

Better protect livestock against predation in France by no longer considering wolves as complete idiots

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Let us first recall the facts. For more than 10 years, France has been confronted with significant predation by wolves on livestock, especially sheep. Around 15,000 animals are killed, mortally wounded or missing annually as a result of wolf attacks. Despite the so-called "protection triptych" (livestock guarding dogs, night enclosures, reinforced human presence), the number of victims has increased regularly over 11 years (2008-18): +1000 per year (*source*: Dreal Auvergne-Rhône-Alpes). Successful attacks by wolf(s) now take place as much during the day as at night, and also closer to roads, farms, villages or subdivisions (1). That is probably linked to the systematic regrouping of livestock at night in electrified pens or secured sheds.

As for wolves, their population is growing dramatically: about 20% per year over recent years. At the end of winter 2018-19, 530 wolves were counted (prediction interval: 477-576), and 97 areas of permanent presence surveyed at the end of summer 2019, including 80 where wolves live in packs, the latter all located in the Alps and Jura. The high concentration of packs in the Alpine regions encourages dispersal towards the south of the Massif Central and all along the Pyrenees, but also nearby the Western Coast, Normandy and even as far up North as Belgium.

How can we explain the number of victims and especially the strong interannual progression? It is not the dispersion of wolves in the country. Over the last 10 years, 93% of successful attacks have consistently been reported in Alpine departments, where wolves have been resident for more than 20 years, and where almost all breeders have implemented livestock protection means.

Would these breeders sign protection contracts, but then do nothing? Apparently not, because according to *GeoLoup* national database, 90% of attacks take place at breeders who have signed a contract and then actually implemented the recommended means of protection, a condition verified by the official agents in charge of the predation reports. In 2010, 874 farmers had signed a contract, and their number has tripled since: 2,722 in 2019 (*source*: Draaf Auvergne-Rhône-Alpes). Also, in 2019, 4,258 livestock guard dogs were financed for their purchase or maintenance, but their actual number, not all of them being financed, must be close to 5,000: about 8 to 10 times more livestock guard dogs than wolves in France.

The failure is obvious. But how can we try to improve the situation, not only in the Alps, but also, and by anticipation, in all French regions with grazing livestock, possibly colonized one day or another by wolves? Eradicating the predator is not an option. Bringing all livestock animals back into secure buildings all year-long isn't either.

We have addressed the issue by taking advantage of our experiences as networked researchers* who have also acquired some knowledge in other countries where relationships between livestock breeders and wolves appear to be less conflictual, if not totally peaceful (2, 3, 4). This is not so in Italy, where "everything is going well" we are frequently told, but where our Italian colleagues estimate the number of wolves killed illegally at between 200 and 300 per year. Nor is it in Spain, where certain regions, notably Asturias-Cantabria, are under predation pressure comparable to France.

It would, of course, be possible, and it is under way in France, to continue and strengthen the current means of confining herds and scaring and repelling the predator: raising and burying fences, stress sensors for prey, wolf detector drones with repellent spray, spreading urine and droppings of foreign wolves on the perimeters of every pastures, etc. The advantage of these approaches is that they correspond to the regulatory terms of the Annexes to the European Habitats Directive, as they favor all possible non-lethal means against a predator under strict legal protection status. Their shortcomings include the possibility of exploding protection costs, which in France are already between 25 and 35 million euros per year nationally; their unsuitability to breeding systems with animals being grazed in distinct batches and within several fenced pastures scattered across the landscape (5); and their failure to resolve conflicts over the multiple uses of the area, particularly with hikers and hunters, and mostly those accompanied by dogs.

According to our experience, trying to re-establish more acceptable ways of coexisting with wolves requires no longer considering them as complete idiots, or, to put it less trivially, as beings without intelligence and constant and remarkable adaptive capacities, especially with regard to human practices, starting with those developed in response to their hunting and predatory behavior. Multiplying obstacles (fences, protection dogs, repellents of all kinds) is meaningless when the wolf we try to discourage does not consider his efforts to cross or circumvent the obstacles as likely to put him at risk of serious injury or death threat.

Contrary to a well-maintained myth, fear of humans is not an intrinsic and permanent behavioral trait in predators, especially wolves. It is an acquired behavior, resulting from their great cognitive abilities and faculties to observe, learn and remember the consequences of their behavior. Wolves are very smart: let's make the most of it!

We should try to re-establish in France "reciprocal relations" with wolves, which can also be seen as establishing a form of mutual respect based on clear signals and strict rules, to be recalled from time to time, if necessary. This implies the possible use of lethal means (shooting and/or trapping) before, during or just after an attack: (a) to eliminate overly insistent individuals or groups; and (b) to associate the presence of humans working with herds with real danger. In doing so, the effectiveness of current non-lethal means of territorial marking (fences...) and repulsion (dogs...) should be improved, as reminders of danger in case of non-compliance, rather than allegedly impassable obstacles.

This approach has already proved its worth in regions such as Central Eurasia (3, 4) where humans and wolves have lived in more or less close contact for a long time. It has the advantage of giving breeders the leeway to react immediately, targeting the threatening wolves. It also allows for modulation, according to local conditions and contexts.

However, two points of vigilance should still be considered: a) The need for a constant human presence near the herd and the dogs, day and night, cannot depend only on the breeders or herders, who have other professional tasks to accomplish, such as grazing the herd properly (6); b) when farm animals are brought close to human housing and towns, the authorization of defensive shooting requires compliance with safety rules, which argues for the professionalization of wolf control (local and national wolf brigades), in association with farmers, hunters, and in close consultation with local elected officials.

In France as elsewhere, the management of relations with opportunistic and highly intelligent predators such as wolves will always remain partly conflictual, complex and very dynamic. It therefore requires a continuous process of co-adaptation between wolves and humans, which cannot be left to breeders alone, especially in the densely populated areas of Western Europe, but must be designed and managed collectively at the regional and landscape levels.

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* <https://coadapht.fr/en>

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