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The Livestock Guardian Dog: Myths, Facts, and Field Experience

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The livestock guardian dog (LGD) is widely considered the most effective strategy for protecting livestock from attacks by large wild carnivores, as well as from free-ranging and feral dogs. However, despite their proven effectiveness and widespread use, many shepherds and farmers still face significant challenges when it comes to raising and managing LGDs successfully, especially in a rapidly changing rural world.

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Livestock guardian dogs have long been surrounded by myths and beliefs related to their behavior, breeding, and day-to-day management, often creating confusion between tradition, experience, and scientific evidence.

● MYTHS INTRODUCED IN THE 1970S AND STILL PRESENT TODAY

So-called “classic” training and education methods that ignore the basic behavioral needs of livestock guardian dogs (LGDs) are still promoted today. This often leads to dramatic situations – not only for the dogs themselves, but also for livestock, farmers, and shepherds. As wild predators disappeared from many regions of the world, traditional knowledge about LGDs gradually became lost, along with much of their functional genetics.

During the 1970s and 1980s, many farmers began adopting LGDs breeding and training methods based on the recommendations and theories of Raymond Coppinger, a researcher from the United States. These approaches rely heavily on punishment and fear, while overlooking many of the behavioral needs of LGDs. As adults, dogs raised under these methods tend to be more insecure and overreactive towards people. This is especially conflicting in touristic areas or when the pasture lands are close to villages.

Other breeding and management approaches do exist, methods that encourage a relationship of trust between livestock guardian dogs and the people they work with. Far from being “new,” these practices are rooted in the knowledge of

shepherds who live daily with their flocks and their dogs.

● FIELD VISITS AND INTERVIEWS WITH SHEPHERDS AND FARMERS

The following section presents some findings from field visits carried out in extensive livestock systems, ranging from pastoral regions such as Transylvania to low-supervision steppe systems like those found in Chilean Patagonia.

In total, 32 flocks were visited, and 248 LGDs were assessed. In addition, in the Pyrenees and Pre-Pyrenees, 20 LGDs have been monitored over several years.

Gaining this kind of knowledge about LGD behavior and management helps identify the key factors needed to maximize the success of implementing LGDs on farms. For each flock, we weighed the benefits and challenges of working with guardian dogs, based on the reality of each farm.

Tables 1, 2, and 3 provide a summary of some of the data collected from flocks visited across different contexts

> **Table01**

Overview of data collected during field visits and interviews

Mean numbers	The Pyrenees & Pre-Pyrenees	Transylvania	Abruzzo	Chilean Patagonia
Number of sheep/goats per flock	430 meat sheep Only 2 farms with dairy goats	420 dairy sheep or goats	200 dairy goats and/or sheep; only 2 farms with meat sheep	6.552 meat sheep on 16.133 hectares
Number of livestock guardian dogs (LGDs) per flock	2 dogs, mostly Pyrenean Mountain dogs	14 dogs, mostly "Corb" dogs	13 dogs, mostly Abruzzese shepherd dogs	6 dogs, mostly Abruzzese guardian dog and Pyrenean Mountain dogs
Number of shepherds per flock	No shepherd, or 1 shepherd during the day	4 shepherds per flock, day and night	1 shepherd during the day	No shepherd; in 2 ranches, one person monitored the flock during the day
Number of herding dogs	2 herding dogs (Border Collie or "Gos d'Atura")	None	2 herding dogs, mostly "Lupette Abruzzese"	More than 10 Magellanic sheepdogs per gaucho
Main predators affecting the visited flocks	Owner dogs The bear for two flocks and the wolf for two other flocks	Bear; the wolf is considered a secondary concern for most flocks	Wolf; the Marsican brown bear is not considered a concern	Fox (for lambs born outside) Puma
LGD effectiveness score (from 1 = not effective to 5 = very effective)	Effectiveness score: 4.5 out of 5	5 out of 5	4.8 out of 5	5 out of 5
Flocks with LGDs killed by predator attacks	0% yes	100% yes	25% yes	0% yes
Percentage of dogs socialized with people from puppies, especially with children	70% of dogs socialized from puppyhood	70% of dogs socialized from puppyhood	70% of dogs socialized from puppyhood	40% of dogs socialized from puppyhood

● **GOOD GENETICS AND SOCIALIZATION: THE FOUNDATIONS OF A RELIABLE LIVES- TOCK GUARDIAN DOG**

One of the most persistent and harmful myths is the belief that a LGD puppy that is socialized with people will abandon the flock and fail to work properly.

The bond between a LGD and the flock is largely genetic. A dog's genetic background strongly shapes its natural attachment to livestock. This bond does not need to be "forced"; instead, it emerges naturally and is largely determined by genetics. For this reason, it is essential to work with well-selected LGD breeds and, whenever possible, with proven working genetic lines.

Livestock guardian dog breeds have been selectively bred by shepherds for centuries. Puppies are naturally attracted to livestock and form a strong, long-lasting bond with the flock.

This is why working with good genetics is a key factor in the successful use of livestock guardian dogs.



> **Imagen 01**

Lupo offering warmth and protection to the young goats of 30 Cabres

Good genetics is only the starting point. Puppies need to be guided, watched, and raised in the right conditions to turn that potential into a good working dog. The first three months, and the learning that happens during the first year, are key for their future.

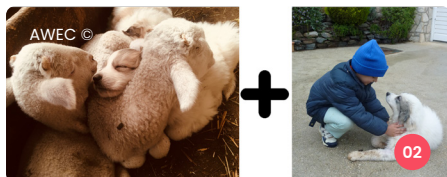
Growing up from a very early age alongside calm lambs or goats clearly strengthens the dog's bond with the flock and supports the development of appropriate guarding behavior.

Socializing puppies with people does not weaken their bond with the flock or reduce their performance as livestock guardian dogs in adulthood.

In traditional pastoral cultures, LGDs are often born in villages or farmhouses, grow up together with their mother and littermates, and have frequent contact with people – particularly children, who often have the most interaction with the puppies.

In the study conducted, the effectiveness of LGDs was rated as "excellent" by all interviewed shepherds, regardless of whether the dogs had been socialized with people from an early age or not (Table 1).

That's why it's non-negotiable: LGD puppies must have contact with people, including children, from a very young age – especially, before three months of age.



> Photo 02

Due to their genetics, LGDs show an innate attachment to sheep. Socializing puppies with people does not reduce their effectiveness as future guardian dogs.

> Photo 03

In pastoral cultures, children are often the ones who have the most contact with LGD puppies.

● PUPPIES LEARN FROM THEIR MOTHER AND EXPERIENCED DOGS

The second myth is the idea that a puppy must be separated early from its mother, raised alone with the flock, and isolated from other dogs and external stimuli.

Puppies need to play, feel safe, be supported, and learn by following adult dogs. As they grow, dogs form strong bonds with each other and with the flock. Knowing and recognizing each other is an important part of becoming good working dogs.

Puppies learn from their mother and from other LGDs. This learning period is crucial and is lost if puppies are separated from their mother too early.



> Photo 4.1

Mireya de Kaiku Borda with her puppies



> Photo 4.2

Kantaou de Kaiku Borda with the puppies



> **Photo 4.3**

Fidèle with Aixa



> **Photo 4.4**

Lenga and her puppy

In areas with high predation pressure, LGDs never work alone; they work as a group with other guardian dogs. The flocks visited in the Carpathians had an average of 14 LGDs for 420 sheep and 4 shepherds. In Abruzzo, flocks typically worked with 13 LGDs for 200 goats or sheep and 1 shepherd.

Puppies begin to accompany the flock on “easy” pastures gradually from around 4–5 months of age. They are always accompanied by their mother, other LGDs, and the shepherd. At this stage, puppies are never left alone and are always protected, grazing in safe and low-risk pastures.



> **Photo 05**

A team of LGDs of different ages following the shepherd. Younger dogs learn by imitating adults, in safe and protected pastures.

When there is a risk of predation, it is strongly recommended to work with at least two LGDs, to reinforce teamwork and task sharing. When facing a predator, a single guardian dog is confronted with an unavoidable dilemma: move towards the predator to drive it away, leaving the flock unprotected, or stay with the flock and wait for the predator to approach.



> **Photo 06**

Seven LGDs form a close protective circle around the flock, while three additional LGDs work from the outer perimeter. LGDs work as a team, sharing protection tasks and covering different roles around the flock.

When a flock is starting from scratch, without an experienced LGD to act as a tutor, introducing two puppies together, of a similar age, offers many advantages:

- The puppies will play together and tire each other out. This reduces the risk of play directed towards lambs, including chasing behavior, and therefore lowers the risk of injuring young and small animals.
- Being together provides puppies with security and confidence. When they have another puppy with them, they experience much less stress from separation from their mother and litter. They explore and adapt to their new environment with less fear and greater confidence. As a result, they tend to begin protecting the flock at a younger age than puppies introduced alone.
- Being two encourages greater independence in the puppies.
- Dogs are social animals that need interaction with other dogs. The presence of another dog, especially during summer grazing periods, contributes to their physical and mental well-being.
- Puppies will work together to protect the herd, increasing overall protection effectiveness.



> Photo 07

Llamp and Lluna release their puppy energy by playing together, allowing the sheep to graze calmly. **Introducing two puppies together reduces the risk of playing with lambs.**



> Photo 08

Livestock guardian dogs need to work and live alongside another LGD.

● TRUST BETWEEN FARMERS AND LIVESTOCK GUARDIAN DOGS

The third myth that needs to be challenged is the idea that a livestock guardian dog works without the support of a shepherd or farmer.

LGDs are true working partners to the shepherd, and the relationship is built through both shared work and a strong bond. Guardian dogs rely on their

shepherd, especially after a predator attack. If that relationship isn't there, things can go wrong: the dog may leave the flock, not respond to handling, or become unsure of its role.

Good genetics help, but they're only part of the picture. Without proper handling and guidance, even a good dog can struggle and develop unwanted behaviors.

LGDs have worked side by side with shepherds for generations, building strong bonds. In Transylvania, shepherds live with their flocks and LGDs, day and night in summer. In Abruzzo, they stay with them during the day, and at night the animals and LGDs are kept together in barns or safe enclosures.

A livestock guardian dog learns through a relationship of trust and cooperation with the shepherd.

Livestock guardian dogs see the shepherd as a source of safety. Active involvement in their training and daily care is essential, particularly in areas frequented by people. Trust makes dogs more predictable and manageable, whereas a lack of trust can lead them to perceive approaching people as a threat.

When dogs trust their handler, changes in grazing, flock management, or the environment are much easier for them to handle.

Trust between the shepherd and the LGDs makes all the difference. LGDs that trust their shepherd stay within limits and do a better job.



> Photo 9.1

Piero with Figlio di Leone, leader of the team of 18 LGDs



> Photo 9.2

Raymonde with part of the pack from Kaiku Borda



> Photo 9.3

José Antonio Kusanovic with Granizo, leader of his group of six LGDs



> Photo 9.4

Judit with part of the pack from Can Janola

In areas where shepherds are no longer present, controlling the work of LGDs is more challenging. In these cases, **establishing consistent routines is essential**. Dogs should be visited every day at the same times, morning and afternoon. Feed them daily, spend time with them and the flock, and use that time to handle them, brush them if needed, and check for injuries on ears, legs, or paws. Don't let bad habits set in and go back to basics if needed. For example, if a LGD starts chasing bicycles or injuring lambs, these behaviors need to be stopped early and not allowed to get worse.

Good fencing is also essential. From a young age, LGDs must learn not to jump fences and to stay with the flock. First, this training should take place close to the farmhouse, in fields where the dogs can be closely supervised. When pastures are far and dogs are still learning, GPS collars are a big help. If a dog leaves, you can find it quickly, bring it back, and remind it to stay with the flock.

> **Table 2**

Key challenges identified during visits and interviews

Mean numbers	The Pyrenees & Pre-Pyrenees	Transylvania	Abruzzo	Chilean Patagonia
Difficulties in raising and training livestock guardian dogs (LGDs)	100% of respondents reported difficulties	0% of respondents reported difficulties	0% of respondents reported difficulties	100% of respondents reported difficulties
Hours per day spent working with LGDs	Ranging from 1 to 7 hours per day	24h per day during summer	12h per day for the majority	30 min every two days
Introduction of LGDs has led to changes in flock management	100% yes	0% yes They have always worked with LGDs	0% yes They have always worked with LGDs	100% yes
Economic difficulties in feeding LGDs	80% yes	0% yes	0% yes However, for shepherds managing more than 13 LGDs, feeding all the dogs becomes increasingly costly	0% yes
Practical difficulties in feeding LGDs	10% yes	0% yes	0% yes	70% yes

● **LIVESTOCK GUARDIAN DOGS REQUIRE TIME, COMMITMENT, AND ONGOING SUPPORT**

It's often thought that a guardian dog is fully grown and effective by one year old –but that's not true.

Building a reliable team of LGDs from scratch takes time – **at least 4 years.**

A LGD is usually not fully ready before two years of age if raised with an experienced adult dog, and closer to three years without that support.

An adult tutor LGD (fully functional and already integrated into the flock) plays a key role in the introduction and training of new LGDs. **A good tutor LGD saves a great deal of time and effort in the education of**

young dogs: it serves as a model, accelerates integration and bonding with the flock, corrects and calms younger dogs, acts as an emotional anchor, reduces the workload for the shepherd, and ensures a basic level of protection while the young dogs mature.



► **Photo 10**

Ron and Blanca, between play and first learning experiences

Bringing in LGDs into flocks that have never worked with them can be challenging. In all the flocks we studied in the Pyrenees, their arrival significantly changed how work was organized and how the flock was managed (Table 2). On farms with no previous experience, their arrival can be a real turning point, with major impacts on both shepherds and farmers.

Introducing guardian dogs often means more work and added costs for their care (Table 2). If they are not managed properly, they can become a constant source of concern. There is always a learning and adjustment period for the dogs, the flock, and the people working with them.

However, in places where livestock guar-

dian dogs have always been part of the system, introducing and training them is considered much easier (Table 2).

Feeding costs are substantial and represent a major effort for many farmers. In the Pyrenees, feeding costs are estimated at around **€40 per LGD per month**. In Transylvania, LGDs are fed a mixture of cereals and whey derived from boiled milk. In Abruzzo, LGDs are fed a mixture of bread and whey, supplemented with dry food during the winter months. In both regions, diets are often complemented with raw meat and do not appear to represent a major economic challenge. That said, shepherds in Abruzzo with over 13 LGDs often point out that feeding them becomes expensive. In the Patagonian steppe, the main difficulty lies in transporting food to the LGDs due to the long distances involved. In these cases, the use of electronic feeders with individual dog identification chips could be a useful solution.

We still emphasize that visiting the dogs twice a day is the minimum. This helps create a routine, reassures the dogs, allows you to check for injuries, and prevents unwanted behaviors from developing.

Veterinary costs are also significant and can vary considerably. Expect to spend around €300 - 500 per year per dog for basic care: parasite control (fleas, ticks), deworming, veterinary visits, and vaccinations. This doesn't include unforeseen expenses such as injuries or the cost of spaying or neutering.

► **Table 03**

Key concerns related to flock proximity to tourist areas and villages

Mean numbers	The Pyrenees & Pre-Pyrenees	Transylvania	Abruzzo	Chilean Patagonia
Conflicts with neighbors	43% reported conflicts with neighbors	28%	11%	20%
Conflicts with hikers, cyclists, and runners	57%	14% all-terrain vehicle	42%	-
LGDs have bitten or killed a pet dog from neighbors or tourists	14% yes	70% yes	0% yes	0% yes
Degree of proximity between the flock and the public (tourists, hikers, etc.) (1 = very low proximity; 5 = very high proximity)	4 out of 5	2.5 out of 5	3.5 out of 5 (50% of the pastures are in high-traffic areas during the summer)	0 out of 5
LGDs have bitten or attempted to bite a person	20% yes	0% yes	62% yes	0% yes
Level of concern of the shepherd/farmer about the risk of a dog biting a person (1 = not concerned at all; 5 = very concerned)	4 out of 5	1.5 out of 5	3 out of 5 (50% not concerned and 50% very concerned)	1 out of 5

● LIVESTOCK GUARDIAN DOGS IN TOURIST AREAS AND NEAR VILLAGES

Coexistence between society, livestock, and LGDs is possible. This approach requires dogs that are well socialized with unfamiliar people, as well as strong supervision and control by the shepherd or farmer. A sociable LGD doesn't mean it should follow everyone. Its job is to stay with the flock and protect it. From a young age, the dog must learn to stay with the flock.

In tourist areas, flocks should never be grazing without supervision or without effective fencing. The shepherd needs to watch both the flock and the LGDs and set clear rules. With more than two LGDs, especially young ones, reactions can become stronger in some situations. Young dogs have not yet learned to tell the difference between real threats and harmless situations. They often have less self-control, especially with things like bikers, which can lead to overreactions. In the days after a predator encounter, LGDs are usually more on edge and reactive.

At the same time, people using mountain areas need to understand and respect the work of LGDs and behave appropriately around them. If people act the wrong way – like letting an unleashed dog run loose close to the flock, people picking up a lamb, shouting, throwing stones, or going through the flock too fast – guardian dogs will react. Even friendly dogs will put flock protection first (Table 3).

For this reason, educating the public in shared responsibility and clearly informing people about the presence of flocks and LGDs in touristic areas is essential.

In busy areas like the Pyrenees or parts of Abruzzo, having people close to the flock is a constant worry for shepherds and farmers, even when their livestock guardian dogs are very sociable (Table 3).

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