

AN EXAMINATION OF THE POSSIBLE EXTENT OF SUPPORT
FOR AN ETHICALLY JUSTIFIABLE PREDATOR MANAGEMENT
IN THE CONTEXT OF FARMLAND BIRD PROTECTION MEASURES
IN SOUTH-HOLLAND



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IN SOUTH-HOLLAND*

Van Hall Larenstein, University of Applied Science
Agora 1, 8934CJ Leeuwarden, Netherlands

Submitted by

Melina Katikaridis 000013194
Animal and Society, Animalmanagement

Principal: Femmie Smit
Dierenbescherming

Mentor and assessor: Gabriëlle van Dinteren
Van Hall Larenstein

Independent assessor: Bart van Oost
Van Hall Larenstein

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PREFACE

This paper is presenting the research I conducted in the framework of my final thesis of my bachelor study program “animal-management” at Van Hall Larenstein, University of Applied Science, Leeuwarden. Being my first autonomous research, it would not have been possible without the support of many others. I am grateful that I could join you for this part of a suspenseful and rewarding journey. I experienced the journey as challenging at times, but surely as enriching, contributing to my personal as well as my professional growth.

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If you have any remarks or if there is any unclarity, please contact me: melina.katikaridis@hvhl.nl

*Melina Katikaridis
Munich, August 2021*

ABSTRACT

Currently there is an increasing political discussion in the Netherlands about declining farmland bird populations and the appropriate measures for their protection. The Dierenbescherming (DB) thinks that the birds cannot be saved by solely removing predators and is pledging for a predation management matching their ethical viewpoints.

The objective and main question of this research is to which extent different stakeholders support a predation management in respect of farmland birds in South-Holland which satisfies the ethical standards of DB.

This main question is approached by three sub-questions, starting with an overview on how different stakeholders execute predation management in respect of protecting farmland birds. Then the ethical approach behind those currently executed measures is classified. Finally, those results are compared to the ethical framework of DB and potential conclusions or consequences are being discussed.

This research was conducted by using a methodic qualitative approach, based on six in-depth, semi-structured interviews with the three most important land-owning stakeholder groups of South-Holland. The interviews were obtained by using a topic list with open ended questions. The recorded audios were literally transcribed and subsequently coded. The sub-questions were answered by summarizing and analyzing the appropriate coded statements. The main research question was answered by comparing the results of the three sub-questions.

In advance of answering the sub-questions and the main question, the theoretical background (animal ethics, ecology, legislation, politics in the province of South-Holland (PSH) and stakeholders) of the topic of this research was explored.

The survey of currently executed measures showed that all stakeholders execute bird habitat measures, non-lethal and lethal measures against predators. Generally, habitat and non-lethal measures are executed by the land-user or landowner, whereas lethal measures are predominantly executed by hunters. Habitat measures are financed through public money, non-lethal through public money or by the landowner and lethal by the hunters or the landowner.

The strategy of implementing different measures varies per stakeholder: Staatsbosbeheer (SBB) and Natuurmonumenten (NM) execute first bird habitat measures, then non-lethal measures and only lastly lethal measures. The interviewed farmer collective and LandschappenNL (LNL) execute all three measures at the same time. The PSH mainly executes habitat and non-lethal measures first and only then lethal measures. All the stakeholders monitor the birds and the predators using different methods. The efficiency of the implemented measure is monitored to some extent only by the farmer collective and SBB.

When classifying the ethical approach of those measures, it emerged that SBB and NM identify the preservation of biodiversity as the condition for lethal predation management. The PSH identifies following the law as the condition. Except NM, which has a complete ecocentric value, all the stakeholders have mixed values. The province and the farmer collective both have an ecocentric and a dominant anthropocentric value. SBB has a biocentric and a dominant ecocentric value. LNL has an equal mix of an anthropocentric and an ecocentric value.

Finally, the comparison of those results to the ethical standards of DB revealed that SBB and NM satisfy the highest number of the criteria of the DB for executing an ethically justifiable fauna management. They are followed by the PSH and LNL and then by the farmer collective.

Conclusively, SBB is the likeliest to support an ethically justifiable predation management – closely followed by NM. The other three stakeholders are not very likely to support an ethically justifiable predation management.

To save farmland birds all the stakeholders agree that there are situations in which predators need to be managed lethally, however based on different preconditions. An obstacle to realizing a predation management, which is ethically justifiable according to DB, seems to be the financial support system. It appears that farmers are not well enough compensated for habitat measures and do not receive support for non-lethal measures, while lethal measures do not cost them anything. Land-managers receive subsidies for natural land management measures, which are defined in the “Catalogue GroenBlauwe Dienst”. Non-lethal measures are not explicitly listed in this catalogue, so it is uncertain if or to which extent these measures are subsidized. On the other hand, some stakeholders have already begun to adopt the “Afwegingskader” of Vogelbescherming Nederland (VBN), which allows to identify situations where lethal predation management is necessary.

As a result of this research it is recommended (i) to team up with the VBN in respect of the promotion of an ethical predation management, (ii) to work out and promote a new concept of a financial support system, (iii) to obtain more research regarding farmer collectives and get them involved, (iv) to get insight into the work of the wildbeheereenheden, (v) to promote a discussion about predation management, which is based on scientific knowledge and (vi) to get in touch with the lectoraat weidevogels at Van Hall Larenstein.

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LIST OF ABBREVIATIONS

ACMD	Agrarisch collectief Midden-Delfland
ANLb	Agrarisch Natuur- en Landschapsbeheer
BN	Boerennatuur
Bnb	Besluit natuurbescherming
CAP	Common Agricultural Policy (EU)
CGBD	Catalogue GroenBlauwe Diensten
DB	Dierenbescherming
FBE	Faunabeheereenheid
GS	Gedeputeerde Staten
GSVI	Gunstige staat van instandhouding
LNL	LandschappenNL
NM	Natuurmonumenten
NVWA	Nederlandse Voedsel- en Warenautoriteit
PSH	Province South-Holland
SBB	Staatsbosbeheer
TBO	Terrein beherende organisaties
VBN	Vogelbescherming Nederland
WBE	Wildbeheereenheid
Wnb	Wet natuurbescherming

LIST OF TERMS

The list of terms provides insight into the meaning of different terms used in this paper. The goal is to prevent possible misunderstandings due to different interpretations of terms. It is not the goal to generally define these terms, only for this paper.

Ethically justifiable predator management	Actions taken against predators of preventive, non-lethal or lethal nature, which meet the seven criteria of the DB for an ethical fauna management (Nederlandse Vereniging tot bescherming van Dieren, 2020)
Farmland bird protection measures	Actions taken in the agricultural sector to improve the reproduction rate of farmland birds
Fauna management	The killing of wild animals to either ensure the balance of the ecosystem or to prevent damage
Predation management	Actions taken on managed land leading to less or no predators in a specific area
Lethal predator management	Actions taken against predators, which are lethal to the predator
Non-lethal predator management	Actions taken against predators, which are not lethal to the predators
Preventive predator management	Actions taken against predators before a predator becomes a problem

1 INTRODUCTION

“Vanuit mijn winterverblijf in het warme Zuiden ben ik onderweg naar het Noorden om te broeden. Ik nestel me graag in het Noorden met name vanwege de open landschappen en het vochtige, kruidenrijke gras. Helaas zijn deze plekken nog maar schaars, en zal ik moeten vechten voor mijn territorium. Met mijn lange poten en mijn bruinrood gevlekte borst vlieg ik luidruchtig rond om een goede plek te kunnen vinden. Ik zie veel andere grutto’s om mij heen, maar ik laat me niet weggagen. Wanneer ik de geschikte broedplek heb gevonden, merk ik dat ik niet de enige ben die deze plek in het vizier heeft. Dreigend, met mijn staartveren wijd, hou ik de andere grutto in de gaten. We gaan de strijd met elkaar aan, maar ik win het niet. De tegenpartij houdt zijn vleugels omhoog. Dit is nu zijn territorium. Ik moet op zoek naar een andere plek, maar er zijn er maar weinig. Voor nu zal ik me moeten nestelen op een andere plek. De dagen verstrijken en ik ben aan het broeden. Ik houd mijn nest zo goed mogelijk in de gaten, maar wanneer ik terugvlieg naar mijn nest zie ik dat er nog maar twee van de vier eitjes liggen. Het is het werk van een roofdier, al mijn werk is voor niks geweest. Wanneer mijn jongen zijn uitgekomen, zullen zij duizenden insecten moeten kunnen vangen om te groeien, maar die zijn er niet voldoende. Als mijn jongen niet genoeg voedsel kunnen vinden, zullen zij te zwak zijn om uit te kunnen vliegen. Dit was echter van latere zorg geweest, want wanneer ik weer terugvlieg naar het nest zie ik dat mijn nest met eieren is verwoest en het gras is gemaaid. De inspanning van afgelopen weken heeft tot niets geleid door verschillende dreigingen, en op deze manier sterft mijn soort langzaam uit.” (von Martels, 2020)

This text is the introduction of the initiative nota “Weidse blik op de weidevogels” of Maurits von Martels from November 2020 (von Martels, 2020), when von Martels was member of the Dutch parliament for the CDA (Tweede Kamder der Staten-Generaal, 2020). Cause of this nota is the massive decline of farmland bird populations. In this nota, von Martels identifies the Netherlands as the most important breeding area of different farmland birds and is therefore underlining the responsibility of the Netherlands to protect these birds. He is pledging for creating suitable habitat for the birds, for support of the concerning landowners or land-users and for an intensified (lethal) predation management. According to the nota the only way to protect farmland birds is to execute all these three factors. As a result, von Martels is proposing to the parliament to enlarge the Agrarisch Natuur- en Landschapsbeheer (ANLb)-budget for farmland birds, to stimulate farmers and to lengthen the contracts with farmers regarding the support for executing farmland bird protection measures. Regarding the intensified (lethal) predation management, he is proposing in the nota to place the stone marten on the national exemption list, to expand the national fox exemption, so that the animal can be also hunted during the night, and to start a campaign revealing the damage caused by (stray) cats to farmland birds.

Carola Schouten, minister of Landbouw, Natuur en Voedselkwaliteit, identifies this initiative nota as a thorough approach and pledges her support (Schouten, 2020). At the same time, there was also another initiative the “Aanvalsplan Grutto” (Winsemius, Crone, It Fyske Gea, de Friese Milieu Federatie, & Vogelbescherming Nederland, 2020), which was initiated by the Vogelbescherming Nederland (VBN). Schouten declared recently to make a financial reservation of five million euros to executed this plan (Luimes, 2021).

Nelleke Hijmans, from the Dierenbescherming (DB), expressed her disapproval in her written reaction in respect of the initiative nota of the CDA (Hijmans, 2021). In the written reaction she is pointing out that we run the risk to seek the solution for farmland birds in removing another species because we do not want to target our own behavior and because we put the birds on an untouchable throne. She is stating that nature’s balance can never be restored by only removing predators and is therefore pledging for making nature more robust, structurally improving habitats

and adjusting farming methods. According to the written reaction, hunting predators is not effective and Hijmans in the name of the DB is therefore recommending to consider preferably non-lethal methods. More concretely she is proposing that hunters should stop killing prey animals like rabbits and stop destroying the eggs of geese, so that predators have other food sources besides farmland birds available. The solution is to strengthen nature on a systemic level: strengthen nature, strengthen farmland birds.

Next to that ecologically questionable side regarding the proposed and executed predation management, there is also an ethically questionable side to that matter. To which extent and in which way are humans allowed to kill one species to protect another? This ethical question is addressed by the DB in the document “ethisch wildbeheer” (Nederlandse Vereniging tot bescherming van Dieren, 2020), which describes seven fundamental preconditions for an ethically justifiable fauna management:

1. Human behavior addressed first
2. Proof that species causes damage exists
3. Efficiency of measures proven
4. Most animal friendly measures executed
5. Social support created
6. Long-term plan established (new knowledge continuously integrated)
7. Decisions based on damage

For the purpose of this paper that framework is being used as a reference definition for an ethically justifiable predation management (see chapter 2.1.3).

The DB has the impression that leading national politicians and decision makers seem to accept the killing of predators in favor of the protection of farmland birds without further ethical consideration, which would lead to an “unethically” executed predation management. As the juridical and political framework does not reflect their ethical viewpoint the DB is interested in the possibilities of realizing an alternative approach regarding predation management.

In the framework of this research, the focus of realizing an alternative approach of predation management lays on the province South-Holland (PSH), since PSH is an important province for farmland birds (Provincie Zuid-Holland, 2021a) and has an active management plan in that matter (Provincie Zuid-Holland et al., 2019). The focus is put on stakeholders who own and manage land, since they are able to decide how predation management is executed on their land. Therefore, the relevant stakeholders of this research are the PSH, the farmer collectives and the “terrein beherende organisaties” (TBO’s) (see chapter 2.5).

The objective of this research is to explore to which extent different stakeholders support an – according to the standards of the DB - ethically justifiable predation management in respect of farmland birds in South-Holland.

The main research questions and the sub-questions for realizing this objective are:

To which extent do different stakeholders support an – according to the standards of the DB - ethically justifiable predation management in respect of farmland bird protection measures in South-Holland?

1. *How do different stakeholders execute predation management in respect of protecting farmland birds?*
2. *What is the ethical approach behind the executed predation management in respect of protecting farmland birds of the stakeholder?*
3. *To which extent do the currently executed predation managements in respect of protecting farmland birds of the different stakeholders match the ethical viewpoints of the DB regarding an ethically justifiable predation management?*

The process to answer these research questions is conceptualized in the following model (Figure 1).

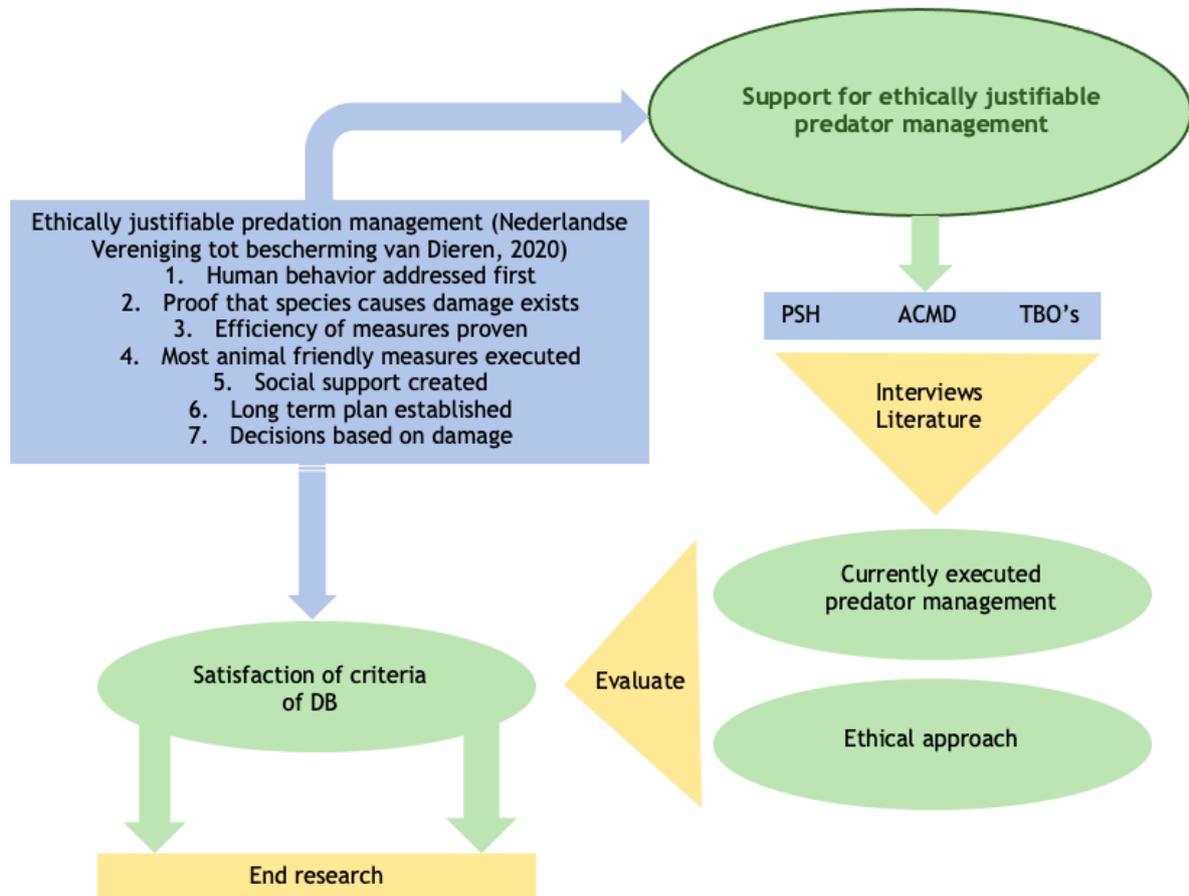


Figure 1: Illustration of the research of this thesis: the keywords of the research questions can be found in oval and green colored shapes, the methods in triangular and yellow shapes and the “external input” in rectangular and blue shapes (PSH=province South-Holland, ACMD=Agrarisch collectief Midden-Delfland, TBO=terrein beherende organisatie)

First, this paper outlines the ethical, ecological, juridical and political background of the topic farmland birds in the Netherlands, specifically in South-Holland and predation. Subsequently, the four different stakeholders are shortly introduced, followed by the materials and methods. Then the results obtained by this research are being presented, discussed and a conclusion is made. Lastly, recommendations based on this research are described.

Readers of this paper are encouraged to appreciate that this research is obtained within the framework of a bachelor thesis and thus can only provide a core for further research, considerations and initiatives.

2 THEORETICAL BACKGROUND

In this chapter the ethical, ecological, juridical and political background in respect of predation management is elaborated. This is followed by an analysis of the four stakeholders, relevant for this research.

2.1 ANIMAL ETHICS

This chapter is looking at ethical principles, views and theories regarding animals and the animal-human relation. Ethics can be defined as reflecting on one's moral and moral originates from the social aspect of humans: mutual goals are needed to make a society work and these mutual goals can be defined as moral values (Pompe, n.d.). The moral values are transferred into rules for one's actions to realize these moral values – the moral norms (Pompe, n.d.). To illustrate: if your moral value is honesty one of your moral norms will be to not lie. Moral is a highly complex subject with a variety of different visions, which also change over time, on an individual and social level (Pompe, n.d.).

It can be concluded that animal ethics are then exploring our moral and actions regarding animals. The topic can be approached from two different directions(Pompe, n.d.):

1. From the animal itself
All animals have an intrinsic value since they have a goal in that sense that they are able to control their body, behavior and reproduction. Therefore, humans violate the intrinsic value if we hinder animals from doing so.
2. From the human animal relation
The different attitudes of humans regarding animals create different visions of what is morally justifiable.

The second approach will be further illustrated in the following paragraphs by delving into some philosophical theories regarding the moral status of animals.

2.1.1 MORAL STATUS OF ANIMALS

Philosophers have explored the moral status of animals throughout human history, trying to “prove” with theories either that humans are allowed to use animals for their goals or that humans are not allowed to do so (Pompe, n.d.). Widely recognized theories were for example among many others established by Kant and Schweizer (Pompe, n.d.).

Kant's theory states (Höffe, 1988) that humans are rational and autonomous beings and therefore have a goal and obligations. He identifies animals as not rational and autonomous and concludes that animals are therefore means to an end. This does not mean that humans can do anything with animals, because the earlier named obligations do also include animals indirectly.

Schweizer's reverence theory (Schweizer, 1959) is in contrast stating that all beings are of equal value since he believes in a general reverence in respect of life. So, he concludes that we humans do not have any right to elevate ourselves over animals and use them for our goals.

More recent theories explore next to the moral status of animals also the question: what is the consequence of ethical insights (Pompe, n.d.)? The theories of Frey, Regan and Precht are shortly explained in the following.

Frey claims that animals do not have any right (Frey, 1980), since animals do not speak a (human) language. Therefore, they cannot pass judgement and so are not able to long for anything. He further concludes that if animals are not able to long for anything, they are not able to have any interests – without interests, they cannot have rights.

Regan propagates a contrary theory (Regan, 1983), he is of the opinion that every being has an inherent value and is therefore of equal value. The inherent value does not change by cumulation. So, he comes to the same conclusion as Schweizer that animals have rights of their own.

Precht has a different approach (Precht, 2016), he says that humans just do not know. We are part of the system and we will never know how it really is to be an “animal”. In his opinion we should follow our intuition when it comes to the treatment of animals, since we can only guess, what is going on in the head of an animal. He pledges for the concept of fellow creatures.

The theories are highly variable and depend on the attitude of the creator. Different attitudes in respect of the animal human relation are explored in the following segment. Before getting to that, it is worth mentioning that animals are being ever more commonly regarded as sentient beings by countries and their laws and therefore the welfare of animals becomes increasingly important (EUR-Lex, 2021; Harvey, 2021).

2.1.2 OPINIONS IN RESPECT OF ANIMALS

Opinions are learned beliefs, letting us react positively or negatively on an object or situation the same way over and over again (von Grumbkow & Meerstens, 1992). There are three dimensions in respect of forming one’s opinion: knowledge, emotions and values (Langers, Mattijssen, Buijs, Steingröver, & Westerink, 2013).

knowledge and emotions

Plato defined knowledge as a “justified true belief” (Chappell, 2021). The question arises, which characteristics does a belief need to have to be viewed as justifiable true? In the western culture the answer is science: the belief must be proven by measurements or logic (Philosophy Terms, 2021). Professionals tend to base their attitude on knowledge, emphasizing biodiversity or landscape goals for example (Langers et al., 2013).

Scientists have not yet come up with a conclusive and interdisciplinary definition of “emotion” (Mulligan & Scherer, 2012), still the great impact of emotions on our beliefs and actions is undoubtable (Damasio, 2005). Emotions are on the one hand able to create beliefs, which were not there before and are on the other hand able to change already existing beliefs completely or the strength of the belief (Frijda & Mesquita, 2000). Beliefs are found to be highly sensitive to emotional influence (Fiedler & Bless, 2000). Especially, citizens tend to base their attitude towards nature on their emotions, emphasizing the beauty of nature for example (Langers et al., 2013).

values

Ethical values include ideals and intentions and play an important role in knowledge- as well as in emotion-dominated attitudes (Langers et al., 2013). Within animal ethics, three currents of values can be identified: anthropocentrism, biocentrism and ecocentrism (Langers et al., 2013). Anthropocentrism is human-centered, biocentrism is life-centered and ecocentrism is system-centered (Alexander, 1999). Depending on which value one has, one views predation management differently. To illustrate these values further, they will be explained in the following, by using the example of predation management. Please note, that this is a subjective interpretation of these values used to facilitate this explanation and be aware that in this case the assumption was made, that lethal predation management is necessary in order to save another species and the well-working ecosystem. If one has an anthropocentric value, one does not see an ethical problem in killing predators, since the killing is serving humans in that sense that damage is prevented and another (subjectively more valuable) species protected. If one has a biocentric value, one probably views predation management as a hardly resolvable ethical dilemma: one life against the other. And

lastly, if one has an ecocentric value one sees the necessity in predation management in order to restore the ecosystem.

Conclusively, there are different values among us humans in respect of animals, which explains the debate around the “right” treatment of animals in certain situations. In this debate, experts tend to emphasize the importance of scientific knowledge regarding nature, while for citizens experiencing nature is important (Buijs, 2009). Subsequently, there is the risk of miscommunication, since the topic is approached from two different angles.

2.1.3 ETHICALLY JUSTIFIABLE PREDATION MANAGEMENT

As already mentioned in the introduction, the DB developed seven preconditions as a framework for an ethically justifiable fauna management (Nederlandse Vereniging tot bescherming van Dieren, 2020). These ideas can be applied on predation management in respect of farmland birds, since that is clearly a form of fauna management. In the following the seven basic ideas are shortly elaborated (Nederlandse Vereniging tot bescherming van Dieren, 2020):

1. Human behavior is addressed first leading to a situation where fauna management might become unnecessary. The importance of education is emphasized.
2. It is obligatory to proof that a certain species is really causing damage. The positive effects of the damage causing species as well as its role in the ecosystem need to be included in the decision making whether to execute fauna management or not.
3. Fauna management can only be executed if it is measurably efficient and if it helps to reach the goals, which need to be defined beforehand. A zero measurement needs to be done. Furthermore, a measurement of trends regarding the damage causing species is favored as well as a measurement of the side factors.
4. The most animal friendly measures are executed, so preventive and non-lethal measures first. The importance of a professional and contemporary execution of the measures is emphasized.
5. Social support for the previous points is created.
6. A systematic long-term plan is established, integrating new knowledge and adapting the measures. The plans include long-term monitoring.
7. Decisions are made based on the caused damage and not on “labels” certain species have gotten.

Criteria one, two, three, five, six and seven indicate an ecocentric value, since predation management need to be targeted in a holistic way, including proof of damage, monitoring and a systemic long-term plan. Criterion four indicates a biocentric value, targeting the welfare of predators.

2.2 ECOLOGY

2.2.1 DECLINE OF FARMLAND BIRD POPULATIONS

Between 1980 and 2012 there has been a decline of 52% of farmland birds in Europe, this equals 300 million lost farmland birds (BirdLife Europe, 2012). The farmland bird indicator identifies 37 species as farmland bird species and shows their trend: 22 of these species are decreasing, while only 6 species are increasing (BirdLife Europe, 2012). Further 6 species are stable and from 3 species the population development is uncertain (BirdLife Europe, 2012).

The following chart shows the downward trend of farmland birds in the European Union (Figure 2).

Farmland birds in the European Union

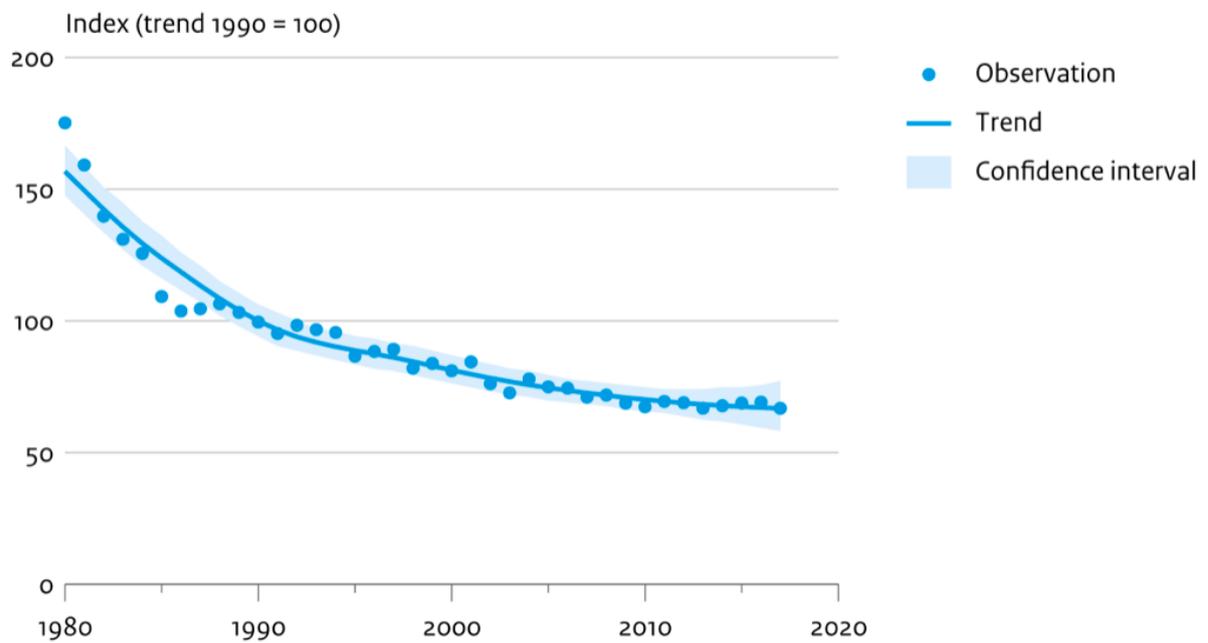


Figure 2: Farmland bird population trend in the European Union (CBS, PBL, RIVM, & WUR, 2020)

In the Netherlands the decline of farmland birds is found to be 60 to 70 percent since 1960 (SOVON, 2021). The Dutch farmland bird indicator identifies 27 species as farmland birds (Kleyheeg, Vogelzang, van Beek, & Veenstra, 2020). 21 of these 27 species show a significant decline (CBS, 2021).

The following chart shows the farmland bird population trend in the Netherlands (Figure 3).

Farmland birds in the Netherlands

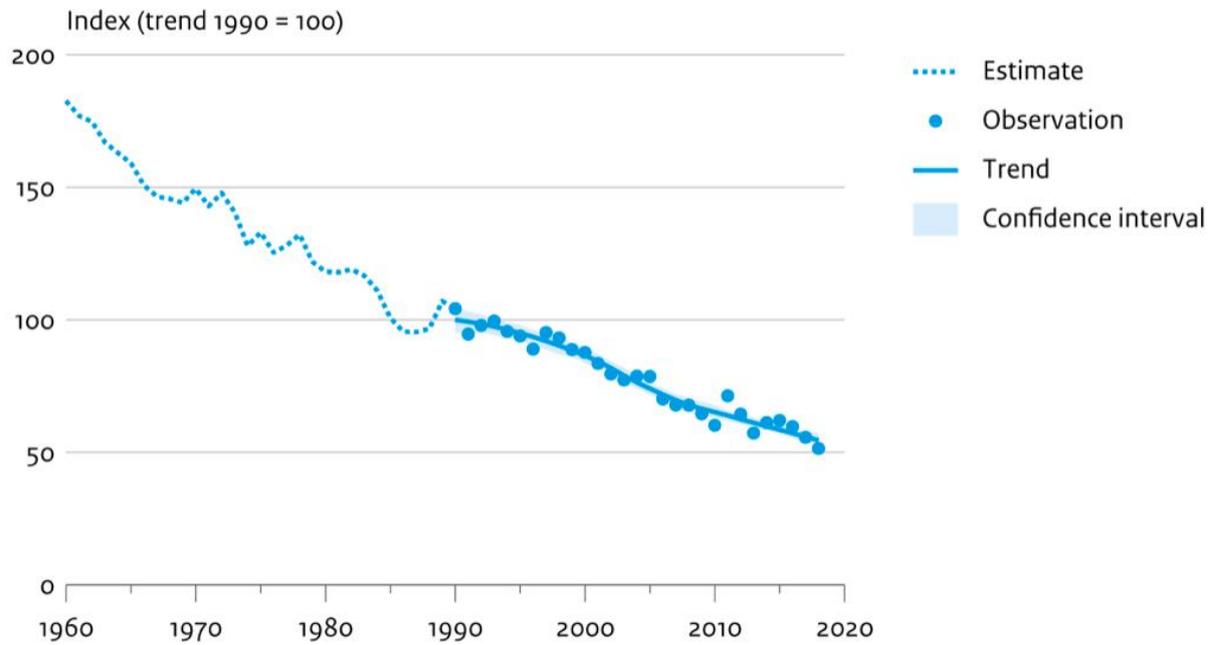


Figure 3: Farmland bird population trend in the Netherlands (CBS et al., 2020)

The occurrence of farmland birds is unequally distributed throughout the Netherlands: different species occur in unequal numbers in different provinces. In South-Holland for example a fair number of northern shovelers (*Spatula clypeata*), black-tailed godwits (*Limosa limosa*) and northern lapwings (*Vanellus vanellus*) occur and also a smaller number of Eurasian skylarks (*Alauda arvensis*) (Figure 4).

Populatieaandelen per provincie in 2019

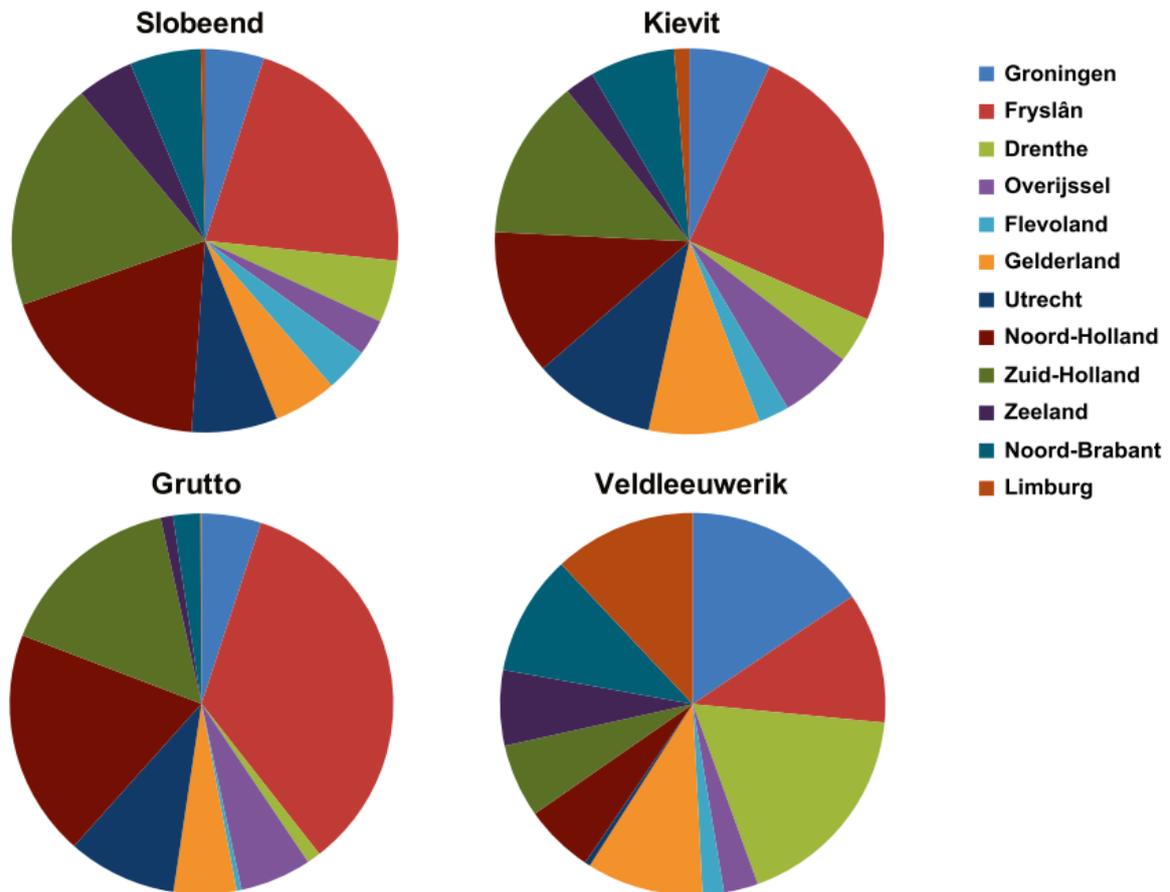


Figure 4: Occurrence of farmland bird species (slobeend, engl.: European shoveler; kievit, engl.: northern lapwing; grutto, engl.: black-tailed godwit and veldleeuwerik, engl.: skylark) in the twelve different provinces in the Netherlands (Kleyheeg, Vogelzang, van Beek, & Veenstra, 2020)

The PSH identifies the black-tailed godwit, northern lapwings, Eurasian skylarks and the partridge (*Perdix perdix*) as important farmland bird species for the province to protect (Provincie Zuid-Holland, 2021a). The black-tailed godwit is viewed in the framework of the key habitat approach as an indicator species for the black-tailed godwit group including the northern shoveler and the common redshank (*Tringa tetanus*) (Melman, Sierdsema, Hammers, Oosterveld, & Schotman, 2014). It is estimated that the following farmland bird species will also profit from measures taken to save the black-tailed godwit group: the northern lapwing, the Eurasian oystercatcher (*Haematopus ostralegus*), the meadow pipit (*Anthus pratensis*), the Eurasian skylark and the western yellow wagtail (*Motacilla flava*) (Melman et al., 2014).

The following chart shows the population development of the farmland birds in South-Holland (Figure 5).

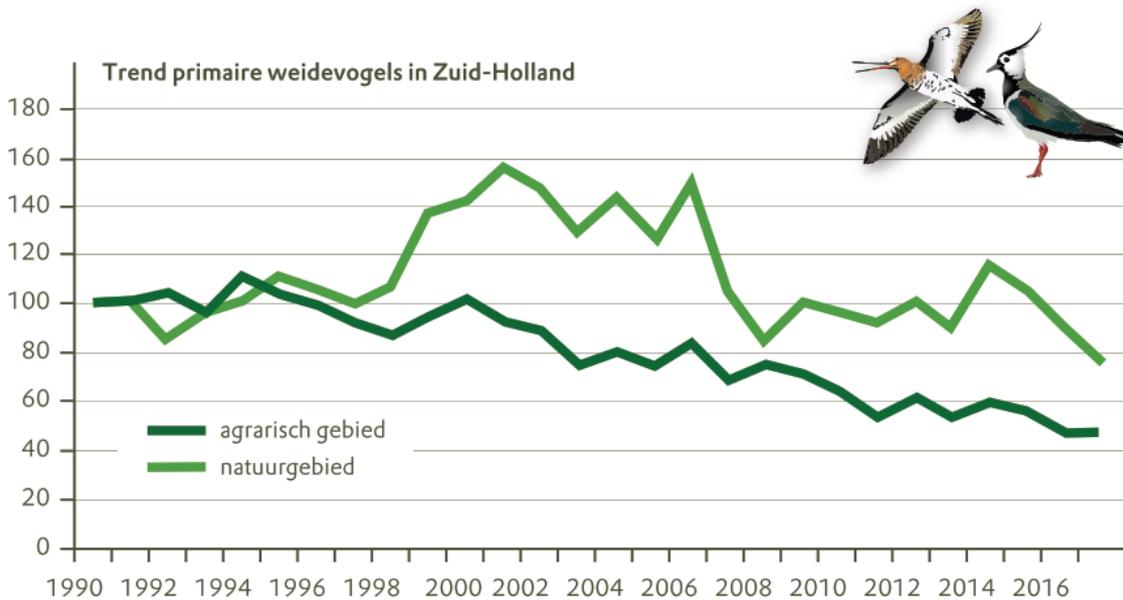


Figure 5: Population development of the farmland birds in South-Holland (Provincie Zuid-Holland et al., 2019)

To summarize, farmland birds are declining on a European level, on a national level in the Netherlands and also on a provincial level in South-Holland.

The next segment will explore the causes of this decline and the role of predation.

2.2.2 CAUSES FOR DECLINE OF FARMLAND BIRDS

In the Sovon report of 2018 “Boerenlandvogels en predatie: een update van de huidige kennis”, van der Wal and Theunissen give an update of the insights regarding farmland birds and predation (Wal & Teunissen, 2018). According to the report the main cause for the decline in farmland bird populations is the decline in suitable breeding habitat due to intensive agriculture. The consequences of intensive agriculture on the farmland are a low water level, a low variety in plants as well as a fast growth of plants. These three effects are detrimental to the living conditions of farmland birds. These ground breeding birds flourish on land with high water level, which leads to more little ground animals, like insects, providing feeding for the birds and which is also a barrier for predators. Farmland birds prefer land with a variety of plants, allowing the birds to find enough to eat and with plants not growing fast, making the grassland less dense and allowing the birds to make their nests easily in-between and enabling the birds to spot predators. Furthermore, intensive agriculture leads to intensive fertilization and frequent mowing of the grassland. Intensive fertilization is leading to fast growing and dense vegetation, while frequent mowing destroys many nests of farmland birds – and if it doesn't it leads to a greater visibility of the nests and chicks, practically presenting the nests to predators on an apart from the gras around the nest shortly mowed piece of land. Another issue due to urbanization is the fragmentation of landscapes, leading to smaller suitable areas of habitat for farmland birds. This results in a greater edge effect, making the birds more vulnerable to predators since the area is now better accessible for predators due to trails for example. It also leads to smaller populations breeding in one area, which also makes the population more vulnerable to predators since in small populations the risk for the birds to get caught by a predator is greater than in a bigger population. Smaller populations result in a less

genetic variety, making the population less robust. The fragmentation also leads to more look-out points like trees or poles for flying predators. Furthermore, there is more disturbance in the fragmented farmland bird habitats, caused by humans and dogs for example due to trails and roads.

To summarize: intensive agriculture and urbanization create unsuitable habitat resulting among others in food-scarcity for farmland birds. It becomes evident that the human made effects from intensive agriculture and urbanization favor predation on farmland birds. Predators have now an easy game due to easy accessibility resulting from low water levels, the greater visibility of nests and chicks and the various look-out points, while farmland birds are more vulnerable to predation since they struggle to find enough food and need to breed in small habitat and therefore in small population sizes. Predation should therefore not be seen as an isolated effect, the predation pressure on farmland birds is a result from human actions.

2.2.3 THE ROLE OF PREDATION

The red fox (*Vulpes vulpes*) is the dominant predator of farmland birds (Oosterveld, Mulder, de Hoop, & Davids, 2017). The influence of other predators, like the stone marten (*Martes foina*), the carrion crow (*Corvus corone*), the European badger (*Merles merles*), the European polecat (*Mustela putorius*) and the European hedgehog (*Erinaceus europaeus*), differentiates depending on different areas (Oosterveld et al., 2017). Different types of landscapes lead to different numbers of farmland birds lost to predation (Teunissen, Kampichler, Majoer, Roodbergen, & Kleyheeg, 2020).

Generally, there is a distinction between nest and chick predation (Wal & Teunissen, 2018). It is more difficult to trace chick predation since it is easier to monitor egg than moving chicks (Wal & Teunissen, 2018). Predated eggs can also give better information regarding the identity of the predator (Wal & Teunissen, 2018).

Predators can be divided into flying and ground predators (Wal & Teunissen, 2018). Flying predators are for example the carrion crow, the marsh harrier (*Circus aeruginosus*), the European herring gull (*Larus argentatus*), the common buzzard (*Buteo buteo*) and the common raven (*Corvus corax*) (Teunissen et al., 2020). Ground predators are mainly mammals, like the red fox, the stone marten, stray cats (*Felis catus*), the European mink (*Mustela lutreola*), the stoat, the badger, the polecat and the hedgehog (Wal & Teunissen, 2018).

In respect of non-lethal predator management for flying predators, look-out points can be removed (Wal & Teunissen, 2018). For ground predators, fences can be placed and the habitat altered in a way which is unfavorable for ground predation (water level, vegetation) (Wal & Teunissen, 2018).

Ground predators are mainly the target of lethal predation management since flying predators have a wide range: kill one passing common buzzard, the next one will come (Wal & Teunissen, 2018). However, there is evidence that also lethal predator management of ground predators like the red fox can be ineffective (Teunissen et al., 2020). The reason for this inefficiency lies in the complex relation among predators: if one predator species is killed, there is less competition for other predator species, which will flourish and keep killing farmland birds, resulting in the same or even increased predation pressure on farmland birds (Wal & Teunissen, 2018). Therefore, hunters advise to systematically hunt the whole group of different predator species in an area (Nederlandse Jagers Vereniging, 2018).

There is another approach to this human made “problem”: the alternative prey hypothesis (Gijsbertsen & Teunissen, 2013). The focal prey of the fox for example is goose (Gijsbertsen &

Teunissen, 2013). Since geese are not available in high numbers due to the intensive hunt on them, the fox changes from his focal prey, the goose, to an alternative prey, the farmland bird (Gijsbertsen & Teunissen, 2013). Research has shown that if there are geese available in the territory of the fox, the fox will predate on geese instead of on farmland birds (Gijsbertsen & Teunissen, 2013).

So, one can conclude that there is another unfavorable human made effect for farmland birds: the killing of prey species (other than farmland birds) of relevant predators. Lethal predation management therefore is even more morally questionable.

Also, the research of van Schie and Visser (van Schie & Visser, 2015) shows, that there are cases where the alteration of habitat solely leads to a successful reproduction of meadow breeding birds. In the Aalkeetbuitenpolder and in the Nieuwkoopse Plassen Zuid, which are both located in South-Holland, the water level was lifted up, the fertilization was adapted and the mosaics from haymaking and grazing were adjusted. Even though there was an unfavorable starting situation in these areas and no predation management was executed, these described three measures lead to a successful reproduction of farmland birds.

This is supported by the conclusion that predation is only a problem in bad habitats (Kentie, Both, Hooijmeijer, & Piersma, 2015).

2.3 LEGISLATION

2.3.1 NATIONAL

In respect of predation management, the Dutch law “Wet natuurbescherming” (Wnb) is important regarding the legal treatment of these animals (Wet natuurbescherming, 2015). The relevant parts of this law are elaborated in the following.

The Wnb integrates the bird and habitat directive of the EU into Dutch law, protecting different types of habitats (chapter 2) and different species (chapter 3).

An important predator of farmland birds for example, the fox, is protected under the Wnb §3.3 attachment part A. According to this paragraph it is not allowed to catch or kill the fox or to destroy its shelters. However, there are more paragraphs and articles to this law. The next paragraph, Wnb §3.4, is namely regulating the damage and plague control as well as the fauna management. Here, the provincial faunabeheereenheden (FBE’s) are introduced and obliged with the task to sustainably manage populations of wild animal species, the fight against animals that cause damage and practicing hunting according to the fauna management plan. This plan is made by the FBE and needs to be approved by the Gedeputeerde-Statens (GS), which is the provincial management.

So, within the context of sustainably managing wild animals, it is allowed to kill wild animals. Is it now allowed to kill wild animals protected under Wnb §3.1, §3.2 and §3.3 if they cause damage? Yes, according to articles 3.15 and 3.16 of the Wnb it is possible: the minister and Provinciale Staten can give exemptions (“vrijstellingen”). These exemptions can only be used by the owner of the land, where damage is caused. According to article 3.17 Wnb the GS can furthermore give exemptions (“onthefingen”) to the FBE’s.

Next to this law, there is a decision: “Besluit natuurbescherming” (Bnb), which elaborates this matter in greater detail (Besluit natuurbescherming, 2016). In article 3.1 of the Bnb the species are identified causing damage nationally. These species are allowed to be “managed” (hunted) in accordance with Wnb article 3.15 and 3.16. The fox is among these species, so ultimately it is well allowed to kill it since it causes damage nationally. There are restrictions though: in article 3.6 Bnb general rules for hunting are stated – among others: it is not allowed to hunt before sunrise or after sunset.

To summarize: the fox is protected under Wnb §3.3 but due to article 3.15 and 3.16 Wnb it is well allowed to kill it because in article 3.1 Bnb it is identified as damage causing species. On a national level the fox can legally be hunted during the day (article 3.6 Bnb).

2.3.3 PROVINCIAL

The Wnb is decentralized, which means that the provinces are responsible for implementing and executing the Wnb. Therefore, the province can grant the exemptions mentioned above. This can be found in the “decentralisatieakkoord” (Onderhandelingsakkoord decentralisatie natuur, 2011).

In South-Holland there is the “verordening uitvoering Wnb Zuid-Holland” (Verordening uitvoering Wet natuurbescherming Zuid-Holland, 2016), which is the provincial regulation managing the implementation and executing of the Wnb in South-Holland. Next to managing the FBE South-Holland including the fauna management plans and the local “wildbeheereenheden” (WBE) this regulation states in article 5.2 that all protected fauna species of Wnb are allowed to be killed in favor of the protection of the wild fauna and flora. And in chapter 8 there are already certain exemptions for certain species and reasons. Article 3.5 of the “Beleidsregel uitvoering Wnb Zuid-Holland” further clarifies the eligibility of people who can get an exemption (“ontheffing”).

In general, there are three different types of exemptions: vrijstellingen (articles 3.15 and 3.16 Wnb), ontheffingen (article 3.17 Wnb) and gedragscodes (article 3.31 Wnb).

A “vrijstelling” is a general exemption, which every entitled person in the concerned province can use. The PSH gave a “vrijstelling” to hunt foxes and rabbits also during the night using light and night-vision-goggles. So, the concerned landlords in South-Holland could use these exemptions to allow hunters to do so on their land. Surely the province cannot give a “vrijstelling” for anything, the requirements in the law need to be met. In this case the court in Den Haag decided that these exemptions cannot be accepted. Therefore, foxes can now still be hunted in accordance with the fauna management plans since they cause damage, but only during daytime. (BNNVARA, 2021)

An overview of the valid provincial exemptions can be found on the website of FBE South-Holland (Faunabeheereenheid Zuid-Holland, 2021).

The other two exemption types regarding predation management need to be requested by the FBE (exceptions possible). In order to be granted an exemption of a protected species three requirements need to be fulfilled (Wet natuurbescherming, 2015):

1. No alternative
2. No aggravation of the “gunstige staat van instandhouding” (GSVI)
3. Valid cause for the dispensation

2.3.2 PREDATION MANAGEMENT

How is predation management now executed and who is responsible for it? Paragraph 3.4 Wnb, answers that question. Article 3.12 Wnb explains that there are provincial FBE's who define one or more fauna management plans for their area(s). Sustainable management of wild animals as well as the management of damage causing animals have to be executed in accordance with these plans (clause 1). These plans namely define proper measures to prevent damage caused by wild animals (clause 4). A fauna management plan needs to be validated by numbers regarding the population development in the concerned area (clause 5). Also, the GS of the concerning province need to approve the plan – only if it is approved it becomes valid (clause 7). An approved plan needs to be published (clause 7). An annual report of the execution of the fauna management plan also needs to be published by the FBE's (clause 8).

The WBE's execute the fauna management plans (Article 3.14 clause 1 Wnb). The WBE's consist of hunters and possibly of other involved stakeholders, like land-users or TBO's (Article 3.14 clause 1). Regarding the protection of farmland birds, hunters are of the opinion that predators are the main issue for already breeding birds and should therefore be managed properly (Nederlandse Jagers Vereniging, 2018). Paragraph 3.5 Wnb defines how hunting is allowed to be practiced, including which weapons are allowed for killing and generally when hunting is allowed.

The provinces are establishing further regulations for their FBE's and the execution of the fauna management plans (Article 3.12 clause 9 and 3.14 clause 2 Wnb).

Regulations and procedure in South-Holland

The regulation of South-Holland in respect of the execution of the Wnb, already mentioned in chapter 2.1.3, further specifies in chapters two, three and four the rules for fauna management further. South-Holland obliges its FBE to include in the annual report the numbers of killed animals, quantitative information of populations and their developments, which might become a risk for the own interest (article 2.3). It is stated that the fauna management plan is maximal valid for six years (article 3.1) and it needs to define the preconditions for pre or post damage management (article 3.2 clause 4). Furthermore, the plan needs to prove that the execution of the management, described in the plan, does not have a negative effect of the GSVI of a population (article 3.2 clause 8).

Regarding sustainable fauna management (article 3.3) and damage control management (article 3.4), the fauna management plan needs to include more detailed information showing why it is mandatory to pursue this lethal management. Looking at damage control management, there needs to be a description of the caused damage and the taken preventive measures as well as their efficiency. Chapter four regulates the WBE's, for example who is eligible to execute the fauna management plans (article 4.2 clause 2).

The FBE South-Holland has currently 12 different fauna management plans – every plan focusses on one species or on groups of species, i.a. for geese (*Anser anser*), hunting species, seagulls, deer and foxes (Faunabeheereenheid Zuid-Holland, 2017). For example, the fauna management plan of the fox describes the decline of farmland birds as well as the major role of the fox in this decline. This is part of the "damage" the fox caused. Based on the caused damage, lethal damage control measures need to be taken – to protect the farmland birds among others (Faunabeheereenheid Zuid-Holland, 2017).

In the action plan of the PSH regarding farmland bird management (see chapter 4.2), it is mentioned that predation plans were established in the first half of 2019 for every working area of the farmer collectives (Provincie Zuid-Holland et al., 2019).

2.4 POLITICS IN SOUTH-HOLLAND

2.4.1 PROVINCIAL VISION

The Wnb requires that the provinces to establish a provincial nature vision. South-Holland created in 2018 its nature vision “Rijke Groenblauwe Leefomgeving” (Provincie Zuid-Holland, 2018). The vision focusses on sustaining and improving nature (green) and water (blue). One of the great targets is biodiversity. Among others the province is working together with research institutions and NGO’s on the “Deltaplan Biodiversiteit” (Stichting Deltaplan Biodiversiteitsherstel, 2021) and is planning to work out an effective farmland bird management together with different stakeholders. The GS of South-Holland believe: “De mens kan niet zonder biodiversiteit, biodiversiteit kan niet zonder de mens.” (Provincie Zuid-Holland, 2018). In the course of the vision the proposition of this rather radical statement becomes more coherent. It is namely stated that humans constantly interfere with nature so that a natural balance is not possible anymore and biodiversity cannot longer thrive on its own. Therefore, biodiversity needs special human help in order to be improved. (This implies the provincial intent that humans will keep interfering with nature, harming biodiversity – otherwise biodiversity would not need special human help.) A part of the solution is among others: sustainable fauna management. There are no specific guidelines in the vision, how this management should look like. It is only mentioned that the focus lays on an early fauna management to ensure long-term effects on animal welfare. It is not further explained what the specific measures in respect of the early fauna management and what the preferred long-term effects are.

In the “Koersen Groen Blauwe Leefomgeving” (Provincie Zuid-Holland, 2017) , the core document of this vision, which was adopted in January 2018 by the GS, there is a little more detailed information regarding fauna management. The goal is that humans and wild animals are able to live next to each other. If wild animals are causing damage however, this human issue needs to be addressed following the escalation ladder: first warding off, scaring and manipulation of eggs, secondly, if there are not sufficient effects, catching and killing.

2.4.2 ACTION PLAN: MEADOW BREEDING BIRDS

In 2019 the PZH generated the “Actieplan boerenlandvogels Zuid-Holland” (Provincie Zuid-Holland et al., 2019). This plan is an elaboration of the execution agenda of the provincial vision. It aims to improve the protection of farmland birds on farmland and in nature areas. Three different causes for the decline of farmland birds are identified: the alteration of quality of biotopes, the decline of farmland and the rising impact of predators. Improvement of the habitat is seen as the priority, but predation management is important in order to protect farmland birds. It is elaborated that the first step in predation management should be preventive measures: making the landscape less attractive for predators. If, however, the predation pressure is high due to fox, crow or haggard cats, it is possible to skip the preventive measures and to instantly execute the direct (non-) lethal predation measures. To do that, there needs to be a consensus within the framework of the according predation management plans (which are mostly not yet established).

It is also stated that the province will explore if the fauna policy is able to provide wider possibilities in respect of predation management (Provincie Zuid-Holland et al., 2019). The earlier mentioned exemption, allowing to hunt foxes also during the night, is probably a good example of this exploration (see chapter 2.3.3).

2.5 STAKEHOLDERS

This chapter shortly introduces the three stakeholder groups including their relevance for this research, namely the PSH, the farmer collectives and three TBO's in South-Holland.

2.5.1 PROVINCE SOUTH-HOLLAND

The province is a relevant stakeholder because they are making their own policy and their own legislation within the national framework: the province is responsible for executing the Wnb (Onderhandelingsakkoord decentralisatie, 2011) and is able to establish legally binding regulations in respect of this execution (Verordening uitvoering Wet natuurbescherming South-Holland, 2011). Therefore, the province is able to juridically make a step towards an ethical predation management. The provincial parliament of PSH has 55 seats and the current coalition is formed by the VVD, GL, CDA, PvdA, CU and SGP – which makes the FvD, D66, PVV, SP, 50Plus, PvdD and DENK the opposition (Provincie Zuid-Holland, 2021b). In the GS are two delegates of the VVD, one delegate of each of the following parties: GL, CDA and PvdA as well as one delegate for CU and SGP together, Berend Potjer from GL is among others responsible for nature topics. (Provincie Zuid-Holland, 2021b).

2.5.2 FARMER COLLECTIVES

Due to the subsidy regulation, 40 farmer collectives were established throughout the Netherlands – in South-Holland there are eight farmer collectives (Boeren Natuur, 2021). These collectives are the ones responsible for executing the farmland management measures in respect of protecting farmland birds within the ANLb framework (BIJ12, 2018). They decide if they want additional predation management through the local WBE on their land, making them a highly relevant stakeholder.

All the farmer collectives are members of the comprehensive organization Boerenatuur (BN) (Boeren Natuur, 2021).

2.5.3 TBO'S

The TBO's manage natural land, they are the ones responsible for executing the natural land management measures in respect of protecting farmland birds within the natuur beheerframework (BIJ12, 2018). They transform the theoretical fauna management plans concerning their areas into the execution of these plans (Staatsbosbeheer, 2020). So, they are able to decide how predation management is executed on their land, making them a relevant stakeholder. Within this research the following TBO's are targeted:

1. Staatsbosbeheer (SBB)
2. Natuurmonumenten (NM)
3. LandschappenNL (LNL).

SBB plays an important role in realizing the international nature goals and is getting subsidies from the provinces to do so (Dijksma & Thijsen, 2014). There are 23 nature areas in South-Holland, managed by SBB (Staatsbosbeheer, 2021).

NM is managing 25 nature areas in South-Holland (Natuurmonumenten, 2021a). It is their main goal to protect nature and landscapes, targeting biodiversity (Natuurmonumenten, 2021b).

LNL manages 120 nature areas within the PSH (Zuid-Hollands Landschap, 2021a). Since 1934 they buy and manage land in order to protect nature (Zuid-Hollands Landschap, 2021b).

3 MATERIALS AND METHODS

This chapter describes the materials and methods for obtaining the research of this thesis, including the research type and topic, the research population, the data gathering method as well as the data preparation, processing and analysis.

3.1 RESEARCH TYPE AND TOPIC

The research of this thesis was of descriptive and qualitative nature (Swaen, 2013b), aiming to answer the following research questions:

To which extent do different stakeholders support an – according to the standards of the DB - ethically justifiable predation management in respect of farmland bird protection measures in South-Holland?

1. *How do different stakeholders practice predation management in respect of protecting farmland birds?*
2. *What is the ethical approach behind the practiced predation management in respect of protecting farmland birds of the stakeholder?*
3. *To which extent do the currently executed predation managements in respect of protecting farmland birds of the different stakeholders match the ethical viewpoints of the DB regarding an ethically justifiable predation management?*

A methodic qualitative approach was chosen, since this topic was complex and the different thoughts, attitudes and visions of the stakeholders were targeted. This made this research highly suitable for a qualitative approach (Swaen, 2013b).

The qualitative research was obtained by in-depth interviews to be able to gather highly detailed information (Dingemans, 2015a). The method is further described in chapter 3.3.

3.2 RESEARCH POPULATION

The respondents of the in-depth interviews were representatives of the three different stakeholder groups, which are the PSH, farmer collectives and the TBO's, thus comprising a group of heterogeneous experts. One to five interviews were needed in order to be able to give a clear answer to the research questions (Benders, 2020a). Subsequently, a minimum number of five respondents (one of each stakeholder: PSH, farmer collective, SBB, NM, LNL) and the maximum number of six respondents were chosen. The recruitment of these respondents was initially facilitated by the principal of this thesis, Femmie Smit. She provided the contact details of one representative of each stakeholder groups, who she thought to have great knowledge in that matter and who was likely to be willing to take part in this research. Three of them agreed to an interview: Willem Lambooi, legal advisor of the PSH, Meta Rijks, fauna ecologist at SBB and Niels Gilissen, fauna ecologist at NM. The suggested representative of LandschappenNL provided the contact details of a colleague, with whom the interview was obtained: Theo Vogelzang, policy influencer in the sector agriculture and nature at LandschappenNL. After the interview, Willem Lambooi provided the contact details of Jort Verhulst, who is working as an ecologist for the PSH. Jort Verhulst agreed to be interviewed and furthermore facilitated the contact with Floor Koorneef, project employee at "Agrarisch collectief Midden-Delfland" (ACMD, one of the eight farmer collectives in South-Holland) and project manager at the "weidevogelpact".

Starting the recruitment of respondents by using the provided contact details of Femmie Smit, could have had a negative effect on the validity of this research, since the respondents were chosen by a

project manager of the DB and therefore were probably rather open towards the DB. This could have led to answers favoring the vision of the DB. Nevertheless, it was decided to do so, since that way the likeliness of willingness of possible respondents to take part in an interview increased.

Since the respondents were representatives of the different stakeholder groups and were chosen by Femmie Smit, a colleague (Willem) or a work acquaintance (Jort), they are likely to have the appropriate knowledge and position in the stakeholder group for being reliable to answer the research questions.

3.3 DATA GATHERING METHOD

In this research the data was gathered by doing literature research as well as by obtaining interviews. These two methods are elaborated in the following.

3.3.1 LITERATURE RESEARCH

Firstly, different literature was examined to get an overall idea of the topic. This literature research was the basis for the information provided in chapter two, the theoretical background. Next to scientific reports, laws and political publications also websites from the stakeholders were included. Literature research was also used to get more insights or validate the answers gathered during the interviews (see 3.3.2), including websites, reports and other publications of the stakeholders.

3.3.2 INTERVIEWS

Secondly, in-depth interviews were used to get answers to the research questions. Reviewing the main question and the sub-questions it became evident that highly complex, detailed and subjective information was targeted. Since in-depth interviews are allowing to gather more detailed information than structured interviews and are more valid than unstructured interviews (Dingemanse, 2015a), this method was chosen for realizing this research.

The in-depth interviews took place in the timeframe 11.05. – 02.06.2021 on a convenient day and time for the respondent. The conversations took place via Zoom or in the case of Willem via Teams. After having received the respondent agreement, each conversation was recorded with the program Zoom itself and also via mobile phone. The program Zoom/Teams was used for the interviews, because it allowed to see the mimic and gestures of the respondents. Mimic and gesture provided hints how a respondent meant certain statements and when an appropriate time was, to ask further (Baarda, 2020). A virtual meeting furthermore allowed a face-to-face experience, which facilitated that respondents open up and tell a lot (Dingemanse, 2015b). These two advantages contributed to the validity and reliability of this research. A risk of virtual meetings is the possibility of a bad connection, resulting in in- and miscomprehension, which luckily did not occur. The interviews were obtained in English. Choosing English as the main interview language could have led to an uneasy feeling of respondents, who were not comfortable in English and could therefore have talked less. This could have a negative effect on the validity of this research. To minimize this effect, respondents were encouraged to talk Dutch, if they were struggling to express themselves in English. Talking in a foreign language is creating emotional distance (Costa et al., 2014), allowing a more objective articulation, which might have contributed to a more productive conversation. English was chosen as the interview language, since I feel more comfortable in English than in Dutch and was therefore able to articulate myself better, asking questions specifically and summarizing more to the point. This had a positive effect on the validity and reliability of this research. The duration of the interviews was between 40 minutes and two hours.

The interviews were conducted by using the topic list (appendix I). The interview list was established based on the operationalization of the wanted variables (appendix II). For the different variables, which corresponded to the sub-questions, different indicators were protracted. There were between

four and nine indicators per variable, since the validity of the results increases with the increase of indicators per variable (Fischer & Julsing, 2019). The topic list was reliable in answering the research questions because operationalization of the wanted variables corresponded with the sub-questions, ensuring that the different indicators contributed to answering the sub-questions. Each indicator led to one question.

The questions were open ended to encourage the engagement of the respondent and to be able to obtain more detailed information (Benders, 2020b). A disadvantage of open questions could have been that the answers were very long and took up a lot of time (Benders, 2020b). This was not a problem, since all the respondents had sufficient time. To ensure the validity and reliability of the questions, the questions were intended to be clear and not suggestive (Benders, 2020b). To prevent suggestive questions arising in the course of the interview, I focused on staying in my role as the neutral researcher. A little note, which I attached to my computer, saying "you are neutral" reminded me of my role during the interviews.

The interviews were obtained following the general guidelines of conversation proficiencies: listening well to the answers of the participant; summarizing the answers to make sure that the answer is understood correctly and to show that one is listening to the participant; interrogating further based on the given answer to get to the essence; rephrasing questions if needed; using pauses to create silence, which encourages the participant to talk further and showing one's interest by saying "ahaa", "hmm", "interesting" and so forth or by repeating the last words of the given answer (Baarda, 2020; Fischer & Julsing, 2019).

To ensure smooth interviews, the process of interviewing was practiced beforehand including the realization of a virtual meeting, the use of the audio record as well as my interviewing skills. The interviewing skills namely only improve by practicing (Swaen, 2013a).

3.4 DATA PREPARATION, PROCESSING AND ANALYSIS

The recorded audios were literally transcribed into a word document, which is the most accurate method, meaning that every word and sound, like "ehmmm", "hmmm" and so forth, was written down (Smits, 2019). While transcribing the audio was stopped to write and was replayed if needed. The transcripts were sent to the respondents to ensure the correctness of the transcripts, which contributed to the reliability of the transcripts.

The relevant answers of the respondents were then coded, condensing their meaning (appendix III). The process of coding was facilitated by the program NVivo (OSR International, 2021). The used coding structure was continuously adapted throughout the whole coding process. This flexibility allowed new insights to be integrated into the coding structure and therefore improved the reliability and validity of the coding structure. The used coding structure is organized according to the three sub-questions (appendix IV).

Using this coding structure, not only the interviews with the stakeholders were coded but also relevant statements found in literature. This approach increased the trustworthiness of this research. Providing the memo tool, NVivo allowed the coding to be obtained transparently. The program also facilitated an objective analysis of the coded statements, for example by creating crosstabs. This reduced the risk of subjectivity.

The coding process usually continues till no new theoretical insights come up. Seeing that the respondents were a heterogenous group of experts, it was unlikely that this saturation would occur. This was not an issue for this research, because one to five interviews of a heterogenous group of experts are needed in order to be able to give a clear answer to the research questions (Benders,

2020a). Furthermore, this research targeted the individual positions of the stakeholders, not aiming to extract one homogenous answer.

The first sub-question was answered by summarizing the coded statements, which were revealed by the appropriate coding structure. In respect of the second sub-question, relevant statements were organized according to the three different types of values (see chapter 2.1.2), which indicated a certain ethical approach regarding predation management. The third sub-question was answered by correlating relevant statements to the seven criteria of the DB (see chapter 2.1.3) and subsequently analyzing whether a certain criterion was met. Answering the main research question, the results of the three sub-questions were compared and from here a conclusion was made.

Direct quotes were used in the research paper to visualize the obtained information in order to reduce subjectivity. The used quotes and all the other information which were based on the interviews were shared with the respondents to double check their correctness before publishing. This increased the trustworthiness of this research.

4 RESULTS

This chapter outlines the information provided by the different stakeholders in respect of predation management to protect farmland birds. The information is based on literature as well as on the obtained interviews. The direct quotes and the paraphrased information, which can be identified by having no other source indication, are drawn from the interviews.

4.1 CURRENTLY EXECUTED PREDATION MANAGEMENT

To begin with, the currently executed predation management of the stakeholders is described targeting the first sub-question of this research. The executed predation management is divided into the following topics: the actual executed measures, the executors, the financing, the monitoring and lastly the strategy.

4.1.1 PROVINCE SOUTH-HOLLAND

Executed measures

Willem is stating that the province is working on improving the habitat for farmland birds, acknowledging that habitat plays the key role in the protection of farmland birds. He says: “We must focus on clean water, clean soil, clean air and a more diverse agricultural landscape.” Jort is elaborating that the province is making the habitat also unsuitable for predators by preventing trees from getting high or cutting bushes. There are subsidies for electric fencing and there was a project where the province caught stray cats and sterilized them in order to protect the birds. Next to these habitat and non-lethal measures the province is also executing lethal measures. Black crows and foxes are allowed to be hunted throughout the year. Willem explains that the province is currently struggling with a legal procedure aiming to allow that foxes can also be hunted during the night. Shooting is the major lethal measure. Jort said that in the past it was common to use big cages to catch crows and then kill them by twisting their necks. This is now not possible anymore: “Well (...) now it says in the law that (...) birds from the size of a duck cannot be killed by (...) breaking their neck. So that’s a bit of a problem now... Because you still use the cage trap, but once you caught them, it is difficult to kill the birds on a legally right way.” According to Jort it is difficult to keep crow numbers down only by shooting.

Executors

The province partly rents its land to farmers who are executing certain habitat measures stated in the contract. The hunting rights for these lands are rented to the WBE’s. Jort explains: “Well, the hunting we rent that to the WBE, not the farmer. Because those are two different tracks: the management of the field and the hunting. But also there we put restrictions. We have discussed that the WBE is not allowed to shoot at hares and ducks there, which are the hunting species. But they can shoot foxes and crows and geese.” Willem agrees with that, saying that the execution of the measures is completely in the hands of the farmers and hunters.

Financing

Willem states that generally the hunters are not paid for executing lethal predation management. There are however subsidies for habitat measures and sometimes for traps, cages or electric fences. Jort explains that there are overviews of how much money the province gave for which measures (appendix V). He says that it is not decided yet whether in the next subsidy round they want to spend money on lethal predation management measures.

Monitoring

Jort explains that nature reserves, therefore also TBO's, need to monitor every six years in order to receive SNL money. The collectives are now obliged by the PSH to monitor the effects of their executed measures. Jort elaborates: "But we didn't say how they have to do it. So, they can also go in the field and say: oh, there is a lot of birds here, I have to go and talk to the farmer to see if he can postpone mowing et cetera. So, we didn't put conditions on how to execute the monitoring and that makes it a bit difficult, because each collective can chose its own method..." There are three areas within the province where territory mapping exists - a bird count every two to three years. The maps allow the PSH to compare bird numbers within subsidized agri-environment schemes to bird numbers within the land of neighbors who do not have subsidies as well as to bird numbers within nature reserves managed for meadow birds. Willem adds that the PSH receives data concerning the number of killed predators as well as data concerning the nesting success of the birds. According to him it is at this point difficult to make a connection between the numbers of killed predators and the nesting success of birds. He mentions that this might be due to the fact that the data regarding the number of killed predators has only been gathered for the past three years.

Strategy

The improvement of habitat is generally regarded as the priority and non-lethal measures against predators should be one of the first steps (Provincie Zuid-Holland et al., 2019). However, if predator species causing damage to farmland birds are known and if there is consensus in the predation plan, then there is no need to improve the habitat first – it is possible to directly move to lethal measures (Provincie Zuid-Holland et al., 2019).

For the execution of predation management on farmland and possible financial support, the province instructed the collectives to come up with predation plans (Provincie Zuid-Holland et al., 2019). Jort explains that one collective has made a predation plan and the province asked the other collectives to make one as well. According to Jort, in the action plan (Provincie Zuid-Holland et al., 2019) there is a claim of over 400 000 euros for making these predation plans. "So first make a plan and then we can carry out those plans and maybe we can find some money to help hunting groups to do that.", says Jort. As a framework, the PSH created a format explaining the laws and rules for predation management (appendix VI).

The province grants licenses for lethal measures against predators for a timeframe of six years. Willem explains, that granting a license can take a lot of effort: different groups are protesting and it might come to a trial. If the trial ends well for the province and the license is legally approved, the province is not keen on making changes within that license for its remaining validity period.

Furthermore, the province is striving for social acceptance. Jort sees it as a tradeoff, when there is a solution for a problem where no animals are killed and where there is no money involved. He explains: "(...) nobody wants to kill animals."

4.1.2 AGRARISCH COLLECTIEF MIDDEN-DELFLAND

Executed measures

Floor, project employee at ACMD states that the most frequent measure used to protect farmland birds is postponed mowing. Next to that, also extensive grazing with cattle, solar pumps humidify areas as well as herb-rich grasslands are frequently executed habitat improvement measures within the farmer collective. Furthermore, fencing is used in areas with big farmland bird populations as a direct, non-lethal measure against predators. Lethal predation management is also executed, targeting foxes and crows.

Executors

The habitat improvement measures are executed by farmers, Floor says: "They have to do it voluntarily and we really try hard to have them participate." She adds: "(...) we have field workers that have contact with the farmers and they try to persuade them to do measures on certain grasslands." She adds, that these field workers are nature minded. The fences are placed by volunteers and the shooting is executed by hunters. Floor explains: "(...) you can of course hunt predators to prevent predation and that's really done only by the hunters association".

Financing

Farmers are compensated by the province, if they decide to make their land more suitable for farmland birds. The farmer collective as well as the Nederlandse Voedsel- en Warenautoriteit (NVWA) control whether the farmer receiving the compensation has adequately implemented the measures he or she has gotten compensated for. She explains: "They know (...) which farmers have which measure and they go and check on them if the grass is still there, if there are still enough cows in the meadow and they call us before they come and check and they call us afterwards whether it was right or not. And if it was not, they get cut on the payment." Floor points out that there is always the discussion if the compensation is enough or not. Fencing is not subsidized, but: "(...) the province also has sometimes subsidies that you can subscribe to, to buy stuff.", says Floor. Also, the hunters are not paid – according to Floor: "(...) the shooting of animals, like the foxes and the crows, it's not paid."

Monitoring

The collective monitors farmland birds in early April, early May and between the end of May and early June. That allows them to know where the territories of the birds are and might be able to estimate the breeding success of different species. Predation is not specifically monitored in a structured way - it is only monitored through anecdotic observations by field workers.

As previously mentioned, the implementation of habitat measures is monitored by the collective as well as the NVWA. Floor explains that the collective also analyses the effectiveness and sometimes decides to stop a measure if there are no birds in the concerning area.

Strategy

Behind the preventive measures, there is a strategy in that way that habitat measures are implemented on grasslands with most birds and also fences are put around bird rich areas, which are easy to fence off. Whether there is a strategy behind the killing of predators, Floor doesn't know. She explains: "that's really the hunters' business. And if the volunteers (...) or farmers see one they call them and ask if they can do something about it". For realizing a holistic strategy, the collective is currently working on establishing their predation plan. Floor explains: "the province has some money for making these plans, so we tried with the TBO's, SBB, NM (...) to talk together: well, what do we know about predation, how big is it actually, who is doing it, where are the areas. And then is the area suitable for meadow birds. If it is, what prevention measures can we take? Like fencing and stuff and if that's all not working, then we should see if we could reduce the populations of predators. So, that's the theory behind the plan."

4.1.3 STAATSBOSBEHEER

Executed measures

For SBB the most basic measure is to improve the habitat of farmland birds. “The main focus of what we are doing, starts by: what are the meadow birds’ needs and try and restore the habitat.”, explains Meta. Next to that, habitat is often made unsuitable for flying predators by removing trees and bushes. Fences are only used in some areas, since they are expensive. SBB does not practice the catching and relocating of predators. Regarding lethal measures Meta says that SBB mainly uses cages to trap foxes, since it is more effective and less disturbing than having a hunter walking through the areas actually having to search for foxes.

Executors

SBB has tenants on parts of their land: farmers. Meta clarifies that SBB keeps the right to decide over hunting on this land to themselves and there are furthermore conditions regarding the way a farmer is allowed to use the land. The law does however protect the farmer and there is a limit to the restrictions SBB can pose. “The farmer needs to be able to farm.”, says Meta. Also, there are parcels of land where more severe restrictions are not possible due to hereditary tenure, meaning that the contracts have been existing very long and therefore do not have many conditions in them. The killing of predators is generally executed by hunters. Therefore, six years contracts are made with mostly the WBE’s – only in rare cases SBB executes lethal predation management themselves (Staatsbosbeheer, 2020).

Financing

Meta explains that SBB receives money from the provinces to manage their nature conservation areas. This money does however not cover lethal predation management. SBB pays for lethal predation management from their own budget (Staatsbosbeheer, 2020).

Monitoring

SBB monitors farmland birds, predators as well as the effectiveness of the taken measures to some extent. Farmland birds are counted by volunteers through alarming adults and also through checking the nests. That way predation is also monitored – Meta elaborates on the following problem: “(...) we know that predators also follow the footsteps of these volunteers and the predation rate increases, because they (the predators) only have to follow to get to the nest.”. According to Meta it is possible to differentiate between the effects of habitat and predation measures by working with population models. However, this monitoring method is very expensive and is subsequently only realized in some areas of SBB and not on a yearly basis.

Strategy

Regarding the strategy behind the executed predation management, SBB starts by looking at the needs of farmland birds, trying to improve their habitat. Meta explains: “We need to restore the habitats, so that these birds are able to withstand a degree of predation and we need to make the habitat less attractive for predator species.” SBB executes lethal measures against predators in the following situation: “In the areas, where there is management to restore the habitat and where the area is big enough, that we think it is a realistic meadow bird area and the neighbors are also acting, we do give permission for shooting foxes and crows often.”, says Meta.

Adding to that SBB executed lethal predation management against foxes in accordance with the advice of the Dutch researcher Jaap Mulder. Foxes are intensively hunted only in February and March, creating the situation that the majority of foxes is gone during the breeding season of the birds. Therefore, the birds are able to breed uninterruptedly by hunters and foxes.

SBB is represented in the FBE’s, who make the fauna management plans, which are the basis for fauna management (Staatsbosbeheer, 2020). These plans are translated and executed on the

regional level of the different areas of SBB – doing this, the area goals of the different areas, however, are the most important (Staatsbosbeheer, 2020).

4.1.4 NATUURMONUMENTEN

Executed measures

NM executes habitat improvement measures: optimizing the landscape for farmland birds and making it less suitable for predators, for example by humidifying areas, by cutting down trees or by cleaning up rubbish heaps. Executed non-lethal measures against predators are furthermore fencing as well as very rarely the catching and relocation of predators. Niels says that lethal predation management is executed by trapping or shooting and that the fox is the most common predator in the areas of NM, which is lethally managed. Martens are also a common predator in some areas, but these animals are not killed since they are on the red list.

Executors

Lethal predation management is executed by hunters. Niels elaborates: “We have our own hunters within our organization and nature managers are sometimes also hunters. So, they do it themselves or they use hunters from outside, but always under the supervision of our own hunters or nature managers. So (...) we have the supervision and the responsibility. “ Also, tenants on the land of NM to take preventive measures first, if wild animals cause damage on plants (Natuurmonumenten, 2021b).

Financing

Within the framework of SNL NM gets subsidies for their land management, Niels is not sure whether lethal predation management can be subsidized with this money. NM also gets money from their partners which is then distributed among the different parts of the organization. Niels explains: “We have 24 management units in the country and they all have their own financial budgets (...). So, they decide more or less what they can do with their budget.”

Monitoring

NM monitors farmland birds by counting alarming birds and by doing breeding birds surveys. Predators are monitored by using camera traps. In connection with lethal measures against predators, Niels emphasizes: “There has to be a monitoring, a scheme to proof that (...) predating is actually the most important factor in the decrease in the breeding success of the meadow birds.”

Strategy

Niels calls the strategy behind their executed predation management the “escalation stairs” and explains: “Before we apply any lethal measures, there has to be non-lethal in advance. So, we start with (...) the ecological conditions in the area (...), we first look at the landscape – how is the landscape designed and how is it managed?” If the landscape needs to be optimized, NM takes the steps to do so. After applying landscape measures or introducing electric fences, there is the possibility that NM catches and relocates predators. Niels concludes: “I think that’s more or less the most common thing, we do in relation to predation management, before we go over to lethal management.” That means that no animals are killed unless they are causing damage and there is no other solution (Natuurmonumenten, 2021b).

NM has come up with a predation plan. According to Niels nature reserves are obliged to have a predation plan to be able to execute lethal predation management. The arguments why a certain management needs to be executed need to be written down in these plans, supported by evidence.

Since NM is an organization with about 700 000 members and contributors and strives to be a societal movement, it is important to take into account what different groups of people think. Therefore: “You have to be aware of the impact of some of your decisions on the public”, says Niels.

4.1.5 LANDSCHAPPENNL

Executed measures

Theo says that the habitat of farmland birds is tried to be improved on their land and that it is also made less suitable for predators by removing big trees or tiny forests. There are some experiments with putting electric fences around areas with many farmland birds to keep predators out. The main predator is the fox, which is managed lethally. Theo explains: “(...) on some of our land we give permits to the hunters to hunt.”

Executors

As already stated in the previous paragraph the lethal predation management is executed by hunters. LNL has tenants on parts of their land, who execute habitat measures if the contract obliges them to - or surely if the tenants decide to do it out of their free will. There are different contracts with different sets of restrictions and obligations, some of the contracts cannot be changed since they are historically based. In respect of predation management Theo elaborates: “The tenants can say a lot about predation management, but it is dependent on the contract, which states what we can do on the land or not. (...) But in most areas, the tenants (...) have to decide about predation management (...).”

Financing

LNL does not pay the hunters to do the shooting. “We give them a license and they hunt.”, Theo explains and states that there is a budget for predation management within the member organizations of LNL. “We are the union, but for instance South-Holland Landschap (...) has a little bit of money on its own policy on predation management.”, he says.

Monitoring

LNL has 180 000 volunteers who count and check whether the nest survives or is damaged, whether the eggs hatch or are eaten. All this information is collected in the database “boerenlandvogels nederland” and each year this data is evaluated. According to Theo, the volunteers are able to identify which predator is responsible if they find a robbed nest. This information is also put in the database.

Strategy

LNL has established a plan for executing farmland bird protection measures. Theo mentions that there are areas where they have to manage land together with a collective, both of them having their individual management plan. Now it is aimed to create shared plan. Theo explains: “Because if you make a plan together for farmland bird protection, then you can be more effective than when you are on your own.”

Regarding a strategy for lethal predation management, Theo says: “The hunters (...) are themselves working on the predation policy and think about that. And also the researchers do that.” However, their website reveals that before LNL executes lethal fauna management, possible alternatives are explored - only if there is no other possibility, wild animals are killed (Zuid-Hollands Landschap, 2021b).

4.2 ETHICAL APPROACH BEHIND PREDATION MANAGEMENT

In order to classify the ethical approach of the stakeholders, the preconditions for executing lethal predator management are described. This is followed by the description of the values of the stakeholders concerning predation management in the context of farmland bird protection measures.

4.2.1 PRECONDITIONS FOR LETHAL PREDATION MANAGEMENT

To get an overall idea of the approaches of the stakeholders regarding their lethal predation management, Table 1 shows the two different preconditions for lethal management named by the different stakeholders. The first one is that the lethal predation management is in accordance with the law and the second one is that this lethal predation management is contributing to preserving biodiversity. The digits reveal the number of statements made by the stakeholder and are indicating a precondition for lethal predation management (please note: as this is a qualitative research, the digits are used to get a first impression and do **not** indicate a degree of relevance!).

Table 1: Cross-table derived from NViVo12 revealing the number of statements per stakeholder and in total, indicating preconditions for lethal predation management in respect of farmland bird protection measures

	PSH	ACMD	SBB	NM	LNL	total
<i>defined by law</i>	9	0	0	0	0	9
<i>preserve biodiversity</i>	0	0	6	1	0	7
<i>total</i>	9	0	6	1	0	16

It can be seen that none of the statements of ACMD and LNL indicate preconditions for executing lethal predation management. Within the PSH there are nine statements supporting the legal precondition for executing lethal predator management. SBB made six statements and NM one statement indicating the biodiversity precondition for lethal measures against predators. The following paragraphs look closer on the statements made by PSH, SBB and NM.

PSH

Willem and Jort both identify the law as the precondition for executing lethal measures against predators. Willem says: "(...) if the law makes it possible, then it is ok. And the Dutch law makes it possible to hunt or otherwise kill predators in favor of other animals – to protect them." This is supported by Jort's statement: "There are the formal rules on predation management on shooting foxes and crows. And we as a province don't add regional rules for that. And we don't do that from the meadow bird policy either."

SBB

For SBB it is crucial that executing lethal measures contributes to preserving biodiversity. Meta states that lethal measures need to be effective. This means that the population of farmland birds is actually threatened by the hunted predator and that the numbers of farmland birds are increasing when lethal measures against predators are applied. Furthermore, she explains that the re-establishment of the same or next smaller predator species in the concerning area needs to be prevented by habitat alterations. She explains: "If you get rid of one predator effectively and the food is still there, the prey is still there, then of course the next predator is waiting until it gets a chance to come in..."

NM

Like SBB, NM thinks that executing lethal measures needs to contribute to preserving biodiversity. This means in practice that NM is not hunting predators like the weasel, because they are standing on the red list. By killing them, NM risks minimizing biodiversity.

4.2.2 VALUES: ANTHROPOCENTRIC, BIOCENTRIC AND ECOCENTRIC

Table 2 gives an overview of the number of statements indicating certain values of the concerning stakeholder towards predator management (also here: the digits are used to get a first impression, and do **not** indicate a degree of relevance!). The values are grouped into anthropocentrism, biocentrism and ecocentrism (see chapter 2.1.2). In this research anthropocentrism is indicated by two collections of statements: predators as pests and predators as hunting objects. For each of the values biocentrism and ecocentrism, only one collective of statements was found: welfare of predators within biocentrism and need of interference within ecocentrism.

Table 2: Cross-table derived from NVivo12 revealing the number of statements per stakeholder and in total, indicating the values behind the executed lethal predation management in respect of farmland bird protection measures

<i>values</i>		PSH	ACMD	SBB	NM	LNL	total
<i>anthropocentric</i>	predators as pests and hunting objects	6	3	0	0	1	10
<i>biocentric</i>	welfare of predators	0	0	1	0	0	1
<i>ecocentric</i>	need of interference	3	2	4	1	1	11
total		9	5	5	1	2	22

It is noticeable that an anthropocentric value is predominant at PSH and at ACMD. The ecocentric value, indicating that human interference in the ecosystem is necessary in order to save biodiversity, is predominant among the TBO's – with the exception of LNL: here the statements are evenly distributed among the two values. A biocentric value is almost not present. The next paragraphs explore the different values of the stakeholders in their complexity.

PSH

Within the province an anthropocentric value is present. "(...) foxes and crows (...) are doing damage to farmland birds and there are no other reasonable measures that should be taken before hunting is executed.", says Willem and Jort explains the difficulties in keeping crow numbers down. These statements display an anthropocentric value towards predators, they are seen as damage causing pests and as hunting objects. The legal procedure aiming to allow the hunting of foxes also during the night, mentioned by Willem and which is also indicated in the action plan (Provincie Zuid-Holland et al., 2019), supports the claim that predators are seen as hunting objects. The focus in the coalition agreement (Provincie Zuid-Holland, 2019) lays on the welfare and necessities of society, which is a further indication for an anthropocentric value.

There is no doubt within the province that interference into the ecosystem in form of habitat measures and in form of killing predators is necessary to save farmland birds. Jort explains: "(...) the

predation now is (...) much higher than 50 or 60 years ago, when meadow bird numbers were high. And I think we will not get those (high numbers of birds) back, because we have a lot more predators now." Willem says that the province focuses on the predators that currently have an effect on farmland birds. These statements indicate an ecocentric value, revealing that the province takes developments and interactions within the ecosystem into account.

ACMD

Floor states: "It's not openly discussed with the farmers whether predation management or killing animals is ethical and whether we should do it or not. It's actually more a given that if you see a fox that you should call the hunter. And that he (the fox) would probably cause a problem." This quote indicates an anthropocentric value towards the fox – the animal is seen as a pest, since it causes damage and as a hunting object, presuming that hunters just naturally kill animals in that sector. Therefore, there is no ethical approach regarding the killing of predators within the collective – it is regarded as the hunters' business.

Floor argues that interference into the ecosystem in the form of killing predators is necessary, since "there is this scenario that meadow bird population will drop that fast, that you cannot have the habitat at the same time suitable." She concludes that in order to save the birds, you need to do both: executing habitat measures and killing predators.

SBB

Regarding the hunting of foxes, Meta explains that it is done in the early months. This timing prevents that a young fox mother is killed and her pups starve to death – which can happen when foxes are hunted later in the year. This displays that SBB is taking the welfare of predators into account, indicating a biocentric value.

Interference into the ecosystem through lethal measures against predators is regarded as necessary. Meta states: "(...) foxes and crows and all the other predators are just part of life for a meadow bird. I mean they are part of the ecosystem. But the ecosystem is not functioning the way it should be, so the meadow birds cannot deal with the completely natural process of predation." According to Meta, predation has gradually become a bigger role in the last couple of years: "Basically, because the populations (of farmland birds) are under so much pressure, that anything that adds to that pressure has a role.", she explains. Therefore, lethal predation management is necessary. These statements clearly reveal an ecocentric value, since predation is looked at on an ecological level, taking the whole system within its developments and interactions into account.

NM

Also NM regards lethal predation management as necessary. Niels explains: "(...) if we don't interfere, we might lose populations of some species. And (...) that's also not what we want. As NM we have committed ourselves to preserving biodiversity and the means also meadow birds." Killing one species for another is a dilemma for NM, which is however approached by looking at it on an ecological level, revealing an ecocentric value towards predators.

LNL

Theo emphasizes the damage foxes are causing to farmland birds in a lot of areas. This indicates an anthropocentric value regarding predators as pests.

This anthropocentric value is mixed with an ecocentric value. "In some areas, (...) only 15 percent of the population is growing up to adults. I think we have to make a bigger effort on predation management at this moment. (...) There also are other factors, that are threatening the meadow birds, but if we don't make a big effort also on predation management, we might be too late to save

the meadow bird population.”, says Theo. This statement indicates that LNL is looking at this matter on an ecological level, wanting to save populations instead of individuals and taking population trends into account.

4.3 SATISFACTION OF THE CRITERIA OF THE DIERENBESCHERMING

In the following paragraphs the statements from the stakeholders relating to the seven criteria of the DB are described. Based on the description it is evaluated whether a certain criterion is met by a stakeholder.

4.3.1 PROVINCE SOUTH-HOLLAND

Human behavior addressed first: There is no statement regarding this criterion.

Proof that species causes damage exists: Jort states that it is logical that you only target those species, which are causing damage: "(...) if you have a problem with crows, then you don't need to shoot foxes." He initiated a pilot study to get a better insight about the exact effects of predation, which predators are involved and the interaction with habitat. Willem says: "But in those cases, foxes and crows, we have figured out, that they are doing damage to farmland birds and there are no other reasonable measures that should be taken before hunting is executed." His statement is supported by the action plan (Provincie Zuid-Holland et al., 2019), which indicates that the most important predators of farmland birds are known: foxes, crows and stray cats. Based on this information one can conclude, that the PSH only agrees to lethal predation management when it is proven that the concerning species is actually causing damage. Therefore, the PSH meets this criterion of the DB.

Efficiency of executed measures proven: Jort states that clues about the effectiveness of agri-environment schemes can be gotten through comparing the management maps from neighboring areas, one area with and one without subsidized measures. According to Willem the efficiency of lethal measures depends on the WBE's. There is no statement indicating that lethal measures are only executed when they are measurably efficient.

Most animal friendly measure executed: In the coalition agreement (Provincie Zuid-Holland, 2019) it is stated that damage causing species are managed in the most animal friendly way. In the action plan (Provincie Zuid-Holland et al., 2019) it is furthermore elaborated that preventive measures are one of the first steps. Subsequently, the PSH meets this criterion of the DB.

Social support created: Jort explains that PSH is trying to survey all the opinions and is willing to change certain things if that means more support. According to him, there is a lot of social support when PSH gives money for habitat improvement. Willem goes one step further by saying: "I think that most groups are (...) thinking - sometimes saying - that it is ok to kill some predators to help those farmland birds." There is no statement concerning what is concretely done to create social support.

Predation plan established: Jort explains that the PSH gave money to the collectives to make their own predation plans (TBO's need to have one anyways if they receive SNL-subsidies) and therefore made a format (appendix VI). So, currently the making of predation plans is not in the hands of the PSH. The PSH tries to keep up with new insights, sometimes meets with the VBN and is willing to adapt if science offers a new perspective. Since the PSH made this format for a predation plan and asked each the collectives to make one, this criterion can be regarded as being fulfilled.

Decisions based on damage: Willem states: "(...) we get all the data and look into literature and reports and so on. And based on those information (...) we can make a decision whether hunting at night at foxes, for example, is allowed or not." This states that PSH bases their decisions on data, which possibly includes data about damage. There is however no statement that directly indicates that decisions are based on damage.

4.3.2 AGRARISCH COLLECTIEF MIDDEN-DELFLAND

Human behavior addressed first: There is no statement regarding this criterion.

Proof that species causes damage exists: Since predation is not monitored in a structured way, it is unknown which predator is responsible for how many bird-kills exactly. This is aimed to be changed in the future predation plan, striving to gather structured information about predation. However, according to Floor, anecdotic observations proof that targeted species are causing damage. Based on this information ACMD satisfies this criterion of the DB.

Efficiency of executed measures proven: According to Floor it is difficult to prove the efficiency of an executed measure. She gives the following example: “If you put a fence in the beginning of the season around an area, that was full of meadow birds and at the end not, something happened. But that can also be that they just moved to another area.” She points out: “This needs really intensive monitoring. And this monitoring might also have an effect on predation: visiting a nest on grasslands leads to disturbance, giving predators a chance to kill the chicks or eggs.” Also, she explains that it is only effective if foxes are hunted between January and March, but this is difficult to arrange with the hunters. This indicates that lethal measures might be executed even when they are not efficient.

Most animal friendly measure executed: This criterion is targeted in the approach behind the future predation plan: first habitat, then preventive and non-lethal measures and finally the reduction of predator populations. Currently, it is however not executed this way.

Social support created: Floor explains that there is a lot of support for the habitat measures, but she is not sure about the support of society regarding the killing of predators – among farmers and partly volunteers there is support for lethal measures. The collective sat together with different TBO’s to talk about a possible approach for the predation plan and therefore created social support in at least a small social environment.

Predation plan established: The collective is in the process of making their predation plan. Regarding the integration of new knowledge Floor says: “the Collective does not have a budget to experiment with measures and new knowledge.”

Decisions based on damage: It is aimed to meet this criterion in the framework of the predation plan in the future.

4.3.3 STAATSBOSBEHEER

Human behavior addressed first: SBB asks cat-owners to keep their cats at home at night to prevent the cats from predating on farmland birds. In that way human behavior is addressed, which might prevent other measures. Therefore, SBB meets this criterion of the DB.

Proof that species causes damage exists: Proof of damage and regional agreements are the basis for SBB for translating their fauna management plans and exemptions into specific measures for different areas (Staatsbosbeheer, 2020). Subsequently, it can be concluded that SBB has proof that a certain species is causing damage before they allow lethal measures. Therefore, SBB meets this criterion of the DB.

Efficiency of executed measures proven: Meta says: “(...) if you are going to do something lethal, you need to make sure that it actually has an effect. Otherwise, you are basically killing animals without an effective result, which is not acceptable really.” SBB is only executing lethal measures in

areas where the circumstances for farmland birds are suitable and where there is a clear indication that the farmland bird population has a fighting chance. When executing lethal measures against the fox, SBB is following the advice of the researcher Jaap Mulder. His advice allows SBB to manage the fox effectively. Based on this information, SBB meets this criterion of the DB.

Most animal friendly measure executed: Meta states that lethal predation management is always the second step. The focus lays on restoring habitat. Lethal measures against predators are only executed when certain criteria (elaborated in the previous paragraph) are met. Subsequently, SBB meets this criterion of the DB.

Social support created: Meta explains that the social support for their executed predation management varies. SBB strives for the biggest social support possible (Dijksma & Thijsen, 2014), however, there is no statement concerning what is concretely done to create social support.

Predation plan established: Since research is often conducted on parts of the land of SBB and SBB is connected to other organizations, new knowledge quickly finds its way to SBB. “We really try to incorporate it, as soon as the information is there.”, says Meta. So, the integration-of-new-knowledge- and adapting-measures-part of this criterion can be regarded as fulfilled. However, there is no statement targeting the existence of a predation plan.

Decisions based on damage: Proof of damage and regional agreements are the basis for SBB for translating their fauna management plans and exemptions into specific measures for different areas (Staatsbosbeheer, 2020). Subsequently, it can be concluded that SBB bases their decisions concerning predation management on damage. Therefore, SBB meets this criterion of the DB.

4.3.4 NATUURMONUMENTEN

Human behavior addressed first: There is no statement regarding this criterion.

Proof that species causes damage exists: Niels states: “There has to be (...) a scheme to proof that the predator is actually predating, is actually the most important factor in the decrease in the breeding success of the meadow birds. So, there has to be proof (...), before you can apply lethal measures.” Based on this statement, NM meets this criterion of the DB.

Efficiency of executed measures proven: According to Niels it is difficult to measure the efficiency of the different farmland bird protection measures in a scientifically valid way. He says: “It is not really our core business to do these kinds of studies. It is more like we facilitate universities (...) to conduct these kinds of studies in our areas.” There is no statement indicating that lethal measures are only executed when they are measurably efficient.

Most animal friendly measure executed: Before NM executes lethal measures, non-lethal measures have to be executed: habitat measures, fencing and sometimes catching and relocating. Subsequently, NM meets this criterion of the DB.

Social support created: According to Niels, the social support NM gets for their executed predation management varies depending on who you are talking to. It is important for NM to communicate their decisions and actions well. Niels explains: “Because if people don’t know, they (...) fill it in for themselves and then you get the wrong attitudes towards what you are doing.” It can be concluded that this transparent communication is as a strategy of NM to create social support. Therefore, NM meets this criterion of the DB.

Predation plan established: NM has established a long-term predation plan. According to Niels, NM tries to incorporate new knowledge in their practice once it is proven. For this matter NM cooperates with other organizations. Based on this information, NM meets this criterion of the DB.

Decisions based on damage: NM bases their decisions regarding which measure to implement in the framework of their predation management on data. There has to be proof that a predator is actually causing damage before it can be managed lethally. Subsequently, NM meets this criterion of the DB.

4.3.5 LANDSCHAPPENNL

Human behavior addressed first: There is no statement regarding this criterion.

Proof that species causes damage exists: Together with SOVON and other researchers, LNL has published the “Boerenlandvogelbalans 2020”. In this report the development of farmland bird population is analyzed, as well as the factors influencing the development. There is also the previously mentioned database, where field workers can put in their findings - for example a nest demolished by a tractor or predated eggs by a fox. According to Theo, the field workers have the knowledge to identify the exact cause of the damaged nests. Based on this information it can be concluded that LNL does have a proof that certain predator species are causing damage to farmland birds. Therefore, this criterion of the DB is met.

Efficiency of executed measures proven: There is no statement regarding this criterion.

Most animal friendly measure executed: There is no statement regarding this criterion.

Social support created: Regarding the social support for their executed predation management Theo says: “(...) it is broadly recognized that predation is a problem and (...) how it can be solved, that is very much different depending on who you ask, in which area: is it a policy worker, is it a farmer, is it a nature conservationist? Broadly, there is a lot of social support, because meadow birds or farmland birds are part of our identity in Holland.” LNL thinks that social support is very important (Stichting Het Zuid-Hollands Landschap, 2019), which is one of the reasons that they work together with volunteers. Therefore, LNL satisfies this criterion of the DB.

Predation plan established: Within the organization there exists a predation plan. LNL thinks that it is important to work together and connect with others. This leads to the conclusion that they are open for incorporating new knowledge in their predation management policy. Therefore, this criterion of the DB is met.

Decisions based on damage: As previously elaborated, the report “Boerenlandvogelbalans 2020” as well as the database are indicators of damage, accessible for LNL. There is however no statement that directly indicates that decisions are based on damage.

4.3.6 SUMMARY OF THE SATISFACTION

Table 3 gives an overview of the satisfaction of the seven criteria of the Dierenbescherming per stakeholder. The reason for the satisfaction or non-satisfaction is described in the following.

Table 3: Overview of the satisfaction of the seven criteria of the Dierenbescherming per stakeholder. If a criterion was satisfied the stakeholder received a one, if it was not satisfied a zero.

<i>Criteria of the Dierenbescherming</i>	PSH	ACMD	SBB	NM	LNL
<i>Human behavior addressed first</i>	0	0	1	0	0
<i>Proof that species causes damage exists</i>	1	1	1	1	1
<i>Efficiency of executed measures proven</i>	0	0	1	0	0
<i>Most animal friendly measure executed</i>	1	0	1	1	0
<i>Social support created</i>	0	1	0	1	1
<i>Predation plan established</i>	1	0	0	1	1
<i>Decisions based on damage</i>	0	0	1	1	0
total	3	2	5	5	3

Please note, that this chapter only provides an overall tendency of the satisfaction of the criteria of the DB. There are surely more gradations to which extent a stakeholder meets a criterion. Looking at the framework of this research it was not possible to create a systematic method to take all these gradations into account. Subsequently, a “yes/no”- or “1/0”-approach was used to decide whether a criterion was met. It was furthermore decided to evaluate tolerantly, giving a stakeholder a “yes” for a criterion when the stakeholder met the overall demand of a criterion.

However, regarding the first criterion, address human behavior first, only actions of the stakeholders were “counted” which directly influenced predation. That means that this criterion was not regarded as being satisfied in cases where habitat measures were promoted. This decision was made, since all of the stakeholders promote habitat measures.

5 DISCUSSION

In this chapter different aspects of the conducted research are examined. Firstly, the results regarding the preconditions for a lethal predation management are discussed. Secondly, the approach of the VBN regarding predation management is highlighted. Thirdly, the different pictures of nature among the Dutch are brought into the picture. Fourthly, the situation for farmers and TBO's in respect of the financial support for predation management is looked at. Finally the limitations of this research are reflected.

5.1 PRECONDITIONS FOR LETHAL PREDATION MANAGEMENT

Looking at the results it becomes evident that in order to save farmland birds all the stakeholders agree that there are situations in which predators need to be managed lethally. However, the preconditions for a lethal management differ and accordingly so does the identification of a situation in which predators need to be managed lethally. The varying constellations of values (anthropocentric, biocentric and ecocentric) among the stakeholders could be an explanation for these differences. The stakeholders with a dominant ecocentric value, SBB and NM, identified the preservation of biodiversity as the precondition for lethal predation management. The PSH, with a dominant anthropocentric value identified the (human made) law as the precondition for lethal management. These findings are in accordance with the general idea of ecocentric and anthropocentric values: people with an ecocentric value strive for a holistic protection of the system, improving the quality and integrity of an ecosystem while people with an anthropocentric value measure nature's value on the basis of human benefits (Buijs, 2009).

Firstly, it is noticeable that only the PSH is stating that the preconditions for lethal predation management are defined by the law. Does this lead to the assumption that the other stakeholders are not following the law when executing lethal predation management? No, this assumption would be unfair. An explanation of this absence of statements can be that following the law is so basic to the other stakeholders that it did not come to their mind to name it as a precondition. It can be reasoned that the PSH did name the law as a precondition for lethal predation management, because the PSH is making laws and therefore, it is a very present topic, since it is occurring in the daily routine.

Secondly, the PSH is not naming preserving biodiversity as a precondition for lethal measures against predators. This is notable, since the PSH is legally obliged by the decentralized Wnb to protect biodiversity (Wet natuurbescherming, 2015). Adding to that, in the provincial vision (Provincie Zuid-Holland, 2018) the PSH emphasizes their goals in respect of improving biodiversity and is working together with research institutions and NGO's on the "Deltaplan Biodiversiteit" (Stichting Deltaplan Biodiversiteitsherstel, 2021). Taking this information into account, biodiversity seems to be a topic of great importance to the PSH. Therefore, one could have assumed that the PSH would name preserving biodiversity as a precondition for lethal measures. However, it is comprehensible that the PSH did not name it as a precondition for lethal measures, because it is in their case not true. The law is the precondition. And surely, the fact that preserving biodiversity was not named as a precondition does not automatically mean that the PSH is not putting effort into that goal.

Thirdly, ACMD and LNL did not identify any preconditions for lethal predation management, which is in the case of LNL surprising, being a TBO with a fair amount of an ecocentric value. However, this research revealed a fair amount of an anthropocentric value within LNL, which can be an explanation of the absence of preconditions.

5.2 PICTURES OF NATURE

Arjen Buijs (Buijs, 2009) introduces in his report the term picture of nature (“natuurbeelden”), which is defined as the interconnected meaning granted to nature by people. There are three dimensions of meanings: the normative meaning (the value of nature), the cognitive meaning (the knowledge of nature) and the expressive meaning (the experience of nature). He reasons that these pictures do not evolve by a personal process alone, but are greatly influenced by communication with other people and by the output of authorities like the media or nature organizations. Pictures of nature can be used strategically to convince stakeholders of a certain viewpoint regarding nature management - this can be achieved by referring to a prevailing picture of nature.

The previously introduced normative dimension refers to the value of nature, to the moral statuses we grant plants, animals and ecosystems. Buijs differentiates between two interpretations of the value of nature: the anthropocentric value and the intrinsic value of nature. In respect of the intrinsic value he differentiates further between an ecocentric and a biocentric interpretation. According to him the ecocentric interpretation of the intrinsic value of nature is dominant in the Netherlands. This can be an explanation that all stakeholders in this research were found to have at least partly an ecocentric value towards nature. Buijs furthermore explains that ecocentric values often lead to the protection of natural process in an ecosystem and therefore to a “hands-off” attitude regarding nature. This could not be found in this research: SBB and NM both have dominant ecocentric values, however, they do pledge for an interference into the ecosystem in respect of saving the farmland birds. The fact that farmland birds are at the brink of extinction explains this “contradiction”. Everything needed is done to save the birds, keeping those populations alive and therefore protecting the “wholeness” and natural processes of the current ecosystem.

Buijs found that there are four prevalent pictures of nature among the Dutch:

- the picture of wilderness
- the broad picture
- the esthetic picture
- the functional picture

The picture of wilderness and the broad picture are both based on the intrinsic value of animals. The difference is that within the picture of wilderness the intrinsic value is interpreted in an ecocentric way and in the broad picture in a biocentric way. People with an esthetic picture value the beauty of nature, a varied landscape being important. Lastly, the functional picture is based on the anthropocentric value of nature – nature is seen as useful resource. These pictures subsequently lead to different visions regarding nature management.

In this research the picture of wilderness and the functional picture were found to be predominant among the stakeholders, since an anthropocentric and ecocentric value prevailed.

5.3 APPROACH OF THE VOGELBESCHERMING NEDERLAND

As previously mentioned, the main difference between the stakeholders is the identification of a situation in which lethal predation management is necessary.

To tackle this issue, the VBN established an “afwegingskader” (Vogelbescherming Nederland, 2019), a framework to assess the situation at hand, allowing to make decisions which consider the reproductive success of farmland birds as well as the lives of predators (Vogelbescherming Nederland, 2021).

The steps of the “afwegingskader” are the following and are visualized in Figure 6.

1. Is the area valuable for farmland birds? → Only if yes:
2. Is the area suitable for all breeding phases? → Only if yes:
3. Is the nesting and breeding successfully maintaining the population? → Only if yes:
4. Does systematically obtained research indicate that predation is highly responsible for the reproduction problem? → Only if yes and responsible predator species are known:
5. Exploration of possible predation management measure and monitoring (Vogelbescherming Nederland, 2021).

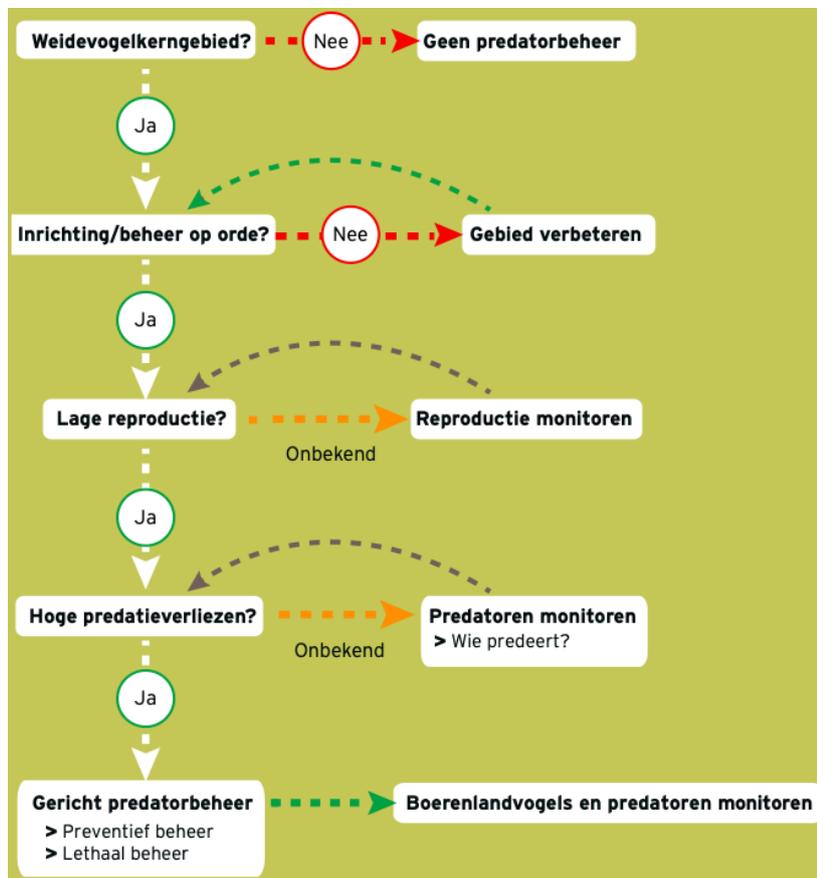


Figure 6: Framework of the VBN to assess whether and how predation management should be executed (Vogelbescherming Nederland, 2019)

Generally, the decision should be based on facts which are systematically obtained and on the best available knowledge (Vogelbescherming Nederland, 2019). The effects of the decision should always be monitored (Vogelbescherming Nederland, 2021).

It appears that the VBN established a practical framework, which some stakeholders have already begun to adopt – at least to some extent. NM fully integrated this approach into their predation management policy, SBB also to a fair extent since they practice habitat and preventive measures first. The ACMD might integrate parts of this framework in their future predation plan.

5.4 FINANCIAL SUPPORT

An obstacle in promoting non-lethal measures among farmers seems to be the insufficient financial support. Farmers are entitled to receive compensation for improving the habitat of farmland birds by adapting their land management. However, Floor states: “(...) the farmers say: it’s not enough. (...) if they’d be fully compensated or even more then probably more farmers would do it.” Adding to that, farmers do not receive support for non-lethal predation management against predators. Jort elaborates further: “(...) normally they only have money for management, so postponing mowing or putting water on the grassland. (...) these are the only subsidies within the agricultural field.” Lethal predation management, however, does not cost farmers anything – it is financed by the hunters.

In the framework of SNL, a national system which enables provinces to give subsidies in the context of land management, eligible land-managers receive subsidies for natural land management (BIJ12, 2018). Since January 2017 only SNL-certified nature collectives, private nature administrators and TBO’s, including SBB, NM and LNL, are eligible for receiving these subsidies (BIJ12, 2018). These natural land subsidies are financed solely by Dutch means and the province obliges certain requirements - for example, the minimum and maximum area size of the natural land (BIJ12, 2018). All land management measures eligible to be subsidized are defined in the “Catalogue GroenBlauwe Diensten” (CGBD). It is possible that the province lays down specific requirements for the implementation of different management measures (BIJ12, 2018).

Non-lethal predation management can be perceived as part of natural management measures. However, they are not explicitly listed in the CGBD, so it is uncertain if or to which extent these measures are subsidized.

This financial situation might have a negative effect on the realization of an, according to the standards of the DB, ethically justifiable predation management.

5.5 LIMITATIONS OF THIS RESEARCH

Choosing a qualitative approach with semi-structured interviews was the most fitting method for this research (see material and methods). However, this does not mean that there are no limitations to the chosen method including the realization of the chosen method. These limitations are described in the following.

Choice of stakeholders and respondents

One limiting factor could have been the choice of stakeholders. The PSH, farmer collectives and TBO’s were chosen as the relevant stakeholders for this research since all of them are owning land or are an association of people (farmers) owning land and therefore are entitled to decide about a possible executed predation management. In comparison to farmers and their collectives and TBO’s, the PSH does not own much “relevant” land. Seeing that, the selection of the stakeholders could have had a negative effect on the validity of this research.

Furthermore, it would have given a more holistic view on the possibilities regarding support for an ethically justifiable predation management if not only landowning stakeholders would have been included in this research, like the FBE South Holland, WBE’s or other hunter associations as well as the VBN or other animal protection organizations.

Additionally, the choice of the respondents could have had a negative effect on this research, since two respondents were from the PSH, while there was only one respondent from one farmer collective as well as one respondent from each of the three TBO’s. So, the proportion was uneven. This was reinforced by the used literature. Due to availability, there was more literature used that gave insights about the PSH, making the proportion even more uneven. This could have been

improved by researching the relevance, so the amount of owned land including the land-use beforehand and from there adjusting the identification of “relevant” stakeholder. Also, during the interviews respondents could have been asked for literature.

Furthermore, only one farmer collective was interviewed while three TBO’s were interviewed. It was not intended to be this way, however it became apparent that it was a challenge to get in touch with farmer collectives and to find a willing person to talk to. Surely, this made the proportion of the respondents even more disparate, decreasing the validity of this research.

The uneven proportion can be an explanation for the high scores of the PSH in the crosstab addressing the values (Table 2) and the low scores of the ACMD in the table addressing the satisfaction of criteria of the DB (Table 3).

Coding

The coding of the interview and literature could have been a limiting factor since it was executed by one person only, the same person who obtained the interviews. Different personal sympathies towards the respondents could have influenced the decision whether to code a certain statement or not, especially, when the coding occurred directly after obtaining the interview. To minimize this negative effect of the reliability of this research, the coding was reviewed several times in a time-lapse of six weeks. This allowed the researcher to compare the coding of different statements and to make adjustments if necessary: decoding, recoding or adding codes to so far ignored but yet relevant statements. The long timeframe allowed detachment from the interviewing experience and potential personal sympathies and therefore increased the likeliness of a fair and even coding. This improved the trustworthiness of this research. The process of coding in this research could have been improved if it had been executed by a more experienced researcher.

When coding statements in respect of the criteria of the DB it emerged that one criterion of the DB was impossible to code: the creation of social support for the previous criteria. Therefore, it was decided to broaden this criterion to creating social support for the executed predation management. This is in so far logical that the criterion still shows the willingness of a stakeholder to create social support for their own policy.

Unclear statement

During the process of reviewing the coded statements it became apparent that there was an unclear statement of one respondent, which did not elaborate clearly on the targeted information. In the interview with Theo, it became evident that habitat and lethal measures were executed. The missing piece was, whether these measures were directly executed at the same time. There were however some indications, leading to the assumption that both measures were directly executed at the same time. Nevertheless, it was not possible to validate this information. Therefore, it was decided to conclude that LNL is executing both measures at the same time but acknowledging the possibility that it could also be different. This is expressed in the conclusive table (Table 4/ row: strategy/column: lethal) through giving LNL a “1” for lethal measures but putting the “2” in brackets behind it. This way the possibility of an incorrect conclusion was decreased.

6 CONCLUSION

Table 4 summarizes the results for the sub-questions: rows one to seven summarize the results concerning the first sub-question, rows eight and nine for the second and the last row shows the results for the third sub-question. The table is further elaborated on the following page.

Table 4: Overview of the results concerning the three sub-questions of this research: (i) How do different stakeholders practice predation management? (ii) What is the ethical approach behind the practiced predation management? (iii) To which extent do the currently executed predation managements of the different stakeholders match the ethical viewpoints of the DB?

	PSH			ACMD			SBB			NM			LNL		
measures	<i>habitat</i>	<i>non-lethal</i>	<i>lethal</i>	<i>habitat</i>	<i>non-lethal</i>	<i>lethal</i>	<i>habitat</i>	<i>non-lethal</i>	<i>lethal</i>	<i>habitat</i>	<i>non-lethal</i>	<i>lethal</i>	<i>habitat</i>	<i>non-lethal</i>	<i>lethal</i>
executors	<i>farmer</i>	-	<i>WBE</i>	<i>farmer</i>	<i>volunteer</i>	<i>WBE</i>	<i>SBB, farmer</i>	<i>SBB</i>	<i>WBE</i>	<i>NM, farmer</i>	<i>NM</i>	<i>hunter (NM)</i>	<i>farmer</i>	<i>LNL</i>	<i>WBE</i>
financing	<i>PSH</i>	<i>PSH</i>	<i>WBE</i>	<i>subsidy</i>	<i>ACMD, subsidy</i>	<i>WBE</i>	<i>PSH</i>	<i>PSH</i>	<i>SBB</i>	<i>subsidy</i>	<i>NM</i>	<i>NM</i>	<i>subsidy</i>	<i>LNL</i>	<i>WBE</i>
strategy	1	1	2 (1)	1	1	1	1	2	3	1	2	3	1	1	1 (2)
monitoring birds	<i>territory mapping and nesting success</i>			<i>territory mapping</i>			<i>counting alarming adults, checking nests</i>			<i>counting alarming adults, breeding bird surveys</i>			<i>counting birds, checking nests (database)</i>		
predators	<i>number killed predators</i>			<i>anecdotic observation predators</i>			<i>checking nests</i>			<i>camera traps</i>			<i>checking nests</i>		
measures	-			<i>analysis by ACMD and NVWA</i>			<i>population models (rare)</i>			-			-		
precond.	<i>defined by law</i>			-			<i>preserving biodiversity</i>			<i>preserving biodiversity</i>			-		
values	<i>anthropocentric ecocentric</i>			<i>anthropocentric ecocentric</i>			<i>biocentric ecocentric</i>			<i>ecocentric</i>			<i>anthropocentric ecocentric</i>		
satisfaction criteria DB	3 out of 7			2 out of 7			5 out of 7			5 out of 7			3 out of 7		

1. How do different stakeholders practice predation management in respect of protecting farmland birds?

All the stakeholders execute bird habitat measures, non-lethal measures against predators as well as lethal measures. Bird habitat measures are executed by farmers or by the TBO and are financed through public money. Non-lethal measures against predators are in the case of TBO's executed by themselves, in the case of the ACMD by volunteers and in the case of the PSH this information was missing. The financing of these non-lethal measures varies per stakeholder: NM and LNL pay for it themselves, the PSH pays for their own non-lethal measures as well as for the non-lethal measures of SBB and ACMD finances it partly themselves, partly through subsidy. Lethal measures are generally executed by hunters. In the cases of the PSH, ACMD and LNL it is executed by a WBE and in the cases of SBB and NM it is executed by themselves. SBB and NM follow the "1-2-3-strategy", which means that first bird habitat measures are executed (1), then non-lethal measures (2) and only lastly lethal measures (3). In the case of ACMD all three measures are executed at the same time. The PSH first executes habitat and non-lethal measures and only then lethal measures. However, there is an exception: when the predator is known and there is an agreement regarding the need of executing lethal measures, then lethal measures are directly executed – therefore, the "(1)" in the table. LNL is also executing habitat and non-lethal measures at the same time and probably also lethal measures. This was however not certain (see discussion) that is why the "(2)" is in the table. All the stakeholders monitor the birds and the predators. However, different methods are used, which can be extracted from the table. The efficiency of the implemented measure is only monitored to some extent by ACMD and SBB. ACMD is monitoring the effectiveness of habitat measures only by their own analysis. The effectiveness of the habitat measures is furthermore controlled by the NVWA. SBB uses population models for that matter, which reveal the effect of all the measures. However, these population models are only realized very rarely.

2. What is the ethical approach behind the practiced predation management in respect of protecting farmland birds of the stakeholder?

SBB and NM state that the precondition for executing lethal predation management is that the executing is contributing to preserving biodiversity. The PSH identifies following the law as the condition.

Except NM, which has a complete ecocentric value, all the stakeholders have mixed values. The PSH and ACMD both an anthropocentric and ecocentric, the anthropocentric value being the dominant value. SBB has a mix of a biocentric and an ecocentric value, the ecocentric being the dominant value. LNL has a mix of an anthropocentric and an ecocentric value, both values tend to be equal.

3. To which extent do the currently executed predation managements in respect of protecting farmland birds of the different stakeholders match the ethical viewpoints of the DB regarding an ethically justifiable predation management?

SBB and NM satisfy the highest number of the criteria (5 out of 7), followed by the PSH and LNL (3 out of 7) and then by ACMD (2 out of 7).

To which extent do different stakeholders support an – according to the standards of the DB - ethically justifiable predation management in South-Holland?

Looking at the outcome of the sub-questions it emerges that SBB is the likeliest to support an - according to the standards of the DB - ethically justifiable predation management, closely followed by NM. Both of them execute the "1-2-3-strategy" and score high in satisfying the criteria. However, SBB "wins" because there is a biocentric part in their values, which the DB also has.

The other three stakeholders are due to their (dominant) anthropocentric value, the absence of a "1-2-3-strategy" and due to satisfying less than half of the criteria not very likely to support an, according to the standards of the DB, ethically justifiable predation management.

7 RECOMMENDATIONS

This chapter outlines the recommendation for the DB emerging from this research.

Firstly, it is recommended to team up with the VBN in respect of the promotion of an ethical predation management. Looking at the “afwegingskader” of the VBN, it appears that it meets the criteria of the DB for an ethically justifiable predation management. The DB would profit from teaming up with the VBN in so far that the VBN is very connected to stakeholders, frequently discussing the topic and giving their advice. Based on the interviews it seemed that the PSH, the ACMD as well as TBO’s accept the advice from the VBN.

Secondly, it is advised to work out and promote a concept of a financial support system, which encourages an ethically justifiable predation management. For this matter it is handy to keep updated whether the PSH will be subsidizing lethal measures in the next subsidy round. If that is the case, it is advised to take measures to try to intervene or at least to strive for a level playing field.

Thirdly, obtaining more research regarding the executed predation management and ethical viewpoints of the farmer collectives is recommended. A written survey for farmers could be an option to get more insights. Maybe the collectives are open to encourage their members to take part in the surveys, if it is explained to them that the DB is searching for an approach which will not be to their disadvantage.

Fourthly, it is recommended to frame the topic in such a way that encourages farmers actively to get involved. Therefore, it is crucial to take into account the values and the picture of nature that farmers have and adjust the communication accordingly, aiming to give farmers the feeling to be seen in their own challenging situation. An intrinsic motivation among farmers in respect of realizing an ethically justifiable predation management has the potential to change a large part of the currently executed predation management.

Fifthly, it is recommended to promote a discussion about predation management in respect of farmland birds which is based on scientific knowledge: encourage stakeholders and society to detach from the emotions to have a constructive discussion.

Lastly, it might provide further insight to get in touch with the lectoraat weidevogels at Van Hall Larenstein. This could lead to a fruitful cooperation, enlarging the network, getting more students involved and possibly resulting in new projects.

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APPENDIX

I TOPIC LIST

The aim of this research is to explore the extend of support of different stakeholders regarding an ethically justifiable predation management in respect of protecting farmland birds.

Opener

1. Introduction
2. Agreement in respect of recording the interview
3. Thank you: valuable information for me
4. Description of goal and content

Before we begin, can you just shortly introduce yourself and what you do for ... ?

Executed predation management

1. How is your executed predation management financed?
2. Which non-lethal measures are taken against predators?
3. Which lethal measures are taken against predators?
4. What are the preconditions for implementing the measures?
 - address human behavior first
 - proof of damage
 - animal friendly measures
 - long-term plans
5. To which extend is new knowledge integrated in the decision-making regarding predation management?
6. How efficient is the executed predation management?
7. How are the effects of predation management monitored?
8. To which extent do you experience social support regarding the executed predation management?
9. To which extent do you agree with the executed predation management? (necessity and how, ethically justifiable)

Ethical approach

1. How would you define an ethically justifiable predation management?
2. What are the requirements for realizing an ethically justifiable predation management?
3. To which extent is it necessary to execute an ethically justifiable predation management?
4. In your opinion, to which extend do animals have an intrinsic value? Differences?

5. Is there anything from your side you want to add?
6. Questions?

Closing

1. Thank you for cooperation
2. Offer to send copy of transcript and report

II OPERATIONALIZATION OF THE VARIABLES

Table 5 shows the operationalization of the variables derived from the sub-questions.

Table 5: Operationalization of the variables derived from the sub-questions

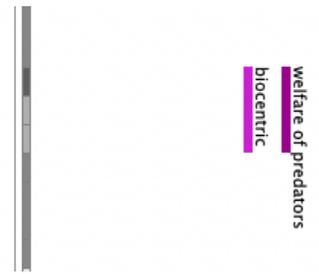
Variable	Indicator	Question
Executed predation management	Finances	How is your executed predation management financed?
	Non-lethal measures	Which non-lethal measures are taken against predators?
	Lethal measures	Which lethal measures are taken against predators?
	Preconditions	What are the preconditions for implementing the measures? <ul style="list-style-type: none"> - Address human behavior first - Proof of damage - Animal friendly measures - Long-term plans
	Integrating new knowledge	To which extent is new knowledge integrated in the decision-making regarding predation management?
	Efficiency	How efficient is the executed predation management?
	Monitoring	How are the effects of predation management monitored?
	Social support	To which extent do you experience social support regarded the executed predation management?
	Agreement	To which extent do you agree with the executed predation management? (necessity and how)
	Ethical approach	Definition
Requirements		What are the requirements for an ethically justifiable predation management?
Necessity		To which extent is it necessary to execute an ethically justifiable predation management?
Intrinsic worth of animals		In your opinion, to which extent do animals have an intrinsic worth?

III CODING EXAMPLE IN NVIVO

Figures 7, 8 and 9 give an example of the used coding in NVivo.

The foxes are gone in majority at least and also if you do it later in the year, you have all the young foxes looking for territory, so you empty the territories of the currently resident foxes and then you'll immediately have a new one. So, the effect is zero. And if you do it in the early months, you also don't have, which you have later in the year, if you shoot an adult female the young will starve, which is of course quiet cruel. Ehhm and also you make sure that you don't have an adult to feed its young's, which increases the rate of predation. And we do say, if you are going to do something lethal, you need to make sure that it actually has an effect. Otherwise, you are basically killing animals without an effective result, which is not acceptable really.

Figure 7: Coding example derived from the interview with Meta Rijks, fauna ecologist at SBB

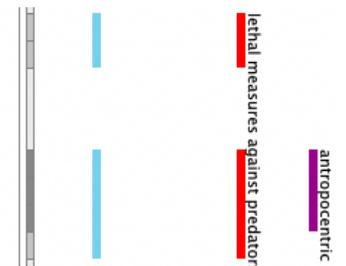


Willem It is hunting in various ways. I mean there is normal hunting for black crows, ehm and foxes. They are in all provinces subject to hunting throughout the year. You know that I think?

Melina Ja.

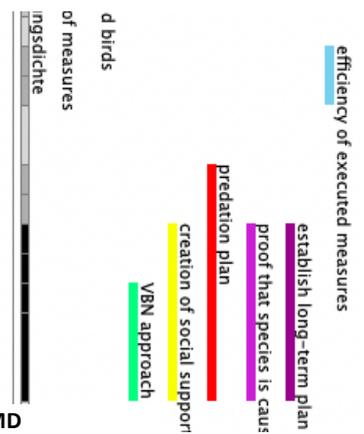
Willem In addition, in our province we are right now struggling in a legal procedure eehm to make it possible that foxes are also hunted during the night and yeah around special protection areas, kind of, for farmland birds. Ehhm and in the past there was also the possibility to trap black crows with the trapping cage – do you know what I mean?

Figure 8: Coding example derived from the interview with Willem Lambooj, legal advisor at PSH



First we started with only grassland and it was with water ehhm so that is only one percel, one acre or something like that, to see if it worked. And it's always hard to find out if it really worked. Ehhm but now for two years, ehhm and we only fence the entrances to the grasslands. So, not the whole grasslands, but only the entrance. So, you only keep out cats. And well if foxes are not that hungry, they don't swim. Crows they go down... So, the predation prevention is actually not that organized. What actually we have been doing last months, is try to make predation, prevention and management plan. Ehhm because the, maybe Jort also told you, the province has some money for making these plans, ehm so we tried with the TBO's, SBB, NM, so we tied to talk together: well what do we know about predation, how big is it actually, who is doing it, where are the areas. And then is the area suitable for meadow birds. Ehhm if it is, what prevention measures can we take? Like fencing and stuff and if that's all not working, then we should see if we could reduce the populations of predators. So, that's the theory behind the plan.

Figure 9: Coding example derived from the interview with Floor Koorneef, project employee at ACMD



IV CODING STRUCTURE IN NVIVO

To answer the first sub-question of this research the following coding structure (Figure 10) was established.

- ▼ ● currently executed predation management
 - ▼ ● executed predation management measures
 - habitat improvement measures for farmland birds
 - lethal measures against predators
 - ▼ ● non-lethal measures against predators
 - catching and releasing predators 
 - fencing
 - making habitat less suitable for predators 
 - executors
 - financing
 - ▼ ● monitoring 
 - effects of measures
 - farmland birds
 - predators
 - ▼ ● strategy of executed measures 
 - absence of strategy
 - other 
 - predation plan
 - social acceptance
 - VBN approach

Figure 10: Coding structure used in NVivo12 to answer the first sub-question: how do different stakeholders currently execute predation management in the framework of farmland bird protection measures?

There were four levels to the structure. The first level was the general topic, which was in this case the “currently executed predation management”. There were five codes directly underneath this general topic: the “executed measures”, the “executors”, the “financing”, the “monitoring” and lastly the “strategy of executed measures”. The “executed measures” were divided in three new sub-levels: “habitat improvement measures for farmland birds”, “lethal measures against predators” and “non-lethal measures against predators”. The non-lethal measures were then again divided into three new sub-levels, making them the fourth level of codes: “catching and relocating predators”, “fencing” and “making habitat less suitable for predators”. Looking at the second level and here at “monitoring”, it can be seen that also “monitoring” was divided into three new levels: “farmland birds”, “effects of measures” and “predators”. The last second level code in this structure, the “strategy of executed measures” was divided in further sub-codes as well: “absence of strategy”, “other”, “predation plan”, “social acceptance” and “VBN approach”.

To answer the third sub-question of this research the following coding structure (Figure 12) was established.

- ▼ ● criteria of DB for an ethically justifiable predation management
 - adress human behavior first
 - creation of social support
 - decisions based on damage
 - efficiency of executed measures
 - establish long-term plan and integrate new knowledge
 - execution of most animal friendly measures
 - proof that species is causing damage

Figure 12: Coding structure used in NVivo12 to answer the third sub-question of this research: To which extent do the currently executed predation managements in respect of protecting farmland birds of the different stakeholders match the ethical viewpoints of the DB?

This coding structure was simple compared to the other two: it only had two levels. The general topic, which was in this case the criteria of the DB, was making up the first level. The second level consisted of the seven codes – for every criterion of the DB one code.

V SUBSIDIES FOR FARMLAND BIRD PROTECTION MEASURES

Table 6 shows the subsidies the PSH spent for farmland bird protection measures in the third quarter of 2020 and in the first quarter of 2021.

Table 6: Subsidies spent for farmland bird protection measures in the third quarter of 2020 and in the first quarter of 2021

Aanvrager	Deelgebied	Polder	Type maatregelen	Jaar	Kwartaal	Bedrag aanvraag
Zuid-Hollands Landschap	Krimpenerwaard	De Nesse	Watermaatregelen, beter beheer, antipredatie-maatregelen	2020	3	€ 181.489,00
Collectief Zuid-Hollandse Eilanden	Eilanden		Twee zonnepompen incl onderhoud	2021	1	€ 11.794,00
Staatsbosbeheer	Eilanden	Polder Biert	Ontsluiting, greppels aanleggen, tegengaan afkalving oevers	2021	3	€ 219.910,00
Agrarisch Collectief Krimpenerwaard	Krimpenerwaard		Zes pompen incl inrichting en beheer	2021	1	€ 46.754,40
Collectief Hoekse Waard	Eilanden		Plasdras inrichting	2020	3	€ 5.310,00
Collectief Hollandse Venen	Noordrand		Plasdras, kruidenrijk grasland aanleggen, hout snoeien, antipredatie-raster	2021		€ 188.384,30
Natuurmonumenten	Eilanden	Korendijkse Slikken	Waterhuishouding (gemaal, molens)	2021	3	€ 211.648,80
Natuurmonumenten	Midden-Delfland	Noord-Kethel	Raster tegen predatie	2021	1	€ 15.940,00
Zuid-Hollands Landschap	Noordrand	Vosse- en Weerlianerpolder	Watermaatregelen, beter beheer, antipredatie-maatregelen	2021	1	€ 73.762,00
Staatsbosbeheer	Noordrand	Polder Westeinde	Ontsluiting, watermaatregelen	2021	3	€ 210.395,00
Collectief Hoekse Waard	Eilanden		Beheer keverbank	2021		€ 4.500,00
Agrarisch Collectief Krimpenerwaard	Krimpenerwaard		7.500 m2 zagen	2021-2024		€ 23.625,25
Collectief Alblasserwaard/Vijfheerenlanden	Alblasserwaard		Plasdraspompen, extra accu's voor pompen, drijvers voor pompen, kruidenzaad tbv aanleg kruidenrijk grasland	2021		€ 212.986,50
Collectief Groene Klaver	Noordrand		Plasdraspompen, kruidenrijk grasland, antipredatierasters, hoog waterpeil	2021		€ 269.360,25
Agrarisch Collectief Krimpenerwaard	Krimpenerwaard	Kadijk-Oost	Vernatting, aanleg greppels en kruidenstroken	2021	1	€ 91.149,91
Natuurmonumenten	Midden-Delfland	Aalkeetbuitenpolder	Ontsluiting	2020	3	€ 31.013,00
Staatsbosbeheer	Noordrand	De Wilck	Beter beheer	2020	3	€ 42.807,00
Staatsbosbeheer	Noordrand	Polder Stein	Aanleg weidevogeloever en beter beheer	2021		€ 76.393,00
Zuid-Hollands Landschap	Noordrand	Voorofsche Polder	Watermaatregelen, beter beheer, aanleg kruidenrijk grasland, antipredatie-maatregelen	2021	1	€ 149.872,00
Natuurmonumenten	Eilanden	Zuiderdiepgorzen	Herstel kreek/flauwe oevers	2021	1	€ 50.844,08
Staatsbosbeheer	Noordrand	Zwanburgerpolder	Beter beheer	2020	3	€ 18.595,00

VI FORMAT FOR PREDATION PLANS

The following format was established by the PSH as a framework for the predation plans of the farmer collectives.

PREDATIEPREVENTIE EN -BEHEERPLAN

NAAM COLLECTIEF

*Een handleiding wat kan en mag in het tegengaan van predatie op
weidevogelpopulaties
CONCEPT-april 2018*

Foto?

Uitgave van: **Collectief**

Versie: **xxx**

Datum: **xxx**

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ALGEMEEN DEEL

1. INLEIDING

Collectief **XXXXX** is een collectief waarbij **XXXXX** boeren zijn aangesloten. Het werkgebied omvat de volgende polders **XXXXX**. De weidevogeldoelstelling voor deze polders is verwoord in gebiedsplan **XXXXX**

PREDATIE

Veel maatregelen van het collectief zijn gericht op het in stand houden van de populaties weide- en akkervogels. Hierbij moet rekening gehouden worden met de invloed van predatoren. Een zekere mate van predatie is normaal, maar bij zeer hoge predatiedruk loopt een populatie risico's en kan ingrijpen overwogen worden.

Predatie van weidevogels:
Een dier doodt een weidevogel of verstoort een nest of vernietigt de eieren.

De ervaring leert dat de invloed van predatoren groot kan zijn en een bedreiging kan vormen voor de populaties die beschermd worden. De invloed van predatoren wordt gemeten door per gebied goed in kaart te brengen wat de predatieverliezen van de nesten zijn (20% is geen rede tot zorg), wat de kuikenoverleving is (minimaal 60% bij grutto) en door predatoren in kaart te brengen op basis van waarnemingen en sporen onderzoek.

WET EN REGELGEVING

De wet geeft een kader aan het beheer van predatoren.

- Vos en kraai mogen bejaagd worden
- Marterachtigen zijn beschermd.
- Vogels als mantelmeeuw, reiger, ooievaar etc. zijn beschermd
- Roofvogels zijn, *met hun nesten*, jaarrond beschermd.

Dit betekent dat predatorenbeheer zich richt op de vos en eventueel zwarte kraai, voor alle overige predatoren geldt dat er uitsluiten gewerkt kan worden op het niveau van biotoop en landschapsinrichting.

Lijstje relevante zaken faunabeheerplan (nog vast te stellen?)

GEBIEDSBESCHRIJVING

- Polder A
 - Kaart
 - Geef belangrijkste broed- en kuikengebieden weer
 - Markeer landschapselementen die relevant zijn voor predatoren (bomen, bosjes, rommelhoekjes, bekende locaties van vossenburcht etc.)
- Polder B
 - Kaart
 - Geef belangrijkste broed- en kuikengebieden weer
 - Markeer landschapselementen die relevant zijn voor predatoren (bomen, bosjes, rommelhoekjes, bekende locaties van vossenburcht etc.)

STAPPEN

Daar waar predatie gevaarlijk hoog is, zoekt het collectief naar manieren om de invloed van predatoren te beperken. Hierin wordt gekozen voor de volgende hiërarchische stappen:

1. Verbeteren biotoop
2. Verminderen biotoop predatoren
3. Verminderen kansen predatoren
4. Beheren predatoren

2. VERBETEREN WEIDVOGELBIOTOOP

Een geschikt biotoop voor de weidevogels is de uitgangssituatie om zo nodig *daarna* stappen te nemen om predatie te beperken tot een niveau dat de populaties niet aantast.

Vroeger werd er op kleinere schaal gemaaid en waren er minder roofvogels, ooievaars en dergelijke dan nu. Toen hadden kuikens meer kans het maaien te overleven door uit te wijken naar ongemaaid gras. Nu zien we dat kuikens weinig kans maken het maaien te overleven -de rovers die we met de kuikens aan de haal zien gaan, krijgen vaak de schuld. De oplossing is percelen waar kuikens van grutto of tureluur lopen niet te maaien.

De eerste taak van het collectief is er voor te zorgen dat bij iedere locatie waar grutto's en andere weidevogels broeden er voldoende kuikenland aanwezig is.

Geschikt biotoop voor nesten en kuikens van de grutto bestaat uit: vochtige, niet gemaaide bloemrijke weiden in mei en de eerste helft van juni. Soorten als tureluur en Kievit profiteren hier ook van. Laat broedende vogels als slobeend, zomertaling en veldleeuwerik kunnen zich hier ook voortplanten.

Kieviten en scholekster kunnen zich ook goed voortplanten op percelen die extensief of periodiek geweid worden.

Akkervogels hebben behoefte aan een biotoop met voldoende voedsel (zaden en insecten) en voldoende dekking voor nesten en kuikens ('rommelhoekjes', randen langs sloten en werkpaden). Akkerranden, vogelakkers en wintervoedselakkers zijn nodig. Nesten en jongen dienen bij werkzaamheden te worden ontzien.

3. VERMINDEREN BIOTOOP PREDATOREN

Door geschikte schuilplekken van predatoren te verwijderen kan de invloed van predatoren verminderd worden.

OPRUIMEN VAN BOSJES EN BOMEN

Weidevogels hebben een open landschap nodig met zo min mogelijk bomen en bosjes van waaruit predatoren hen bedreigen. Bomen en bosjes in weidevogelgebieden worden waar mogelijk verwijderd.

Weeg zorgvuldig andere waarden (landschappelijke kwaliteit, cultuurhistorie, andere flora en fauna) af door vooraf een waardering op deze onderdelen toegekennen aan de elementen.

Denk aan:

- Eigendom Wat vindt de eigenaar?
- Landschappelijk Positief beeldbepalend of belemmering uitzicht?
- Cultuurhistorisch Waardevol. Hoe? Bijvoorbeeld: in polderbosjes werden bomen en takken vroeger vaak geoogst. Hakhoutbeheer is in overeenstemming met historie en weidevogel doel.
- Ecologisch Insecten, kleine zoogdieren, zangvogels
- Weidevogels Wordt het weidevogelgebied verkleind door boom/bos, wordt broedsucces negatief beïnvloed?

OPRUIMEN ROMMELIGE PLEKKEN OP ERVEN

Verwijderen van ruigten en rommelbulten maakt een gebied minder aantrekkelijk als leefgebied van de vos en kleine marterachtigen als hermelijn, die dergelijke locaties gebruiken als schuil- en voortplantingsplek.

OEVERS MAAIEN

Hoog opgaande begroeiing langs water maakt de aangrenzende percelen minder aantrekkelijk voor weidevogels. Wanneer deze vegetaties gemaaid zijn voor de winter eindigt, vergroot het leefgebied van de weidevogels -als dit soort vegetaties zelf een gewenst biotoop zijn (bijvoorbeeld voor leefgebied roerdomp), dan is het nodig een afweging te maken tussen de verschillende doelen.

4. VERMINDEREN KANSEN PREDATOREN

Nesten zoeken en markeren verhogen de risico's voor het nest op predatie. Om een nest heen maaien verhoogt de kans op predatie en vermindert de overlevingskansen van de kuikens. Streven is alleen nesten te markeren wanneer er een kans bestaat dat het nest beschermd moet worden bij werkzaamheden of beweiding. Door slimme markering (stokjes op grote afstand, digitaal) kunnen risico's verkleind worden.

Percelen worden alleen betreden door nestbeschermers als nestbescherming nodig lijkt.

Met verhoging van de waterstand in de sloot, het vullen van greppels en lage delen met water, het vergroten van de kruidenrijkdom, uitstrooien van ruige mest kunnen weidevogels worden gestuurd om te broeden op percelen waar nestbescherming niet nodig is omdat er pas gemaaid worden nadat de kuikens zijn gevlogen.

Verwijderen of verminderen van loopplanken over sloten, deze worden graag benut door katten en marterachtigen.

Voorkomen dat ruige oevervegetaties directe aansluiten op verbindingspaden als (tiend)wegen en kade haaks op de verkaveling, door de eerste 100 á 150 meter vanaf deze structuren perceel inwaarts in de winter maanden kort te maaien of klepelen. Beperkt de intrede van marterachtigen, vos en kat.

In gebieden met een bekende hoge predatie druk door vogels is het te overwegen om begin maart enkele dagen inzet van een klimmer van bijvoorbeeld het lokale hoveniers bedrijf en de nesten van kraaien, etc. verwijderen voordat ze beginnen met broeden. Dit geeft kraai en buizerd een achterstand in de start met broeden, waardoor de jongen van de kraai niet synchroon lopen met de weidevogels. Wees alert op draagvlak en op overige waarden, dus als er in een hoek regelmatig een ransuil of boomvalk tot broeden komt in een oud kraaiennest hier wel rekening mee houden (vraag na bij lokale vogelwerkgroep).

Alert op plaatsen van ooievaarspalen in de buurt van weidevogelgebieden. Goed gesprek aan gaan met initiatiefnemer.

5. BEHEREN PREDATOREN

Dus op orde:

- Voldoende bereikbaar geschikt biotoop voor nesten en kuikens gedurende de hele voortplantingsperiode.
- Openheid van het gebied is voldoende.

Is aan al deze voorwaarden voldaan, dan kan het nog nodig zijn bepaalde predatoren terug te dringen door die te verjagen of af te schieten.

5.1 Vos

De vos is een opportunistische jager die overwegend 's nachts actief is. Het territorium van een paartje varieert van 100 tot 400 ha, maar binnen een territorium van 100ha kunnen zich ook meerdere vrouwtjes bevinden. De vos is een aanhoudende predator en kan door nachten achtereen een gebied te bezoeken lokaal een sterke invloed hebben op de weidevogels. Dit is niet altijd het geval -soms kunnen dieren gefocust zijn op bijvoorbeeld muizen, maar vroeg of laat komen de vogels meestal wel aan de beurt. Deze soort kan de populatie grondbroeders in een polder verjagen, ook als de omstandigheden voor de vogels optimaal zijn. Kieviten weten dikwijls te vluchten zodat de vos alleen de eieren pakt, volwassen grutto's op het nest zijn 's nachts een makkelijke prooi voor de vos. Boeren en vrijwilligers kunnen de aanwezigheid van vossen opmerken door: prooiresten in het land, predatie van eieren en broedende vogels (grutto!) het plotseling verdwijnen van weidevogels, uitwerpselen op opvallende plekken (dammen, paadjes) en burchten (bijvoorbeeld onder gebouwen en bij dammen of dijken.)

WAT KAN ERAAN GEDAAN WORDEN

Voorkomen van vestiging is een eerste stap, hiervoor is het zaak dat er zo min mogelijk rommelige plekken in de buurt van weidevogelgebieden zijn.

De vos mag landelijk tussen zonsopkomst en zonsondergang bejaagd worden. In Zuid-Holland is een ontheffing mogelijk voor bejaging tussen zonsondergang en zonsopgang met behulp van kunstlicht. De FBE kan deze aanvragen.

In het vroege voorjaar vrijgekomen territoria zullen dat seizoen niet meer opgevuld worden, hierdoor heeft afschot in deze periode het meest effect voor het daaropvolgende weidevogel seizoen. De maanden januari tot eind maart zijn dus de meest effectief voor bejaging. Het afschieten van dieren in de periode hiervoor heeft vaak minder invloed op de vossenpopulatie.

Voor aanvang van het seizoen is het belangrijk dat de jager alle bekende burchten in weidevogelgebieden controleert op bewoning. Met behulp van cameravallen kunnen deze en potentiële plekken geïnventariseerd worden. **Collectief XXXX stelt cameravallen beschikbaar.**

Door het plaatsen van kunstburchten kunnen aanwezige vossen makkelijker gevonden. **Het collectief kan de aanleg hiervan organiseren en financieel mogelijk maken.**

Random percelen met een hoge dichtheid aan broedende weidevogels (kluten, visdieven...) kunnen elektrische rasters worden geplaatst die de vos buiten deze gebieden houden. Dit is een vrij kostbare en arbeidsintensieve aanpak (zonder regelmatige controle en onderhoud van het raster zal het in de regel geen effect hebben) maar kan voor kleinere locaties effectief zijn. Ervaring hiermee is op diverse locaties opgedaan.

5.2 MARTERACHTIGEN

Hermelijn, wezel, bunzing, boommarter en steenmarter. Hermelijn en wezel leven vooral in nissen bij dammen en in drogere, vaak wat verruigde delen van weide- en ruigtepercelen. Ook de bunzing kan in nissen leven maar ook in hooi, takken en riet bulten. De steenmarter komt in en rondom gebouwen voor, de soort heeft zich inmiddels in het werkgebied gevestigd en zal zich naar verwachting snel uitbreiden.

De verschillende soorten zijn overdag en 's nachts actief. Ze houden van structuurrijk terrein waar ze voldoende dekking hebben, bijvoorbeeld van ruige oeverranden of bosschages. De territoria variëren van enkele tot tientallen hectares afhankelijk van de voedseldichtheid, voornamelijk het aantal woelmuizen.

WAT KAN ER AAN GEDAAN WORDEN

Vestiging kan worden ontmoedigd door het gebied minder aantrekkelijk te maken en houden. Dit betekent vooral rommel en ruigte opruimen.

Door in het veld zo min mogelijk geursporen achter te laten vermindert de kans op predatie. Dit betekent onder andere geen nesten bezoeken als dat niet nodig is.

Bij het aanleggen van vluchtstroken en botanische randen opletten dat het geen marter biotoop verbindt met vogelland -dus stroken wel aansluiten bij kuikenland, niet bij bosjes en erven.

Landschapselementen als houtwallen en polderbosjes trekken marters aan!

Anders dan in Duitsland en Denemarken is bestrijding van deze soorten om rijke vogelgebieden te beschermen in Nederland (nog) niet toegestaan. Wezel, hermelijn en bunzing zijn altijd aanwezig in de Nederlandse weidevogelgebieden en hebben een wisselende en beperkte invloed op de populaties, Steenmarter is een nieuwkomer die mogelijk grote invloed kan hebben.

WAT KAN DE BOER OF VRIJWILLIGER DOEN

De boer kan op zijn erf rommelhoekjes en ruigten opruimen, dit kan uiteraard ook buiten het erf bij percelen zijn. Ook kan de boer in overleg met de jager controle op marternesten laten uitvoeren. Vooral als er in voorgaande jaren veel predatie was van marters. Vrijwilligers kunnen hierin meedenken en dit bij de boer of veldcoördinator melden, bijvoorbeeld als zij in het veld marters zien. In die gevallen moeten vrijwilligers betreding van percelen en bezoek van nesten zoveel mogelijke beperken.

5.3 ROOFVOGELS

Roofvogels hebben een gevarieerd dieet: kleine zoogdieren als muizen en mollen, aas, insecten, wormen en vogels waaronder ook weidevogels. Torenvalk, buizerd en kiekendief vangen vooral jonge kuikens. Havik, sperwer en slechtvalk vangen ook adulte vogels. Afhankelijk van de voedseldichtheid variëren de territoria van 1 tot 10 km².

WAT KAN ER AAN GEDAAN WORDEN

In weidevogelgebieden kunnen bosjes en opgaande begroeiing verwijderd worden, hierdoor zijn er minder uitkijk- en nestmogelijkheden. Alle vogels en de nesten ervan zijn beschermd via de Flora en Fauna wet. Bomen met bestaande nesten erin mogen zonder ontheffing niet verwijderd worden. Door palen en hekken tot een minimum te beperken zullen roofvogels en kraaien minder efficiënt jagen. In vogelrijke delen is een mogelijkheid om palen en hekken tijdens het vogelseizoen neer te leggen of weg te halen: dan kunnen ze niet meer als uitzichtpunt fungeren. In vogelrijke gebieden kunnen palen worden gezet die tijdens het broedseizoen makkelijk worden neergelegd.

WAT KAN DE BOER OF VRIJWILLIGER DOEN

Boeren kunnen bosjes en opgaande begroeiingen verwijderen en rietkragen om de paar jaar maaien. Vrijwilligers kunnen het uitvoeren van deze werkzaamheden overleggen met de boer of veldcoördinator.

Door palen en hekken tot een minimum te beperken zullen roofvogels en kraaien minder efficiënt jagen. In vogelrijke delen kunnen bijvoorbeeld palen en hekken worden gebruikt die tijdens het vogelseizoen worden neergelegd of weggehaald.

5.4 ZWARTE KRAAI

Zwarte kraaien leven vooral in broedparen en in groepen. Zwarte kraaien kunnen leren dat bij stokjes nesten te vinden zijn. Ze maken ook gebruik van onrust die het gevolg is van het betreden van weilanden, bijvoorbeeld om nesten te beschermen. Ook kunnen kraaien zich lokaal specialiseren in het prederen van nesten als ze een truckje hiervoor hebben ontwikkeld.

WAT KAN ER AAN GEDAAN WORDEN

In weidevogelgebieden kunnen bosjes en bomen verwijderd worden, alleen hoge bomen kort houden is ook voldoende, hierdoor zijn er minder uitkijk- en nest mogelijkheden. Door een landelijke vrijstelling mogen kraaien met het geweer bestreden worden, ook hun nesten mogen verwijderd worden. Dit kan het best in het vroege voorjaar voor 1 mei, het is namelijk belangrijk dat kraaienparen niet op hetzelfde moment jongen krijgen als de weidevogels.

Bij een sterke predatie invloed van groepen kraaien kunnen deze bestreden worden met een kraaienvangkooi. Hiervoor is een ontheffing Flora en Fauna wet nodig welke door de faunabeheereenheid voor de provincie wordt afgegeven.

WAT KAN DE BOER OF VRIJWILLIGER DOEN

Bij aanwezigheid van veel kraaien en predatie daarvan is het voor vrijwilligers zaak om extra op te letten voordat percelen betreden worden. Het is dan goed om ook bij legselbeheer geen nesten te markeren met stokken in de nabijheid van de nesten, maar uitsluitend digitaal de aanwezigheid vastleggen.

De boer kan (jaarrond!) zorgen dat voerkuiten zoals mais goed afgedekt zijn om aantrekking van kraaien te beperken. De bij maaien beschermde weidevogelnesten zijn ondanks de enclave van minimaal 50m² gevoelig voor predatie. Bij veel nesten op legselbeheer kunnen meerdere nesten beter samen in een ruime vluchtstrook gespaard blijven. De boer kan hiervoor of voor het uitstellen van maaien contact opnemen met de veldcoördinator **XXXX of XXXX**.

6. ANDERE VOGELS

Meeuwen, blauwe reiger en ooievaar kunnen net als kraaien herkennen dat verstoring door menselijke activiteit oproer en verdedigingsgedrag oproept bij weidevogels. Hiervan kunnen zij profiteren en op die momenten eieren of kuikens pakken. Reigers en ooievaars prederen voornamelijk kuikens en hebben hierin vooral succes als de kuikens in ongeschikt biotoop (gemaaid gras) lopen.

WAT KAN ER AAN GEDAAN WORDEN

Alle vogels zijn beschermd via de Wet Natuurbescherming en mogen niet bestreden worden. Door polders zo open mogelijk te houden (geen bosjes!) is druk van vogels te verminderen.

Predatie op kuikens en nesten vindt vooral plaats op het moment dat en vlak nadat er gemaaid wordt. Het beheer zo inrichten dat percelen met nesten en kuikens niet gemaaid worden blijven is de meest effectieve bescherming.

Voorkomen dat het gras in het voorjaar nog kort afgegraasd is door ganzen (die dus bestrijden) kan ook zinvol zijn. Op voor weidevogels aantrekkelijke percelen waarop dusdanig grote ganzenaantallen voorkomen dat de vegetatie kort gegraasd wordt: ganzen weren en/of verjagen in de periode dat de weidevogels afwezig zijn.

Zilvermeeuwen en kleine mantelmeeuwen broeden geregeld op daken of braakliggende terreintjes. Het ontstaan van dergelijke broedkolonies kan soms worden voorkomen door bijvoorbeeld linten te spannen, inzetten van vliegers e.d.

WAT KAN DE BOER OF VRIJWILLIGER DOEN

Voornamelijk handelen zoals bij andere vormen van predatie, in combinatie met zo min mogelijk verstoring en proberen geschikt kuikenland te creëren. Vrijwilligers kunnen bij nestbescherming extra opletten op aanwezigheid van deze predatoren en op dat moment de percelen niet betreden. Daarnaast mogen geen nesten worden gezocht en gemarkeerd als bescherming niet nodig is.

7. HOND EN KAT

Predatie van weidevogels gebeurt niet alleen door wilde dieren maar ook door huisdieren als hond en kat. Honden die in het broedseizoen in weilanden komen (achter hazen aan...) verstoren weidevogels, ook als ze met hun baasje op redelijke afstand blijven. Daarnaast kunnen honden en ook vooral katten tijdens nachtelijke strooptochten eieren en kuikens prederen.

Wat kan er aan gedaan worden

Van februari tot juli dienen honden en katten niet in weilanden met weidevogels te komen. Het collectief vraagt boeren maatregelen om te voorkomen dat honden het erf afgaan en de weilanden in gaan.

Verwilderde katten kunnen in overleg met de jachthouder beheerd worden.

Bewoners rondom een weidevogelpolder kunnen door middel van een folder er op worden gewezen dat hun huisdieren niet in de grasland percelen mogen komen.

Wat kan de boer of vrijwilliger doen

De boer moet zorgen dat zijn eigen hond of kat niet in de weilanden komt. Daarnaast kan hij samen met de vrijwilligers er alert op zijn of dit gebeurt met de huisdieren van anderen. Hierbij kunnen zij de mensen aanspreken.

8. SAMENWERKING: BETROKKEN PARTIJEN

- **Collectief XXXX** heeft een coördinerende rol. Zij organiseert het agrarisch natuurbeheer en een optimale uitvoering daarvan. Hierbij worden deelnemende boeren en vrijwilligers begeleid.

- **De Fauna beheereenheid XXXX** (FBE) vertegenwoordigt onder andere: Federatie Particulier Grondbezit, Staatsbosbeheer, Natuurmonumenten, Kon. Nederlandse Jagersvereniging, Landschap Noord-Holland en Ito. De FBE vertaalt de provinciale beheervisie fauna in het faunabeheerplan.

- **De Wildbeheereenheden** zijn een samenwerking van jagers binnen een bepaald gebied. Zij zijn verantwoordelijk voor het uitvoeren van het faunabeheerplan. Daarnaast kunnen jagers rekening houden met weidevogels door in het broedseizoen contact te hebben met boer of vrijwilligers voorafgaand aan jachtactiviteiten in het veld.

- **Boeren**: leden van Collectief XXXX doen vrijwillig mee aan bescherming van weide- en akkervogels.

- **Vrijwilligers** helpen boeren bij het beschermen van weidevogels. Daarnaast kunnen zij oplettend zijn op predatie en dit met de boer en het collectief bespreken -signalering van vos altijd melden! Vrijwilligers kunnen ook aangeven waar nesten van kraaien e.d. zich bevinden. Deel kennis over de invloed van ongewenste landschapselementen op de weidevogels.

- **Terrein beherende organisaties** (TBO's) hebben voor beheer van wild contact met de wild beheereenheden. Voor het beheer van sommige predatoren is een samenwerking met TBO belangrijk.

De samenwerkende partijen verzorgen een jaarlijkse evaluatie van het predatorenbeheer.

9. BIJLAGEN

BIJLAGE 1: KAART WEIDVOGELLEEFGEBIEDEN EN/OF AKKEROVOGELGEBIEDEN

BIJLAGE 2: OVERZICHT MAATREGELEN EN SAMENWERKENDE PARTIJEN

Soort	Maatregel	Periode	Partijen
Biotoop	verbeteren en goed beheren	jaarrond	Collectief, Boer en Vrijwilligers
Predatieplan Vos	actualiseren riet/ruigte maaien	1 okt. – 1 dec.	Collectief
	burchten opsporen en vrij houden	1 jan. – 1 mei	jachthouders
	lichtbak acties	1 jan. – 1 april	WBE/jachthouders
	kunstaburchten inrichten en beheren	1 jan. – 1 juli	Jachthouders
	Minimaliseren sporen broedgebied	1 april – 1 juli	Allen
	(regelen) doden in broedtijd	1 april – 1 juli	Collectief
/Prov./FBE/WBE			
Marterachtigen	Rommel en ruigte verwijderen	1 nov. – 1 april	Boer en jachthouder
	broedgebied op burchten controleren en verwijderen	1 dec. – 1 april	Boer en jachthouder
	Minimaliseren sporen broedgebied	1 april – 1 juli	Allen
Roofvogels	Bomen, bosjes en nestkasten verwijderen	1 nov. – 1 mrt.	Boer, vrijwilliger en Collectief
	oude rietkragen maaien	1 okt. – 1 mrt.	Boer, vrijwilliger
Zwarte kraai	uitkijk- en nestbomen verwijderen	1 nov. – 1 mrt.	Boer, vrijwilliger en Collectief
	Minimaliseren sporen broedgebied	1 april – 1 juli	Allen
	Geen legsels markeren als niet nodig	1 april – 1 juni	Boer en vrijwilligers
	Beter geen 'eilandjes' maaien	1 mei – 1 juli	Boer
Andere vogels	Minimaliseren sporen broedgebied	1 april – 1 juli	Allen
	Grote invloed predatie melden bij CNHZ en ontheffing aanvragen	1 april – 1 juli	Boer, Vrijwilliger
Hond en kat	Op het erf houden	1 mrt. – 1 jul.	Collectief, WBE Boer

BIJLAGE 3: WAT TE DOEN BIJ PREDATIE TIJDENS HET WEIDEVOGELSEIZOEN

Soort	Mogelijke acties
Vos	Percelen alleen betreden als dit een duidelijke meerwaarde heeft(boer gaat maaien en er moeten nesten gemarkeerd worden bijv.), stel collectief z.s.m. op de hoogte.
Kraaien overlast	percelen niet betreden. Geen stokken zetten als er niet snel werkzaamheden gaan plaatsvinden. Bij maaien liever geen 'eilandjes' maar meerdere nesten samen in grote stroken laten staan.
Marterachtigen	Percelen alleen betreden als dit een duidelijke meerwaarde heeft(boer gaat maaien en er moeten nesten gemarkeerd worden bijv.), stel collectief z.s.m. op de hoogte.. Schuilplaatsen opruimen.
Roofvogels e.d.	Verwijder bomen en eventueel hekken. Realiseer goed schuilbiotoop voor kuikens.
Hond of kat	Eigenaar of boer aanspreken en eventueel melden CNHZ.

PREDATIEBEHEERPLAN

WERKGEBIED COLLECTIEF

KAART werkgebied

*Tip: gebruik verstoringszones van
Beheer Op Maat*

- Algemene karakterisering
- Indeling in polders
- Betrokken gebiedspartijen (denk aan gemeente, waterschap, Fbe, Tbo)

*TIP: Vaak is het zinvol dit plan samen met
een TBO in het werkgebied op te stellen!
Zoek vooraf contact.*

1. ANALYSE WEIDEVOGELBIOTOOP EN BEHEER

BOM-Kaart met potentiële kwaliteit.

BOM-Kaart gerealiseerde
habitatkwaliteit.

Deze kaarten helpen mensen met gebiedskennis bij het ontwikkelen van inzicht in de mogelijkheden voor het beheer.

Kaart met zwaar beheer en stippen
aanwezigheid tweede helft april

Commentaar: geef aan waar beheer van voldoende kwaliteit is voor de zich vestigende vogels en waar dat niet het geval is.

Kaart met zwaar beheer en stippen
aanwezigheid tweede helft mei

Kaart met uitkomstresultaat van
nesten en/of grafiek van
gepredeerde nesten o.b.v.
dagelijkse overlevingskans

En/of BOM-Kaart gerealiseerde
landschapsbeheer.

Commentaar: geef aan waar voldoende beheer is voor de vogels en waar dat niet het geval is. Waar verdwijnen vogels, waar overleven zij?

Kaart met drooglegging en
peilvakken.

Commentaar: geef aan of en waar er een relatie bestaat tussen vestiging en overleving van weidevogels en vochtigheid?

Kaart met grondsoort.

Commentaar: geef aan of en waar er een relatie bestaat tussen vestiging en overleving van weidevogels en grondsoort.

Concludeer:

- Is verbetering van het beheer wenselijk?
- In welke hoeken van de polder is dit kansrijk?
- Welke stappen kunnen leiden tot verbetering van het beheer?
- Welke partijen gaan hiervoor benaderd worden?

2. PREDATORENBIOTOOP

Kaart (satelliet?) met beheer, stippen en bomen, bosjes, rietkragen en dergelijke verstorende elementen

Concludeer:

- Verstorende biotoop elementen a t/m z.
- Opties om verstorende elementen te verwijderen
- Welke stappen moeten worden ondernomen om deze elementen te verwijderen? Welke partijen moeten worden benaderd?

3. KANSEN VAN PREDATOREN

Kaart met gemarkeerde nesten en beschermde nesten

Concludeer:

- Niet effectief zoeken en markeren van nesten kan worden verminderd op locaties xxx (kaart toevoegen?) in overleg met (partijen noemen)

4. PREDATOREN BEHEER

Overweeg brief naar omwonenden m.b.t. hond en kat.

Kaart met gebieden met hoge kraaidichtheid

Overweeg verminderen van voedsel voor kraaien op erven

Overweeg inzet vangkooien,

Lijst met waarnemingen vos, waarnemingen sporen van vos (uitwerpselen, prooien, leeggehalde nesten), afschot.

Kaart met aanwezigheid vos

Overweeg:

- Speuren naar holen
- Inzet camera val (aas!)
- Inzet vangkooi
- Inzet kunstburchten

- Drijfjacht
- Benader alle jagers met informatie m.b.t. vos
- Geef aan welke partijen hiervoor benaderd moeten worden, welke financiële middelen nodig zijn.

5. STAPPENPLAN

- Mogelijke verbetering weidevogelbiotoop
 - Wie is hierbij betrokken
 - Wie is de trekker?
- Ontbrekende gegevens
 - Monitoring invloed predatoren
- Mogelijke maatregelen om kansen predatoren te verkleinen
 - Wie is hierbij betrokken
 - Wie is de trekker?
- Predatorenbeheer
 - Overleg met grondeigenaren/gebruikers en Fbe
 - Faciliteren