Project

ALTERNATIVES TO LIVESTOCK GUARDING DOGS

LLAMAS, DONKEYS, FENCE-SYSTEMS AND AVERSIVE CONDITIONING:
POSSIBILITIES AND LIMITS

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The term "livestock protection" includes all measures that can prevent loss and damage to livestock herds caused by large carnivores. Used as an umbrella term, herd protection implies a combination of different measures that are joined together in a "prevention system". Herd protection in the sense of a prevention system needs to be differentiated from other preventative fields for domestic animals, such as animal health and epizootic diseases, animal welfare or other risks like natural hazards or theft. Generally, prevention can be understood as "anticipatory problem avoidance" and directly entails a risk-analysis. For herd protection this "anticipatory damage-minimization" indicates an open process within a dynamic system, in which both the predator situation and the operational conditions can be changing at all times. Besides the "protected" large carnivores, small carnivores, birds of prey or stray dogs can also cause losses.

The term "herd protection measures" is differentiated between the operational measures, such as adaptations to pasturing, fencing and infrastructure (stable and paths) and the specific, additional preventative measures. Operational measures create the framework using the common, reliable agricultural practices to keep the an-

imals together in a controlled manner (e.g. these being herd protection and aversive conditioning), in order to appropriately implement specific measures. These are additional measures that aim exclusively at protecting the herds. These are the deployment of herd protection animals, electrification and reinforcement of pasture fences, or temporary aversive conditioning measures. The implementation of "herd protection measures" depends on the farm's management, the topographical preconditions and the carnivores' threat and risk potential. The carnivore needs to be distinguished between large and small carnivores, protected and not protected species, as well as its predatory behaviour (single or group hunting, cursorial, like wolves, or stalk hunt, like lynx) in order to choose the adequate measures.

"Livestock guarding dogs" are shepherd dogs with the specific purpose of protecting livestock from carnivores. The dogs belong to a breed suitable for this use, are systematically trained, kept and bred, and are used exclusively for the protection of livestock. Nowadays, livestock guarding dogs are the most known herd protection measure, as they are the most effective against wolves and are the traditionally embedded method in many countries. Yet, in the densely used

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regions of the Alps, they bare a specific conflict potential, which is reflected through the different user interests in these mountain regions, especially hiking or cycling tourism.

Therefore, the search for alternative herd protection measures has arisen a few years ago, which could replace livestock guarding dogs under certain conflictual situations. The national agency for agricultural consulting, AGRIDEA, has been managing different projects over the last years to investigate and depict the possibilities and limits of such alternatives. For short-term dissuasion, measures as "Foxlights" (visual dissuasion) or "Alarmguards" (acoustic dissuasion) are implemented. Moreover, in valley regions positive experiences have been made with electric fences. However, all these technical methods are usually static and the carnivores get used to them. Therefore herd protection animals possibly represent a more sustainable solution.

Donkeys and llamas were punctually introduced to regions with low levels of carnivore pressure. In the selection process of these animals, sufficient experience and knowledge is still lacking. A pilot project with llamas as herd protection animals illustrates the

challenges, which can arise on both the methodological and the behavioural-biological levels as well as when selecting the animals. The first results can be summarized under the following six points:

1) The integration into the herd should take place on a small, open and fenced-in area;

2) In most cases a single male llama (around 2 years of age) builds a stronger relationship with the sheep than when several llamas are integrated into the same herd;

3) The sheep herd should be compact (ideally consisting of one breed and/or one owner);

4) Ideally the pasture to protect should be rather small, open and fenced in. The optimal pasture size depends on the degree of dispersion of the herd and the openness of the pasture;

5) The animals generally show a protective behaviour towards dogs;

6) Animals with suitable protection behaviours need to be carefully selected.

As the evidence for the protection efficiency under the presence of carnivores is difficult to obtain, the defensive behaviour of the llamas was assessed by means of aversive behaviour towards dogs. If it is possible to efficiently use llamas as herd protection animals, a cost-efficient and low-maintenance alternative to herd protection dogs could have been found, under certain operational prerequisites. The results with lamas confirm the experiences with donkeys which have been made during the last ten years. A systematic evaluation of the use of these two species as protection animals still doesn't exist. To improve the use of lamas and donkeys and to get more detailed results about their protective behaviour, more data should be collected in a further project.