

Recovering the Use of Livestock Guarding Dogs in Portugal: Results of a Long-term Action

by

Silvia Ribeiro: ribeiro_silvia@hotmail.com
Francisco Petrucci-Fonseca

Wolf predation on livestock is one of the major threats to wolf conservation worldwide. Included in this conflict are more than just economic issues. Wolf damages are often perceived as being higher than real damages and as having a larger economic impact than livestock losses due to other factors such as disease. In some areas of Portugal mortality of goat kids due to the lack of disease prevention can reach more than 50 % of the yearly production, per flock, while maximum wolf predation registered was around 5 %. Therefore, despite the use of compensation measures, their effectiveness at increasing tolerance may be limited.

Besides the financial losses that result directly from wolf predation, other costs must also be considered. Wolf presence also implies changes in livestock husbandry, management and protection techniques that involve additional work and extra costs. These changes are difficult for livestock producers to accept. Therefore we could therefore expect the imposition of adequate husbandry and protection measures to actually increase animosity towards the wolf and the agencies responsible for its protection in the short term. The answer may be implementing long-term awareness and cooperative actions to improve husbandry and livestock protection practices thus reducing the potential for conflict. In our experience, in wolf areas where the damages on livestock are low, tolerance is recognisably higher. Besides damage's reduction those actions would also result in establishing a direct working partnership with the rural community leading to a more trusting relationship that seems to be important when dealing with tolerance issues.

In the scope of wolf conservation efforts, several techniques are being developed and implemented to reduce predatory impact on livestock. One of the most widespread and successful is the use of Livestock Guarding Dogs (LGDs). LGDs are part of the traditional husbandry system used in Europe and Asia, where dogs were selected to protect livestock from several predators. In recent decades the use of these dogs was gradually abandoned due to socio-economical reasons (mainly related to the depreciation of the traditional livestock production and the

reduction of predators). With the new policies on wildlife restoration and revitalisation of traditional livestock production, there is the need for tools that could prevent conflicts and make coexistence possible. This will enable the wolf to live in areas where its presence would not otherwise be acceptable.

Recovering the use of LGDs

In Portugal, *Grupo Lobo* initiated a programme aiming to contribute to the conservation of the endangered Iberian wolf through the development and implementation of practical measures to reduce livestock predation. This programme has been ongoing since 1997 and will be briefly presented here.

The first action was to help recover the use of native breeds of LGDs. In Portugal three breeds of LGDs (*Cão de Castro Laboreiro*, *Rafeiro do Alentejo* and *Cão da Serra da Estrela*, that has both long and short hair varieties) were selected to protect livestock from predators. A total of 75 pups (38 males and 37 females) from these breeds were selected and given to shepherds (Fig. 1).



Fig. 1: A shepherd holding his new *Cão de Castro Laboreiro* pup, before placing it with the flock.

They were integrated into goat and/or sheep flocks, ranging from 50-700 animals, in the North and Centre of the country. The progenitors of the

¹A fourth LGD breed named *Cão de Gado Transmontano* (originated in the Northeast of Portugal) is currently under recognition by the Portuguese Kennel Club.

dogs were preferentially working dogs that presented no physical abnormalities or health problems. Criteria for flock selection were based on:

1. the amount of damages,
2. the existence of conditions to receive a dog and,
3. the shepherd's motivation to cooperate in the project.

Before delivering the pup, the shepherd had to sign a cooperation contract with the entity coordinating the programme. The contract established the education and raising conditions/rules the shepherd should comply in order for the dog to become a good working dog and was valid until the animal reached adulthood. During this period the dog belonged to the entity implementing the action and thus could not be given away or sold if the shepherd sold the flock. The project team was responsible for replacing the dog in case of its death (only if the shepherd was not directly responsible) or if it was considered inefficient by researchers. We found this contract to be very useful, because it would enable the exclusion of the shepherd if he was not raising the dog according to the conditions previously defined (thus risking its future success) as well as the dog transfer to other shepherd. Also it contributed to increase the shepherd responsibility towards the dog and thus the success of the action

The pups were integrated in the flocks after weaning (around 7-8 weeks old), during the socialization period. After a short period of 2-3 weeks, of strict confinement in the stables/corral (where the livestock was kept during the night), the pup would then start to accompany the flock to the pasture/mountain during grazing periods. Limited contact with other livestock, dogs or people (apart from the strictly necessary contact for the pup to know the shepherd and its family) was observed. As soon as the pup started to go with the flock to the pasture a member of the project team would regularly accompany the flock to monitor the dog's behavioural development. The periodicity ranged from 15 to 30 days, respectively for pups younger or older than 6 months. Dog monitoring was maintained until they reached adulthood (12-18 months). This schedule was followed as much as possible and intended also to control the shepherd's behaviour towards the dog and allow the prompt correction of undesirable behaviour (whether by the dog or the shepherd). During the visits the general condition of the dog was verified and any health problems were treated. The shepherds were also requested to contact the project team in case the dog was sick or

behaving strangely, and if they needed any other help or advise. The project team provided the food for the dogs until they reached adulthood as well as the veterinary care. In spite of the extra care devoted to these dogs, a mortality rate of 24 % was observed, with disease as the main cause of death (n=8), followed by poison (n=2), while 4 dogs died from other causes (run over by car, shot by hunters, blow to the head, attacked by a wolf) and 4 dogs disappeared.

The evaluation of the dogs' efficiency was based on three different types of analysis: damages reduction, dog's behaviour, and owners' satisfaction. This evaluation was done only for adult dogs (>18 months). For each flock we compared the mean number of damages in the three years before the integration of the dog with the number of damages that occurred in the year after the dog filled 12 months of age. We observed a general reduction in the number of damages, ranging from 33 % to 100 %. Nevertheless, there was a considerable variability in the number of damages throughout the years, suggesting that other factors unrelated to the dog's action (e.g. fluctuations in predators density, availability of alternative prey, changes in flock management, and in habitat conditions affecting the efficiency of the attacks) could also be responsible for the observed changes. When analysing the number of damages relative to the total damages in the nearby flocks, we observed a reduction from 10-40 % in 60 % of the cases. This indicates that there was a reduction in the number of damages in the studied flocks compared to the predatory impact in the region. As stated before, this could result from the presence of the dog or from other factors. In some flocks, where there was no change or a small reduction in the relative damages, there was nonetheless a significant increase in the number of attacks that were efficiently prevented by the dogs (Petrucci-Fonseca *et al.*, 2000).

The behaviour of adult dogs was evaluated according to the three behavioural components defined by Coppinger & Coppinger (1978) for this type of dogs: attentiveness, trustworthiness and protectiveness. Attentiveness refers to the dog maintaining its proximity to the flock and following its daily movements during grazing as well as exhibiting social behaviours towards the animals in the flock. Trustworthiness implies the dog not disturbing flock's activity or chasing/injuring animals in the flock. Protectiveness refers to the dog being alert to any new or strange situation or intruder (barking) and actively preventing a potential attack.

Almost 90 % of the adult dogs were attentive to the flock. Most dogs displayed adequate investiga-



Fig. 2: A juvenile *Cão de Castro Laboreiro* dog displaying submissive behaviours towards an animal from its flock

tory and submissive behaviours towards the animals in their flock (Fig. 2). However, during monitoring seven juvenile dogs were identified as not behaving correctly, mostly due to incorrect behaviour by the shepherds that were reinforcing their own bond with the dog or limiting their contact with livestock. After some actions were initiated to correct these situations, 4 dogs died soon after (disease, run over). In 2 other cases the shepherds did not change their conduct and the dogs were transferred to other flocks; one was recovered and the other died soon after (disease). One dog was definitely removed.

Regarding trustworthiness, although it is fairly common for juvenile dogs to chase/injure (rarely kill) kid goats or lambs during play sequences only one adult dog attacked and killed flock animals and was immediately removed. Excessive play behaviour in juvenile dogs can become a real problem and was thus immediately corrected to prevent it from being reinforced. This was facilitated since most of the flocks were shepherded. The permanent presence of a shepherd and the continuous monitoring of the dogs' behaviours by the work team could account for the high percentage of attentive and trustworthy dogs when compared to other studies. All adult dogs exhibit protective behaviours (alert to the flock activity and movements, barking in strange situations, placing themselves between intruders and the flock, chasing and occasionally fighting intruders) and actively preventing wolf attacks. Shepherds were generally satisfied with their dogs: 95 % consider them very effective and 60 % say the dogs were responsible for the observed damage reduction.

The analysis of the amount of damages before and after the introduction of the dog is the method generally used to assess LGDs' efficiency. Nevertheless,



Fig. 3: An adult short-haired *Cão da Serra da Estrela* dog perfectly integrated in the flock.

since the amount of damage can be influenced by several factors difficult to assess, an alternative would be to focus on the number of attacks prevented by the dog as well as on the behaviour exhibited by the dog in specific situations. According to Lorenz & Coppinger (1986), the development of protective behaviour is a result of good trustworthy and attentive behaviours. Attentiveness is also considered to be a key indicator of success because most predation problems are associated with low attentiveness (Coppinger *et al.*, 1983) (Fig. 3).

Alternative protection methods

Raising a LGD requires a great commitment by an inexperienced shepherd and some requirements must be met for a LGD to become an efficient guardian (e. g. gregarious livestock, the absence of potential causes of death like the illegal use of poison). Moreover, more than a year is necessary to evaluate the dog's efficiency, since the dog may not be fully effective until after reaching adulthood. Taking this into account, a new project (AGRO 311 – INIAP-Ministry of Agriculture) has been initiated in 2001 that aims to test the efficiency of alternative or complementary methods to LGDs, namely electric fences and fladry, as well as to recover other traditional protection methods. Preliminary inquiries (n=74) on traditional techniques of livestock protection conducted in Central Portugal, led to interesting findings on the use of different light-mobile barriers (at least until 1950), some similar to fladry, to protect sheep flocks kept in small enclosures (corrals) overnight. The gathering of information is still underway and the test of the effectiveness of these methods will be conducted this year. Although testing the long-term

efficiency of fladry to protect livestock from wolf predation in natural environments is still underway, the use of similar barriers by Portuguese shepherds increases our confidence in this technique. The success of livestock protection measures necessarily requires the implementation of new and traditional methods that best complement and adapt to each situation.

Importance of long-term support actions

After the initial scepticism showed by shepherds, this long-term action resulted in an increasingly positive acceptance of LGDs. Participating shepherds can now recognize a good working LGD and are aware of the conditions necessary for raising one. They frequently ask for supplementary dogs to substitute their other dogs and improve flock protection. There is also a good receptivity from other shepherds that learn about the dog's efficiency and increasingly ask for LGDs descending from those dogs. This flow of information between shepherds from the same and neighbouring villages seems to be very effective at a local scale and contributes to enhance their confidence in LGDs and their willingness to use them. Once livestock producers are satisfied with the use of LGDs the mere presence of a good working dog in the flock can contribute to reduce conflicts with the wolf and put damages in a real perspective.

References

- Coppinger, R. & L. Coppinger (1978). *Livestock guarding dogs for U.S. Agriculture*. Hampshire College, Amherst, MA.
- Coppinger, R., J. Lorenz & L. Coppinger (1983). Introducing livestock guarding dogs to sheep and goat producers. In D. Decker (Ed.), *Proceedings of the First Eastern Wildlife Damage Control Conference* (pp. 129-132) (September 27-30, Ithaca, New York).
- Lorenz, J. & R. Coppinger (1986). Raising and training a livestock-guarding dog. Extension Circular, 1238/April, Oregon State University Extension Service.
- Petrucci-Fonseca, F., S. Ribeiro, A.E. Pires & C. Cruz (2000). *Contributo para a minimização do impacto económico dos predadores sobre os animais domésticos*. Technical Report, Programme PAMAF-IED. Lisbon: Faculty of Sciences of Lisbon University.

Influence of Large Carnivores on the Distribution of Excreta by Sheep on a Summer Pasture, in the NW-Italian Alps

by

Davide Cugno; davide.cugno@unito.it
Giampiero Lombardi; giampiero.lombardi@unito.it

Introduction

The presence of large carnivores in the Alps has caused great changes in sheep pastoral systems: the traditional grazing management (exploitation of summer pastures by free ranging flocks) has been replaced by a non-traditional one, with constant shepherd supervision and the use of night-time enclosures. As a consequence of the changes in flock distribution and movements, the distribution of animal excreta has been affected, with possible effects on vegetation and pastoral quality.

To evaluate the consequences of the non-traditional grazing management, the distribution of excreta was surveyed in an Alpine summer pasture and related to vegetation types, flock movements, stocking density, and efficiency of grazing. The results concerning dung distribution are presented in this paper.

Interactions between domestic animals and predators, and consequences for grazing management

In Valle Stura of Demonte (NW Italian Alps, province of Cuneo), sheep breeding is a traditional activity (still important for the economy of the valley), based mainly on the exploitation of summer pastures. At the same time, it is an important area for the conservation of the alpine environment. Until a few years ago, because of the absence of large carnivores and the lack of labour, shepherds used to drive their flocks to mountain pastures and leave them alone for the whole summer: free ranging flocks used to exploit even the remote areas of summer pastures, spending the night outdoors without protection.

Recently, in relation to the increasing presence of *Canis lupus*, *Vulpes vulpes* and stray dogs, the risk of losses due to depredation has affected alpine grazing management; discouraging the exploitation of more remote and inaccessible pastures, and forcing shepherds to guard flocks during the day and fence them in protected enclosures during the night. Even the