



Ministry of Agriculture  
and Forestry of Finland

# Management Plan for the Wolf Population in Finland



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## Management Plan for the Wolf Population in Finland

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<p><b>Abstract</b></p> <p>The Management Plan for the Wolf Population was prepared in a project to update the management plan under the leadership of the Ministry of Agriculture and Forestry. The project had a broad-based preparation and steering group that included key stakeholders from research, administration, civil society organisations and producer organisations. The preparation was supported by experts from the Finnish Environment Institute and the University of Eastern Finland working within the CORE project funded by the Strategic Research Council. As part of the project, multinational stakeholder events were also organised with regional game councils, which resulted in proposals for measures to be incorporated into the management plan for the wolf population.</p> <p>This management plan for the wolf population is an updated version of the 2015 management plan and is a tool for managing wolf populations and wolf-related conflicts. The various measures in the management plan aim to reconcile the needs of citizens living and working in wolf territories on the one hand and the protection needs of the wolf population on the other. The plan also responds to Finland's international obligations. A key driver for change identified in the management plan is promoting tolerance for wolves and thus laying the foundation for the acceptability of wolves. The short-term goal of the management plan is for the wolf population to reach the minimum size needed for a vital population, while the long-term goal is a favourable conservation status for the population.</p> <p>The updated management plan takes into account the latest data on population estimates and, among other materials, the most recent study on the illegal killing of wolves. The management plan describes drivers for change and measures, specific issues related to the management of the wolf population, and the projects included in the plan.</p>			
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<b>Tiivistelmä</b>	<p>Susikannan hoitosuunnitelma valmisteltiin hoitosuunnitelman päivitys -hankkeessa maa- ja metsätalousministeriön johdolla. Hankkeella oli laajapohjainen valmistelu- ja ohjausryhmä, joissa mukana olivat keskeiset sidosryhmät niin tutkimuksesta, hallinnosta, kansalaisjärjestöistä ja tuottajajärjestöistä. Valmistelun tukena ovat olleet strategisen tutkimuksen neuvoston rahoittaman CORE-hankkeen asiantuntijat Suomen ympäristökeskuksesta ja Itä-Suomen yliopistosta. Osana hanketta järjestettiin myös ylimaakunnallisia sidosryhmätilaisuuksia alueellisten riistanneuvostojen kanssa, mistä saatiin muun muassa ehdotuksia toimenpiteiksi susikannan hoitosuunnitelmaan.</p> <p>Tämä susikannan hoitosuunnitelma on päivitetty versio vuonna 2015 vahvistetusta hoitosuunnitelmasta ja se on susikannan ja suteen liittyvien konfliktien hallinnan työkalu. Hoitosuunnitelman lukuisilla toimenpiteillä pyritään sovittamaan yhteen yhtäältä susireviireillä asuvien ja toimivien kansalaisten tarpeet sekä toisaalta susikannan suojelun tarpeet. Suunnitelmalla vastataan myös Suomea koskeviin kansainvälisiin velvoitteisiin. Keskeisenä hoitosuunnitelman muutostekijänä on tunnistettu susien sietämisen edistäminen ja sitä kautta perustan luominen suden hyväksyttävyydelle. Hoitosuunnitelman lyhyen aikavälin tavoite on pienin elinvoimainen susikanta ja pidemmän aikavälin tavoitteena on susikannan suotuisa suojelutaso.</p> <p>Hoitosuunnitelman päivityksessä on huomioitu tuoreimmat kanta-arviota koskevat tiedot ja muun muassa tuorein tutkimus koskien susien laitonta tappamista. Hoitosuunnitelmassa on kuvattuna muutostekijät ja toimenpiteet, susikannan hoidon erityiskysymykset ja hoitosuunnitelman hankkeet.</p>		
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<b>Referat</b>	<p>Förvaltningsplanen för vargstammen togs fram inom projektet för uppdatering av förvaltningsplanen under ledning av jord- och skogsbruksministeriet. Projektet hade en bred berednings- och styrgrupp med representanter för centrala intressegrupper inom forskning, administration, frivilligorganisationer och producentorganisationer som medlemmar. I beredningen har medverkat de experter från Finlands miljöcentral och Östra Finlands universitet som arbetar med CORE-projektet finansierat av rådet för strategisk forskning. I samband med projektet ordnade man också tillsammans med de regionala viltvårdsråden intressegruppsmöten över landskapsgränserna som gav bland annat åtgärdsförslag i resultat.</p> <p>Denna förvaltningsplan som är en uppdaterad version av den plan som fastställdes 2015 är ett verktyg för att hantera vargstammen och de vargrelaterade konflikterna. Planen innehåller ett stort antal åtgärder som ska sammanjämka skyddet av varg och behoven hos människor som bor och arbetar i områden med vargrevir. Planen är också ett svar på de internationella åtaganden som gäller Finland. En viktig förändringsfaktor i förvaltningsplanen är arbetet för att stärka toleransen mot varg och därigenom skapa en grund för acceptansen av varg. Planens kortsiktiga mål är minsta livskraftiga population och långsiktiga mål vargens gynnsamma skyddsstatus.</p> <p>I uppdateringen har man beaktat de senaste bedömningarna av stammens storlek och bland annat den färskaste undersökningen om olagligt dödande av vargar. I förvaltningsplanen tas upp förändringsfaktorerna och åtgärderna, de specialfrågor som gäller förvaltningen av vargstammen samt projekten.</p>		
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# Introduction

## Background

The management plan for the wolf population in Finland is a tool for managing conflicts associated with the wolf population. The purpose of the plan is to accommodate the needs of citizens who live and work in wolf population zones on one hand, and wolf conservation needs on the other hand. The plan also meets Finland's international obligations. It addresses wolf population management in a broad context.

The first management plan for the wolf population in Finland was adopted in 2005 as a response to the management standards of the European Commission. During the management plan preparation process, the wolf population started increasing and reached its modern-day peak in 2007, in which year the minimum population estimate was 270–300 individuals. The wolf population then started declining, and at its lowest the minimum population estimate was 120–135 individuals in 2013. Illegal killing of wolves has been considered the key reason for the population decline. The population began to increase again as a result of stricter legislation and enhanced monitoring measures. At the start of 2015, the wolf population was estimated at 220–245 individuals. This represented a significant increase over one year (140–155 individuals at the start of 2014).

By 2017, the population had again shrunk. According to the Natural Resources Institute Finland, in March 2017 there were 150–180 wolves. In this case, the decrease is most likely due to hunting as population control, which was permitted according to the 2015 management plan. In particular, the 2016 total kill count and the high number of alpha individuals killed were probably the main causes for the reduction and the shift in the population's geographic distribution from eastern Finland to the west.

According to the June 2019 estimate of the Natural Resources Institute, there are 24 wolf packs in Finland and in the border regions of Finland and Russia. The total estimated population was 185–205 as of March 2019. This represents an increase of nearly 10% since March 2018 (165–190 individuals). Whereas the 2018 estimate showed that the

distribution had shifted from eastern Finland to the west, the 2019 estimate showed a more even distribution of the population. There have thus been a number of changes in the population year on year.

Contrary to popular belief, Finland does not have a large wolf population in a European comparison. According to Sweden's latest estimate (2017/2018), the wolf population in Scandinavia (Sweden and Norway) was 410, of which 305 individuals were in Sweden. The Scandinavian wolf population has decreased in recent years. The population is now 26% smaller than during the peak in 2014–2015. Poaching has been identified as the number one cause of wolf mortality also in Sweden. In Germany, according to the 2017/2018 estimate there were 75 breeding packs and 30 territory-marking pairs. The population has increased in Germany. Also in France the population is estimated to be growing; in summer 2017, there were an estimated 63 permanent territories, of which 52 were breeding packs. In Spain and Italy, the wolf populations are estimated to be in their thousands.

In Southern and Central Europe, wolf-related conflicts present as major livestock losses. The situation is different in Finland and Sweden in that the presence of wolves can be detected from footprints on snow, which remains on the ground for several months. In addition, free-roaming dogs are traditionally used in Finnish and Swedish hunting cultures. This factor – and the value and importance of dogs to hunters – poses a challenging problem, not least because the hunting and population management of deer animals (the elk in particular) is very important in Sweden and especially in Finland, where the forest industry is an important economic sector.

## Preparation of the management plan

The Ministry of Agriculture and Forestry set up a working group and a steering group for the preparation of the updated plan. The working group was tasked with assessing what updates were required for the existing management plan and presenting to the steering group proposals on new measures and changes to existing measures. The steering group was responsible for steering the working group and approving updates to the measures to be presented to the ministry.

The groups' meetings were openly publicised by producing press releases on topics discussed in the meetings. The press releases are available on the project [website](https://mmm.fi/en/project-to-update-the-management-plan-for-the-wolf-population)<sup>1</sup>.

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<sup>1</sup> Website of the Project to update the Management Plan for the Wolf Population in Finland: <https://mmm.fi/en/project-to-update-the-management-plan-for-the-wolf-population>. Accessed 14 October 2019.

The preparation process was supported by experts from the Finnish Environment Institute and the University of Eastern Finland who are working on the CORE project funded by the Strategic Research Council of the Academy of Finland. CORE<sup>2</sup> studies and develops collaborative solutions for complex problems related to the environment and resource use.

In addition, the preparation process included seven supraregional stakeholder meetings and workshops organised in cooperation with seven regional game councils. Each event covered topics specific to the region in question as well as the following core topics: 1) the definition of a risk-posing wolf, 2) tolerance of wolves, 3) prevention of harm to dogs, 4) prevention of harm to reindeer and livestock.

The updating process was based on the wolf population management plan adopted in 2015. The measures set out in the plan to a great extent relied on justified opinions on population management voiced by the citizens. For the current management plan, the measures adopted in 2015 were updated by the working group specifically based on needs highlighted in the regional consultations. In addition, a questionnaire was sent to wolf territory cooperation groups to map the group members' views about the effectiveness of measures, what could be improved, and how the working groups themselves could be developed.

No updated background publication was produced for the new management plan. The key background factors identified in 2015 continue to be topical, and the 2015 publication was thus used to provide background to the updated plan.

## Conclusion

The size and structure of the wolf population in Finland evolve continuously. According to research performed in Finland,<sup>3</sup> poaching has been a significant factor in controlling growth of the wolf population. The study also states that legal hunting of wolves helps to reduce poaching. It is difficult to obtain direct information about the extent of poaching, since the risk of being caught is very small.<sup>4</sup> It is therefore challenging for the game administration to regulate legal hunting of wolves to a degree where the overall outcome is neutral. Further work is needed to promote tolerance in order that legal hunting for population-management purposes could be preserved as a genuine means to promote trust between the game administration and local citizens.

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2 The CORE project website: <http://www.collaboration.fi/EN/>. Accessed 14 October 2019.

3 Suutarinen, J. & Kojola, I. 2017. Poaching regulates the legally hunted wolf population in Finland. – *Biological Conservation* 215: 11–18.

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

However, legal hunting cannot be the only means of promoting tolerance. A number of other supportive measures are needed, and these have been prepared for the new plan through an extensive, participatory approach. In Finland, critical views towards wolves and the wolf management policy continue to be prevalent, and discussion has been particularly heated in areas where wolves have arrived more recently.

They are also frequent topics in social media. This phenomenon is one of the key societal changes relating to the challenges of wolf conservation and management. Conflict persists on online discussion boards. The internet and social media enable the concept of locality to change and become blurred. Strong communication is needed to enable those who genuinely live in the vicinity of wolves to influence policy.

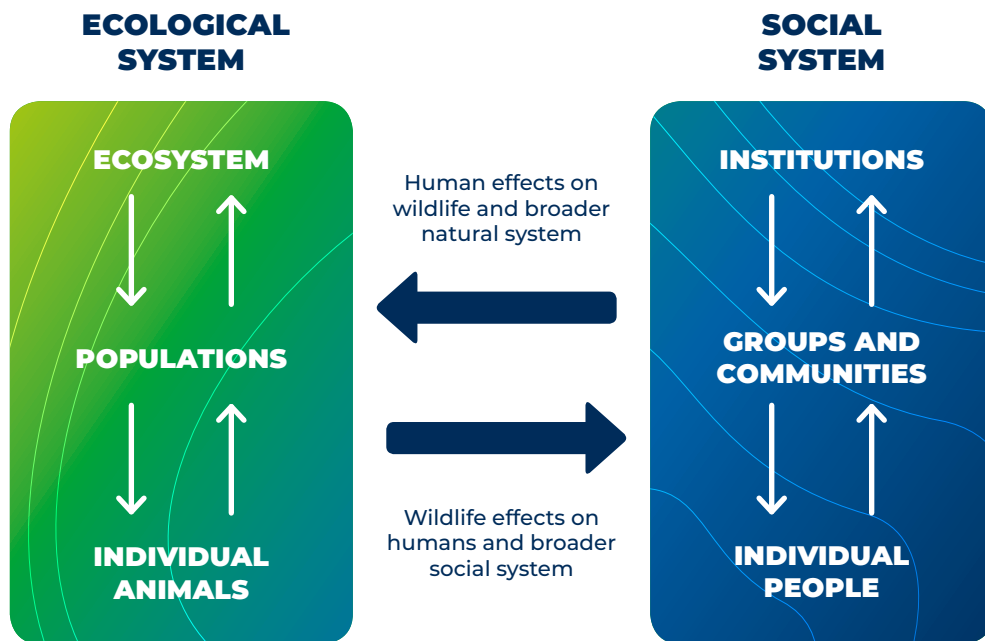
The EU Life Boreal/WOLF project aimed at alleviating the wolf conflict was launched in autumn 2019. The project includes a number of measures that support the population management plan. The project participants include the Natural Resources Institute, the Uusimaa branch of the Finnish Association for Nature Conservation, the Finnish Wildlife Agency, Metsähallitus and the Eastern Finland Police Department. Other partners include the Central Union of Agricultural Producers and Forest Owners MTK, the Regional Council of North Karelia, the Regional Council of Satakunta, the Regional Council of Southwest Finland, and the Swedish Environmental Protection Agency. The €5.5 million project is funded by the European Union, the Ministry of Agriculture and Forestry, the Ministry of the Environment, and the implementing organisations. The project's impacts on the measures of the wolf population management plan are set out in the plan.

A research article published in May 2019<sup>5</sup> describes how wolf conservation and conflict management, for instance, involve interactions between the social and ecological systems. The social system includes multidimensional human activities extending from, for example, institutions to individuals, and the ecological system comprises the natural world, its populations and species down to the level of individual wolves. Individual wolves and local packs can influence the experiences and emotions of individual human beings, which can be reflected through groups and communities at the administration and policy levels. On the other hand, individual human beings can have an impact on wolves and their populations, for example by influencing their prey populations.

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5 Carter H. N., Bruskotter T. J., Vucetich J., Crabtree R., Jaicks H., Karns G., Nelson P. M., Smith D. and Linnel D.C. J. 2019. Towards Human–Wildlife Coexistence through Integration of Human and Natural Systems. The Case of Grey wolves in the Rocky Mountains, USA. *Human – Wildlife Interactions*, pp. 384–413.

In other words, wolf conservation and hunting encompass much more than conservation and hunting practices. These issues can have wider impacts than might first appear. In terms of wolf management policy, it is important to recognise the impact of humans on the most important prey animal of wolves, namely the elk. In this management plan, an attempt has been made to identify interactions that can impact wolves. However, as the work has only just started, interactions between the ecological and social systems still need to be researched more closely.



**Figure 1.** The figure illustrates dynamic interactions between management measures and the ecosystem, those between individuals (humans and animals), and the broader socio-ecological system (SES)<sup>6</sup>.

<sup>6</sup> The figure is based on a figure presented in the article. Source: Carter H. N., Bruskotter T. J., Vucetich J., Crabtree R., Jaicks H., Karns G., Nelson P. M., Smith D. and Linnel D.C. J. 2019. Towards Human–Wildlife Coexistence through Integration of Human and Natural Systems. The Case of Grey wolves in the Rocky Mountains, USA. Human–Wildlife Interactions, pp. 384–413. Reproduced with permission of The Licencor through PLSclear. © Cambridge University Press

# 1 Objectives of the wolf population management plan

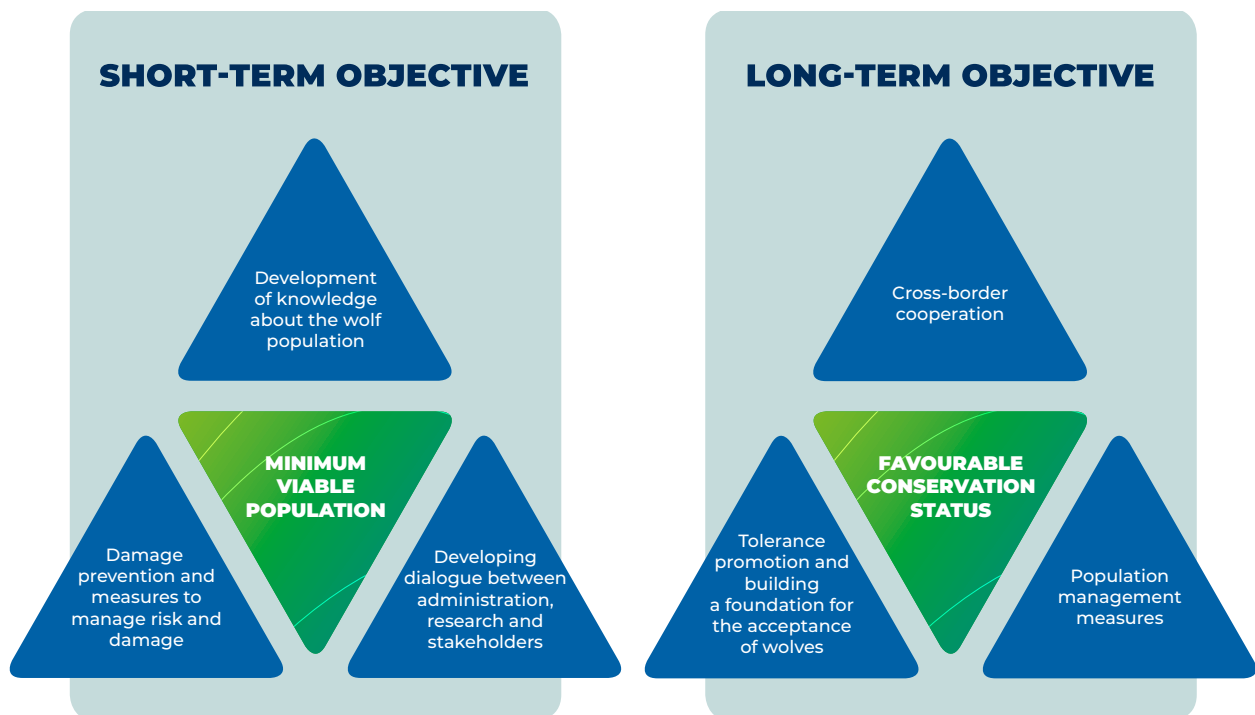


Figure 2. The short-term objective is a minimum viable population, and the long-term objective is a favourable conservation status.

## Minimum viable population

The minimum viable wolf population is 25 breeding pairs. Pairs with offspring less than one year old are regarded as breeding pairs. One half of the breeding pairs living on either side of the border between Finland and Russia are included in the Finnish wolf population. The number of packs, and whether the wolf population and the packs are maintaining their viability, will be assessed annually through a population estimate produced by the Natural Resources Institute.



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 20097). On that basis, it can be estimated that there should be at least 25 breeding pairs in Finland. This would help eliminate adverse effects resulting from inbreeding. 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, 20088), according to which the baseline of 25 breeding pairs represents a low risk of extinction in the next one hundred years in the majority of reviewed population management models. However, in this analysis, excessive hunting pressure will likely lead to extinction of the population.

A minimum viable population is an interim target of the management plan and designed to build a foundation for acceptance through tolerance with a view to achieving the favourable conservation status set out in the Habitats Directive.

### **A favourable conservation status**

In Finland, a favourable conservation status will be achieved by first promoting tolerance of wolves and building a foundation for the acceptance of the wolf population through an extensive set of measures, and also by securing links between the wolf population of Finland and those of Scandinavia and Northwest Russia.

In the past, Finland has attempted to establish a favourable conservation status either through strict conservation measures or by relatively permissive regulations on hunting. Neither method has been successful. This management plan is based on the recognition that wolf conservation can only be successful when the concerns and needs of people who live and work in the vicinity of wolf territories are taken into account in the population management measures and effective action is taken to intervene in wolf poaching.

However, it also requires tolerance promotion, compensation schemes, communication and decrees by the Ministry of Agriculture and Forestry to permit wolf hunting to a degree where it does not prevent the attainment of the favourable conservation status target or compromise the ability to maintain a minimum viable population.

7 Waples R. S. & Faulkner J. R. 2009. Modelling evolutionary processes in small populations: not as ideal as you think. *Molecular Ecology* 18: 1834–1847.

8 Koskela, A. 2008. Erilaisten hoitosuunnitelmien ja tilastoimattoman kuolleisuuden vaikutukset Suomen susikannan kehitykseen populaation elinkykyanalyysin perusteella. Master's thesis. University of Oulu. Department of Biology.

**The favourable conservation status is based on the requirements of the EU Habitats Directive. A favourable conservation status is determined following a procedure referred to in Article 17 of the Habitats Directive. Under the Habitats Directive, a favourable conservation status has been achieved 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.**

When determining a favourable conservation status, it makes sense to consider areas larger than individual countries. Historically, wolves in Finland, Scandinavia and Northwest Russia were of the same population. With this in mind, the populations of these areas should be managed as a single entity through international cooperation.

Achieving a favourable conservation status within Finland's border without considering and ensuring the wolf population's links with those in neighbouring countries cannot be a holistically sustainable solution. In practice, such an approach would create a wolf population of such a large size that, in combination with other large-carnivore populations, it would lead to a socially, economically and ecologically unsustainable situation.

Cooperation with Sweden and Norway is already active and productive, but more cooperation is needed with regional game management agencies in Russia. A controlled gene flow of appropriate magnitude between populations, which is supported by cooperation between state authorities, would facilitate the attainment and maintenance of a favourable conservation status for the wolf population in Fennoscandia.

## 2 Key measures and factors of change in wolf population management

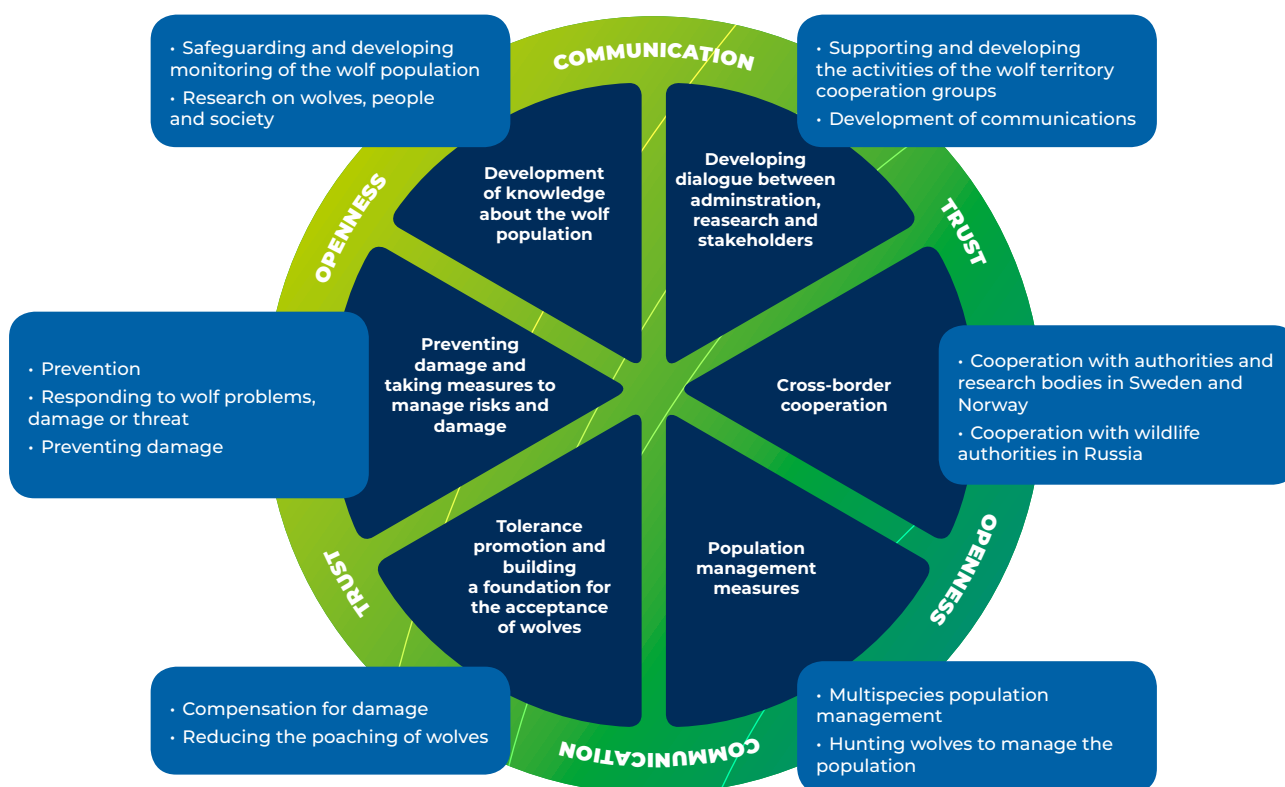


Figure 3. Key measures and factors of change in wolf population management

The key objectives and factors of change in wolf population management are presented in the circle in the figure. The measures are displayed in boxes outside the circle. More detailed descriptions of the management plan measures are presented in the boxes at the start of each chapter. Chapter 2 of the management plan deals with the measures and factors of change, while Chapter 3 addresses issues specific to managing the wolf population.

## 2.1 Tolerance promotion and building a foundation for the acceptance of wolves

### MEASURES:

Tolerance of the wolf and a wolf population will be promoted in cooperation with the Ministry of Agriculture and Forestry, game management and research agencies and key stakeholders through a set of measures which are set out in this management plan.

Game management and research agencies will work both independently and in collaboration with key stakeholders to deliver collaborations with schools, in order to disseminate objective information about the biology and behaviour of the wolves, wolf populations in Finland and in individual localities, and wolf population management principles.

The Finnish Wildlife Agency will ensure that hunter training courses include information about the biology and behaviour of the wolf and the consideration of wolves as part of e.g. hunting with dogs.

The Finnish Wildlife Agency will organise training for large-carnivore network volunteers and the personnel of game management associations on the topic of community liaison in challenging and high-pressure situations.

In addition, tolerance will be promoted through compensation schemes, communication and open interaction.

One of the factors of change identified in the wolf population management plan is tolerance promotion and building a foundation for the acceptance of the wolf. Tolerance refers to people's values and attitudes and the resulting behaviour (e.g. poaching) towards predator species<sup>9</sup>. It can be understood as a permissive attitude towards wolves in the local vicinity without necessarily liking them.

A number of mechanisms that can influence tolerance towards animals have been identified in international studies. They include e.g. economic, social and psychological factors. One extensive review<sup>10</sup> has examined economic and social mechanisms. Economic incentives have been experimented with to promote tolerance in a number of countries. They include e.g. territory compensations and reimbursement of damage prevention costs. They are based on the assumption that tolerance is primarily influenced by a fear of potential damage.

<sup>9</sup> Treves A. and Bruskotter J. 2014. Tolerance for predatory Wildlife. *Science*, May 2014, Pages 467–477.

<sup>10</sup> Ruth Kansky, Martin Kidd, Andrew T.Knight. 2016. A wildlife tolerance model and case study for understanding human wildlife conflicts. *Biological Conservation* Volume 201, September 2016, Pages 137–145.

In addition to economic mechanisms, the impact of social norms and leadership on tolerance within communities has also been identified. For example, if poaching of predators is considered acceptable and normal in a community – or perhaps even socially rewarding – then economic incentives could be an ineffective way of promoting behavioural change. According to some estimates, in such cases increased opportunities for legal hunting would actually reduce tolerance instead of promoting it, as they reinforce the social norm in a community where killing animals is considered model behaviour towards predators.

Tolerance in relation to experiences and conceptions of predatory species has been analysed in psychological models<sup>11</sup>. Such analyses show that beliefs relating to predators, predator population trends and the associated risks influence people's attitudes towards predatory wildlife, whereas real-life experiences of predatory animals – whether negative or positive – often have an indirect effect on tolerance.

Although a number of experiments and studies have been conducted, knowledge of the economic, social and psychological mechanisms is still relatively limited. Many of the studies have taken place in societal conditions that differ from those in Finland. Tolerance-promotion models that suit local conditions should be sought. This also applies to internal cultural variation<sup>12</sup>.

Since knowledge of effective tolerance-promoting mechanisms is limited, and the existing models cannot be directly replicated in other contexts, it is necessary to evaluate mechanisms and explore effective tolerance-promotion models locally and in cooperation with stakeholders. It is also important to research and document this subject in order to build a knowledge base on effective tolerance-promotion measures.

### **Attitudes on wolves in Finland**

The wolf continues to be the most problematic large carnivore to manage in Finland, since it is associated with a range of potential conflicts. Although the wolf is not the most destructive predator in monetary terms, for example with regard to livestock or reindeer, it is strongly associated with a sense of insecurity, financial losses, upset caused by hunting-dog losses, and the associated risks. Intolerance of wolves has manifested itself, for example, in the form of poaching.

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11 Inskip C, Carter N, Riley S, Roberts T, MacMillan D. 2016. Toward Human-Carnivore Coexistence: Understanding Tolerance for Tigers in Bangladesh. *PLoS ONE* 11(1): e0145913. <https://doi.org/10.1371/journal.pone.0145913>

12 Beatrice Frank. 2016. Human–Wildlife Conflicts and the Need to Include Tolerance and Coexistence: An Introductory Comment, *Society & Natural Resources*, 29:6, 738–743, DOI: [10.1080/08941920.2015.1103388](https://doi.org/10.1080/08941920.2015.1103388)

Attitudes towards wolves were measured in May 2018 in a survey<sup>13</sup> on hunting, which was carried out by Taloustutkimus and commissioned by the Finnish Wildlife Agency. Similar surveys were carried out in 2004 and 2013 by Taloustutkimus, and previously in 1986 and 1994. The 2018 results clearly show that attitudes towards the poaching of e.g. wolves are more negative than before. Poaching of wolves is not considered acceptable anywhere in Finland. Nevertheless, over half of the respondents felt that people should be allowed to kill predators that come into the immediate vicinity of their homes. Fear towards bears and wolves has not changed over the years. Half of the respondents said that they fear both of these predators.

Collective memory also influences attitudes towards wolves and the management of wolf populations. Until 1993, the wolf was listed as a harmful species in Finnish legislation, which meant that anyone could shoot them, regardless of whether they were land owners or had a hunting licence. In 1993, a long hunting season was prescribed and the killing of wolves became subject to a licence. This had very little effect in practice. Legal protection of the wolf was gradually tightened since 2001, but the current level of protection was not achieved until 2007<sup>14</sup> with the judgement of the Court of Justice of the European Union on wolf hunting and the establishment of the Finnish Wildlife Agency. Thus it has been only 26 years since the wolf was considered a harmful species, and more stringent protection was not introduced in practice until 12 years ago. One of the key stakeholder groups in the wolf debate are hunters. Finnish hunters' average age is around 50 years, which means that the more stringent protection of the wolf is relatively new to many hunters. In some respects, conflicts associated with the wolf can also arise from different world views.

During the updating of the wolf population management plan, it was recognised that the co-existence of wolves and humans must be built gradually. It means building a foundation for acceptance by first promoting tolerance, which will ultimately facilitate co-existence. In tolerance promotion, the starting point is local activity to provide people with resources in wolf areas.

Under this measure, the Life BorealWOLF project promotes cooperation with schools, provision of training to large-carnivore coordinators, and communications to the general public.

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13 Finnish Wildlife Agency. 2018. Suomalaiset suhtautuvat metsästyksen erittäin myönteisesti. Finnish Wildlife Agency 31.5.2018. On the webpage: [https://riista.fi/suomalaiset-suhtautuvat-metsastykseen-erittain-myonteisesti/?doing\\_wp\\_cron=1560841732.2701721191406250000000](https://riista.fi/suomalaiset-suhtautuvat-metsastykseen-erittain-myonteisesti/?doing_wp_cron=1560841732.2701721191406250000000) Accessed 14 October 2019.

14 Case C-342/05. Report of Cases 2007 I-04713.

## 2.1.1 Compensation

### MEASURES:

**Livestock and dog losses caused by wolves will be fully compensated.**

**The aim is to pay compensation as soon as possible after application to the extent permitted by fund allocations.**

According to the game damage register, in 2018 livestock losses and dog losses caused by wolves amounted to EUR 150,000 and EUR 85,000 respectively. The value of reindeer losses was approximately EUR 770,000.

Compensation for damage caused by wolves is paid under the Game Animal Damages Act. The Game Animal Damages Act contains provisions on the grounds and procedures to be followed when granting funds for compensating damage caused by game animals and for the advance prevention of damage caused by game animals from appropriations included in the State budget. Compensation can be paid for personal injuries and damage to crops, animals, movable property and reindeer caused by wolves. Damage caused by a wolf is compensated in full if the total amount of damage referred to in the Act to the applicant for compensation per calendar year exceeds 170 euros. However, the restriction does not apply to personal injuries. The maximum amount to be compensated for as damage to reindeer is the amount corresponding to one and a half times the current value of a reindeer killed by a large carnivore or put down due to damage. When calculating the amount of the compensation, the extent to which the reindeer can be utilised is taken into account as a deduction. When applying for compensation, damage to crops, animals or movable property caused by wolves or other large carnivores should be reported immediately to the local rural business authority, who will inspect the damage.

Compensation determined on calculated grounds may be paid to the reindeer herding cooperative as compensation for loss of calves. The purpose of the compensation for loss of calves during the summer is to pay reimbursement for calves killed by large carnivores on calculated grounds without the need to find the calves in the wild. In any case, finding dead calves in summertime is nearly impossible, as the carcasses disappear rapidly due to the action of carnivores, scavengers and decomposers. In addition, a supplemented reimbursement was previously paid to cooperatives which frequently suffered exceptionally high reindeer losses. However, this so-called Lex Halla compensation was abolished with the amendment of the Game Animal Damages Act on 22 March 2019.

According to those who have suffered losses caused by wolves, slow payment was one of the main issues in the compensation scheme, especially with regard to livestock damage. At worst, payment could take over a year after the loss occurred, as the fund allocations did not become available until the beginning of the year after the year in which damage occurred. Another factor giving rise to concern was uncertainty about whether or not the compensation would be paid in full. In several years in the early 2010s, damage to reindeer caused by the wolverine, in particular, were more significant than expected, and for this reason the appropriations set aside in the State budget for compensation of damage caused by large carnivores have been insufficient. For example, in 2018 all wildlife damage compensation had to be cut by 26 % due to shortage of funds. However, the 2019 appropriation was enough to fully cover the reindeer losses incurred in 2018 precisely because the Lex Halla compensation was abolished. The total amount of compensation paid for reindeer losses caused by wildlife was €7.23 million.

The Game Animal Damages Act was amended so that if compensation amounts have to be cut due to reindeer losses, the cuts would be targeted only at reindeer losses. In practice, it means that livestock losses could be compensated in full, and it is also likely that livestock compensations can be paid much more quickly as and when they occur, to the extent permitted by fund allocations.



## 2.1.2 Reducing the poaching of wolves

### **MEASURES:**

Game administration, the police and key stakeholders will take effective measures to reduce wolf poaching.

The Finnish Wildlife Agency, the Finnish Hunters' Association and key stakeholder groups will launch a media campaign aimed at reducing poaching. It will include a joint campaign by the Finnish Wildlife Agency and the Finnish Hunters' Association targeted at hunters and local communities in wolf areas to discourage acceptance of wolf poaching and encourage people to report suspected incidents to the authorities.

The Natural Resources Institute will provide annual estimates on the number of poached wolves as part of the annual population estimates.

Each police department will appoint a wildlife contact person (a senior-level officer) to coordinate the planning and implementation of supervision in the police department's area.

The police will inform the citizens about intensified supervision of hunting.

The police, the Border Guard and Metsähallitus hunting wardens will work together to implement supervision projects. The Natural Resources Institute produces forecasts to support supervision.

The powers of hunting wardens will be extended to investigating crime scenes on private land where serious hunting offences are suspected.

Metsähallitus will organise annual development seminars, in which the supervisory authorities in areas with wolf territories, the game administration and the large-carnivore research sector will take part.

The Ministry of Agriculture and Forestry will prepare a government decree to restrict the baiting of predators with carcasses.

The game management associations in an area with a wolf territory will prepare annual plans for the supervision of hunting.

Of the 14 wolf carcasses delivered to the Finnish Food Safety Agency (Evira, now the Finnish Food Authority) in 2013, old gunshot wounds, including encapsulated shot, were found in three. The number represented 21.5% of the samples. Of the wolf carcasses delivered to Evira in 2001–2014, 17 percent had been illegally killed. Other causes of death included traffic accidents (38%), humane destruction and other causes. All wolf carcasses found (including carcasses from traffic accidents) and those of wolves which have been humanely destroyed due to injury, morbidity or behavioural concerns should be delivered

to the Finnish Food Authority.<sup>15</sup> It should be noted that the discovery of wolf carcasses is an infrequent occurrence, and not all carcasses are discovered.

According to one study, poaching was the most common cause of death in wolves in the 2000s in Finland and Sweden, but the majority of poaching incidents go unproven. The study was based on the modelling of population growth and mortality risk, which was done to estimate the impact on the wolf populations in Finland and Sweden of mortality caused by poaching. Other causes of death in wolves were legal hunting, traffic accidents and natural causes. The number of wolves with unknown cause of death was also relatively high.<sup>16</sup>

According to study, the risk of poaching increased in early spring. The number of poaching incidents appears to vary from year to year. The numbers tend to depend specifically on the size of the wolf population and the rate of permit-based hunting<sup>17</sup>. The greater the number of hunting permits<sup>18</sup>, the lower the risk of poaching; the risk increased when the wolf population was larger. From the point of view of the growth and stability of the wolf population, the most significant finding is that poaching appears to be specifically targeted at territorial adult wolves i.e. alphas in early spring. Breeding in the pack depends on the survival of its alphas and timely alpha succession if one or both breeders die. High mortality in adult wolves can cause population fluctuation and thus make it difficult to assess population growth and distribution.<sup>19</sup>

Studies indicate that illegal hunting usually is carried out by a small local group<sup>20</sup>. The absence of authorities in remote areas gives illegal hunters free hands. This small group of hunters perpetrating illegal acts has jeopardised the methodical management of the wolf population and negatively affected the reputation of hunters at large. The illegal killing of a wolf is an offence that carries a relatively small risk of being caught. It has been estimated that less than 10% of cases where a wolf is killed illegally become known to the police<sup>21</sup>. In Finland, the authorities are informed about approximately one out of three

15 Ruokavirastovirastossa vuosina 2001–2014 tutkitut sudet. On the website: <https://www.ruokavirasto.fi/viljelijat/elaintenpito/elainten-terveys-ja-elaintaudit/elaintaudit/luonnonvaraiset-elaimet/susien-kuolinsyyt/yhteenveto-ruokavirastoon-2001-2014-lahettyjen-susien-kuolinsyista>. Accessed 14 October 2019.

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

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

18 Suutarinen, J., Kojola, I. 2018. One way or another: predictors of wolf poaching in a legally harvested wolf population. *Animal Conservation* 21. Pages 414–422.

19 Suutarinen, J., Kojola, I. 2017. Poaching regulates the legally hunted wolf population in Finland. *Biological Conservation*, 215. Pages 11–18.

20 Pohja-Mykrä M. & Kurki S. 2013. Suurpetopolitiikka kriisissä – salakaadot ja yhteisön tuki, University of Helsinki, report of the Ruralia Institute.

21 Pohja-Mykrä M. & Kurki S. 2013. Suurpetopolitiikka kriisissä – salakaadot ja yhteisön tuki, University of Helsinki, report of the Ruralia Institute.

cases<sup>22</sup>. The risk of being caught is decreased by local communities that keep quiet about illegal killing of wolves.

### **Prevention of illegal acts**

The administration has made efforts to prevent the illegal killing of wolves by imposing harsher penalties. In 2010, new indicative values for live wolves were given in a Ministry of Agriculture and Forestry Decree. The value of a young wolf was set at EUR 4,500, and that of an adult wolf at EUR 6,100–9,100. An amendment to the Criminal Code made in 2011 imposed harsher penalties for the illegal killing of a wolf. Under the Criminal Code, the offender may be sentenced to imprisonment for at least four months and at most four years if a wolf is killed and the offence is aggravated when assessed as a whole.

Effective means of preventing the illegal killing of wolves are needed to achieve a favourable conservation status for the wolf and to implement methodical population management. Local communities play a key role in eradicating illegal hunting. A negative attitude towards illegal acts should be fostered in local communities, and the police should be informed of them. In this context, hunting associations play a special role. Active members of hunting associations know each other well and are aware of what is going on in their areas. They are in the best position to identify illegal activities and their perpetrators.

Supervision of wilderness reserves by the authorities plays a central role in the prevention of wolf poaching and the discovery of offences. The authorities include the police, the Border Guard and Metsähallitus. They carry out supervision of wilderness reserves both independently and collaboratively.

The police are the most important supervisors of hunting on private land. In some jurisdictions the police currently take little action to supervise hunting, and there are differences between various police departments in their intervention in suspicions of illegal killing of wolves. The reasons for these differences lie in customary procedures and the fact that supervision and the investigation of serious hunting offences require a relatively large volume of resources as well as expertise.

In Eastern Finland and Lapland, the authorities have for a number of years had collaborative supervision measures based on a cross-regional model of information-led targeted monitoring, flexible sharing of resources and effective communication and collaboration between the participating authorities. The model has proven effective,

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22 Liberg, O., Chapron, G., Wabakken, P., Pedersen, H. C., Hobbs, N.T. & Sand, H. 2011. Shoot, shovel and shut up: cryptic poaching slows restoration of a large carnivore in Europe. *Proceedings of Royal Society B: Biological Sciences*.

and the aim is to scale it in 2019–2020 to create a national action model to significantly enhance the effectiveness of the monitoring of wilderness reserves, especially with regard to the prevention and detection of the illegal killing of large carnivores, as well as other serious hunting offences.

Today, the risk of being caught for the illegal killing of a wolf is relatively minor. The resources available for supervision and investigations do not meet the needs. In order to step up supervision and thus prevent offences and to launch pre-trial investigations of illegal killings already perpetrated, the police would need to target resources at those areas with wolf territories where the risk of illegal killings is assessed to be the greatest, and especially in seasons during which wolf poaching is most likely to take place.

In order to reduce poaching, the Ministry of the Interior Police Department should allocate greater financial resources to the supervision of hunting. The illegal killing of a wolf is a serious hunting offence, and combating these crimes would thus have significant impacts on society at large.

The information activities of the police must be active, open, and transparent. The police should communicate information about their supervisory activities through regular media releases that would discourage illegal acts and encourage citizens to report their suspicions of illegal hunting to the authorities.

Supervision of hunting carried out by the Border Guard focuses on the border zone. Border Guard personnel play a particularly vital role, as the population in the border zone is sparse and there is little or no police supervision. Adequate resources must be allocated to supervision in these areas also in the future.

Metsähallitus hunting wardens supervise compliance with legislation on hunting, fishing and all-terrain and waterborne transport on state-owned land<sup>23</sup>. The hunting wardens have an important part in the prevention of the illegal killing of wolves, as a large share of the areas with wolf territories are found on state land or in its vicinity. Resources for hunting supervision on state land must also be secured in the future. In addition, we should look into expanding the powers of hunting wardens to also investigating the scenes of suspected serious hunting offences on private land. The powers of authorities supervising hunting must also be examined in a broader context, ensuring that adequately efficient means for investigating illegal acts are available.

Annual development seminars will be organised in late autumn, in which the supervisory authorities in areas with wolf territories, the game administration and the large-carnivore

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23 Act on Wildlife Monitoring Conducted by Metsähallitus (1157/2005).

research sector will take part. The purpose of the seminar will be to encourage closer cooperation and develop information exchanges and methodical supervision.

Under the Wildlife and Game Administration Act<sup>24</sup>, game management associations must assist the authorities in hunting management. Game management associations also currently have nearly 2,000 hunting wardens trained and appointed by the Finnish Wildlife Agency. Their task is to monitor the legality of hunting and game management in their operating areas, to report their observations to the authorities and to assist the authorities in the supervision of hunting.

There are major local differences in how actively local game management associations supervise hunting. These differences may be due to the different priorities of game management associations' activities rather than the level of activity of individual hunting wardens. The game management associations of areas with wolf territories should pay particular attention to planning and implementing the supervision of hunting. Adequate financial resources should be set aside for developing the supervision. The Finnish Wildlife Agency should assume a guiding role in the efforts to develop the efficiency of game management associations' hunting supervision.

The upcoming Life BorealWOLF project will generate technical capabilities and additional resources to support supervision.

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<sup>24</sup> Section 14 of the Wildlife and Game Administration Act (158/2011)

## 2.2 Damage prevention and measures to manage risk and damage

### 2.2.1 Prevention

#### **MEASURES:**

The Finnish Wildlife Agency will develop a proactive action model with a specific focus on communication and guidelines for large-carnivore network volunteers. Communication materials targeted at various groups will be produced and disseminated in cooperation with key stakeholders.

The Wildlife Agency will target localised, proactive communications based on the wolf population forecast model of the Natural Resources Institute and Tassu observations.

As new wolf territories emerge, the Finnish Wildlife Agency and local game management associations will work with the police and key stakeholders to organise information and training events to discuss the local wolf situation, how to prevent damage, and the roles of the authorities.

When a wolf pair starts to establish a territory, the first observations can be of damage caused by the wolves. In areas which have not had a wolf presence for a long time, farmers, dog owners and hunters have grown used to there being no threat from wolves. The first damage may therefore come as a surprise. As a result, negative attitudes towards the wolf can quickly develop. In the regional meetings it became clear that a communication and preparation plan should be drawn up specifically in areas where wolves may be establishing a territory. For example, it may be necessary to specify roles for wolf-related communications and determine what types of communications and information are likely needed locally.

The forecast model published by the Natural Resources Institute in June can be used alongside observational data to plan proactive communications in areas where the model suggests that a wolf pack may establish a territory. Advice can be sought from localities which have, or have had, an established wolf territory. Communications should be specifically targeted at sheep and cattle farmers as well as local residents and hunters. At the same time, work should be started to establish a territorial cooperation group in the area. In order to make effective use of proactive communications, it is necessary to initiate communication measures as soon as the latest population estimate and forecast are published. In addition, the Finnish Wildlife Agency can use observational data to provide advance information even before the actual population estimate is published, by using

snow-tracking data provided by the TASSU large-carnivore observation system, which can provide early indications about the arrival of a new wolf pair in an area.

The Life BorealWOLF project will produce and disseminate information about preventing livestock and dog losses and offer additional communication resources. As part of the project, the possibility of enhancing the use of location and observation data in livestock damage prevention will be investigated.

## 2.2.2 Responding to wolf problems, damage or threat

### **MEASURES:**

**The Finnish Wildlife Agency, the police and local actors providing executive assistance in large-carnivore matters will ensure effective intervention in recurrent observations of wolves in yards and gardens. The causes of wolf visits will be determined, and any carcasses will be disposed of.**

**The Finnish Wildlife Agency will decide upon measures to repel wolves if they frequently visit residential areas but have yet not caused a threat. If necessary, the agency will disseminate information about deterrent measures.**

**The agency will investigate and test deterrent methods and draw up a report on their effectiveness.**

**By virtue of Chapter 2, Section 16 of the Police Act, the police will issue an order to remove or put down a wolf that has lost its fear of humans after exercising discretion in individual cases.**

**Exercising discretion in individual cases, the police will prepare press releases on operations to repel or destroy wolves following the policies of their communication strategy.**

**The Finnish Wildlife Agency will collate and publish annual data on deterrent measures taken and wolves captured in operations licensed to prevent harm.**

An individual wolf that causes problems can be dealt with under a derogation granted by the Finnish Wildlife Agency or by an order of the police. Some of the citizens living in a wolf territory feel that the police fail to intervene, or intervene only in extreme cases, in the safety risk caused by wolves. Applying to the Finnish Wildlife Agency for a derogation on the basis of damage is experienced as difficult, and the criteria for being granted a derogation are found unreasonable. In cases where a derogation is granted, the stringent conditions make catching the wolf difficult. This has resulted in a situation where local residents feel they have no means of dealing with the behaviour of wolves that cause

problems. This may give rise to a feeling that the authorities or the game administration do not take the concerns at the local level seriously.

In these cases, various ways of repelling wolves, and killing wolves that are repeatedly observed close to human settlements, emerge as vital measures that also increase the fear of humans in wolves. The amount of damage and problems caused by wolves, and the extent to which the authorities and citizens can act flexibly and effectively in these situations, have direct links with local attitudes towards the occurrence of wolves. People living in a wolf territory need means for dealing with individuals that cause problems in the vicinity of human settlements independently of official actions.

The Police Act<sup>25</sup> contains provisions on the right of officers to capture or, as a final resort, put down an animal causing danger to human life or health, or significant damage to property. The limitations for the scope of application of the Police Act were defined in a statement of the Parliamentary Ombudsman<sup>26</sup>. According to the Parliamentary Ombudsman, the scope of application of the Police Act is mainly limited to responding to situations that involve a rapidly increasing risk and pose a serious hazard to human life, health or property in which there is no time to examine the preconditions for applying the Hunting Act or Decree. In particular, the statement notes that the purpose of removing individual wolves under the Police Act is not to be a preventive measure or a method of controlling the population. In situations that pose a risk to public safety that are not immediate from the perspective of applying the Police Act but which, however, are recurrent, the Finnish Wildlife Agency has the powers to assess the situation and take action in compliance with the Hunting Act.

In all areas with wolf territories, wolves may pass close to human settlements on individual occasions. Visits are more frequent in areas with above-average density of human settlement.<sup>27</sup> Wolves may either accidentally end up or purposefully find their way close to dwellings or livestock-production buildings. These visits often occur at night. This should not be considered atypical behaviour for a wolf. On the other hand, a wolf that visits yards and gardens repeatedly and regularly displays an atypical behaviour and may be considered a threat and a safety risk warranting measures to repel the wolf, or as a final resort, to put it down.

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25 Chapter 2, Section 16 of the Police Act (872/2011).

26 Decision of the Parliamentary Ombudsman, police action in a case related to hunting a wolf. (612/4/04)

27 Kojola, I., Hallikainen, V., Mikkola, K., Gurarie, E., Heikkinen, S., Kaartinen, S., Nikula, A. & Nivala, V. 2016. Wolf visitations close to human residences in Finland: The role of age, residence density, and the time of day. - *Biological Conservation* 198: 9–14.



It has been unclear for citizens concerned over wolves how often a wolf or wolves must come to the vicinity of human settlements before the residents can expect the action threshold to be exceeded and the authorities to intervene in the situation. The effectiveness of the threshold criteria was investigated in a separate project as part of the 2015 wolf population management plan. The National Police Board issued a set of guidelines to police departments based on the project findings.

If the criteria are met, solutions to the problem will be sought by assessing the situation on its individual merits. This assessment will be carried out in cooperation with local actors that provide executive assistance in large-carnivore matters, and it will be led by the police or the Finnish Wildlife Agency. Under both the Police Act and the Hunting Act, the primary target is to find a satisfactory solution that does not require killing the wolf. Using dogs to repel wolves that come close to human settlements, and various repellents that emit sound and light or afflict pain, may change the wolf's behaviour and inspire fear of humans in it.

It is extremely rare for a wolf to lose its fear of humans completely or almost completely. There is a fairly broad consensus that killing a wolf that has lost its fear of humans is justified. No consensus has been reached, however, on how the behaviour of a wolf having lost its fear of humans should be defined. The following definitions should provide clarity on the matter:

## **DEFINITIONS OF A WOLF THAT CAUSES CONCERN, THREAT OR DANGER**

**The premise:** A wolf which has lost its fear of humans may cause threat and/or danger to humans. Incidents and behaviour which may indicate that a wolf is not fearful of humans can be categorised as follows:

### **1. A WOLF CAUSING CONCERN**

A wolf or its tracks are seen within a 100-metre radius of a residential or industrial building, on a road or otherwise away from the immediate building surroundings.

### **2. A WOLF CAUSING POTENTIAL THREAT**

Wolf tracks are detected in the immediate surroundings of a residential or industrial building. Or, a wolf is seen outside and it leaves immediately when it detects human presence. Immediate surroundings refers to the maintained yard area of a residential or industrial building or buildings.

### **3. A WOLF CAUSING THREAT OR DANGER**

A wolf visits a built environment or residential area frequently and persistently without leaving immediately upon being detected.

#### 4. A WOLF CAUSING SERIOUS DANGER

A wolf approaches humans or does not leave upon being detected (loiters in the area, follows people or behaves in a threatening manner). Or, a situation where a wolf has already attacked or attempted to attack a person, a dog on a lead, or other household/livestock animal.

Incidents corresponding to categories 2–4 are considered safety risks and must be logged in the Tassu system. In addition, observations corresponding to category 1 should also be logged for research purposes, even though they do not pose an immediate safety risk.

The game administration and the police have sector-specific guidelines for responding to the types of threats and incidents described above.

**In general, incidents corresponding to categories 1 and 2 should be reported to the Finnish Wildlife Agency, which will decide whether deterrent measures are needed.**

**Incidents corresponding to categories 3 and 4 should be reported to the police. The police will respond in accordance with the National Police Board guidelines and decide on further action on a case-by-case basis.**

Citizens in an area with a wolf territory should be informed of actions to repel wolves and any cases where wolves are put down. If operations to repel wolves are carried out by the order of the police, the police are responsible for communicating about such operations. In addition, the police are responsible for communicating about their decisions on the destruction of individual wolves. Information about actions taken in cooperation between the game administration and local residents should be disseminated by the Finnish Wildlife Agency. Both the police and the Finnish Wildlife Agency should compile and publish annually information about actions taken.

#### **Derogations granted on the basis of damage**

Wolves also cause damage to livestock and domestic animals, of which reindeer herding, sheep farming and dogs bear the brunt. According to the policies laid down by a cooperation group on game management convened by the Ministry of Agriculture and Forestry, decisions on eliminating wolves that cause damage to property are mainly within the competence of the Finnish Wildlife Agency. This policy is based on decisions made by the Chancellor of Justice and the Parliamentary Ombudsman. If damage to property is associated with a risk to human safety, the police may also exercise discretion in the matter.

The basic principle is to strive to prevent damage to livestock and domestic animals. Preventive measures are discussed in paragraph 2.2.3. Where wolves cause particularly significant levels of damage, and preventive measures fail to work adequately, it is possible to kill a wolf by a derogation granted to prevent damage. The Finnish Wildlife Agency will make decisions on these derogations on grounds laid down in the Hunting Act and a Government Decree<sup>28</sup>. In addition, the rulings of courts of various instances lay down the policies for decisions on derogations. The criteria that the Finnish Wildlife Agency must assess in each case when granting derogations are laid down in the Hunting Act. The aspects that must be assessed include the existence of another satisfactory solution for preventing the damage, preserving a favourable status of conservation, and whether the derogation can help to prevent particularly significant damage. In each case of damage, the situation will be assessed on its individual merits, and no general policies can be developed to guide the decision-making.

### **Deterring visiting wolves independently**

According to section 37 of the Hunting Act, “during a closed season a game animal may not be hunted or harmed nor may its mating, nesting, or the young be disturbed”. The wording only prohibits the disturbance of the young.

Article 12 of the Habitats Directive prohibits deliberate disturbance of Annex IV species, including the wolf. However, the European Commission guidance on Articles 12 and 16 states that sporadic disturbances or scaring away of a wolf without any likely negative impact on the species should not be considered as disturbance under Article 12.

This interpretation has not been common knowledge. Scaring a wolf away from a maintained yard or pasture without causing it any harm is not prohibited by law. However, if a wolf is driven away by hurting it, or it is followed or chased outside a maintained yard or pasture, it is a breach of section 37 of the Hunting Act, and such action requires a permit from the Finnish Wildlife Agency and, in cases involving a concrete threat, a police order. In some circumstances, there may be grounds for necessity under Chapter 4, Section 5 of the Criminal Code.

### **Acute hazardous situations**

Under certain conditions, necessity entitles citizens to defend themselves, other people or property. (Provision on Necessity in Chapter 4, Section 5 of the Criminal Code.) For example, defending oneself or a domestic animal is permissible to ward off a compelling threat if the act when assessed as a whole is justifiable, taking into account the nature

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<sup>28</sup> Government decree on derogations laid down in the Hunting Act (452/2013).

and extent of the interest to be rescued and the damage and detriment caused by the act, the origin of the danger and the other circumstances. The provision further states that if the act committed in order to rescue a legally protected interest is not to be deemed permissible pursuant to subsection 1, the perpetrator is nonetheless free from criminal liability if the perpetrator could not reasonably have been expected to have acted otherwise, taking into account the importance of the interest to be rescued, the unexpected and compelling nature of the situation and the other circumstances.

As an example could be cited a case where a hunter shoots a wolf to save his or her dog in an unexpected situation. In a case where defence is a necessity, the act will be deemed permissible if the damage and detriment caused are not unreasonable compared to the interest that was rescued. When assessing the interest it must be noted that the indicative values of game animals will not be applied to an act of necessity or an act that is permissible under the necessity provision even if, in practice, the act is a violation of Hunting Act provisions. The assessment of whether or not the provisions on necessity are applicable is always based on overall consideration of each individual case, not on monetary values.

When assessing an act of necessity, in particular the unexpected and immediate nature and immediacy of the threat are weighed. A compelling threat refers to a degree of probability that is required for the act to be permissible. Realisation of the threat must be probable to the extent that the act may be considered reasonable. In addition, the threat must be immediate, which refers to the time frame of the incident. The threat must be close in terms of time: waiting would mean the actualisation of the threat. In addition, the provision states that the perpetrator is free from criminal liability even if the act were not deemed permissible due to an emergency or necessity if, when the situation is assessed, the perpetrator could not reasonably have been expected to have acted otherwise.

Two district court decisions have been issued in 2010 (District Court of South Karelia, 8 June 2010, 10/948, case: R10/460, and Pirkanmaa District Court 20 April 2010, 10/2344, case: R10/390), in cases where a wolf was shot in an acute situation. In one of the cases, a wolf had attacked a dog, and in the other, a wolf behaved in a threatening manner towards a human. In both cases the charges were dropped, and the act was considered permissible. In 2010, a Prosecutor's Office gave a decision in a case where wolves were chasing a hunting dog, threatening the health of the dog. In this situation, a wolf was shot. No charges were brought in this case, as the act was considered permissible.

Section 28 of the hunting decree of Sweden (1989/905) is often cited in Finland. Under this decree, a wolf may be killed if damage has already been caused, or if an attack is imminent. A wolf may also be killed when found inside a pen intended for livestock and there is justified cause to believe that the wolf will damage the livestock. However, the

wolf may only be killed if it cannot be frightened away, or if the attack cannot be fended off by some other suitable means. In acute situations, a wolf may be killed by an owner or a holder of property, or a person acting on their behalf. In Sweden, the provincial government proceeds to an initial assessment of situations described above, and if there is cause to suspect an offence, the provincial government reports the incident to the police.

Under the provision on necessity, the current Criminal Code in Finland entitles citizens to protect humans or property, including livestock, from wolf attacks. Killing a wolf is permissible to ward off a compelling threat and if the act, when assessed as a whole, is justifiable. The assessment of whether or not the provision on necessity applies always relies on overall consideration that weighs the individual merits of the case. The legislation on necessity and its practical significance are not, however, widely known to citizens.

If a wolf attacks a dog, there may be grounds for necessity under Criminal Code section 4:5. The statute is based on the right to defend property under attack, provided that the provisions on necessity grounds are met. In this kind of situation, the defended property is a dog and the threat is caused by a protected animal which cannot be lawfully killed without justification. However, the police as a pre-trial investigation authority cannot determine whether the defence of necessity under the Criminal Code has existed. If a protected wolf is killed or wounded and a defence of necessity is claimed, by law the police must file a report and carry out pre-trial investigation. These types of cases are, as a rule, investigated as serious hunting offences, which the shooting of a wolf or other protected large carnivore may constitute if a defence of necessity cannot be shown. The police must carry out pre-trial investigation even if the case may appear unambiguous to a lay person. In the pre-trial investigation, the police must investigate, for example, whether there was an immediate and compelling danger, and whether the action (e.g. shooting) was necessary in order to eliminate the danger.

When the pre-trial investigation is complete, the case is submitted to the prosecutor. If the prosecutor decides to bring a charge, the court will assess whether a justification (necessity) existed. The prosecutor may also consider whether a defence of necessity existed, and if so, not proceed with the case on the basis of "no offence committed". In accordance with the Finnish Prosecution Service guidelines<sup>29</sup> on non-prosecution decisions and their content, such a decision must be justified by a statement of reasons, which is based on the pre-trial investigation material. According to the same guidelines, decisions on illegality are more properly left to the court's discretion.

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29 The Finnish Prosecution Service guidelines on non-prosecution decisions and their content (VKS:2016:6, record no. 23/31/16).

There have been cases in recent years in which the prosecutor or the court has deemed that a legal defence of necessity existed for shooting a protected predator that had attacked a dog or livestock. However, each case is unique, and the circumstances and action taken must be investigated by the police as the pre-trial investigation authority to a sufficient degree in all cases. The court or the prosecutor decides whether a justification existed.

During the criminal proceedings (pre-trial investigation, consideration of charges and/or court proceedings), licensed guns possessed by the suspect may be temporarily confiscated by the police by virtue of the Firearms Act, or the gun used in the suspected offence may be confiscated by virtue of the Coercive Measures Act.

### 2.2.3 Preventing damage

#### **MEASURES:**

The Ministry of Agriculture and Forestry will allocate an appropriation for damage prevention to provide assistance on the purchase of e.g. predator-proof fencing to livestock farms which face significant threat from wolves. As part of the preparation of the Rural Development Programme for Mainland Finland, the possibility of routing some of the development funds to carnivore damage prevention will be investigated.

The Natural Resources Institute will continue to publish GPS tracking data on wolves on its web service from mid-August to the end of February in the following year. GPS data from wolf tracking collars will be generated and published as quickly as possible within the constraints of technology and legislation, including for damage prevention purposes.

The Finnish Wildlife Agency and Hunters' Association will provide advice and promote the building of wolf-proof dog pens and safe practices for hunting with dogs in wolf territories.

The Finnish Wildlife Agency will provide advice to livestock farms on preventing wolf damage.

Wildlife associations will coordinate possible volunteer activities in wolf damage prevention, e.g. the building and maintenance of wolf-proof fences.

#### **Prevention of damage to sheep and cattle**

According to the register of game damage, wolves killed on average 120 sheep a year in 2015–2018. Typically, wolves cause damage to sheep in the period extending from late July to October. In the 2015–2018 period, there were around 20–40 damage incidents. Wolves killed approximately 5–20 bovine cattle in 5–10 incidents. According to the game damage register, in 2018, damage to livestock/domestic animals (including dogs) caused by wolves

amounted to approximately EUR 150,000, of which EUR 65,000 were livestock losses and EUR 85,000 dog losses. Of the livestock losses in 2018, approximately EUR 50,000 was compensated for damage to sheep. Wolves have also caused some damage on fur farms.

Electrified predator fences set up to protect sheep and cattle efficiently prevent damage caused by wolves. Predator control fences are mainly suitable for pastures with a small surface area, and they need constant management to keep working, especially in the summer, when vegetation under the fence must be regularly removed. Procurements of predator fences on farms where the risk of wolf damage has been assessed to be significant have been supported from government funds. However, the responsibility for setting up the fences has rested with the farmer. Nature conservation and hunting associations have provided volunteers to help with this work.

One of the duties of the Finnish Wildlife Agency is to develop operating methods and products for preventing damage caused by game animals, test them, purchase products proved good, and instruct and guide actors in their use. Damage caused by game animals is prevented in cooperation with landowners' and producers' organisations. Particular efforts are being made to assist those livestock farms that sustain damage caused by wolves by offering direct support for damage prevention. In addition to fence-building, it is important to disseminate information locally about practices and changes that can help reduce the risk of damage in wolf territories, for example, in the care of livestock and other animals.

When a pair of wolves is taking over a new territory, particular attention should be paid to preventing damage on sheep farms. As observations of pairs of wolves are made, actions to prepare for wolf attacks should be developed proactively on sheep farms.

Support is available from the EU for the prevention of damage to livestock and other domestic animals caused by wolves and other large carnivores. The EU Large Carnivore Platform provides information about which rural development instruments can be used to fund damage-prevention measures. Further information about agricultural and rural development programmes that support coexistence between people and large carnivores is available [online](http://ec.europa.eu/environment/nature/conservation/species/carnivores/pdf/85_RD_leaflet_E.1.pdf)<sup>30</sup>. The Commission encourages member states to utilise available funding to support livestock damage prevention. Preventive measures such as fencing materials and installation costs can be reimbursed in full. The preparation of the next CAP (Common Agricultural Policy) is currently under way at the European Union and nationally.

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30 E-publication "EU Platform on coexistence between people & large carnivores": [http://ec.europa.eu/environment/nature/conservation/species/carnivores/pdf/85\\_RD\\_leaflet\\_E.1.pdf](http://ec.europa.eu/environment/nature/conservation/species/carnivores/pdf/85_RD_leaflet_E.1.pdf). Accessed 14 October 2019.

Livestock guarding dogs have increasingly been introduced in Finland to help protect production animals. It was estimated in 2013 that some 50 sheep farms were using dogs to guard the herd<sup>31</sup>. Experiences of using guard dogs to protect the animals have mainly been encouraging. The costs of procuring and maintaining a dog and the difficulties of training dogs have in some cases hampered these efforts. On the other hand, in large areas of pastures using a livestock guarding dog to protect the herd may be a cost-effective investment compared to such solutions as predator fences.

To be effective, a livestock guarding dog needs proper training. As the number of livestock guarding dogs increases, problems with training dogs purchased by farmers have come up. In some cases, the owners have not had the necessary know-how to train the puppies they have purchased. On the other hand, it must be noted that not all dogs make good working dogs. This is not a question of the breed but, rather, individual differences between dogs. To guarantee that livestock guarding dogs are of a high quality and suitable for their tasks, a system should be created for ensuring that dogs purchased by farmers have proper training, or for supporting owners in training their dogs.

### **Prevention of damage to dogs**

According to official game damage statistics, wolves have killed or injured some 30–50 dogs every year in the 2010s. However, not all cases come to the knowledge of the authorities. The greatest numbers of damage to dogs occur in Kainuu and North Karelia, where the numbers of wolves are also the largest. The threat to hunting dogs posed by wolves and actual losses of hunting dogs are key reasons for hunters' critical attitudes towards the wolf, and a contributing factor to illegal killing of wolves.

Some wolves and wolf packs have not killed any dogs, and some have killed them on very rare occasions. On the other hand, some individuals or packs seem to have specialised on hunting dogs, and even sought them out as their prey. Wolves that kill dogs see the dogs as their competitors or as prey.<sup>32</sup>

Dogs that chase game, and especially the Finnish Hound, are most at risk of all hunting dogs. With regard to elk-hunting dog breeds, most wolf attacks have targeted the Norwegian Elkhound, which is one of the most common of these breeds. Most of the dogs killed by wolves in residential settings have been Finnish Spitzes<sup>33</sup>.

31 Teinila-Huittinen, L. 2013. Laumanvartija pitää pedot loitolla. Pellervo 10/2013.

32 Kojola, I., Ronkainen, S., Hakala, A., Heikkinen, S. & Kokko, S. 2004. Interactions between wolves *Canis lupus* and dogs *C. familiaris* in Finland. – *Wildlife Biology* 10: 101–105.

33 Kojola, I. & Kuittinen, J. 2002. Wolf attacks on dogs in Finland. – *Wildlife Society Bulletin* 30: 498–501.



### **Prevention of damage in the vicinity of dwellings**

Approximately one half of situations where a wolf has killed a dog have occurred in the vicinity of a house. Dogs killed outside a house are often attacked by a lone wolf or a pair of wolves. For example, after being let out in the evening, the dog may have gone after a wolf that happened to be nearby, or the dog may otherwise have been surprised by a wolf. In domestic settings, dogs can be protected by keeping them in a secure dog pen or keeping them inside overnight, and by keeping dogs on a lead when out walking after dark.

### **Preventing injuries to dogs by planning the hunt**

Attacks on dogs by wolves in hunting situations mainly occur in Finland, Sweden and Norway. The three countries have a strong hunting culture based on the use of hunting dogs, where tough dogs that follow game in the forest at a great distance from their handler are favoured.

Hunters generally strive to take independent action to prevent injuries to hunting dogs. In most cases, they seek to establish if wolves may have been observed in the hunting grounds, for example by asking other hunters in the area about wolf observations or by looking for wolf tracks in the snow.

Prevention may be facilitated if dog owners recognise the tendencies of their dogs when faced with wolves. A dog's reaction to wolves is individual rather than determined by its breed. A dog may be interested in, indifferent to or fearful of a wolf. Dogs that are interested in wolves and may even chase them are likely to have a higher risk of being injured than dogs that are fearful of wolves.

Some hunters who go out with dogs check the recent movements of wolves and the latest observations posted by large-carnivore network volunteers on the riistahavainnot.fi web service before setting out, especially on weekend mornings in the autumn, to assess the risks of encountering wolves in various areas. Access to tracking information produced by GPS collars on wolves has been provided to all interested parties online since 2013, and before this year, by the so-called wolf helpline. The online service has had over a million visits in some years. From 2014, compilations of observations recorded in the TASSU system have been available on a web service that is publicly accessible. Research-based GPS collar projects should continue to help prevent dog losses, and the TASSU observation system should be developed further. GPS data from wolf tracking collars will be generated and published as quickly as possible within the constraints of technology and legislation. The possibility of enhancing the use of location and observation data in preventing livestock and hunting-dog losses will be investigated.

Some dog tracking devices already have a feature for importing wolf collar data from the Riistahavainnot.fi web service. This also enables hunters to remove dogs from sites where the risk is heightened. The service also provides area-specific observation data on large carnivores. All these features must be set up separately.

### **Protecting dogs while hunting**

Methods of protecting dogs while hunting used by hunters include being aware of and controlling the dog's movements, and tying the dog up and finishing the hunt in time before it gets dark.

Compared with these methods, attempts to protect a dog from wolf attacks by means of vests or protective devices incorporated in vests are rare. Protective vests for hunting dogs have been developed both in Finland and in Sweden. They rely on mechanical protection from bites, an electric shock or chemical repellents that drive away attacking wolves. Devices emitting sound and light that can be attached to a dog's collar developed to prevent wolf incidents and road and hunting accidents are also in the market. However, the efficiency of various devices intended to protect dogs is not very well known, as encounters between wolves and protected dogs in the forest are quite rare. Contributing reasons for not using the vests are their relatively high purchasing price and uncertain benefits in proportion to the risk of a wolf attack.

### **Management of cervid populations**

The size and species composition of the natural prey population may have a significant link to the frequency of wolf attacks on dogs. Cervids are the main prey of wolves, and if their numbers are low, wolves may become more motivated to attack dogs, which they see as rival competitors for food resources. There are fewer attacks in Sweden than in Finland relative to the number of wolves, and also fewer attacks in the western parts of Finland compared to the east. The sizes of cervid populations vary significantly between these areas, but the difference in the number of attacks could also be down to different hunting practices.

The Life project will produce and disseminate information about preventing livestock and dog losses and offer additional communication resources.

## 2.3 Development of knowledge about the wolf population

### 2.3.1 Safeguarding and development of population monitoring practices

#### **MEASURES:**

The Natural Resources Institute will produce a wolf population estimate annually in March. The estimate will be published in June. The population estimate will primarily focus on the number of family packs and pairs.

Population monitoring will to a great extent be based on observations logged by large-carnivore volunteers in the Tassu system. The Natural Resources Institute will continue to tag wolves with GPS collars, carry out DNA monitoring and gradually expand its DNA collection programme to make it as extensive as possible. A combination of extensive data and methods will be used to ensure the reliability and scientific rigour of the population estimates.

The Finnish Wildlife Agency will provide training on making and recording observations for all new large-carnivore network volunteers. The Finnish Wildlife Agency and the Natural Resources Institute will frequently organise training and development events for all large-carnivore network volunteers. Training on DNA monitoring will be offered to large-carnivore network volunteers. Where possible, DNA samples will also be harvested from livestock and other domestic animals killed or mauled by large carnivores.

The Ministry of Agriculture and Forestry will investigate the possibility of relaxing the regulations on GPS collars.

Data produced by camera traps will be used as part of the research sector's estimates of minimum pack sizes and the number of litters.

The Natural Resources Institute and the Finnish Wildlife Agency will investigate the possibilities of using citizen observations at a larger scale to support the voluntary efforts of large-carnivore network volunteers and population monitoring.

The Finnish Wildlife Agency and the Reindeer Herders' Association will promote the monitoring of large-carnivore populations in reindeer herding regions by training cooperatives' members to log observations of large carnivores.

Border Guard personnel will record observations of large carnivores in the TASSU system as per the agreed procedure.

In the continuous monitoring of the wolf population, a key role is played by large-carnivore network volunteers who make or verify and record wolf observations in their localities. Some 2,000 persons appointed by game management associations who have recorded observations are performing or have performed these duties. Observations are mainly made in the winter, and during each winter period in the last decade, 400–600

people have recorded observations of wolves. Observations will help in mapping established territories. If necessary, other methods can be used inside these territories to study the numbers of individuals and territorial boundaries.

A precondition for successful population monitoring is that the observations logged by the volunteer network on large carnivores enable the identification of all permanent wolf territories with as wide a coverage as possible. To achieve this, a large number of persons trained to make observations and motivated to record them will be needed. Organising training for all new volunteers joining these activities is a vital measure in supporting the work of the monitoring network on large carnivores. Events for developing the activities and giving feedback will also be organised annually for all large-carnivore network volunteers.

Regional branches of the Finnish Wildlife Agency will continue to appoint as local network coordinators individuals who have undergone observation training. The agency and the Natural Resources Institute will also promote observational activity among other volunteer groups, and participating individuals will attend observation training organised by the Finnish Wildlife Agency. Development of this initiative is already under way at the Natural Resources Institute. The Finnish Wildlife Agency and the Reindeer Herders' Association will train members of local cooperatives to log large-carnivore observations in order to enhance the monitoring of large-carnivore populations in reindeer herding regions. Similarly, Border Guard personnel will be able to log observations in the TASSU system according to a procedure agreed with the Border Guard Agency.

GPS collar data and DNA analyses have been utilised alongside observational data submitted by large-carnivore network volunteers. These methods are useful for separating out packs living in close vicinity of each other and for assessing the packs' numbers. DNA analysis also helps to identify non-territorial wolves in the area.

Sweden and Norway have introduced a joint mobile application (Skandobs) which can be used by citizens to report observations of large carnivores. The track scene inspectors of Sweden's county councils receive notifications through their own system, and they can then visit the scene to verify the observation. Citizens can also share images of potential large carnivores via the Skandobs application. The Natural Resources Institute and the Finnish Wildlife Agency will investigate the possibility of introducing this system in Finland. Alternatively, the Institute and the Agency will investigate the possibility of developing a comparable system in order to better utilise citizens' observations to support large-carnivore coordinators and the monitoring of the wolf population.

### **Tracking of wolf movements**

Observations recorded by volunteers in the TASSU system and tracking data on animals with GPS collars enable not only the monitoring of the wolf population size and population estimates but also almost real-time monitoring of the location and movements of wolves. These data are useful for e.g. hunting-dog enthusiasts, as hunting and training of dogs can be directed to territories where the probability of encountering wolves is smaller.

The Natural Resources Institute will continue to publicise the GPS collar programme and information about wolves' movements. Tracking data will be published online from mid-August to the end of February, which is the peak period for hunting-dog activities. No collar tracking data will be published during periods when wolves are nesting or have young cubs.

As camera traps have become more common, they have also become an important source of observational data. These observations can provide valuable information about a pack's breeding, minimum pack numbers, and pack health. The Finnish Wildlife Agency should take measures to encourage members of the public to submit photo observations of large carnivores for research purposes.

### **Population estimates**

Each year in early June, the Natural Resources Institute (LUKE) will publish a wolf population estimate, which is based on TASSU observations, DNA analyses and tracking data from GPS collars. The estimate is for wolf numbers in March of the same year. The reason for the timing is that the best data are available during the winter months, when the estimate is not significantly affected by young individuals roaming away from their birth sites. The March population estimate usually represents the situation immediately after the hunting season, when the numbers are at their lowest.

In summer, the numbers are significantly higher, as cubs are born in April and May. Total litter numbers are not determined until the next winter based on track observations and other evidence. LUKE also publishes a seasonal population trend forecast for the year ahead in conjunction with the population estimate.

Research carried out by LUKE is based on international and peer-reviewed methods. The institute has previously commissioned an international scientific evaluation<sup>34</sup> of its wolf population estimation method, and the findings were used in a research project to further

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34 Andrén H., Mönkkönen M. & Ovaskainen O. 2016. An evaluation of the scientific quality of Finnish wolf population monitoring. URL: [https://www.luke.fi/wp-content/uploads/2016/10/Wolf\\_report\\_final\\_version.pdf](https://www.luke.fi/wp-content/uploads/2016/10/Wolf_report_final_version.pdf). Accessed 14 October 2019.

develop the method. It is essential that the wolf population estimate be based on a robust scientific method. Description of the method is available for download [online](#)<sup>35</sup>.

### **Population forecast model**

The size and structure of the wolf population varies through the seasons. In spring the population increases when cubs are born, but from early summer it begins to shrink again for a number of reasons, including natural mortality. Also in spring, cubs born the previous year leave their birth packs, and they can then in theory roam anywhere in Finland looking for a mate and a suitable territory. In practice, most wolves establish a territory close to existing territory clusters. The number of pairs increases towards autumn, and the number of lone wolves decreases.

Since the size of the wolf population varies significantly through the seasons, LUKE has also developed a forecast model for estimating changes in the size and structure of the population.

The forecast model is based on wolf biology and a computer simulation which describes the breeding success of pairs, the movements of packs and lone wolves, and changes in mortality after the March estimate. The simulation has been developed based on domestic and international research and GPS wolf collar data. Changes in litter numbers are determined from GPS collar data collected in Finland and Sweden. Mortality estimates are based on international research, GPS collar data and previous variations in Finland's wolf population. The timings of departures from the pack, the rate of wolves' movements and the average territory size are based on GPS collar data collected in Finland.

According to the model, the wolf population can be around 50% larger in late autumn compared to the previous March. The increase is mostly due to cubs born in spring, but it also depends on the relative proportion of roaming wolves in the population. The model describes a situation where the volume of habitat is not a population limiting factor.

The Life BorealWOLF project will promote the development of population estimation methodology, the training of voluntary observers and the expansion of the volunteer network.

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35 Kojola I., Heikkinen S., Holmala K. 2018. Balancing costs and confidence: volunteer-provided point observations, GPS telemetry and the genetic monitoring of Finland's wolves. *Mammal Research* 2018, 63, Issue 4. pp 415–423. <https://link.springer.com/article/10.1007/s13364-018-0379-8> Accessed 14 October 2019.

### 2.3.2 Research on wolves, people and society

**MEASURES:**

Every other year, the Ministry of Agriculture and Forestry will commission a review of current scientific literature in social sciences, economics and other relevant fields on the topic of challenges relating to the coexistence of wolves and people. The review findings will be discussed in workshops with stakeholder groups to identify information needs and research questions on relevant societal and social topics. The possibility of utilising the findings in the management of the wolf population will also be reviewed.

The Natural Resources Institute will continue its existing research projects and participate in new ones on topics relating to the wolf and its societal dimension in cooperation with other research institutions and universities in Finland and, in particular, other Nordic countries.

The institute will promote the popularisation and availability of research data, especially via online platforms.

Multidisciplinary research on the wolf and large carnivores has increased considerably in recent years. Research reports have been published in a number of countries in Europe as well as in the USA. However, publications that can increase understanding of conflicts relating to large carnivores and wolves are often overlooked and not utilised enough in game administration. For that reason, it would be necessary to collate these research data into a single source as comprehensively as possible.

The Life BorealWOLF project will support and carry out multidisciplinary research relating to the wolf.

## 2.4 Developing dialogue between administration, research and stakeholders

### MEASURES:

The Ministry of Agriculture and Forestry will cooperate with the Finnish Wildlife Agency, the Natural Resources Institute and key nationwide stakeholder groups to organise regular thematic wolf forums, which will be led in turn by different parties.

The ministry will work with regional game councils to organise supraregional workshops, which can be led by external communication specialists, if necessary.

Regional game councils will organise annual stakeholder meetings on the topic of large carnivores, and invite representatives of territorial cooperation groups to attend.

The Natural Resources Institute will continue to publish a summary of TASSU data and other relevant material in conjunction with its population estimate. The institute and the Finnish Wildlife Agency will ensure that large-carnivore network volunteers receive timely feedback.

The Finnish Wildlife Agency will support and develop the activities of territorial cooperation groups.

### Trust and information

A key target of the Management Plan is to build trust between actors involved in the management of the wolf population. The lack of trust is demonstrated in the fact that the actors feel they cannot trust each other's motives or actions, or information produced by the other parties. The cornerstones of building trust are open discussion and concrete action to promote a common cause.

According to a survey commissioned by the Finnish Wildlife Agency from Taloustutkimus in 2018<sup>36</sup>, a growing number of people in Finland trust research professionals in the assessment of large-carnivore populations. The number of 'don't know' and 'disagree' responses has decreased.

In some areas, some hunters and local operators have expressed strong distrust about the will and aims of the game administration in wolf-related matters. The motives and methods of the Natural Resources Institute Finland have also been criticised.

36 Finnish Wildlife Agency. 2018. Suomalaiset suhtautuvat metsästyksen erittäin myönteisesti. Finnish Wildlife Agency 31.5.2018. On the webpage: [https://riista.fi/suomalaiset-suhtautuvat-metsastykseen-erittain-myonteisesti/?doing\\_wp\\_cron=1560841732.2701721191406250000000](https://riista.fi/suomalaiset-suhtautuvat-metsastykseen-erittain-myonteisesti/?doing_wp_cron=1560841732.2701721191406250000000) Accessed 14 October 2019.



The distrust is partly a remnant of practices and methods from many years ago, which are no longer used. The distrust is therefore historical in nature. That said, there is also distrust about future developments. There is a belief that wolves will cause something which the administration does not want to or cannot tackle. Deeply ingrained and learned beliefs also cause distrust.

In some cases, a culture of distrust is nurtured intentionally. This is often done by a small but vocal group of people. Typically, it involves repeatedly recounting past events, reminding people of their previous mistakes, and actively denying a criticised person or organisation an opportunity to prove their trustworthiness. This deliberate nurturing of distrust is aimed at increasing uncertainty and questioning the knowledge base of decision-making and the legitimacy of those involved. It seeks to influence decision-making indirectly by challenging established power structures (information resources used in decision-making) and distorting the rules and criteria (e.g. credibility) of appraising the information that underpins decision-making. The underlying causes of distrust should be explored and discussed to enable trust to be built.

For example, the basic building block of trust is believing that the information provided is correct and that it is being used for appropriate purposes. The former refers to research methods, the latter to politics. Trust in the correctness of information can be increased by openness. This means that research and decision-making information on the wolf is accessible to all interested actors. Active measures are also needed to enhance the accessibility and discoverability of information. In a broad sense, openness means that data and research findings are made available as openly and quickly as possible to all actors and citizens.

The data collection process, stages of analysis and purpose of wolf population assessments will be communicated in plain language, and communication measures will be enhanced. Observational data submitted by citizens are available on the [riistahavainnot.fi](http://riistahavainnot.fi) website, and the website will be publicised more widely.

Residents in wolf territories play a key role in producing information about the wolf, and they also experience the greatest need for information about the wolf population in their area. At the local level the information can, for example, be used to prevent damage. Producing information is particularly vital for research in large carnivores and for the game administration. It lays the foundation for local and national estimates of the wolf population, preventive actions, and derogations granted to prevent damage and to manage the population.

## **Openness of monitoring data**

It is important for the effectiveness of the TASSU information system that observations made in wolf territories are reported to large-carnivore network volunteers and logged in the system. Citizens must be made aware of the system's existence and the importance of reporting their observations. In practice, this means that municipalities, game management associations, the local media and various organisations regularly spread information about the volunteer network on large carnivores. The Natural Resources Institute is responsible for ensuring that the system is technically functional, and the Finnish Wildlife Agency, game associations and large-carnivore network volunteers are responsible for ensuring that the observation network functions well.

The rate at which observations are logged varies greatly between different areas for different reasons. For example, it has been suggested that large-carnivore network volunteers feel that the logging of observations has no bearing on the population estimate. The Natural Resources Institute publishes annually the data on which its population estimate is based. This information is accessible to everyone online, so that local-level actors can see the importance of their wolf observations for the population estimates.

Volunteers' motivation to log observations will be encouraged, for example, by improving the way in which they receive feedback about their activities and the importance of observational data. Feedback is at the core of all game censuses carried out by volunteers. It promotes motivation and cooperation, and also supports the development of research methods.

The Finnish Wildlife Agency and the Natural Resources Institute will continue to arrange an annual development and feedback event for the large-carnivore network volunteers in each district of the agency. In addition, the agency and the institute will agree a detailed plan to ensure that a LUKE representative can attend each region periodically, e.g. every three years, from the point of view of its human resources. LUKE will develop a more comprehensive set of feedback materials that can be used in the meetings in years when its representative is not attending the local meeting. At these events, estimates of large-carnivore populations in the area and recorded observations by each individual game management association will be presented, training for the volunteers will be provided, and possibilities of developing the activities will be discussed.

Trust in research on large carnivores will be promoted by developing a range of communication measures to reach different target groups by using effective and diverse communication platforms and channels, for example, to disseminate information about the tagging of wolves with GPS collars. Currently the Natural Resource Institute publicises tagging information nationally, as well as directly to the game association in whose district

a tagging project has been carried out, and notifies relevant authorities about the start of each tagging project and its outcomes. The institute and the Finnish Wildlife Agency will investigate ways to better communicate about tagging projects to local residents. In order to ensure that the work can be done safely and without disruptions, it is not possible to publish details of collar tagging projects in advance, except where appropriate by notifying the relevant authorities specified in the permit.

### **Regional and national meetings**

In conjunction with the updating of the management plan, in spring 2019 seven supraprovincial events with instructor-led workshops were organised. The discussions were constructive and respectful. The events were a good way to ensure that information can flow from the regions and stakeholder groups to the administration, and not just from top down. The events were attended by an external discussion facilitator whose presence was particularly helpful.

These types of instructor-led broad-based meetings with key stakeholders and media representatives, including ones organised nationally and by regions together, must continue and be given a framework. The national wolf forum event organised in 2017 by the Finnish Hunters' Association in cooperation with the Ministry of Agriculture and Forestry could be used as a template for the national meetings. In 2018, the event was organised by the Finnish Wildlife Agency. Future meetings will be hosted by different stakeholder groups.

The Finnish Wildlife Agency will organise annual meetings to discuss the situation and special issues of population management in the area(s) with wolf territory. Participants at these meetings will include representatives of the game management association, stakeholders at the level of individual territories, municipalities, the cooperation group in the area with wolf territories, and representatives from the regional wildlife agency. The Natural Resources Institute will support the Finnish Wildlife Agency by producing customised materials for the events. A representative from the institute will attend events which are held in conjunction with other larger events organised by the Finnish Wildlife Consortium.

In addition to national Game Administration, matters concerning large carnivores were addressed by volunteer regional Advisory Committees on Large Carnivores, which generally fall under the purview of Regional Councils. The Advisory Committees on Large Carnivores are comprised of representatives from various stakeholders, with the aim being to tackle matters concerning large carnivores and their management in an effort to alleviate conflicts involving them. The committees play a key role in disseminating current information about the research and monitoring of large carnivores to various

stakeholders. The committees can also serve as initiators in regional issues involving large carnivores.

At present, there are eight Advisory Committees on Large Carnivores: South Karelia, Kainuu, Central Finland, North Karelia, Pohjois-Savo, Swedish-speaking Ostrobothnia, Satakunta and Southwest Finland. In addition to the regional Advisory Committees on Large Carnivores, there is a large-carnivore committee for the reindeer herding area and large game forums in Uusimaa and South and North Häme, which deal with cervids as well as large carnivores.

The Life BorealWOLF project will promote dialogue between different parties.

### 2.4.1 Supporting and developing the activities of territorial cooperation groups

#### **MEASURES:**

The Finnish Wildlife Agency will support the establishment of territorial cooperation groups in new wolf territories.

The agency will support the groups by producing current information materials on wolf-related topics and by preparing materials for meetings.

The Finnish Wildlife Agency will organise annual development meetings open to all territorial cooperation groups.

A representative from the regional game council or the Finnish Wildlife Agency will attend each annual meeting.

Representatives from the territorial cooperation groups will be invited to annual regional and supraregional stakeholder meetings organised by the game administration.

The Finnish Wildlife Agency will investigate possibilities to support the activities of territorial cooperation groups financially, for example, in the form of a fee paid to group convenors/secretaries.

The territorial cooperation groups will disseminate information about wolf biology and the local wolf situation to residents, submit statements to local bodies and the administration, promote damage-prevention measures, and contribute information to wolf research.

Game administration bodies will clarify the role of the territorial cooperation groups in wolf population management.

The previous management plan proposed a measure to establish regional cooperation groups on wolf territories, in which representatives of different stakeholders could meet to evaluate the local wolf situation and discuss measures and solutions to problems as they arise. Since 2015, 27 such groups have been established around Finland (figure correct at the time of writing). Some groups cover more than one wolf territory. The groups have been set up by regional game councils in cooperation with the Finnish Wildlife Agency and game management associations operating in wolf territories. However, as a departure from the project description presented in the management plan, no territory coordinators have been recruited, and instead the groups' activities have been steered by the Finnish Wildlife Agency and funded on a project basis by the Ministry of Agriculture and Forestry.

The groups include representatives from game management associations, local authorities, local hunting associations, nature conservation associations, and local cattle farmers; one representative from each stakeholder. In some areas, the group members also include representatives of the police, Metsähallitus and the Border Guard as well as various local associations. When establishing a group or making changes to its composition, attention should be paid to ensuring that the group represents the local population well. In some groups, meetings have been attended by a representative from the Finnish Wildlife Agency, in some cases as a convenor, which has enhanced cooperation between the group and the game administration. In the future, a representative from the game administration must attend a meeting of each group annually.

Territorial cooperation has helped local residents to better understand issues relating to wolves and offered a platform for promoting trust and reducing informational conflicts. The role of the cooperation groups is to generate local situational awareness of the wolf population and to plan preventive measures. At their discretion, the groups may also produce situational reports relating to derogations. In addition, the groups may discuss issues specific to the area. Meeting materials are provided to the groups four times a year as per the planning calendar, but in practice there are usually 2–3 meetings per year. The meeting memoranda are published [online](#)<sup>37</sup>, and the Finnish Wildlife Agency collates an annual report of the groups' statements and relays their views and suggestions to the administration.

The agency will support the groups by producing current information materials on wolf-related topics and by preparing materials for meetings. Some group members have expressed criticism as they have felt that the topics and agenda have been predetermined too strictly due to steering by the administration. In the game administration's view, the preparation of the agenda is important to provide a framework for territorial cooperation.

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37 Meeting memos of the cooperation groups are online: <https://riista.fi/en/riistatalous-2/game-stock/cooperation-groups-of-wolf-territory-areas/> Accessed 14 October 2019.

It ensures that all groups are able to work in a meaningful way and discuss topical matters. The groups can choose which materials they use and to what extent. The Finnish Wildlife Agency will continue to support the groups' activities by producing current materials and serving as a link between local actors, the game administration and research organisations. The agency will also steer the establishment of groups in new territories. As a result of the reform on government aid to game management associations, the Finnish Wildlife Agency will collect the groups' annual reports on operations in order to settle the aid payments to the territorial cooperation groups.

Feedback received from regional workshops during the updating of the management plan shows that information exchange and cooperation between the groups is seen as important. The game administration must continue to promote communication between the groups as well as dialogue with stakeholders. In joint meetings, groups can share experiences and approaches that have been found effective. In addition, group representatives can be invited to regional negotiations.

Territorial cooperation has previously been based on voluntary work by the group members. As of 2019, groups will receive support in the form of government aid allocated for game management associations, which, depending on the area and the associations involved, usually covers basic overheads, i.e. meeting costs. There are, however, calls for financial resources that can be targeted at measures chosen by the groups themselves. An online survey of the groups produced a suggestion that a coordinator should be appointed in each territorial cooperation group to coordinate activities and report to the group about developments in its area. It was proposed that a fee would be paid to the coordinator based on logged hours and travel expenses, with the amount weighted according to the number of wolf territories covered. The coordinator would also disseminate information to local residents, media and the authorities of the territory area. The Finnish Wildlife Agency will investigate the possibility of introducing this kind of compensation model.

The game administration must ensure that the objectives of territorial cooperation are clear to the groups and to residents. Some groups have felt that their activities have not had any impact. The groups' objectives must be clarified so that their work is known and recognised, and an impactful and valued part of wolf population management. The groups' activities will be frequently publicised in local papers and on the groups' own web pages. Conversely, the expert status of the groups requires them to play an active role.

One of the key objectives of territorial cooperation is to disseminate information about the wolf and population management to local residents. For example, this includes information about the observation system to support scientific assessments of the wolf population. The territorial cooperation groups will work with local large-carnivore network volunteers to enhance communications about the importance of the removal of carrion

and appropriate handling of waste products of animal origin. Carrion and the associated problems (wolves entering residential areas and becoming used to humans) have been frequently highlighted in the groups' statements and in the responses of online surveys. The groups should be offered communications support, for example, by providing bulletin templates and recommending suitable communication channels.

The Life BorealWOLF project will support the operational development of the territorial cooperation groups.

## 2.4.2 Development of communications

### **MEASURE:**

**The Ministry of Agriculture and Forestry will coordinate a joint communication plan of the Finnish Wildlife Consortium for communicating topics relating to wolves and other large carnivores; the plan will be updated annually. Cooperation between stakeholders will be developed with regard to communications.**

**Together with game management and research agencies and key stakeholders, the Ministry of Agriculture and Forestry aims to address the challenges of social media discourse, particularly through communications. These challenges include the dissemination of disinformation and misinformation on topics such as wolf-related research, and occasionally very inappropriate discussion about people working on wolf-related issues.**

Communications development is essential to promoting knowledge and trust between different parties. During the updating of the wolf population management plan, it was repeatedly highlighted that the challenge relating to trust and the dissemination of information could be tackled by developing and coordinating communication about wolf-related topics and cooperation in this area. Effective communication requires openness, dissemination of information, dialogue, and disseminating the vision and strategy. Communication is also important to the proper implementation of the planned measures. Effective communication will also make the measures more effective.

The organizations of the Finnish Wildlife Consortium<sup>38</sup> have already improved cooperation in wolf-related communications by organising frequent meetings on the topic. The Finnish Wildlife Consortium includes the Ministry of Agriculture and Forestry, the Finnish Wildlife Agency, game management associations, the Natural Resources Institute, Metsähallitus

<sup>38</sup> The Finnish Wildlife Consortium includes the Ministry of Agriculture and Forestry of Finland, the Finnish Wildlife Agency, game management associations, the Natural Resources Institute, Metsähallitus and the Finnish Food Authority.

and the Finnish Food Authority. Currently communications about wolf-related issues are mainly delivered by the Ministry of Agriculture and Forestry, Natural Resources Institute, Finnish Wildlife Agency and Metsähallitus. The police also communicate about wolf-related issues as part of their work. The wolf communications team of the Finnish Wildlife Consortium has been working on a joint communication plan and annual schedule for the administration. One of the aims of the communications plan is to clarify the communication roles and responsibilities in the administration. The communications team is convened by the ministry.

In addition, communications coordinators of the Wildlife Consortium have drawn up an annual schedule which specifies key communications to be delivered over the course of the year. They correspond to specific events relating to the wolf population which occur annually and can thus be visible to the general public. The recurrence of such events is also reflected in the media: for example, in summer, headlines report on livestock losses, and in autumn, when the hunting season starts, there are reports about dog losses. The primary objective of collaborative communication and the annual schedule is to facilitate proactive communications about recurring wolf-related events and thus help prevent damage.

### Developing collaborative communications and dialogue between the Finnish Wildlife Consortium and stakeholders



Figure 4. A description of the development of collaborative communications and wolf-related communications coverage.



Both the wolf population management plan and the Finnish Wildlife Consortium's communication plan emphasise the importance of developing cooperation in communications. The aim is to improve communication between the authorities and stakeholders and thus improve the effectiveness of communications at the national, international and local levels.

Key collaborators and stakeholders include e.g. game management associations, territorial cooperation groups, large-carnivore network volunteers, nature conservation and hunting associations, representatives of the agricultural sector, village societies and especially people who live in the vicinity of wolf territories. The aim is to establish practices for joint communications and improve the reach and impact of communications on wolf-related topics. In particular, the intention is to improve dialogue between the administration, stakeholders and locals. In practice, this could involve jointly produced communication materials, offering advice about communication and interaction matters, exchanging information, organising joint training events as well as workshops to enhance cooperation.

Wolf population management also includes international cooperation, for example, with Norway, Sweden and the EU. Communications in this area will be developed by publicising international cooperation and disseminating information about wolf population management in other countries.

### **Communication channels and materials**

The wolf communications team of the Finnish Wildlife Consortium has identified a need for diverse communications materials, which also became evident during the management plan updating process. One of the objectives in the development of collaborative communications is to coordinate and develop how the materials are produced and disseminated.

Wolf-related communications are important in promoting tolerance and building a foundation for the wolf's acceptance and its coexistence with people. A need to make the wolf better known as an animal and species has also been identified. Information about the wolf's role in the ecosystem and Finnish nature is needed. For example, a communications campaign tailored around this topic could be implemented. Short information packages about wolves are needed for e.g. local residents, schools, large-carnivore network volunteers, territorial cooperation groups, etc.

Currently information about wolf-related topics is available online at [largecarnivores.fi](http://largecarnivores.fi), which is published by Metsähallitus, the [riistahavainnot.fi](http://riistahavainnot.fi) service of the Natural Resources Institute, as well as websites of other organisations that are part of the game administration. Wolf research and population monitoring are key topics in these communications. Effort

has been made to make research data accessible to laypersons and to use a range of communication channels; for example, the Natural Resources Institute used a video clip to illustrate how the wolf population forecast model works and describes trends in the population. Research communication and accessibility will remain a key focus.

The accessibility and better findability of wolf-related information were also highlighted in stakeholder meetings organised with regional game councils. The effectiveness of wolf-related communications will be improved by mapping the target groups, investigating local needs for information and communications, and developing information-sharing solutions. It is also important to improve the accessibility of information by investigating which media channels are likely to reach target groups best. Online communications will be developed to make wolf-related information published by the game administration easier to find. For example, information could be targeted by producing annual newsletters containing wolf-related news and information from Finland and abroad.

The use of new types of online communications was also highlighted during the updating process. The aim is to develop wolf-related communications and dialogue between different groups by utilising channels that facilitate virtual discussions. In practice, this can mean online Q&A sessions, use of social media, and facilitating participation by video link.

### **Challenges in communication and dialogue**

During the updating process, challenges were identified specifically with regard to so-called fake news, misinformation and occasionally extremely inappropriate ad hominem attacks in social media discussions as well as in other media channels. The phenomenon also touches research organisations and the administration.

It could be said that the wolf is in some respects a political animal, which should be taken into account in communications. In this context, the political nature means that the wolf as a topic is connected with other, broader social and sociological questions, such as the urban–rural divide. Criticising the wolf policy can be a way to criticise EU-level politics and governance. These challenges are not easy to tackle, but active communication, dialogue and factual information can help.

In regional meetings, calls have been made specifically for more dialogue with the administration and the research community. For this purpose, regional workshops (see paragraph 2.4.) will be developed and online communication channels will be used.

The Life BorealWOLF project will produce significant additional resources for wolf-related communications and support joint communication measures carried out by multiple operators.

## 2.5 Cross-border cooperation

### MEASURES:

The Ministry of Agriculture and Forestry will work with Swedish and Norwegian authorities who are responsible for large-carnivore matters to prepare a framework agreement for regular cooperation and information exchange between administrations and research communities.

The ministry will investigate the possibility of establishing joint electronic systems with Sweden and Norway to collect e.g. observations from the general public.

The Natural Resources Institute and the Finnish Wildlife Agency will regularly monitor the migration of wolves to Sweden in cooperation with other Scandinavian large-carnivore researchers.

In the southwestern reindeer herding region, the suitability of natural values trading in wolf population management will be assessed, if targets related to the migration of wolves from Finland into the Scandinavian wolf population are not achieved.

The ministry will work with Swedish authorities to investigate the possibility of introducing the EU's Platform concept in Finland and Sweden.

The Ministry of Agriculture and Forestry will increase cooperation with Russian game management authorities.

### 2.5.1 Cooperation with Swedish and Norwegian authorities and research communities

The reindeer herding areas in Finland and Sweden are located on a migration route used by wolves to travel between the wolf populations in Scandinavia, Finland and Russian Karelia. Safeguarding the migration of wolves between the populations is important in order to promote genetic diversity in the Scandinavian wolf population. Today, young wolves can freely migrate to Sweden through the Finnish reindeer herding area in the spring and summer. In 2001–2013, a total of 19 individuals moved from Finland to Sweden<sup>39</sup>, only a handful of which reached the Scandinavian population, as most of them die in the Swedish reindeer herding area. Similarly, wolves from the Scandinavian population also migrate to Finland. Wolves fitted with GPS collars migrated from the Scandinavian population to Finland in 2003 and in autumn 2015, at which time a young male travelled from Norway through Sweden and Finland to Russia. In addition, according

<sup>39</sup> Liberg, O. Lecture, 2014.

to a currently unpublished study, three of the 30 wolves harvested by derogation licence in the reindeer herding area originated from the Scandinavian wolf population.

The Swedish management plan for the wolf population states that with the current numbers of the Scandinavian wolf population (370 individuals), the population should gain at least one breeding individual over a wolf generation, or five years. Finland will contribute to safeguarding the migration of at least one individual in five years from Finland to Sweden.

Finnish, Swedish and Norwegian authorities responsible for large-carnivore matters are currently preparing a framework of actions for the transboundary management of wolves in Fennoscandia. The framework will lead to more concrete cooperation between the three countries. Officials of the Swedish Environmental Protection Agency can access the game damage register, and conversely in Finland the officials of the Ministry of Agriculture and Forestry and the Finnish Wildlife Agency can access Sweden's large-carnivore database.

The game research actors in the relevant countries work together to monitor the migration of wolves between Finland and Sweden and Norway. Monitoring is facilitated by the fact that an almost complete genetic family tree exists for the wolves of Scandinavia. Copies of DNA samples harvested from live wolves in Finland are submitted to the Grimsö Wildlife Research Station in Sweden, and Swedish researchers can then create a DNA profile using markers available in Sweden. This will enable wolves entering the Swedish reindeer herding area to be identified more quickly, which means that the Swedish Environmental Protection Agency can increase its efforts to ensure gene flow between Finland and Sweden.

Finland is also prepared to negotiate with the Swedish authorities on cooperation to translocate wolves from Finland to Midland Sweden if genetic diversity in the Scandinavian wolf population cannot be secured by the natural migrations of wolves alone. No translocations will be carried out within Finland's borders.

A project is under way in the reindeer herding area to evaluate the suitability of natural values trading for wolf population management purposes in the event that targets are not achieved with regard to the breeding of genetically important wolf individuals in Sweden's population. The primary aim is to provide public compensation to residents of the reindeer herding area who suffer losses or harm caused by the wolf, in order to promote peaceful coexistence and social acceptance of the wolf.

## 2.5.2 Cooperation with Russian authorities

In 2011, the Ministry of Agriculture and Forestry and its counterpart in the Republic of Karelia signed a memorandum of understanding on cooperation in the hunting and game management sector. The forms of cooperation outlined in the memorandum include the sharing of information about game population trends and harvested numbers. In practice, cooperation has been sporadic.

So-called border packs are frequently spotted on the Finnish–Russian border, which are important to the diversity of the wolf population in Finland. In recent years, the population's genetic diversity has declined, and cooperation with game authorities in Russian Karelia should be intensified.

As part of the Life BorealWOLF project, an action plan on closer Nordic cooperation as well as cooperation with Russia will be produced.

## 2.6 Population management measures

### 2.6.1 Multi-species approach

#### MEASURES:

**In large-carnivore areas, the sustainability of deer animal hunting and cervid population management will be ensured by taking into account the impact of large carnivores on cervids, and the impact of cervids on large carnivores, in cervid and large-carnivore hunting programmes.**

**The Natural Resources Institute will produce data for multi-species population management purposes, especially with regard to interactions between and within large-carnivore populations and cervid populations, as well as other population-regulating factors.**

### Cervid populations and the wolf

High prevalence of large carnivores has a bearing on the management of deer populations, especially in wolf territories and areas with bear presence. Bears kills elks, especially in spring, hunting mostly calves. Wolves have a significant impact on the elk population in wolf territories, and they mainly hunt calves both in winter and summer.<sup>40</sup> The white-tailed deer population, which has grown significantly, is an important food

<sup>40</sup> Ministry of Agriculture and Forestry of Finland. 2014. Suomen hirvikannan hoitosuunnitelma.

resource for wolves, especially in southwestern Finland. As a result of climate change, new areas suited to the white-tailed deer will likely develop, which may also have a bearing on the wolf population.

Large carnivores can impact hunting practices as well as the numbers of deer animal populations. Especially in wolf territories, there is a risk of hunting dogs being killed or mauled by wolves, which has an impact on elk hunting.<sup>41</sup>

In consultations and surveys organised during the preparation of the elk population management plan, various views were expressed about the need to consider the impact of large carnivores. There were calls to limit large-carnivore populations in favour of the elk, while others saw large carnivores as a population-regulating factor alongside elk hunting carried out by people. Some wanted to see larger elk populations in wolf areas, while others were apprehensive due to the potential damage caused by elks. There were also calls for regulating the numbers of large-carnivore populations and alleviating their impact on the elk population. It was felt that large carnivores hinder elk hunting, as they can cause damage and hazards, influence the behaviour of elks and cause fluctuations in elk numbers. On the other hand, some took the view that hunting practices can be adapted to take into account the impacts of large carnivores. In the elk survey, the majority of respondents saw little or no need for taking into account the food resource needs of large carnivores in the management of the elk population. The impact of large carnivores was seen as a local or insignificant issue. Those who felt that large carnivores should be taken into account saw them as a natural regulating factor for the elk population.<sup>42</sup>

The impact of large carnivores should be taken into account in the target-setting of elk population management, in cull planning and hunting. In previous recommendations on elk culling, the impact of large carnivores has been taken into account in the calculation formula. However, in some areas the elk population has decreased more than expected, because the combined impact of large carnivores and hunting has not been considered properly or with sufficient accuracy. There is a need to develop the way in which data on large-carnivore numbers and their impact is produced for the purposes of elk population management.<sup>43</sup>

The continuity of elk hunting will be safeguarded also in areas with high numbers of large carnivores. Large carnivores cannot alone regulate the elk population to a sufficient degree, not even in wolf territories where wolves have a high impact on elk numbers.

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41 Ministry of Agriculture and Forestry of Finland. 2014. Suomen hirvikannan hoitosuunnitelma.

42 Ministry of Agriculture and Forestry of Finland. 2014. Suomen hirvikannan hoitosuunnitelma.

43 Ministry of Agriculture and Forestry of Finland. 2014. Suomen hirvikannan hoitosuunnitelma.

Furthermore, the prevalence of large carnivores fluctuates, and territories change. The preservation of elk hunting opportunities in areas with high numbers of large carnivores can also promote social tolerance of large carnivores. Sustainable management of the elk population helps to ensure the availability of adequate food resources for carnivores.

Estimates produced by game researchers on large-carnivore numbers and their quantitative and qualitative impacts on the elk population must be taken into account in elk cull planning and hunt allocations.<sup>44</sup>

The Life BorealWOLF project will contribute to the development of the knowledge base and methods of multi-species population management, taking into account societal and economic factors.

## 2.6.2 Hunting wolves to manage the population

### **MEASURES:**

**An action model for hunting as population control, the associated targets and their reasoning will be prepared by a broad-based working group, provided that interpretation of the Habitats Directive allows for this.**

**Hunting as population control will be regulated to a level where it does not compromise the ability to maintain a minimum viable population or prevent the attainment of a favourable conservation status for the wolf.**

In 2013, the Ministry of Agriculture and Forestry commissioned the University of Helsinki to carry out an external evaluation of the Finnish National Policy on Large Carnivores<sup>45</sup>. According to the results of the evaluation, Finland's wolf policy was unsuccessful and a change of direction was necessary. The illegal killing of wolves had caused Finland's wolf population to plummet. Illegal killing was widely supported by local communities, as derogations were rarely granted and the process was very bureaucratic. The ministry had permitted derogations only on the grounds of damage in accordance with section 41a(1) of the Hunting Act.

Damage-based derogations are based on Article 16(1)(a-d) of the Habitats Directive (92/43/EEC). The bureaucracy of these derogations and the limitations related to their

<sup>44</sup> Ministry of Agriculture and Forestry of Finland. 2014. Suomen hirvikannan hoitosuunnitelma.

<sup>45</sup> Pohja-Mykrä M. and Kurki S. 2014. Kansallisen suurpetopolitiikan kehittämisarviointi. Publications 114, Ruralia Institute, University of Helsinki.

use are based on a judgment by the European Court of Justice (C-342/05 Commission of the European Communities v Republic of Finland). The Court found that Finland had failed to fulfil its obligations under Articles 12(1) and 16(1)(b) of the Habitats Directive by authorising wolf hunting on a preventive basis, without it being established that the hunting is such as to prevent serious damage.

Bear and lynx hunting in Finland have been based on Section 41a(3) of the Hunting Act, which the game administration refers to as hunting as population control. It is based on Article 16(1)(e) of the Habitats Directive. It is by nature more common and does not focus on securing anything specific.

During the review, it became clear to the Ministry of Agriculture and Forestry that management of the wolf conflict would require damage-based derogations that would facilitate a more flexible procedure for allowing wolf hunting. The recommendations listed in the review included permitting hunting as population control in specific wolf territories in accordance with Section 41a(3) of the Hunting Act.

During the preparation of the 2015 management plan it was observed that strict conservation did not help in achieving the objectives of the previous management plan. Additionally, while the wolf population had been declining, criticism concerning the problems caused by wolves, and the very existence of wolves, had remained at the same level or even become more vociferous in rural areas. Above all, this has been due to the fact that the game administration was unable to respond to the concerns of people living in wolf territories. The frustration felt by these people had reinforced attitudes in favour of the illegal killing of wolves, at least in some circumstances. These attitudes came to light in the large-carnivore policy review carried out by the University of Helsinki and other studies carried out by the universities of Helsinki and Joensuu.

One of the measures in the 2015 management plan applied to territory-specific hunting as population control, in which case a derogation is granted for a viable and vibrant wolf pack with the condition that hunting is to target one or two young individuals. The objective of this measure was on one hand to exert human pressure on the wolf pack and on the other to assure local residents. A further objective was to significantly decrease the acceptance of illegal hunting.

Pursuant to the management plan the Ministry of Agriculture and Forestry permitted a trial for hunting as population control in 2015-2016.

Although hunting as population control in winter 2015 was considered successful, hunting in winter 2016 and the large share of alpha individuals killed indicated that the sustainability of the trialled method could not be ascertained.



Problems arose from the fact that the Finnish Wildlife Agency had to grant derogations at a very early date already, at the beginning of December, for them to become effective at the beginning of January after the appeals period and so that hunting could end before the wolf's mating season. This leads to derogations being in use in numerous different wolf territories simultaneously. As shown by the winter 2016 hunt, it is difficult to target the cull at young individuals. The ministry and the Wildlife Agency were thus unable to assess the overall impact of the cull on the wolf population in December.

An application for leave to appeal was made to the Administrative Court regarding the derogations granted by the agency, and leave was later granted by the Supreme Administrative Court. The Supreme Administrative Court requested the Court of Justice of the European Union to give a preliminary ruling.

The Court of Justice issued its final decision on 10 October 2019, after which the case will be reviewed by the Supreme Administrative Court. The preliminary ruling by the EU Court of Justice confirms that wolves strictly protected under the Habitats Directive can be hunted for the purpose of population control in accordance with Article 1 (e) of Directive 16. The member state must clearly, precisely and thoroughly state the aim of the hunting so that it is possible to evaluate whether there is some other satisfactory solution to achieve that aim. According to the ruling, the objective of reducing poaching and increasing the social acceptance of wolves is also an acceptable aim. However, the ruling emphasises that the aim of reducing poaching or references to the difficulty of controlling it are insufficient reasons on their own. Furthermore, the national authorities must be able to provide sufficient scientific evidence to justify that a derogation to hunt truly reduces poaching.

The ruling also highlights that a derogation may not endanger the maintenance or restoration of favourable conservation status for wolves. If the status of the population is unfavourable, a derogation may not exacerbate the situation. The preliminary ruling also addresses how a favourable conservation status can be defined in terms of population distribution. The ruling supports the perspective presented in the management plan, according to which Finland's wolf population could be examined as part of a broader so-called transboundary Fennoscandian wolf population. The ruling states that a favourable conservation status could be examined in a transboundary manner among EU countries, because there is no way of knowing if countries outside the European Union are committed to the same regulations as members of the EU.

The preliminary ruling also takes a position on whether hunting for the purpose of population control should be restricted and selective.

## 3 Special aspects of wolf population management

### 3.1 Wolf population management in the reindeer herding area

#### **MEASURES:**

The size of the wolf population in the reindeer herding area will be restricted to prevent highly significant damage.

The Reindeer Herders' Association will encourage all cooperatives to use the Pesä application to report reindeer losses caused by large carnivores in order to speed up and streamline the submission of damage reports to the authorities.

Reindeer herding is a vital industry in the reindeer herding area. Wolves cause significant damages to reindeer herding; in order to prevent these damages, the establishment and increase of the wolf population in the Finnish and Scandinavian reindeer herding area will be restricted. Derogations based on damage will be granted for the reindeer herding area in Finland to prevent particularly significant damage. Regardless of these measures to control the wolf population, reindeer herding sustains significant damage.

In the course of the work to update the Management Plan, a need for fast and efficient intervention in the behaviour of wolves that cause particularly significant damage and a wish to develop more effective methods for population monitoring were highlighted. The participants also felt that by exploiting technological applications, some of the damage to reindeer can be prevented, and in cases where damages are sustained, more extensive information about reindeer killed by large carnivores can be obtained.

Currently the monitoring of the wolf population in the reindeer herding area is not comprehensive. In order to produce better estimates of the wolf population, various actors

must be encouraged to report their observations, the volunteer monitoring network on large carnivores must be complemented, and the data that is gathered must be shared efficiently. This will not only improve population monitoring but also help to prevent damage to reindeer herding.

Metsähallitus carries out large-carnivore monitoring in the reindeer herding area.

The evaluation of the national policy on large carnivores<sup>46</sup> noted that there is distrust between various actors with regard to damage to reindeer caused by large carnivores and around the compensation mechanism. In order to build trust, it is important to continue developing uniform and efficient practices for on-site inspections of damage. As part of this work, the ministry and the Finnish Food Authority developed the Pesä application, a mobile online reporting system which can be used to submit reindeer-damage information directly to the authorities, including details such as coordinates. This will ensure that losses data are kept up to date and facilitate on-site inspections.

Even if preventive measures can be taken to reduce damage to reindeer, and the procedures for paying compensation for the damage that does occur are improved as described above and by other methods, the workshop on the management of the wolf population organised in the reindeer herding area noted almost unanimously that the wolf population in the area cannot be allowed to proliferate without increasing the level of damage to reindeer herding, which already is high. It was thus felt that tolerating a wolf population that produces litters in the reindeer herding area is not an option in the current situation.

## 3.2 Wild forest reindeer

### **MEASURES:**

**The Natural Resources Institute will produce information about predator pressure on the wild forest reindeer.**

**In the allocation of derogations to kill large carnivores, especially the bear and lynx, the population status in Finland of the wild forest reindeer will be taken into account, especially with regard to existing habitats with a wolf pack presence.**

**If wolf hunting as population control is implemented under this management plan, the safeguarding of the wild forest reindeer population will be taken into account in its planning**

46 Pohja-Mykrä M. & Kurki S. 2014. Kansallisen suurpetopoliitiikan kehittämisarviointi. Publications 114, Ruralia Institute, University of Helsinki.

The wild forest reindeer (*Rangifer tarandus fennicus*) is a subspecies that is found only in Finland and Northwest Russia. It was hunted to extinction in Finland in the late 1910s. It returned in the 1950s when a handful of forest reindeer crossed from Russia into the Elimyssalo area in Kuhmo. There are currently two established populations, in Kainuu and Suomenselkä. The latest estimate for the Kainuu population is 720 individuals (2019). The Suomenselkä population was reinstated by translocation in the 1980s and consists of 1,450 individuals (2018). In addition, a small population has been established in the Ähtäri-Soini-Karstula area by releasing some individuals into the wild. According to a 2013–2014 estimate, there are max. 2,400 individuals in Northwest Russia. The global population of the wild forest reindeer is thus 4,000–5,000.

There are established wolf territories in both of the main population areas of the wild forest reindeer in Finland. Predation by wolves is a significant factor that limits the increase of the wild forest reindeer population. In particular, there is a negative correlation between the number of wolves and the number of offspring produced by wild forest reindeer<sup>47</sup>. In addition, the wolf has been found to be the main cause of death of GPS-tagged female wild forest reindeer, at 35–38%, which is as high as all other known causes put together. These facts favour the restriction of wolf numbers in areas where wild forest reindeer occur, if their populations begin to decline and carnivore numbers increase. The existing Management Plan for the Wild Forest Reindeer Population in Finland (2007) supports this policy, especially in order to halt the decline in the subpopulation in Kainuu<sup>48</sup>. The decline was successfully halted in 2013–2014.

Data on wolf predation on wild forest reindeer and elk have been gathered by tracking wolves fitted with GPS collars<sup>49</sup>. These monitoring studies carried out in the winter indicate that one wolf might kill 5–11 wild forest reindeer a year, but the estimate is highly uncertain, as the variations in the summer season are extremely large. It has been estimated that a wolf kills 14–18 elk a year, and based on the average size of wolf packs and the territories they use, it can be estimated that a pack kills 70–80 elk a year. However, this calculation is based on a situation where no other cervids occur in the area for wolves to hunt.

Predation by wolf packs must be taken into account in the management of both the wild forest reindeer and the elk populations. In Sweden, the number of elk bagged by hunters has diminished considerably in wolf territories. In the smallest territories used by wolves, the bag has even been halved, where the objective is to preserve the density of the existing

47 Kojola, I., Tuomivaara, J., Heikkinen, S., Heikura, K., Kilpeläinen, K., Keränen, J., Paasivaara, A. & Ruusila, V. 2009. Endangered prey and predators: European wild forest reindeer and wolves. - *Annales Zoologici Fennici* 46: 416–422.

48 Ministry of Agriculture and Forestry of Finland, 2007. Suomen metsäpeurakannan hoitosuunnitelma.

49 Kojola I., Heikkinen S., Kokko S., Ronkainen, S. & Suutarinen, J. 2011. Susi hirven ja metsäpeuran saalistajana. *Metsästäjä* 1: 36–38.

elk population<sup>50</sup>. Managing elk, wolf and wild forest reindeer populations is extremely challenging, however, as the interactions between these species are complex. When the elk population is large, wolves appear to target elk in particular, in which case more wild forest reindeer survive. On the other hand, an elk population that remains plentiful in an area, especially over longer periods, may attract and maintain a high density of carnivores, which increases predation on wild forest reindeer and the total mortality of this species. In order to protect the wild forest reindeer, it may thus be necessary to control the elk and wolf populations, especially in areas with summer pastures used by female forest reindeer<sup>51</sup>. In addition to wolves, bears, which also hunt wild forest reindeer, also occur in the current living areas of wild forest reindeer. In the future, more thorough research-based information should be produced in Finland on the interactions between large-carnivore and cervid populations and different models that respond to the needs of managing their populations.

Once the wolf population in Finland has reached the minimum viable population level, entire packs may also be eliminated where necessary. This should be considered especially in the wild forest reindeer areas<sup>52</sup>. The wild forest reindeer areas in Kainuu lie close to the reindeer herding area, and controlling the increase of the wolf population in this way is also likely to reduce the incidence of damage to reindeer in the areas of the southernmost reindeer herders' cooperatives.

A further introduction of the wild forest reindeer is currently under way as part of the Metsäpeura LIFE project, which is aimed at improving the viability of the population in Finland. Two suitable areas have been chosen based on their habitat characteristics and social acceptance by local people. The sites are located southwest of the existing population in Suomenselkä within the Seitsemien and Lauhanvuori National Parks. The first individuals will be released in 2019. In 2014–2015 when the introduction was planned, wolf population estimates at the time did not suggest that either site had an established wolf territory. The low wolf numbers in western Finland were one of the main reasons why the sites were chosen. According to the latest wolf population estimate, the Lauhanvuori site is currently part of a territory of one wolf pack which borders with four other territories of a single pack or pair. There is currently no established wolf territory on the other site in Seitsemien. Successful reintroduction may require regulating the large-carnivore populations in the area in the early stages.

The wild forest reindeer is taken into account in multi-species population management in the Life BorealWOLF project.

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50 Wikenros, C. 2011. The return of the wolf. Effects of prey, competitors and scavengers. Dissertation. University of Uppsala.

51 Kojola, I., Tuomivaara, J., Heikkinen, S., Heikura, K., Kilpeläinen, K., Keränen, J., Paasivaara, A. & Ruusila, V. 2009: Endangered prey and predators: European wild forest reindeer and wolves. – *Annales Zoologici Fennici* 46: 416–422.

52 Ministry of Agriculture and Forestry of Finland, 2007. Suomen metsäpeurakannan hoitosuunnitelma.

### 3.3 Feral dogs and wolf–dog hybrids in the wild

#### MEASURES:

Any suspected wolf–dog hybrids in the wild will be determined from DNA analysis, and confirmed cases will be removed from the wild by decision of the Finnish Wildlife Agency.

Detailed procedures for suspected cases of hybridization will be set out during training provided for volunteers of the large-carnivore network and in the cooperation agreement between the Finnish Wildlife Agency and the relevant research institute.

The Ministry of Agriculture and Forestry will investigate whether legislation should be amended to give the Finnish Wildlife Agency powers to grant a derogation for the killing of a verified wolf–dog hybrid or feral dog, including in cases where the animal has not posed a threat to humans or property.

A dog and a wolf may cross-breed. Any cross-breeding almost exclusively takes place between a male dog and a female wolf. In the 2000s, three cases of cross-breeding in the wild have been ascertained in Finland. Two male hybrids were confirmed in 2004, one in Juva and another in Sotkamo. A hybrid litter was discovered in Parkano in 2010. In the Parkano case, the litter was probably from a male wolf and female dog, since they were found in mid winter and were newly born. In all these cases, the hybrids were put down.

Several international studies have shown that a dog, a wolf and a wolf–dog hybrid can be separated by DNA analysis methods<sup>53, 54, 55</sup>. In addition, external features can also be found in some of the wolf–dogs that give indications of hybridisation. There are great differences in individual cases, however, and cross-breeding cannot always be ascertained on the basis of external features.

A recommendation issued by the Standing Committee of the Convention on the Conservation of European Wildlife and Natural Habitats (so-called Bern Convention)<sup>56</sup> proposes that suspected hybridisations of dogs and wolves should be confirmed. According to the recommendation, this should be carried out by bodies entrusted by

53 von Holdt, B. E. et al. 2010. Genome-wide SNP and haplotype analyses reveal a rich history underlying dog domestication. *Nature* 464: 898–903.

54 von Holdt B. M. et al. 2012. Identification of recent hybridization between gray wolves and domesticated dogs by SNP genotyping. *Mammalian Genome* 24: 80–88.

55 Randi, E., et al. 2014. Multilocus detection of wolf x dog hybridization in Italy, and guidelines for marker selection. *plos one*, 9, e86409.

56 Applying the Bern Convention on the Conservation of European Wildlife and Natural Habitats to the problem of hybridisation between wolves (*canis lupus*) and domestic dogs. 34th meeting of the Standing Committee Convention on the Conservation of European Wildlife and Natural Habitats.

the authorities for this purpose using genetic and/or morphological features. Individuals found to be hybrids should be removed by an official decision. The removal should be carried out by actors authorised by the authorities.

Wolf–dog hybrids are classed as a harmful alien species in Finland, and their importation was banned in 2016. Their breeding was also banned by decree in May 2019<sup>57</sup>. The sale, purchase, possession and release of wolf–dog hybrids are forbidden. The decree defines wolf–dog hybrids as first to fourth generation cross-breeds of wolf and dog. The purpose of the ban is to safeguard the genetic integrity of the wolf. Due to its genetic and external characteristics, a wolf–dog hybrid has a better chance to survive in the wild than regular domestic dogs, which increases the risk of cross-breeding.

DNA analyses of wolf scat samples will be used in the monitoring of the Finnish wolf population. While this technique will be used to assess the minimum wolf population size, it will also serve as general monitoring helping to detect any wolf-dog hybrids living in the wild. If hybridization is suspected in an area based on the morphological features of the animal, citizens should report this observation to the local volunteer of the network on large carnivores and the Finnish Wildlife Agency. In these situations, cooperative efforts between various parties will be made to obtain a scat, urine, blood or hair sample from the suspected hybrid for DNA analysis. If necessary, the Finnish Wildlife Agency and the local game management association will work together to carry out intensified monitoring in the area to collect the requisite samples.

The DNA identifier of the individual will be isolated and analysed in the collected samples, which will be compared with reference data consisting of wolf DNA samples. This data will enable experts to assess the likelihood of the individual from which the sample was collected being part of the reference population. The sample will be analysed and the comparison carried out by a research institute selected by the Finnish Wildlife Agency. A hybrid identified by DNA will be removed from the wild by permission granted by the Finnish Wildlife Agency. In special cases, an individual may also be identified as a hybrid based on its morphological features. In this case, too, the identification will be carried out by experts designated by the Finnish Wildlife Agency. Hybrid individuals will be removed from the wild by designated wildlife incident assistants.

### **Feral dogs in the wild**

Cross-breeding between dogs and wolves should also be prevented proactively. Feral dogs or packs of dogs increase the risk of hybridisation. Especially in the vicinity of the eastern border, packs of feral dogs have been found in several years. In autumn 2012,

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<sup>57</sup> Decree on Managing the Risk Caused by Alien Species 704/2019.

a pack of feral dogs consisting of five individuals was put down, in January 2014 a litter of feral dogs was discovered, and in autumn 2014, further packs of feral dogs have been encountered. Feral dogs may occur in other parts of the country, too, even if they are rare as a rule.

Feral dog packs living in the vicinity of the Eastern border probably originate in Russia. Information exchanges between the Border Guard, citizens and the police in Finland will be facilitated with the aim of discovering any occurrences of feral dogs as early as possible. Cooperation with Russian authorities will also be continued and stepped up in order to solve the problem caused by packs of feral dogs.

The killing of wild or stray dogs is not permitted in Finland without a derogation. Under the current legislation, making decisions on the eradication of feral dogs has not been directly assigned to any particular authority. If feral dogs cause a safety risk to humans or significant damage to property the police is, under the current legislation, competent to order the eradication of the animals. The legislation should be amended to enable the authorities to also grant a permission to remove feral dogs occurring in the wild for other compelling reasons. In these situations, the decision should be made by the Finnish Wildlife Agency.

The Life BorealWOLF project will facilitate the identification of wolf–dog hybrids in the wild based on DNA analyses.

### 3.4 Animal diseases

#### **MEASURES:**

**The Finnish Food Authority will continue to monitor and study zoonoses and, where appropriate, collaborate with the Natural Resources Institute in utilising ecological research data in disease prevention.**

**Measures aiming to prevent the spread of rabies and fox tapeworm to Finland will be continued.**

**The Finnish Food Authority will investigate the possibilities of using wolf scat samples collected for population monitoring purposes to monitor diseases.**



Zoonoses are illnesses that can be transmitted from animals to humans and vice versa. For example, a human may be infected directly by an animal, or through a foodstuff derived from an animal. Zoonoses occur in livestock and domestic animals as well as in wild animals. Diseases carried by wolves that can be transferred to humans include rabies and hydatidosis.

Rabies is a disease of the central nervous system caused by a virus that can be transferred to all mammals, including humans. In most cases, the disease is spread through the bites of an infected animal. Species spreading the infection<sup>58 59</sup> are predators in the wild, including the fox, the raccoon dog, the wolf, and of domestic animals, the dog and the cat. Rabies can be prevented by inoculation. In Finland's neighbouring areas, rabies occurs in Russia mainly in raccoon dogs, foxes and wolves, but it may also occur in dogs, cats and other domestic animals.

Finland has officially been free of rabies since 1991. Rabies is a disease controlled under the law in Finland. The purpose of the control programme is to prevent the disease from entering the country, either by importation of domestic animals or normal migrations of wild animals from one country to another. Practical prevention measures also include vaccinating dogs and cats. In some cases, animals may be quarantined. Oral vaccines in baits left out for small carnivores are also used annually on Finland's southeastern border to prevent the spreading of infections from the neighbouring countries. The Finnish Food Authority monitors the rabies situation in Finland and in the neighbouring areas annually. The Finnish Food Authority examines over 500 animals for rabies every year<sup>60 61</sup>.

The *Echinococcus granulosus* (sensu lato) or *Echinococcus canadensis* is found in Finland. While it remains rather rare in Finland, it has however been found in reindeer, elk, and wolves in Eastern Lapland, Kuusamo, Kainuu and North Karelia. Some infection cases have been found in Western Finland in recent years. In the life cycle of this parasite, the main host is the wolf (possibly also the dog), and the intermediate host is a cervid (reindeer, deer, elk). An *Echinococcus granulosus* infection may cause a slowly progressing illness in humans where the parasite grows in cysts, especially in the liver and lungs. *E. canadensis* is commonly found in the lungs. No infections in humans have been found in Finland since the 1960s, apart from one case in 2015.

58 Holmala, K. & Kauhala, K. 2006. Ecology of wildlife rabies in Europe. – *Mammal Review*, 36 (1), 17–36.

59 Kauhala, K. & Holmala, K. 2006. Contact rate and risk of rabies spread between medium-sized carnivores in southeast Finland. – *Annales Zoologici Fennici*, 43, 348–357.

60 Luonnonvaraisten eläinten ja kotieläinten rabiestutkimukset. Zoonosis Centre. On the website: [https://www.ruokavirasto.fi/globalassets/teemat/zoonosikeskus/zoonosist/virusten-aiheuttamat-taudit/zoo\\_rabies\\_kotielaimet.pdf](https://www.ruokavirasto.fi/globalassets/teemat/zoonosikeskus/zoonosist/virusten-aiheuttamat-taudit/zoo_rabies_kotielaimet.pdf). Accessed 14.10.2019.

61 Rabies eli eläimen raivotauti. Finnish Food Authority. On the website: <https://www.ruokavirasto.fi/viljelijat/elaintenpito/elainten-terveys-ja-elaintaudit/elaintaudit/usealle-elainlajille-yhteiset-taudit/raivotauti-eli-rabies/>. Accessed 14.10.2019.

Another species of this parasite that is significant in Finland is the fox tapeworm, *E. multilocularis*. While it has not been found in Finland or in mainland Norway, this rare species of parasite was found in Sweden for the first time in winter 2010-2011. It also occurs in Estonia, Denmark, the Spitzbergen and Northern Russia.

Its most important final host is the fox, but the Arctic fox, the dog, the cat, the raccoon dog and the wolf may also serve as final hosts. The parasite does not cause symptoms in the final host. However, all dogs imported into Finland should be dosed for tapeworm to prevent the spread of the disease. Humans may be infected by the faeces of a final host carrying the parasite, or through water, berries or mushrooms contaminated by its faeces. In humans, the parasite may cause cysts with multiple extensions, which usually develop in the liver.<sup>62</sup>

The monitoring of zoonoses in Finland is coordinated by the Zoonosis Centre<sup>63</sup>. The Centre is a network consisting of experts employed by the Finnish Food Authority and the Institute for Health and Welfare. The Centre's duties include coordinating the collection and publication of data. It also takes part in investigations of epidemics and communication and training on zoonoses, and it serves as the national contact point for international zoonosis experts.

Wolves may also be affected by scabies, which most commonly occurs in the fox and the raccoon dog. The scab mite that causes scabies, *Sarcoptes scabiei*, is a flat arachnid. A fertilised female burrows into the animal's skin to lay its eggs there. The female lives in this burrow for a month. The scab mite causes dermatitis with strong itching and scabbing. An infected animal will lick and scratch its skin, usually causing a bacterial infection and darkening and thickening of the skin. Humans may also be infected by scab mites, but they appear not to breed in humans, and the infection usually disappears on its own.

Scabies has been found in Finnish wolves, and it also occurs in Sweden and Estonia. When widespread in wolves, scabies could result in a decline in the wolf population. Monitoring of and research in scabies and other similar illnesses will be continued and, if necessary, intensified in cooperation with other research institutes and authorities.

Wolf scat samples will be collected for DNA analysis purposes as part of wolf population monitoring. The Natural Resources Institute will investigate the possibility of monitoring disease trends based on the samples.

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62 Ekinokokit. Finnish Food Authority. On the website: <https://www.ruokavirasto.fi/viljelijat/elaintenpito/elainten-terveys-ja-elaintaudit/elaintaudit/usealle-elainlajille-yhteiset-taudit/ekinokokit/> Accessed 14.10.2019.

63 Zoonosis Centre. On the website: <https://www.ruokavirasto.fi/en/themes/zoonosis-centre/> Accessed 14.10.2019.

### 3.5 Wolf translocations

**MEASURES:**

**No translocations of wolves will be carried out in Finland.**

Unlike in the case of other large carnivores, translocations have played no part in efforts to manage the wolf population in Finland. Wild or captive wolves have not been translocated to be released in the wild in a destination area. Translocations were not proposed in the management plan for the wolf population adopted in 2005, and neither was there any need for such operations. Studies on wolf mobility show that young wolves are highly mobile and disperse into new living areas on their own initiative. Young wolves born in the spring typically leave their birth territory in the spring and early summer of the following year to find a mate and a territory of their own. These migrations may extend from a few dozen to hundreds of kilometres.

In Sweden, for example, wolves have been translocated as part of population management efforts, but attempts to ensure that the wolf remains in the destination area have met with challenges. A translocated animal may travel hundreds of kilometres to return to the area from which it came.

From the perspective of the equality of citizens, the fairest option would be that the wolf chooses its own territory in a suitable location outside the reindeer herding area. In areas with wolf territories, the population will be managed in an effort to reconcile ecological, social, communal and financial perspectives.

## 4 Projects

### **PROJECT: Multiyear development project on communication and cooperation relating to the wolf and large carnivores**

**OBJECTIVE:** The objective is to develop communication about wolf-related topics at the national, regional and local levels. The aim is to coordinate communications by the game administration and the implementation of the communications plan, and develop cooperation with key national and international stakeholders. Dialogue between authorities and stakeholders will be enhanced by developing the annual wolf forum concept. Practices will be developed to facilitate closer contact with the administration and new workshop-based meetings between different parties. In addition to wolf-related communications, the project will also develop communications and dialogue relating to all large carnivores.

The project will be coordinated with the communications of the Life BorealWOLF project.

**CONCRETE ACTIONS:** A planner will be recruited to develop wolf-related communications. A joint communications plan will be developed for the game administration, communications materials will be produced, and wolf-related communications at the national and regional levels will be coordinated and developed through a collaborative approach. Cooperation between different operators and stakeholders is a key focus in the project. The project will be implemented in 2020-2023.

**PARTICIPANTS:** The Ministry of Agriculture and Forestry, the Finnish Wildlife Agency, the Natural Resources Institute, the Police, Metsähallitus, and stakeholders including e.g. the Finnish Hunters' Association, the Central Union of Agricultural Producers and Forest Owners MTK, Finnish Association for Nature Conservation, Finnish Nature League, game management associations and territorial cooperation groups.

**PARTY RESPONSIBLE FOR THE PROJECT:** Ministry of Agriculture and Forestry

**FUNDING:** Ministry of Agriculture and Forestry

**IMPACT AND OUTCOMES:** Communication is an integral part of the implementation of wolf population management measures. The project will produce communication materials for a range of users and target groups. Approaches will be developed for joint communications on wolf-related topics for both national and local needs. Cooperation between different parties will be strengthened.

## **PROJECT: Game damage centre – an online information service for citizens**

**OBJECTIVE:** The objective of the project is to collate information about game damage into a single online source. The aim is to deliver high-quality information about damage caused by wildlife, prevention and what to do when damage occurs. Information about damage and prevention is currently difficult to find and fragmented across multiple websites. Citizens who are not familiar with the subject have difficulty finding the information they need. The new service will promote awareness about preventive measures and provide practical tips. The service will contain information about damage caused by large carnivores, deer animals as well as smaller game animals.

The key focus is on disseminating information about damage prevention. Information about different methods of preventing damage caused by large carnivores will be provided, including their effectiveness. The service will provide an overview as well as more detailed information about how to source, install and maintain a predator-proof fence. It will also provide information about how to apply for reimbursement for fencing costs or damage compensation, and the relevant authorities. Advice will be provided about hunting practices, dog protection equipment and the handling of dogs in wolf territories with a view to preventing damage to dogs caused by wolves. The presence of a wolf close to residential areas causes concern about the safety of animals and people. For that reason, the service will include advice on what to do when encountering large carnivores or if one is detected outside a home or in the vicinity of a populated area. Practical advice will be given on how to proceed when damage occurs and which authorities one should contact.

In addition, the service will provide general information about legislation on game damage as well as statistics on damage to property and animals, the forest economy, personal property, and personal injury and traffic accidents.

There have been a number of national research projects and studies on game damage. The online service will also serve as a central source for research publications and guidebooks. For example, the possibility of distributing Swedish advice materials and translating them into Finnish will be investigated as part of the project. The service will feature a comprehensive directory of game management experts, local agriculture authorities, wildlife incident assistants, large-carnivore network volunteers, and voluntary fence installation and maintenance coordinators.

**CONCRETE ACTIONS:** A project group will be established to plan the website and provide support. The Finnish Wildlife Agency will recruit a developer to set up the website and coordinate the collation of existing information on damage-related topics. The website will be a user-friendly service that is accessible to everyone. The project will start in 2020.

**PARTICIPANTS:** The Ministry of Agriculture and Forestry, the Finnish Wildlife Agency, the Natural Resources Institute, Metsähallitus, and stakeholders including e.g. the Finnish Hunters' Association, the Central Union of Agricultural Producers and Forest Owners MTK, the Police, Finnish Association for Nature Conservation, Reindeer Herders' Association, Finnish Nature League, and the Finnish Kennel Club.

**PARTY RESPONSIBLE FOR THE PROJECT:** Finnish Wildlife Agency

**FUNDING:** Ministry of Agriculture and Forestry

**IMPACT AND OUTCOMES:** The website will significantly improve the game administration's ability to serve the general public and disseminate information about game damage prevention. Better access to information will enable people, and especially those who live in wolf areas, to respond to the presence of wolves and take measures to prevent damage.

## **PROJECT: Planning for wolf hunting as population control**

**OBJECTIVE:** If allowed by the preliminary ruling of the Court of Justice of the European Union, wolf hunting as population control will be permitted in Finland. The project will determine targets for wolf hunting as population control and the criteria for verifying its effectiveness, and assess the availability of other suitable solutions. The implementation and scheduling of the hunting programme will also be planned.

**CONCRETE ACTIONS:** A broad-based preparatory working group and steering group will be established.

**PARTICIPANTS:** The Ministry of Agriculture and Forestry, the Finnish Wildlife Agency, the Natural Resources Institute, the Police, Metsähallitus, and stakeholders including e.g. the Finnish Hunters' Association, the Central Union of Agricultural Producers and Forest Owners MTK, Finnish Association for Nature Conservation, Finnish Nature League, a representative of the National Game Council, and representatives from regional game councils.

**PARTY RESPONSIBLE FOR THE PROJECT:** Ministry of Agriculture and Forestry

**FUNDING:** Ministry of Agriculture and Forestry

**IMPACT AND OUTCOMES:** During the preparation of the management plan, hunting as population control was identified as important to promoting social sustainability and tolerance of the wolf.



## **Publications of the Ministry of Agriculture and Forestry 2019**

- 1 Saaristo- ja vesistöaluepolitiikat Euroopassa -selvitys
- 2 Saariselvitys 2018
- 3 Uusi alkua. Maatalous on myös tulevaisuuden elinkeino
- 4 Kansallinen rapustrategia 2017-2022
- 5 Keinoja orgaanisten lannoitevalmisteiden käytön edistämiseen
- 6 En ny början. Jordbruk är också framtidens näringsgren
- 7 Kansallinen metsästrategia 2025 - päivitys
- 8 Finlands nationella skogsstrategi 2025 - en uppdatering
- 9 Mahdollisuudet helpottaa epäorgaanisten lannoitteiden tuontia
- 10 Maa- ja metsätalousministeriön tilinpäätös vuodelta 2018
- 11 Kansallisen ilmastomuutokseen sopeutumis suunnitelman 2022 toimeenpanon tila
- 12 Maaseutuohjelma 2014-2020 - neuvontatoimenpiteen arviointi
- 13 Genetic resources policy of the Ministry of Agriculture and Forestry
- 14 Tapion tarhoissa ja Ahdin apajilla - selvitys valtakunnallisen metsästys- ja kalastusmuseotoiminnan kehittämismahdollisuuksista
- 15 Maaseutuohjelma 2014-2020 - arviointi energiavaikutuksista
- 16 Manner-Suomen maaseudun kehittämissuunnitelmien aluetalous- ja työllisyysvaikutukset
- 17 National Forest Strategy 2025 - updated version
- 18 Suomalaisyrittäjistä maailman vesivastuullisimmat. Tiekartta 2019-2030
- 19 Hygieniaopas eläinlääkärin vastaanotolle
- 20 Maaseutuohjelma 2014-2020 - arviointi innovointi, koulutus ja yhteistyövaikutuksista
- 21 Arviointi Manner-Suomen maaseutuohjelman 2014-2020 merkityksestä luonnon monimuotoisuudelle ja maisemalle
- 22 Harvaan asuttujen alueiden parlamentaarisen työryhmän loppuraportti
- 23 Pohjois-Suomen erityisperusteiset kalastusoikeudet ja lohiregaali - nykytilanne ja mahdollisten muutostarpeiden arviointi
- 24 Suomen susikannan hoitosuunnitelma
- 25 Förvaltningsplan för vargstammen i Finland

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