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# Assessing trust in the Swedish survey system for large carnivores among stakeholders

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# Assessing trust in the Swedish survey system for large carnivores among stakeholders

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## Abstract

The human-carnivore conflict in Sweden has been a fact for centuries. Dating back several decades, there has been a reversal in the management of large carnivores towards conservation instead of eradication. Recovering populations have returned to former habitats and thus added to the conflict when depredation on domesticated animals have increased. To mitigate the circumstances where large carnivores and humans need to coexist according to directives and regulations, Swedish authorities together with non-governmental organizations, carries out annual surveys of the large carnivores as to actively manage their populations to a state of favorable conservation status. A common opinion among the respondents is that the survey system for large carnivores and its methods suffers from a lack of trust i.e. that responsible authorities do not act in accordance to their assignment as to produce results and present estimates of carnivore populations. Communication, allocation of responsibility and competence, resources, respect, knowledge and justice are, within this report, identified subcomponents of trust that needs to be strong in order for the system to thrive and develop. By linking quotes to these subcomponents, the picture is made clear and presents a common pattern for distrust in the system, as well as a perception of poorly developed survey methods. Greater respect and knowledge-integration are two factors requested by several rural enterprise organizations to strengthen the institutional trust.

*Keywords:* Human-carnivore conflict, large carnivores, institutional trust, communication, responsibility, competence, resources, respect, knowledge, justice

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# Acronyms

BLS	BirdLife Sweden (Included in <i>NCO</i> )
CAB	County Administrative Board
DC	Distance Criteria
GDPR	General Data Protection Regulation
GES	Golden Eagle Sweden
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
NAH	National Association of Huntsmen
NCC	National Carnivore Council
NCO	Nature Conservation Organization
NEA	Norwegian Environment Agency
NGO	Non-governmental Organizations
FSF	The Federation of Swedish Farmers
NNI	Norwegian Nature Inspectorate
REO	Rural Enterprise Organization
SCA	Swedish Carnivore Association (Included in <i>NCO</i> )
SEPA	Swedish Environmental Protection Agency
SHA	Swedish Hunter Association
SSA	Swedish Sami Association
SSBA	Swedish Sheep Breeders Association (Included in <i>REO</i> )
SSNC	Swedish Society for Nature Conservation (Included in <i>NCO</i> )
SATP	Swedish Association for Transhumance and Pastoralism (Included in <i>REO</i> )
WDC	Wildlife Damage Centre
WMD	Wildlife Management Delegation



# 1 INTRODUCTION<sup>1</sup>

The Swedish government's carnivore policy (Prop. 2012/13:191) aims to comply with the EU's species and habitat directives and to achieve the seven natural-type national environmental quality objectives. According to the government, there is a great need for collaboration and more respect for both animals and people. For this reason, the government is increasing and adjusting the focus on measures to prevent and compensate for carnivore damage in order to prevent conflicts around carnivore policy. (Regeringen, 2015)

The aim of the policy is to achieve and maintain a favorable conservation status for the large carnivores according to the species and habitat directive, while taking socio-economic considerations into account. To achieve the policy, regular surveys of the carnivore populations are performed to determine the sizes of the populations and how the propagation develops (Naturvårdsverket, 2018). Except their presence and us managing them for favorable conservation status, large carnivores affect private property such as livestock, reindeers, domestic animals and dogs and thus affecting the socio-economy. Here, the county administrative boards (CAB) grant reimbursements (for loss of private property) and subsidies (for preventive measures) to affected owners as shown in table 1 (Viltskadestatistik, 2019).

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<sup>1</sup> The content of this study is based on the simultaneously produced report assigned to researchers at SLU (Swedish University of Agricultural Sciences, Department of Fish & Wildlife Management) and Umeå University (Department of Political Science) evaluating the perceived trust in the survey system and its methods for large carnivores. The assignment was delegated by SEPA and expected to be published in 2019.

Table 1. Effects of large carnivores during 2018. (Viltskadestatistik, 2019)

*Animals affected (killed, wounded or missing) by large carnivores*

<b>Animal</b>	<b>Individuals</b>
Sheep	383
Goat	13
Cattle	5
Reindeer	19500 - 72500*

*Reimbursements for loss of private property*

<b>Object</b>	<b>(thousand SEK)</b>
Domestic animals**	1200
Dogs	26

*Subsidies for preventive measures*

<b>Object</b>	<b>(thousand SEK)</b>
Domestic animals**	8100
Dogs	234

\* estimate of annually killed reindeer, (SOU 2012:22)

\*\* except reindeer

The survey system is mainly regulated through the ordinance (SFS 2009:1263) on management of bear, wolf, wolverine, lynx and golden eagle, the Swedish environmental protection agency's (SEPA) regulations and general advice on survey of bear, wolf, wolverine, lynx and golden eagle (NFS 2007:10) together with SEPA's instructions for methods for surveying large carnivores in Sweden. SEPA together with Norway's corresponding authority, Norwegian environment agency (NEA), have developed common survey methods for bear, wolf, wolverine and lynx (Naturvårdsverket, 2018).

SEPA is responsible for a national database (Rovbase) in which CABs can document and register sightings of carnivores. Rovbase is a common management tool for mainly Sweden and Norway and a database where data on carnivore information is registered, specifically the large carnivores. Rovbase is today an operational support for the entire carnivore administration, where the Norwegian Nature Inspectorate (NNI), Swedish county boards and other field personnel, various genetic laboratories and researchers use the database to register information about the carnivores. (Rovbase, 2019) After completing the survey, SEPA is responsible for a national evaluation and compilation, as well as quality assurance and the certification of the CABs' produced survey results.

Ordinance (SFS 2009:1263) states the CAB as the authority responsible for carrying out surveys of wolverines, lynx, golden eagles and wolves. In support, there is a co-operation council as a body for collaboration between the CABs that are part

of a carnivore management area (northern, central and southern). In areas with reindeer husbandry, the collaboration must also include the Sami villages (defined as a geographical area where reindeer husbandry is carried out and is organized as an economic and administrative association with its own board. (Sametinget, 2019)). The results from the carnivore survey should be submitted to SEPA, which in turn is responsible for ensuring that the results are of good quality. (Naturvårdsverket, 2018)

The objective is communicated with the survey work and organization, areas and methods, documentation in the field and in the database together with result presentation through SEPA's regulations (NFS 2007:10). The regulations clarify the content of the regulation regarding the parameters that, for each species and geographical area, shall be determined annually. The regulations also clarify the CABs' mandate and requirements for the organization to carry out the survey assignment.

The CABs' assignments include:

- planning the survey in collaboration with Sami villages and other participating organizations.
- document and register sightings of large carnivores in a national database (Rovbase).
- compile, evaluate and report the results from surveys.
- to archive and inform about the achieved results.

The CABs appoint a survey manager who is responsible for the planning of the work and that the survey is carried out and reported in accordance with applicable regulations. The Sami Parliament appoints the Sami villagers' survey coordinator after proposals from Sami villages, while participating organizations appoint survey coordinators for each county themselves. During the work, the survey coordinators acts as a link between the CABs' personnel, the members of the organizations and the members within the Sami villages. Survey managers, field personnel and survey coordinators must, in accordance with current regulations, have relevant knowledge to ensure that the survey is carried out with good quality. Part of the methodology is to involve and engage the public with the opportunity to participate in the survey, in order to increase the chances for the survey to be as comprehensive as possible, with local participation as one of the most important parts. (Naturvårdsverket, 2018)

It is of great importance when sighting one of the five large carnivores (bear, wolf, wolverine, lynx and golden eagle) to contact the CAB in respective county and notify:

- specie and number of individuals
- place of sighting
- date and time

Today, the society and nature are in a constant phase of changing. The climate together with the landscape and its wildlife varies over time as well as the priorities of the society and the ways of cultivating the land where the wildlife is found (IPBES, 2019). From a historical perspective, the Scandinavian peninsula (Sweden and Norway) have five species of large carnivores: Brown bear (*Ursus arctos*), Grey wolf (*Canis lupus*), Wolverine (*Gulo gulo*), Eurasian lynx (*Lynx lynx*) and Golden Eagle (*Aquila chrysaetos*) where all, except the golden eagle, have been lethally controlled with high state-financed bounties, since the 17<sup>th</sup> and 18<sup>th</sup> century (Swenson & Andrén, 2005). They have all been exposed to the risk of being extinct in Sweden on various occasions spanning the 20<sup>th</sup> century. All the above-mentioned large carnivores were considered almost extinct in the early 20<sup>th</sup> century except for the wolf that was considered extinct in the latter part.

The wildlife in Sweden is seen as a resource that should be managed and taken care of in order to gain the full uses, as to bring quality of life to everyday people. Future wildlife management needs to be able to adapt to the change that is constantly underway with its invasive species, varying wildlife populations together with new ways to manage and unforeseen events following the tracks of climate change. The wildlife also affects rural businesses in ways of damage and loss of domestic animals together with the peoples' attitudes to their conservation (Linnell, Swenson, & Andersen, 2000). Furthermore, the depredation of semi-domestic reindeer by large carnivores has a long history which has resulted in the present conflict between large carnivores and the indigenous Sami people.

In order to strengthen Swedish wildlife management and its strategies, the Swedish Environment Protection Agency (SEPA) has formulated a vision for the continued work which can be interpreted as a long-term target for the management. Everyone should be given the opportunity to take part in the ecosystem services and those linked to the Swedish wildlife and within their vision it is demanded that the use and management of wildlife is developed. Furthermore, new ways to handle and, if possible, to obviate the damage and other problems that wildlife causes are requested. (Naturvårdsverket, 2015)

As part of the Swedish monitoring of environments and wild animals, different animal species and their populations are surveyed. SEPA and the county administrative boards (CAB) have the overall responsibility to monitor and survey the large

carnivores. They also cooperate with ten additional and different governments and organisations throughout Sweden to carry out the surveys (appendix 2). Apart from that, non-profit organisations, such as hunter- and nature conservation organisations, contribute in ways of reporting sightings of large carnivores (Naturvårdsverket, 2018).

Hence, the surveys are the foundation to assess the species distribution and the size of wildlife populations. The surveys also form the basis of management decisions such as hunting for large carnivores and for the Sami Parliament's decision on remuneration for carnivore occurrence to the Sami villages. (Naturvårdsverket, 2018)

However, the issue of trust is a recurring theme in both evaluations and research on large carnivores and their management. And the question of trust in the survey system is not new. In the report – The carnivores and their management (SOU 2007:89) – several deficiencies were identified in the survey system. The evaluation proposed several measures to enhance trust. These include, for example, measures to increase local participation in the surveys, the representation of different interest groups in different forums that are to interpret the results, and increased transparency. Although some of these measures have been implemented, there is still a tension between different actors involved in the system. Issues that are still being discussed are views on knowledge, where, for example, scientifically based knowledge and local knowledge sometimes end up on a collision course with each other. It does not only affect the trust in the system, but also the trust between the actors involved in the system representing the different knowledge views (Sjölander-Lindqvist, Johansson, & Sandström, 2015). In addition to trust being central to activities that are knowledge-intensive and conflict-filled (Adler, 2001; Sjölander-Lindqvist, Johansson, & Sandström, 2015; Wenger, McDermott, & Snyder, 2002), focus on trust is particularly relevant also in the light of the ongoing evaluation within the framework of the Trust delegation. (Tillitsdelegationen, 2019)

The purpose of this study is to investigate and evaluate the trust in the survey system and the survey methods used among those directly affected by the surveys, and to identify any measures that can contribute to increased trust in the system itself.



## 2 THEORETICAL FRAMEWORK

In this study, the concept of trust plays a central role. In the literature, trust is mainly defined as social trust and institutional trust. Although social trust will be affected, it is primarily institutional trust that is being investigated.

### 2.1 Social trust

Trust shapes relationships between individuals and groups, as well as between groups. Trust is a prerequisite for initiating, creating and maintaining social relations and is of the utmost importance for tangible conflicts of interest (Axelrod, 1984; Balliet & Van Lange, 2013; Blau, 1964; Deutsch, 1958). Creating trust in the administration, such as surveys for large carnivores, is of great importance for it to work as intended and facilitate the introduction of new management measures or survey methods (Needham & Vaske, 2008; Stern, 2008).

More specifically, social trust can be defined as the willingness to rely on other individuals, and on individuals representing, for example, the public (Cvetkovich & Winter, 2003). In this case, these individuals represent those who are formally responsible for designing and implementing the large carnivore survey system. Without trust, people's ability to give the actions a direction and the desire to take risks decreases. Based on a risk management perspective, a distinguish can be made concerning trust based on relationships between individuals, and trust based on experience (Earle, 2010). Trust based on relationships between individuals plays a greater role in creating trust, especially in connection with risk management. If there is no trust, the world becomes risky and unpredictable. People withdraw socially and join the group where they may still experience trust (Sjölander-Lindqvist *et al.*, 2015).

The degree of trust can change over time, in both positive and negative directions. Initially, trust is often based on a rational comparison of pros and cons to maintaining a relationship. In a trust-based relationship, the counterpart's behavior becomes predictable and knowledge-based trust can be developed. Finally, there is

mutual understanding and respect for each other's interests (Lewicki *et al.*, 2006). Although the development of trust can take a long time, it can be developed through, for example, fair representation, equal treatment and communication in different arenas, as well as through mutual understanding and respect for different knowledge systems. In conclusion, six factors can be important for changing trust over time: 1) the individual's inclination to feel trust, 2) the counterpart's qualities such as general credibility, reliability, benevolence and integrity, 3) good experiences from previous relationships, 4) a good communication process, 5) the current relationship's characteristics, and 6) structural or institutional factors that govern relations between parties (Lewicki *et al.*, 2006; Sjölander-Lindqvist *et al.*, 2015; Bringselius, 2018).

## 2.2 Institutional trust

Seen from an institutional perspective, trust is the putty that holds together a society (Rothstein, 2011). People in Sweden are trusting (Holmberg & Rothstein, 2015). Studies show that a high interpersonal trust is a central lubricant in a well-functioning society. This means that decision-making processes become smoother, more efficient and generally faster. Trust lowers what economists term as "transaction costs" in a society; if there is trust, less time and resources are needed to reach agreement (Coase, 1960). Beneficial exchanges will, for example, more often occur if the parties perceive each other as reliable and it will also be possible to produce public goods in the form of legitimate policies (Dahlström *et al.*, 2013; Fehr *et al.*, 2005; Rothstein, 2003). Low trust is gravel in the machinery. Operations associated with low trust risk taking longer, becoming more costly and less efficient. It can develop into a negative spiral that leads to a continued reduction of trust (Ambrose & Schminke, 2003; Aryee *et al.*, 2002; Khazanchi & Masterson, 2011; Rothstein, 2011). How then does trust relate to political institutions? According to Rothstein (2011), trust is dependent on how the public institutions work. It's not just about what decisions are made in the public decision-making process, but people are also interested in the fact that the procedure is fair and that everyone is treated equally. Against the background of the ongoing Trust Committee, it is also considered of great importance that the allocation of responsibilities and competence in a system is transparent and not least rational; that it's clear who's responsible for what and whoever has received responsibility on the delegation also has the possibilities to carry out their assignment. This creates a mutual dependence that works much better if the parties feel trust in each other (Bringselius, Vad är tillitsbaserad styrning och ledning, 2018).

## ANALYTICAL PREREQUISITES

Derived from previous research (see reference in sections 2.3-8), six subcomponents were identified that may have a bearing on the degree of trust (figure 1). The components were used as a basis for the interviews and focus group interviews to give structure to the conversations. All respondents were given the opportunity to study the figure pre-interviews and during the same, and although not all components were touched upon during the interviews, the figure worked well to describe the different parts that underlie trust. It is important to point out that there are no precise measures of the degree of high and low trust. By evaluating the trust based on the components, one can assume that with more components characterized by trust in the system, the higher the total trust, and vice versa.



*Figure 1. Six subcomponents affecting institutional and social trust*

### 2.3 Communication

Communication is of crucial importance for trust (Ozawa & Sripad, 2013). Relationships between people are structured through functional communication and it helps to transfer information more easily. Effective communication, which is often defined as delimited, correct, complete and timely, contributes firstly to the possibility of building a common understanding between actors. Secondly, it contributes to the possibilities of making correct decisions and taking measures by focusing the

actors' attention on a common understanding of a given situation (Wallin & Thor, 2008). It is therefore reasonable to assume that how communication between the actors and organizations/institutions involved in surveys of large carnivores work, affects the trust in the survey system.

## 2.4 Allocation of responsibility and competence

The government that took office in 2014 began to develop forms of governance and follow-up that aimed at finding a better balance between control and trust in the employees' professional knowledge and experience (Tillitsdelegationen, 2019). Although the focus is primarily on relationships within and between different governmental agencies, it is reasonable to also include agencies where the state has established a type of partnership with private or non-profit organizations and thus is dependent on these in order to be able to carry out their tasks (Bjärstig & Sandström, 2017), which is the case with the survey system for large carnivores (Naturvårdsverket, 2018).

Previous research shows that different ways of organizing a business create different circumstances for trust. For example, the transition from procedural and regulatory control to governance focused on results, goals and quality has led to a more instrumental view for allocation of responsibility and competence, which means that the person who is given responsibility must also describe how the responsibility has been managed (Lindgren, 2006). This applies not least when the contacts and communication between different hierarchical levels in an organization are small and based on written directives, plans and reporting. There are no arenas for exchanges between levels, which is why the possibility of receiving views for changes about changes becomes small (SOU 2018:38).

The use of standardized control instruments and methods, in a complex and diverse business, on one hand, implies that the business is perceived as uniform, but on the other hand risks causing knowledge - whether scientific or experience-based - to be invisible or impaired. According to (Regnö, 2013) there is a risk that the directives that come from above are perceived as difficult to change, which in turn means that responsibility and competence are not followed. Those responsible for the result have little opportunity to influence the decisions. The business is "remotely controlled" and it is only what is counted, measured and reported back that counts. To create trust in a management, it is therefore of great importance that the work is organized in such a way that responsibility and authority are interconnected and that those who are involved have the opportunity to influence the conditions for

the work they also have a responsibility for (Mintzberg, 2017). Considering previous research, there is reason to assume that how the system for large carnivores is organized can affect the trust in the survey system.

## 2.5 Resources

The survey system for large carnivores includes many actors (appendix 2). In 2017, the Swedish survey system for large carnivores cost approximately SEK 60 million. In total, there were about 600 people who were involved in producing data within the system and the total financed working hours for these, amounted to about 65 annual work hours in authorities, universities and organizations. In addition to this, is the extensive work the public contributes by reporting carnivore observations. (Naturvårdsverket, 2018)

The survey system for large carnivores is thus a resource-intensive organization. The SEK 60 million that the system cost in 2017 is probably low calculated because it does not include the non-profit work and neither the transaction costs in systems, i.e. a calculation of the costs that arise when collaborating between different actors. Now, the purpose of this study is not to examine the total cost of the survey system, but it is reasonable to assume that trust in the system is affected if the actors involved perceive that the costs, whether direct or indirect, are unevenly distributed.

## 2.6 Respect

The existence of trust is intimately associated with the concept of respect (Putnam *et al.*, 2004). This applies not least to a conflict-filled situation where actors meet in processes that are expected to be characterized by collaboration. As mentioned earlier, there are elements in the survey system that are based on collaboration between public authorities, but also between authorities and private actors. A fundamental prerequisite for this collaboration to work and build on trust is that there is mutual respect between those who are involved. This applies not least to respect for each other's knowledge and competences (Bjärstig & Sandström, 2017). With background of previous research, it is reasonable to assume that lack of respect can affect trust in the survey system.

## 2.7 Knowledge

The extensive access to information today places new demands on how public activities are conducted. It is necessary to ensure that the activities are conducted in a

competent manner in order to earn trust internally within one's own organization, but also externally in relation to other actors (SOU 2018:38). An important component for success and trust-based relationships is what is known as knowledge integration, i.e. the ability to take advantage of the knowledge that is available to private and social actors who raise the level of knowledge and create commitment and motivation to participate in the development of the administration. However, this presupposes that there is enough room for maneuver within the administration for it to be possible (Cinque, 2015). It, however, challenges the traditional monopoly of the science community on the creation of knowledge in favor of broader inclusion of experience and situational knowledge production. Here, an active knowledge development characterized by respect for different knowledge views is considered to play an important role in creating the conditions for a trusting relationship between actors (Sjölander-Lindqvist et al. 2015; IPBES, 2019). In view of this, it is reasonable to assume that the degree of trust depends on the degree of knowledge integration.

## 2.8 Justice

According to (Norén Bretzer, 2005), trust in a system or an institution depends on two factors. First and foremost, trust depends on how the actors involved perceive what is usually called procedural justice or that equal cases are treated equally. Secondly, it also affects the possibility of making one's voice heard, regardless of whether the opinion is presented. The trust in the survey system in this case would thus depend on the perception of just procedures by the actors concerned, i.e. that the system does not discriminate against any of the actors involved and that all concerned are treated equally. Here we can thus assume that it is important to have control over the procedures for decision-making within the survey system, but also the methods for surveying the various carnivores. However, research indicates that it is not only important for how decisions are made, but also that the possibility of exercising influence over the content of the decisions is of great importance (Johansson, 2013). Regarding this background, it is reasonable to assume that perceptions of justice and equal treatment among the actors concerned can affect trust in the survey system.

## 3 METHODS

### 3.1 Research design

The study was designed using qualitative methods through sets of interviews and focus groups. The approach of a qualitative method was chosen because of its suitability within the above-mentioned interviews and focus groups, as to produce, what Patton (1990) describes as a wealth of detailed data on a small number of individuals. Because of the limited number of participants, the approach of a quantitative method was deselected and the trade-off between breadth and depth was considered (see Patton, 1990), where in this study, depth was more important.

Upcoming patterns in the collected data were associated with the above described themes (section 2.3-8) as to carry out a thematic analysis, which is a type of qualitative analysis.

### 3.2 Selection of participants

The method of selection for the study is based on the principle of effective selection. In order to gain access to the best possible information, the respondents (participants) were selected based on their connection in context to the survey system and thus have insight into and experience of how it works. In collaboration with SEPA, relevant authorities and non-governmental organizations (NGO) that are affected by the carnivore management were identified. Respondents from the CAB in the southern (Kronoberg), central (Värmland), and northern (Jämtland) administrative area were chosen based on wildlife damage statistics (Frank *et al.* 2018) and remuneration statistics (Sametinget, 2019). The same selection principle was used to identify representatives of the Federation of Swedish Farmers (FSF). The focus was directed

at the rural enterprises' economy linked to carnivore attacks and selected based on the report by Elofsson et al. (2015). Of the three selected and contacted representatives from the FSF within the counties of Dalarna, V. Götaland and Gotland, only two (V. Götaland and Gotland) participated due to contact difficulties with the third participant. Further contact to ensure a third participant was not pursued. FSF does not participate in the surveys for large carnivores (except voluntarily) but they are non the less affected by the presence of large carnivores and was therefore asked to participate in the study. To other organizations, the issue of participation was addressed with an invitation to identify people with good knowledge of the survey system. Many of the participants have a connection to, or are, representatives in the county's wildlife management delegations. It is furthermore important to address the issue that the respondents participating in this study does not represent all who are affected, direct or indirect, by the survey system. The selection aimed to include as many stakeholders as possible but due to limitations in time and on resources, those able to participate were included.



Table 2. Groups and individuals interviewed in the study

	<b>Respondent</b>	<b>Form of Interview</b> <i>Focus Group (FG)</i> <i>Individual (I)</i>	<b>Number of participants</b>	<b>Date</b>
1	Swedish Sami Association	FG	10	2018-10-17
2	Swedish Hunter Association	FG	6	2018-11-22
3	Wildlife Damage Centre	FG + 3 I	3	2018-11-23
4	National Association of Huntsmen	I	1	2018-12-11
5	Swedish Environment Protection Agency	FG	5	2018-12-19
6	County Administrative Board	FG	3	2018-12-21
7	The Federation of Swedish Farmers	FG	2	2018-12-21
8	Swedish Association of Transhumance and Pastoralism	FG	5	2019-01-10
9	Swedish Sheep Breeders Association	FG	2	2019-01-17
10	NCOs (Swedish Society for Nature Conservation, Swedish Carnivore Association, Bird-Life Sweden)	FG	7	2019-01-19
11	Golden Eagle Sweden	I	1	2019-01-29

### 3.3 Interview methods

Focus group interviews are a qualitative survey method that means gathering a group of people with the allowance to discuss a given subject - in this case, the system and methods for surveying large carnivores - with each other under the guidance of a moderator (Wibeck, 2010). The aim of the focus groups was that the discussion between the group participants would revolve around the current survey system. The moderator starts the discussion and, if necessary, introduces new aspects (Wibeck, 2010). Focus group interviews are important for identifying a group's common attitudes and possible dividing lines for an issue or phenomenon (Bryman, 2007). In the study, the individual interviews were also an important research method. They followed a semi-structured theme; based on several themes where the interviewed person could, to some extent, control the extent to which the questions came up, instead of following a form with exact and specific questions.

Individual interviews are, in the field of qualitative research, the most widely used data collection strategy (Sandelowski, 2002; Nunkoosing, 2005) where researchers typically choose these to collect personal and detailed accounts of participants' knowledge, attitudes, beliefs and thoughts related to a given phenomenon (Fielding, 1994; Speziale & Carpenter, 2011; Loiselle *et al.*, 2007). The approach of individual interviews assumes that participants' assertion of their experience reflects their reality if the questions within the interview are formulated correctly (Morse, 2000; Sandelowski, 2002; MacDonald, 2006).

The purpose of the focus groups and the individual interviews was to let the person or persons who were interviewed develop their individual or common views on the survey system for large carnivores. As listed in table 2, organizations were mainly interviewed in focus groups with representatives only associated with their own organization apart from no. 10 where 3 NCOs (Swedish Society for Nature Conservation (SSNC), Swedish Carnivore Association (SCA) and BirdLife Sweden (BLS)) were participating. No. 3 was conducted in 3 separate individual interviews (in-depth interviews about survey methodology concerning wolf, wolverine and golden eagle. Experts on bear and lynx were unavailable) and later the same day as a focus group. No. 4 and 11 were conducted solely as individual interviews. Questions that formed the basis for the interviews were prepared on basis of previous research and partly in collaboration with SEPA. (See appendix 1, Interview manual)

### 3.4 Data collection

The study's main data collection method was through interviews and focus groups (explained in 3.1). Chosen participants were contacted through e-mail and some by phone (where it was deemed necessary to establish contact), to inform about the

opportunity to influence and affect the result regarding the survey system and its methods to survey large carnivores. Time and date for each of the individual interviews and/or focus groups were decided based on availability among the participants and at suitable locations as follows:

Stakeholders and organizations numbered: 2, 3, 5 and 10 (see table 2) were interviewed at their specific headquarter, no. 1 in a neutral facility and no. 4 at the participant's residence. The remainder of the interviews, individual or in focus groups, were conducted over skype or through multiparty calls.

Respondents who accepted the invitation of participation were given material, such as questions regarding the subject (appendix 1), information about data management, such as The General Data Protection Regulations (GDPR, appendix 4) together with a form to sign (as approval to the regulations of GDPR, appendix 5), the concept of trust (figure 1) and also a schematic table (appendix 2) in order to prepare for the coming sessions. GDPR was implemented on 24 May 2018 and is vital within EU and is meant to apply directly to processing activities of personal data which in turn have a link to the European Unions' territory or market (Albrecht, 2016). The use of GDPR was therefore crucial in the preparation of and use of quotes selected from the interviews. The signed forms were collected before the initiation of each interview and later stored in a safe.

The interviews, as well as the focus groups were recorded using the Zoom H2 Handy Recorder which is an SD-card based recorder with two operation modes for 2-channel (stereo) or 4-channel recording (ZOOM) where the 2-channel was the most frequently used one. The recordings were transferred onto a USB-drive and stored together with the signed forms in a safe.

### 3.5 Data analysis

A total of 45 people was interviewed and after completion of the interviews, the recordings were transcribed in a manner to understand the stated context. To comply with GDPR and respect the individual participants anonymity, an encoding of the respondents within the focus groups and individual interviews was made. To give the respondents an opportunity to comment, edit, delete or add to the interviews the written transcripts were then returned by email (to those who requested a copy of the interview). After the selection of quotes, respondents were then given the opportunity to approve the use of them. The quotes were all anonymized, which means that the names of counties and locations also were changed into neutral terms.

In order to investigate the actual trust and its status in the survey system for large carnivores the analysis was focused on bringing quotes into the *model of trust* (figure 1) and its subcomponents, to further analyze patterns of perceptions appearing

in the text. These may be overall common perceptions or perceptions that distinguish partitions between the different interest groups regarding the interviews to identify patterns in respondents' statements based on questions about trust in the survey system.

With the use of a transcription software, NVivo 12, which supports qualitative research and is designed to organize, analyze and gain insight into qualitative data (QSR International, u.d.) such as - in this case - the interviews, an analysis was made based on the extensive interview material (149 pages of printed text), where statements were classified based on affiliation to the six original subcomponents of trust and thus giving a fair amount of data for each corresponding component. The analysis of trust towards the methods was carried out in the same manner as with the survey system as to find common patterns of perceptions and to distinguish overall improvements or ideas regarding the practical use of the methods.

## 4 RESULTS & DISCUSSION

Here, the respondents' trust in the survey system is presented in three parts. First covering the survey system and the organization (section 4.1-6), secondly the system methodology (section 4.7-8) and last, the roles within the survey system (section 4.9-12). The six components (communication, allocation of responsibility and competence, resources, respect, knowledge and justice) identified to affect trust is touched upon through all three parts to a various extent.

### THE SURVEY SYSTEM

#### 4.1 Communication to facilitate understanding

Communication can be seen as the cornerstone in systems where humans interact on same and/or different levels. The communication is not always direct and verbally presented, which make diffuse implied messages hard to understand and trust when these occur between different levels in the system. Even though one authority communicates on their "language", it might not be understood on a different level because of too wide a difference in the other level's language.

In the study, the respondents got to reflect on the question: How does communication work today on the same and between different levels? It seems that most respondents are dissatisfied with the present communication, especially the one in the form of feedback on large carnivore observations and sightings.

*"We often talk about how communication should be improved and that one should, among other things, get feedback when registering an observation so that it becomes clear that "this bear observation in the county of x/y will not be of value because we have so much bear", but that people still feel that they're involved, but that the CAB won't respond to everything and why*

*they don't do so. "Why doesn't my assessment or observation count?", that it becomes clearer and what happens with an observation."  
(Representative, SEPA)*

To pedagogically convey the most important information (feedback) and at the same time increase the understanding of why the system, with associated methodology, looks like it does today and why it is carried out like it is, seem to be a big challenge.

*"I can feel that the big challenges may not be in the practical work but rather bringing together different interests and getting people involved and understanding what the survey methodology is about and such things as how to interpret the survey. I also notice when we are in the process of reviewing what we think we explain well and why we do it. It's not always possible to get people to understand why we should pick DNA in certain areas." (Representative, WDC)*

This is clearly a challenge for SEPA and the CABs because of their responsibility to carry out some of the surveys and to comply to the present methodology. The important thing, which is highlighted by REOs, is that authorities consistently adhere to their own decisions regarding the common instructions and methodology for large carnivore surveys. The result of deviating from the methods is among the affected organizations, distrust and questioning of who should really be in charge when these spread as whispers throughout the countryside. To communicate what is done needs to be well founded to what is expected to be done for those affected to add trust to the results, and furthermore, trusting the authorities.

The well-known top-down communication is among disappointed REO-respondents, here in the survey system, perceived as one-way which implies no or little possibility to influence decisions that, in the end, will affect them and their businesses. Despite the ambitions from authority-level to increase participation, the direction of top-down communication is requested to shift in a bottom-up direction to infuse and increase the knowledge base for future decisions. In such a shift there might occur understanding and a better cooperation between levels of participation with a mutual respect and trust.

*"You need more communication from the bottom up because, as it is now, the communication paths are mainly from the top down and we may as well adapt to it. That's counterproductive and has the opposite effect."  
(Representative, Swedish Association for Transhumance and Pastoralism (SATP))*

Even if the verbal and written communication happens all the time between and/or on same levels it is a target for inertia where some communication channels are by-

passed or missed and for example, a message that was intended to go through a certain channel, SEPA → WDC, suddenly appears at WDC through a Norwegian channel, who was notified first. This creates an amount of uncertainty when different announcements are delivered through various channels, and, ending up in the same end station, in this case WDC. It is an understandable situation that can happen because of the common survey methods that are used by both Sweden and Norway but is also a source to frustration and uncertainty.

*"Even if you talk to a person at SEPA, you can hear something else from Norway, for example, who has spoken to SEPA and then we don't know," "What's the deal?" so they must become clearer at writing "This is the deal!", so that everyone knows it." (Representative, WDC)*

The clear message from several organizations is focused on feedback. Direct and clear announcements are requested in order to understand the content of different decisions. Without it, the willingness to participate dissipates and the perceived trust diminishes with the result of frustration and a feeling of not being valued as a contributor.

*"The feedback, how you express yourself, can also be incredibly important for it to be accepted, the rejection if you would say so." (Representative, Swedish Hunter Association (SHA))*

As quoted above, even from the perspective of having a rejection in questions about whether or not there will be a hunt, it is obvious that any feedback, good or bad, is vital.

## 4.2 Insufficient resources in a resource demanding system

The distribution of resources in various systems can be a hard task for those appointed to carrying it out. In a society based on economy and transactions, both direct and indirect, the survey system for large carnivores is not different and has its own challenges. Because of the multi-level organization that the survey system is, every part needs its share, and someone is requested to divide the available resources and decide where they are to be utilized most efficiently. A system like this will internally, automatically create dissatisfied parts where resources are perceived as scarce, with a following frustration in managing without enough resources. This will in turn, also affect the perception amongst REOs and the public, that authorities does not take their responsibility in producing credible survey results. Enough resources are a tricky dilemma where no one ever gets satisfied, at least not until a system becomes financially independent.

*"It's hard to keep up the good work when there's not enough money."  
(Representative, CAB)*

*"... but just getting enough personnel for the surveys is a difficulty."  
(Representative, Golden Eagle Sweden (GES))*

The indirect resource, employed personnel, seems to be requested from many organizations where participation in the practical survey is underway. One can argue that resources should be utilized as to complete the assignment that has been given, i.e. carry out a survey to receive data in order to estimate a species population, but this utilization is also questioned in a manner of unjust distribution. CABs personnel have financial backup to carry out the survey, whereas REOs and their representatives does not, which complicates the perception of what is expected of them when the issue of scarce resources arise. The system, as for now, depends on non-profit forces and interested to help in the execution of the surveys of large carnivores. The subject of citizen science is also mentioned in the context of public participation, as to contribute and cover areas where authorities may not have the manpower and/or resources to survey the same. When addressing citizen science and its possible strengths, the will to involve and give feedback on the contributions must exist and be rewarding for participation (Silvertown, 2009). From a viewpoint where locals are not trusted to ensure the results, one can link the view to Root & Alpert (1994) who state that local people are expected to be less objective when they report the status of natural resources, because of their bias or vested interests, than are external scientists. If contribution of data (gathered by local communities) is inaccurate or biased, assessing trends in the natural world may not be reliable (Burton, 2012; Nielsen & Lund, 2012) but, Danielsen *et al* (2014) has shown that local people and trained scientists can be equally good at collecting data. In that case, local communities can play an important role in the surveys if current schemes are organized to facilitate their engagement (Danielsen, o.a., 2014).

The voluntary work is requested not to be taken for granted and those who contribute emphasizes on this matter and demands at least some respect and gratitude for the work they do.

*"It has serious consequences. It may be that villages cannot afford to pay for what one would have to do. Reindeer husbandry requires hundred percent, this is beyond that."  
(Representative, Swedish Sami Association (SSA))*

*"It's a lot of voluntary work with the golden eagle survey and the large part of the it is surveyed free of charge in Sweden, unlike the other carnivores*



*that are part of the carnivore policy. (...) It's not possible to get the same extent and it would be extremely expensive if the state were to do the same as we do and that should be cherished and encouraged."*  
(Representative, GES)

The organizations who are directly affected by carnivore depredation express, in addition to that they have a limited time to participate, a difficulty in making their voice heard to the same extent as larger organizations and authorities due to a limited financial situation. The experience and valuable knowledge that those smaller organizations would like to share might never come to use and as a result, decisions made in the absence of REOs might affect them in a way that could have been avoided with all pieces of knowledge put together.

*"It's an important thing for us pasture users that I have noticed a lot when working on this, and that is that we don't have the financial resources at all so we can send people and that our expertise is used where it should. When we go to meetings and so on, we finance it ourselves and receive no compensation for lost income and such stuff. We don't have the money to pay, as for example, larger organizations and the authorities have, and that means that we're constantly in the wake of them."*  
(Representative, SATP)

One problem that respondents from several different organizations and/or authorities point out is that there is a tendency for the wolf to be given priority over other species. Why this priority arises is not entirely clear but is still expressed as a concern. It is not only a risk that it will lock the development of methods for the other species, but also that it can affect the remuneration system.

*"It's a basic problem that is quite large in the wolf counties, because all resources are added to the wolf and then lynx, bear and wolverine comes after wards."* (Representative, SHA)

The trust lessens when the available resources are perceived as unjustly distributed and is further on exposed to criticism directed at responsible authorities. Where is the line drawn for how much the large carnivores can exhaust the financially limited bag of money before the public, i.e. the taxpayers, reacts?

*"Somewhere in this crow's song you have to ask the question, "How much do the carnivores cost society in total?" and then it's you and I, as taxpayers who are paying for it."*  
(Representative, Swedish Sheep Breeders Association (SSBA))

This question is relevant as a reminder for the linked trust that comes with the responsibility to distribute and utilize available resources in a wise manner. One can surely discuss the expression of how to distribute resources in a wise manner, but in one way or another, all systems in an industrial society strive towards effectiveness and efficiency where the present base of knowledge is what one can argue is the best point from where to proceed.

### 4.3 Where is the mutual respect?

Mutual respect is crucial in a multi-level system, as becomes evident in the interviews and spoken by a few representatives from REOs. As a first step, the respect must be present in order to gain institutional trust, which the system needs to function. Secondly, an understanding of the everyday life that REOs are exposed. Hereby working on the social trust between officials and those individuals affected by depredation.

*“There’s no respect for the damage that the large carnivores actually do. In addition, we have a third party who only looks at the welfare and numbers of large carnivores without taking the responsibility and the costs they cause us. When you think of trust and respect, you should actually show it mutually and we believe that we don’t have that mutuality.”*  
(Representative, SSA)

Despite experienced problems and that REOs spend a lot of time searching for lost animals, minimizing disturbances and taking preventive measures, they express that they are not met with respect, rather the opposite. It is probably necessary to generate a feeling of respect, in order to increase trust in the system.

*“We, who have problems with carnivores and who actually lose our animals and spend hours on this to find animals and to solve disturbances and such, we’re not met with respect and not listened to. Our knowledge isn’t used. It feels like they’re running us down.”* (Representative, SATP)

The lack of respect can be found throughout many of the REOs, not least towards the reindeer husbandry. As part of the survey system and a vital part of those practical surveys carried out, they still feel the absence of respect when they report their observations and sightings where someone else, an official, needs to validate everything for the observation to be authenticated and later registered.

*“The reality is after all, regarding the survey, that what we say has just zero value. All we’ve seen, an official must’ve seen it for it to be valid, just everything, otherwise it’s just zero. That respect is just zero.”*

*(Representative, SSA)*

One respondent representing the SSA point out the existence of what is usually defined as structural violence. It is found embedded in structures and can be identified through unjust or unequal circumstances in society. Circumstances that in turn create different circumstances in life, for example by not having or being given the opportunity to decide on the resources that one is dependent on (see Galtung, 1990; Sehlin MacNeil, 2017).

*"If an authority would like to work with trust, one should at least apply on the research that is available today (...) about structural violence, which can really be an eye-opener if you want to absorb what you read. One example is that the regulations and approaches used in large carnivore management are a form of structural violence. Only this, that you don't allow us, having the knowledge, thrive and work in the area, knows the area and has the responsibility for our animals, can determine how much carnivores there actually is." (Representative, SSA)*

Respect is hereby seen as a vital component in the structure of trust and it needs every opportunity to be intensified and used in a wise manner in all human-to-human contacts. Respect is the strong foundation where trust can be built upon. Further on, there is a request for respect in the information submitted by the public. Either by interest or as an institutional part of the survey system, people engage in the surveys. Thus, wanting to be part of something greater as to contribute with more observations, and in return feel the gratitude and respect for time spent in adding more data to the surveys. One conclusion is drawn from the quote, cited by a representative from SHA, that when they ask to encourage people and to show greater respect for submitted information, it is clear that today's situation can improve to the better, if those involved were to strive towards it together, with a common foundation based on respect.

*"Encourage people, and I think we can do that if we talk and show greater respect for citizens' submitted information and use it. As more and more information is submitted, you'll also believe in it."*  
*(Representative, SHA)*

Truly there is need for respect between all levels as well as on the same level in order for the trust to increase and intensify towards closer cooperation. Such common ground can be the start of a successful future and a stronger cooperation but to reach there, all actors involved needs to prepare and find neutral ground where everyone is given the opportunity to express and argue for their cause. In such an arena,

the sole purpose will be to show respect for each other, no matter the difference in opinions.

#### 4.4 Knowledge-integration and learning

An active development of knowledge characterized by respect for different knowledge views is considered to play an important part in creating the circumstances for a trusting relationship between actors in a management system. Several of the respondents are strongly critical of the fact that different forms of knowledge are not integrated into the survey system.

A respondent for the SSA, means that trust in the system, but also towards the involved actors, decreases or is non-existent, when knowledge is not utilized or that it must be certified by a third party in order to be considered valid. (see section 4.3 for similar example)

*"It's unsustainable that we're not trusted in our claims without third parties having certified it and there must be respect and trust in the knowledge and opinions of reindeer husbandry." (Representative, SSA)*

The system can only work in a sustainable way where frictions are kept to a minimum. As a link back to section 4.3 and the foundation of respect, the trust aimed at utilizing local knowledge and experience must be taken into consideration and implemented. Authorities such as SEPA and CABs have a responsibility to carry out the surveys and from the results, estimate populations of the five large carnivores habiting in Sweden and for them to arrive at a trustworthy result, REOs requests the involvement, not just as physical human beings as personnel in the surveys but the involvement of the knowledge and skills that has been accumulated over time through experience.

Since large carnivores were subjects to protection, the criticism, for not trusting the local people, has been directed towards the authorities when their officials are the only ones with permission to validate reports of sightings and observations.

*"It feels somehow that the authorities don't trust the people who live in these carnivore-rich areas." (Representative, SATP)*

Consequently, to the lack of trust and the lack of knowledge integration and the undermining trust, the REOs concerned, are financially affected. Both in terms of

possible herd size to hold and the possibility to avert depredation, search for runaway animals and use preventive measurements. The latter three are all done in the spare time, if there is any.

*“The entire administration is based on surveys and damage results. If we stop reporting observations and damages, as it is because they aren’t believed as valid, then it’ll only be a lot of fucking hassle of it and in the end, it’ll be carnivores and other factors, that affect our business. This means that we’re decreasing in size so there are not as many people as can be and we may not have the same number of animals. It also means that there’ll be less damage because we change our behaviour in relation to the large carnivores, which also means that there’s less damage. Therefore, we don’t make as much noise and we don’t expose as much animals to the carnivores, which means that the numbers look better and better and we have never had so little damage today than now. One hears this all the time.”*  
(Representative, SATP)

Moreover, the ignorance for already existent knowledge persists as one CAB might reinvent the wheel in order to justify the right to exist. The lack of learning in the system creates frustration and inertia where existing solutions can lube the existent challenges and help the system, as well as the united action within an authority or organization. With a common base of knowledge, where a nationwide access is possible, problems that arise can be met with ease and those contributing to the system can supply more useable knowledge with the result of acknowledged respect and trust towards the system.

*“When we started to have problems, especially the wolf, we constantly experienced problems that came back over and over. It has created some experiences, knowledge-wise and otherwise as well and now we see the same thing happening where there’s an establishment of a wolf territory elsewhere in Sweden. There’s a lot of answers to riddles in other parts of Sweden, but then you should sit on a single CAB or as an individual official and reinvent the wheel when we already have a fairly good knowledge.”*  
(Representative, SSBA)

Just like within the previous quote, but here from the other side of the system, scilicet SEPA, one respondent points to the unfortunate ignorance of knowledge among administrators at the CAB. It reduces the institutional trust when and if it is mediated to those affected by the results.

*“It’s also quite difficult to explain the result concerning wolverine and how one arrives at these numbers with three years of funds and there’s a certain ignorance even among administrators at the CAB, that I’ve unfortunately*

*discovered, and that you don't really know how the result is calculated. That's a bit unfortunate." (Representative, SEPA)*

The yearly results that are registered through all parties can be seen as a result of the responsibility that SEPA has delegated to specific organizations. The responsibility is of vital importance for the complete system to function and in the end, to produce results of good quality. But some respondents feel that when the responsible authority starts to demand results in a table, just to register a number without caring who the reporting party is, the organization responsible for registering surveyed animals perceives their contribution as less meaningful. The work being done is perceived to be a waste of expertise and seems to reduce the respect towards responsible authorities.

*"We feel that the authorities, in this case SEPA, are more interested in the fact that a number is filled in in a table than that the figure itself is correct ... So, it doesn't do much that it's one or the other, but it must be filled." (Representative, GES)*

However, a good base of knowledge can provide better circumstances for creating an understanding of the information that one wants to achieve.

*"... to know what you're talking about, that you have facts and that you should be able to ask critical questions because then you can meet them on the other side who may think they know but don't know and have nothing to support their claim. It's a way to act I think; it can be difficult sometimes but to have it as a goal in any case." (Representative, NCO)*

*"I think it's still to make sure to use peoples' skills and listen to them regardless of whether it's us, the CABs or various interest groups. If they want an adaptive process, they must do it in the right way and not make hasty decisions but really work on the anchoring. I believe that trust will increase if the decisions are based on that kind of knowledge and that you have some type of evidence-based knowledge but also what works. Then it will be more successful, I think. You both get the people involved and you get better data. It seems obvious. I think that if you have that basic setting, the other things will follow. (...) That kind of respect should exist at all levels." (Representative, WDC)*

## 4.5 Unjust distribution of costs and benefits

Previous research has found that trust is dependent on the actors involved perceiving that there are just procedures, and that everyone is treated equally when, for example, decisions are to be made. In the interviews, two different examples of lack of justice or equal treatment appear which can be considered to affect the trust in the system. One concern is how costs and benefits are distributed between actors and the other concerns work-related remuneration carried out within the survey system.

*"This is unreasonable in a democracy because now we don't play on equal terms and this is something that should be brought into daylight that the wildlife in Sweden is not the hunters' property, it is the whole Swedish peoples." (Representative, NCO)*

Considering an unreasonable situation where one must carry out the surveys without reimbursement and at the same time risking a business at the expense of oneself. This is described by a representative from SSA as a tough situation to manage. The second aspect that emerges from the interviews is that some organizations are expected to contribute to the survey system and to the surveys in their spare time, while other organizations have personnel who can carry out assignments while on a payroll, something that is perceived as unjust.

*"We don't get paid for the carnivores, we don't get paid to carry out the survey of large carnivores and, like it or not, we're the ones who feed them." (Representative, SSA)*

This is not only applied to the reindeer husbandry but also applicable on sheep breeders and pasture users. A respondent from SSBA is on a similar track and believes that one of the consequences is that it affects the food business unreasonably hard.

*"If we are to be able to carry out a lamb production with grazing animals in Sweden, the rural enterprises must receive full compensation for both indirect and direct costs from the state, it cannot be the individual animal owner's responsibility. The psychosocial concern must be weighed in because all breeding work that has been done in many herds is half a man's age of work wasted, if not supported financially." (Representative, SSBA)*

#### 4.6 Feedback to enhance trust

It is possible to interpret several proposals, as from the quotes above, for how trust can be enhanced in the survey system. The lack of and request for feedback in terms of clarity and clear rules, increased predictability, continuity and long-term perspectives keeps returning in the interviews. These proposals seem to be vital for those

requesting it and therein lies truly a challenge for the authorities and decision-making institutions to adhere and take it into account when proceeding in developing the survey system and its methods. Various forms of collaboration and cooperation, in addition to the previous mentioned proposes, are highlighted as important pre-conditions for trust enhancement. Similar arrangements are found for cross-border cooperation, according to a respondent from GES.

*"We have cooperated with Norway and Finland for a long time and now also Denmark. We organize symposium every year where we meet the Norwegians, the Danes and Finnish survey personnel and talk about survey results, invite researchers, authorities and so on to cooperate with each other." (Representative, GES)*

Clear and direct feedback within a reasonable time on different observations or decisions is also something that is emphasized as an important prerequisite for trust enhancement. The process for handling reports must be clear, in ways of what happens while the process is underway, for the recipients in the end of it to know why different errands take up different amount of time.

*"So that if it would flow at a little faster pace or that the proposal was handled, either that "according to the report, there's not enough data for this, it shows clear signs of it but it may have to be evaluated more" or that there'll be some form of feedback and that there's nothing that treads water. That would surely be a bit better." (Representative, WDC)*

The built-in inertia, when errands seem to tread water, adds to the frustration of unpredictability and is therefore uttered as a part in the system that needs to be handled and adjusted to fit, for it to work as it is intended to do in a well-oiled machinery. This machinery-model is certainly desirable to be associated with the survey system.

The repeated request for betterment within and linked to the trust-associated sub-components, all add to the fact that trust in the survey system, as well as towards authorities like SEPA and the CAB, is considered low. As a remark to this, according to Sandström et al. (2014), the overall attitudes about who is to decide how the large carnivores are to be managed, shows a majority of trust for the management towards SEPA (81%) and towards the CAB (76%). The attitudes for managing authority are in general stable over time (Sandström et al., 2014). This brings out a question about how this is possible? What affects these wide-apart results? Presumably the randomly selected participants within Sandström's report and the targeted stakeholders within this report.



## THE SURVEY METHODS

This section deals primarily with the trust in the various survey methods and the conditions for improving or renewing them. In connection with the preparation of the survey methods and the new instructions for their application (2012 - 2014), specie-specific working groups were appointed with representatives from research institutions, WDC, Rovdata (Rovdata), field personnel from CABs and NNI. In order to take advantage of the necessary skills and knowledge, people from SSA were also involved in the wolverine, wolf and bear groups. The results from these groups later came to be the basis for what SEPA and NEA put together into the common instructions that personnel at CABs, Sami villages in Sweden and corresponding organizations in Norway use to survey bear, wolf, wolverine, lynx and the golden eagle (Naturvårdsverket, 2018).

### 4.7 Strengths and shortcomings with the methodology

The methodology for surveying large carnivores in Sweden is a result of a cooperation between Sweden and Norway together with representatives from different organizations. Even after the implementation, as can be read in this study, is that there is still a request for involvement, not just physical and practical but in the contribution of local knowledge and skills. The interviews show that there is still great interest in participating in and influencing the surveys of large carnivores. However, this presupposes that the predictability of the methods increases and that the criteria is perceived as reasonable.

*"In order to increase the interest and credibility of the surveys, one would like to have predictability in the administration with reasonable criteria, regular surveys where you involve as many people as possible and that they also know what the results will show in advance."*

*(Representative, SHA)*

On the question of whether it is one of the survey methods that work better or worse, the surveys for lynx and wolverine are pointed out as problematic. In the case of lynx surveys, most of the focus groups point out that the criteria for how lynx is surveyed are too strict and difficult to meet and it is especially the distance criteria (DC) that create problems and complicates the issue of separating reproductions. It becomes evident in the following quote, where a respondent from SSA thinks it is difficult to separate lynx, especially in lynx-rich areas.

*“The DC is causing problems. We see it as a major problem and that’s the criteria on the spot. Last winter we lost two... instead of getting three reproductions, we got one... and then it differed on two hundred meters.”*  
(Representative, SSA)

Like with the lynx, several of the organizations also experience problems with the survey methods for wolverine. A representative from SHA points out that the method, with associated criteria, is not adapted to the fact that the wolverine is now present in the forest landscape.

*“Then when it comes to survey of wolverine, it doesn't work well using such tough criteria. We’ve got wolverines down in the forest landscape now and then, one cannot guarantee qualitative results from the surveys and that’s a huge problem. There’s need for an evaluation and what to do about it.”*  
(Representative, SHA)

The similar mindset regarding the criteria for wolverine is declared by a respondent from the National Association of Huntsmen (NAH). The question of high security and the objective to achieve meticulously correct results arises. Are we too careful in keeping our ways or is there some room for change?

*“It’s some form of security to know that it’s correct and we’re certainly in the elite class to have high security and I, generally, think it’d be better if you were to cut as much as possible and ask the question -“how big is the risk that it’s wrong, and does it matter?”* (Representative, NAH)

Another weakness pointed out by several of the interviewed groups is the fact that we are moving towards a warmer climate with fewer snowy winters and thus a difficulty in surveying those large carnivores that require snow-covered land during the survey season. The interviewed actors agree that the methodology must be renewed and adapted to the bare ground conditions that are becoming more and more common and which makes the tracking difficult. It is necessary for the carnivore populations not to be underestimated which in turn can make decisions, regarding remuneration and license hunting, more difficult.

*“What has been mentioned earlier and what has been stated is that we probably won’t have more snow in the future so that’s an important part of ensuring that new survey methods are credible and that they do work.”*  
(Representative, SHA)

*“I see it in this way, that if you go down to the level of survey regarding lynx, it’s already a challenge with the climate, and that, every autumn one has to start worrying about how the survey will go this year. Will we be able to carry out a survey?, will we achieve this?, will we reach the goal of the*

*wolverine survey and if we do not reach the goal, will we be able to convince the CAB that this year it was a year that one can call a § 5-year and that you have not been able to do a sufficiently good survey?. If you then get through that it's a § 5-year so when the results of the carnivore populations are reported then those areas are empty and then they're reported as empty by SEPA. That there aren't any carnivores in the area even though they have an assignment that they should make an estimation of the carnivore population when it hasn't been possible to carry out a survey. Well, of course, but of course, there's challenges." (Representative, SSA)*

The above stated "§ 5-year" is a section within *Regulations on contributions and remuneration for carnivore occurrence in Sami villages* (STFS 2007:9) where, in the event of poor snow and/or harsh weather conditions, the survey for large carnivores has been severely hampered in a same village's grazing area, and shall therefore be handled by the responsible CAB where they have to present an average survey result for the specie based on the results of the previous three years' surveys. Decisions on the application of a § 5-year are made by the CAB. This is a relevant paragraph to bring up now that more than one organization points to the circumstance of climate change. The situation about challenges linked to a changing climate is clear and needs to be evaluated more, or at least taken into consideration when developing new methods for surveying large carnivores.

#### 4.8 Development of new methods and technology

During the interviews, questions were asked about opportunities to improve the methods in order to increase trust in the results. Most obvious and repeatedly subject was DNA and its uses. It is evident that DNA and its applications has widened the field of uses and is here, by many respondents, requested to be further developed and used as to make things more efficient within the system and its intended function to produce quality-assured results. The technology of DNA is present but needs to be utilized effectively in order to facilitate the work process and infuse trust in that the responsible authorities adheres what is called for.

The development that is constantly underway in DNA technology and its applications gives a picture of how the respondents look at the method's usability in the surveys when it comes to ensuring carnivore occurrence. The feel for what might be a good solution seems to be the collection of scats, as the interviewed respondent from NAH states below as well as is stated by a representative from SEPA.

*"What feels best is, after all, the collection of DNA. The citizen is involved and can contribute, like as it is on the bear." (Representative, NAH)*

*"Instead of wolverine den surveys, we're looking at waste collection using DNA." (Representative, SEPA)*

DNA and its applications are yet to be fully explored, but in the meantime, there is also room for combination with other technologies such as use of wildlife cameras. These are already in use to some extent but is widely requested by most respondents to be used even more. Instructions for how to use and install these wildlife cameras is one part that is asked for. The other one is to get permission to gather data from privately used wildlife cameras existing throughout the country, for a better coverage. The request for effective technology is present and is seen as an adaptation to present and future challenges where the addition of drone technology might facilitate the surveys even more.

*"What's interesting and effective, is the DNA and wildlife camera. I see those as future things to develop." (Representative, SHA)*

*"We shouldn't forget about drones either. It'll probably be a good tool, primarily in the wolverine survey, perhaps even golden eagle to some extent." (Representative, SEPA)*

In order to involve the public and those who are interested in reporting observations of large carnivores, it is possible to register the findings via SkandObs (a web application and mobile app for registering sightings of large carnivores). However, there seems to be few people who are aware of the tools existence or that they are inclined to not report, when neither trust nor feedback is existent. That could be one explanation of why perceived frictions appear concerning data management.

*"SkandObs is a good system, if it had been used." (Representative, CAB)*

*"The greater the lack of trust, the less reports people will send in voluntarily." (Representative, SSBA)*

*"There is no feedback. We request openness, and that is to wish from those who carry out the surveys." (Representative, SATP)*

*"Data management is what creates frictions." (Representative, GES)*

If involving the public is to work, both the need for clear feedback, but also for the public to rely on data management is required. These requests come hand in hand,

which puts the focus on solving the issue of non-existent feedback. As in all processes, if the starting point is perceived as unclear with a lack of trust to those responsible for the process, the following parts in the process are destined to be ineffective or even fail. The process, or in this case a tool for registering sightings and observations, should be well designed and user-friendly for those who are to use it as well as the possibility for CABs to respond to reports with significant feedback.

*“A good database is needed for registering information and I think that’s important. It should be easy to register data and have it accessible so that citizens can find it for themselves. “I did this observation, but yes, I see if there’s a delay of 14 days or 1 week”. It should be accessible because it’s extremely important for people to believe in the information. It shouldn’t come to, “It disappeared! What are they doing?” (Representative, NHA)*

The survey conditions differ from year to year in terms of snow volume, but they’re also dependent on, in which part of the country the survey is carried out, which is why, according to a respondent from SHA, new methods are required. This quote can be related to the statement in 3.8 where one representative from SSA terms “§ 5” (STFS 2007:9) where poor survey conditions also are a factor for consideration.

*“In the criteria, it should be applicable, that if you have poor survey conditions, then it’s better to extrapolate previous year or the a good year where one account for mortality and calculate reproduction and thus get better numbers than a damn worthless survey method when there’s no snow.” (Representative, SHA)*

*“We get hidden statistics that would needn’t be hidden statistics to the extent if you would simplify this tracking criteria.” (Representative, SHA)*

While there is potential for development, the system is not solely dependent on the right weather conditions but also that there are enough resources in order to carry out the surveys. A respondent from SEPA believes that this is a factor in creating uncertainty, but also as a force for testing other methods.

*“But then it’s important to have these plans. What happens to the survey if we get significantly less resources? How do we do when snowy winters become scarce? Will we carry out the survey every year in the future? We may not be able to do that and then we have to dare look at other methods and how that might work.” (Representative, SEPA)*

## ROLES

The respondents were asked to reflect more generally on the survey system and its various parts (appendix 2), and what they might change if they had the opportunity to do so. From the interviews it emerges that it is difficult to distinguish between carnivore policy, carnivore management and the survey system. Trust in the system is to some extent linked to both the policy design and role, the regionalized administration, the various authorities, but also individual officials. Overall, these aspects contribute to create uncertainty, which in turn leads to the trust in the survey system being challenged and questioned.

#### 4.9 The indefinite role of politics

The overall political will is, by many of the interviewed respondents, perceived as vague and short-term. Politically made decisions are therefore exposed to a great risk in not surviving a change of government, which in turn can lead to severe cut-backs for those affected by the decisions. Moreover, political compromises have also created indefinite directives to the authorities, which have given them more room to make their own interpretations. The possibility for REOs to plan in the long term is then counteracted, blurred and made unclear by the many interpretations that appear. According to one respondent for the SSBA, this affects the businesses' prerequisites to plan long-term.

*"There is another important parameter here, and it's that our business is affected by political decisions. Over time, it has been the case that these issues have been negotiated, more or less important depending on the government constellation and then, in text from the government, it has come out a bit fuzzy which then has given room for, among other things, that SEPA has their own interpretations. One has been unclear in context which has given room for interpretations and they have not defended it after the appearance of the interpretations. Government or ministry has not defended what was decided ... they have not defended the content."  
(Representative, SSBA)*

There is also criticism in the lack of a holistic view, i.e. the inability to consider both large carnivores and their respective goal to achieve and maintain favorable conservation status according to the species and habitat directive and the negative effects on domestic animal husbandry and socio-economic effects from large carnivores. A representative for SATP is turning towards the sectorization that affects the trust in the system, as it is those who are affected by the decisions that must take the consequences of the lack of the holistic perspective.

*"I'm very opposed to making decisions in various pipes and then you don't get it together in the end." (Representative, SATP)*

Because of an undefined political mandate, a respondent from the WDC states that the system becomes unpredictable, which is not a desired intention. The decisions coming from authorities or levels where decisions are further delivered to be implemented, need predictability as to keep the level of trust that is still deserved but.

*"... these unpredictable decisions from the top also make you lose trust in the system and you lose trust where they say it should be predictable and that is not predictable. I think that is one of the big threats in general and that can be a big challenge because it affects everything else that happens." (Representative, WDC)*

#### 4.10 Different opinions of the regionalization's pros and cons

Another aspect that emerges in the interviews is the question of where the power in the system is located, but also where it should be found. SEPA is working on the regionalization of carnivore management in line with the Swedish Parliament's decision in December 2013. As part of this, SEPA has delegated the right to make decisions on protective hunting to all CABs (except for the county of Gotland) according to the Parliament's decision on a new carnivore administration. SEPA has also delegated the right to decide on license hunting for bear and lynx. The management, which is to be adaptive and based on management plans for the carnivores, also sets the framework for the administration at regional level. A remark to the issues surrounding an intended regionalization from organizations is closely related to the wildlife management and at times even the surveys for large carnivores.

The intended regionalization (or decentralization) of carnivore management is met with sharp criticism in the focus group with representatives from NCOs. It is believed, regarding carnivore policy, as directly counter-productive though perceived as positive in other contexts. Less opportunity to influence locally and more of a top-down and centralized line of decision making is their point of view in this context.

*"It's very interesting with decentralization, I mean that it's very positive normally, to decentralize decision making. But here it's totally counter-productive. There's no good way to say it, but I would like to have a good expression of it so that one can respond to these statements about bringing it to the locals. It should be centralized." (Representative, NCO)*

It is not odd that REOs are of a different opinion because of their situation with carnivores, living in their close vicinity, affecting them first-hand. None of the REOs supports the pros of centralization but argue that the administration is not sufficiently regionalized. This because the administration does not consider regionally established objectives and conditions but interweaves the situation in neighboring counties or in the country. A respondent from SSBA introduces the expression of a lock-in effect, made clear as different opinions blocking each other with no possibility of reaching an agreement.

*"I would like for the decisions to be regionalized and at regional level like it was meant in the wildlife management system, but then ... if we take the wolf, (...) suddenly we can't get a license hunt because we haven't met the goals set by SEPA, but we have achieved well, as our own CAB together with wildlife management have said to be reasonable. Somehow and somewhere it goes wrong and makes it enter an effect of a lock-in."*  
(Representative, SSBA)

Furthermore, it is perceived that there is an excessive difference between national and regional goals and conditions which affects the possibilities of steering the focus and process in a favorable direction. The problem with depleted trust in the system and the perceived ignorance from authorities can be pointed out by carrying out illicit measures in order to make a statement of something malfunctioning. This is not definitive, but it is real, and it is something that is requested to be sorted out before it increases.

*"It encourages illegal hunting and thoughts like "if the authorities don't listen to our problems, we'll have to fix it ourselves", and in my world it's the worst outcome because then we can't control this at all. But we're there now and I'm not surprised if it'll increase."* (Representative, SSBA)

A representative of the FSF points to the fact that, despite the decisions on regionalization, the development has gone in the opposite direction, and that it depends among other things, on uncertain survey results which leads to different opinions about how many animals there is. The request for possibility to influence is urgent and needs to be discussed in order to rectify the situation where no mandate to influence is perceived as present.

*"The development in this, if I say so, from a historical perspective, it's that power has increasingly shifted towards SEPA. We, the WMD sit like some fucking dolls that are stuck in some cords and if we say that we want a certain amount or a minimum level that we think is reasonable then SEPA doesn't accept that, so it doesn't matter what we say."*  
(Representative, FSF)



Even though there are shared opinions between the NCOs and the REOs on the degree of decentralization and its consequences, the need for rules and guidelines for the surveys (in order to create a common regulatory framework nationwide) is highlighted by personnel at the CABs and WDC. The advantage of central management is that the survey system can be applied across the country which is good as to keep it uniform and less exposed to uncontrollable variations due to regional interpretations.

*"It's good that there is a national authority that sets common rules for this because otherwise this system would be rather unsustainable."  
(Representative, WDC)*

*"I think it's very good that you have a strong central establishment because otherwise we'll do it in 21 different ways in our CABs."  
(Representative, CAB)*

The interviews with officials at SEPA reveal that the system is still under development and that there is still some uncertainty about how and in what way the responsibility can be delegated between different levels given that the overall responsibility lies with SEPA. If these uncertainties prevail, there is also uncertainty among those affected by the decisions.

*"It's so easy to say, "We have regionalized!", but we still have a national responsibility and we haven't always landed in how we should take that national responsibility. It's clear that when we want to approach the questions, there will be changes and some concern throughout the ranks." (Representative, SEPA)*

#### 4.11 Varying degrees of trust in authorities and officials

When it comes to degrees of trust, the overall interviews are permeated with the absence of trust. It is overall requested to correct the trust-correlated mistakes and to save the sinking ship that it is perceived to be. Though, there are glimpses of trust shining through but specifically directed towards certain authorities. The interviews show a higher degree of trust towards the CABs compared to that in SEPA.

*"... generally, for our county, I can say that if something's linked to the CABs then the level of trust is high, anything saying "SEPA", then it's a full stop, no trust at all. It is an enormous difference in attitude in whom you communicate with and who you report to." (Representative, SHA)*

As a precaution, to prevent and avoid interpretations to result in differences too great to compare, the WDC is handling the last review of the results, which is stated by one respondent at WDC.

*“But we look at it so that it will be fairly similar and so that a county doesn’t differ too much from the others. Whenever you read the criteria, one thing is written and then you interpret it in a different way. It would be very patchy if you were to interpret it in 21 different ways on things.”*

*(Representative, WDC)*

In several interviews one also turns to the fact that the allocation of responsibilities and competence between SEPA and the CABs is not sufficiently clear. Sometimes the room for maneuver is perceived at, for example, the county level as extended, in other cases as decreased.

*“We have examples of a county that found 27 lynx reproductions and it became 22 after the CAB compiled it based on criteria and it was haggled to 18 on Valhallavägen and that infuses no trust at all.”*

*(Representative, SHA)*

This also implies that decisions are thrown back and forth between different levels in the system, which is often linked to the fact that not enough information is obtained from the surveys to be able to make decisions. This is partly due to the survey methods which require snow and cannot be carried out during years with insufficient amounts of it.

*“Especially when talking about lynx. We can have as many lynx reproductions in x / y municipality as there is in the rest of the county a snowy winter and then decisions are taken linked to those results and no one buys it, not even the CABs themselves, but they’re still the basis for the decisions.”*

*(Representative, SATP)*

Representatives of the SSA highlight problems associated with the multi-level system and how it affects the survey results. According to them, the decision-making committee becomes silent when the survey results are not perceived as credible and there is a fear among the responsible authorities to make decisions when there is great uncertainty. The possible latitude for an individual official reduces, which in turn creates frustration among those affected by the decisions, or non-decisions.

*“The authorities in Sweden scare each other. They dare not decide for the fear of being whipped in the back, it becomes so bureaucratic, so no matter who’s in charge, you get uncertainty in the system all the way down. And*

*he who then sit in contact with us, dares basically do nothing. The people in the field and we who sit here are extremely frustrated."*  
(Representative, SSA)

A respondent at WDC also points to a certain built-in inertia in the system that risks complicating the adaptation and development to new conditions. The formal system is sometimes perceived as an ineffective way to deliver messages and made decisions which often are dependent on a faster pace to be considered and implemented at the most effective location or level.

*"In these things that have to go through the formal system in SEPA, there's such inertia in such a system, I'm not saying that it's someone's fault, but sometimes systems are built in a way that just can't handle some kind of development that still happens all the time."*  
(Representative, WDC)

Although trust is primarily low towards SEPA, but also towards the CABs, trust can be found at the level of individual officials. However, as a result of high turnover on personnel, the conditions for building long-term and trusting relationships are made more difficult. This regularly recurrent turnover lowers the trust that otherwise is desired and wished to be develop and well-founded.

*"Today, there's no trust whatsoever in the system, but at best, there's trust in an individual official and they are changed all the time and that leads to not knowing at all, what will happen."* (Representative, SATP)

Here, the reply from field personnel is particularly emphasized as a crucial factor in creating trust.

*"If this is to work, then it's important to have field personnel who can infuse trust."* (Representative, SHA)

#### 4.12 Low trust on how the information is handled

The data and information that is produced, analyzed and used within the survey system needs be handled in a justified way as to respect those who participate in the process of gathering that information. One consequence to the lack of trust stated at present, is low trust directed towards how the sensitive information is handled. When there is little or no trust in how the information is handled, or what measures are taken, the propensity to report results reduces, mainly from individual and separate observations.

*"Then we've had different views on how data should be stored where we believe that sensitive information shouldn't be stored by the states on databases in Norway." (Representative, GES)*

REOs on the other hand, argue that the motive for reporting decreases because it does not lead to any concrete action. It is crucial to the REOs, that the results presented in the end of a survey period, are somewhat representative to the actual carnivore populations within their area lest not to lose their share of remuneration in cases of depredation.

*"We've had a very hard time getting people to register sightings on the SkandObs app and one can also hear that "it doesn't lead anywhere, it has no use and it's better that they don't exist so we can handle it ourselves", and the word starts to spread in the countryside and that's dangerous, because then we'll not get what we need." (Representative, SSBA)*

Alternatively, some actors refrain from reporting because there is no trust towards the authorities; to refrain from reporting is seen by some as a political marker where one shows her dissatisfaction towards the system.

*"The whole community is built on the fact that the only ones who can do anything to show authorities or those that one is dissatisfied with, is to give a shit in doing what is expected of one to do. "I'm not going to report it for anything, because nothing happens anyway!" It's very clear." (Representative, SATP)*

## 5 CONCLUSIONS

In conclusions, the trust that is a vital piece in the survey system is perceived as low where all respondent requests an enhancement of trust on various or all levels in order for the system to reach a sustainable point of continued existence. If the trust had been perceived high, the requests would have been few, but instead there are several calls as to participate in the upgrading of a substandard system, as it is perceived to be. Throughout the interviews, the early defined subcomponents of trust were considered immensely important when all were variously mentioned. The criticism towards communication was clearly directed in three ways perceived to affect the trust in the system: (1) how the communication takes place, (2) what is or is not communicated and (3) in which way decisions and/or messages are communicated. The demand for resources, as always in resource demanding systems, is equally requested throughout the participating authorities and organizations. The insufficiency seems to fret on the trust for unevenly distributed resources and a frustration of sorts appears. The existence of trust, as Putnam *et al.* (2004) states, is intimately associated with the concept of respect. A deduction drawn from this, together with the perceived lack of respect taken from the interviews, is that the concept ‘existence of trust’ is better explained with the concept ‘survival of trust’ because of the overall perception of the respect’s non-existence. Furthermore, the authorities’ distrust in utilizing available knowledge is also creating a form of frustration. Those directly affected by depredation of large carnivores demands a higher form of involvement and utilization of their experience and accumulated knowledge in order to develop the system and to be able to tolerate the risk of depredation.

A problem referred to in section 4.3 and which concerns the authorities’ control of reported observations (in this study) is also found in other systems (such as school and health care) where the control is intended to ensure quality. Bringselius (2017) mentions how trust is sometimes placed as opposed to control, which is sometimes true but usually they go hand in hand. One of several prerequisites in the publicly funded services is, namely, quality control in order for citizens to trust

them. The idea is to increase public trust in the results, but the respondents still express a perceived distrust of those who report when a quality control must be done. According to research, trust depends on how the actors perceive equal treatment for equal cases or what is usually called procedural justice, together with making one's voice heard (Norén Bretzer, 2005). This concept is clearly stated by NCOs and REOs.

Respondents from both authorities and NGOs show a marked frustration over how the survey system works. It is well known from the political debate that there are various opinions about whether carnivore management should be centralized or decentralized. The fact that the administration, as a result of the ongoing regionalization and that it has not defined its frames, creates uncertainty and thus also frustration over how responsibility and competence should or should be allocated between different levels.

When it comes to trust in the survey methods used, above all, there is three aspects highlighted. (1) Wolf tends to be prioritized, both in terms of resource distribution and the development of survey methods, (2) the prerequisites for surveying lynx, here, the established criteria are perceived as too rigid and not adapted to new climate and weather conditions together with similar criticisms made against (3) the survey methods used for wolverine. Most criticized is the number of re-visits at the dens, required to establish reproductions, which can lead to multiple encounters with the wolverine and its cubs.

Measurements called for within the *survey system*:

- ∞ Improved communication channels, extended dialogue and feedback.
- ∞ Organize the work to minimize the uncertainty in the system.
- ∞ Supplement of resources for the system to function as intended, or an adaptation of the system to available resources.
- ∞ Increased understanding of the enterprises' circumstances.
- ∞ Integration of knowledge, and to create structures for active learning.

Measurements called for regarding the *survey methods*:

- ∞ Customized methods for surveying lynx
- ∞ Use of new technology (DNA, cameras and drones)
- ∞ Better utilize the NGOs' and the public's observations.
- ∞ Effective channels for feedback.

As this study shows, the assumption that the concept of trust is composed of multiple defined subcomponents is of relevance. The overall support in claims of the components being parts of a system defined by lack of trust adds to the conclusion of low trust in the survey system and its methods.

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# Appendix 1

## *Interview guide*

The issues raised which form the basis of the collected data material focus on today's challenges and future improvement opportunities where the interviewed has expressed his / her respective views.

**Does any of the survey methods work better than the other?**

*If you had the opportunity to change the methods - how would you change or improve them?*

**If you had the chance to change something about the system or the methods to strengthen trust and predictability, if so, what action would you take?**

*Which parts of the trust model (see figure 1) would you like to put extra emphasis on?*

**At present, the division of responsibilities between the different levels and actors looks like this. (see appendix 2)**

*Do you consider that the responsibility for different decisions and measures is placed on the right authority or at the right level? If you had the opportunity to change this - what would you change and why?*

**Is there any part of the survey system that you think works better or worse? (see appendix 2)**

*If you had the opportunity to change the survey system to strengthen trust and predictability, what measures would you take?*

**How do you wish you would be met by the authorities, in order to strengthen your trust in them?**

*Which ways do you think should be explored in order for the trust in the surveys to or should be improved?*

**Which communication channels have so far worked the best and which ones could be improved?**

*How does the communication look today between different levels? How do you like or think that that communication will be better? How does the communication look today regarding cross-border cooperation between Sweden and Norway?*

**How do you experience the different time aspects that affect action and decisions?**

*Survey methodology, resource allocation (personnel and compensation), access to research etc.*

**Does the tool Rovbase facilitate your work?**

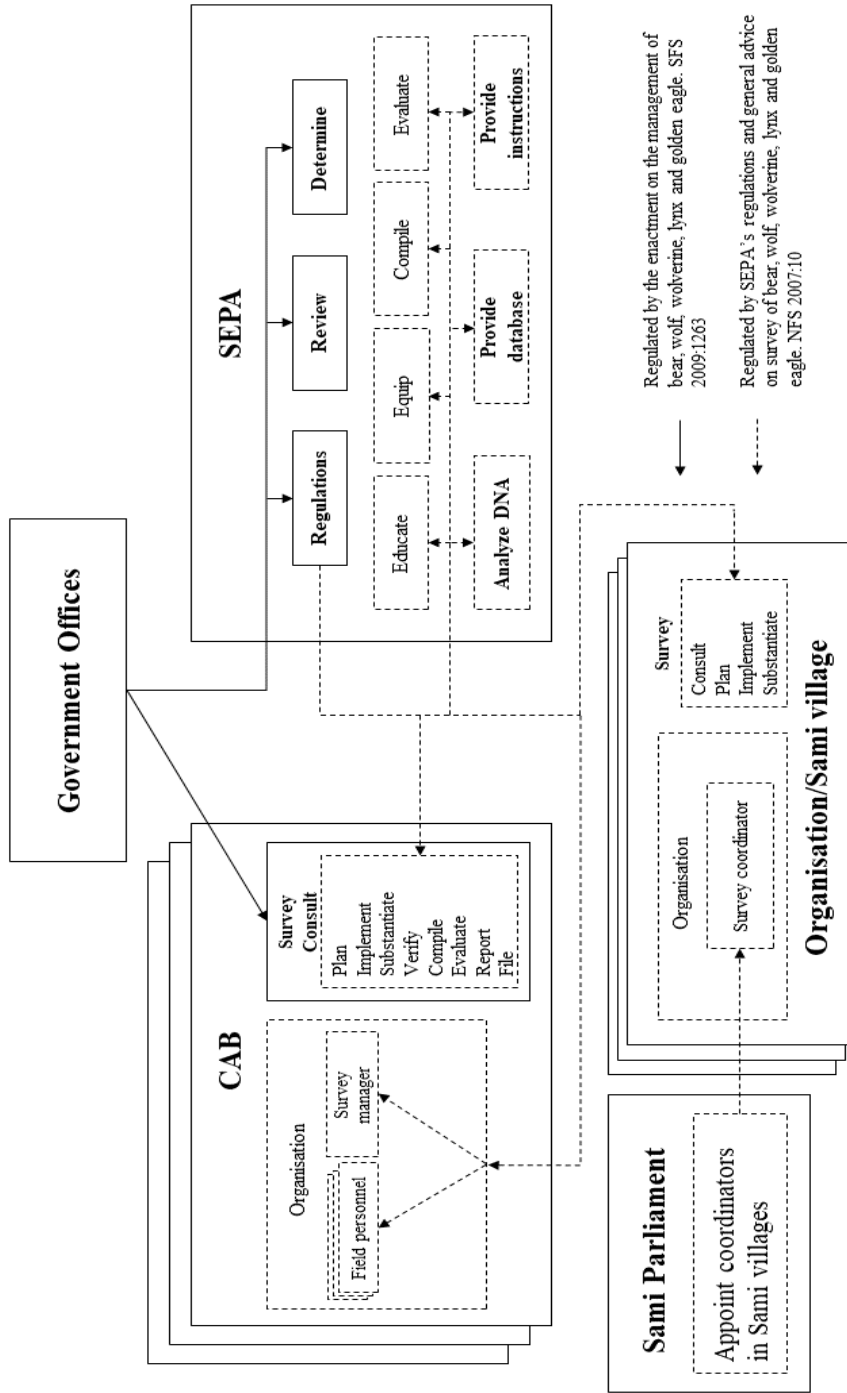
*Time efficiency, availability, user-friendliness etc.*

**Can you summarize what challenges you face in your role in the survey work?**

Note: The original interview questions were written in Swedish. To acquire a transcript of the originals please contact the author.



# Appendix 2



Schematic figure showing how the survey system is organized based on enactment and regulation. Solid lines describe what is regulated by an enactment on the management of bear, wolf, wolverine, lynx and golden eagle, while dashed lines indicate what is regulated by the SEPA's regulations and general advice.

## Appendix 3

### *Survey methodology – a summarized version*

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To be able to implement the carnivore policy, the authorities must continuously evaluate the measures taken in the management plans, monitor how the goals are met at the different levels of administration, develop knowledge about the size, extent and development of carnivore populations over time.

#### BEAR, *Ursus arctos*

Three main methods for obtaining information:

1. Collection of scats - carried out during the period of 21 Aug. – 31 Oct.
2. Sightings - carried out during the first week of the moose hunt
3. The bear hunt and reported dead bears

#### WOLVERINE, *Gulo gulo*

Survey of wolverine reproductions (females and offspring/juveniles) should be carried out annually within the wolverine's range in Scandinavia. DNA collection should be used as supplementary surveying methodology. The survey for wolverine is carried out during the period 1 February – 31 July.

#### LYNX, *Lynx lynx*

Survey of lynx is based on the registration of family groups (females and offspring/juveniles). The distinction is made out in the field or through mathematical calculations based on how far a lynx moves during a day, so-called distance criteria. The survey for lynx is carried out during the period of 1 October – 28 February each year.

#### WOLF, *Canis lupus*

The survey of wolves in Scandinavia shall be based on sight and trace observations as well as the collection of scats and other biological material on snow-covered land during the period of 1 October – 31 March. The surveys should primarily be aimed at and conducted covering the reproducing pairs.

#### GOLDEN EAGLE, *Aquila chrysaetos*

The survey is based on achieving two goals:

1. Number of occupied territories (territories where the golden eagle has been sighted during the survey)
2. Number of successful breeding, which reflects the possible growth of the population.

The survey is carried out during the period of 1 June – 15 September.

The summary is taken from SEPA's report no. 6830, A description of the Scandinavian survey system for large carnivores. (Naturvårdsverket, 2018)

## Appendix 4

### **Information to the respondent regarding personal data processing at SLU in student work for *Evaluation of the survey system of large carnivores in Scandinavia*.**

#### **Responsible for personal data management**

The Swedish University of Agricultural Sciences (SLU) is responsible for the processing of your personal data. Your contact for this evaluation is:

Philip Öhrman

Student, Jägmästarprogrammet 14/19  
Department of Fish & Wildlife Management  
Swedish University of Agricultural Sciences  
+46 (0)73-820 07 09  
[phoh0001@stud.slu.se](mailto:phoh0001@stud.slu.se)

Data protection agent at SLU is reachable via [dataskydd@slu.se](mailto:dataskydd@slu.se) or 018-67 20 90.

#### **Purposes**

Stakeholders will be asked to participate, and we will gather information by recording discussions conducted through focus groups and interviews. The recorded material will be transcribed to text and analyzed and then included in a final report. SLU will also process your personal data in the ways necessary for SLU to comply with the rules regarding public documents and public authorities' archives.

#### **Categories of personal data and their source**

Contact information has been obtained through the project's assistant supervisor;

Camilla Sandström

Professor  
Statsvetenskap / Dept. of Political Science  
Umeå University/Umeå University  
SE-901 87 Umeå, Sweden  
+46 (0)90 786 6450 / +46 (0)70-219 63 44

#### **Legal basis**

Processing of personal data is done in this project to carry out the assignment *Evaluation of the survey system of large carnivores in Scandinavia* 2017-12-08, Case number: NV-04671-17 from the Swedish Environmental Protection Agency. The processing is done in order to carry out a task of public interest.

## **Disclosure**

SLU may disclose your personal data to anyone who requests a general document about your personal information, in accordance with the rules on public documents, unless they are subject to confidentiality.

## **Transfer of personal data**

No personal data will be transferred to other organizations.

## **Storage**

Personal data will be stored until a final report of the assignment is completed. The transcribed text will be stored for future research at SLU.

Your personal data is also stored if it is required by the law on public documents and government archives.

## **Your rights**

You have the right, under certain circumstances, to have your data deleted, corrected, restricted and to have access to the personal data processed, and the right to object to the processing. To use your rights, please contact the privacy and data protection function with the contact details below.

## **Obligation to provide personal data**

If you are bound by other agreements where the obligation to provide personal data is a requirement then that obligation also applies within the scope of this assignment.

## **Comments**

If you have any comments on SLUs personal data processing, you can contact the privacy and data protection function at [dataskydd@slu.se](mailto:dataskydd@slu.se), 018-67 20 90.

If you are not satisfied with SLUs answers, you can turn to complaints about the SLUs processing of your personal data to the Data Inspection Board, [datainspektionen@datainspektionen.se](mailto:datainspektionen@datainspektionen.se) or 08-657 61 00.

You can read more about the supervision of the Data Inspection Board at <http://www.datainspektionen.se/>

## Appendix 5

### **Informed consent**

Hi, you will participate in research within the framework of the project *Evaluation of the survey system of large carnivores in Scandinavia*, where I aim to investigate how trust to the survey system for large carnivores is expressed and experienced. Today's activity consists of a focus group / individual interview where we will talk and discuss on your view of the survey system and the aspects that affect trust to it.

The focus group / individual interview will consist of a coherent discussion with elements based on a visual material that the interviewer has prepared. I wish to record the interview in order to be able to analyze it as accurately as possible. By signing this document, you give me permission to record our discussion and use the information obtained for research purposes only. ALL information collected during the focus group, including the identity of the participant, will be encoded. In the published material no data will be traced back to an individual participant. The collected data will be archived and handled according to the Swedish legislation. The collected data will only be used for scientific purposes. You are at any time entitled to cancel your participation in the study and withdraw your consent for us to use the collected data in the analysis.

If you would like more information or have further questions, please do not hesitate to contact me at [phoh0001@stud.slu.se](mailto:phoh0001@stud.slu.se) or 073-820 07 09.

Sincerely

**Philip Öhrman**

*Research assistant*

Department of Fish & Wildlife Management, Swedish University of Agricultural Sciences

I declare that, as a participant in the research at the Department of Fish & Wildlife Management at the Swedish University of Agricultural Sciences (SLU): (1) I have been explained the purpose of the research that I will participate in, understand what this participation means and have had the opportunity to ask questions that have been answered in full. (2) I have received enough information about this study. (3) I understand that my participation is voluntary and that, at any time (until such a date as it is no longer possible, I have been informed that, I can, without giving any reason, withdraw my participation and refuse the use of the collected data. (4) I give permission for an audio recording of my stated answers to questions posed as part of the study. (5) I give permission for the audio file and transcription of the same, to be saved in a secure manner, to be analyzed anonymously and used for reporting of scientific research. (6) I give my consent to participate in the study above.

Place and Date: \_\_\_\_\_

Signature respondent: \_\_\_\_\_

Printed name: \_\_\_\_\_

If you wish to learn more about the results of the study, please enter your email address below:

\_\_\_\_\_

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