

Short Communication

LIVESTOCK GUARDING DOGS: FROM TRADITION TO MODERNITY

RESULTS OF AN INTERNATIONAL MEETING

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The use of livestock guarding dogs (LGDs), an ancient and traditional way of protecting livestock from predators, has gained renewed relevance in recent decades within the scope of large carnivore conservation efforts. As top predators return to parts of their former ranges, new challenges have emerged regarding the use of LGDs which must be dealt with if we want to expand and increase the success of this damage prevention tool.

To discuss these issues, an international meeting of LGD experts was organized in the scope of the LIFE MedWolf Project (Best practice actions for wolf conservation in Mediterranean-type areas) to promote the sharing of experience, contribute to the definition of the current state of knowledge on the use of LGDs and help identify new lines for future research and collaboration.



Participants of the LGD Meeting held in October 2015, in Castelo Branco, Portugal.

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An Estrela Mountain Dog watches over its goat flock in the central mountains of Portugal, protected with a spiked iron collar. Photo: Julie Young.



Organized by Grupo Lobo, the meeting also involved Istituto di Ecologia Applicata (Italy), AGRIDEA (Switzerland), and IPRA (Institute for the Promotion and Research on Guarding Animals, Switzerland). Sixteen managers and researchers, including representatives of the Project partners from Italy and Portugal, from six other European countries (Spain, France, Switzerland, Slovakia, Bulgaria and Croatia), as well as from Australia and the USA, met at Escola Superior Agrária de Castelo Branco (Castelo Branco, Portugal), from the 20th to 21st October 2015.

Prior to the meeting a field trip was organized to two different regions of central Portugal within the wolf range and with distinct husbandry methods where, LGDs are used in different contexts. This was a good opportunity for the participants to learn more

about local wolf conservation issues and prevention methods, focusing mainly on LGDs. The four farmers and holdings visited have been involved in the LGD Programme developed by Grupo Lobo, and two have received dogs from the MedWolf Project.

Three work sessions were organized during the meeting aimed at answering the following questions: 1) How can we assess the efficacy of LGDs? 2) How can we improve the efficacy of LGDs? 3) Are there limits to the use of LGDs? Possible solutions to these limitations were also proposed by the participants. Before going into the discussion, some initial concepts concerning the function and selection of LGDs were defined to help set the baseline for the work sessions that followed. A summary of the contributions of the participants to all the topics discussed is presented below.

1. LGDs: What are they for and how to select them

1.1. What is a LGD?

A LGD is a dog that has the function of protecting livestock from threats (e.g. predators, intruders). Their selection has primarily been based on working abilities (form and behaviour) and cultural preferences, and their behaviour allows them to stay with livestock (establish bonds, stay close and follow) and naturally protect it from predators. Several regional types exist that are adapted to local environmental conditions and needs, and other human activities; some of these have been recognized as breeds. Owner perception must also be considered, as well as cultural aspects, since these dogs have (or had) an important place in communities. They have always been a tool for mitigating conflicts with large carnivores, enabling coexistence.

1.2. Why would you need a LGD?

These dogs are part of the traditional husbandry system to reduce damage and mitigate conflicts, but other

reasons for owning LGDs may exist, including social and psychological motivations (e.g. providing a sense of security, property guard, companion or social status). Tradition and knowledge are important and facilitate the use of LGDs, but in some regions the use of LGDs as protection against theft may have legal implications which should be considered.

1.3. How would you select a LGD?

Working ability (behaviour and form) is fundamental. Some tests are used to select pups and a stable character is important, but behaviour may change during early development stages, and thus it may be easier to select against undesirable behaviour. More information is needed to help in dog selection, and both dog breeders' and shepherds' contributions should be considered when defining selection criteria.

The first months of a pup's life are fundamental to shape its behaviour, but there is also individual variability to account for, and selection should be based on the quality of a dog's behaviour. It is important to take into



Work sessions during the LGD Meeting, at Escola Superior Agrária de Castelo Branco, Portugal. Photo: Robin Rigg.

consideration that LGDs work as a group and dogs with different temperaments should be used together, since they can complement each other. Different lines exist upon which to select dogs, but inbreeding should be avoided. Ongoing selection takes place during the course of the dogs' lives, with inefficient dogs usually being removed and transferred either to different working conditions or to other functions.

2. LGDs: How to assess, improve and innovate

Three work sessions were organized aimed at answering questions on how to assess and improve the efficacy and efficiency of LGD and perceived limits to their use. The main results of the working groups' discussions are presented below, according to each of the three topics debated.

2.1. How can we assess the efficacy and efficiency of LGDs?

Proposals regarding the assessment of the efficacy of LGDs focused on different levels of assessment (individual farm and overall damage reduction, considering also owner perception), and timeframes (immediate and

long-term) and on the possible correlations between them. The following criteria were proposed: a measure of the reduction of predation on livestock after LGD integration; a cost-benefit analysis (including time investment, mortality and morbidity of LGDs); owner satisfaction and perception of LGD performance/behaviour; LGD behaviour and predator response; level of engagement of farmers; and adaptability of LGDs to different contexts (human tolerance, husbandry, predators and predatory pressure, number of LGDs, habitat).

2.2. How can we improve the efficacy and efficiency of LGDs?

Proposals to improve the efficacy of LGDs focused on the implementation of best practices in the scope of an adaptive management to potentiate LGD success, as well as continued support to and networking between farmers. Specifically, the following measures were proposed: identifying best practices concerning the use of LGDs (education, maintenance, breeding, selection) and of livestock management/selection to reduce predation risk; adapting husbandry systems to the use of LGDs and complementing their use with other preventive measures; increasing existing knowledge (traditional and new) and providing continued assis-

Karakachan Dog accompanying the flock in the mountain pastures of Bulgaria, where wolves are frequently present.
Photo: Sider Sedefchev.





Bonding with the flock during the first months of this Estrela Mountain Dog pup's life is fundamental for later success.

tance to farmers; matching dog breed and behaviour to local conditions; using a balanced dog team; promoting bonding/training of dogs; preventing risks (accidents, diseases); informing the public (tourists, hunters, neighbours); learning about and adapting laws to the use of LGDs; and promoting exchanges and networks between shepherds (information, experience, dogs).

2.3. What are the possible limitations to the use of LGDs?

Several aspects were mentioned that could limit the use of LGDs. Specifically, the following issues were raised: high human densities; restrictions to dog breeds; lack of background about the use of LGDs; personal limitations (lack of motivation, responsibility, or affinity to dogs); legal liabilities; limitations by conservation policies or other legislation; economic constraints; low cost-benefit; lethal predator control; conflicts with other activities (hunting, tourism) and interests (prejudices and intolerance); urgent interventions vs. operational activity; unsuitable husbandry systems (lack of bonding

opportunities, high mortality risks); herders' biases; or lack of access to LGDs.

2.4. Are there solutions to perceived limitations?

A diverse range of solutions were proposed to tackle the constraints identified. Those included: participatory approaches to devise solutions that accommodate different activities and community concerns; education and communication actions about the benefits of using LGDs, as well as economic, ethical and welfare issues; improving the selection and training of dogs in order to reduce aggressiveness and wandering and increase bonding and efficiency, or even train/desensitize dogs to avoid specific areas or species; placing experienced adult dogs; creating a network of farmers and dog breeders; disseminating know-how and implementing pilot actions; providing technical support and creating financial incentives; buying insurance to avoid legal liabilities; promoting predator-friendly farming labels; equipping dogs with GPS collars or bells to locate/control them; setting up interest groups to work and lobby for changes in legislation and enhance policies.

Farmers should be aware of predation risk and encouraged to be proactive and optimize dog management to improve cost-benefit. Viability studies should be done beforehand to assess the feasibility of using LGDs, and when necessary to recommend alternative or complementary methods.

Some of these solutions are already being implemented with good results, but additional research should be developed, mainly concerned with dog selection and training. A detailed discussion of these constraints and solutions will be presented in a future article.



A Maremma Sheepdog stands his ground in Australia, protecting a cattle herd from wild dogs. Photo: Linda van Bommel.

3. Share experience

The need to share experience was highlighted and the establishment of an international working group focused on LGDs was proposed. Exchange of experience regarding progress achieved, problems encountered and ways to solve them, as well as the transfer of information about the development of new methods and tools to evaluate LGDs in different scenarios (e.g. research with GPS dog-collars) was considered fundamental. To this end a forum will be created within the AGRIDEA website to share documents and other information among the members of the group and to facilitate discussion.

The sharing of equipment and the establishment of residency programmes for researchers and managers were also suggested. The development of joint research projects was proposed as a way to promote the exchange of knowledge mentioned above and to help cement the working group, and regular meetings should be organized, including visits to holdings using LGDs.

The expectations and needs of the participants regarding this group were discussed and concrete actions were proposed. For example, the production of a pan-European document compiling the main national legislation concerning the use of LGDs, extracting best practice, identifying the main obstacles and proposing possible solutions and recommendations could be very helpful for managers. The definition of a minimum and optimal number of dogs per flock (considering the sex ratio of the dogs in the group) was also considered important, and a joint study should be initiated with data provided from several countries.

4. Future challenges

Research directions and new challenges concerning the use of LGDs were also pointed out. The development of applied research was considered fundamental to increase our knowledge, particularly about the behaviour of both LGDs and predators, and to identify the most adequate criteria and tests to use in dog selection procedures.

A dearth of funding programmes, and the reduced economic power of farmers to buy and maintain LGDs, may hinder the implementation and continuation of LGD programmes in some countries. Nevertheless, some funding options exist within the EU, such as the LIFE Programme and the Rural Development Programme, that contain measures activated in some areas and to which farmers can apply.

The greater challenge is to find viable and socially acceptable solutions in areas of recent large carnivore re-colonization where husbandry practices have drastically changed and are no longer adapted to the presence of predators. To do so we must consider the traditional knowledge associated with the use of LGDs, but embrace technology to successfully adapt the use of LGDs to a modern rural society.

Achieving coexistence with large carnivores depends on developing solutions that provide viable livelihoods for farmers, meet societal needs, expectations and values (e.g. ethics, animal welfare), while contributing to protect ecosystems and enhance biodiversity. Good examples exist and innovative and valuable ideas are continuously arising. With the consolidation of society awareness about the importance of biodiversity conservation and of the drive to coexist, we will surely succeed.

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