

Views of Hair Goat Breeders Concerning Nomadic Livestock Breeding and Forestry: An Example from the Turkey

Alkan, H.^{1*} and, Ugur, T.²

¹Suleyman Demirel University, Faculty of Forestry 32260- Çunur, Isparta, Turkey

²Korkuteli Forest Directorate, Korkuteli, Antalya, Turkey

Received 2 Sep. 2014;

Revised 20 Oct. 2014;

Accepted 21 Oct. 2014

ABSTRACT:The obstacles towards this pursuit not only negatively affect the views and perceptions of the forest villagers about forest resources but also, from time to time, causes Turkey, which has the appropriate environment in terms of livestock, to become one of the countries that import meat. In this study, the perception and views of hair goat breeders about forestry & livestock breeding relations and how to develop these two sectors are investigated. Within the framework of this study, a survey including 121 hair goat breeders was conducted. According to the result of the study, it is found that; (1) Hair goat breeding has undergone a regression when compared with the past. Low output prices of meat and milk, contrary to high prices of feed and other input cost and negative forestry & livestock breeding relations, are the most important reasons of this regression. (2) The highest expectation of the respondents from the forests is related to livestock breeding. Thus, limitations towards goat grazing in the forests negatively affect local views and perceptions of forests.

Key words: Forestry, Nomadic Livestock, Hair Goat, Shepherds, Local Perception, Turkey

INTRODUCTION

There are about 7 million forest villagers residing in more than 21,000 forest villages in Turkey. Forest villagers have legally and illegally used forest resources for their everyday needs such as firewood, timber for shelter, non-wood forest products, foods, water, medicine, livestock propose like fodder, grazing etc. (Dolisha *et al.*, 2007; Mamo *et al.*, 2007; Tolunay *et al.*, 2007).

The nomadic livestock sector is an important and traditional source of income for these people. Besides, it is accepted as an important cultural value as well as income resource by local people named Yoruks (Alkan and Korkmaz, 2009; Alkan *et al.*, 2009).

The protection of forests by strict law rules can cause the benefit loss that happens by reason of the prohibitions and limitations for the forest villagers who are the users of this resource (Davies *et al.*, 2007). Overgrazing in particular is accepted as an important factor that contributed to the forest degradation and subsequent soil erosion and biodiversity loss in Turkey. Thus, policies were developed for the prevention of nomadic livestock on forests. Especially the hair goat have been prohibited in various forestry laws in forest areas like

afforestation areas, national parks and the other protected areas, etc. Main objective of Goat Action Plan prepared by Forestry Directorate is to decrease the number of goats. In these plans, as an alternative for goat, activities such as dairy farming, dairy sheep breeding, cattle breeding, sheep breeding, bee keeping, greenhousing and arboriculture are chosen for support, and from time to time, the government has given credit support for this purpose to the farmers through governmental institutions.

Consequently, hair goat breeding has been negatively affected by the actual forestry policies as was forbidden by forest law to raise small cattle and goats within the forests in many areas. Livestock (*especially nomadic livestock*) production has decreased in many districts (Alkan and Korkmaz, 2009). Changes in the number of animals within the last 30 years, as it is shown in Fig. 1 (Turkish Statistical Institute-TSI, 2014). It can be observed here that the trend rate of change in the number of animals is negative until the year 2011. When a comparison is made with 1937's when the Forestry Law was prepared, it is observed that an animal per person ratio has decreased approximately 6 times today (Elvan, 2010).

*Corresponding author E-mail: hasanalkan@sdu.edu.tr

The policy applied to ban hair goat's entrance into the forests and the measures taken in this respect, together with decreasing the number of animals, might possibly have protective effects on forests. However, this issue is partially reflected in the number of illegal grazing (Fig.2) within the last 30 years period (General Directorate of Forestry, GDF, 2014).

Because of these reasons, there has been a decrease in meat and dairy production based on the decrease in the number of animals. Although it has the appropriate environment conditions in terms of livestock breeding, Turkey has been a country that has to import meat from time to time.

On the other hand, this issue started to affect perception and attitude of villagers who were deprived of a substantial source of income concerning forest resources negatively (Alkan and Korkmaz, 2009; Alkan *et al.*, 2009). By taking this issue into consideration, there have been some changes in policies and applications towards goats in the recent years. In the result of this action, by preparing forest grazing plans, forestry directorates started partially to permit goat grazing in the forests.

It is expected that these changes will have positive effects both on improving nomadic livestock breeding and betterment of forest & human relations. The primary requirement of reaching success in these activities mainly relies on the supplication of local contribution. First necessary step to be taken in order to provide supplication of local contribution is to determine present view, perception and expectation of the villagers who carry out nomadic livestock breeding or graze their animals in the forest regarding forestry and livestock breeding. It is difficult to say that the necessary efforts have been paid so far by the institutions in charge. Thus, in this study; views, perception and expectations of forest villagers who

carry out nomadic livestock breeding, especially hair goat breeding and made their living out of this about forestry and livestock breeding are investigated.

MATERIAL & METHODS

The study was carried out in Korkuteli, acounty of Antalya, located in southwestern Turkey (Fig. 3). Because;

- Most of the forest villages in this district were established by Yoruks. These people moved from nomadic life to settled life and built village so that this district is suitable for nomadic livestock. Nomadic livestock (especially goat breeding) has been an activity with both economic and cultural aspects for the Yörük living in the mountainous areas of the Mediterranean region of Anatolia from the initial immigration of Turkish clans to date. Yörüks who spread to many mountainous areas in Turkey have their own original culture. They originally lived along the Taurus Mountains, from the west part of Anatolia to the east Mediterranean region (Özden and Atmýþ, 2006).
- In Antalya, the district with the highest amount of animal existence is Korkuteli.
- Illicit grazing offences have still continued in spite of the strict nature protection efforts.

There are 46 forest villages and 781 shepherds in these villages. In order to collect the necessary information, questionnaire forms were used in this study especially. First, the questions given on the questionnaire forms were prepared according to the rules concerning how the questions in the question forms should be formed. Some questions were based on yes-no format, while others were a five point likert type scale. After applying the forms as a pre-test, these forms were finalized.

In order to test the reliability of the test, the Cronbach's alpha (α) coefficient (the alpha method)

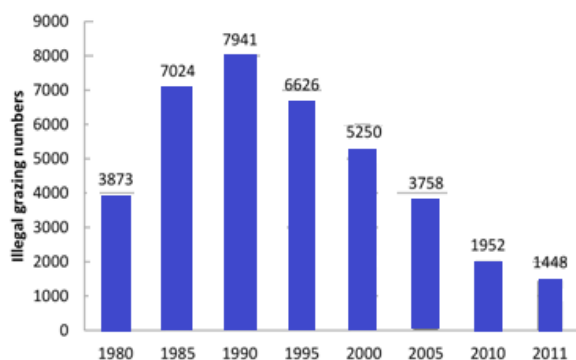


Fig. 1. Changes of hair goats in numbers

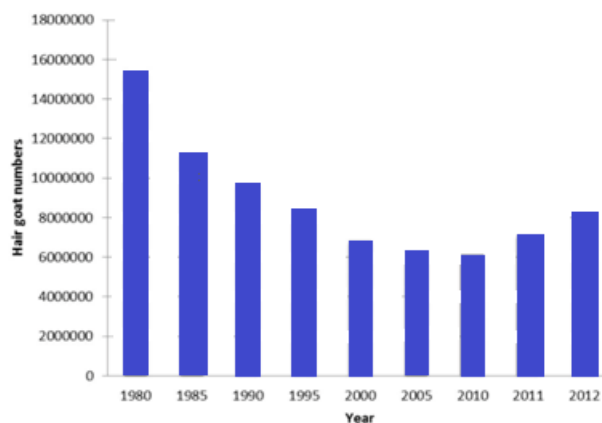


Fig. 2. Changes of illegal grazing in numbers

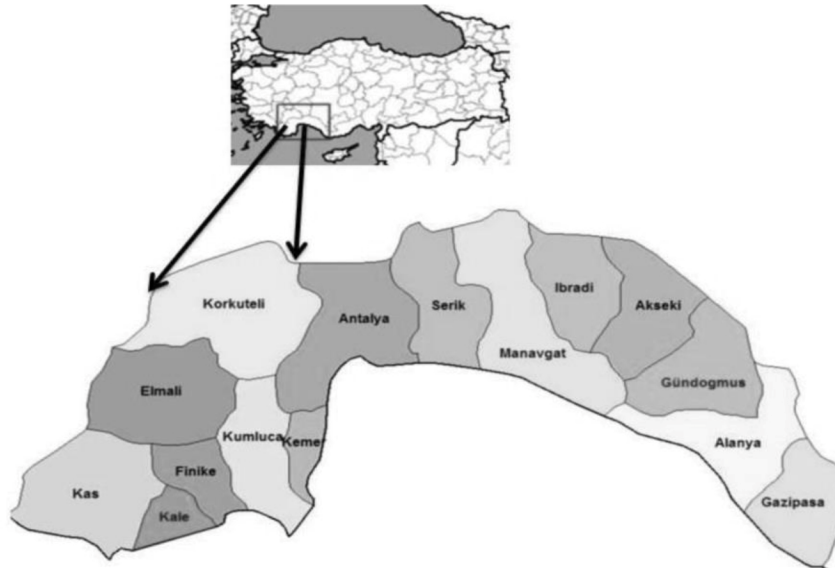


Fig. 3. Location of Study Area

was used. The Cronbach's alpha value was calculated as 0.904 ($0.80 < \alpha < 1.00$: High Reliability) and the reliability of the test was detected to a high value (Eymen, 2007). Sample size for questionnaire was determined according to the total shepherd number all of the villages by means of the formula below (Karasar, 2004).

$$SS = \frac{Z^2 \cdot (p) \cdot (1 - p)}{C^2} \quad (1)$$

Where:

SS= sample size

Z= Z value (e.g. 1.96 for 95% confidence level)

p: percentage picking a choose, expressed as decimal (0.5 used for sample size needed)

C=confidence interval, expressed as decimal (e.g., 0.01=+/- 10)

Although the formula offered about 86, we preferred to do 121 questionnaires in order to increase the reliability of the study. Therefore, we sampled approximately 15% of the total shepherd number (781). In data analysis via SPSS (Statistical Package for Social Science) 15.0 for Windows software frequencies-percentages, and chi-square test have been employed (Özdamar, 2004; Eymen, 2007).

RESULTS & DISCUSSION

Some descriptive information concerning the villages within the research area is given in Table 1. According to this, all of the villages investigated are in the forest village status. The average altitude in these villages is 1200 metre where 83% of these villages are mountain villages. In the area, there is approximately 28.411 hectare graded, 62.225 hectare

degraded, total of 90.666 hectares of forest land. There are substantial problems in sub-structure and infrastructure in the villages such as transportation, communication, electricity, drinking water, health, education etc.

85 % of the goat breeders who participated in the survey are primary school graduates. 8 % of breeders who participated in the survey are illiterate. There is no university graduate or a student in the villages where the average of secondary and high school graduation is pretty low (Table 2).

As it is seen in Table 1, the villages with highest population are Imrahor, Yazir and Sulekler where villagers live all the year round. The villages with the lowest population are Duraliler, Yukarikaraman and Nebiler where only summer range activity took place for 2-3 months. Rural-urban migration is decreasing in the region compared to the past where it still continues in some villages. From the families of the subjects so far, 7 % moved to the city for their children's education and 9.1 % with the hope of finding a job.

Average annual household income according to the declaration of subjects is as shown in Table 3. Main source of income in entire villages is livestock breeding. The answer given by the subject to the question "How much % of your income do you obtain from livestock breeding?" is shown in Table 4.

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Table 1. Identifying information for the villages

No	Villages	Topography	Altitude (m)	Status according to Forest low (31* or 32**)	Population	Animal Numbers	
						Sheep And Hair Goats	Cattle
1	Akyar	Plain	1150	32	765	6200	594
2	Avdan	Mountainous	1200	31	849	17800	498
3	Bahceyaka	Mountainous	1400	31	158	250	392
4	Baspinar	Mountainous	1450	31	147	0	15
5	Bayat	Mountainous	850	32	252	1060	1550
6	Bayatbademleri	Mountainous	600	31	196	400	20
7	Begiş	Mountainous	900	31	71	5200	12
8	Cıvgalar	Mountainous	1600	31	71	700	50
9	Çaykenarı	Mountainous	1100	31	423	2200	242
10	Çukurca	Mountainous	1100	31	55	700	32
11	Datkoy	Plain	900	31	929	500	320
12	Derekoy	Mountainous	1100	32	1061	4500	427
13	Esenyurt	Mountainous	1000	31	445	1100	170
14	Garipce	Plain	800	31	250	1200	207
15	Gocerler	Plain	1400	31	132	0	0
16	Gumuslu	Mountainous	1200	32	729	2200	670
17	Güzle	Mountainous	1200	32	222	4200	145
18	Imecik	Mountainous	1200	31	804	8500	1500
19	İmahor	Plain	900	31	1860	300	285
20	Karabayır	Mountainous	1600	31	84	0	0
21	Karakuyu	Plain	1100	31	267	750	185
22	Karatas	Plain	1600	31	169	1800	182
23	Kargalık	Mountainous	900	31	1206	1200	82
24	Kargın	Mountainous	800	31	159	800	70
25	Kayabas	Mountainous	1400	31	200	2500	90
26	Kemeragzı	Mountainous	900	31	94	800	59
27	Kırkpınar	Mountainous	1500	31	384	4400	470
28	Kızılaliler	Mountainous	1500	31	125	400	284
29	Kızılcaadağ	Mountainous	1400	31	179	800	245
30	Kozagaçlı	Mountainous	1500	31	377	2800	309
31	Koseler	Mountainous	900	31	147	1400	134
32	Kuçuklu	Mountainous	1400	31	256	1800	190
33	Leylek	Mountainous	1100	31	128	880	118
34	Mamatlar	Mountainous	1500	31	214	1200	489
35	Nebiler	Mountainous	1600	31	27	1300	22
36	Osmankalfalar	Mountainous	1400	31	305	760	272
37	Manay	Plain	1400	31	228	2800	366
38	Sogutçuk	Mountainous	850	32	162	1900	75
39	Sulekler	Mountainous	1200	32	1170	3200	176
40	Taskeşik	Mountainous	1450	31	521	4400	245
41	Ulucak	Mountainous	1300	31	611	5800	326
42	Yakaköy	Mountainous	1100	31	253	1300	212
43	Yazır	Mountainous	900	32	1604	1200	672
44	Yesiloba	Mountainous	1500	31	173	600	49
45	Yukarıkaraman	Mountainous	1400	31	45	400	0
46	Duraliler	Mountainous	1650	31	24	800	87

31*: in the forest, 32**: forest edge

Table 2. Education status of the respondents

Education status	Frequency	Percent (%)
Illiterate	10	8.3
Primary school	103	85.1
Secondary school	3	2.5
High school	5	4.1
University	-	-
Total	121	100.0

Table 3. Average annual household income of the respondents

Average annual household income	Frequency	Percent (%)
0-5000 USD \$	51	42.1
5000-10000 USD \$	50	11.3
10000-15000 USD \$	11	9.1
15000-20000 USD \$	7	5.8
>20000 USD \$	2	1.7
Total	121	100.0

1 USD Dollar: 1.925 Turkish liras (TL)

Table 4. The share of livestock income in total income

Share of livestock income (%)	Frequency	Percent (%)
0-25	7	5.7
26-50	10	8.3
51-75	10	8.3
76-100	94	77.7
Total	121	100.0

Other livelihoods of respondents are agriculture and forestry, respectively (Table 5).

Table 5. Other livelihood resources

Livelihood resources	Frequency	Percent (%)
Agricultural activities	107	88.4
Forestry activities	8	6.6
Agricultural and forestry activities (together)	6	5.0
Total	121	100.0

Within the region, the agricultural activities can be carried out within the framework of irrigated and dry farming. Mushroom production and fruit grooving are also common in the region. Incomes obtained from forestry are generally composed of the income obtained from working in the forest.

In the region, livestock breeding is conducted as barn breeding and nomadic breeding. When the answer to the question “*What is the type of livestock breeding you carry out?*” shown in Table 6 is investigated, it is observed that; although there is a decrease when compared to the recent years, general trend of livestock breeding is mostly nomadic breeding (85.1%), especially hair goat breeding. Within the framework of the study, there are approximately 10,300 sheep and goats and 12,538 cattle in the villages.

Table 6. Livestock varieties

Animal Breeding Type	Frequency	Percent (%)
Nomadic livestock	103	85.1
Stable (barn) livestock	5	4.1
Nomadic livestock together with stable livestock	13	10.8
Total	121	100.0

According to the answer given to the question “*How long have you been conducting animal farming?*” (Table 7), 43.0 % of the subjects have been conducting animal farming for over 20 years. Only 16.5 % of the subjects have been conducting animal farming for less than 6 years.

Table 7. Experience time

Time (Year)	Frequency	Percent (%)
0-5	20	16.5
6-10	17	14.0
11-15	12	9.9
16-20	20	16.6
>21	52	43.0
Total	121	100.0

Answers to the question “*What is your reason to conduct livestock breeding?*” given by the subjects are as shown in Table 8.

Table 8. Reasons of respondents to livestock*

Thesis/expressions	Yes (%)	No (%)
Livestock is father’s profession	78.5	21.5
There are no alternatives	76.9	23.1
Livestock earns enough money	31.4	68.6
Livestock earns reputation	14.0	86.0

*Multiple choices marking of respondents were allowed

According to this, the most commonly marked options are; “*livestock breeding is our family craft*” and “*I have no possibility to do another job*” respectively. The number of subjects who carry out this job earns a lot or prestigious are pretty low. Answers to the question “*What is the main problem in livestock breeding for you?*” given by the subjects are shown in Table 9.

Table 9. Issues (problems) related with livestock *

Issues (problems)	Yes (%)	No (%)
Prices of animal products like meat, milk, etc. is low	91.7	8.3
The prices of animal feed and other inputs are high	88.4	11.6
Pasture lands and alike are insufficient	85.1	14.9
Nomadic livestock (especially hair goats) were inhibited by Forestry organization	60.3	39.7
Veterinary services are expensive	59.5	40.5
Shepherd numbers are insufficient and wages are high	43.0	57.0
Credit supports provided by the state are insufficient	38.0	62.0
Government policies are negative and inconsistent	32.2	67.8

* Multiple choice marking of the respondents were allowed and the issues are ordered according to the priority of importance.

The most important obstacles in development of livestock breeding according to this are high costs of feed and other inputs where output prices such as

meat and dairy are low. Inadequacies of the rangelands in the region have negative effects in terms of animal feeding. 85.1 % of the subjects complain about areal inadequacy of the rangelands in the region. Amount of subjects that state that rangelands are inadequate in terms of grass quality and nutritious is 87.6 %. Besides, 60.3 % of the subjects state that limitations that are put into action by the approach of forest directorate and based on forest negatively affect livestock breeding.

The relationship between nomadic livestock and forestry reveals when those who carry out nomadic livestock breeding enter forest areas by necessity. Because, people graze their animals in nearby forests. Therefore, as seen in Fig. 4, the biggest expectation (82.6 %) from the forests and forestry activities is towards grazing their animals.

Expectations pertaining to forests & forestry being based on livestock breeding can be determinative on the subjects' views and perceptions about this source. For this reason, some premises are directed to the participants and their answers are given in Table 10.

As it is seen in the Table, 85.1 % of the subjects state that they are happy to live in harmony with forests and other natural resources. 30.6 % of the subjects were engaged in a lawsuit with the forest directorate so far because of their occupation, namely livestock breeding. Within nomadic livestock breeders, 33 % of the breeders are engaged in a lawsuit for the time being. 69.4% of the subjects don't have any problem with the forest directorate because of their occupation which is livestock breeding. According to the results of the Chi-square test, there is a statistically significant relationship between living in harmony with forests and being content with life ($X^2=14.235$,

$df=4, P=0.007$). Other variants that are found to have an effect on the case of being content with living in harmony with forests are shown in Table 11.

According to this, subjects' think that making adequate use of the forest resources have statistically positive effect on their being content with living in harmony with forests. Besides, attitude of the forest engineers and the rangers working in the forest directorate also have effects on the contentment perception of the subjects. On the other hand, when Table 10 is investigated, it is seen that the villagers are aware of the fact that forests are important for them. Because, 82.7 % of the subjects believe that destroying the forests will affect the future of the village negatively. Besides, 70.2 % of the subjects stated that they will try to stop when they see a person harming the forest.

Additionally, 60.3 % of the subjects think that legislative regulations are necessary and such related limitations should be applied in order to protect forests where more than half of the subjects (54.6 %) believe that forest cannot be protected by the limitations regulated by law only. 67.8 % of the subjects believe that; related law concerning forestry doesn't give the necessary rights to the forest villagers. 62.0 % of the subjects believe that the legislative regulations limit forest villagers more than necessary.

Subjects accept the importance of preventing sheep and goat to enter especially afforested areas where they believe that strict measures applied in other forest areas have substantial effects on regression of nomadic livestock breeding. As a matter of fact, 79.3 % of the subjects state that grazing limitations and bans in forests have considerable effects on regression of sheep and goat breeding.

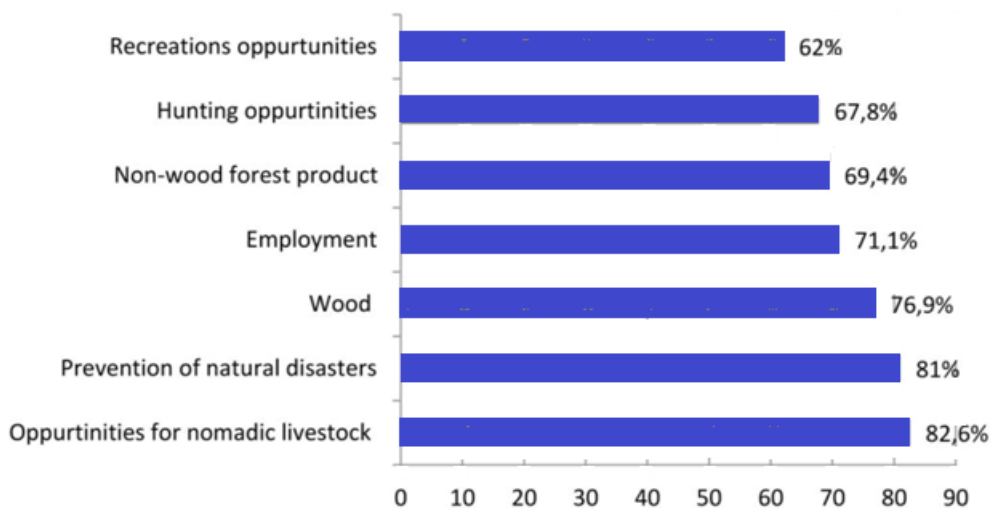


Fig.4. Expectations of respondents on forest and forestry activities

Table 10. Subject's views about livestock breeding and forestry

Premises directed to subjects	Options and their amount (%)				
	Totally agree	Agree	Neutral	Disagree	Totally disagree
I am content to live in harmony with forest and other natural resources	24.8	60.3	7.4	4.1	3.3
I think I am making adequate use of the forest around me	14.9	46.3	24.8	8.3	5.8
I am content with the forestry activities in my neighbourhood	10.7	49.6	30.6	4.1	5.0
I am content with the attitude of the forest engineers working in the forestry directorates towards me and my village	12.4	52.9	14.0	10.8	9.9
I am content with the attitude of forest rangers working in forestry directorates towards me and my village	13.2	53.8	9.9	13.2	9.9
Destruction of forest around us will affect our future negatively	30.6	52.1	6.6	3.3	7.4
I will do anything to stop harming the forest	24.7	45.5	14.9	9.1	5.8
Forests cannot be protected only by banning or limiting entrance and making use of forests	16.5	38.1	25.6	12.4	7.4
In order to protect forests, it is compulsory to limit or ban making use of them	11.6	48.7	24.0	10.7	5.0
The forestry rights provided by law to the forest villagers are adequate	4.1	28.1	38.8	17.4	11.6
Forestry law and other regulations limit forest villagers more than necessary	19.8	42.2	23.1	9.1	5.8
It is necessary to take some areas of the forest under legal status so National Park protects them	16.5	41.3	13.2	21.6	7.4
It should be possible to graze the animals in the protected status areas such as National Parks	16.6	51.2	12.4	9.9	9.9
It is true for me to ban the entrance of sheep and goat into the areas of forest with specific age	9.1	41.3	10.7	20.7	18.2
It is true for me to ban entrance of sheep and goat into newly afforested areas	28.1	38.0	9.1	16.5	8.3
Bans and limitations in forestry and forest grazing have an important role in regression of sheep and goat breeding	37.2	42.1	7.4	8.3	5.0
Degraded forest land should be opened to settlement, agriculture and animal grazing	23.1	37.2	21.5	11.6	6.6
Protection activities conducted by the forestry directorate are exaggerated from time to time	18.2	24.0	24.0	28.8	5.0
Forestation and rehabilitation activities conducted around our village are more than necessary	16.5	42.2	10.7	24.0	6.6
Improvement of forests around our village will cause us to be limited more	28.1	33.9	19.8	9.1	9.1
I am content to carry out livestock breeding	24.8	38.8	9.1	12.4	14.9
I wouldn't do livestock breeding if I had another opportunity	30.6	41.3	20.7	5.8	1.7
I find government's policies about livestock breeding necessary and adequate	6.6	9.1	30.6	36.4	17.4
Sheep goat breeding will be better in the future	5.7	9.1	18.2	48.8	18.2
Supports for livestock breeding by government through institutions such as ORKÖY, etc. are adequate	6.6	12.4	44.6	26.4	9.9
While forming a forest, species that can be eaten by sheep and goat may also be planted	26.5	44.6	18.2	7.4	3.3
Harsh limitations and bans about making use of the forests negatively affect the villagers' views about forests	28.9	39.8	14.0	10.7	6.6
I am worry about giving harm to the plants and living things when I guide my animals into the forest	26.4	43.0	13.2	8.3	9.1
Controlled animal grazing in the forest will have no harm	15.8	41.3	25.6	9.9	7.4
Forests are primarily for the use of human beings	32.2	52.1	8.3	2.5	5.0
The most important wood species are the ones that can be used directly by human beings	23.1	50.4	14.9	5.0	6.6

Table 11. Results of chi-square test

Points to affect contentment about living in harmony with forests	X ²	df	P
Thinking that one is having adequate use of the forest resources	98.995	16	0.000
Finding forestry activities carried out by the forest directorate necessary and adequate, namely being content in the living quarters of subjects	76.380	16	0.000
Attitude of forest engineers working in forestry directorates towards subjects	79.421	16	0.000
Attitude of forest rangers working in forestry directorates towards subjects	72.333	16	0.000

Table 12. Views of the sheep-herds about planning and preparing the grazing

Views	Frequency	%
It contributes to forest protection and will be favourable for forest villagers who carry out livestock breeding	23	19.0
It contributes to forest protection but will be harmful for forest villagers who carry out livestock breeding	30	24.8
It neither contributes forest protection nor will be favourable for the forest villagers who carry out livestock breeding	14	11.6
I am neutral	54	44.6
Total	121	100

CONCLUSIONS

Throughout Turkey, and especially in the region where this study took place, nomadic livestock breeding, especially hair goat breeding, has regressed considerably compared to the past years. Together with various other factors mentioned before, limitations and bans about grazing forest areas have a considerable role in this regression. These bans and limitations might affect views and perceptions of livestock breeders about activities concerning forests and forestry activities negatively. This forms an element of risk in terms of forest protection and their sustainable government. Forest directorate who is aware of this issue has undergone some legislative regulations in the recent years and by preparing grazing plans, carried out activities to permit grazing in the forest and decreased the related limitations. These activities have an important potential to regenerate nomadic livestock breeding and to reorganise forest – human relations. However, a great portion of the sheep-herds state that they are not acknowledged about the issue adequately. In reply to the question “Do you have information about the new legislative regulations concerning livestock breeding and forest grazing?”, 90.9 % of the subjects said “no”, 4.1 % said “partially yes” and 5 % said “yes”. In reply to the question “Was your opinion received when preparing grazing plans?”, only 4.1 % of the subjects said “yes”. In short, local inhabitants are not acknowledged about the issue adequately and local participation is not obtained when planning activities. Under these circumstances, no contribution is supplied to correct the negative local perceptions about the livestock breeding & forestry relations. Perceptions and views of livestock breeders, who don't have enough information about the process on activities to organise grazing is not clear. Thus, almost half of the livestock breeders state that they are doubtful about the profitability of grazing plans that are prepared. The amount of the subjects who think that these plans will be helpful both in development of livestock breeding and the protection of forests are only 19.0 % (Table 12).

As a result, activities started in order to open the forests for planned grazing are helpful in terms of developing livestock breeding and preparing forest & human relations. The initial condition of these

activities for being successful is to pay attention to extension activities and supply of local participation.

ACKNOWLEDGEMENT

In this study, portions of data were supplied from master seminar. We hereby present our gratitude to everyone who has provided contribution to our study.

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