Georgian Carnivore Conservation Project Component:

Mitigating human-carnivore conflict in East Georgia

Improving the effectiveness of Livestock Guarding Dogs as used by the Tusheti sheep farmers of Eastern Georgia

Monitoring plan for a trial of LGDs

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EXECUTIVE SUMMARY

The Georgia Carnivore Conservation Project (GCCP) was established to conserve the unique and globally important biodiversity of the semi-arid landscape in Georgia. This biodiversity may come under threat and conservation measures may be compromised in areas where human-carnivore conflict is prevalent. For this reason, the GCCP decided to undertake a study in partnership with the Tushetian community, to identify conflict issues surrounding grey wolves, brown bears and ethnic Tushetian livestock herders and owners in areas where they share a landscape, and to suggest possible measures to mitigate the conflict. During Phase 1, a comprehensive baseline survey was conducted in March–April 2010 to gain an overall understanding of HCC in East Georgia (Rigg and Sillero 2010a). Phase 2 included the elaboration of a toolbox of mitigation methods for reducing HCC (Rigg and Sillero 2010b).

Livestock guarding dogs are an integral part of the Tushetian herding tradition in Georgia. All livestock farms surveyed during the baseline survey had at least one LGD, with an average of eight dogs per farm. However, because flocks were sometimes split up, it is possible that not all livestock was accompanied by LGDs at all times. Dogs were frequently encountered away from flocks. Insufficient daytime attentiveness may explain why most attacks were reported to occur during daylight hours, when flocks were in pastures, rather than at night. In addition, some dog breeders and researchers in Georgia hold the view that the quality of LGDs at working farms is insufficient due to crossbreeding and the export of the best dogs during Soviet times.

In light of the above findings, the GCCP initiated a pilot study aimed at improving methods used within the Tusheti community for rearing LGDs while supporting the work of a newly established Human-Carnivore Conflict Response Team (HCCRT) in Vashlovani NP. The consultant was contracted to prepare a manual of 'best practices' in working with LGDs to be distributed to Georgian sheep breeders; to provide training in basic socialisation and husbandry techniques; to design a monitoring programme for a trial of LGDs in Vashlovani; and to provide other technical support including contributions to other manuals and data analysis.

This report describes a monitoring programme developed specifically for the planned trial in Vashlovani as well as associated training provided by the consultant to the HCCRT on 12th – 15th December 2011 in order to facilitate implementation of this trial during the 2011/2012 winter grazing season. A companion report (Rigg 2011) describes training provided by the consultant to livestock owners and herders at livestock farms in Vashlovani National Park in advance of the delivery of LGD pups, which are to be provided by the GCCP and raised according to guidelines on best practice prepared by the consultant.

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1. INTRODUCTION

The Georgian Carnivore Conservation Project (GCCP) has been actively working in the Vashlovani and Tusheti Protected Areas of eastern Georgia since early 2009. The overall goal of the project is "*To conserve the unique and globally important biodiversity of the semi-arid landscape in Georgia by drawing on indigenous and international expertise"*. Specifically, it is intended to develop effective mechanisms, capacity and enhanced advocacy to improve the conservation status of keystone large carnivores.

One important issue that has been identified in the project landscape is human-carnivore conflict (HCC). Results of a baseline survey (Rigg and Sillero 2010a) confirmed that the strongest negative feelings towards carnivores were held by those most affected: livestock owners and herders, for many of whom losses to predation were reported to be an economic burden. This creates a conflict between people's livelihoods and protected areas and their wildlife.

The Tushetian livestock owners and herders are one of the key human groups within this landscape and they have a unique culture with prevailing traditional attitudes and customs closely linked to sheep farming (Anthem 2009). Hailing from the highlands of Tusheti, part of their pastoralist lifestyle involves an annual migration towards the end of each year, from the mountains and into the lowlands and to winter pastures. Traditionally, this migration involved a relatively wide-ranging dispersal, with many livestock owners and herders crossing the historically porous border with neighbouring Dagestan. However, decades of Soviet manipulation, followed by the dissolution of the USSR and the subsequent tightening of borders, have concentrated the availability of winter pastures and the majority now take their flocks to the semi-arid pastures in and around Vashlovani National Park (VNP) in the southeast of the country.

As well as affecting physical migration routes, it is also widely believed that Georgia's recent history has impacted the Tushetian community in deeper ways. As a result, it is generally believed that current shepherding practises are less than ideal and poor livestock management is resulting in high livestock mortality and increased predation of sheep by feral dogs and wild predators. Of particular note is the relatively recent decrease in the once widespread use of traditional sheepdog socialisation and training methods that once helped produce the trustworthy, attentive and protective dogs that are crucial in this predator-rich environment. It is the intention, therefore, of the GCCP to facilitate the reintroduction of these methods into the daily working practices of the Tushetian community operating in and around the project sites.

The use of livestock guarding dogs (LGDs) has proven to be one of the best methods to limit losses of livestock to a variety of predators in many different situations worldwide (e.g. Linhart *et al*. 1979, Green *et al*. 1984, Coppinger *et al*. 1988, Andelt 1992, 1999, Andelt and Hopper 2000, Rigg 2001, 2004, Rigg *et al*. 2003, 2011, Bangs *et al*. 2005, Coppinger and Coppinger 2005, Landry *et al*. 2005, Marker *et al*. 2005a,b, Mertens and Schneider 2005, Ribeiro and Petrucci-Fonseca 2005, Sedefchev 2005, Śmietana 2005, Stone *et al*. 2008, Gehring *et al*. 2010). To make effective guardians, dogs must possess three key traits: they should be trustworthy (become part of the flock without causing a disturbance, exhibiting submissive behaviour towards livestock and not harming them); attentive (stay with the flock as much as possible, both day and night, following when it moves and resting among or

near the livestock); and protective (bark at new or strange activities and situations, taking up a position between the flock and any potential threats) (e.g. McGrew and Blakesley 1982, Coppinger *et al*. 1983, Lorenz 1985).

Livestock guarding dogs are an integral part of the Tushetian herding tradition in Georgia. All livestock farms surveyed during the baseline survey had at least one LGD, with an average of eight dogs per farm. However, because flocks were sometimes split up, it is possible that not all livestock was accompanied by LGDs at all times. Dogs were frequently encountered away from flocks. Insufficient attentiveness (cf. Mertens and Schneider 2005) may explain why most attacks were reported to occur during daylight hours, when flocks were in pastures, rather than at night.

Additionally, some dog breeders and researchers in Georgia think that the quality of LGDs at working farms is insufficient due to crossbreeding and the export of the best dogs to the Soviet Union. During the baseline survey, livestock owners with 'pure-bred' dogs were more satisfied with their performance than those who said they had mixed breed dogs, although during informal pilot interviews prior to the survey several livestock owners and herders had rated mixed dogs as superior because they were faster. No significant relationship was detected between the percentage of all livestock lost and either how owners rated their dogs or if they described them as pure versus mixed breed. However, some evidence was found that mixed breed dogs might be better with cattle while 'pure-bred' dogs could be more effective with sheep.

The GCCP contracted the consultant to work closely with the recently established HCC Response Team (HCCRT) and three pre-selected Tushetian sheep owners in order to socialise six LGD pups with associated sheep flocks for the purpose of becoming effective livestock guarding dogs. It was stipulated that the process shall include the training of farmers in socialisation and husbandry techniques, the training of HCCRT members in the monitoring of the implementation of these techniques and the provision of a best practice manual for the long-term use of Georgian sheep breeders. In addition, GCCP is to provide the participating farmers with both husbandry and veterinarian support for the life of the project.

2. SUMMARY OF BASELINE SURVEY FINDINGS

A study was undertaken in March–April 2010 by the GCCP, in partnership with the Tushetian community, to identify the issues surrounding human-carnivore conflict in East Georgia (Rigg and Sillero 2010a) with a view to suggesting possible mitigation measures for this conflict in order to improve conservation management efforts in the area.

The study focused on the Dedoplistskaro District, particularly around and within Vashlovani National Park, and involved a comprehensive baseline survey in two parts. The first part, which used a semi-structured interview protocol, was a description or classification of livestock farming in the VNP area, recording various husbandry parameters such as livestock type, herd/flock size, guarding techniques and losses to predation, disease and other mortality. The second component used a self-administered written questionnaire to gauge the perceptions and attitudes of several target groups towards large carnivores.

In the first part of the survey, livestock owners and herders at 69 farms within VNP or up to 2km from its boundary were interviewed. Ten target groups were identified for inclusion in the second part of the study, the quantitative survey: Tusheti and other livestock owners; herders; cereal farmers; enforcement officers; hunters; rural residents; urban residents; school pupils; and school teachers. The vast majority of the 765 respondents who took part in the written questionnaire lived in the Kakheti Region of East Georgia.

Results on livestock farming in the VNP area:

- Sheep were the most common livestock in the study area, providing wool and lambs, while cows were less common and were used for their milk and cheese. Sixty percent of farms had more than one livestock owner and on average each hired three herders during the winter period (October to April). Most respondents said they moved their livestock elsewhere for the summer, typically to Tusheti but some of them to Tianeti, Back Pshavi, Pankisi, Javakheti or Gombori.
- Predation emerged as the biggest cause of economic loss, followed by disease. Fifty-two percent of respondents felt their economic losses to predation were large, while 28% considered predation a partial problem. According to 88% of respondents, most predation occurred in winter pastures, with a peak in February corresponding with the lambing season. Eighty-eight percent of killed animals and 67% of those injured by predators were sheep (or in a few cases goats). Eighty-seven percent of 46 farms with sheep had allegedly lost an average of 11 sheep each to predators since arriving in Vashlovani for the winter. Cattle and horses were more likely to be left injured after attacks than were sheep. Donkeys seemed to be selected by wolves, which might be explained by the fact that donkeys were tied up by their owners.
- Predation was considered a big problem at 52% of the livestock farms surveyed. One third (32%) of livestock owners rated the loss to their income from predation as significant. Grey wolves were mentioned by 87% of respondents when asked to rank predators responsible for livestock losses, and were always the most problematic species. Golden jackals and brown bears followed in second place most of the time.
- Seventy-six percent of livestock attacks were reported as happening in the afternoon or at dusk, normally when the flocks were in the pasture. Few attacks occurred at night. Most respondents acknowledged the use of protective measures to deter predators (every farm had at least one dog and all but one farm had a night-time corral) and considered their efforts effective. Ninety-three percent of owners also

had barns for young animals. However, patrolling and the conscious avoidance of potentially risky areas were generally not practiced. Respondents also admitted that perhaps their dogs were not trained properly or were not suitable for guarding against wolves.

- While all respondents stated that they did not have permission to shoot predators (an incorrect statement as wolves, unlike bears, can be shot legally), the majority brought up lethal control methods as one way to reduce conflict episodes. Very few listed non-lethal methods. Eighty-eight percent indicated they did not want help protecting their animals.

Results on perceptions and attitudes towards large carnivores and management:

- Feelings were consistently more negative towards wolves than towards bears across all target groups, with livestock owners and hired herders holding the most negative views, particularly towards wolves. Unexpectedly, cereal farmers (many of whom also owned livestock) had a fairly positive attitude when it came to bears but held more negative views of wolves. Seventy-four percent of respondents, especially livestock owners, thought that the wolf population was increasing in Georgia, while 79% of all respondents thought that there were too many of them. In every group, bar the enforcement officers (national park rangers and border guards), the majority of respondents were afraid of wolves, more so than of bears.
- More than three quarters of urban residents, teachers and pupils seldom or never went to places with wild animals. Livestock owners tended to spend the most time in places with wild animals such as wolves, followed by enforcement officers and hired herders. For all the other target groups the respective figure was less than 20%. Unsurprisingly, livestock owners were the group most directly affected by the presence of wolves. Bears had been seen less, shot less and caused less damage within every target group.
- All target groups tended to acknowledge that wolves belong in the wild in Georgia, but only in restricted parts of the country. The majority agreed that it is important to have protected areas such as VNP in Georgia (from 61% of livestock owners to 96% of teachers). Whereas most target groups agreed with a year-round ban on hunting any wild animals within protected areas, 77% of livestock owners and 67% of cereal farmers thought otherwise. Owners and herders also thought that grazing should be allowed in protected areas. The vast majority (89–99%) of respondents in all groups agreed that people should be allowed to kill wolves if their livestock is attacked. Over 90% agreed that compensation should be paid to owners who have lost livestock to predators, while 61% of owners and 86% of herders supported the idea of money being paid only to those that had employed some sort of protection method.
- Generally, the respondents were keen for more information on wolves and bears and wanted to see more research taking place. They differed in their choice of media in which to receive new information. For example, television, newspapers and magazines seemed to be the best media to reach livestock owners, while excursions would be appreciated more by urban residents, pupils, cereal farmers, hunters and teachers.

3. SUMMARY OF FINDINGS RELATING TO LIVESTOCK GUARDING DOGS

All 69 farms within VNP or up to 2km from its boundary surveyed in March–April 2010 had at least one dog (average 8, maximum 27). The number of adult dogs at sheep farms correlated with numbers of sheep. Respondents most often reported their dogs to be of mixed descent (66%), with a minority claiming to have Caucasian (10%) or Georgian (25%) shepherd dogs or a combination of pure and mixed breed (4%). Dogs were said to have originated from on-farm reproductions (82%), were exchanged (9%) or given as gifts (9%).

Dogs were reported to have been present during 62% of 105 predatory attacks on livestock for which detailed data were obtained. Their reaction was usually described as barking (90%) and chasing the predators (91%). In two cases dogs allegedly killed a marauding wolf.

Higher dog:sheep ratios appeared to limit losses. Livestock owners at farms with more livestock (sheep, cattle or both) reported losing higher numbers of animals, but not a higher percentage. The higher numbers of dogs observed at larger farms may have helped prevent wolves successfully targeting larger flocks. However, larger farms tended to be further from tree cover, had more herders and less overgrown pastures, all of which would be expected to make them less vulnerable to predators.

A large majority of respondents thought they had good (61%) or partially good (22%) dogs. Good dogs were defined as being attentive to livestock (51%), aggressive to predators (12%) and not afraid of wolves (7%). A total of 21 respondents who said their dogs were partially good or that they could not rate them most often explained that they were not attentive enough (38%), were attentive but afraid of predators (19%) or were insufficiently protective (33%). At five farms, respondents stated that their dogs (some or all of which were mongrels that had bred on the farm) were not good, citing lack of attentiveness (2), the dogs' fear of wolves (1) or poor breeding (1) or a failure to train them as pups (1).

Owners describing their dogs as pure-bred were more likely to be satisfied with them: whereas all but one owner of Georgian (n=19) or Caucasian (n=3) dogs rated them as good, 38% of owners of mixed breed dogs (n=39) stated that their dogs were only partly good and 10% that they were not good. However, a significant relationship was not detected between percentage of livestock lost and either owners' ratings of dogs or if they described them as pure versus mixed breed. There was some evidence, not statistically significant, that mixed breed dogs did better with cattle and 'pure-bred' dogs were more effective with sheep.

During farm visits it was observed that large flocks were sometimes split up for management purposes. It is possible that not all livestock was always accompanied by dogs. Indeed, owners reported that dogs were not present during a third of attacks by predators. Insufficient daytime attentiveness to livestock of some LGDs may partly explain the temporal pattern of predation: two thirds of attacks happened during daylight hours when flocks were in pastures, while only 15% of attacks were said to have occurred under cover of darkness, when livestock was gathered in corrals close to farm buildings and presumably where dogs were most likely to spend the night.

No special regime for training dogs was reported in most cases. Dogs were said to learn what to do by themselves (40%), from being brought up with the flock (31%) or from older dogs (25%). Only two respondents mentioned specific actions to train dogs: encouraging dogs to accompany the flock and feeding them near livestock.

4. SUMMARY OF HCC MITIGATION TOOLBOX

Following on from the baseline survey of HCC in East Georgia (Rigg and Sillero 2010a), a toolbox of mitigation methods was elaborated (Rigg and Sillero 2010b). The remit was to develop a strategy for the project area in and around Vashlovani National Park (VNP), considering approaches proven successful in comparable situations worldwide and designed so as to be transferable to a wider geographic area, while making suggestions for developing a national policy for dealing with HCC in Georgia as a whole.

The strategy proposed to mitigate the conflict begins with first partitioning the conflict into three elements: the reducible, the irreducible but bearable and the neither reducible nor bearable. A range of direct and indirect interventions is then described which address those portions of the conflict that either could potentially be reduced or which, at the present time, cannot be reduced but may nevertheless be tolerated by those affected.

Indirect actions seek to make more of the conflict bearable. The apparent reluctance of livestock owners and herders to accept support to deal with HCC, and the prevalence of negative attitudes towards carnivores and conservation in general, calls for a communication strategy of outreach and education to change people's attitudes and incorporate them in decision-making processes. Support to improve the health of herds can help reduce HCC by reducing livestock vulnerability and total mortality. A system of ongoing monitoring would allow a better understanding of factors predisposing farms to predation so that mitigation can be targeted most effectively as well as facilitating prompt responses to attacks. This calls for the establishment of an HCC 'Rapid Response Team'.

Several well-tested tools exist for non-lethal damage prevention, some traditional and some contemporary, that can be applied in VNP. Especially when used in combination, these methods can significantly reduce losses to predation. Preventive measures should be applied most intensively during the lambing season, when livestock is in pastures, and incorporate more effective use of guarding dogs, human vigilance, *fladry* or other portable barriers. If non-lethal methods do not reduce losses to a bearable level, other approaches may also be needed. Two options appear relevant for VNP: a) to remove problematic wolves and/or to develop an insurance scheme to compensate aggrieved livestock owners, with payments made contingent on improved animal husbandry.

In relation to livestock guarding dogs, it was noted that more prolonged and intensive observations of dogs and flocks would be necessary in order to determine whether insufficient daytime attentiveness of LGDs is a key factor leading to losses. It was suggested that data could be gathered either by direct observations (e.g. from a vehicle or on horseback) using a focal observation protocol (e.g. Rigg 2004) or by fitting a sample of dogs and livestock with GPS-GIS collars to record their relative positions.

Improving the attentiveness of grown dogs can be problematic and requires a patient and consistent approach. Success is more likely to be achieved if starting with young pups. The project could consider purchasing e.g. 20 pups (pure-bred for placement with sheep, ideally from working parents) to distribute across farms and then work with livestock owners and herders to raise them according to recommended guidelines, with regular monitoring and outcome evaluation. An information brochure on best practice in working with LGDs could be compiled and targeted specifically at livestock owners and herders.

5. LGD TRIAL

5.1. Aims, objectives and scope

The overall aim of this component of the GCCP is to improve the interface between local communities and large carnivores in the project landscape, leading to the enhanced conservation of the latter and improved livelihoods of the former.

The key objectives of this contract are to:

i. Introduce effective methods for rearing effective LGD into the Tusheti community;
ii. Support the work of the HCCRT in Vashlovani.

This consultancy is viewed by the project as a pilot study which, depending on outcomes, may be replicated by the HCCRT with other livestock owners in Vashlovani.

There are three distinct components of this consultancy:

1) Development of best practices manual

   This will provide the participating farmers with detailed but understandable guidelines on LGD socialisation and husbandry methods. Initially used as a training tool, the manual should then be available as a reference for sheep farmers throughout the lives of their LGDs. The consultant will also provide technical input into other HCC related documents, including an HCC Technical Manual and a Livestock Husbandry Technical Manual.

2) Delivering of training & monitoring programme

   The primary beneficiary of this consultancy is the Tushetian community and it is vital that the consultant engages fully with this group. Recipients of LGD pups will be selected by GCCP according to the location of their winter farm, the number and quality of their existing dogs and their willingness and ability to take on the responsibility of maintaining up to three pups. To this end the consultant will ensure that each individual is trained in basic socialisation and husbandry techniques. As this is a long-term commitment on the part of the livestock owners and herders, the consultant will also ensure that the recently formed HCCRT is adequately trained in methods and protocols for monitoring the participating farmers and ensuring their continued commitment to the trial.

3) Technical support for data analysis

   Surveys originally implemented during the 2009/2010 winter season will be repeated during the lifetime of this consultancy (but not as part of this contract) and data, specific to HCC in Vashlovani, will be collected by the HCCRT during the 2011/2012 winter season. The consultant will also provide technical support in analysing and reporting on these data.

5.2. Study area

The LGD trial is to be conducted at livestock farms in Vashlovani National Park (VNP), East Georgia. VNP forms part of the Vashlovani Protected Areas (VPA), which are located in the Dedoplistskaro District of East Georgia, between the Iori and Alazani Rivers (Fig. 1). In addition to VNP, the VPA also include Eagle Gorge, Takhti-Tepa Mud Volcanoes, Juma Bay and Alazani Floodplains Natural Monuments. The core of VNP consists of Vashlovani Strict Nature Reserve, which was established in 1935 to preserve its unique light forests. The Reserve was expanded to 101 km² in April 2003, when Vashlovani National Park (251 km²) was established along with the VPA (Kikodze 2007).

Fig. 1. The location of Kakheti Region within Georgia, showing Vashlovani (VNP) and Tusheti National Parks

The highest point in VNP is at 708m a.s.l. and the lowest point in the area is at 90m a.s.l., where the River Iori enters the Mingachauri Reservoir. Vashlovani has a dry climate and is typified by wild pistachio trees (*Pistacea mutica*), arid light forests and bluestem-feather grass steppes. Other forest types present include mixed deciduous (Georgian oak *Quercus iberica* and ash *Fraxinus excelsior* with some maple *Acer campestre L.*, *A. ibericium* and elm *Ulmus carpinifolia*) and flood-plain forests (poplar *Populus canescens*, *P. nigra* and oak *Q. pedinculiflora*). The Strict Reserve contains badlands-like areas of dry ravines and steep cliffs, known as *'Alesilebi'*, with semi-desert steppe as well as arid and deciduous forests.

The territories of VNP (except the Strict Reserve) and the neighbouring Eldari Lowland, Patara Shiraki and Iori Steppe are used by Tushetians as winter grazing lands. They graze their sheep, goats and cattle in the natural pastures of the VNP from autumn to spring, after which most flocks are moved to summer pastures, typically in the Greater Caucasus, including Tusheti NP.

5.3. Monitoring protocols

Pups should be raised in accordance with the guidelines for working with LGDs described during on-farm training sessions with livestock owners and herders and in a manual of best practices prepared by the consultant for the GCCP. These aspects of the trial are dealt with in an earlier report (Rigg 2011).

To ensure that guidelines are followed as well as to assess outcomes, maintain the health and welfare of pups and identify early indicators of likely success, a system has been developed to monitor LGDs at trial farms. Members of the HCCRT received training in working with LGDs during farm visits in VNP on 10–12th December to familiarise them with the socialisation and husbandry techniques that participating farms are expected to comply with. They were also given specific training on monitoring during a dedicated session held at Vashlovani ranger station on 12th December and as part of the drafting of datasheets and protocols in Tbilisi on 13–15th December.

The following sections include detailed explanations of and protocols for the various sets of observations and tests required for the trial. The corresponding datasheets are included in Appendices I–III.

5.3.1. Puppy aptitude testing

Differences among dogs of the same breed can be considerable. Even within the same litter, puppies often differ widely in their aptitudes and personalities. Standardised tests, known as puppy aptitude tests (PAT), evaluate a pup's response to a series of exercises and scenarios, thus providing a means of objectively measuring such differences. This may prove useful in selecting pups for particular situations, including for work as livestock guarding dogs (LGDs). By building a database of the performance of pups in PAT matched to their subsequent progress and outcomes through their working lives, it might be possible to identify at an early age which pups are likely to make the best LGDs (Dawydiak and Sims 2004, Rigg 2004). PAT scores can change as a pup grows and becomes more confident so, for comparisons to be valid, pups should always be tested at the same age. A score sheet for puppy aptitude tests is included in Appendix I. The following section describes how to conduct the tests.

General principles, preparations and equipment

- Test pups at 7–8 weeks of age and when they are free of apparent ill health.
- Ideally one person unknown to the puppy (the Tester) administers the tests and another person (the Scorer) scores the results, although with practice it is possible for one person to perform both roles.
- The tests are likely to require a total of around 15–20 minutes per pup plus set-up time.
- Familiarise yourself with the tests, the score sheet and the types of behaviours to look for.
- You will need the following:
    - a copy of the score sheet;
    - a small, soft ball;
    - a metal spoon;

- a metal pan;
- an umbrella;
- a small towel or a sock filled with rags and tied to a string;
- a mesh screen or other see-through barrier;
- a stopwatch or watch showing seconds;
- access to livestock (for the livestock test – can be done on a separate occasion).

- Conduct the tests in a place unfamiliar to the puppy and free of distractions. If the pup has been raised in a barn, an unfamiliar part of the barn would be sufficient. Tests can be conducted outside if weather permits. If the floor is slippery, provide some old carpet.
- The Tester takes one pup at a time to the test area, handling it gently and speaking reassuringly. The puppy should be mildly stressed but not traumatised by the experience.
- Avoid direct eye contact with the puppy (except during the dominance and restraint tests).
- Treat each puppy equally. However, if a puppy is particularly upset or frightened, allow time at the beginning for it to get used to the Tester and calm down.
- Try to make the whole procedure fun for the puppy.
- If the puppy urinates or defecates during testing, ignore this until the tests have been completed, but clear it up before testing another puppy in the same area.
- The Scorer should sit or stand quietly in a position offering a clear view of the test area but without causing a distraction.
- For each test, the Scorer marks on the score sheet the description which most closely matches the observed behaviour during the test.

Instructions for individual tests

<u>Part I: General Aptitude</u>

1. *Social attraction*

Tester: Immediately on entering the test area, place the puppy in the centre and back away 1–2 metres towards the exit. Crouch down and encourage the puppy to come to you by calling and gently clapping.

Scorer: Does the puppy go to the Tester? If so, how quickly and is its tail up or down?

2. *Following*

Tester: Place the puppy beside you and then walk away slowly with short steps, making sure that the puppy sees you leaving. The pup can be encouraged to follow and the test can be repeated several times to gauge the response, but treat each pup the same way.

Scorer: Does the puppy follow? If so, what is the position of its tail and ears?

3. *Restraint dominance*

Tester: Crouch down beside the puppy and roll it onto its back. Place one or both hands gently on the chest and restrain the puppy in this position for 30 seconds.

Scorer: Does the puppy struggle or accept this position?

4. *Social dominance*

Tester: Crouch down beside the pup and position it to face you at a 45° angle. Place your head close to the puppy and stroke it, beginning at the head and moving towards the back. Continue stroking until the pup shows a recognisable behaviour but in any case for at least 30 seconds. If the pup moves away, continue stroking. You may speak to the pup, but do the same for each pup.

Scorer: Does the puppy respond passively or actively, with aggression or affection?

5. *Elevation dominance*

Tester: With the pup facing away from you, reach underneath its chest and belly with both hands, lock your fingers together and lift the pup so that all its feet are slightly off the ground for 30 seconds.

Scorer: Does the puppy struggle or accept this position?

Part II: Obedience Aptitude

1. *Retrieving*

Tester: Kneel beside the pup and attract its attention with a small, soft ball. When the pup is watching, throw the ball 1–2 metres diagonally away from and in front of the pup. If the pup does not respond, repeat the test up to two more times. If the pup goes for the ball, take a step back and encourage the pup to come to you.

Scorer: Does the pup go after the ball? If yes, what does it do then?

2. *Touch sensitivity*

Tester: Take one of the pup's front feet and spread two toes to expose the webbing between. Beginning lightly at first, squeeze the webbing between your thumb and finger. Gradually increase the pressure. Stop as soon as the pup pulls away or shows discomfort.

Scorer: After how many seconds does the puppy respond?

3. *Sound sensitivity*

Tester: Leave the puppy on the ground and walk a few steps away. Make a sharp, loud noise by striking a metal pan with a spoon.

Scorer: What is the pup's response to the sound?

4. *Chase instinct (sight sensitivity)*

Tester: Place the pup in the centre of the test area. Use a piece of string to drag a small towel or stuffed sock across the floor a metre or so in front of the pup. If the pup grabs the towel/sock in its mouth, stop pulling on the string.

Scorer: Does the puppy approach or avoid the object?

5. Stability

Tester: Place the pup in the centre of the test area. Point a closed umbrella at the pup, holding it a metre away. Open the umbrella smoothly and quickly (but without letting it spring open), then put it down and allow the pup to investigate.

Scorer: How does the puppy respond after the umbrella is set down on the ground?

Part III: Energy Level

Scorer: What has been the pup's general level of energy and activity so far?

Part IV: Problem Solving

Tester: Place a see-through barrier, such as a mesh screen or wire netting attached to a frame, so that it rests perpendicularly or diagonally against a wall or other impermeable obstacle at one end, but is open at the other end. The barrier should be high enough that the pup cannot climb over it. Place the pup behind the barrier, in the centre, ideally by reaching over the top. Keep in front of the barrier, so that to return to you the pup will first have to turn and walk away from you. Then, encourage the pup to come to you by any appropriate means (calling may be sufficient, but food can also be offered as motivation), but do not show the pup which way it should go to reach you. If testing multiple pups in the same test area, move the barrier and clean the floor between tests to avoid pups following scent trails.

Scorer: How does the pup react and how long does it take it to find the exit?

Part V: Response to Livestock

Tester: If available, use a young lamb or other sheep which is known to usually remain calm around dogs. Place the pup a few metres away so that pup and livestock are facing each other and back away a few steps. Be ready to intervene to protect the pup and terminate the test if the livestock reacts aggressively.

Scorer: What are the responses of both livestock and pup?

Interpreting results

The outcome of PAT is not pass or fail but an indication of ranges of behaviour. This information can be used to match temperament with the most suitable environment or, conversely, to choose the most appropriate dog for a given scenario. PAT results are useful indicators but not foolproof predicators. The amount of early handling, stimulation and socialisation can affect scores while subsequent life experiences are likely to play a major role in forming the dog's adult personality. However, advocates of PAT report that it provides a fairly reliable indication of a pup's reactions to people, livestock and mild stress as well as its tendency to be aggressive or submissive.

PAT scores should not be summed together or averaged, but examined for signs of a clear pattern. If there is no clear pattern of scores for a particular pup, this may indicate that the dog's behaviour is erratic, but it could also be due to the pup not feeling well, so retest after 2–3 days. Retesting later is also appropriate if a pup was distracted or fearful during the first round of tests. However, bear in mind that repeating tests can affect scores.

Parts I and II. Livestock guarding dogs have usually been found to score 3–5 in General Aptitude and Obedience Aptitude, with scores of 6 and 7 not uncommon. A pup showing less inclination to seek human interaction and which appears independent may be more likely to be attentive to livestock and will require less direction from people. Scores of 6 and 7 suggest a dog that will be most suited to stable routines in wide open spaces. Few LGDs have highly social/dominant traits (scores of 1–2). If a whole litter scores predominantly 1–2, it may advisable to avoid selecting any of them for work with livestock, although some people intentionally select the most outgoing, confident and aggressive dogs for livestock protection.

Mostly 1: Extremely dominant, shows a tendency to be aggressive and may be quick to bite. May be difficult to handle and requires an experienced, competent trainer.

Mostly 2: Dominant, may be provoked into biting. Should respond well to firm, consistent and fair handling. May be energetic and outgoing.

Mostly 3: Easily accepts a human leader and obedience training. Adapts well to new situations, has a 'commonsense' approach, though may tend to be active.

Mostly 4: Submissive and adaptable, slightly less outgoing.

Mostly 5: Extremely submissive and needs special handling to build confidence. Best suited to a routine, structured environment. Patience is required when introducing the dog to new experiences.

Mostly 6/7: Likely to be shy, aloof and highly independent. Not generally affectionate and may even dislike petting. May be best suited to a place with plenty of space and little human contact.

Part III. Quieter, less active and more reserved pups tend to do better as LGDs, particularly on smaller farms. However, a very active pup, if not overly socially attracted to people, could be an asset in areas of open grazing with abundant predators, as it will have the energy necessary for extensive patrolling.

Part IV. This test gives an overall indication of the pup's intelligence in terms of its ability to solve a problem. However, the degree of motivation can also play a role: a pup may not be particularly interested in rejoining the tester and so makes little effort to do so, which might suggest that it is less people-oriented (an asset for the future LGD).

Part V. Pups which respond aggressively to livestock, including defensive responses under provocation, are unlikely to become good (trustworthy) LGDs. On the other hand, pups that completely ignore livestock may also not make good (attentive) LGDs.

5.3.2. Adherence to best practice guidelines for raising LGDs

It is vitally important that farms with pups are visited by project staff regularly to ensure that guidelines for raising LGDs are adhered to and, when necessary, to take corrective measures promptly. This is particularly important in the first 16 weeks of the pups' lives, as mistakes made during socialisation with livestock can be difficult to correct later. For this reason the consultant recommends weekly visits until pups are at least four months old, followed by ongoing visits every 2–4 weeks until dogs are two years old to ensure the continued commitment to the trial of participating livestock owners and herders.

Farm personnel have most opportunity to observe pups and their interactions with livestock. During their farm visits, project staff should therefore talk with livestock owners and shepherds in order to garner information and identify any issues that need to be addressed. In addition, they should also observe pups and livestock themselves directly to assess the degree to which guidelines for raising LGDs are being followed: is the young pup being kept close to livestock, away from other dogs and people? The first page of the datasheet for LGD pup monitoring (Appendix II, Part A) is self-explanatory, comprising basic data to identify and describe the dog followed by a series of multiple-choice questions as well as space to record comments from farm personnel and to draw attention to any health or welfare issues, which are dealt with in greater detail in a separate datasheet (see section 5.3.4.).

The second page of Part A of the LGD monitoring datasheet is an overall assessment and so should be filled in towards the end of the farm visit, after completion of detailed behavioural observations (see section 5.3.3.). Answers to each item are indicated by marking a cross on a scale (a dashed line) drawn between the minimum possible expression of that item, e.g. the recommended guidelines are not being followed at all, and its maximum expression, e.g. guidelines are followed perfectly. This is a valid means to measure complex behaviour (Martin and Bateson 1993) but, as it requires the observer to form a judgement, all observations should be conducted by the same observer to ensure consistency between pups and over time.

5.3.3. LGD behaviour

Part B of the datasheet for LGD pup monitoring (Appendix II) should be used to record observations of LGD behaviour. The intention is to quantify behaviour such that the progress of individual pups can be measured and compared. The following section describes how to conduct and record these observations.

General principles, preparations and equipment

- Observe pups at intervals of 1 week from when they are first placed with livestock at participating farms (from 7–8 weeks of age).
- All observations should be conducted by the same observer.
- Observations should be made for 60 continuous minutes per pup plus set-up time.
- You will need the following:
    - a copy of the datasheet;
    - a timer or watch showing seconds;
    - something to sit on such as a folding stool.
- Conduct the tests in the area where the pup would normally be, whether this is inside a barn or outside in the pasture.
- Choose a time of day when both pup and livestock are likely to be active.
- Livestock should be present prior to, as well as during, the test. If livestock and dog are put together shortly before observations begin, having been separated during the preceding period, their interactions are likely to be significantly influenced by this change in circumstances so sufficient time should be allowed for the animals to settle into normal patterns of behaviour.
- The presence of other dogs or of people is likely to influence the behaviour of the dog under observation. While the reaction of the LGD to these stimuli is also of interest (and can be described in the section of the datasheet labelled 'Responses to external factors'), for observations to be comparable among pups, the circumstances under which observations are conducted should be as standardised as possible.
- Familiarise yourself with the datasheet (Appendix II, Part B), which is a partial ethogram of dog behaviour. It includes the most pertinent types of behaviour, both desirable and undesirable, for LGDs to exhibit. You should be able to recognise each of these behaviours, most of which are fairly self-explanatory but the following may be less immediately obvious:
    - in the 'play bow' posture, the dog lowers the front part of its body while keeping the rear raised, often wagging its tail;
    - 'approach/withdrawal' behaviour is when a less confident, younger LGD advances towards a potential threat but then withdraws into the flock if challenged.
- Prior to beginning formal observations, the observer should take up a position which is close enough to the pup and livestock to allow adequate observation but not so close as to distract the animals. Try to be inconspicuous. Once seated, allow 5 minutes for the animals to settle before beginning the 60 minute observation period.
- Do not interact with the animals during observations. An exception to this is if a pup or older dog harasses livestock excessively. In this case, the observer may have to

intervene (and record having done so on the datasheet) because LGDs should not be allowed to engage in such behaviour.

- Whenever one of the behaviours included in the datasheet is displayed by the LGD under study, its duration in seconds should be timed and recorded in the corresponding box. In cases of neutral or submissive interactions between the pup and livestock, note whether the pup or the livestock made the initial approach.
- For the purposes of data analysis, the number of times that each behaviour occurred as well as the total time that it was exhibited over the 60 minutes of observations shall be calculated.

5.3.4. Pup health and welfare

During visits to farms opting in to the trial, each pup should be examined carefully to assess its state of health and to administer any vaccinations or treatment as required. Ideally, this should be done once per week by a veterinarian. Farm personnel should also be interviewed to identify any welfare issues that may have arisen in the intervening period or are not apparent during the examination. A self-explanatory datasheet for veterinary checks is included in Appendix III.

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Robin Rigg
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GLOSSARY

To ensure their clear, consistent use and to avoid potential confusion and misinterpretation, the following glossary of terms was established in English and nearest Georgian equivalent.

Cereal farmer (ფერმერები, რომელთაც მარცვლეული მოქყავთ): A person growing crops – but not substantial numbers of livestock (as defined under livestock owner) – around VNP.

Enforcement officers (კანონის აღმსრულებლები): National Park rangers, border police, etc, working in and around VNP.

Farm (მეურნეობა/ფერმა) Buildings (pens, barn, farmhouse) used by herders/owners to contain their flocks/herds while in or around VNP.

Flock (ფარა): A number of sheep/goats kept and grazed together.

Herd (ჯოგი, ნახირი): A number of cattle/horses kept and grazed together.

Herder (მწყემსი, მენახირე): A worker who tends livestock on a daily basis but is not the owner of a significant proportion (>10%) of the herd/flock.

Hunter (მონადირე): A person that legally hunts wild animals in East Georgia, whether commercially or as a hobby.

Livestock (პირუტყვი): For the purposes of this survey, livestock is considered to include sheep, goats, cattle, horses, donkeys and pigs.

Livestock owner (პირუტყვის მეპატრონე): The owner of at least 100 sheep/goats or at least 15 cattle/horses, who may or may not tend them daily. This group could be subdivided into Tushetian (present in East Georgia during the winter but going to the Caucasus for the summer grazing season), local (present throughout the year) and other.

Rural residents (სოფლის მაცხოვრებლები): People living in villages near VNP and not belonging to one of the other target groups.

Sheep dog (ნაგაზი, მეცხვარე ძაღლი): A large breed of dog used to guard livestock, living close to the flock. Livestock guarding dogs kept in VNP may be listed as Georgian, Caucasian, mixed breed or other.

Urban residents (ქალაქის მოსახლეობა): People living in Dedoplistskaro and not belonging to one of the other target groups.

ABBREVIATIONS USED

GCCP	Georgian Carnivore Conservation Project
HCC	Human-carnivore conflict
HCCRT	Human-Carnivore Conflict Response Team
LGD	Livestock guarding dog
NP	National Park
PA	Protected area
USSR	Union of Soviet Socialist Republics
VNP	Vashlovani National Park
VPA	Vashlovani Protected Areas

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Appendix I

Score sheet for puppy aptitude testing

Tester: _____ Scorer: _____ Location: _____ Date: _____

Name of dog: _____ ID # (tattoo, microchip): _____

Breed: _____ Male/female: _____ Age (weeks): ____

Part I: General Aptitude

1. Social attraction	*Score*
Comes readily, tail/ears/body posture up, may jump up	1
Comes readily, tail/ears up, licks hands	2
Comes readily, tail up, may wiggle upon reaching Tester	3
Comes readily, tail down, ears may be back, may wiggle	4
Comes hesitantly, tail/ears down	5
Comes after much encouragement	6
Does not come at all or goes away	7
Explores first before coming to Tester	Yes / No
If explores first – for how long?	

2. Following	*Score*
Follows readily, tail/ears/body posture up, gets underfoot	1
Follows readily, tail/ears up, tries to keep up	2
Follows readily, tail down, ears may be back, may stay behind	3
Follows hesitantly, tail/ears down, may stop and start again	4
Follows after much encouragement	5
Does not follow or goes away	6

3. Restraint dominance	*Score*
Struggles fiercely, flails, tries to bite	1
Struggles fiercely, flails, may settle briefly, may make eye contact	2
Struggles/settles, may be vocal, makes some eye contact	3
Some struggling at the beginning or end, heart rate steady or slightly raised	4
No struggle, steady or slightly raised heart rate	5
No struggle, strains to avoid eye contact, heart rate usually raised	6

4. Social dominance	*Score*
Jumps, growls, may try to bite, may be vocal, posture up	1
Jumps, may paw, may nip and lick, tail/ears often up	2
Cuddles up to Tester, nuzzles, may wag tail, ears may be back	3
Wiggles around Tester, may lick hands	4
Appears hesitant, ears/tail down, may roll over	5
Freezes in place or leaves Tester, avoidance	6

5. Elevation dominance	*Score*
Struggles fiercely, attempts to bite, growls	1
Struggles fiercely, may vocalise	2
Hangs relaxed, no struggle, calm, steady heart rate	3
Settled but some struggling at the beginning or end, raised heart rate	4
Slight struggle, raised heart rate, head/eye may be still	5
No struggle, limbs frozen, raised heart rate	6

Part II: Obedience Aptitude

1. Retrieving	*Score*
Chases ball, picks it up, runs away, posture up, may pounce	1
Chases ball, stands over it, does not return	2
Chases ball, returns with it to or near Tester without prompting	3
Chases ball, may pick it up, returns to Tester without ball	4
Starts to chase ball, loses interest	5
Does not chase ball, may actively avoid watching ball	6

2. Touch sensitivity	*Score*
9–10 seconds before response	1
7–8 seconds before response	2
5–6 seconds before response	3
3–4 seconds before response	4
1–2 seconds before response	5

3. Sound sensitivity	*Score*
Listens, locates sound, walks toward it barking/growling	1
Listens, locates sound, barks, posture up	2
Listens, locates sound, shows curiosity, walks toward it	3
Listens, locates sound, ears up	4
Startles, backs away, ears/tail down, may try to hide	5
Ignores sound, shows no response/curiosity	6

4. Chase instinct (sight sensitivity)	*Score*
Looks, attacks, bites, may growl, shakes towel/sock after it stops	1
Looks, tail/ears up, follows, may bark, bites at towel/sock	2
Looks curiously, attempts to investigate, tail up, may bite	3
Looks, may follow, hesitant, tail/ears down, may growl	4
Tail tucked, backs away, tries to hide	5
Runs away, actively avoids towel/sock	6

5. Stability	*Score*
Walks forward, tail up, attacks umbrella, may growl/bark, posture up	1
Walks forward, tail up, mouths umbrella	2
Walks forward, attempts to investigate	3
Looks curiously at umbrella, stays in the same place	4
Goes away, tail down, hides	5
Ignores umbrella, shows no curiosity	6

Part III: Energy Level

Activity during testing	*Score*
Continually runs, pounces, wiggles, paws	High
Mostly trots, occasionally runs, pounces	Medium
Walks slowly, sits quietly, remains in position	Low
Stands rigidly, eyes rolling, tail down, ears back	Stressed

Part IV: Problem Solving

Barrier test	*Tick*
Anxious, tries to go through barrier	
Anxious, paces back and forth	
Anxious, whimpers, yelps	
Anxious, does not move	
Finds exit but does not go through	
Finds exit, goes through immediately	
Calm, does not try to leave	
Calm, looks for exit quietly	
If finds exit and leaves – after how many seconds?	

Part V: Response to Livestock

Livestock passive: does not make eye contact with puppy	*Score*
Curious, tail up, makes eye contact, goes to livestock, barks, jumps or bites at livestock	1
Curious, tail up, makes eye contact, goes to livestock	2
Curious, tail up, makes eye contact	3
Fearful or cautious, looks at stock then away, tail down	4
Leaves, stays away, watches stock from a distance	5
Ignores stock	6

Livestock active: makes eye contact with puppy but does not approach	*Score*
Curious, tail up, makes eye contact, goes to livestock, barks, jumps or bites at livestock	1
Curious, tail up, makes eye contact, goes to livestock	2
Curious, tail up, makes eye contact	3
Fearful or cautious, looks at stock then away, tail down	4
Leaves, stays away, watches stock from a distance	5
Ignores stock	6

Livestock aggressive: makes eye contact with puppy, stomps and lowers head(s)	*Score*
Curious, tail up, makes eye contact, goes to livestock, barks, jumps or bites at livestock	1
Curious, tail up, makes eye contact, goes to livestock	2
Curious, tail up, makes eye contact	3
Fearful or cautious, looks at stock then away, tail down	4
Leaves, stays away, watches stock from a distance	5
Ignores stock	6

Livestock very aggressive: makes eye contact and charges the puppy	*Score*
Stands ground, growls or barks, keeps eye contact	1
Stands then moves out of way, growls or barks	2
Moves out of way, tail up, not worried	3
Moves out of way, tail down, avoids eye contact	4
Moves out of way, tail down, lies down or rolls over, avoids eye contact	5
Runs and hides	6

Appendix II

Datasheet for LGD pup monitoring

Part A

Observer: _____ **Location:** _____ **Date:** _____

Name of dog: _____ **ID # (tattoo, microchip):** _____

Breed: _____ **Male/female:** _____ **Age (weeks):** ____

Current health/welfare issues and recommended action: _____

_____

_____

Where is the pup? (1): large barn / small barn / pasture / corral / other: _____

Where is the pup? (2): training pen / enclosure / free-ranging / other: _____

Livestock contact: direct / through fence / visual / none / other: _____

Livestock present: sheep: # ____ lambs: # ____ goats: # ____ kids: # ___

cows: # ____ calves: # ____ dogs: # ____ pups: # ___

Is the pup kept mostly with livestock? **y**es / no / partly / details: _____

Can the pup escape/leave the livestock? **y**es / no / partly / details: _____

Does the pup spend time near the house? **y**es / no / partly / details: _____

Where is the pup fed? barn / pasture / house / other: _____

Does the pup have access to clean fresh water? **y**es / no / partly / details: _____

Can the pup interact with livestock? **y**es / no / partly / details: _____

Can the pup interact with other dogs? **y**es / no / partly / details: _____

Can the pup interact with people? **y**es / no / partly / details: _____

Comments or additional information from the livestock owner/shepherd: _____

_____

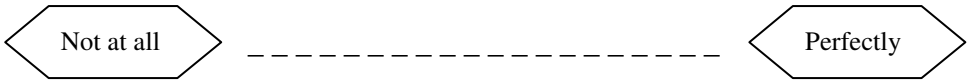
_____

_____

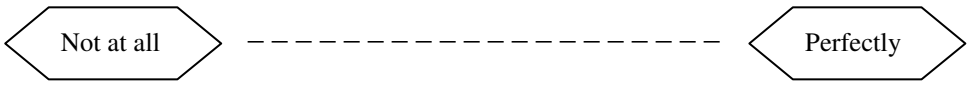
Now use Part B to record 60 minutes of observations of the pup with livestock.

Answer the following questions <u>after</u> you have finished observing the pup with livestock. Indicate your answers to each item by marking a 'X' on the dashed line.

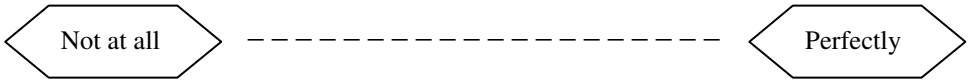
Overall, to what extent are the guidelines for raising LGDs being followed?



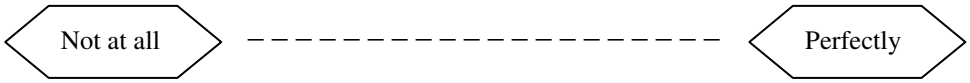
Overall, does the pup appear to be becoming part of the group with the livestock?



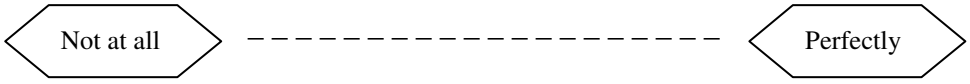
Overall, does the livestock seem to accept the pup's presence?



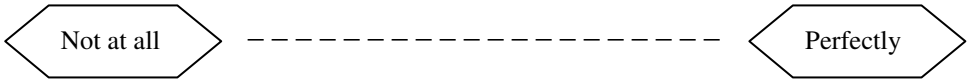
Overall, is the pup attentive to livestock? (i.e. stays near and interacts with it)



Overall, is the pup trustworthy with livestock? (i.e. does not harm it)



Overall, does the pup show protective behaviour?



Issues and recommended action regarding raising and training: _____

_____

_____

_____

Part B

Behavioural observations **Start time: _____** **End time: _____**

Weather (if observations done outside): _____

Neutral interactions between pup and livestock (attentive, trustworthy behaviour)		
	Dog approached livestock	**Livestock approached dog**
Muzzle-muzzle contact/lick		
Muzzle-fur contact/lick		
Anal-genital sniff/lick		
Grooming		
Resting together		
Other (describe)		

Submissive behaviour of pup towards livestock (trustworthy, attentive behaviour)		
	Dog approached livestock	**Livestock approached dog**
Averts gaze, ears/tail down		
Rolls over, shows belly		
Other (describe)		

Obnoxious behaviour of pup towards livestock (attentive, less trustworthy behaviour)	
Biting ears	
Grab-biting leg	
Wool/tail pulling	
Play bow	
Play chasing	
Sexual mounting	
Other (describe)	

Aggressive behaviour of pup towards livestock (untrustworthy behaviour)	
Unprovoked threat	
Pin down, stand over	
Inhibited biting	
Severe biting	
Other (describe)	

Patrolling, marking, reactions to possible threats (protective behaviour)	
Barking	
Growling	
Huffing	
Stands in front of livestock	
Approach/withdrawal	
Pursuit of threat	
Stands/rests on raised spot	
Patrolling	
Raised leg urination	
Defecation, scratching	
Other (describe)	

Responses to external factors	
Shepherd	
Other dog	
Thunder	
Gunshot	
Other (describe)	

Defensive behaviour of pup towards livestock (not necessarily untrustworthy)	
Vocalisation (growl/bark)	
Snap bite/lunge	
Runs away	
Other (describe)	

Other behaviour by pup	
Sleeping	
Resting	
Feeding	
Drinking	
Self grooming/rubbing	
Exploring/investigating	
Stalking/chasing wildlife	
Chasing vehicles	
Other (describe)	

Comments or explanations on behavioural observations: _____

_____

_____

_____

Appendix III

Datasheet for veterinary checks of LGDs

Observer: _____ **Location:** _____ **Date:** _____

Name of dog: _____ **ID # (tattoo, microchip):** _____

Breed: _____ **Age (weeks):** _____ **Weight (kg):** ____

Male/female: _____ **Intact/neutered:** _____

General condition (grade 1–5*): _____ **Body (fat) condition (grade 1–5†):** _____

Specific (health) problems: _____

_____

_____

Other problems: _____

_____

_____

Remarks from shepherd/livestock owner: _____

_____

_____

Treatment administered/recommended: _____

_____

_____

Date of next vaccination: _____ **Date of next deworming:** _____

** Grades for general condition:*

5 – Very alert and active, showing enjoyment of life. Well-muscled, no apparent health problems.
4 – Alert, active, movement is brisk, well muscled, minimal health problems.
3 – Less responsive, slower, more weakly muscled, more pronounced health problems.
2 – Slow, reluctant to move, sunken flanks.
1 – Mostly lies, if gets up cannot keep on feet, gaunt, poor health condition.

† Grades for body (fat) condition:

5 – Skin over ribs moveable, with plenty of fat under the skin, ribs almost undetectable to a gentle touch.
4 – Skin over ribs moveable, slightly less fat under the skin, ribs felt with a gentle touch but the hand does not yet 'bounce' over the ribs.
3 – Skin over ribs less moveable, little fat under the skin, protrusion of ribs more clearly felt with gentle touch.
2 – Skin over ribs barely moveable, no fat under the skin and protrusion of ribs visible at a glance. Pronounced protrusion of hip joints, sunken belly.
1 – The dog is just 'skin and bones' (as a result of a serious medical issue or neglect).