Georgian Carnivore Conservation Project component: Mitigating human-carnivore conflict in East Georgia

Second Survey of Human-Carnivore Conflict in Vashlovani

Field Report

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Maps

1. Surveyed farms during 2010/11 winter season;
2. Farm demography;
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Methods

This was the second survey of human-carnivore conflict in the Vashlovani region and represents the beginning of monitoring efforts in the area and was carried out with the same methodology (see Baseline Survey of Human-Carnivore Conflict; Final Report, GCCP June 2010) albeit with a slightly modified data sheet (Appendix I). The only real difference between the two surveys was the date of implementation whereby the first survey was carried out in March, 2010, and the second in April 2011. This discrepancy should have little impact on the findings beyond a slightly reduced sample size (see below and Map 1).

The current survey, then, was carried out over a ten day period running between 26th April and 5th May (inclusive) 2011. All 76 farms interviewed during the 2010 survey were to be included in this, the 2011 survey. However, the final number interviewed was less (Tables 1 & 2). The main reason for this was due to a delay in implementing the 2011 survey so that flocks and herders from 14 farms had already left Vashlovani to begin the migration north to the summer pastures.

It was also noted by the surveyor that there had been some movement between farms since the initial survey in 2010. Such details were noted by the surveyor in order to ensure accurate comparisons between surveys. In addition, there were instances where the livestock owners or herders from specific farms could not be located for interview. A total of 56 farms, then, were included in the 2011 survey (Map 1).

Date	Farms	Interview #
26.04.2011	52, 51, 54, 55, 56, 57, 74, 32, 75, 31	1-10
27.04.2011	29, 27, 28, 75, 77, 24, 21, 23	11-18
28.04.2011	73, 72, 71, 70, 69, 68, 67, NF3, 65, 64, 63, 62, 61	19-31
29.04.2011	NF5, 58, 59, 16, 14	32-36
30.04.2011	Rain	
1.05.2011	5, 7	37, 38
2.05.2011	Rain	
3.05.2011	Rain	
4.05.2011	82, NF9, 80, 38, 39, NF 1, NF2, 33 12, 11, 3	39-49
5.05.2011	15, 79, 10, 9, 8, 45, 25	50-56

Table 1: Survey period

Region	VNP	2km buffer	Sum
Western	2	26	28
Central	15	4	19
Black mountain	21	8	29
	38	**38**	**76**

Table 2: Survey regions and number of farms

Map #1. Surveyed farms during 2010 and 2011 winters

Western

Central

Black mountain
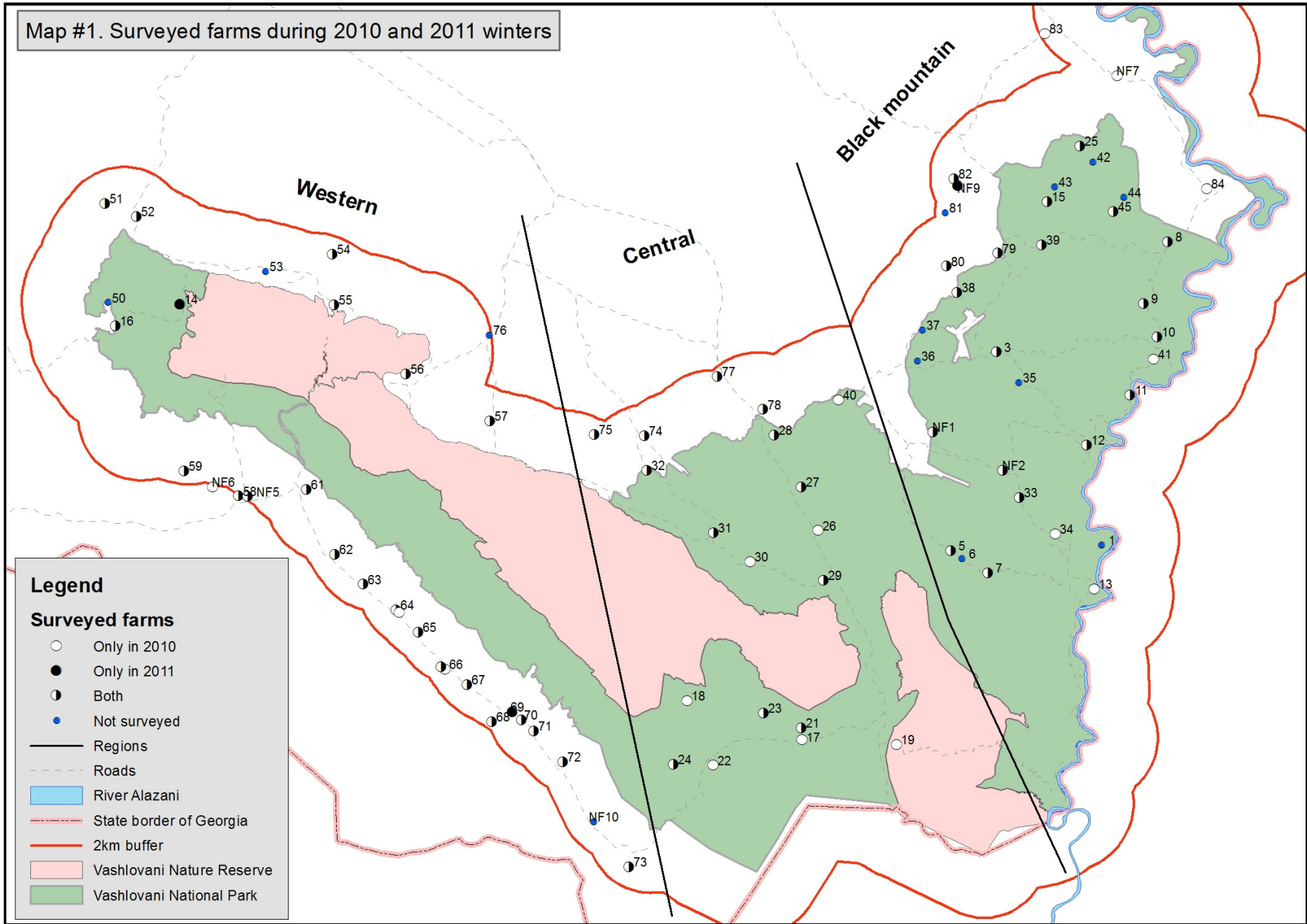
Legend

Surveyed farms

○ Only in 2010

● Only in 2011

◐ Both

• Not surveyed

—— Regions

- - - Roads

River Alazani

State border of Georgia

2km buffer

Vashlovani Nature Reserve

Vashlovani National Park

Data analysis

Socio-demographic characteristics of livestock owners

The average age of respondents during the current survey was 43 (2010 survey = 40) with the youngest being 18 and the eldest 76. Only 14% of respondents were younger than 25 whilst 56% were between 25 and 50, and 30% were older than 50. The home regions of the respondents are given in Table 3.

According to 1st survey 64% of respondents ware from Tusheti. In 2011 there were 55% of Tushetians. Supposedly herds/flock which had already left Vashlovani at the period of 2nd survey, mainly belonged to these Tushetians, which have pastures in Khevsureti or Pshavi, where road was free but too long, so they had to leave early.

The average number of persons in each farm was three (2010 survey showed an average of six) and almost in all farms is at least 1 livestock owner (Map 2). The discrepancy between surveys may, again be explained by the timing of each; the first survey was carried out during the lambing season, February to March, when all owners are on site due to the increased workload.

Akhmeta				Sagaredjo		Telavi	
Tusheti (74% of Akhmetians)		Pankisi (26% of Akmetians)					
#	%	#	%	#	%	#	%
31	55	11	20	9	16	5	9

Table 3: Respondent's number and percentage by living places

Livestock numbers, types and distribution

Amongst the 56 farms interviewed a total of 47,165 head of livestock were kept, or 842 head per farm (Tables 4 & 5a-b). This represents a 32% increase on 2010 figures which stood at 43,925, or 636 head per farm (n=69). Although this seems counterintuitive, given the smaller sample size in the current survey, this may again be explained by the timings of the two surveys and coincidence of the first survey with the lambing season. Given that the second survey was carried out after this period, the farmer's flocks would include lambs and we would expect this to significantly increase the total head-count of a farmers stock.

Livestock	*n* Farms	Per farm		Total
		Average	Range	
Sheep	46/41	848/1083	30-1600/50 - 4500	39,020/ 44,400
Cattle	39/31	77/78	13-280/7 - 300	2,937/ 2,407
Horses	59/22	14/15	1-70/1 - 70	834/346
				43,925/47,165

Table 4: Number of livestock in study area in 2010 (first) and 2011 (second)

Of the 47,165 livestock recorded in the current survey, 44,400 (95%) were sheep (41 farms), 2,407 (5%) were cattle (31 farms) and only 346 (1%) were horses (22 farms). Donkeys, used mainly for transportation, numbered only 12 and only one farm had pigs. Again, this represents a shift from the 2010 figures (where 86% of livestock were sheep) which would support the hypothesis of numbers being affected by timing; more lambs means more sheep and, proportionally, less cattle and horses.
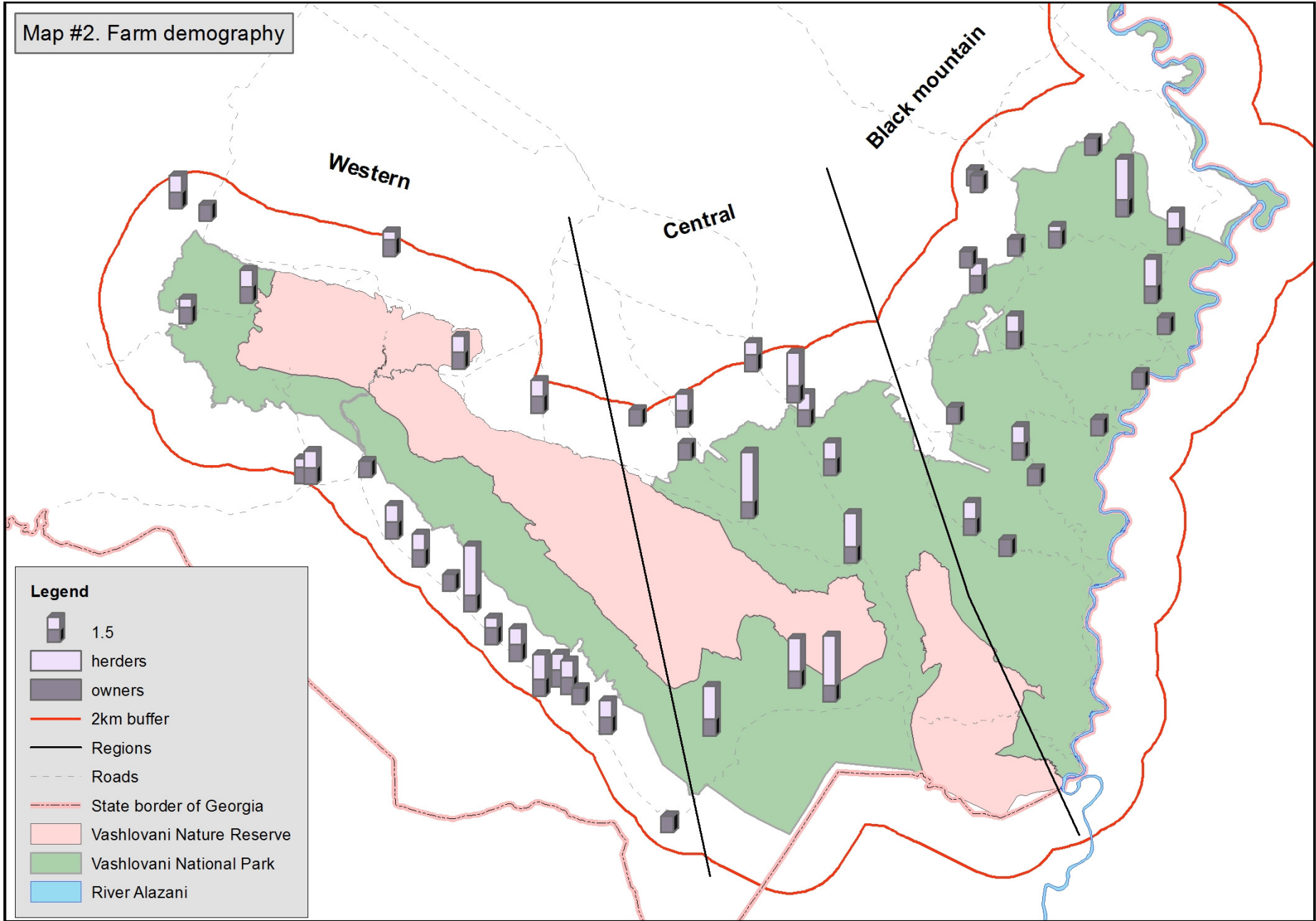
Sheep (overall) - 46 farms (66.7%)		
Only sheep – 28 farms (40.6%)	sheep/cattle – 18 farms (26%)	Only cattle – 15 farms (21%)
		Cattle (overall) - 31 farms (57%)

Table 5a: Distribution of Sheep and cattle in surveyed farms in 2010

Sheep (overall) - 41 farms (73%)		
Only sheep – 24 farms (44%)	sheep/cattle – 17 farms (31%)	Only cattle – 14 farms (25%)
		Cattle (overall) - 31 farms (55%)

Table 5b: Distribution of Sheep and cattle in surveyed farms in 2011

Cattle farms were mostly located near water sources and generally in the north of the survey area (Map 3). Only two farms with cattle (58 and 24) were to the south. Sheep farms were further from water source and, as a result, flocks often have to move long distance for water (see also Baseline Survey Final Report).

Map #2. Farm demography

Legend

1.5

herders

owners

2km buffer

Regions

Roads

State border of Georgia

Vashlovani Nature Reserve

Vashlovani National Park

River Alazani

Western

Central

Black mountain

Map #3. Livestock distribution in farms

Western

Central

Black mountain

Legend

sheep
cattle
horses
2km buffer
Regions
Roads
State border of Georgia
Vashlovani Nature Reserve
Vashlovani National Park
River Alazani
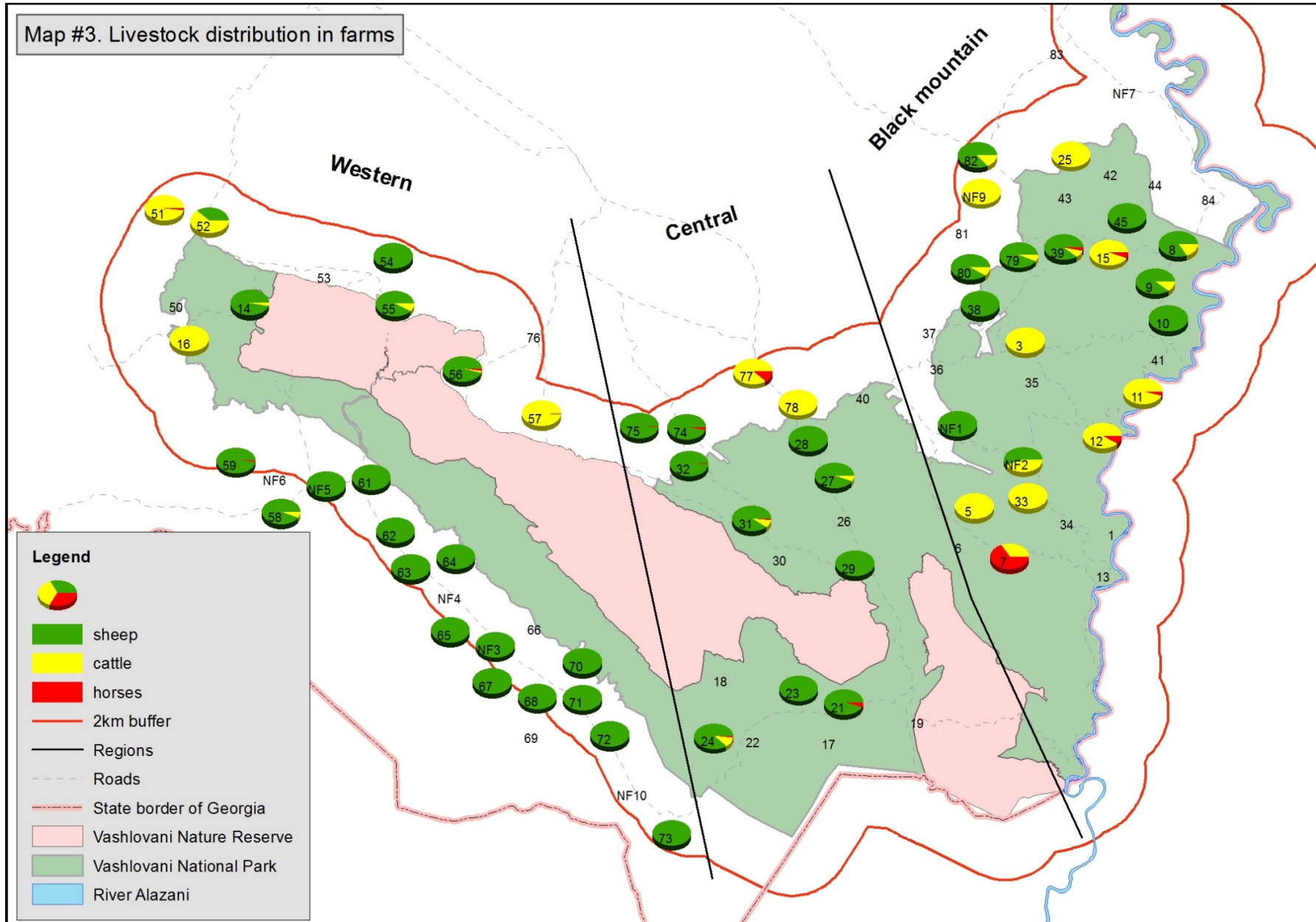
Losses to predators and other causes

Sheep were the main stock animal taken by wolves (table 6). Disease was identified as the main cause of sheep-loss by 56% of respondents whilst 44% cited predation as the key factor. This contradicts the findings of the first survey where predation was given as the main cause of livestock loss by the majority (59%) of respondents. However, there is anecdotal evidence to explain this as many sheep entering Vashlovani at the beginning of the winter season were noted to be suffering symptoms of foot and mouth disease (FMD). Some farmers also reported poor conditions of the pastures which may have contributed to the death of animals already suffering from FMD.

When asked whether predators were a big problem, 60% of respondents answered yes (52% in 2010), 22% considered them not to be a big problem (21% in 2010) and 18% indicated that predators were merely a partial problem (27% in 2010).

Livestock attacked		Farms affected		Damage per farm			Total damage	
		n	%	mean	max	%	n	%
Sheep	Killed	33	80.5	17.8	75	1.7	731[a]	81.9
	Injured	10	24.4	0.9	5	0.1	36	4
Cattle	Killed	17	54.8	3.3	16	4.2	102	11.4
	Injured	3	9.7	0.1	1	0.1	3	0.3
Other	Killed	10	45.5	0.9	4	5.5	19	2.1
	Injured	2	9.1	0.1	1	0.6	2	0.2
Total	Killed	47	83.9	15.2	75	1.8	852	95.4
	Injured	14	7.8	0.7	5	0.1	41	4.6
	No damage	6	3.4	-	-	-	-	-
[a] includes killed lambs, where total number of lambs is estimated: actual number of damaged sheep may be higher								

    Table 6: Damaged livestock during winter 2010-2011

As in the first survey, most respondents considered February as the peak period for wolf attacks and this was, in most cases, linked to the wolf breeding season. The alternative explanation, that the increase in attacks may be linked to the onset of lambing, does not seem to register. When comparing the number of active farms with the perceived frequency of wolf attacks (chart 2) there does not appear to be a direct relation between the two. However, the apparent time-lag between maximum farm occupation and the sharp increase in wolf attacks may simply reflect a natural time lag between sheep arriving in the area and resident wolves capitalizing on the seasonal food supply. It should also be noted that the data recorded for wolf attacks is not wholly reliable as it is collected after the fact and relies on the memory of individual respondents. Once the HCCRT is established and wolf attack data can be collected as it happens, such patterns should become clearer.

The number of cattle identified as killed in the first survey was only 49 (7.6%), less than in 2011, which saw 102 (11.4%) killed. This may be the first indication that, as sheep leave the area, resident wolves are switching to cattle which remain on-site year round. This hypothesis is supported by closer examination of the first survey results. Of the 14 attacks on cattle, five (35%)

occurred in towards the end of the season, April and May. This possible pattern warrants further investigation.

Half of all respondents think that predation on livestock is increasing (88% of these also see predation as a big problem) whilst 26% have seen no change ion the frequency of predation and 24% actually report a decrease in the number of attacks over the years (46% of these do not see predation as a big problem) (map #4).

Overall, 89% of surveyed farms have suffered attacks by predators during the 2010-11 winter season. Of the six farms that had no interactions with predators (16 in the first survey), four were located in the extreme western part of study area (Map 4 & Table 7).

Figure 2. Remains of a horse, tied 150m from farm, reportedly killed by wolves at night

Farm #	Livestock	Region	Access to water	Region of Origin
11	Cattle/Horses	Eastern	Easy	Pankisi
14	Sheep/Cattle	Western	No	Telavi
16	Cattle	Western	Easy	Telavi
29	Sheep	Central	Easy	Telavi
52	Cattle/Sheep	Western	Easy	Sagaredjo
54	Sheep	Western	No	Tusheti

Table 7. Locations and characteristics of farms without attacks (n=6) in 2010-11 winter

Map #4. Number of killed livestock, estimating predation as problem and compare to ather years. Responced in 2010-11 winter in Vashlovani protected area and 2 km. buffer zone

Western

Central

Black mountain

LEGEND

If compare to other years this loss is

▼ Less than ussual

▲ More than ussual

= Average

Is predation big problem for you

● Yes

● Partly

● No

—— 2km buffer

—— Regions

Number of killed livestock

● 0 - 20

● 21 - 40

● 41 - 60

● 61 - 80

N/A Not attacked farms

- - - Roads

—·—· State border of Georgia

River Alazani

Vashlovani Nature Reserve
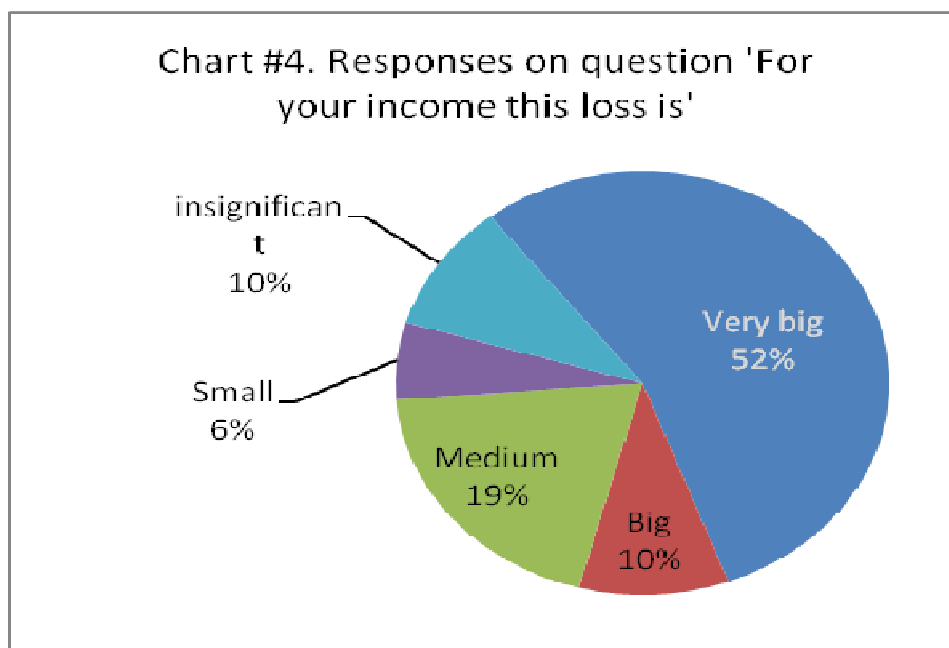
Vashlovani National Park
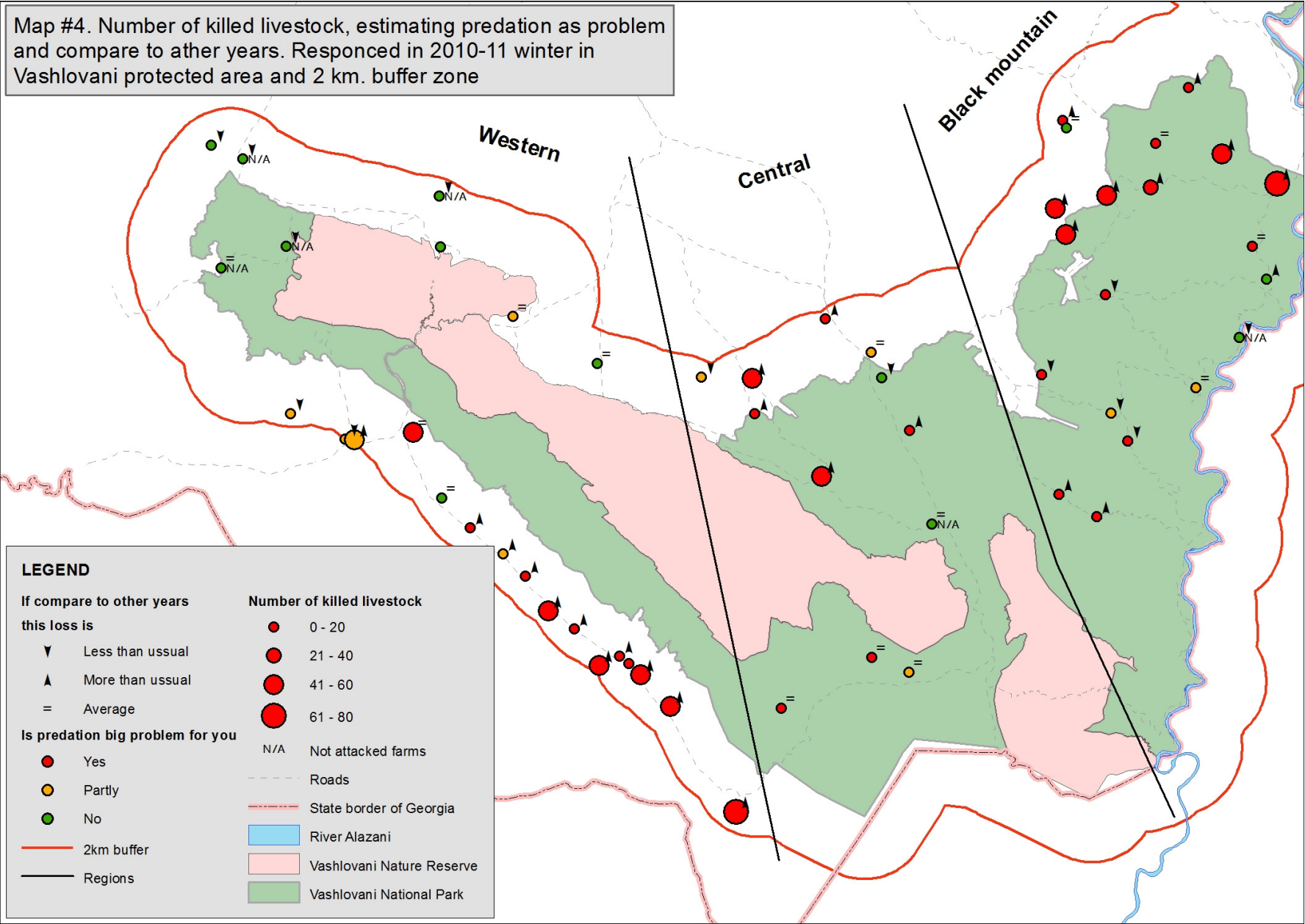
Map 4 shows the possible presence of clusters of farms near Black mountain and in the Samukhi lowland that have relatively high losses of livestock which is a repeat of a pattern identified from the first survey. This may be a product of the actual distribution of sheep as these areas also have relatively large flocks (Map 3) rather than predation hotspots arising from, for example, favorable physical conditions (Table 8). However, this warrants further investigation. The main reason may be distribution of sheep farms than relief or other physical terms. In contrast, the north-western part of the study area seems to show relatively low levels of predation which may be a result of a preponderance of cattle farms in the area or the presence of Azeri farmers who may have reason to be more wary of questions than resident Georgian farmers.

Area	Relief	Access to water	Trees	Ravine
Black mountain	Smooth hills	Good	Yes	Yes
Mlashe Tskali/Chigoelt Khevi	Smooth hills	Good	Yes	Yes
S/E of Samukhi	Lowland	Poor	No	No
N/W of Samukhi	Lowland	Poor	Yes	Yes

Table 8: Four clusters of farms with high level of damage and physical characteristics

For 52% of respondents the economic loss caused by predation is seen as a very big problem (Figure 4) whilst 10% of respondents feel that the economic loss is insignificant (though it should be noted that this latter category is mainly made-up from the five farms that have suffered no attacks). In the first survey, only 4% recorded their economic loss as "very big" whilst 41% perceived it as being slightly less significant ("Big"). The most likely explanation for this, considering the trend for a perceived increase in the frequency of attacks and the general perceived threat posed by predators, is the ambiguity of the terms Big and Very Big. It is recommended, then, that these categories are merged into one, Big, in any subsequent surveys.

Chart #4. Responses on question 'For your income this loss is'

insignificant 10%
Small 6%
Medium 19%
Big 10%
Very big 52%

In most farms shepherds use the remains of killed sheep to feed their livestock guarding dogs and use traditional methods, such as applying boiled grease to bite wounds, to treat animals that survive wolf attacks.

Details of attack;

During the current survey respondents from 42 farms, recounted a total of 72 attack events (1.7 events per farm). This represents a fall from figures recorded from the first survey where 105 attacks were reported from 49 farms (2.14 attacks per farm).

The outcomes of the 2011 events were 89 animals killed and 15 injured (Table 8). In all instances the predator involved was wolf; however, in 28 (39%) of these events no predator was actually seen. The maximum number of wolves in a single event was eight.

Most attacks occurred when the flock was out to pasture (Chart 5) at between 14:00 and 15:00. These compare favorably with the results gained from the first survey although there are some interesting differences in proportions. For example, during the 2010 winter season, 78% of attacks occurred at the pastures compared to the 44% represented here. Similarly, the proportions of 2010 attacks that occurred whilst either moving the flock to and from the pastures or while they were at the farm were 10% and 7% respectively. So, although we can see that the general pattern is the same (i.e. that most attacks occur at the pastures) there do seem to be some differences between some key areas. In most (64%) cases there was a clear sky though 18% of events occurred during periods of rain.
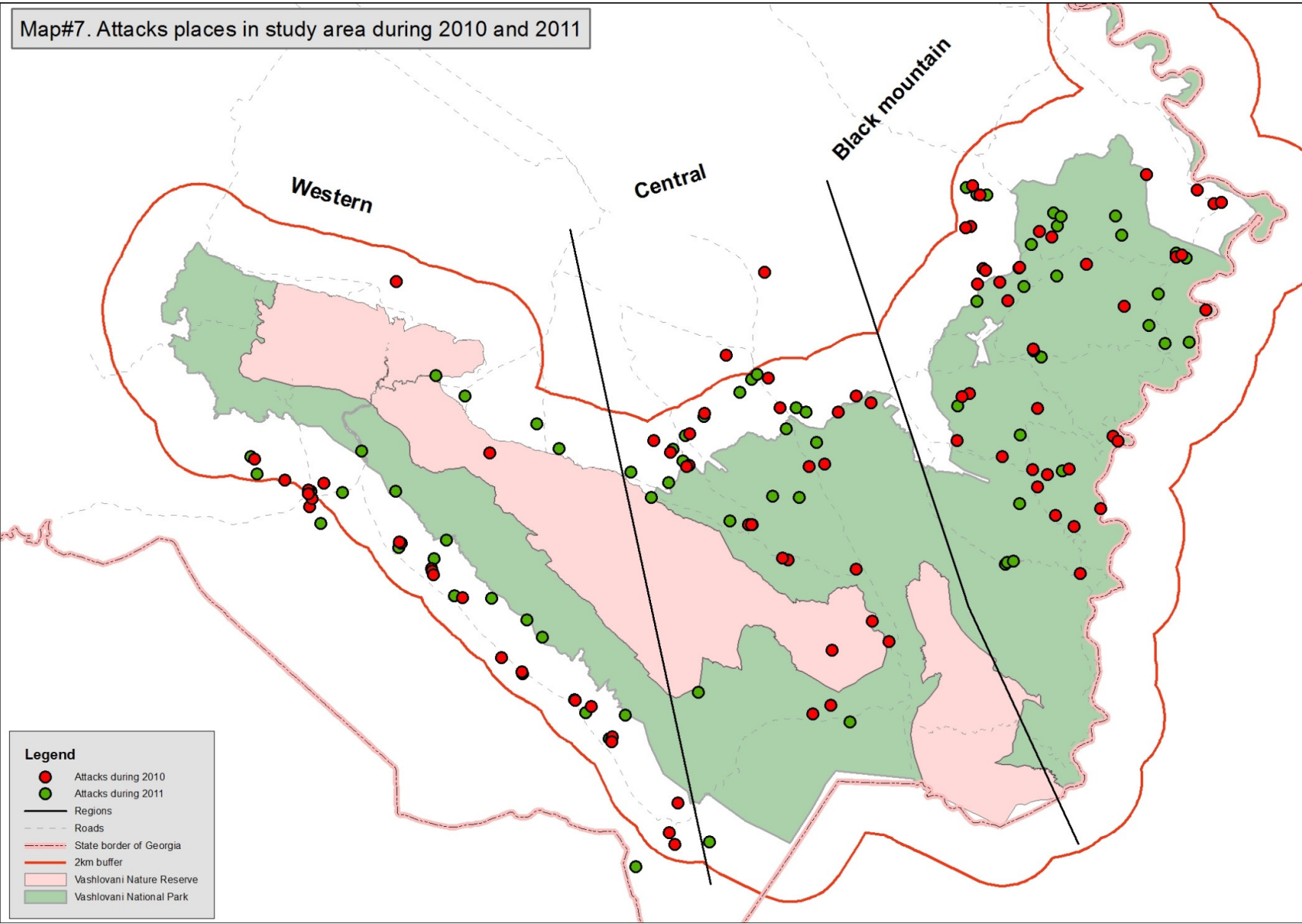

Chart #5. Attack places
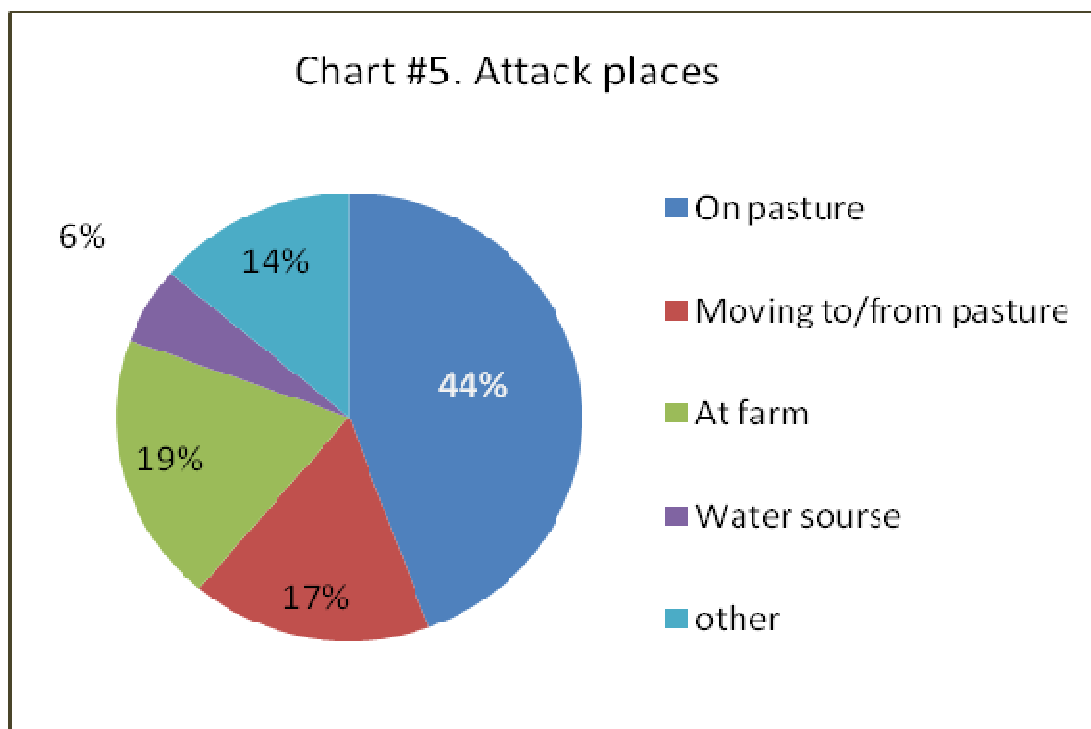
Explanations for this include, again, the timing of the surveys as well as the interpretation of questions by respondents. In the former, a post-lambing survey means that more "weak" animals

(lambs and post-parturition females) are available to predators. These animals would remain near the farm as they are perceived as too weak to travel to the pastures. Unfortunately, this also means that they tend not to be protected by herders or dogs. In the latter, it may be that some respondents interpret the term "pastures" differently. For some, a sheep or lamb left near the farm may still be considered to be at the pastures. If the 2010 survey incorporated more of this type of respondent then we may expect to see an increase in the number of attacks reported to have happened at the pastures. If this is the case, a more careful wording of the question may be required for future surveys.

In the majority of events involving horses or cattle there were no herders or dogs as seems normal practice amongst the farms of Vashlovani. In such cases, herders will only discover the loss of an animal once they are brought back to the farm for the night and usually the assumption is that it has been killed by a wolf. This is somewhat indicative of the general attitude of farmers towards both their livestock and large carnivores where the loss of the former is automatically attributed to the latter. With cattle and horses, this problem is exacerbated by the fact that these animals are left unattended.

Livestock attacked		Attacks		Damage per Attack		Total damage	
		n	%	mean	max	n	%
Sheep	Killed	70	97.2	0.9	18	63	60.6
	Injured			0.2	1	11	10.6
Cattle	Killed	20	27.7	0.9	3	17	16.3
	Injured			0.2	1	3	2.9
Other	Killed	10	13.9	0.9	1	9	8.7
	Injured			0.1	1	1	1
Total	Killed	57	79.2	1.6	18	89	84.8
	Injured	15	20.8	1	1	15	14.4
	No damage	4	5.5	-	-	-	-

Table 8: Predator attacks on livestock (n=72) in winter 20010/11

Map#7. Attacks places in study area during 2010 and 2011

Western

Central

Black mountain

Legend

⬤ Attacks during 2010

⬤ Attacks during 2011

— Regions

--- Roads

—·— State border of Georgia

— 2km buffer

▨ Vashlovani Nature Reserve

▨ Vashlovani National Park

Appendix I: Datasheet for livestock owner interviews

[Items marked*may be recorded directly by the research assistant]

*1. Interview #:_____   *2. Date:_____

*3. Name of research assistant:_____

*4. General area: *Circle applicable: western   central   eastern*

*5. Zone: *Circle applicable: in VNP   2km buffer*

*6. Farm number: _____ *[according to map]*

*7. Exact location (GPS coordinates): _____ _____ *[check on list]*

Farm and livestock demographics

8. Name of interviewee: _____   9. Age: _____

10. Which district of Georgia is he from? _____

11. Contact details: _____

12. How many livestock owners #: _____ and herders #: _____ are at the farm?

13. When did you arrive here? _____   14. When do you expect to leave? _____

Livestock numbers

15. Sheep/Goats:*#:* ___16. Cattle:*#:* ___17. Horses:*#:* ___18. Donkeys:*#:* ___

Losses to predators

19. In general are predators a big problem for you?   *yes   no   partly*

20. Do you lose more money because of predation or because of disease or other causes?

Rank by importance: disease   predation   theft   other (*specify* _____)

21. In which month(s) do you tend to lose most stock to predators? _____

Details of attacks

22. Have you had any problems with predators this winter 2010/2011?

23. How many head of livestock and what type have you lost since arriving at Vashlovani?

	killed	injured
sheep		
Cattle		
other (specify)		

24. Is this: *less than usual   about average   more than usual?*

25. For your income is this loss: *very big   big   mediumsmall insignificant*?

26. What happens to the killed animals?

_____

27. What happens to injured animals?

_____

[Now ask the interviewee to provide details of the most recent attack.]

28. Date: _____

29. Time: *dawn   am   pm   dusk   night-time*   (*approx. time if known* _____)

30. Activity of flock immediately before the attack
Circle applicable: *grazing on pasture   drinking at water source   sleeping at farm
        resting on pasture   walking to/from pasture   other* (*specify* _____)

31. Location: *[ideally get the interviewee to point to the actual location, then research assistant
goes to the spot and takes a GPS reading]* _____   _____

32. Weather *(circle applicable):*   *clear   cloudy   mist/fog   rain   snow
                        other* (*specify* _____)

33. # and type of livestock killed or injured:
                              killed   injured

        sheep

        cattle

        other (specify)

34. Predator species and number if seen: *bear* _____ *jackal* _____   *lynx* _____ *wolf* _____

35. Dogs present: *yes   no*

36. Dog behaviour toward predator:

Circle applicable: *no reaction*   *bark*   *chase*   *bite/contact*
             run away   *other (specify _____)*

37. Herder/owner present?   *yes*   *no*

38. Herder/owner's behaviour toward predator:

Circle applicable: *no reaction*   *shout*   *chase*   *shoot*   *other (specify _____)*

[Now ask for the next previous attack and repeat data questions, and then for the attack before that, until all attacks have been registered and/or interviewee loses interest.]

Remarks

39. Do you have anything else you would like to add about what we have talked about?

_____

_____

_____