

OFFICIAL SWISS LIVESTOCK GUARDING DOGS

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1. Background

Although it is generally accepted that livestock guarding dogs (LGDs) are an important tool in mitigating conflicts between livestock husbandry and predators (e.g. Rigg, 2001), there are several constraints on their use. This definitely holds true for Switzerland. In this article we give a short review of the Swiss system regarding LGDs, which aims to overcome some of the dog-specific constraints while neither endangering the dogs' capacity to protect livestock nor discouraging livestock farmers from deploying LGDs.

Switzerland is not a typical sheep husbandry country, with sheep currently making up approximately 3% of livestock (approximately 347,000 animals in 2015; FOAG, 2016). However, sheep make up 91% of livestock killed by large predators in Switzerland¹. Around 55% of sheep are summered on alpine pastures for three to four months where they are especially vulnerable to predation. Despite the apparent need for protection against attacks, shepherds have no knowledge of working with LGDs because large carnivores were completely absent from the country for more than a century due to systematic persecution resulting in the loss of traditional methods of livestock protection (Breitenmoser, 1998).

Legal protection of large carnivores across Europe during the latter half of the 20th century allowed for their gradual return, including to Switzerland. The lynx (*Lynx lynx*) was reintroduced in 1971², the wolf (*Canis lupus*) reappeared in 1995, the brown bear (*Ursus arctos*) in 2005 and the golden jackal (*Canis aureus*) in 2011 (FOEN, 2013). Although the wolf was first documented in the mid-1990s, the first pack settled almost 20 years later (2012) in the eastern part of Switzerland. Today around 45 individuals and three packs have been documented.

The growing population of wolves has led to a political debate on how to deal with them. Although large carnivores are protected by national legislation, management procedures follow a pragmatic approach: lynx and wolves can be regulated and individuals shot legally by the cantons³ if the agricultural damage (i.e. livestock) they cause exceeds a certain threshold (large damage according to legislation). For this evaluation, killed livestock is only counted if effective livestock protection measures were in use prior to the attack. LGDs and/or electric fences are recognised as effective protection measures.

The political situation regarding wolf management in Switzerland renders dealing with LGDs conflictual. On the one hand, LGDs are a tool for farmers to protect their livestock against wolves and, on the other

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¹ On average 250 sheep have been killed annually by large predators over the past 12 years (FOEN, pers. comm.).

² The lynx population in Switzerland is stable and consists of around 195 adult individuals distributed across the Jura Mountains and the Alps.

³ To date seven lynx (1997 to 2000) and 10 wolves (2000 to 2016) have been legally shot.



LGDs summering with their herd on a pasture in the Swiss Alps. Photo: AGRIDEA.

hand, their effectiveness is a factor in the legal regulation of the rising wolf population. At first glance these two aspects seem to be complementary. Considering a third factor, however, namely the strict provisions of Swiss legislation on dogs (see below), this setting turns into a dilemma. Farmers are encouraged to deploy LGDs but at the same time they run the risk of a criminal charge or an injunction by the cantons due to conflicts between LGDs and humans as well as companion dogs and other wildlife (see boxes 1 and 2 for examples).

In 2011 the Federal Office for the Environment (FOEN), the federal administration responsible for

the national livestock protection programme⁴, ordered an analysis of the legal situation regarding the deployment of LGDs in Switzerland (Bütler, 2011). The recommendations of this study can be summarised as follows: 1) adoption of a legal framework that renders the deployment of LGDs under Swiss provisions legal; 2) establishment of a label for LGDs that conforms to the adopted legal framework; and 3) creation of an association for LGD breeders and owners to help establish and maintain the LGD label. These recommendations are being successfully implemented step by step and dogs in the national livestock protection programme are labelled “official LGDs”.

⁴The national livestock protection programme is run and financially supported by FOEN. The programme supports the implementation of measures for the protection of livestock, such as LGDs and fences. AGRIDEA agricultural consultancy has been assigned with the coordination of the programme (www.protectiondestroupeaux.ch/en).

Box 1. Conflict management without the “official LGD” label

While moving a flock of sheep that is guarded by two LGDs along a hiking trail in the Alps, a woman accompanied by an off-leash German shepherd dog approaches the flock. The male LGD runs to the companion dog and seizes it by its thigh, resulting in slight bite wounds. The owner of the LGDs is fined 200 EUR due to negligent violation of article 77 of the ordonnance on animal protection (responsibilities of persons keeping or educating dogs). The LGD owner objects and is cleared of all charges by the district court. The department in charge lodges a complaint against the acquittal and the cantonal court pronounces the LGD owner guilty. As a consequence, the convicted LGD owner abandons sheep farming and gives away his LGDs.

Box 2. Conflict management with the “official LGD” label

To avoid incidents – and possible legal consequences – with tourists using a hiking trail to cross an alpine sheep pasture, the shepherd fences his two LGDs separately from the flock of sheep with the intention of releasing the dogs if wolves become noticeable. Because of the presence of two official LGDs, the flock is considered to be protected and therefore killed livestock would be counted in the event of a wolf regulation. The Institute for LGDs (officially mandated with LGD affairs by the federal administration) asks the shepherd several times to deploy the dogs adequately, i.e. not separated from the flock. Because the shepherd refuses to implement the requests, the label “official LGD” is withdrawn. Therefore, the flock is considered unprotected and damages by wolves now cannot be counted towards possible wolf regulation. Although damages continue to be compensated, the LGDs are no longer subsidised. The following year the shepherd allows the Institute for LGDs to test his LGDs in order for him to deploy the dogs adequately. To alleviate the shepherd’s dilemma of protecting the flock whilst avoiding potential conflicts with tourism, the responsible authority decides to relocate the hiking trail.

2. Swiss legislation on dogs

Switzerland is a confederation constituted of 26 states called cantons. These are legally autonomous unless a certain legal aspect is considered to be of federal importance and is therefore regulated on the federal level. In this regard, cantonal legislation must always be in accordance with federal legislation, which cannot be contradicted. In Switzerland there is no federal law on dogs and therefore the cantons have the right to determine legal provisions regarding dogs within their cantonal laws. There are, however, federal prerequisites that must be considered by the cantons. The federal ordonnance on animal protection has a provision stating that “a dog owner must ensure that his or her dog does not endanger people and foreign animals”. In addition, cantonal legislation requires dog owners to ensure that their dogs are supervised at all times. Due to this combination, the use of LGDs remains difficult and virtually illegal in Switzerland.

Legal clarity is crucial to overcome possible conflicts, which often arise in connection with working LGDs. Conflicts range from intensive barking, intimidating and confronting people on hiking paths to fending off other dogs, foreign sheep or cattle from the herd. Although such aggressive behaviour can be frequently observed, people and companion dogs are rarely attacked⁵. To overcome these constraints, the federal parliament agreed on a motion in 2011, which set up a legal framework for the deployment of LGDs, to monitor the population of LGDs and to subsidise the farmers that employ such dogs. The use of LGDs was thus defined within the federal ordonnance on hunting as follows: “LGDs are deployed in order to independently guard livestock thereby fending off foreign animals.” This provision is important as the term “independently” reflects the deployment of LGDs in Switzerland, where they are usually not under direct control. Furthermore, “fending off foreign animals” comes closer to the known behaviour of working LGDs and avoids such discussions as “my

⁵There are around seven incidents of LGDs snapping at people per year. Until now none of these incidents has resulted in people being hospitalised.



The concept of a threefold socialisation (livestock, humans and LGD pack) produces emotionally stable dogs that bond with the livestock, fend off predators in cooperation with their pack members, and are sociable towards people. Photo: AGRIDEA.

poodle is not a wolf, why was it attacked while investigating the sheep?”

For LGD deployment to comply with the provisions of the ordinance on animal protection, it was added that for the evaluation of LGD behaviour in a working context in case of an incident (even with humans), “their working purpose has to be taken into consideration, which is to fend off and expulse foreign animals.” This regulation on a national level is only possible if LGDs are defined on a legal basis, meaning they carry a label, otherwise any dog owner could claim his or her dog to be a working LGD. As a result, LGDs (including pups) that are deployed within the framework defined by the federal government will be registered within the database of the national livestock protection programme as “official LGDs”. Only such officially registered LGDs are subsidised

(approximately 1,100 EUR per dog each year⁶) by the federal administration. The corresponding guidelines of the federal administration on the breeding, education, deployment and keeping of officially registered LGDs will enter into force from 2019 (FOEN, 2017).

3. Organisation of LGD-related affairs

Within the national livestock protection programme the federal administration (FOEN) has charged two organisations to deal with LGDs: the independent Swiss Association for LGDs⁷ and the national Institute for LGDs⁸. The Association unites all breeders and is open to owners of officially registered LGDs. Its main objective is the education and breeding of LGDs for agricultural deployment, which has to comply with national legislation. The

⁶ There is no concrete restriction on the maximum number of LGDs deployed per herd but a minimum of two dogs is required.

⁷ Herdenschutzhunde Schweiz (www.hsh-ch.ch).

⁸ Agridea (www.protectiondestroupeaux.ch/herdenschutz-schweiz/fachbereiche).

Association is subsidised by the government. The Institute is run by Agridea agricultural consultancy, which has been charged by FOEN with the coordination of the national livestock protection programme. Its main tasks are the official control of LGDs and the payment of subsidies to farmers with LGDs. The Institute coordinates the supply as well as demand of LGDs (Fig. 1).

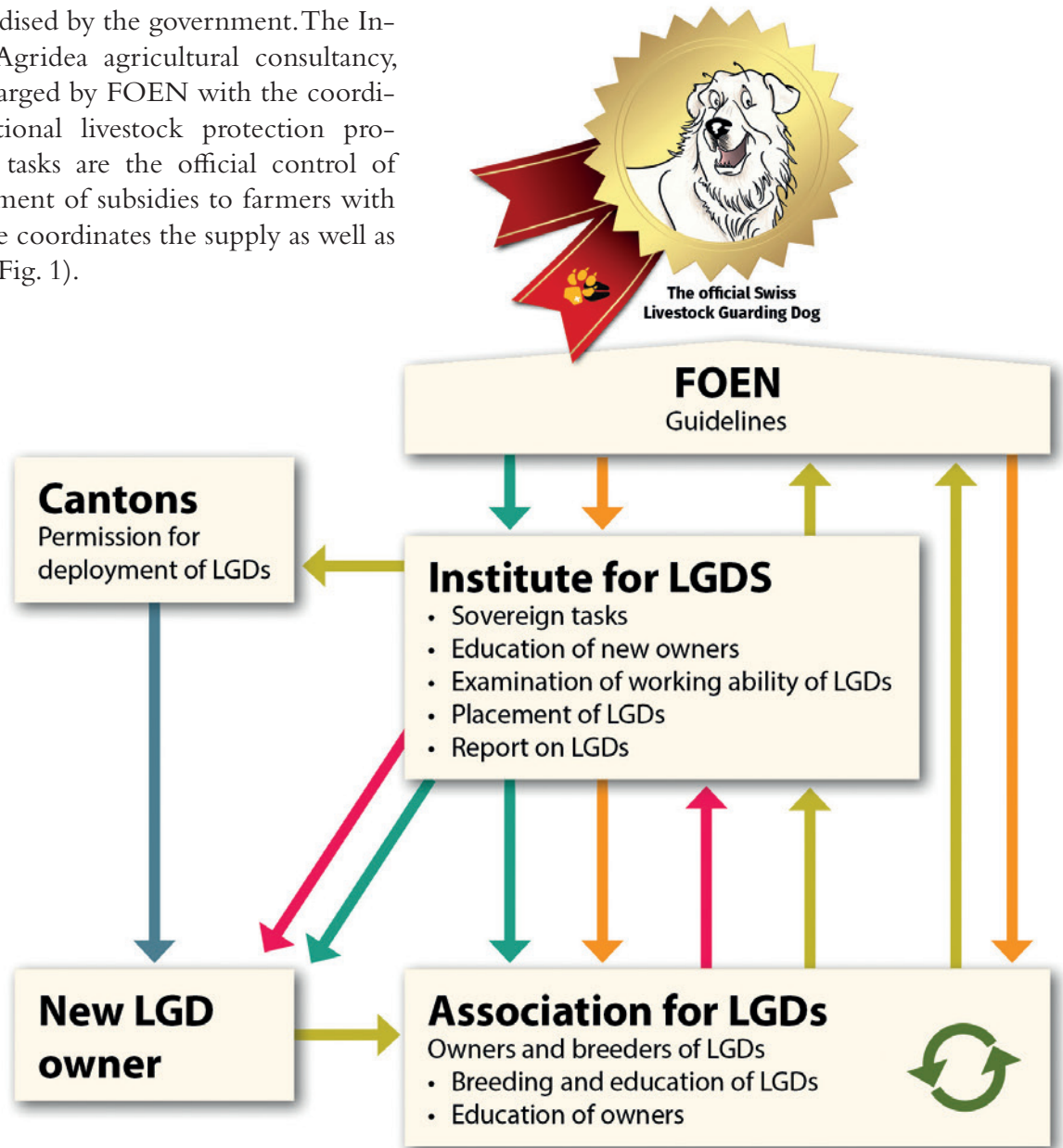


Fig. 1. The official LGD system in Switzerland with its five main elements. Orange arrows: requirements by the official guidelines of the federal administration responsible for the national livestock protection programme (FOEN). Turquoise arrows: financing according to the guidelines. Red arrows: LGD resources (operational LGDs). Yellow arrows: human resources. Blue arrow: commitment of the canton. Green arrows: breeding dogs.

4. Official registration of LGDs within the Swiss system

FOEN officially recognises two breeds of LGDs that are part of the national livestock protection programme: Chien de Montagne des Pyrénées (Patou, MP) and the Maremma Sheepdog (Cane da Pastore Maremmano-Abruzzese, MA). Pups are recognised, registered and subsidised as official LGDs at birth. Each dog has to undergo a test to confirm its official status at the end of its basic educational period (12 to 18 months). The test is set up in order to examine the LGD's working ability with livestock,

its good-naturedness outside the herd, i.e. outside its working environment, and its readiness to cooperate with its owner (Fig. 2). Only LGDs that pass this test will be handed over to farmers for deployment.

The same procedure applies and is enforced for imported LGDs. Although such dogs are officially registered within the system on import, their status has to be confirmed within six months for adult dogs and 15 months for pups. In order to maintain an independent and non-biased control of the output of LGDs, the Swiss Institute for LGDs, not the Association for LGDs, is responsible for the organisation and supervision of the test.

Farmers are only subsidised for the deployment of officially registered LGDs within the national livestock protection programme as long as they follow the provisions of the federal government (guidelines on the breeding, education, deployment and keeping

of officially registered LGDs; FOEN, 2017). Although farmers are free to deploy other LGDs, such dogs will neither be registered nor subsidised and hence fall under the constrained provisions of the general legislation on dogs.



Fig. 2. Four screenshots from a video of a LGD test using the same dog. **2a.** Undesired behaviour: after 24 hrs with a small flock of five sheep on unfenced and unfamiliar terrain the LGD blocks the arriving person (unknown to the dog) at a distance of approximately 100 m from the flock. A more desirable behaviour would be for the dog to observe the person from a distance and remain with the flock or to calm down quickly. **2b.** Desired behaviour: the same dog and person 30 minutes later in a context without the flock. The person has to release the tied-up dog; the LGD displays friendly behaviour. **2c.** Desired behaviour: at a distance of approximately 100 m from its flock, the LGD displays an explorative behaviour regarding the foreign dog. **2d.** Desired behaviour: three minutes later the foreign dog approaches the flock too closely (30 m) and as a consequence is not only blocked but attacked by the LGD.

5. The selection process of LGDs used for breeding purposes

The breeding of officially registered LGDs is carried out by the breeders of the Association for LGDs. In order to acquire and maintain high quality LGDs, potential breeding dogs are carefully selected. A potential breeding dog must have successfully passed the exam at the end of its education period. Breeding dogs are specially evaluated by undergoing a series of tests in terms of their medical suitability (e.g. degree of hip or elbow dysplasia), functional morphology (e.g. good protective coat, strong and correctly positioned limbs), behaviour (e.g. emotional stability, self-assurance) as well as their working ability (e.g. fending off foreign animals from the herd, Fig. 3).

At the age of two years, when a potential breeding dog has passed all tests, the decision on it entering the official breeding programme is taken. All test results are entered in a database, which functions simultaneously as a stud book. The data are used during annual meetings of breeders of MP and MA where the mating of LGDs is discussed and defined. Owners of breeding dogs are additionally subsidised as long as they are classified as such⁹.

To ensure the quality and consistency of LGD education, potential breeders of LGDs have to participate in an education programme run by the Association for LGDs. The programme includes a one-day theoretical course followed by four days of practical work and needs to be completed within one to two years. The theory includes general aspects of the socialisation, education and breeding of LGDs. The



Fig. 3. Screen shots of a LGD test with a remote controlled wild boar dummy (a skin and skull of a freshly killed wild boar mounted on a remote controlled vehicle) approaching a flock of sheep protected by an LGD. **3a.** Undesired behaviour: the dog displays avoidance behaviour and retreats behind its flock. **3b.** Desired behaviour: the dog tries to fend off the wild boar dummy.

⁹ For 2017 subsidies range from 65 EUR per month for male dogs to 130 EUR per month for bitches and are paid as long as the dogs are officially recognised as breeding dogs.

practical work consists of modules on the education of LGDs and assessing dog behaviour and performance. On completion the breeder has to successfully pass a practical test. The breeders are tested on their comprehension of the behaviour of dogs as well as dog-human, dog-dog and dog-sheep communication. A further component is the evaluation of results from the test their first educated dog underwent at the age of 12 to 18 months (see above).

The programme enables the breeder to access subsidies for the breeding and education of officially registered LGDs within the national livestock protection programme. LGD breeders are exclusively recruited from farmers keeping livestock such as sheep, goats and cattle, since these are the main livestock species affected by large carnivores. It is vital to highlight once again that the breeding and education is developed and enforced by the concerned agricultural circles themselves and is therefore based on a bottom-up approach. In order to standardise the breeding and education of LGDs the Association of LGDs has developed specific regulations.

6. Procedures for placing LGDs with farmers

According to the federal law on hunting, the cantons are responsible for preventing damages to livestock caused by wildlife. It is therefore the cantonal authorities, normally the agricultural body, who must decide on where dogs are to be deployed to protect livestock. Farmers can only deploy official LGDs and receive subsidies if they possess official approval of the canton for the deployment of such dogs. In order to receive approval, the farmer undergoes a process of consultation and risk analysis that is carried out by the cantonal authorities and supported by advisors of the Institute for LGDs. The aim of this authorisation is for official LGDs to be solely deployed in areas that are acceptable to the canton. Cantonal authorities should be aware that although LGDs are a good tool to mitigate conflicts between wolves and livestock husbandry, they can cause other conflicts, which have to be solved in order for the dogs to maintain their capacities.

No farmer is legally obliged to implement prevention measures hence farmers deploy LGDs on a voluntary basis. This is an important prerequisite to avoid constraints in the motivation to keep such dogs. Consequently, the compensation of damages due to predators is generally not bound to the implemen-

tation of livestock protection measures (with a few cantonal exceptions) and damages are usually reimbursed by the cantons and the federal administration. Once the farmer has been approved by the canton to deploy LGDs, he must attend a one-day theoretical course that familiarises him with all the legal aspects of keeping and deploying LGDs. After that, the farmer is ready to buy officially registered LGDs. He is accompanied by an official mentor (a competent farmer and LGD owner educated by the Association for LGDs) while integrating the new LGD into the herd and the farmer's family. Officially registered LGDs are educated and bred by the Association for LGDs and approved and provided by the Swiss Institute for LGDs. Prices are set by the Institute for LGDs and are currently 1,300 EUR per LGD.

7. The concept of educating LGDs

A good LGD requires adequate education; we do not use the term "training" as it generally implies the operant conditioning of dogs. The required characteristics of an LGD, such as fending off foreign animals from the herd, is not achieved by operant conditioning but by providing adequate surroundings during development in order to strengthen its desired behavioural traits. LGDs are not just educated to fulfil their operational purpose but should also be subjected to everyday situations that any dog encounters in order to become emotionally stable and socially compatible.

The widespread methodology for raising LGDs advocated by Coppinger (e.g. Coppinger and Coppinger, 1978; Lorenz and Coppinger, 1986; Wick, 1992) involves depriving LGDs of contact with humans and conspecifics. In contrast, breeders in Switzerland (the Association for LGDs) have, in close collaboration with the federal administration, implemented a concept for the education of LGDs that avoids any deprivation during their development. The concept focuses on a threefold socialisation (livestock, humans, LGD pack) of each LGD and habituating it with its surroundings (see Penner, 2014). The aim is to achieve an emotionally stable dog that bonds with the herd and fends off predators in cooperation with its pack members and simultaneously does not display signs of shyness or fear-aggression towards people and is easy to handle. In our opinion, a good education can only lead to an effective LGD if a certain genetic predisposition is present.



Regular interactions with their owners reinforce the emotional stability and social compatibility of LGDs. Photo: Paul Hugentobler.

When considering deprivation we distinguish three main aspects:

1) Trust deprivation by not forming bonds with the breeder and owner. Such bonding is crucial for all working dogs including LGDs because it opens the possibility of correcting undesired behaviour. Disciplining a dog requires a bond of trust to have an educational value (Berlowitz and Weidt, 2007);

2) Social deprivation by separating pups at a young age and raising them with livestock away from their parents and siblings. It is most important for a growing LGD to have opportunities to acquire the competencies to live in a social unit (pack) that operates between the extreme poles of cooperation and competition;

3) Spatial deprivation by using fences to keep dogs in a restricted area. We consider fences as obstacles rather than as useful means to raise LGDs. Our aim is to deploy stable LGDs that defend their herds in the absence of fences. With this regard two aspects have to be taken into account: firstly, fences generally focus dogs' reactivity to entities (i.e. hikers, other dogs) outside the fence. This well-known "fence effect" holds true for all dogs. Secondly, fences render the breeders' evaluation

of LGDs difficult as it is unclear whether they stay with their herd because of their growing competences or simply because they are prevented from leaving due to the fence. As a consequence, all tests of dogs' spatial behaviour in relation to herds (GPS-data) are always conducted in unfenced situations.

8. Conclusions

In Switzerland the label "official LGD" has many advantages compared to an unregulated situation. It does not per se prevent all conflicts but avoids constraints that arise from unadapted legislation. Almost all legal denunciations (e.g. incidents involving LGDs snapping at people or dogs that approach or walk through the herd) could be won in court and convicted LGD owners could be released from their charges. One canton has already changed its law on dogs by claiming that official LGDs on its territory fall exclusively under federal legislation. Private conflicts have turned into public affairs, which seems to be reasonable since coexistence with wolves is also a public affair. Moreover, the label "official LGD" is a prerequisite for the payment of subsidies. If the invest-

ment of public money in LGDs raises their quality in terms of being effective protectors without representing an objective danger to the public, the goal of coexistence with wolves can be achieved.

Due to the concept of educating LGDs, dogs are better socialised and are better habituated to their environment. Therefore, extremely shy LGDs that are difficult to handle, take refuge among the herd and have to be caught or even culled due to a lack of bonding with their owners, are becoming rarer and instead are being replaced with adequately socialised dogs. On the other hand, tests have revealed several problems that need to be addressed:

- Results referring to the performance of LGDs in fending off foreign animals suggest a much higher variability than those referring to the attachment to the livestock herd. This implies that there are more behavioural traits (e.g. ability to intimidate attacking animals) that have to be considered carefully when selecting dogs for breeding;
- The continuous long-term monitoring of dysplasia demonstrates that there is a problem in the Swiss LGD population. MAs seem to be more affected by dysplasia than MPs. Focussing only on the status of dysplasia could lead to excluding LGDs from breeding despite excellent behavioural traits. On the other hand, the dysplasia problem should not be ignored.

The small breeding populations of MAs and MPs (around 30 individuals for each breed) definitely remain the main problem for Switzerland. Being faced with the problem of avoiding any adverse effects of inbreeding that may cause an undesirable allele fixation in a small population, the Swiss LGD population is too small to run a reasonable breeding programme. Opening the current system to additional LGD breeds would have serious implications for the current breeding programme, as the possibility to select among individual dogs is hampered by the diminishment of the breeding output of any of the different breeds. Concentrating efforts on the two LGD breeds already recognised by the national programme will help to reduce this problem to a certain extent. In addition, cross-breeding LGDs would hardly be reasonable, if specific behavioural traits of breeds are not yet approved. Hence, it is of great importance to build a lasting connection with the corresponding LGD populations abroad by securing a network of LGD breeders across the Alpine countries and beyond.

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