

Keeping wolves at bay

In July 2019 an important article will be published in the scientific journal *Biological Conservation*. It is about dealing with predators in Europe. It is already available online. The title is: *Keep the wolf from the door: How to conserve wolves in Europe's human-dominated landscapes?*¹ Several Dutch, Polish, German and South African scientists have contributed to this. None of them have been in the media before. In other words, quiet wise men, who now made themselves heard, albeit in a dusty medium, the scientific journal. I will first summarise the article and then I will give my view on it.

The reason for writing the article is the expansion of predators in Europe into areas dominated by man. These are mainly wolves. In 2000 they had their first offspring in Germany, but in 2016/2017 there are already 73 packs in Germany, of which 29 with offspring. And according to the authors, the growth is good with 30% per year. They also see the arrival of the wolf in the densely populated Netherlands as an example of the expansion.

During the more than 150 years of absence of wolves, the landscapes have changed from extensive to intensive agriculture. Remarkably, the density of wild ungulates has also increased. The protection of wolves is therefore complex, because there are all kinds of conflicts: because of the killing of husbandry animals, but also because of the competition with hunters. There is also the perception that wolves are dangerous for humans. According to the authors, the key to the protection of wolves lies in a spatial separation between wolves and humans. Experts would almost all agree that there is a need for proactive action. The four management options are discussed:

(1) Population management by killing wolves. Legally, there is already a possibility to do so, as is already the case in Sweden, Germany, Norway and Finland. However, illegal hunting is many times greater and, according to the authors, means that three quarters of the population in Scandinavia, for example, has been culled. The effects are that families are lost and become smaller. This can make them less successful in hunting and focus on easy prey, such as a sheep. Another effect of the disruption of social stability in a large area is that the migration of young wolves is being whipped up. According to the authors, they often catch sheep. The authors therefore argue that the management of wolves by shooting them can be counterproductive and can increase the conflict.

(2) No intervention; management through protection and compensation for damage. This is the standard for the Netherlands, Belgium and Germany. The authors suspect that the

¹ Kuijper, D.P.J., Churski, M., Trouwborst, A., Heurich, M., Smit, C., Kerley, G.I.H., Cromsigt, J.P.G.M., 2019. Keep the wolf from the door: How to conserve wolves in Europe's human-dominated landscapes? *Biological Conservation* 235: 102–111. <https://doi.org/10.1016/j.biocon.2019.04.004>

conflicts will also increase, because the density of animals kept is high and people are not used to protecting these animals against wolves. They recommend herd protection dogs, fladry (a ribbon with flags on the fence) and a night shelter. Financial arrangements and public information are also important. But according to them the money compensating for the loss of animals is a subsidy for a further increase of the wolf population. Therefore, the financial scheme should focus on the use of means of protecting husbandry animals.

(3) Spatial separation by placing fences. Fences around the habitat of wolves limit the natural dynamics of both predators and prey animals. It leads to undesirable fragmentation of nature and isolated populations. In addition, a fence restricts the escape possibilities for prey animals, makes them more vulnerable and can thus cause the prey population to fall too fast. With all the subsequent ecological effects that this entails. In a Western Europe that is already highly fragmented, it is also impossible to install fences closing around a large wolf habitat. If only because of the roads and agricultural areas.

The authors also consider fences around fields with husbandry animals. Fences with electricity seem quite possible in a fragmented landscape, but a good construction and maintenance of the fence is crucial for the effectiveness of keeping wolves out.

(4) Managing the behaviour of wolves and humans, either by separating behaviour from wolves and humans. Because wolves increasingly enter the human environment and show little fear, wolves seem to get used to humans. Therefore, promoting fear of people without killing the wolf can be an important tool to keep local people and wolves away from each other. This can be done by punishing or chasing wolves, as they approach the human environment. This should go hand in hand with an adequate supply of wild animals, which serve as an alternative to human sources for food. In turn, the traditional management of ungulates should be discontinued. That management is now aimed at keeping the number of ungulates low, so that less damage is done to tree planting or agricultural crops. For wolves, the supply of wild animals should be high, all year round. Management based on behavioural change has fewer consequences for the natural functioning of the wolf ecosystem than management based on the killing of wolves or based on fences. Wolves will become more concentrated in natural areas. Conversely, however, wild ungulates may move more to the human environment. This could also lead to problems, such as agricultural damage. However, the authors wonder whether there are any means of ensuring that wolves stay away from the human environment in the long term. Up until now, deterring methods only seem to be effective for a limited period of time, and predators can get used to them. But there are no real long-term tests for effectiveness. There is an urgent need for this. It is also important to change people's behaviour. This concerns provocative behaviour in a wolf area, approaching non-shy wolves or leaving food behind or accessible to wolves.

In conclusion, the authors strongly urge policy makers to work proactively to manage the expansion of wolves in a good way. At present, there is little to protect captive animals, and there is reluctance and practical problems to change animal husbandry. They mention that in the Netherlands alone the warning is clear with more than 160 sheep killed in 2018. From a legal and ecological point of view, the best way to achieve the separation of man and wolf is to change the behaviour of wolves and humans as mentioned under (4). This means: instilling fear in wolves for people and the human environment, teaching knowledge about wolves / respect for wolves and ensuring a sufficient supply of natural food, i.e. ungulates living in the wild. They feel that the efforts to change behaviour have not yet been sufficiently recognised and researched. Too often, people react with shooting and compensation for killed husbandry animals, but they should focus on the basis of the problem: changing the behaviour of wolf and man.

I completely agree with the plea. In several other articles I have already argued the following:

- (1) Nature reserves must be linked to each other.
- (2) Wolves should be chased away immediately when they arrive in built-up areas (NB I disagree with the Dutch wolf plan which states that no measures need to be taken when non-problematic wolves arrive in built-up areas).
- (3) The current practice of shooting wild animals must be stopped. Nature reserves must offer peace and quiet and sufficient food supply.
- (4) Citizens must be taught what to do/do when they meet a wolf or when they enter a wolf area.
- (5) Wolves must be learnt to refrain from killing sheep.

In the article, however, the reasoning rattles about the change in behaviour of wolves. The article does not mention which mechanisms are important when a wolf chooses a sheep. The authors forget the publications about the learning process of wolves. Also the publication of our research in Slovenia, in which we scientifically show that an electric fence can be counterproductive and probably has started a counterproductive learning process with the local wolf². But the learning process starts early. A wolf is imprinted on certain prey at a very early stage in its education on the basis of taste and smell. In addition, he learns how to approach and kill a prey by imitating the parents and trying it out. Each prey needs its own recognition and strategy in order to get hold of it. This means that a wolf mainly kills what is known. The authors make the mistake of thinking that a wolf uses what is available. That is a wrong train of thought. There are many examples of differences between packs in food preference, while they live as neighbours in a habitat with a similar supply of wild or captive animals (see figure supplied). In other

² Van Liere D., Dwyer, C, Jordan, D., Premik-Banič, A., Valenčič, A., Kompan, D. en Siard, N. (2013). Farm characteristics in Slovene wolf habitat related to attacks on sheep. *Applied Animal Behaviour Science* 144: 46– 56.

words, a wolf who grows up as a pup with parents who mainly supply sheep, will later focus mainly on sheep. Then it does not matter that there are many or few deer or wild boars in the area. However, a wolf who is familiar with sheep and deer can switch between the two. This is the case with the newly settled couple in the Veluwe. For that pair it's true what the authors say. Enough supply of wild animals can mean that the couple doesn't fall back on the supply of sheep. After all, both wolves were notorious sheep killers last year (2018) when they were still loners.

The approach to the human environment and the choice to go through built-up areas is also the result of a learning process. An offer of nature reserves in itself does not help if wolves have a positive experience with the human environment. This could be food or a resting place. So it is also a shortcoming that there is no mention (not even in the Dutch wolf plan) of the need for a service that chases wolves away from the human environment. Immediately, even before real nuisance is caused, so that the wolf learns to stay away and continues to opt for natural areas.

By directing the learning process, starting with the young in the pack, you get the coexistence that I consider to be possible. This way you can see that ecology and behavioural biology have to join forces. I hope that this will happen for the benefit of the wolves. It won't be my fault.

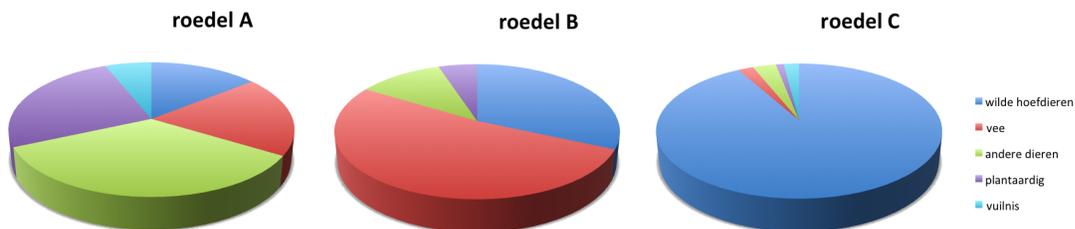


Figure 1. Cake charts that show the food preferences in the diet for 3 packs in Northern Italy (in %; after Meriggi, A., Brangi, A., Matteucci C. and Sacchi, O. (1997). The feeding habits of wolves in relation to large prey availability in northern Italy. *Ecography* 19: 287-295)

ICWildlife

7 juli 2019

Dr DW van Liere