



Ministry of Agriculture
and Forestry of Finland

Plan for hunting wolves to manage the population

WORKING GROUP REPORT

Ministry of Agriculture and Forestry of Finland

June 2021

Plan for hunting wolves to manage the population – working group report

June 2021.

Published by Ministry of Agriculture and Forestry

Project: Planning and definitions project for the hunting of wolves to manage the population

Contents

Introduction	4
Drafting of the working group report	5
1. Background.....	7
Wolf-related conflicts.....	7
1.1. The key regulatory framework and boundary conditions	8
National regulation	8
Favourable conservation status	9
Preliminary rulings of the Court of Justice of the European Union and their impact.....	10
C-647/17 guidance.....	11
Hunting wolves to manage the population in a nutshell.....	12
When can hunting for population management purposes be allowed?	12
1.2. Potential benefits of hunting large carnivores.....	13
1.3. Issues to consider from a biological point of view.....	14
The significance of the family pack	15
1.4. The 2015–2016 experiment on hunting wolves to manage the population	16
The impact of removing a breeding specimen.....	16
2. The proposals of the working groups for the basis of hunting wolves to manage the population and related measures	18
2.1. Reference value for favourable conservation status of the wolf population	18
2.2. Grounds for hunting wolves as population control.....	19
Other satisfactory alternatives.....	21
2.3. 5-year experiment in hunting as population control.....	21
Hunting seasons	22
Selective and limited hunting	22
Selection criteria	24
Description of the process.....	24
Closely controlled conditions.....	25
Training.....	26

	The monitoring of the hunting of wolves for population management purposes	27
3.	Sources	29
	Sources of law	30

Introduction

The present plan for the hunting of the wolf to manage the population (working group report) discusses the conditions and the plan for wolf population management outside the reindeer herding area in Finland. The plan serves as the working group report of the preparatory and steering group on the planning and definitions project for the hunting of wolves to manage the population. With the exception of the reindeer herding area, the wolf is a strictly protected species in Finland under Annex IV of the EU Habitats Directive (92/43/EEC) and the hunting of the wolf is therefore, as a rule, prohibited.

This working group report will provide an overview of the key conditions for hunting wolves as population control (particularly on the basis of the 2019 preliminary ruling of the Court of Justice of the European Union) and the conditions under which hunting wolves as population control may be carried out in Finland. The working group report also describes the background to hunting wolves as population control including the reasons for it and the selection methods.

The report also puts forward the proposed rationale and measures regarding hunting wolves to manage the population drawn up by the working groups, should the Ministry of Agriculture and Forestry decide to allow hunting wolves as population control under specific circumstances. The working groups have discussed the following aspects related to hunting wolves as population control; these will be further described in this report:

- 5-year experiment in hunting as population control
- Grounds for hunting wolves as population control
- Selection methods in hunting wolves as population control and the selection criteria
- Description of the process
- Closely controlled conditions
- Training
- Monitoring

The purpose of this report is not to go into detail or give an accurate description of any regulation, case law or research data related to hunting wolves as population control. The aim has been to keep the report concise and to concentrate on the most relevant key issues that the working groups have discussed as part of their work. More detailed grounds for hunting wolves to manage the population are described in the Ministry of Agriculture and Forestry Decree and the background memorandum.

The working group report is divided into two main sections. Section 1. *Background*, discusses the legislative conditions for hunting wolves to manage the population and the key conditions under

which such hunting may be permitted. In addition, the benefits of hunting large carnivores as set out in the LCIE report, the background to the wolf population management plan and biological aspects of hunting wolves to manage the population will be briefly examined. Chapter 2 of the report discusses the proposals for the grounds for hunting wolves to manage the population and for the related measures prepared by the working groups.

Drafting of the working group report

The plan has been prepared by ministry officials and the preparatory and steering group appointed by the Ministry of Agriculture and Forestry for the planning and definitions project for hunting wolves to manage the population (MMM009:00/2020). Comments on the plan were sought from regional game councils in April 2021. Feedback from regional game councils was discussed at the meeting of the preparatory group in May 2021. The preparatory group updated the draft report after processing the feedback and submitted the draft report to the steering group.

Each regional game council (15) supported the proposal as is or with minor changes. Based on the feedback, the section on training, monitoring and process description were clarified. Some of the feedback concerned mainly practical implementation and details, which need not be addressed in the plan but which may be of use when developing the 5-year experiment in hunting for population management purposes.

In the view of four regional game councils, the selection (see pages 22 - 23) should be based exclusively or primarily on option 2. However, both options have been included in the plan report so that hunting wolves to manage the population may be targeted at either 1–2 wolf individuals from a pack or the entire pack or breeding pair in accordance with option 2. The reasons for prioritising Option 2 included the possible unforeseen effects that catching the alpha individual could have (option 1). However, such effects will be considered in the planning of hunting for population management purposes (see pages 18 - 19 and pages 22 - 23).

The preparatory group has included representatives from: the Ministry of Agriculture and Forestry, the Ministry of the Environment, the Finnish Wildlife Agency, the Natural Resources Institute Finland (Luke), Metsähallitus, the National Police Board, the Finnish Association for Nature Conservation, the Central Union of Agricultural Producers and Forest Owners (MTK), the Finnish Hunters' Association, the Finnish Nature League, the Finnish Kennel Club, the Chairman of the Regional Game Council of North Karelia, the Chairman of the Regional Game Council of Southwest Finland and the Chairman of the National Wildlife Council. The steering group members have included representatives from the Ministry of Agriculture and Forestry, the Ministry of the Environment, the Finnish Wildlife Agency, the Finnish Association for Nature Conservation, MTK and the Finnish Hunters' Association.

The working groups' term of office began on 23 January 2020. It is stated in the decision on appointing the working groups that the project will last until the end of 2020 or for as long as is necessary, depending on the time of completion of the decision of the Supreme Administrative Court on hunting wolves to manage the population and the update of the Habitats Directive of the Commission.

The Finnish Nature League withdrew from the preparatory group on 2 June 2021.

1. Background

The hunting of wolves for population management purposes is one of the population management measures laid down in *The Management Plan for the Wolf Population in Finland* (2019) and the related planning project is described in an Appendix to the Management Plan. It is stated in the Appendix that, during the preparation of the management plan, hunting wolves to manage the population was acknowledged as a driving factor in promoting social sustainability and tolerance for wolves.

The short-term objective of the Management Plan is the minimum size of a viable wolf population while the long-term goal is a favourable conservation status. The Management Plan for the Wolf Population in Finland is a tool for managing wolf populations and addressing wolf-related conflicts. It aims to reconcile, on the one hand, the needs of citizens living and working in wolves' territories and, on the other hand, the need to protect the wolf population. The Management Plan puts forward a number of measures that support the achievement of these objectives and, more broadly, the promotion of tolerance for wolves. Hunting wolves to manage the population is one of the several measures presented in the Management Plan.

Wolf-related conflicts

The wolf continues to be the most problematic large carnivore to manage in Finland, since it is associated with a range of potential conflicts. Wolves cause damage to reindeer, livestock and dogs every year, with the reindeer husbandry suffering the biggest losses in financial terms. However, the wolf is not the most destructive large carnivore for the reindeer husbandry in monetary terms, and the most damage in euros caused to livestock animals is typically caused by the wolf or the bear. The conflicts related to the wolf stem from a sense of insecurity and, in particular, the loss of hunting dogs, which in addition to financial loss and risk is a significant personal loss to the owner. The low tolerance for wolves has manifested itself, for example, in the illegal killing of wolves, also referred to as poaching. More information on wolf-related conflicts and measures to manage conflicts can be found in the Management Plan for the Wolf Population in Finland.

According to a study commissioned by Natural Resources Institute Finland (Pellikka & Hiedanpää, 2020), fear of large carnivores has increased, varying somewhat by population group, and is partly influenced by common perceptions of wolves as animals. According to the latest survey, a degree of support from citizens for the illegal killing has become more common than before and, according to the data collected, this support is relatively only slightly more common in wolf areas than elsewhere.

1.1. The key regulatory framework and boundary conditions

With the exception of the reindeer herding area, the wolf as species of Community interest is strictly protected in Finland under Annex IV of the EU Habitats Directive (92/43/EEC) and the hunting of the wolf is therefore, as a rule, prohibited. However, Article 16 of the Habitats Directive allows for derogations from strict protection under the derogations laid down in Article 16(1)(a)–(e).

Hunting wolves to manage the population constitutes an exception to Article 16(1)(e) of the Habitats Directive;

Article 16 (1) Provided that there is no satisfactory alternative and the derogation is not detrimental to the maintenance of the populations of the species concerned at a favourable conservation status in their natural range, Member States may derogate from the provisions of Articles 12, 13, 14 and 15 (a) and (b):

(e) to allow, under strictly supervised conditions, on a selective basis and to a limited extent, the taking or keeping of certain specimens of the species listed in Annex IV in limited numbers specified by the competent national authorities.

Article 16(1) (a)–(d) of the Habitats Directive provides the objectives of the derogation. Point (e) differs from the above points in that the member state must provide an acceptable and objective supported by evidence for the derogation.

So-called damage or safety-based derogations are granted by the Finnish Wildlife Agency on the basis of the derogation, as provided for in paragraph 1 of the Habitats Directive. In the case of damage-based derogations, the objective in itself constitutes a criterion and such derogations have been nationally implemented in the Hunting Act pursuant to Article 16(1)(b) and (c) of the Habitats Directive, which read as follows:

(b) to prevent serious damage, in particular to crops, livestock, forests, fisheries and water and other types of property;

(c) in the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment.

National regulation

The term hunting for population management purposes is not recognised by the Hunting Act as such, but is an exception provided for in section 41a of the Hunting Act on the year-round protection of wolves laid down in section 37 of the Act, from which derogations may be made in

accordance with section 41 of the Hunting Act with a derogation granted by the Finnish Wildlife Agency. Under this provision, the regulation under Article 16 of the EU Habitats Directive and point (e) of paragraph 1 thereof have been implemented.

Therefore, there is no need for legislative changes to allow the hunting of wolves for population management purposes. In that respect, the current Hunting Act and the derogation decree issued pursuant to it are sufficient. Under the Hunting Act (615/1993), the Ministry of Agriculture and Forestry may issue a decree permitting the hunting of wolves by derogation if the certain conditions are met. Hunting for population management purposes must fulfil the obligations in accordance with the regulations of the Habitats Directive and case law.

The Finnish Wildlife Agency is responsible for the monitoring of the derogation from protection allowed by virtue of a regional quota (Section 41a of the Hunting Act). Further provisions on the preconditions for the application for a derogation, the assessment of the preconditions for a derogation, the granting of a derogation and the related duty to declare specimens taken are issued by Government Decree on Derogations Laid down in the Hunting Act (452/2013).

According to section 30 of the Hunting Act, the holder of a hunting permit for ungulates and a derogation for the wolf, bear, wolverine and lynx must appoint a leader of the hunt and the necessary number of deputy leaders. The person participating in the hunt is obliged to comply with the orders given by the leader of the hunt. The leader of the hunt may prevent a person who fails to comply with the orders for participating in the hunt.

The government decree provides for the designation of the leader and deputy leaders of a hunt, the mandatory notification of the names of the leaders to local game management association, their attendance at the hunt and the duties of the leader of the hunt. According to section 23 of the Hunting Decree (666/1993), the derogation holder must provide the local game management association with names of the master and deputy master of a wolf hunt in writing before the start of the hunt.

Favourable conservation status

The Habitats Directive defines the *criteria for a favourable conservation status* for the protected habitats and species referred to.

The short-term objective of the Management Plan is the minimum size of a viable wolf population (minimum 25 breeding pairs) while the long-term goal is a favourable conservation status. A favourable conservation status is assessed against the requirements of the EU Habitats Directive. The definition of a favourable conservation status is carried out according to the procedure laid

down in Article 17 of the Habitats Directive. According to the Habitats Directive, the conservation status of a species is taken as favourable when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Preliminary rulings of the Court of Justice of the European Union and their impact

The rulings of the Court of Justice of the European Union are binding in guiding the interpretation of Community law. Therefore, for example, in the case of precedents regarding hunting wolves to manage the population, the matter is not simply a question of a legal assessment of an individual case. The Court's rulings are as much a part of Community law as regulations and directives.

Moreover, the Habitats Directive is subject to the *principle of implementing the directive expressis verbis*. In addition, derogations must be interpreted restrictively. With regard to the Birds Directive, for example, the Court of Justice has stated on several occasions that, while directives often serve as legislative guidance, it is essential that directives on nature conservation are transposed verbatim. In 1996, the Commission launched monitoring procedures against Finland, requiring that the Hunting Act be amended to follow the Habitats Directive *expressis verbis* with regard to the derogation provisions.

Article 16(1) of the Habitats Directive, which defines in detail and comprehensively the conditions under which Member States may derogate from Articles 12–14 and from Article 15(a) and (b), is a derogation from the protection system introduced by the Directive, which must be interpreted narrowly and which means that the burden of proof of compliance with the conditions rests with the authority making the decision on each derogation.

The following key judgments have been issued in relation to the hunting of wolves for population management purposes:

- Judgment following the monitoring procedure (C-342/05, Commission vs Finland; wolf hunting)
- Preliminary ruling of the national court (C-647/17, wolf hunting in Finland)

C-647/17 guidance

In the preliminary ruling of the European Court of Justice C-647/17 of October 2019 on the hunting of wolves for population management purposes provides both general guidelines on the interpretation of the Habitats Directive and specific observations concerning the derogations appealed by Finland.

According to the judgment, Article 16(1)(e) may be used as grounds for killing, that is hunting, of specimens of a protected species. However, the Member State must define the objectives relied upon in support of a derogation in a clear and precise manner and with supporting evidence. The burden of proof shall be on the Member State. The Member States must provide a clear and sufficient statement of reasons as to the absence of a satisfactory alternative by means of which the objectives relied upon in support of a derogation could be achieved. The Member State shall also ensure that the derogations are without prejudice to the maintenance or restoration of the populations of the species in question at a favourable conservation status.

It is also provided in the ruling that derogations based on Article 16(1)(e) of the Habitats Directive, as compared with those referred to in Article 16(1)(a) to (d) of that directive, must satisfy additional conditions. Therefore, Article 16(1)(e) of the Habitats Directive cannot serve as a general legal basis for granting derogations from Article 12(1) of that directive, without depriving the other situations covered by Article 16(1) thereof as well as the system of strict protection of their effectiveness, as stated in the preliminary ruling.

It is further stated that: *Consequently, the objective of a derogation based on Article 16(1)(e) of the Habitats Directive cannot, in principle, be confused with the objectives of the derogations based on Article 16(1)(a)–(d) of that directive, with the result that the former provision can only serve as a basis for the grant of a derogation in cases where the latter provisions are not relevant.*

According to the preliminary ruling of the Court of Justice and the Habitats Director, derogation from strict protection cannot be accepted without an assessment, in particular at national level or, where applicable, at the level of the biogeographical region in question where the borders of that Member State straddle several biogeographical regions or if the natural range of the species so requires and, to the extent possible, at a cross-border level, the conservation status of the populations of the species in question.

The preliminary ruling also takes a position on which areas may be considered when examining the range of the population in question: The assessment should not take account of any part of the natural range of the wolf population that extends into certain territories of a third country not bound by the European Union obligation regarding the strict protection of species of interest (e.g. Russia and Norway).

It is further stated in the ruling that if, after examining the best scientific data available, there remains uncertainty as to whether or not a derogation will be detrimental to the maintenance or restoration of populations of an endangered species at a favourable conservation status, the Member State must refrain from granting or implementing that derogation. As regards the condition relating to the limited and specified number of certain specimens of the species to be taken or kept, it must be noted that this number will depend, in each case, on the population level of the species, its conservation status and its biological characteristics. In other words, that number must be determined on the basis of rigorous scientific data which relate to geographic, climatic, environmental and biological factors as well as those enabling an assessment of the situation regarding the species' reproduction and total annual mortality rate owing to natural causes.

Hunting wolves to manage the population in a nutshell

In short, Article 16(1)(e) may be used as grounds for killing – that is hunting – of specimens of a protected species on the condition that:

- The Member State ensures that the derogations are without prejudice to the maintenance or restoration of the populations of the species in question at a favourable conservation status.
- The Member State must define the objectives relied upon in support of a derogation in a clear and precise manner and with supporting evidence. The burden of proof shall be on the Member State.
- The Member States must provide a clear and sufficient statement of reasons as to the absence of a satisfactory alternative by means of which the objectives relied upon in support of a derogation could be achieved.
- The derogation must also satisfy the criteria provided for under point (e): the hunting must be selective, limited, closely supervised and take place within the boundaries determined by the authority.

When can hunting for population management purposes be allowed?

- 1. First, the main criterion for derogation must be considered.**
 - Derogations cannot be granted proactively (C-342/05, Commission vs. Finland).
- 2. Secondly, it must be assessed whether there is any other satisfactory solution to the problem.**
 - If any other satisfactory solutions are in use or exist they must be exhausted as a primary measure.

3. Finally, the impact of the derogation on the favourable conservation status must be assessed.

- The forecasting model improves the quality of assessment in this aspect compared to previous years.

The criteria provided for under point (e) must still be met. It should also be noted that case law may limit the granting of derogations, and that the right of appeal of nature organisations also has a significant impact on national case law. In conclusion, the established line of interpretation is clear but strict. A derogation may only be granted when all the conditions for the derogation are satisfied.

1.2. Potential benefits of hunting large carnivores

The working groups also discussed the identified benefits of hunting wolves to manage the population and the hunting of large carnivores.

The Guidelines for Population Level Management Plans for Large Carnivores (Linnell et al. 2008) by the Large Carnivore Initiative for Europe (LCIE) provide guidelines for the population management of large carnivores. The Directorate-General for Environment of the European Commission has stated in 2008 that the guidelines represent best practice for the management of large carnivore populations and recommends that Member State authorities use the publication as guidance.

The LCIE report highlights, among other things, the importance of large carnivore management plans and the significance of measures (such as damage prevention) to eliminate possible conflicts. It is also stated in the report that, in some exceptional circumstances, it is considered to be both compatible with the conservation of large carnivores, and even desirable for gaining public acceptance for their management to either selectively cull specific individuals or to limit their numbers and/or distribution at certain levels through management actions.

Furthermore, it is maintained in the report that, from a conservation point of view there is no principle reason why large carnivore populations cannot tolerate some levels of lethal control or be managed under the same type of harvest system as wild ungulates provided that the harvest is well managed. In order for the harvesting to be potentially sustainable, proper management in this case requires effective monitoring of the population size, the setting of appropriate quotas and hunting seasons, and careful enforcement of these regulations.

The report states that the Article 16 (1)(e) could be used to justify a carefully regulated harvest of some animals. Point (c) and (e) could cover cases where a *de facto* hunter harvest is needed to obtain local acceptance for large carnivores among the rural population.

The report also lists other potential benefits that hunting large carnivores may have:

- Increase the acceptance of large carnivore presence among hunters if they can regard them as rewarding game species or a source of income, rather than as competitors.
- Increase the sense of empowerment among local people that have to live in the same areas as large carnivores.
- Allow large carnivore populations to be maintained at densities where damage to livestock and predation on wild prey are kept at levels that can be tolerated. In addition, hunters may be able to assist in the lethal control of specific animals, for example those that become habitual livestock killers.
- Help maintain shyness among large carnivore populations, thus reducing potential conflicts.
- In areas where large carnivore populations are recovering, it may increase long term acceptance if the rate of recovery is slowed down.
- The LCIE strongly opposes poaching under any circumstances and realises it is a major threat to large carnivore population survival in many areas. However, the LCIE believes that allowing legal hunting of viable populations will help reduce poaching if the local people feel that they are involved in the management process.
- Reaching a population level that allows initiating hunting may provide a benchmark for the success of a conservation / restoration plan – this should also demonstrate the flexibility of a conservation plan to the various interest groups.

1.3. Issues to consider from a biological point of view

Hunting wolves to manage the population and selection (selection of a pair or pack) can also be viewed from the point of view of biology and ecology. Concepts relevant from the demographic point of view, or factors affecting the number of populations (Kojola, 2021):

- Favourable conservation status
- Regional number of breeding pairs and family packs
- Probability of the formation of new breeding pairs
- Distance to other family packs
- History of the territory
- Cub production, mortality

In addition, the following factors may also be given attention in selection from the point of view of genetic vitality:

- Possible close relatives, as mating between relatives is harmful
- Possible hybrids
- Possible regional differences

From a biology point of view, the density of prey may also be considered in the assessment. According to an unpublished article by Kojola et al. (2021), the density of prey is likely to have an impact on the amount of damage caused by wolves to dogs. The statistical analysis of the data supports the conclusion that the risk of wolves attacking hunting dogs is higher when the density of prey in the area is lower.

The significance of the family pack

Wolves mate for life and usually reproduce annually (Largecarnivores.fi, 2021). A pack of wolves originates from the formation of a pair, which may take place at any time of the year but most commonly in summer, when young, wandering wolves meet. The so-called *breeding territory* of wolves is an area that a pair of wolves reserves for their own use and the use of their later litter and attempts to keep other wolves out of it. A permanent pack of wolves is formed by a breeding pair and their cubs. Pairs and family packs formed by pairs and their offspring live within their own marked territories. (Heikkinen et al. 2020.)

It is stated in the Management Plan for the Wolf Population in Finland that the viability of the wolf population in Finland is determined based on the Franklin recommendation (1980), and it is estimated that the number of breeding individuals corresponds to the effective population size (which is not always found in natural populations; Waples & Faulkner 2009). The assessment of the population's viability is not strictly based on the genetic risk assessment referred to above. The minimum viable population is also informed by a pack-based demographic viability analysis (Koskela, 2008). (Management Plan for the Wolf Population, 2019.)

From the point of view of the vitality and reproduction, a breeding pair, also known as the alpha pair, is an important unit for the wolf pack: if the wolf caught is an alpha individual, the pack is likely not to breed at least during the following mating season. The culling of the alpha individual has an effect not only on the size of the population, but also on the structure of the population.

1.4. The 2015–2016 experiment on hunting wolves to manage the population

In 2015 and 2016, the Ministry of Agriculture and Forestry allowed an experiment on the hunting of wolves for population management purposes according to the previous management plan confirmed in 2015. According to the Management Plan for the Wolf Population in Finland (2019) the hunting of wolves for population purposes in the winter season of 2015 can be considered very successful. However, hunting during the winter season of 2016 and the large proportion of alpha specimen caught leads to the conclusion that the sustainability of hunting for population management purposes could not be verified through the methods applied in the experiment. (Management Plan for the wolf Population, 2019.)

The report on the evaluation of the experiment on the hunting of wolves for population management purposes and recommendations for further measures (2016) highlights the fact that, during the two-year experiment, the proportion of alpha individuals of specimen caught increased significantly. In 2015, alpha females accounted for 6% ($n = 17$ wolves) and 19% ($n = 43$ wolves) during the 2016 season. Alpha males and potential alpha males accounted for 18% of the wolves caught in 2015 and 47% caught in 2016. In the light of the percentages, the difference seems clear and is, in fact, statistically significant (Fisher's exact test, $P = 0.045$).

The small proportion of alpha individuals in the 2015 harvest contributed to the increase in the population in 2015. However, in the winter 2016 harvest, a significant number of alpha individuals were culled. The report refers to the preliminary pack estimate of November 2016 published at the time, in which the high proportion of alpha individuals was reflected in the fact that the number of packs was probably lower than a year earlier. The report also notes, however, that estimates are uncertain during the snow-free period, and that a reliable comparable population estimate would only be available after the publication of the 2017 evaluation report. Importantly, the conclusions of the assessment show that, despite the above, the negative impact of hunting alpha individuals during the 2016 winter season cannot be questioned. According to the report, in the process of hunting for population management purposes none of the packs lost both their alpha individuals.

The impact of removing a breeding specimen

The conclusion drawn in the assessment (2016) is that the Decree of the Ministry of Agriculture and Forestry should have included a hunting quota limiting the total size of the cull in order to limit the total loss of wolves so that the culling of wolves under the provision of the various decisions could be controlled and the endangering of the viability of the wolf population avoided. It is

recommended in the assessment that the Finnish Wildlife Agency monitor total harvest and, in particular, the loss of alpha females' and take the numbers into account when granting permits.

The assessment report points out that, in the case of alpha individuals caught, account should be taken of the fact that the culling of a breeding individual (an alpha specimen) affects the viability of the pack. Applying the existing research data (Borg et al. 2014) to the typical pack size in Finnish wolf population, it can be assumed that the pack will remain intact as a result of the culling of both alphas with less than 25% probability. The impact of the culling of one alpha is linked with the gender of the alpha: with the culling of the alpha female, the probability of viability is approximately 50% whereas with the culling of the alpha male the probability of viability is approximately 80%.

The impact of the culling of a breeding individual depends on a number of factors. It is pointed out in the report that the timing of hunting in early spring, close to the mating season of the wolf, is bound to reduce the likelihood of reproduction in the same year, but the culling of the alpha may not be reflected in the stability of the pack in the long term. According to unpublished data produced by Luke, the timescale for repopulating a particular territory is linked to the geographical distances of that vacated territory to the closest wolf packs. (The report on the evaluation of the experiment on the hunting of wolves for population management purposes, 2016.)

2. The proposals of the working groups for the basis of hunting wolves to manage the population and related measures

Chapter 2 of the working group report examines the proposals discussed in the working groups regarding the justification for hunting wolves to manage the population and on measures related to the hunting.

2.1. Reference value for favourable conservation status of the wolf population

As noted in Chapter 1, section 1.1. *The regulatory framework and boundary conditions*, if hunting wolves to manage the population is allowed, the Member State must ensure that the maintenance or restoration of the populations of the species in question at a favourable conservation status is not put at risk.

Based on discussions in the working groups of planning and definitions project for the hunting of wolves for population management purposes, the Ministry of Agriculture and Forestry already commissioned the Natural Resources Institute Finland during the project to produce a reference value for the favourable conservation status of the Finnish wolf population through international research cooperation. With the reference value for the favourable conservation status of the wolf population in Finland, it is possible to assess the status of the wolf population in a timelier manner from the perspective of the favourable conservation status.

The working groups familiarised themselves with the Swedish practices in hunting wolves to manage the population and noted that the threshold for the favourable conservation status of the wolf population is determined on the basis of scientific research. According to the latest population estimate, the Swedish wolf population exceeds the defined favourable conservation threshold. In 2020, the Swedish Environmental Protection Agency (Naturvårdsverket) allowed the hunting of wolves for population management purposes during the hunting season 2020–2021.

At present, the assessment of the conservation status of the wolf population is based on a process repeated every six years in accordance with the Habitats Directive.

Measures:

- The Natural Resources Institute Finland produces a favourable conservation level reference value based on international research cooperation. The first estimate is scheduled for publishing in autumn 2021 and the final research publication is 2022.
- The reference value for the favourable conservation status is a key criterion in introducing and practising hunting of wolves for population management purposes.
- Hunting for population management purposes takes into account the reference value for the favourable conservation status of the wolf population. The scaling of the hunting must be based on other mortality and the impact of the culling of alpha individuals (one or two members of a breeding pair).

2.2. Grounds for hunting wolves as population control

As mentioned in Chapter 1 of this report, a Member State must define the objectives relied upon in support of a derogation in a clear and precise manner and with supporting evidence. The working groups propose the following as a basis for hunting wolf populations.

The objective of hunting wolves to manage the population:

Limited hunting of the wolf population at a favourable conservation level is a method of regulating the increase of the wolf population and consequently reducing socio-economic conflicts associated with the wolf population and promoting the public acceptance of the wolf population in such a way as to secure the favourable conservation status of the wolf population.

Together with other measures to promote tolerance for the laid down in the Management Plan, the acceptance of the wolf population could be increased by targeting hunting on the basis of selection at a wolf individual or wolf individuals in a family pack, established pairs or whole packs. Following the achievement of a favourable conservation status, the aim of hunting for population management purposes is, in accordance with the views expressed by the LCIE to the Commission of the European Union, for example, at managing the growth of the population and guiding the regional presence of the population and, in this way, reducing damages caused by wolves, such as damages to livestock and dogs and improving tolerance for wolves. The aim of hunting wolves for population management purposes is also to increase the value of the wolf as a game species and thus improve the public tolerance of the species. Hunting of a population at a favourable

conservation level may help slow down the rate of population growth and promote the long-term acceptance of the wolf and managing the associated conflicts.

In order to keep the population at a favourable conservation level, hunting wolves to manage the population is also believed to prevent the illegal killing of wolves. According to research, the illegal killing of wolves has been the leading cause of death among wolves in Finland and Sweden in the 2000s, although most of poaching remains unproven (Suutarinen, 2019). The impact of illegal killing, or poaching, between 2001 and 2016 was examined in an article published in 2017 (Suutarinen & Kojola, 2017). Possible illegal killing of the wolf makes successful and systematic population management of wolves more difficult. The Management Plan sets out a number of measures to reduce the illegal killing of wolves (Management Plan for the Wolf Population, 2019).

Since poaching is illegal, the perpetrators are highly motivated to hide the criminal activity. According to a study, only very little data is available at the moment on the impact of illegal killing on the dynamics of wolf populations. Since illegal killing is difficult to prove and goes largely under-reported, the phenomenon has been described as 'cryptic', i.e. unexplained. (Liberg et al. 2011.) Illegally killing a wolf is an offence that carries a relatively small risk of being caught (Management Plan for the Wolf Population, 2019).

There is varying evidence supporting the idea that legal hunting could help improve the tolerance of the public for wolves: In North America, allowing a greater degree of legal hunting has been found to increase illegal killing, while the findings of similar European studies show the very opposite. For example, Liberg et al. (2020) refer a study by Chapron and Treves (2016) on the mortality of wolves in Wisconsin and Michigan, which showed that legal hunting increased illegal killing. Liberg et al. point out that the article in question has also attracted criticism and was followed by a debate about the impact of legal hunting on illegal killing. (Liberg et al. 2020.)

Liberg et al. conclude that the number of wolves disappearing in Sweden linked to poaching was in a positive relation to the size of the population and in negative relation to legal killing. The results of the study suggest that legal hunting could have a diminishing effect on the illegal killing of large carnivores. (Liberg et al. 2020.)

A study on Finnish wolves published in 2018 (focusing on years 2001–2016) highlights, among other things, that the number of wolves killed, that is, wolf hunting at a local level, reduced the likelihood of illegal killing, as did the total number of wolves legally hunted. The article also showed that rapid changes in the number of legally killed wolves could lead to a higher number of wolves killed illegally. (Suutarinen & Kojola, 2018).

Other satisfactory alternatives

- There appears to be no other satisfactory alternative than hunting in regulating the growth of the population at a favourable conservation level and the management of related conflicts.
- Damage-based derogations or culling orders issued by the police do not allow for systematic population regulation, although as measures they contribute effectively to the management of wolf-related conflicts.

2.3. 5-year experiment in hunting as population control

The project's working groups propose the introduction of a five-year experiment on the hunting of wolves for population management purposes, provided that the specified boundary conditions are satisfied. During this period, wolf hunting is to be actively monitored and the different aspects of the practice be developed.

Measures:

- The introduction of a five-year experiment on the hunting of wolves for population management purposes, provided that the specified boundary conditions are satisfied.
- An evaluation and recommendations following the experiment will be compiled in preparation for further measures.
- The aim is to create a sustainable basis for hunting wolves to manage the population.
- Permitted hunting may be suspended for, for example, one year in order to ensure a favourable conservation status of the wolf population.

Hunting seasons

Measures:

- Hunting for population management purposes must end no later than mid-February, so that the breeding pairs are not excessively disturbed during the mating season by hunting.
- The season reserved for hunting must be sufficiently long so that hunting can be carried out successfully under the varying conditions.
- The most favourable conditions for wolf hunting are during snow cover period.

Selective and limited hunting

In accordance with Article 16(1)(e) of the Habitats Directive, hunting of wolves for population management purposes shall take place “under strictly supervised conditions, on a selective basis and to a limited extent”. This report recommends that limited selection could be realised by allowing the culling of individual wolves (no more than one or two individuals) from selected packs or established breeding pairs and family packs while taking into account the reference value for favourable conservation status. This means that a derogation could be applied for either 1–2 wolf individuals from a pack or the culling of an established pair or a family pack.

Due to administrative procedures, it is impractical to target wolves wondering on their own and who do not have an established territory or belong to a family pack. Permit-based hunting for population management purposes could only be targeted at a pack or a pair occupying a territory, because lone wolves looking to establish their own territory will be moving across an extensive area. In the case of lone wolves, safety and damage-based wolf derogations are available. In acute cases, the competent authority to refer to is the police.

Alternative 1: Allow the culling of 1–2 wolves from a selected pack.

Allow the culling of 1–2 wolves from a selected pack (or selected packs), depending on the number of individuals in the pack. Efforts should be made to target the young individuals of the herd, as the effects of the culling on the vitality of the pack are likely to be less severe. Assess the impact on a favourable conservation status.

Risks: The wolf caught is an alpha individual in the pack, so that, with a view to reproduction in the following year, one of the breeding packs is eliminated. Moreover, the impact of the culling of alpha

individuals may lead to changes in the pack behaviour and dynamics with the result of increased sightings of wolves in residential areas and other undesirable phenomena.

Requirement: The culling of individual wolves from the pack must be targeted at areas where wolf territories are reasonably close to each other and the density of prey is at a good level.

If there are packs nearby and the prey situation is good, the culling of an alpha individual may not affect the behaviour of the pack and the likelihood of a successful replacement of the alpha individual may increase.

Benefits: The hunt takes place in January–February before dispersing, i.e. the young individuals leaving the pack and the mating season, which leaves an imprint in the pack behaviour caused by the stress of hunting.

Alternative 2: Allow x pairs or packs, the culling of an established pair or an entire family pack.

Assess the impact on a favourable conservation status.

In certain cases, hunting may be allowed in such a way as to aim to cull an entire pack or established pair on the basis of the selection criteria.

Risks: Hunting an entire pack is not possible due to weather conditions, for example.

Recommendation: It is recommended that the hunting take place at during the snow cover period so that the success of the hunt may be ensured when several individuals are being targeted.

Benefits: The alternative allows response to a situation where a pair or an entire pack has caused disturbance/damage. The hunting may be targeted at avoiding breaking up packs, which could have negative implications.

Measures

- Hunting is scaled in alignment with the reference value for a favourable conservation status.
- As in alternative 1, the hunting is targeted either at removing 1–2 wolves from a pack or, as in alternative 2, at a pair (both individuals) or at an entire family pack (all of its individuals) that have marked their territory – that is, the aim is to cull an entire pack or pair.

Selection criteria

The selection of targeted individuals in hunting wolves to manage the population takes place on the basis of a set of criteria defined in the project in cooperation with the working groups. The evaluation of the selection takes account of not only the situation in the autumn season in question, but also the behaviour of the pair or pack in previous years.

Criteria for selecting a pair or a pack for hunting as a population management measures (including packs from which 1–2 wolf individuals are eliminated)

- safety (regular observations made on residential yards and gardens: responding to wolf threat, items 2–3 (see the Management Plan for the Wolf Population in Finland); the situation continues despite attempts to repel the wolf)
- the number of packs and pairs that have marked their territory in the area (density)
- human population density
- repeated damage to farm animals and dogs and threats of injury
- closely related alphas
- threat to the viability of the wild forest reindeer population
- multi-species population management

Measure:

- The selection of targeted individuals in hunting wolves to manage the population as in alternatives 1 and 2 takes place on the basis of a set of criteria defined.

Description of the process

The Ministry of Agriculture and Forestry may issue a decree permitting the hunting of wolves by derogation if certain conditions are met. The Ministry of Agriculture and Forestry Decree Regulation establishes the maximum permissible number of wolves hunted in derogation from the protection of the wolf.

Regional game councils will review the situation in the respective regions and consult regional stakeholders and provide a recommendation on the targeting of the hunting in accordance with alternative 1 or alternatives 2, as based on the selection criteria.

The National Wildlife Council will review the statements of the regional game councils and identifies nationally the packs or pairs or priorities which would primarily merit hunting for population management purposes as based on the selection criteria. The National Wildlife Council will submit its statement on the matter to the Finnish Wildlife Agency. The Finnish Wildlife Agency grants derogations as provided for in section 41a, subsection 3 of the Hunting Act on the basis of permit applications. The Finnish Wildlife Agency assesses and investigates on a case-by-case basis the grounds for granting derogations.

Measures:

- Regional game councils must consult stakeholders before addressing the wolf situation in the region. Regional game councils must draft their opinion on the targeting of hunting in accordance with alternative 1 or alternative 2.
- The National Wildlife Council will review the above statements and identifies on the national level the packs or pairs or priorities which would primarily merit hunting for population management purposes as based on the selection criteria.
- The Finnish Wildlife Agency grants derogations as provided for in section 41a, subsection 3 of the Hunting Act on the basis of permit applications. The Finnish Wildlife Agency assesses and investigates on a case-by-case basis the grounds for granting derogations.

Closely controlled conditions

A derogation or a joint derogation for the culling of 1–2 wolves from a pack or the killing of a breeding pair or family pack that has marked a territory is applied for each specified wolf territory. In the 5-year experiment on hunting wolves to manage the population, equivalent permit regulations will be partially applied with regard to strictly controlled conditions, as was done in the 2015 and 2016 experiments.

Measures:

- Partially similar permit requirements as in 2015 and 2016 will be applied.
- In addition to the application criteria, the names of the leader and at least two deputy leaders of a wolf hunt, who will be responsible for planning a safe hunting event and to ensure that all regulations governing the hunt are complied with, must be provided in the application.
- The names of the participants in a hunt and the area covered must be reported in advance to the Finnish Wildlife Agency and the police department of the area before launching the hunting project and each hunt. In addition, after each hunt, a report must be submitted notifying of the end of the hunt. If the hunt takes place in a municipality along a national border, the above details must also be submitted to the Finnish Border Guard.
- The derogation granted by the Finnish Wildlife Agency limits the number of participants to a hunt to a maximum of 50 persons. It is recommended that only trained and experienced hunters participate in the hunt, particularly persons providing official assistance (SRVA officials) and a large carnivore contact persons.
- The regional office of the Finnish Wildlife Agency, the police department of the area and, if operating on state-owned land, Metsähallitus, must notified by phone or e-mail of a killed animal or killed animals during a wolf hunt the following business day. The notification must indicate the location of the shooting. The killed animal is the property of the derogation holder unless otherwise agreed by the hunting party. However, samples of the animals killed must be provided for population monitoring and research. The notification must indicate the number of animals killed and the coordinates of the place of shooting, as well as the time of shooting and the gender of the animal.

Training

The Finnish Wildlife Agency offers training, advice and education. The Finnish Wildlife Agency also provides materials for, for example, the leaders of parties hunting large carnivores. The online training material for leaders of parties hunting large carnivores and more detailed information on the duties of the leader of the hunt can be found, for example, on riistainfo.fi training website maintained by the Finnish Wildlife Agency.

As part of the earlier experiment on hunting wolves to manage the population, the Finnish Wildlife Agency organised training sessions for those participating in the hunt. The training of leaders of parties hunting large carnivores and other hunters involved in hunting wolves to manage the population are still considered crucial by the working groups for the Planning and definitions project for hunting wolves to manage the population.

Measures:

- A training package is designed for hunters involved in hunting wolves to manage the population.
- The training will be planned in cooperation between the Finnish Wildlife Agency and the Natural Resources Institute Finland.
- The Finnish Wildlife Agency will organise annual training events for leaders of hunting parties and other participants.
- Leaders and deputy leaders of hunting parties must undergo mandatory training organised by the Finnish Wildlife Agency. Other participants are strongly advised to attend the training.
- Leaders of hunting parties must plan the hunt well in advance so that all participants are aware of the relevant factors related to the hunt.

The monitoring of the hunting of wolves for population management purposes

Hunting wolves to manage the population is monitored both in terms of mortality in the wolf population and by examining the success and effects of hunting. These monitoring activities may cover the following aspects: hunt planning, practical implementation of hunting, monitoring of the territory (effects on territories).

Measures:

- The impact of hunting and other mortality on the wolf population will be monitored as part of the population assessment.
- The Finnish Wildlife Agency, together with regional game councils, will monitor the 5-year experiment on the hunting of wolves for population management purposes. Hunting and its planning will be developed during the experiment on the basis of the monitoring.
- The Finnish Wildlife Agency, together with the Natural Resources Institute Finland, will be drawing up an annual summary after each hunting season, based, for example, on a feedback questionnaire from derogation applicants.
- The Finnish Wildlife Agency will present the summary to the monitoring group appointed by the Ministry of Agriculture and Forestry for the management plan for the wolf population, which may provide comments on the development of hunting wolves for population management purposes.

3. Sources

- Borg et al. 2014. Impacts of breeder loss on social structure, reproduction and population growth in a social canid. *Journal of Animal Ecology* 84, 1. p. 177 – 187. (DOI 10.1111/1365-2656-12256)
- Chapron, G., Treves, A., 2016. Blood does not buy goodwill: allowing culling increases poaching of a large carnivore. *Proc. R. Soc. B* 283. <https://doi.org/10.1098/rspb.2015.2939>
- Directorate General Environment, European Commission. 1 July 2008. Note to the Guidelines for Population Level Management Plans for Large Carnivores. Available online: http://ec.europa.eu/environment/nature/conservation/species/carnivores/pdf/guidelines_for_population_level_management_ec_note.pdf. Referred to on 12 March 2021.
- Heikkinen, S., Kojola, I., Mäntyniemi, S., Holmala, K & Härkälä, A. 2020. Susikanta Suomessa maaliskuussa 2020. Luonnonvara- ja biotalouden tutkimus 37/2020. Natural Resources Institute Finland. Helsinki. 97 pp. Available online: https://riistahavainnot.fi/static_files/suurpedot/kantaarviot/luke-luobio_37_2020.pdf. Referred to on 30 May 2021.
- Kojola, I. 2021. Presentation at the preparatory group meeting of 21 January 2021 of the planning and definitions project on the hunting of wolves for population management purposes. Minutes (in Finnish), Ministry of Agriculture and Forestry.
- Kojola, I et al. 2021. Unpublished article. 2021.
- Koskela, A. 2008. Erialaisten hoitosuunnitelmien ja tilastoimattoman kuolleisuuden vaikutukset Suomen susikannan kehitykseen populaation elinkykyanalyysin perusteella. Master's thesis. University of Oulu, Department of Biology. 23 April 2008.
- Liberg, O., Chapron, G., Wabakken, P., et al., 2012. Shoot, shovel and shut up: cryptic poaching slows restoration of a large carnivore in Europe. *Proc. R. Soc. B* 279, 910–915. <https://doi.org/10.1098/rspb.2011.1275>.
- Liberg, O., Suutarinen, J., Åkesson, M., Andrén, H., Wabakken, Peter., Wikenros, C. & Sand, H., 2020. Poaching-related disappearance rate of wolves in Sweden was positively related to population size and negatively to legal culling. *Biological conservation* 243 (2020). <https://doi.org/10.1016/j.biocon.2020.108456>
- Linnell J., V. Salvatori & L. Boitani (2008). Guidelines for population level management plans for large carnivores in Europe. A Large Carnivore Initiative for Europe report prepared for the European Commission (contract 070501/2005/424162/MAR/B2). Available online:

https://ec.europa.eu/environment/nature/conservation/species/carnivores/pdf/guidelines_for_population_level_management.pdf Referred to on 10 June 2021.

Ministry of Agriculture and Forestry (2019). The Management Plan for the Wolf Population in Finland. Publications of the Ministry of Agriculture and Forestry 2019:24 Helsinki. Available online at <https://julkaisut.valtioneuvosto.fi/handle/10024/161867>. Referred to on 10 June 2021.

Pellikka, J. & Hiedanpää, J. 2020. Kansalaisten susisuhde. Luonnonvara- ja biotalouden tutkimus 56/2020. Natural Resources Institute Finland. Helsinki. 30 pp. Available online: https://jukuri.luke.fi/bitstream/handle/10024/546123/luke-luobio_56_2020.pdf?sequence=7&isAllowed=y Referred to on 13 June 2021.

Suutarinen, J. 2019. Ecology of lawbreaking, Effects of poaching on legally harvested wolf populations in human dominated landscapes. Acta Univ. Oul. A 730, 2019.

Suutarinen, J., Kojola, I. 2018. One way or another: predictors of wolf poaching in a legally harvested wolf population. Animal Conservation 21. pp. 412–422. <https://doi.org/10.1111/acv.12409>

Suden kannanhoidollisen metsästyksen kokeilun arviointi ja suositukset jatkotoimenpiteistä. 31 October 2016. Ministry of Agriculture and Forestry. 2333/444/2014.

Waples R. S. & Faulkner J. R. 2009. Modelling evolutionary processes in small populations: not as ideal as you think. Molecular Ecology 18: 1834–1847. DOI: [10.1111/j.1365-294X.2009.04157.x](https://doi.org/10.1111/j.1365-294X.2009.04157.x)

Wolf behaviour and reproduction. Large Carnivores.fi, Metsähallitus 2021. Available online: <http://www.largecarnivores.fi/species/wolf/wolf-behaviour-and-reproduction.html>. Referred to on 19 June 2021.

Sources of law

Case C-674/17. Published in the electronic Reports of Cases in October 2019.

Case C-342/05. Reports of Cases 2007 I-04713 Available online: <https://curia.europa.eu/juris/showPdf.jsf?text=&docid=60998&pageIndex=0&doclang=en&mode=lst&dir=&occ=first&part=1&cid=16517844> Referred to on 9 June 2021.

Council directive 92/43/EEC: Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. Official Journal of the European Union, 22 July 1992. Available online: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31992L0043&from=EN> Referred to on 10 June 2021.

The Hunting Act 615/1993. Available online (in Finnish):

<https://www.finlex.fi/fi/laki/ajantasa/1993/19930615>. Referred to on 10 June 2021.

The Hunting Decree 666/1993. Available online (in Finnish):

<https://www.finlex.fi/fi/laki/ajantasa/1993/19930666>. Referred to on 10 June 2021.

Government Decree on Derogations Laid down in the Hunting Act 452/2013. Available online (in Finnish): <https://finlex.fi/fi/laki/alkup/2013/20130452>. Referred to on 10 June 2021.