

Forests and forestry organizations from the forest villagers' perspective: a case study from Turkey

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About 11% of the population lives in forest villages in Turkey, with income levels well below the national average. In recent years, local expectations have placed substantial pressures on forests resources, determining a tremendous social stress on forest ecosystems. The aims of this study were to evaluate the following aspects using a field-based survey questionnaire: (i) examine benefits the forest villagers receive from forest resources; (ii) evaluate the villagers views towards the surrounding forest resources; (iii) assess the villagers opinions towards forestry organizations, and work performed by these organizations; and (iv) determine the factors that influence villager satisfaction with nearby forests. Some 1059 people living in 11 forest villages located within the Directorate of Forest Enterprise of Sivas were interviewed. Results showed that the region has very limited alternative livelihood sources, and forestry is the leading regional source of income for villagers. Residents from all 11 villages are dependent on forest resources, and employments in the forestry sector were the most important forest benefits. Overall, the villagers were satisfied with available forestry jobs and other associated opportunities, however wages were considered insufficient, and workers expressed expectations for significant changes in labor safety conditions. In addition, certain prohibitions and restrictions placed on regional natural resources prevent residents from previous land-use practices, which adversely affected local opinions towards forests and forestry organizations. For example, strict forest protection measures will make obsolete the nomadic livestock breeding practices of some local villagers. This is the most common complaint directed at forestry activities, and will have an impact on the local income levels.

Keywords: Forest Villagers, Forest Resources, Perspective, Satisfaction, Sivas Directorate of Forest District, Turkey

Introduction

Forests occupy approximately 25 to 30 percent of the Earth's land surface (World Bank 2006). Forest resource management has always been important to humans. More than 1.6 billion people worldwide depend on forests for a range of purposes. Nearly 350 million people who live in or nearby dense forests are highly dependent, directly or indirectly, on forest ecosystems for firewood, timber for shelter, non-wood forest products, food, including wild game, water and watersheds, medicine, fodder crops for livestock, and grazing areas, among other uses (Adhi-

kari et al. 2004, Fisher et al. 2005, Dolisha et al. 2007, Tolunay et al. 2007, Torn et al. 2007, Vedeld et al. 2007).

Approximately 99.9 % of Turkish forest areas are under state control, *i.e.*, owned by the state. State forest activities are conducted by central and province organizations coordinated by the Ministry of Forestry and Water Affairs. The General Directorate of Forestry and its rural organization units (27 Forest Regional Directorate, 217 Forest District Directorate and 1308 Forest Sub-District Directorates) controls, protects, and manages 21.6 million hectares of forest lands

(Öztürk et al. 2010). The state forests are divided on a regional, district, and sub-district administration basis, *i.e.*, Regional Forest Directorates, State Forest Enterprises, and Forest Administration Chief Offices. Policies, principles, and strategies for the forestry sector are provided in forest laws, forestry sector master plans, five-year development plans, and National Forestry Programs, among other documents and studies. Nonetheless, in many developing countries such as Turkey, the state is ineffective in protecting forest resources.

Turkey's rural inhabitants are divided into two groups, namely forest villagers and the other villages, with approximately seven million forest villagers residing in over 21 000 forest villages. In addition, based on Forest Law 6831, Turkey's forest villages are divided into two groups: villages located inside forests (article 31 villages) and near forests (article 32). Forest Law 6831 stipulates that forest villagers and/or forest/agricultural development cooperatives, which are the largest and most effective stakeholders nearest the operations site, must conduct forestry operations. Therefore, forest villagers perform forest harvesting and other forestry activities. However, demographic data indicate forest villagers typically exhibit the following: standard of living far below the national average, limited educations, poor healthcare services, and high unemployment rates. Forest villagers income levels are well below the national average, and residents are economically dependent on forest resources for employment, firewood, timber for shelter, non-wood forest products, foods, including wild game, water and watersheds, animal husbandry, grazing areas, fodder, and low-productivity agriculture. Therefore, tremendous social stress has occurred on forest ecosystems. Although forest strategies and policies have focused on rural development, forest villagers have suffered from limitations and prohibitions on forest benefits. Subsequently, the resource restrictions have damaged the villagers' use of natural resources for many years.

When socio-economic indicators identify an underdeveloped region, *i.e.*, income levels are particularly low, and improvements in alternative forestry work activities have not been observed, the most important benefits for the sector are the availability of employment opportunities. In such cases, any form of change resulting in increased or decreased income can positively or negatively affect the villagers' attitudes and behaviors. Indeed, studies reported negative overall villager opinions based on upcoming restrictions on the villagers use of forest resources (Alkan 2009, Alkan et al. 2009, 2010). In other words, numerous factors affect whether or not the villagers are satisfied living within

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Received: Mar 29, 2013 - Accepted: Aug 07, 2013 - Final Acceptance: Feb 21, 2014

Citation: Alkan H, Kilic M, 2014. Forests and forestry organizations from the forest villagers' perspective: a case study from Turkey. *iForest* 7: 240-247 [online 2014-03-10] URL: <http://www.sisef.it/iforest/contents/?id=ifor0999-007>

Communicated by: Paola Mairota



Fig. 1 - Location of study area.

forest boundaries, and the manner in which villagers view the resources, which include but are not limited to how much the villagers benefit from the forest resources, the attitudes of the forestry organization towards the villagers, forestry practices conducted by the forestry organization, and privileges, prohibitions, and restrictions implemented

by Forestry Law 6831 on villagers. All of these factors should be considered for sustainable forest resource management with local participation.

The primary objectives of this study were to evaluate the following continuous variables using a field-based survey questionnaire: (1) examine benefits the forest villa-

gers receive from forest resources; (2) evaluate the villagers views towards the surrounding forest resources; (3) assess the villagers opinions towards forestry organizations, and work performed by these organizations; and (4) determine the factors that influence villager satisfaction with nearby forests.

Material and methods

Data collection

The primary data was collected during field surveys using standardized and non-standardized formats from villagers in 11 forest villages located within the Directorate of Forest Enterprise of Sivas, Republic of Turkey (Fig. 1). A questionnaire and village definition forms were used in this study to collect the required data. Existing literature and secondary data, such as districts, province maps, and reports were also examined as additional materials.

The village definition forms were employed to define each forest village, including overall socio-economic status. Village managers answered definition forms, while village residents answered individual questionnaire

Tab. 1 - Definition of dependent and independent variables analyzed in this study. (*): In order to support forest villagers financially with individual and cooperative credits with low interest rate, General Directorate of Forest-Village Relations (ORKÖY) was established under the governance of Forest Ministry in 1974.

Variables	Explanation
SATISFACTION	Whether or not satisfied with living in a forestry village, nestled within the forests
AGE GROUPS	18 -25, 26-45, 46-65 and >65.
EDUCATIONAL LEVEL	Primary school, secondary school, high school, and University
INCOME	< 500 Turkish Lira (TL), 500-600 TL, 600-1000 TL, 1000-2000 TL and 2000-3000 TL
MIGRATION	Whether or not a family member migrated out of the village
LEGAL ISSUE	Whether or not any legal problems were experienced with the forestry organization (end up in court)
ADEQUACY OF FOREST LAW	Whether or not forest villagers find the rights and privileges provided them on the basis of their “forest villager” status sufficient
FINANCIAL SUPPORT	Sufficiency of financial government support provided by ORKÖY* and similar organizations
WOOD SUPPORT	Whether or not there is enough wood support
AGRICULTURE	Whether or not labored in agriculture for economic purposes
NOMADIC LIVESTOCK	Whether or not a decline in animal husbandry has occurred over the last several years, and any relationship to forestry
LAND USE	Whether there are limitations to using the land for agriculture and residential purposes due to forest and forestry practices
EMPLOYMENT	Whether or not job opportunities and employment provided by the forestry organization are sufficient
FORESTRY INCOME	Whether or not the income earned from forestry is sufficient
BENEFIT	Attitude on whether or not the villager is benefiting from forest resources
STAFF BEHAVIORS	Whether or not the villager is satisfied with the approach and attitude of the forestry organization staff towards him/her
FOREST MANAGEMENT	Whether or not the forestry and the forestry organization is managed well
WORK ACCIDENTS	Whether or not he/she experienced a work related accident during forestry work
KNOWLEDGE	Whether or not he/she believes the information provided by the forestry organization on the forests and forestry is adequate in availability and content
DESTRUCTION	His/her attitude on forest destruction effecting the village future
PROTECTED AREAS	How will the village be affected in the event that some areas near the village are allocated for national parks, nature parks and/or natural areas and placed under protection
HUNTING	Whether or not limitations in hunting along with forestry practices are in place
EROSION & CLIMATE	Whether or not the forest prevents village erosion and positively contributes to the local climate
CADASTRAL ISSUES	Whether or not the forest borders and cadastral work are being performed correctly and accurately
NON-WOOD FOREST PRODUCTS	Whether or not the forest businesses place enough importance on other non-wood forest products

forms. Socio-economic and demographic information of each respondent included age, educational level, and income resources; forests and forestry organization questions were directed to participants, and perspectives, expectations, and satisfaction levels were addressed based on a suite of local issues. The questions included that the questionnaire forms were prepared according to the rules of formulating questions. Some questions are based on a yes-no format, while others included possible alternative answers from respondents. After applying the forms as a pre-test, the forms were finalized.

The sample size for the questionnaires was determined based on the total full household numbers in the research area. Karasar (1994) suggested a sample size of 341 based on our research area; we chose to conduct 1059 questionnaires to increase the reliability of study. We therefore sampled approximately 35% of the total household number (3058). Questionnaires were randomly selected from households within each village. The questions were directed towards the head of the household, and the face-to-face method was applied to administer the questionnaires.

Data analysis

Data frequencies and percentages were generated, and Chi-square tests were conducted using SPSS (Statistical Package for Social Science) 15.0 for Windows (Özdamar 2004, Eymen 2007). General study findings were presented as frequency and percentage. One dependent variable (satisfaction) and 24 independent variables were defined to identify factors effective in villager satisfaction over local forests and forestry practices (Tab. 1). Pairwise contingency tables were obtained between the dependent variable SATISFACTION and each independent variable, and the expected frequencies for each cell calculated under the assumption of no association. A chi-square test ($\alpha = 0.05$) was then applied in order to verify significant departure from expectations (White & Korotayev 2004, Eymen 2007, Morgan et al. 2008).

Results and discussion

The descriptive statistics derived from the variables analyzed in this study are provided in Tab. 2.

Results showed 64.7% of the subjects were

completely satisfied to reside within the forest boundary; and 35.3% expressed dissatisfaction related to various issues (Tab. 2).

Results of the Chi-square relationship between the dependent and independent variables are shown in Tab. 3.

All but one factor/variable described within the scope of this study had an effect on whether or not villagers were satisfied residing within forests, and influenced the forest villagers opinions towards the forests and forestry practices. These factors are described below as "Factors related to forest residents' profiles" and "Factors related to forest use".

Factors related to forest residents' profiles

Gender

All respondents were male because obstacles existed that prevented women from taking part in our research. Social limitations are placed on women in male dominated forest villages that remain rooted in traditional culture, which played an important role in the outcome of our questionnaire

Tab. 2 - Descriptive statistics obtained from the questionnaire survey carried out. (TL): Turkish Lira.

Variables	Options	Freq.	%	Variables	Options	Freq.	%
SATISFACTION	Completely satisfied	685	64.7	EMPLOYMENT	Sufficient	817	77.1
	Not completely satisfied	374	35.3		Insufficient	132	12.5
<i>Variables related to profile of the forest residents</i>					No opinion	110	10.4
AGE GROUPS	18-25	246	23.2	FORESTRY	Sufficient	134	12.7
	26-45	635	60	INCOMES	Insufficient	925	87.3
	46-65	121	11.4	BENEFIT	Sufficient	830	78.4
	>65	57	5.4		Partly insufficient	229	21.6
EDUCATIONAL LEVEL	Primary school	599	56.6	STAFF	Yes	696	65.7
	Secondary school	176	16.6	BEHAVIORS	No	363	34.3
	High school	236	22.3	FOREST MANAGEMENT	Yes	882	83.3
	University	48	4.5	Partly	59	5.6	
INCOME	< 500 TL	69	6.5	No	45	4.2	
	500-600 TL	281	26.5	No opinion	73	6.9	
	600-1000 TL	569	53.7	WORK	Yes	348	32.9
	1000-2000 TL	140	13.2	ACCIDENTS	No	711	67.1
MIGRATION	Yes	473	44.7	KNOWLEDGE	Sufficient	228	21.5
	No	586	55.3	Insufficient	479	45.2	
<i>Factors related to the forest use</i>				Don't yet	352	33.2	
LEGAL ISSUE	Yes	136	12.8	DESTRUCTION	Yes	1009	95.3
	No	923	87.2	No	50	4.7	
ADEQUACY OF FOREST LAW	Sufficient	88	8.3	PROTECTED AREAS	Negative	236	22.3
	Partly	669	63.2	Positive	661	62.4	
FINANCIAL SUPPORT	Insufficient	302	28.5	No effect	116	11	
	Sufficient	76	7.2	No opinion	46	4.3	
WOOD SUPPORT	Partly	983	92.8	HUNTING	Yes	1027	97
	Firewood	818	77.2	No opinion	32	3	
WOOD SUPPORT	Hardwood	79	7.5	EROSION AND CLIMATE	Yes	451	42.6
	Together	162	15.3	No	372	35.1	
AGRICULTURE	Yes	719	67.9	No opinion	236	22.3	
	No	340	32.1	CADASTRAL ISSUES	Yes	594	56.1
NOMADIC LIVESTOCK	Yes	531	50.1	Partly	111	10.5	
LAND USE	No	528	49.9	No	354	33.4	
	Yes	420	39.7	NON-WOOD FOREST PRODUCTS	Yes	366	34.6
	Partly	243	22.9	Partly	132	12.5	
	No opinion	396	37.4	No	561	53	

Tab. 3 - Results of chi-square test. Dependent variable is SATISFACTION. (*): $P < 0.05$.

Group	Factors	Chi-square results		
		χ^2	df	P
Socio-demographic factors	AGE	101.222	3	0.000*
	EDUCATIONAL LEVEL	116.04	3	0.000*
	INCOME	200.124	3	0.000*
	MIGRATION	101.876	1	0.000*
Factors related with forest and forest organization	LEGAL ISSUE	111.592	1	0.000*
	ADEQUACY OF FOREST LAW	84.759	2	0.000*
	FINANCIAL SUPPORT	10.231	1	0.001*
	WOOD SUPPORT	32.637	2	0.000*
	NOMADIC LIVESTOCK	126.68	1	0.000*
	LAND USE	430.171	2	0.000*
	EMPLOYMENT	40.606	2	0.000*
	FOREST INCOME	17.006	1	0.000*
	FOREST MANAGEMENT	24.157	3	0.000*
	STAFF BEHAVIOR	267.766	1	0.000*
	WORK ACCIDENT	50.469	1	0.000*
	BENEFIT	31.389	1	0.000*
	KNOWLEDGE	265.846	2	0.000*
	DESTRUCTION	9.2	1	0.001*
	PROTECTED AREAS	64.883	3	0.000*
	HUNTING	5.601	1	0.11
EROSION & CLIMATE	7.562	2	0.023*	
CADASTRAL ISSUE	119.565	2	0.000*	
NON-WOOD FOREST PRODUCTS	13.565	2	0.021*	

(Öztürk et al. 2010, Barli et al. 2006, Rishi 2007). Rural area socio-economic development can be ensured only by equal participation of men and women (Küleççi et al. 2012). The following question was directed to respondents: "In your opinion, what should be the role of women in society?". Results showed 82.8% of participants answered women should only do housework, and look after children; 7.2% answered women can work, in addition to housework, to contribute to the family finances; and 10% did not express any opinion.

Education

The questionnaire results showed approximately 57% of the respondents were primary school graduates, 16.7% secondary school, 22.3% high school, and 4.4% university gra-

duates (Tab. 2). University-level education in the region was quite uncommon. A significant relationship between EDUCATIONAL LEVEL and SATISFACTION was detected ($\chi^2 = 116.04$, $df = 3$, $P < 0.001$ - Tab. 3). As education levels increased, the subjects' satisfaction with forest living decreased. These results were inconsistent with results reported in other countries from similar studies (Albuquerque & Ulysses 2005, Pavlikakis & Tsihrintzis 2006).

Demography and migration

Due to the negative socio-economic conditions in Turkish forest villages, villagers move to large towns and cities to search for new job opportunities (Gökçe 2005). Yilmaz (2006) reported migration in approximately 65% of forest villages to settle in more de-

veloped regions. Therefore, the population has been declining due to a rural-to-urban migration trend. Migration in villages in the research area showed a decline compared to previous years, but maintained an importance for some villages; 44.7% of the subjects indicated in past years, one family member migrated and left the village. A significant relationship between MIGRATION and SATISFACTION was observed, which can be explained by unemployment in the forest associated positions, and relatives securing employment in areas outside forests, *i.e.*, migration. Chi-square results showed a significant relationship between FAMILY INCOME and MIGRATION ($\chi^2 = 473.483$, $df = 3$, $P < 0.001$ - Tab. 3), suggesting the primary reason for migration was the economic conditions in the villages. The migration effects have resulted in a gender imbalance in the villages. When the male population was evaluated relative to the total village population, males represented approximately 61.9% of the population (Tab. 4).

Relative to cities and the villages throughout Turkey, the male population in villages represented 50.23% and female 49.77% of the population (TSI 2011).

The household size of forest villages in Turkey is approximately 3.7 people (TSI 2011). The average for villages in the study area, which was calculated based on average household size was 3.1 (Tab. 4). We deduce that a transition from the typical large Turkish family structure to the nuclear family, as well as regional migration might be responsible for the reduction in family size.

Age

Age can affect respondent opinions, including forestry, agriculture, and animal husbandry. Age is an important variable shaping occupational schemes, and plays as much of a role as physical strength in many types of forest occupations. In Turkey, due to migration from rural to urban areas, younger generations living in forest villages are rapidly declining. However, 94.6% of the respondents were included in the active age group (18-65, Tab. 2). Based on these results, local forest enterprises will not have any difficulties finding workers to employ in forestry positions. In addition, according to Chi-square results, a significant relationship was detected between AGE and SATISFACTION ($\chi^2 = 101.222$, $df = 3$ and $P < 0.001$ - Tab. 3).

Income

Monthly income of approximately one third of the respondents was less than the required minimum wage in Turkey, and 86.6% of the subjects' monthly salary was below the poverty level defined by the Turkish Statistical Institute (TSI 2011). These economic conditions are not only the general

Tab. 4 - Demographical features.

Villages	Male	Female	Total population	Household number	Average household size
Çatpınar	1175	1002	2177	616	3.5
Yusufoglan	943	605	1548	502	3
Kizilli	392	205	597	200	2
Yolkaya	1672	781	2453	757	3.7
Karalar	587	340	927	142	2.8
Avsar	162	93	255	70	2
Gühertas	142	100	242	65	3.2
Gaziköy	947	538	1485	376	4.3
Çeltek	235	174	409	175	2.7
Kesme	185	117	302	93	3.7
Maltepe	102	80	182	62	3.3
Total	6542	4035	10577	3058	3.1

profile for forest villages within the research area, but also for other forest villages in Turkey. Forestry activities serve an important role in the subjects' income. According to the weighted arithmetic average answers of the subjects, forestry is the second most important source of living in the region (Fig. 2).

Factors related to forest use

The total Sivas Directorate of Forest District occupies 175 195 ha; 19 580 ha support productive tree plantation, 51 843.5 damaged plantation, 16 966.5 ha are viable and healthy wetlands, and 86 805 ha are damaged wetlands. The primary activities conducted by the directorate of forestry management are wood and non-wood forest products production, forest maintenance, tree planting, land rehabilitation, forest hazard prevention, and firefighting, among other land activities. As per Forest Law, the forest enterprises must act in cooperation with the forest villages when performing most activities, with production primary.

Benefits of forest resources

Respondents' expectations from forest resources and organization are shown according to weighed arithmetic average in Fig. 3.

The highest priority expectation from participants was a job in forests and forestry activities (Fig. 3). Similar results were reported for forest villagers throughout Turkey (GDF 1993). Forestry was an important occupation for 65.7% of the subjects. When the respondents were asked: "Do you get income from the forest and forestry activities?" 65.7% answered yes, and the remaining 34.3% responded no. When participants were asked to evaluate their share of the total forestry income, results indicated 52.2 % viewed this income the most important source for themselves, and their families. The forestry organization provided sufficient job opportunities to 77.1% of the respondents. While 12.5% of the respondents found job opportunities insufficient, 10.4% stated they were undecided on this issue. Availability of forestry organization jobs was important to establish satisfaction in forest village life. In addition, 72.6% of respondents indicated this type of work was decreasing, and was cause for concern. The income from the forestry activities included forestry production, such as cutting, skidding, transporting, and stacking; and from seed and cone gathering for the plant nursery. Furthermore, some other people engaged in fire crew prevention and fire fighting.

Based on answers provided by the question: "Do you think the income you receive from forestry work is sufficient?" only 12.7% of the respondents agreed. We suggest this percentage, which was much lower compared to respondents that indicated job

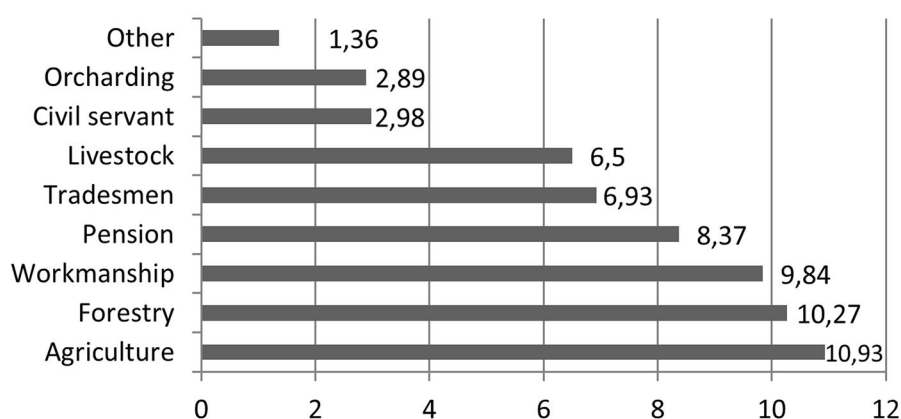


Fig. 2 - Livelihood sources.

opportunities were sufficient, was associated with unit prices paid to villagers based on low priced forestry work. As a matter of fact, participants were asked the question: "Are you satisfied with the unit prices paid to you for forestry work?", and 77.3% of the responses were negative, while 22.7% were positive.

Another dissatisfaction among the forest residents was forestry-related work accidents. When respondents were asked: "Do you believe your forestry related employment has adequate safety measures in place?" only 6.7% of the participants stated they work in a safe environment, the remaining 94.3% indicated the forestry production industry provides little on the job employee safety measures. Chi-square results detected a significant relationship ($\chi^2 = 50.469$, $df = 1$, $P < 0.001$) between the presence and absence of work accidents, and whether or not the work place has adequate safety measures. A variety of previous work accidents, many resulting in injury were reported by 32.9% of subjects; and 67.1% reported never having a work related accident. Unsafe working conditions had an impact on forestry job satisfaction (Tab. 3). Work-related accidents generally occurred during debarking, tree cutting, and skidding with chain jams. Half of

the respondents (54%) stated work related accidents have exhibited a decrease from year to year, but 38.5% stated no decrease has been observed; 8.2% of the respondents expressed no opinion.

The second most important villager's expectation from forest sources and forestry was firewood and hardwood supplies. Consistent with most of Turkey, hardwood and firewood are supplied to forest villages in the area. When the villagers were asked: "Have you ever taken advantage of the wood support by the forest organization?", 77.2% stated they used the supplied firewood, 7.5% indicated use of the available timber, and 15.3% utilized the supplied firewood and timber. The statistical relationship between WOOD SUPPORT and SATISFACTION can be explained by the village geographic locations, which are influenced by continental climates, where winters are harsh, and wood is critical for villagers. Results showed wood is the most important winter fuel type, and used by 84% of villagers in the area. Coal (10%) and manure (6%) were also indicated as fuel sources. The villagers and village administrators expressed satisfaction with the supply of burning and timber wood supplied by forest businesses. While 10% of the respondents purchased firewood, 90%

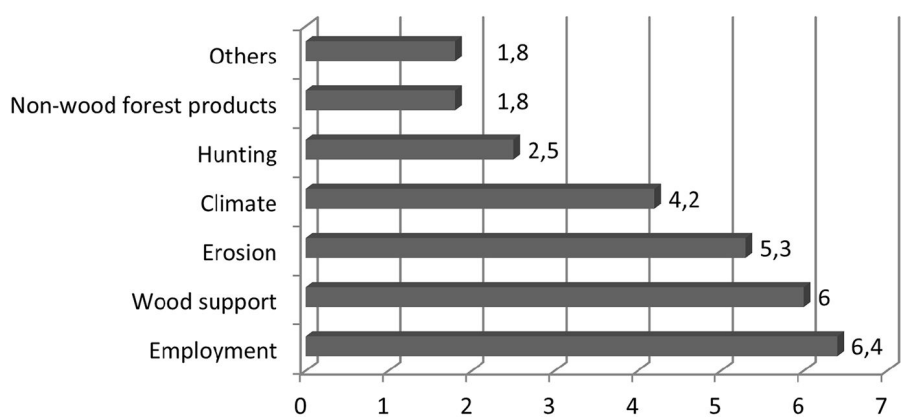


Fig. 3 - The expectations of the participants from the forest resources.

obtained it from the forest free of charge.

In Turkey, financial support has been extended to forest villagers *via* individual or cooperative credits, livestock credits, and solar energy, among other support programs to improve the socio-economic conditions, and reduce social pressure on forest resources through ORKÖY (General Directorate of Forest-Village Relations). To date, 360 000 families and 490 cooperatives have been given individual low interest credit corresponding to a total of 1 billion USD, and cooperative low interest credit corresponding to a total of 200 million USD, respectively. However, the forestry organizations were not able to meet required financial support in our research area. When asked, "Have you ever received credit from ORKÖY?", 92.7% of the participants answered no, and 7.3% answered yes; and 7.2% of the respondents answered yes to "Do you find the work carried out by ORKÖY in the region sufficient to financially support the villagers?". The remaining 92.8% believe ORKÖY's efforts are appropriate but not sufficient. Results indicated the villagers and village administrators were not satisfied because financial support was insufficient, and the residents wait in anticipation for occupational support projects, particularly animal husbandry. A significant relationship was observed between the presence or absence of participants' satisfaction with the work of ORKÖY, and whether or not respondents previously received ORKÖY support ($\chi^2 = 535.617$, $df = 1$, $P < 0.001$ - Tab. 3). Previous ORKÖY support activities generated valuable results for villagers, which serves to explain these results. In addition, a significant relationship between FINANCIAL SUPPORT and SATISFACTION was detected ($\chi^2 = 10.231$, $df = 1$, $P = 0.001$ - Tab. 3).

In terms of non-wood forest products, 12.5% and 34.6% of the respondents indicated a respective partial and complete agreement that businesses placed enough emphasis on these goods and services, however 53% indicated there was not enough emphasis placed on non-wood forest goods and services. The villagers were split on whether or not the forests provide a positive environmental contribution to the area, *i.e.*, climate and erosion control, 42.6% in favor, and 35.1% indicated no such effect, 22.3% were undecided.

Forestation work is integral in the region, and a priority investment for sustainable forests. In addition, it provides job opportunities for forest villagers. In order to reach the desired goals in these studies and to achieve success, the government-forest and villagers cooperation must maintain high levels (Gavcar 2006). Consequently, the villagers' opinions for similar work being performed around the village becomes important. Results showed 85.1% of the parti-

cipants found the forestation work around their villages adequate, and 14.9% were undecided. When asked: "Will destruction of surrounding forests effect your village's future?", 95.3% replied yes, and 4.7% responded no.

When participants were asked: "Forests being primary, do you think you are sufficiently benefiting from the natural resources around you?", 78.4% of the respondents answered yes, 21.6% indicated they take advantage of forests, but do not believe the benefits are adequate. A significant relationship between BENEFIT and SATISFACTION was observed ($\chi^2 = 31.389$, $df = 1$, $P < 0.001$ - Tab. 3).

Forestry laws and restrictions regarding forest use, and challenges facing forest villagers

One of the important issues in protecting and developing forests and shaping villagers' views towards forests and forestry activities are forestry regulations. In Turkey, according to Forest Law 6831, forest villagers have privileges, including low-cost wood and employment priority in forestry related jobs (Öztürk et al. 2010, Tolunay & Alkan 2008). A significant relationship between the rights granted to the villagers by law and satisfaction was observed ($\chi^2 = 84.759$, $df = 2$, $P < 0.001$ - Tab. 3). Only 8.3% of the respondents indicated the rights granted by the forestry law were sufficient, 63.2% stated the rights were partially sufficient, and 28.5% found the rights insufficient.

A significant relationship between satisfaction and LEGAL ISSUE was detected ($\chi^2 = 111.592$, $df = 1$, $P < 0.001$ - Tab. 3). When asked: "Have you ever been to court with the forestry organization?", 87.2% of the respondents answered no, and 12.8% had experienced legal problems with the forestry organization for various reasons.

The most common reason for dissatisfaction with the laws was restrictions on previous villager benefits from forest resources. Villagers indicated restrictions in nomadic livestock practices had been implemented by forestry legislation; 65% were engaged in animal husbandry, and 34.3% had been displaced from this form of income due to forestry legislation. The rate of villagers in animal husbandry for economic purposes was approximately 42%. Results showed 50.1% of the villagers indicated a decline in nomadic livestock practices, however 49.9% responded with no decline. A significant relationship between NOMADIC LIVESTOCK practices and SATISFACTION was detected ($\chi^2 = 126.680$, $df = 1$, $P < 0.001$ - Tab. 3). The subjects who noted a decline in husbandry were asked: "Does the decline in nomadic livestock have a relationship with forest protection works/forestry activities?",

and 100% of the respondents answered yes.

In Turkey, according to ORKÖY official data, 200 000 families inhabiting forest villages have no sufficient land for agricultural activity or livestock production. However, land availability is vital for forest villagers to conduct agricultural activities, and to construct housing. Forests surround the villages, thus land shortages are an effect of the forest community living conditions. Interviews showed this had a negative effect on the villagers' satisfaction with living in a forest village. The questionnaire asked participants to respond to the following statement: "Because our village is surrounded by forests, we are prevented from having more fields, and land use opportunities. As a result, as villagers we experience disadvantages". Results found 39.7% fully agreed with the statement, 22.9% partially agreed, and 37.4% did not agree. A significant relationship between LAND USE and SATISFACTION was observed (Tab. 3).

Shortage of land for settlement and cultivation has led villagers to illegally exploit new areas into the forest, with local destruction of forest resources. Depending on the incomplete forest cadaster, disputes on properties' boundaries between villagers and the forest administrations is quite common, though the application of recent technologies such as GPS, GIS, remote sensing, etc. is undergoing and will solve any uncertainty on boundaries when completed. However, the current situation has caused a decreasing confidence and increasing dissatisfaction of villagers. Results indicated 56.1% of respondents fully, 10.5% partially, 66.6% felt confidence in forest cadastral work. The remaining 33.4% had little confidence in the cadastral work currently conducted in the region. A significant relationship was observed between CADASTRAL and SATISFACTION (Tab. 3).

Household needs and personal satisfaction can be met by hunting, which is widespread throughout the research area villages. Problems between hunters and the forest organization do arise because of strict forest laws and regulations. Results showed 97% of the subjects agreed that wildlife protection measures are too extensive, however a significant relationship between SATISFACTION and HUNTING was not observed (Tab. 3).

Establishment of protected areas has been a central element in environmental and land use policy since its initiation in the 19th century. Forest managers and villagers have different goals regarding land use practices. Managers might be concerned about natural resource conservation, while villagers are most interested in land economic benefits. In Turkey, current experiences have demonstrated protected area management has not been effective.

No protected areas were established within the study region in accordance with the National Parks Law. We assessed the relationship between satisfaction and answers to the following question: "How do you think allocating some areas in your region to national park, nature parks, and/or other protected areas will affect your village?" (Tab. 3). Respondents most satisfied living very close to forest resources indicated the forests should be protected areas, which legally protects forest communities under various statutes. A decline in forestry jobs was the response of 22.3% of the participants, 11.0% responded protected area implementations will have no effect, 62.4% answered protected areas will be beneficial, and 4.3% did not report an opinion. A generally positive response towards protected areas was observed, inconsistent with previous reports from different regions (Alkan 2009, Alkan & Korkmaz 2009, Alkan et al. 2009, 2010). Protected areas have not yet been established in the region; therefore the villagers have not faced any benefits or restrictions and prohibitions, which might explain the lack of congruence in these results.

Behaviors of forest enterprise staff

Forest protection in Turkey is reflected in the strategies, policies, and forestry laws. The approaches can leave heavy or light effects on villagers, depending on the forest enterprise manager approach to the villager, and the adopted forestry practices. A significant number of respondents (83.3% - $\chi^2=24.157$, $df = 3$, $P < 0.001$ - Tab. 3) indicated the forests and forestry organization are under good management. However, 34.3% stated the forest operation activities displayed unacceptable behavior and attitudes towards the villagers. The dissatisfaction might result from the forest protection staff, *i.e.*, the dominant working group. According to the participants' statements, most problems were experienced with the forest protection staff. The protection employees are the intermediate staff, and serve as law enforcement agents in forest protection activities. The participants were asked the following question: "Would you want one of your children to be a technical assistant staff in the forest enterprise?". Results showed 65.7% of the participants answered yes, and 34.3% answered no. A deviation of this question lead to a different response: "Would you want one of your children to be a forest engineer?". Results found 85.7% of the subjects answered yes, and 14.3% responded no.

Extension efforts

One of the important activities forestry enterprises perform/will perform is related to promotion and awareness of forests and forestry within forest public relations. When participants were evaluated from past to

present within Turkey, results suggested forest enterprises often neglect public awareness/outreach duties. It was necessary to add questions to the survey to obtain villagers' views on this subject. For example, the participants were asked: "Does the forest organization supply adequate promotion, knowledge, and education activities regarding forest protection?". Results showed 12.2% of respondents answered yes, these types of activities were available and adequately conducted, 54.7% indicated the activities were available, but were insufficiently performed, and 33.1% said the activities were not performed at all. The absence of these activities hinders forest villagers from obtaining enough information and knowledge on forests and forestry matters. For example, one survey question asked if villagers have information on sustainable forest management and certification, which were the current years' popular topics in forestry. Results found no villager had any information on current forest management practices.

Conclusions

Rural residents are most affected by natural resource management, and these residents have a substantial influence on the success of management decisions. Therefore, it is possible to consider forest community residents as major stakeholders of these natural resources, and a strategic partner of forestry organizations. It could be said that people living in developing countries such as Turkey, particularly in the forest villages, have more interaction with their forest natural resources. Many factors might affect the villagers' views towards forest resources, including the effects forests have on the environment and the people, how the forest natural resources benefit the villagers, and the advantages and restrictions imposed on the villager due to forestry organization practices. Knowledge and understanding of the villager expectations and attitudes towards the forests and the forestry organization, and directing forestry policies and practices within the framework of this information will increase the chance of rural development success, and sustainable management of forest resources.

Forest villagers within the research area are dependent on the forestry regulations administered by the forestry organization. Villager income levels are low overall. The region has limited employment opportunities, and forestry is the most important means of livelihood of the region. The job type that generated the most income, with approximately 52% of the subjects, was forestry. Employment was the most important primary expectation in regards to the forests and forestry organizations. In general, the villagers were satisfied with the number of jobs provided. Low wages and income inadequa-

cies related to forestry work were the leading dissatisfactions revealed by the villagers. In addition, villagers were concerned with poor safety conditions in forestry jobs. Villagers expect wood free of charge from the surrounding forests, and from the forestry organization, which manage these resources. The study area villages occur under a continental climate, and experience harsh winters. Consequently, the residents are dependent on the forests for firewood. The villagers are satisfied with the opportunities provided by the forestry organization to meet their needs for firewood and timber. Financial support is insufficient, however the forest villagers indicated the wood allocations are beneficial, and would like these benefits to continue.

Because sufficient resources are not allocated in Turkey for extension efforts, villagers are not given adequate information on their other rights and privileges provided by law. Laws associated with priority in forest work, ensuring wood-supply, and financial support are the only implementations made clear to villagers. Only 8.4% of the villagers indicated their legal rights were fulfilled. In addition to providing the villagers with some advantages, the laws might also result in forest resource benefit prohibitions and restrictions. The villagers complied with prohibitions and restrictions, but at times continued to benefit from forest resources illegally. Villagers who participated in the study (12.8%) indicated at least one illegal act committed against the forestry organization. Prohibitions and restrictions, and legal actions taken against village residents due to forest measures negatively affected villagers' opinions of the forestry organization, resulting in discontent. For example, nearly one half of the respondents stated nomadic livestock practices have declined compared to previous years, and the forestry practices are responsible for the decline.

One of the important issues that influenced villagers' views on forests and the forestry organization was how the organization staff treated villagers. Results showed 65.7% of the villagers indicated satisfaction with the forestry organization's behavior and attitude towards them.

Based on the results of this study, we propose the following:

- The forestry administration should fully recognize the importance of local resident participation in forest natural resource management. Results of research conducted to determine the behavior, perceptions, and expectations of forest villagers towards forests should not be excluded, and in fact be given priority.
- Alternative income sources should be proposed to forest villagers. It should be explained that the strong dependence on forests has negative consequences, and must be minimized. Some propose deve-

loping ecotourism and hunting tourism in villages, which have been examined according to data obtained from village information forms. Therefore, state and governmental bodies concerned should provide necessary education and financial support.

- Cadastral work should be completed as soon as possible, and the state should intensify its support to develop an agricultural sector.
- Nomadic livestock (especially hair goat breeding) has considerably regressed compared to the past. Restrictions and bans on grazing in forest areas had a remarkable role in that they might affect negatively the views of livestock breeders about forests. Therefore, bans and restrictions should be reviewed.
- Wages in the forestry sector should be increased.
- An educational program should be conducted in the forestry sector to present the safety measures that must be implemented in forestry jobs; and the forest villagers should be given financial support to secure protective equipment, or employers should provide safety equipment.
- Extension efforts should be conducted on matters requested by forest villagers, particularly on forest laws, and the rights villagers can enjoy.
- The vast majority of respondents indicated women should remain at home and perform housework duties, and raise children. Education and outreach programs should be implemented that encourage the villagers to support women's integration into the community; and women should enter the workforce if they desire.
- The project and financial support provided to villagers by such organizations as ORKÖY should be increased.
- Based on village information form data, cooperatives have not yet been established in any of the villages. The local population should be informed of this issue and provided support to establish a cooperative.
- Education outreach should be conducted to improve villager treatment by forestry organization staff, particularly forest protection employees.

Acknowledgements

Data from this study were part of a Master of Science thesis project numbered 2105-YL-10. We express thanks to the SDU Scientific Resource Projects Coordination Unit for providing financial support during our fieldwork.

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