain the popularity of LEK, expert opinion, and own data sources among
participants. Conservation issues can be highly contextual, and studies done on similar issues in other geographical regions may have limited use for the local context (Tanner et al. 2020). Therefore, it makes more sense to get information from local sources who often have plenty of experience working in the area, including data that an NGO gathers on its own. This problem is exacerbated by the geographical bias shown in scientific research as part of the knowledge-action gap (Christie et al. 2021). NGOs could support the use of locally sourced knowledge by supporting their local branches in gathering it. This could be done by proposing partnerships between local branches and local academic institutions: the latter may lack funding to study the topic of interest, for which scholarships could be provided.
Conclusion

This study found that NGO conservation practitioners use a multitude of evidence types, consisting of peer-reviewed knowledge, other knowledge generated by the scientific method, expert opinion, and local ecological knowledge (LEK). One surprising finding was the general reliance on expert opinion, with many participants stating that they asked scientists directly for advice or had academia as partners in projects. All participants agreed on the need for more engagement with LEK, indicating support for an evidence-informed approach as advocated by Adams and Sandbrook (2013). Participants agreed that the acceptance of LEK still needed improvement; knowledge gained from this source was not always properly attributed as such due to a lack of recognition. Efforts from all actors will be needed here, as scientists can help to uncover the value of LEK while NGOs can formalize and encourage its use for conservation decision-making. Some practitioners considered LEK more valuable than scientific knowledge, indicating that there is support for a reframing of what constitutes “valid evidence” (Adams and Sandbrook 2013; Haddaway and Pullin 2013).

Nevertheless, those working in developing countries emphasized the need for more research in their regions and wished to engage more with peer-reviewed scientific knowledge, and some practitioners saw knowledge generated by the scientific method as inherently more valuable than LEK. Thus, there is also support for the evidence-based approach that Sutherland et al. (2004) promote, suggesting that the usefulness of different evidence types is highly contextual and based on the level of research infrastructure that is present in the country.

The emphasis put on LEK and expert opinion by participants may be since both knowledge types are often locally sourced. This could be a critical factor in the applicability of evidence for conservation practice, although more research on this hypothesis will be needed. NGOs could support local branches to connect with local experts, inhabitants, and other sources of local knowledge. They could help build local research capacity by collaborating with local academic institutions by providing grants and scholarships. Employing local inhabitants would help with gaining access to local knowledge.

More research is needed on the types of evidence that practitioners use and how they use it. Further studies should engage more participants from different sectors, such as governmental agencies and those working outside the community-based conservation sector. Conducting an observational study (e.g. a diary study) could be helpful to quantify how often practitioners use
certain evidence sources, as self-reporting in interviews may be inaccurate. It would be interesting to understand the opinions and working rationale of local field assistants, as they are often locals with different educational backgrounds compared to project managers. However, getting them involved in these studies is often compounded by a language barrier. Still, this research shows that conservation practitioners have unique insights on conservation issues that should be taken into consideration, and I hope that I inspire others to uncover their viewpoints, values, and advice on evidence use, as well as provide some useful insights to help NGOs support their practitioners.
Literature cited


Appendix A: Ethics review

This assessment form must be completed by the SRC researcher or student leading the work.

As well as responding YES/NO to each question, add short statements where appropriate/requested to explain which box has been selected – Please make this clear by highlighting your responses in yellow

Once you have completed this review form and the relevant documents, please follow these steps for submission (figure 1):

1. Appoint and contact an independent reviewer at the SRC (this can be any researcher with relevant knowledge that is post-PhD stage);
2. Send this form and the relevant documents to the appointed reviewer as well as the email address: src-ethics-review@su.se (goes to ethics committee chair and administrator). Please combine this form and all appendices into a single document and name the document "YYYY-MM_Surname of researcher_Project name.doc", e.g. "2020-08_Folke_Resilience in the Anthropocene"
3. Once you receive the response from the reviewer, make the necessary changes and updates to the documents and send all final versions to the appointed reviewer and the email address: src-ethics-review@su.se .
4. If research plans change substantially so that new ethical issues are relevant, either submit a new review form, or send the original form with a new appendix explaining the changes, new ethical issues and additional procedures.
5. After the fieldwork, research project or during the thesis submission send a statement to src-ethics-review@su.se with a brief reflection on any ethical dilemmas that emerged during fieldwork, whether planned procedures successfully addressed issues, and any changes made during the course of research. This file should have the same name as your original report with the same name and date as the original file plus ".-Final report".
   E.g. "2020-08_Folke_Resilience in the Anthropocene-Final report"
   These reports may be discussed by the Supervisory committee meeting and will be collated and (with consent) made available for reference and case studies for future.
Figure 1. Research ethics review process at SRC.

Title of project: Advancing evidence-informed decision-making in conservation
Estimated start and end date of project: 30.08/21-20/05/22
Lead researcher submitting this form: Raf Jansen
Supervisor(s): Tilman Hertz, Vanessa Masterson, Simon West
Date ethics review form first submitted: 08/10

Signature of Researcher/Student*: Date: 31/01/2022
Raf Jansen

Supervisors signed via email, see appendix

Signature of Supervisor(s)*: Date: 31/01/2022
Tilman Hertz

Signature of Supervisor(s)*: Date: 27/04/2022
Vanessa Masterson

Signature of Supervisor(s)*: Date: 30/01/2022
Simon West
* Electronic signatures/ typed names are accepted. All signatories should be cc:d on the submission.

<table>
<thead>
<tr>
<th>Name of reviewer: Laura Pereira</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of review: 19/10</td>
</tr>
</tbody>
</table>

- Reviewer(s) comments:

Thank you for this comprehensive ethics review. I am generally satisfied with everything, but I think the one area of concern is to consider that since it is clear who the project partner is (WWF) and that the region and topic may make it clear who the respondent was even if they are anonymised. Allowing for this potential eventuality is probably needed for full transparency.

I think the info sheet and consent forms are quite long and tedious (I know there is a template), but maybe simplifying this a bit is also an ethical consideration.

Reviewer signature:
Date of response: 29/01
Researcher response to reviewers’ comments:

Thanks for your comprehensive and clear comments. The identification issue has been resolved by also pseudonymising the participating NGOs, which was likewise suggested by some representatives. The possibility of identification, despite our precautions, has been addressed more thoroughly throughout the review.

The info sheet and consent forms have been simplified wherever possible, but are still quite dry. I aim to reiterate the most important points verbally before the interviews to ensure that everything is understood by participants.
Research Abstract/Summary

There has been an ongoing discussion in the last decades by academics and conservation practitioners about the perceived lack of evidence-based decision-making in conservation. A number of studies have shown that scientific evidence is rarely used in conservation decision-making. Instead, anecdotal evidence, past experiences and opinions for colleagues are widely employed. Proponents of scientific peer-reviewed evidence argue that the lack of evidence use hurts the effectiveness of conservation interventions.

Other research focuses on the nature of evidence: what can be considered evidence in which context, or questioning what counts as evidence in conservation decision-making. The rediscovery of local ecological knowledge (LEK) has led to a number of studies that promote its use. However, little is known about the types of evidence that conservation practitioners use and how they engage with it. Therefore, the following research questions will be asked:

1. What do practitioners consider as “evidence” for making decisions?
2. How do they engage with scientific and local ecological knowledge (LEK)?

This research was proposed by two representatives from the WWF and FFI, respectively. They offered to recruit participants for the research from their organisations.

Understanding the context in which decisions are made is an important first step to comprehending the decision-making process so I started with unstructured scoping interviews to better understand the context in which practitioners work, as well as their opinion on the general topic of evidence use. They were encouraged to steer the conversation, allowing me to understand their values and their motivations for conservation. I emphasised co-production and encouraged participants to bring up issues or themes unknown to me, so they could be incorporated into the next round of interviews. Within two weeks, this was followed up by a 60-min long semi-structured interview where all participants were asked the same set of questions, focusing on their opinion on the evidence issue and the main barriers that they encountered to using certain types of evidence during their work. These interviews were subsequently coded and analysed using MAXQDA.

There is little research on the types of decisions and nature of evidence used for making them, yet it is important to answer these questions for NGOs and researchers alike to improve their evidence-informed decision-making. I hope to answer my research questions for field-level projects by conducting semi-structured interviews and asking open-ended questions, something which has not been done with conservation practitioners. By asking practitioners themselves what knowledge they would value to make better decisions, I hope to bridge the research-practice gap and bring everyone closer to the shared goal of more effective conservation.
## SELF-ASSESSMENT

1. **Does your project require assessment by Swedish Ethical Review Authority (Etikprövningsmyndigheten)?**
   - Consult section 0 for useful links regarding Swedish Ethical Review Authority (Etikprövningsmyndigheten) requirements
   - **YES**, notify [src-ethics-review@su.se](mailto:src-ethics-review@su.se) and send the approval when you receive it
   - **NO**, complete [section 0](#) of the SRC Research Ethics Review Form

2. **Does the project involve human subjects (this may include study or workshop participants, informants, people being audio/video-recorded, people whose personal data occur in the collected or analysed material, etc.)?**
   - **YES**, complete [section 3](#) of the SRC Research Ethics Review Form
   - **NO**

3. **Do you need to process (e.g. collect, retrieve, store, manage) any personal data (e.g. names, contact information, video(recordings)?**
   - For more information about what is considered personal data and the GDPR requirements see the information on [section C](#) in this document
   - **YES**, complete [section 4](#) of the SRC Research Ethics Review Form
   - **NO**

4. **Does your research involve collaboration with other institutions, agencies or individuals from outside SRC?**
   - **YES**, complete [section 5](#) of the SRC Research Ethics Review Form
   - **NO**

5. **Does your research involve the use of data/material provided by an external source (e.g. other researcher, agency, data repository, database) or archival work?**
   - **YES**, complete [section 5.2](#) of the SRC Research Ethics Review Form
   - **NO**

6. **Does your research involve international travelling or working abroad?**
   - **YES**, complete [section 6](#) of the SRC Research Ethics Review Form and attach the risk assessment
   - **NO**

7. **Does your research project require completing a risk assessment (i.e. if there are any conceivable health and safety risks associated with this project beyond standard office work)?**
   - **YES**, attach the risk assessment
   - **NO**

8. **Does your research involve environmental fieldwork (e.g. sampling, directly monitoring a site, environmental disturbance, trans-boundary movement of specimens /samples)?**
☐ YES, complete section 7 of the SRC Research Ethics Review Form
☐ NO

9. Has this research received approval from another university or ethics review authority?

☐ YES, you may attach the approval and form/s and refer to them when completing the SRC Research Ethics Review Form to avoid duplicating answers.
☐ NO
☐ Ethical review is planned or underway with another authority, but approval has not yet been received. Please either wait until that process is complete before doing the SRC assessment, or explain why this process is not yet complete and when you will send the approval from the other ethics review body.

---

**CHECKLIST**

- ☐ I have read the SRC ethics principles
- ☐ I have completed sections 1 and 2 of the SRC Research Ethics Review Form that applies to all research projects
- ☐ I have appended all relevant documents
  
  If so, which documents have you appended?
  - ☐ Permission letter (where appropriate, e.g. interviews, surveys)
  - ☐ Consent form (where appropriate, e.g. interviews, surveys)
  - ☐ Plain language statement (where appropriate, e.g. interviews, surveys)
  - ☐ Collaboration agreement (where appropriate, e.g. collaboration projects)
  - ☐ Risk Assessment (where appropriate, see self-assessment Q. 6 and 7)
  - ☐ Data Management Plan (see template and resources in section C above)

  *Data management is elaborated upon in both the review itself and the consent form*

---

Can we keep this Ethics Reviews form as an exemplar stored for future use at the SRC?

- ☐ YES
- ☐ NO

---

**SECTION 0. Swedish Ethical Review Authority (Etikprövningsmyndigheten) motivation.**

This must be completed for all research projects.

1. Please, motivate in the box below why your research project does or does not require to be submitted to Swedish Ethical Review Authority (Etikprövningsmyndigheten). If you have had additional discussions or advice (e.g. from SU research support department,) please attach or paste in this correspondence:
The project does not use any physical intervention or any methods that could harm participants of the study. The project does not involve any manipulations of the environment and will not expose any sensitive information.

To motivate your reply, you may use the following resources:

a) https://www.staff.lu.se/research-and-education/research-support/research-ethics-and-deviations-from-good-research-practice/ethical-review

b) Please click on the link below that guides you to a decision tree provided by SU. If you answer ‘yes’ to one or multiple of the following questions, your project may require assessment by Etikprövningsnämnden (Swedish Ethical Review Authority (Etikprövningsmyndigheten)).

Swedish version:
https://docs.google.com/forms/d/e/1FAIpQLSdiAMkGMfJz0k53W9Azt4mIxJJA9HcnYMco0kULhiRG7Opacg/viewform

English version:
https://docs.google.com/forms/d/e/1FAIpQLSf4SiF9mQtwwAWYXvJgaz89aCudUYY7tdMi9b0_C22hAdNF0Q/viewform

According to the link above, does your project require assessment by Swedish Ethical Review Authority (Etikprövningsmyndigheten)?

YES ☐ NO ☐

If YES, please notify that you will complete a submission to Etikprövningsmyndigheten via email to src-ethics-review@su.se and send the approval once you receive it.

BOX TO BE COMPLETED BY REVIEWERS: please explain why you agree or disagree with the assessment (and its motivation) of this project’s need to be submitted to Swedish Ethical Review Authority (Etikprövningsmyndigheten)

I agree that the project does not require ethics review by the Swedish ethical review authority as no sensitive information is envisaged to be collected.

SECTION 1. Legal and Moral Responsibilities and Codes of Conduct, dissemination and benefit sharing
This section must be completed for all research projects.

1.1. Legal and Moral Responsibilities, and Codes of Conduct

1. List the stakeholders of your research and their individual interests/concerns to support an explicit statement of what conflicts of interest may occur. Could conflicts of interest conceivably arise between the researcher(s), funding bodies, the institution, and/or research subjects/environments?

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Responsibility</th>
<th>Interest</th>
<th>Conflict</th>
<th>Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>WWF</td>
<td>Organizer of surveyed projects, employer of practitioners, will get me in contact with potential participants.</td>
<td>Increased knowledge about decision-making process, opinion of practitioners on current state on evidence-based decision-making.</td>
<td>Possibility of retaliation of certain actors within organization against participants based on their opinions, or the project the participant works for as a whole.</td>
<td>All possible conflicts are based on the same thing: the possibility that actors with malicious intent could trace back the comments that participants made and use them against them or the project as a whole they are working for.</td>
</tr>
<tr>
<td>FFI</td>
<td>Organizer of surveyed projects, employer of practitioners, will get me in contact with potential practitioners.</td>
<td>Increased knowledge about decision-making process, opinion of practitioners on current state on evidence-based decision-making.</td>
<td>Possibility of retaliation of certain actors within organization against participants based on their opinions, or the project the participant works for as a whole.</td>
<td>To mediate this, all participants and their organizations will be pseudonymized, giving only the researcher and main supervisor access to the organizations and practitioners’ names.</td>
</tr>
<tr>
<td>Field-level practitioners</td>
<td>Participants for both interviews as well as diary study</td>
<td>Contributing to advancing research on evidence-based decision-making, possibility of self-reflection through diary study</td>
<td>Possibility of retaliation against colleagues based on comments made during the interviews or because of certain responses on the survey. Unwillingness to answer because of possible retaliation by employer.</td>
<td>However, this could not be enough to stop colleagues on a project to retaliate against each other if they would recognize each other’s comments. Care will be taken by the researchers to make sure that</td>
</tr>
</tbody>
</table>
2. Are you aware of codes of conduct from professional associations that should guide your research? Please identify the relevant code(s) below.

YES ☐ NO ☐


The European Code of Conduct for Research Integrity: [https://allea.org/code-of-conduct/](https://allea.org/code-of-conduct/)


Have these codes addressed any issues not covered in this assessment but that are relevant to your study? If yes – please list them here and refer to the codes in the appropriate questions of this Ethics Review Form.

No.

3. Have you reached agreements relating to intellectual property, publication and authorship with all relevant research partners/stakeholders/supervisors?

YES ☐ NO ☐ N/A ☐

1.2. Dissemination

4. What is the moral responsibility to provide feedback or results to the research participants/funders/partners? If there are any legal obligations to provide feedback or results this should also be listed here.

There is no legal obligation to provide feedback or results of the study. Both the WWF and FFI will be interested in the study’s findings: as such, the thesis will be shared with them through the Diva platform. The researcher will write a relevant summary of the study for both
organisations. They may also ask the findings to be presented in a seminar or article, which the researcher will make time for if requested.

The results could be interesting to participants in particular; they will all be explicitly asked whether they would like to be notified of the publication of the thesis. The researcher will commit to writing a layman’s summary of the results so that everyone, regardless of background, can benefit from them. Furthermore, participants could benefit from being able to review the questionnaire logs they made during the diary study as a way to reflect on their decision-making process. For this end, each participant will be explicitly asked whether they want these logs mailed confidentially to them.

5. How will the research findings, associated publications and, where feasible, data be made available, in the context/region/locality where the research is meant to have an impact or to be used? Consider how findings will be made understandable and useable for the different stakeholders.

The researcher will summarize the results and, if requested, do a presentation of the findings to relevant stakeholders from the NGOs.

The participants will be asked in the consent form if they wish to get study result via email. If so, they will provide contact information that will be used to share the result summary. The language and/or format of the summary will be adjusted to the recipient (public vs experts).

6. How will the findings publications and data be available to your collaborators?

The thesis will be available on open-source platform (Diva). The research supervisor will also have access to the pseudonymized data.

SECTION 2. Potential Harm, Discomfort or Stress for Living Human Subjects or Non-humans

This section must be completed for all research projects.

If you answer yes any of the boxes please provide a response showing that you have considered the nature of the risk and state what measures will be taken to prevent, mitigate and/or minimise the potential problems and to protect the participants. If you answer NO or N/A provide a brief motivation for your answer.

YES / NO    Could the research induce any psychological stress or discomfort?

A research project that aims to investigate subjective experiences and views of participants have potential to elicit discomfort or even stress, especially for the pre- and post-diary interviews. The interviews and survey will not explicitly aim to investigate or ask about particularly stressful experiences. However, to minimise the potential occurrence of discomfort or stress, the researcher will ensure that participants are aware that they do not need to answer the questions if they do not feel comfortable. The researcher will also make sure to create a safe space to accommodate any potential emotional reactions. Furthermore, after the interview, the researcher will secure some time for participants to reflect (if they
wish to do so) on the conversation and any potential negative outcomes that may have resulted from having that conversation. Lastly, the researcher will share contact details with the participants, so in case any negative consequences appear later, the participants can contact the researcher or the supervisor of the project.

**YES / NO** Does the research require any physically invasive or potentially physically harmful procedures?

*No, the research will involve online surveying and questionnaires.*

**YES / NO** Does the research involve the investigation of any illegal behaviour?

*No, this research does not implicitly or explicitly research illegal behaviour. However, it is not unforeseeable that illegal behaviour could be mentioned by participants in interviews. The consent form and PLS will include information about the legal limitations of confidentiality, advising not to report illegal behaviours. In case participants do, the interview will be stopped, the participants will be reminded of the limits of confidentiality and asked to change the topic.*

**YES / NO** Is there foreseeable potential for legal actions (e.g. being sued) applied to the researcher or other members of the research team (including those recruited locally)?

*Considering the topic, methods, and fully voluntary participation, there are no foreseeable reasons for legal actions.*

**YES / NO** Is it possible that this research will lead to the disclosure of information about child abuse or neglect? *If there is a real risk of such disclosure triggering an obligation to make a report to the relevant authority, a warning to this effect must be included in the information and consent documents.*

*No, it seems extremely unlikely that this research would lead to such disclosures.*

**YES / NO** Is there any purpose to which the research findings may be put that could adversely affect participants of the study, collaborators, or actors affected indirectly (e.g. cause conflict)?

*Yes, the findings could be used against participants. There is the possibility that actors with malicious intent could trace back the comments that participants made and use them against them or the project as a whole they are working for. To mediate this, all participants and their organisations will be pseudonymized, giving only the researcher and main supervisor access to the organisations and practitioners’ names. However, this could not be enough to stop colleagues on a project to retaliate against each other if they would recognise each other’s comments. Care will be taken by the researchers to make sure that published quotes by participants cannot be used to identify them. Participants who are directly quoted will be contacted and asked for permission to use said quote.*

**YES / NO** Could the research adversely affect members of particular groups of people?
As said above, statements of participants could be used against the project they are working on as a whole instead of just themselves, potentially impacting colleagues that did not participate in the study. To mediate this, all participants and their organisations will be pseudonymized, giving only the researcher and main supervisor access to the organisations and practitioners’ names.

**YES / NO**  Is there foreseeable potential for violation of, or clash with, cultural or social norms/practices?

Potential participants for the research will come from projects all over the world and from different cultural backgrounds. The interviews will concern decision-making, something which will be perceived differently between cultures. It is not unforeseeable that a question posed by the researcher might unexpectedly offend the interviewee. Before the interview, the researcher will be clear about the possibility of a transgression happening by accident. The participant will be encouraged to immediately report any perceived transgressions during the interview. If a cultural transgression has been made, the researcher will apologise and ensure that he will not make the same transgression again. If the cultural transgression can’t be avoided, the researcher will be transparent about the possibility of cultural clash. In such a situation it will be important to give a space for conversation about those cultural differences and ensure participant that the potential clash is in no way meant in a disrespectful way. The associates from WWF and FFI will be contacted to have a look at the questions that the researcher plans to ask during interviews and the diary study, limiting the risk of a culture clash.

**YES / NO**  Will the research involve a cost to participants in terms of time or effort to participate?

The interviews will not take up much time, expecting about 30 min for scoping interviews and an hour for post-diary interviews. The diary survey will be an intensive process, taking up to 20 minutes each working day for a period of a month. Participants will be clearly briefed on the demands of this study but also be made aware of the personal benefits in participating, namely the chance for self-reflection on their decisions and contributing to better decision-making in conservation.

**YES / NO**  Does this research benefit any stakeholder (participant of the study or affected by it), collaborators or research partners (directly or indirectly)?

The participants themselves will benefit from the introspection offered by the diary study and interviews. The NGOs will want to use the results of this research for improving their assistance to field-level projects, seeing where and how they can help best by learning about the decision-making process and by hearing from feedback by practitioners themselves.

**YES / NO**  Will the true purpose of the research be concealed from any stakeholder (participant of the study or affected by it), collaborators or research partners? Consider what information will be concealed and why.

The researcher will be fully transparent about the purposes and aims of the study, thus no information will be withheld from the participants or stakeholders.
YES / NO  Could this research adversely affect any stakeholder (participant of the study or affected by it), collaborators or research partners (directly or indirectly) in any other way? Clarify:

There is the possibility that actors with malicious intent from the NGOs could trace back the comments that participants made and use them against them or the project as a whole they are working for. To mediate this, all participants and their organizations will be pseudonymized, giving only the researcher and main supervisor access to the organizations and practitioners’ names. However, this could not be enough to stop colleagues on a project to retaliate against each other if they would recognize each other’s comments. Care will be taken by the researchers to make sure that published quotes by participants cannot be used to identify them. Participants who are directly quoted will be contacted and asked for permission to use said quote.

YES / NO  Is there foreseeable potential for psychological harm or stress to the researcher or other members of the research team (including those recruited locally)?

This research is based on collaboration and open, trustful relation which means that researchers will support each other during the process so there is no reason to believe that the project will lead to any psychological harm or extraordinarily stressful situations.

YES / NO  Is there foreseeable potential for physical harm or discomfort to the researcher or other members of the research team (including those recruited locally)?

No, all data gathering and interviews will happen digitally with no physical interaction.

SECTION 3. Rights of Human Subjects

If the research involves living human subjects, or if your work requires interaction with people in the course of your research (e.g. gaining access to land-owners’ land).

THE PARTICIPANTS
1. How many participants will be involved in the study?
20-40 participants in the diary study, of which 10-15 will be asked to do interviews before and after the study.

2. Vulnerable Groups. If you answer YES to the following then you are likely addressing a vulnerable group and a special consideration must be given to achieving informed consent and preventing harm.

Does the research specifically target (tick as appropriate):

YES □  NO □  Children under 18 years of age?
YES □  NO □  People known to have special educational needs?
YES □  NO □  Anyone who is physically or mentally ill (to the extent that they may not be able to provide consent)?
YES □  NO □  Anyone who might be under the influence of drugs or alcohol?
YES □  NO □  Members of a vulnerable or stigmatized minority?
YES □  NO □  Anyone who is vulnerable in other ways? (If yes, explain)

3b). Potential Conflicts of Interest/ Influence on results
Are any participants (tick as appropriate):
YES □  NO □  In a client or professional relationship with the researcher(s)
YES □  NO □  In an unequal working relationship with the researcher(s)?
YES □  NO □  In any other dependent relationship with the researcher(s)?

If you have ticked any of these boxes, discuss mitigation measures below:

PARTICIPANT SELECTION
1. What are the criteria for the selection of participants? How will you decide who will be included/excluded from the study?

Participants will be recruited by two associates from the WWF and FFI, respectively. They will seek to recruit people that make field-level decisions, specifically response options, in projects associated with those NGOs. If possible, recruitment will confine itself to a major “theme”, like animal conservationism or natural resources. Participants from projects all over the world will be sought, being able to speak English fluently is not a prerequisite. If needed, relevant documents such as the consent form and diary survey will be translated, and interviews will be done with the help of a translator.

2. How will participants be recruited? (e.g. adverts, personal contacts, email, recruitment through employer)

The associates from WWF and FFI will reach out to project managers across the world by mail and look for teams that are willing to let people participate. They will be invited to attend an intro seminar to learn more about the project and their role as potential participants.

Required Appendices:
- If using advertisements append a copy of the advertisement or a description of its contents and details of where it will be advertised.
- If contact details will be obtained from private sources, you will need an approval letter. Please append a copy.
- If recruitment will be conducted by a third party (e.g. employer, doctor) do you have a letter requesting their assistance, and/or a letter confirming their willingness to assist? Please append a copy.

PARTICIPANT REWARDS
1. Will participants receive any financial or other material benefits because of participation? Describe the benefits and how these will be distributed. Consider if it will be appropriate to the local context, and how will you avoid it becoming an inducement that interferes with free consent of participants?
No, participants will not be offered financial or material rewards.

PARTICIPANT INFORMATION AND CONSENT

Consider the measures that will be used to protect and/or to inform participants:

YES □  NO □  Is anyone to be interviewed in a language that they are not fluent in?

No. We are interested in having participants from different backgrounds and will accommodate a translator for anyone who wants to participate and do interviews in a language that the research team is not fluent in.

YES □  NO □  Is anyone who might have difficulty in reading and/or comprehending any printed material distributed as part of the study?

No. The research will not include any participants that would be unable to read or write.

When the research interacts with living humans you must have a Plain Language Statement (PLS) that explains to potential participants what your research is about.

In some contexts, the provision of a written PLS will be inappropriate. Nonetheless, a statement such as this should form the basis of any verbal communication with participants about your research objectives. In some contexts, it may be appropriate to supplement verbal communication with an illustrated/visual equivalent of the PLS.

Please append the document you will use to the Ethics Form.

1. Checklist of PLS contents, tick as appropriate:
   - Institution and research unit identification
   - Details of the project title
   - Details of the researcher(s) and how to contact them
   - Details of what the project will require (e.g. involvement in interviews, completion of a questionnaire, audio/film recording), the estimated time of commitment, and any risks involved
   - The source of funding
   - Advice that ethics have been considered by the SRC research Ethics subcommittee
   - Advice about parameters of anonymity and confidentiality
   - A statement that participation will not affect any on-going interaction (if the research subject(s) is/are in a dependent relationship with the researcher)
   - Advice that involvement in the project is voluntary and that participants are free to withdraw consent at any time
   - Advice as to the arrangements to be made to protect confidentiality of data, including that confidentiality of information may be subject to limitations
   - Advice as to whether data is to be destroyed after a minimum period
   - Advice that if participants have any concerns about the conduct of the research they can contact the SRC Ethics subcommittee in the following email: src-ethics-review@su.se
   - Any other relevant information
Motivate why any boxes have been left empty:

The subjects are not in a dependent relationship with the researcher.

2. Will the PLS be translated into the local language?  YES ☐ NO ☐
   *Note that back-translation may be necessary to avoid misinterpretation of essential information.*

If participants are not fluent in English and request to participate in their 1st language, the PLS will be translated by a professional translator.

3. Will written consent be sought from participants?  YES ☐ NO ☐
   *Note that in some contexts written consent may not be obtainable or meaningful. If written consent will not be obtained for some or all participants please explain why circumstances make obtaining written consent problematic or inappropriate.*

If YES, does the written consent include? (tick as appropriate):
☐ Institution and research unit identification
☐ Details of the project title
☐ Details of the researcher(s) and how to contact them
☐ Confirmation that the project is for research purposes
☐ Confirmation that involvement is voluntary and that participants are free to withdraw at any time
☐ Confirmation of the particular requirements of participants
☐ Advice on legal limitations of data confidentiality
☐ Any other relevant information
Motivate why any boxes have been left empty:

4. Will the written consent form be translated into the local language? Again, consider the need for back-translation.  YES ☐ NO ☐
   If not, why:

5. Will verbal consent be sought from participants?  YES ☐ NO ☐
   How this will be recorded and will you need a witness?

   *When applicable (e.g. online interviews) the recorded, verbal consent will be sought on top of the written consent (with electronic signature). This is to ensure that the participant read, understood and consents to the research. The participants will be sent the PLS and the consent via email before the Zoom meeting. At the start of the meeting, the participant will be asked if they agree for me to start recording. If participant agrees, I will ask if they read and understood the PLS and consent, or if they have any questions at that point. If there are no questions, I will ask the consent questions and ask them to verbally consent. If they are questions, time will be given to address those first and then the participant will be asked to verbally consent. Once the consent is recorded, I will stop the recording and start a new one, so the consent data is stored separately from the interview data. If they did not consent, I will thank them for participation and end the meeting. All this will be recorded using Zoom. The recording will be stored on the researcher’s computer (not Zoom cloud). If participants*
request prior to the study a consent in different language than English, the appropriate arrangements (translated consent, PLS and translator present during Zoom meeting) will be made.

6. Informed consent should be obtained in the native language of participants. What arrangements will be made to do this, including where necessary providing a back-translation of the consent form?

Upon request from the participant, the English consent form will be translated to the requested language by a professional translator.

7. In some cultures (e.g. hierarchical societies, organizations, companies) it may be appropriate to obtain consent from a community leader or a ‘senior family member’ (e.g. father, husband) before approaching a prospective participant. What arrangements will be made to obtain the appropriate consent?

Note that this should not be construed as a substitute for individual consent, which must still be obtained from each prospective participant.

This does not seem applicable to this study.

8. In the case of minors participating in the research on an individual basis, the consent or assent of parents must be obtained. How will this consent or assent be obtained?

This study will only target participants 18 years and older, thus no parents’ consent will be needed.

9. Will the consent or assent (at least verbal) of minors participating in the research on an individual basis be obtained? How will this assent be obtained? And if it will not be obtained motivate why this is not needed.

This study will only target participants 18 years and older, thus this is not applicable.

10. In the case of participants with special educational needs, will arrangements be made to ensure informed consent? What arrangements will be made? And if it will not be arranged motivate why this is not needed.

Because of the participant selection, the research will not include people that are illiterate or have special educational needs.

11. Will administrative consent (e.g. from an organisation or employer) be sought in lieu of participants’ consent? Consider why individual consent is not necessary (maximum 50 words).

No, I won’t search administrative consent instead of personal consent. The collaboration agreement between Raf Jansen and the NGO associates will be considered as consent by both organizations to have practitioners from their projects participate in this study.
RESEARCH TEAM

1. Will the research involve employing local field assistants (including guides and translators)? Please motivate why/why not by providing some context of the study.

| YES ☐ | NO ☐ |

If we have potential participants that are not fluent in English, relevant documents will be translated in a language that they are comfortable with. Translators will also be present at interviews, if necessary.

If yes, how will you ensure that research procedures are understood and followed by all member of the research team?

If translators are employed, they will be asked to read the plain language statement to get accustomed to the research. An NDA will be signed with the translation company, if necessary. The researcher will answer any questions they have about their role and the researcher

Note that guidance relating collaborative working and the employment of local field assistants can be found in the ESPA Ethics Self-Assessment Guidance Notes.

SECTION 4. Data protection and confidentiality

See section C in this document for useful links to complete this section

1. What kind of personal data will you collect, process or store?

Audio files, names, gender, job description, age, phone numbers and email contacts of the participants.

2. Does your data include any sensitive data or special category data? ‘Special category’ data are afforded extra protections and relate to data that could be used in a discriminatory way (e.g. data on religion, ethnicity, political opinion, trade union membership, genetics, biometrics, health, sexuality).

| YES ☐ | NO ☐ |

No, obtaining such information is not part of this research.

3. Why will the research need to collect, store or process personal data? Please, briefly reflect on the purpose of processing such data and how will the results be used.

The audio data will be a recording of the interviews. Those will be recorded to ensure correct and accurate transcription. Without those recordings, the chance of transcription errors would increase. The names are collected via consent form and emails are collected to inform participants about the result of the study (if they wish) and/ or to contact them for
clarifications. Information on gender, age and job description will help with drawing any conclusions from this study.

To ensure confidentiality the personal information will be stored in password protected files and different types of personal information will not be stored in the same files (audio recordings, transcripts, consents will all be stored in separate password protected files). The personal data will be pseudonymized, meaning that the data cannot be linked to participants without the use of additional data. This will be done by adding the ID number to the consent form. The audio recordings, interview transcripts and questionnaire forms will only use the designated ID and no personal information will be disclosed.

The data will be stored at the researcher’s computer. Because students don’t have access to Nextcloud (SU approved server) once a week the second backup of the data collected will be made and stored at the supervisor’s Nextcloud. This is to ensure that in case the researcher’s computer get lost, stolen or damaged, the data is not lost.

4. Will the research require the collection of personal information (e.g. from educational establishments, employers, other agencies) about individuals without their direct consent? YES □ NO □

If so, consider what information will be sought and why written/verbal consent for access to this information will not be obtained from the participants themselves.

5. Will any part of the research involving participants be audio/film recorded or recorded using any other electronic medium? YES □ NO □

Please state what medium is to be used and how the recordings be will used.

Zoom will be used for interviews. When recording on Zoom, the option of recording on the researcher’s computer will be chosen (instead of cloud). The video files that are automatically generated by Zoom will be deleted immediately. The audio recordings will be stored at the researcher’s computer in the password-protected files. The audio files will be deleted after transcription.

Because students don’t have access to Nextcloud (SU approved server) once a week the second backup of the data collected will be made and store at the supervisor’s Nextcloud. This is to ensure that in case the researcher’s computer gets lost, stolen or damaged, the data is not lost.

6. Who will have access to the raw data and how will confidentiality be maintained?

Raw data from the interviews and surveys will be available to Raf Jansen (student) and Tilman Hertz (main supervisor). To ensure confidentiality the personal information will be stored in password protected files and different types of personal information will not be store in the same files (audio recordings, transcripts, consents will all be store in the separate password protected files). Also, data will be pseudonymized and only after that
shared. Furthermore, the results will contain aggregation of findings rather than individual-level data.

7. How will participants be identifiable during the data collection, in different data sets and in final publications and archived data (e.g. Will you anonymise data or quotes? Will you use pseudonyms? Will you identify people’s role or organisation?)?

The contact details will be stored together with the consent form in the password protected files on the Nextcloud and external hard drive. There will be communication between participant and researcher via emails to set up the meetings. Those will be deleted as soon as the content of those emails is no longer needed (e.g., after data collection from certain participant has been obtained). Different types of personal information will not be stored in the same files (audio recordings, transcripts, consents will all be stored in the separate password protected files).

To ensure confidentiality the personal information will be stored in password protected files and different types of personal information will not be stored in the same files (audio recordings, transcripts, consents will all be stored in separate password protected files). The personal data will be pseudonymized, meaning that the data cannot be linked to participants without the use of additional data. This will be done by adding the ID number to the consent form. The audio recordings, interview transcripts and questionnaire forms will only use the designated ID and no personal information will be disclosed.

Direct quotations will be carefully considered as to not be linkable to individual participants. The participants’ roles or organizations will not be linked to any references; however, the aggregation of roles or organizations may be presented in the results.

In case of research with human subjects, describe how their consent to this level of identification will be sought.

This will be included in the consent form (see Appendix).

8. Will contact details be collected to provide feedback and disseminate results to research participants?

   YES □ NO □

If so, consider what contact details will be collected from participants, how will they provide consent to store that data, when will it be deleted, and how will you maintain confidentiality.

The email addresses of participants that wish to receive the study result will be collected in the consent form. The research summary will be sent to participants in English. The summary will be available in the PDF file and send to the participants via email by the end of July 2022. The email will be deleted afterwards.

9. Will the data files/audio/film footage be disposed of after the study?

   YES □ NO □

Explain which data will be retained or disposed of, and if so when and how will it be disposed of.
Unnecessary personal data such as audio recordings will be disposed after the study, however, pseudonymized transcripts, field notes, and analyzed data will be kept for 10 years.

10. Will the data be made available for secondary use or future research?  
   YES □ NO □
   If yes, explain in what form will data be made available and how will you ensure the confidentiality and consent agreements when data is made available

11. Will the data be transferred or stored in a country outside the EU?  
   YES □ NO □
   If yes, what arrangements are in place to make sure it complies with the EU General Data Protection Requirements (Chapter V of the GDPR) and ensure the confidentiality and consent agreements in the partner country?

12. Is it planned to import personal data from non-EU countries into the EU?  
   YES □ NO □
   If yes, does it comply with the laws of the country in which the data was collected?
   We are not yet sure whether this will be necessary. If so, we will make sure it complies with the laws of the country in which the data was collected.

13. Please list the names of the people who are intended to be data controllers and processors*:

   Data controllers: Stockholm University, Raf Jansen
   Data processors: Raf Jansen, Tilman Hertz

*‘Data controllers’ determine if and how data are processed. ‘Data processors’ process data on behalf of the data controller. Both are required to ensure that data is collected and processed in a transparent, accurate and secure manner, only for the original purposes for which it was collected.

SECTION 5 Collaboration and data sharing
5.1 Collaborative working and agreements

1. Will the research be undertaken in collaboration with academic or government researchers outside the SRC?
2. Will the research involve collaborating with an NGO, company, or other non-academic organisation/group?

Yes, this research involves substantial collaboration with the WWF and FFI in finding participants. Two associates from these NGOs also helped steer the research.

3. Have you a written agreement pertaining to the collaborative relationship?

See the appendix for a collaboration agreement on involvement in recruitment and possible publications that stem from this research.

4. How will you ensure that research procedures you set out to in this form are understood and followed by all members of the research team and collaborators?

Before the practical work of the research will take place, a final meeting between student, supervisors and NGO associates will be organized to make sure everybody agrees on the research procedures and publication agreement.

5.2. Working with external data

1. Where data are, or have been, obtained from another agency, archive, database, or source, is it clear that the intended usage adheres to their terms of supply? Please motivate your answer and add a brief description of the data. Add any terms of use or agreements as an appendix when necessary.

The data will not have been obtained from another source, all data will be self-obtained.

2. Where other researchers’ data are being used, is it clear that the intended usage adheres to their terms of supply?

3. Are issues of data handling and consent dealt with adequately and following procedures agreed with agencies, archive, and/or land managers?
Appendix B: Collaboration Agreement

Written agreement on terms of collaboration for the research project: Advancing evidence-informed decision-making in conservation

This agreement is written by and between the master student Raf Jansen, Dr. Tilman Hertz, Dr. Vanessa Masterson and Dr. Simon West from the Stockholm Resilience Center (SRC), Shauna Mahajan from the World Wildlife Fund and Gabriella Church from Fauna and Flora International, with the aim of setting the collaboration to conduct a master’s thesis at the SRC within the project “Advancing evidence-informed decision-making in conservation”.

All the interested parties agree that:

• Data collected during the project will be controlled and processed by Raf Jansen.
• There will be space for intellectual freedom in data analysis and publication.
• Tilman Hertz will have full access to the pseudo-anonymized data collected by Raf during the master’s thesis. When using this data, Tilman Hertz commits to apply the ethics considerations stated in the SRC’s ethics assessment for this master’s thesis, which he will sign together with this agreement.
• The identities of participants and organizations involved will be pseudonymized when publishing material coming from this research in any format.
• Shauna Mahajan, Gabriella Church and their pre-existing contacts will help with the selection of key informants for the study, sending emails to potential participants and allowing for possible snowball recruiting. Raf will organize a final meeting with all parties involved before interviews and diary study are to take place to make sure everyone agrees with the questions that are going to be asked. Raf Jansen will commit to write up a summary of this research for the WWF and FFI.
• A draft of the final master’s thesis will be sent to Tilman Hertz, Vanessa Masterson and Simon West two weeks before the hand-in deadline for the final review before submission.
• The master’s thesis will be published (on Diva) and be freely accessible to the public.
• A summary of the master’s thesis will be sent to the participants and other relevant actors according to the SRC’s ethics assessment.
• All parties should be fully informed before information resulting from this collaboration is published in any format not mentioned above. Co-authorship should be discussed between
all the parties according to the individual contribution to each publication. Intellectual Property Rights should be acknowledged.

<table>
<thead>
<tr>
<th>Signature</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tilman Hertz</td>
<td>Tilman Hertz</td>
<td>31/01/2022</td>
</tr>
<tr>
<td>Vanessa Masterson</td>
<td>Vanessa Masterson</td>
<td>27/04/2022</td>
</tr>
<tr>
<td>Simon West</td>
<td>Simon West</td>
<td>30/01/2022</td>
</tr>
<tr>
<td>Shauna Mahajan</td>
<td>Shauna Mahajan</td>
<td>01/02/2022</td>
</tr>
<tr>
<td>Gabriella Church</td>
<td>Gabriella Church</td>
<td>31/01/2022</td>
</tr>
<tr>
<td>Raf Jansen</td>
<td>Raf Jansen</td>
<td>28/04/2022</td>
</tr>
</tbody>
</table>

All participants submitted their signatories via mail; if requested I can send a pdf of the original e-mails. Contact me at rafjansen@scarlet.be
Appendix C: Plain Language Statement

Information about participation in research project “Advancing evidence-informed decision-making in conservation”

1. Information about the project and how research subjects are selected

My name is Raf, and I am a master's student from Stockholm Resilience Centre at Stockholm University. I’d like to invite you to participate in a study within a research project called “Advancing evidence-informed decision-making in conservation”. Through this project I wish to better understand the decision-making process used in conservation NGOs, as well as the current use of knowledge in this and practitioners’ (meaning your) opinion on it. Gaining this knowledge will help conservation efforts to more efficient and make better use of available knowledge. It should also give you the opportunity to reflect on decisions you make.

I have reached you because of an outreach effort by Shauna Mahajan (lead social scientist, global science) from the WWF or Gabriella Church (programme officer, East Africa and executive assistant to the CEO) from FFI. Stockholm University is responsible for this project; the Stockholm Resilience centre provides the funding.

2. What participation in the study involves

If you agree to participate, I will do two interviews with you: one scoping interview for me to better understand your job and the context you’re working in, and a semi-structured follow-up interview where I will ask each participant the same questions, all concerning decision-making as a conservation practitioner.

I expect the scoping interviews to take around 40 min and the semi-structured ones 60 min.

3. Participation is voluntary

Participation in the project is completely voluntary. You can choose to stop participating in the study at any time. You may answer just the questions you want and leave the interviews whenever you want. Your answers will be confidential. Only I and my supervisor (Tilman Hertz) will have full access to the information (see section 5 below). In the unlikely event that you share any information that could be considered against the law, this information is of your entire responsibility and the confidentiality of this interview does not imply legal privileges.

4. How to learn about study results

The results of this research will be published and freely available so that anyone will be able to access them. If you wish, I will send you a summary of the research in English.

5. How your personal data will be processed

If you choose to participate, the project will use some information about you: your name, age, sex, job description, email address and audio recordings. This information will be collected by Raf Jansen before the scoping interview. It will be possible to link this information / part of this information to you directly (because of the nature of the information collected) or indirectly...
(because of the answers you provide). Information that can be linked to you in this way is considered personal data in accordance with the EU General Data Protection Regulation 2016/679 (GDPR). The reason why the project needs to process such personal data is:

- Name: to archive your consent
- Age, sex, job description: potentially important parameters for the study
- Email address: for contact and to share the result of the study if requested
- Audio recording: to transcribe and analyze the data

Stockholm University is the controller of this processing of personal data. The legal basis for the processing of personal data is is the performance of research, which is considered a task carried out in the public interest according to the EU General Data Protection Regulation, Article 6 (1).

The personal data will be kept in separate password-protected files on the server approved by Stockholm University. The audio recordings will be deleted immediately after transcription. In order for the project to be carried out, the master’s student and project supervisor (if necessary), will be given access to personal data. Unauthorized persons will not be able to access the data. When the project is completed, pseudonymised data that have been collected and processed within the project will be saved for at least 10 years. If the material is judged to be of lasting value, it will be preserved for the future.

According to the EU General Data Protection Regulation (GDPR) and national supplementary legislation, you have the right to:

- withdraw your consent at any time, without affecting the lawfulness of the processing that occurred in accordance with your consent before it was withdrawn
- request access to your personal data
- have your personal data rectified
- have your personal data erased
- have the processing of your personal data restricted.

In certain circumstances, the EU General Data Protection Regulation and supplementary national legislation allow for derogations from these rights. For instance, the right to access your data may be restricted due to requirements for secrecy, and the right to have your data erased may be limited due to rules concerning archiving.

If you wish to invoke any of these rights, you should contact Raf Jansen, or the data protection officer at Stockholm University (dso@su.se).

If you are dissatisfied with the way your personal data are processed, you have the right to file a complaint with the Swedish Authority for Privacy Protection (Integritetsskyddsmyndigheten). Information about this can be found on its website (imy.se).

6. Contact information

You may ask any questions about this information if you agree to participate. In addition, you can contact the following persons in the event of any question, concern of complain related to your participation in this project.

**Raf Jansen**
Master’s Student, Stockholm Resilience Center, Stockholm University

**Email:** rafjansen@scarlet.be
Phone: +32 487 43 23 20

Dr. Tilman Hertz
Researcher, Stockholm Resilience Centre, Stockholm University
Email: tilman.hertz@su.se

This research follows the ethical guidelines at Stockholm Resilience Center and Stockholm University. If you have any concerns about the process or the behaviour of the researcher, you may contact the leader of the research ethics sub-committee at Stockholm Resilience Center: (src-ethics-review@su.se).
Appendix D: Consent Form, interview

Considering that:

- You have read and understood the information provided in the document called “Information about participation in research project “Advancing evidence-informed decision-making in conservation””, specifically the details about interviews.
- Your participation is completely voluntary, and you can withdraw your consent at any time without having to give a reason.
- All the information I collect in these interviews is confidential. Only I and my main supervisor will have full access to the information and the information you provide will be pseudo-anonymized. This means that any information that could lead to your identification is stored separately from the data. Thus, without linking those documents, your identification is not possible. Any information that could lead to identifying you will not be public. The quotes may be used in the final thesis but without any information that could lead to your identification. I will ask for your explicit permission if I want to use a specific quote from you.
  - However, some general information about participants will be revealed in the thesis (fact that you are NGO employees, countries where the projects are stationed). This information, together with a quotation from you, could be used by someone to identify you. If choosing to participate in this research, you acknowledge that this is a possibility for which the researcher is not responsible.
- Your personal data (name, email, audio files, etc.) will be kept in a password protected file on the Stockholm University approved storage. You can ask me to delete your personal information at any time (see the “Information about participation in research project “Advancing evidence-informed decision-making in conservation”” attached).
- Any information that you share that could be considered against the law is of your entire responsibility and the confidentiality of this interview does not imply legal privileges.
- This study has scientific research purposes. Therefore, the results of this research will be published and freely available so that anyone will be able to access them.
- Participating in this research does not imply co-authorship of the publications that will result from the research.
- You have had the opportunity to ask questions regarding the study and your questions have been answered satisfactorily.
- You were allowed sufficient time to consider whether to give your consent.

Mark your answers:

- Do you want to participate in these interviews? **YES/NO**
- Do you agree to be contacted for future interviews or clarifications? **YES/NO**
- Do you agree to the processing of your personal data as described in the document “Information about participation in research project “Advancing evidence-informed decision-making in conservation””? **YES/NO**
- Do you agree to the use of quotes in the final thesis? If one of your quotes is selected to be printed in the thesis, we will contact you again and ask for explicit permission to use said quote. **YES/NO**
• I would like to record any interviews to transcribe the conversation. Audio files will be destroyed after the data is transcribed. Do you allow me to record interviews?

YES/NO

Name and signature of participant:               Date and location:

_____________________________________________  ________________________________
Transcription Confidentiality Agreement

THIS AGREEMENT (the "Agreement") is entered into on this date 03-03-2022 by and between Raf Jansen (the “Discloser” or the “Disclosing Party”), and Nordic Accent Translation (also known as Accent Språkservice) (the “Recipient” or the “Receiving Party”).

The Receiving Party desires to provide transcription services to the Disclosing Party. During the provision of services the Disclosing Party may share certain information with the Receiving Party. Therefore, in consideration of the mutual promises and covenants contained in this Agreement the parties agree as follows:

1. Definition of Confidential Information.
   (a) For purposes of this Agreement, “Confidential Information” means any data or information that is proprietary to the Disclosing Party and not generally known to the public, whether in tangible or intangible form, whenever and however disclosed, including, but not limited to: (i) information contained in audio and video recordings, (ii) transcriptions of audio and video recordings; and (iii) any other information that should reasonably be recognized as confidential information of the Disclosing Party.

   (b) Notwithstanding anything in the foregoing to the contrary, Confidential Information shall not include information which: (i) was known by the Receiving Party prior to receiving the Confidential Information from the Disclosing Party; (ii) becomes rightfully known to the Receiving Party from a third-party source not known (after diligent inquiry) by the Receiving Party to be under an obligation to the Disclosing Party to maintain confidentiality; (iii) is or becomes publicly available through no fault of or failure to act by the Receiving Party in breach of this Agreement; (iv) is required to be disclosed in a judicial or administrative proceeding, or is otherwise requested or required to be disclosed by law or regulation.

2. Disclosure of Confidential Information.
   In accordance with seeking transcription services the Disclosing Party may disclose Confidential Information to the Receiving Party. The Receiving Party will:

   (a) limit disclosure of any Confidential Information to its officers, employees, or agents (collectively "Representatives") who have a need to know such Confidential Information in order to provide the transcription services to which this Agreement relates, and only for that purpose;
(b) advise its Representatives of the very private and very confidential nature of the Confidential Information and of the obligations set forth in this Agreement and require their Representatives to sign similar legally binding Confidentiality Agreements with the Receiving Party;

(c) shall keep all Confidential Information strictly confidential by using a high degree of care and security; and

(d) not disclose any Confidential Information received by it to any third parties (except as otherwise provided for herein).

3. Use of Confidential Information.
The Receiving Party agrees to use the Confidential Information solely in connection with the provision of transcription services and not for any purpose other than as authorized by this Agreement without the prior written consent of an authorized representative of the Disclosing Party. No other right or license, whether expressed or implied, in the Confidential Information is granted to the Receiving Party hereunder. Title to the Confidential Information will remain solely in the Disclosing Party. All use of Confidential Information by the Receiving Party shall be for the benefit of the Disclosing Party and any modifications and improvements thereof by the Receiving Party shall be the sole property of the Disclosing Party.

4. Return of Confidential Information.
Receiving Party shall return, delete or destroy all recordings embodying the Confidential Information provided including all transcripts and audio and video recordings, upon the earlier of (i) the completion or termination of the project between the parties being contemplated hereunder; (ii) the termination of this Agreement; or (iii) at such time as the Disclosing Party may so request.

5. Miscellaneous.
(a) This Agreement constitutes the entire understanding between the parties and supersedes any and all prior understandings and agreements, whether oral or written, between the parties, with respect to the subject matter hereof. This Agreement can only be modified by a written amendment signed by the party against whom enforcement of such modification is sought.

(b) The validity, construction and performance of this Agreement shall be governed and construed in accordance with the laws of Sweden applicable to contracts made and to be wholly performed within such state, without giving effect to any conflict of laws provisions thereof. The courts located in Sweden shall have sole and exclusive jurisdiction over any disputes arising under the terms of this Agreement.

(c) Paragraph headings used in this Agreement are for reference only and shall not be used or relied upon in the interpretation of this Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date first above written.
Receiving Party By
(Signature):

Printed Name: David Ordoubadian
Title: CEO
Date: 4 March 2022

Disclosing Party By
(Signature):

Signed digitally, see next page

Printed Name: Raf Jansen
Title: Mr.
Date: 3 March 2022
Signature page
This document has been electronically signed using eduSign.

Electronically signed by
Raf Erik V Jansen
Date and time of signature
2022-03-09 08:29 UTC
Authenticated by
Stockholm University

Validate signed documents at: https://validator.edusign.sunet.se
Appendix F: Questionnaire

Note to reader: as this was used for semi-structured interviews, this question list was not strictly followed. Some questions could be skipped and additional ones could be asked, based on what I found interesting (or less so) to inquire about. Not all questions gave enough interesting data to incorporate in the thesis, although some answers will be presented to NGO representatives in a separate work.

General

What counts as “evidence” to you when making decisions?
  What counts as scientific evidence to you?
  What do you think about conferences, etc. Do you see this as scientific evidence?
  How would you balance/weigh that against scientific knowledge?
  Is there pressure to address popular issues?

At what point during a project implementation do you have the most need for evidence?

Scientific knowledge and evidence-informed decision-making

  Scientific knowledge: all knowledge derived from the peer-reviewed scientific process

Do you often access scientific knowledge to make decisions? Does your organization?
  If so, how do you engage with it? Google scholar searches, asking researchers, synopsis, …
Is your project/organization connected to a local (independent?) research centre?
Do you think more engagement with scientists and scientific knowledge is needed, or not?
  Local / global context

Do you feel external pressure to engage more with scientists and scientific knowledge, or not?
  Pressure from your superiors? Donors?
  Did you see attitudes change towards this subject over your lifetime?

Do you or your organisation use tools or frameworks to help with decision-making?
  Are these tools/frameworks available should you want to use them?
Does your organisation write internal assessment reports on projects and interventions?
  Do you consider monitoring and evaluation as (scientific) evidence?
  If so, does your organisation write scientific (peer-reviewed) publications

Are you satisfied with the quantity and quality of scientific knowledge on the topics you work with?
Do you have the means and tools to engage with scientists and scientific knowledge should you want to do so, or not?

- Meaning journal subscriptions, time to engage
- Do you feel you have the required knowledge?
- What could researchers do to improve access to scientific knowledge?

What is, for you, the usefulness of research syntheses? With this, I mean short articles that summarize available knowledge on a topic, e.g. article that looks at 30 studies on whether fencing helps against human-wildlife conflict

- Have you heard of the website conservationevidence.com?
- environmentalevidence.com?

What could the global support network of your organization do to make scientific knowledge more accessible?

*Is there pressure to focus on popular issues (those who attract donors) and that topics you deem more important are neglected?*

- Where does that pressure come from?

Local and indigenous knowledge

What is, for you, the role of local and indigenous knowledge in conservation decision-making?

- How do you see this conflict between scientific / indigenous knowledge
- What about knowledge gained by experience as a practitioner?

Does your org have good relationships with local/indigenous inhabitants?

Have you seen any change in the attitude towards the role of local and indigenous knowledge in conservation work?

What could the global support network of your organization do to make local and indigenous knowledge more accessible?

- For example, changes in policy? Programs, workshops, funding?