Research Article

INVESTIGATING THE ENVIRONMENTAL EFFECTS OF TOURISM ON TREE SPECIES OF DALKHANI FOREST IN RAMSAR, NORTH OF IRAN

*Atlas Jirdashtani Mahsa Hakimi-Abed and Abdolkarim Keshavarz-Shokri
Department of Environmental Sciences, Lahijan Branch, Islamic Azad University, Lahijan, Iran
*Author for Correspondence

ABSTRACT

The study was aimed at achieving a proper pattern, ecosystem conservation and a better conservation of Dalkhani Forest of Ramsar (north of Iran) for protecting the tree species in 2013. Data collection instrument was a questionnaire. 80 indigenous people, tourists, executives and employees of the Department of Natural Resources formed the sample size. The reliability and validity of the questionnaire were computed by Cronbach's alpha coefficient and content validity method respectively. The collected data were employed by using frequency percent and F-test. In order to analyze the collected data, the SPSS software was used. The results of primary and secondary hypotheses of the present research, which are management and conservation strategies with participation and relying on the opinions of people and tourists regarding the conservation of Dalkhani Forests and utilizing the opportunity and strength points of this region to reduce the existing weaknesses and threats and to increase the strength points, were approved with a significance level of 99%. However, the significance level obtained for the weakness points of Dalkhani Forest (0.125) is larger than 0.05. Hence, this research hypothesis is rejected.

Keywords: Environmental Effects, Tourism, Conservation, Dalkhani Forest, North of Iran

INTRODUCTION

Nowadays, considering the population growth in the world, issues such as excessive reduction of natural resources, pollution increase, and failure in balanced distribution of resources have arisen. Moreover, the environmental threats give rise to these problems. Tourism is also a kind of threat to the environment. The sewerage of tourism facilities, fuel contamination, ruining animal life and vegetation, bothering the animals, changing fields into required facilities, soil erosion, the trash, and solid waste have presented a whole host of problems with a direct impact on the environment (Nekuee, 2009). However, tourism industry is now one of the major parts of the world trade and the main element of sustainable development. Tourism development in line with sustainable development is to improve the quality of human life and the environment by supporting the maintenance capacity of ecosystems with providing strategies and tools that can respond to human needs and protect the environment (Najafzade, 2009). Tourism and sustainable urban development are considered as a guideline for the management of all the resources. In a way that socio-economic needs could be met, and, cultural homogeneity and life protection systems could be made along with increasing the justice and equality in development, improvement in the quality of society life, and creating a better quality of the environment. Thus, improving the environmental management of tourism facilities to mitigate their damages is the first step towards achieving the goals of tourism and sustainable urban development (Eliot, 2009). Inattention to this important point that tourism activity like other development projects in the case of improper use and inappropriate management will lead to the environmental negative outcomes and degradation, can cause irreparable consequences, and call the environmental sustainable development principles into question (Nekuee, 2009). Therefore, the study on the environmental aspects of establishing the tourism sites to boost the tourism industry is necessary and important in order to achieve the sustainable development aims. In this regard, there are many factors that will cause the sustainable development of tourism and ecotourism. Among them, factors such as having the knowledge about the capabilities of the region to cope with tourism from the environmental, social, and economic viewpoints, and the knowledge of indigenous peoples' expectations and tourists' expectations of the planning requirements can be

Research Article

mentioned (Megan, 2000). Biodiversity, climate, water supply and its distribution, and waste management are also the main factors of attracting ecotourism in the world and in Iran. The present study is also carried out in order to achieve an appropriate pattern, ecosystem conservation, and a much better conservation of Dalkhani Forest of Ramsar for protecting tree species.

MATERIALS AND METHODS
The study area was Dalkhani Forest series 1, which was studied in 2013. The forests geographically lie between longitudes 50° 37′ 30″ to 50° 45′ 10″ and latitudes 36° 47′ 30″ to 36° 50′ 30″. Dalkhani Forest series 1 is located in the western part of Chalekrud River and the south of the city of Ramsar (north of Iran). Their minimum and maximum distances to Ramsar are 18 and 32 kilometers respectively.
From the standpoint of the divisions of the drainage area, this forest is amongst the 31 forests of the north of Iran. And, administratively, it's a part of the shielding area of Galesh Mahale forestry in Ramsar, and the Department of Natural Resources in Noshahr located in the north of Iran. With a minimum height of 50 and maximum height of 1550 meters above sea level, is one of the lowland to midland plain forests. Based on temperature, rainfall, and topographic characteristics, Guilan Province and Ramsar City can be divided into two types of climate: Caspian temperate climate and mountainous climate. The mountainous climate is also divided into temperate and cold.
The present study was carried out as a descriptive survey. The environmental impacts of tourism on tree species of Dalkhani Forest in this study were assessed by using a questionnaire. To determine the validity of the questionnaire by content validity method, the questionnaire was provided for supervisors and experts. In order to assess its reliability, Cronbach's alpha coefficient, 0.86, was used.
The statistical population consisted of indigenous population, tourists, executives and employees of the Department of Natural Resources, totally, 150 residents and tourists and 30 officials made up this population. Through Cochran formula, 80 of them formed the sample size (Table 1). In this study, by evaluation factors of tourist's behaviors towards the environment, ways of mitigating the adverse impacts of tourism on the host environment were analyzed. Then, the collected data were summarized and classified using descriptive statistics indices including frequency distribution, average, median and standard deviation (Kamali, 1390).
In the presumptive test, F-test or analysis of variance (ANOVA) test is a generalization of t-test and was employed to assess whether two or more populations are the same or not. In this test, the total variance was decomposed into its basic elements. In order to analyze the collected data the SPSS software was employed.

Table 1: Statistical Sample Size

Index	Frequency	Percent	Cumulative Percent
Tourists	30	37.5	37.5
Indigenous People	20	25	62.5
Executives	30	37.5	100
total	80	100	

RESULTS AND DISCUSSION
Descriptive analysis of respondents' individual variables is shown in Table 2. Accordingly, 50% of respondents were male and 50% were female. 50% were single and 50% married. 30 cases had government jobs and 25 cases were self-employed. Also, 16 cases were student. Most respondents were aged between 25 and 45 years old (56.25%).

Research Article

Only 3 cases had diploma and under diploma degree, others were university educated. The majority was living in Tehran and cities, and only 10 respondents were living in rural areas. Most respondents had a personal vehicle.

Table 2: Frequency distribution and frequency percent of demographic characteristics

Variables	Groups	Frequency	Frequency Percent
Sex	Female	40	50
	Male	40	50
Marital Status	Single	40	50
	Married	40	50
Job	Government job	30	37.5
	Self-employment	25	31.25
	Student	16	20
	Other	9	11.25
Education	Diploma and under diploma	3	3.75
	Associate degree	29	36.25
	Bachelor's degree	40	50
	Master's degree or higher	8	10
Age	20-25 years old	20	25
	25-45 years old	45	56.25
	45-65 years old	10	12.5
	More than 60 years old	5	6.25
Place	Tehran	34	42.5
	City	36	45
	Rural Area	10	12.5
Vehicle	Public	10	12.5
	Personal	70	87.5

Descriptive analysis results of the characteristics based on tourism have been shown in Table 3. Accordingly, 75% of respondents were visiting the forest for the first time.
Most respondents' motivation for travel was rest and recreation, and enjoying the scenery and weather. 56.25% of respondents had traveled once.
75% cases had stayed for over 2 days. Only 5 respondents had previous knowledge of the forest. Most respondents (67.5%) used the tent in the entertainment centers.

Research Article

Table 3: Frequency distribution and frequency percent of the characteristics based on tourism

Variables	Groups	Frequency	Frequency Percent
The first visit to the forest	Yes	60	75
	No	20	25
Motivation for travel	Rest and Recreation	30	37.5
	Enjoying the scenery	20	25
	Enjoying the whether	25	31.25
	Mountaineering	1	1.25
	Handicrafts	2	2.5
	Cultural Heritage	3	3.75
Number of travel	Once	45	56.25
	Twice	20	25
	More than twice	15	18.75
Days of staying	1 day	1	1.25
	2 days	19	23.75
	More than 2 days	60	75
The type of knowledge about area	Advertisements	30	37.5
	Friends and Relatives	20	25
	Studies	25	31.25
	Previous Knowledge	5	6.25
Accommodation Facilities	Hotel	3	3.75
	Public Places	7	8.75
	Houses (villas) for rent	10	12.5
	Private villa	6	7.5
	Tent in the entertainment centers	54	67.5

According to Table 4, the notification was moderate. Most of respondents reported that tourist attractions were in a high or very high level (about 70%). 67.5% of respondents expressed that pollution was

Research Article

moderate. About 75% of respondents reported the degradation in a low or very low level. Meanwhile, the subject of the use of wood was broached by 30 tourists. Also, kindling a fire and leaving the trash each were respectively broached by 17 and 49 respondents.

Table 4: Frequency distribution and frequency percent of the characteristics that affect the development of tourism in the area

Variables	Groups	Frequency	Frequency Percent
Notification	Very high	1	1.25
	High	4	5
	Average	25	31.25
	Low	20	25
	Very low	30	37.5
Tourist Attractions	Very high	25	31.25
	High	30	37.5
	Average	19	23.75
	Low	5	6.25
	Very low	1	1.25
Environmental Pollution	Very high	1	1.25
	High	25	31.25
	Average	54	67.5
	Low	0	0
	Very low	0	0
Degradation by tourists	Very high	0	0
	High	2	2.5
	Average	18	22.5
	Low	41	51.25
	Very low	19	23.75
Using the wood	Yes	30	37.5
	No	50	62.5
Putting out the fire properly	Yes	44	55
	No	36	45
Kindling a fire near the trees	Yes	17	21.25
	No	63	78.75
Leaving the trash	Yes	49	61.25
	No	31	38.75
Engraving on trees	Yes	0	0
	No	80	100
Advertising for appropriate behavior towards the forest	Yes	0	0
	No	80	100

Table 5 shows that the authorities' advertisements were very low. Monitoring the tourists' activities was in a good level, as about 50% of respondents said it is high and very high. Tourism boom was estimated

Research Article

at an acceptable level. Finally, the argument was about avoiding tourism degradation to make a satisfactory condition for travelers.

Table 5: Frequency distribution and frequency percent of the characteristics that affect the development of tourism in the area

Variables	Groups	Frequency	Frequency Percent
Appropriate advertising by the authorities	Very high	1	1.25
	High	2	2.5
	Average	10	12.5
	Low	62	77.5
	Very low	5	6.25
Monitoring the tourists' activities	Very high	9	11.25
	High	33	41.25
	Average	24	30
	Low	10	12.5
	Very low	4	5
Tourism boom	Very high	26	32.5
	High	22	27.5
	Average	17	21.25
	Low	8	10
	Very low	7	8.75
Satisfaction of construction	Very high	0	0
	High	0	0
	Average	0	0
	Low	6	7.5
	Very low	74	92.5
Planned tourism	Very high	0	0
	High	1	1.25
	Average	5	6.25
	Low	59	73.75
	Very low	15	18.75
Degradation of forest by natives	Very high	3	3.75
	High	8	10
	Average	18	22.5
	Low	9	11.25
	Very low	42	52.5

The results of data inferential analysis are presented in Table 6. Based on this table the significance level obtained for management and conservation strategies (people's opinions=0.000) (tourists' opinions=0.001) is smaller than 0.01. Thus, the research hypothesis is accepted with error of 0.01. Hence, one can say with 99% certainty that there are management and conservation strategies with participation and relying on the opinions of people and tourists regarding the conservation of Dalkhani Forests. The obtained significance level for opportunity and strength points of the forest (0.000) is smaller than 0.01. Thus, the research hypothesis is accepted with error of 0.01. Hence, with 99% certainty it can be said that by utilizing the opportunity and strength points of Dalkhani Forest, we can recognize the existing weaknesses and threats, reduce them, and increase the strength points. However, the significance level obtained for the weakness points of Dalkhani Forest (0.125) is larger than 0.05. Hence, this research hypothesis is rejected.

Research Article

Table 6: The results of F-test

Variables	F	Significance level
Management and Conservation Strategies (people's opinions)	61.182	0.000
Management and Conservation Strategies (tourists' opinions)	20.725	0.001
The opportunity and strength points of the forest	37.461	0.000
The weakness points of Dalkhani Forest	12.321	0.125

Based on descriptive results most visitors of Dalkhani Forest go to visit it from contiguous provinces and more than 5 times a year. Most of them earn more than 750 thousand tomans a month, are aged between 30-45, and stay for 3 to 6 hours. The relationship between the respondents' job and the number of their visits to forest parks, between their literacy and awareness level and the number of their visits to forest parks, between their literacy and awareness level and their interest to walk for pleasure in urban parks than other recreations, the relationship of the awareness level with the number of visits to parks, and the relationship between the literacy level and the respondent's knowledge about the forest are significant with a 86% probability. This corresponds to the results of (Malekan, 1999) research entitled the effects of tourism pressure on silviculture parameters of forested areas of Sisangan Park, which was carried out regarding the tourists' interest in the forest park, their length of stay, proposals for improving the condition of park, and their expectations, and the relationship of the above factors with each other was studied and analyzed using Chi-square test. Tourism has a significant effect on the increase in pruning height, burning the tree trunk, the destruction of grass cover and plants, trash increase, soil erosion, and wildlife reduction, that corresponds to the results obtained by (Parsaee, 2009) study conducted on the forest park of Nour in Mazandaran Province, indicated that people's recreational use of this park has caused some changes in vegetation and biodiversity. The results obtained from (Kharazmi, 2010) entitled investigating the effects of tourism and establishing a tourist-recreation complex on the environment - a case study while the initial assessment of the environment and the effects of establishing the tourism sites by the Leopold Matrix, to systematize and determine the environmental strategies along with economic considerations for ecotourism development in policies and provincial and regional programs at the highest level of strategic decision making - correspond to the results of the present study regarding the development of policies, systemizing and determining the environmental strategies along with economic considerations. The results obtained from the present study about the vegetation degradation and ecological vulnerability by tourists correspond to the results of (Yazdian, 2012) study that was conducted to investigate the degradation intensity caused by tourism activities in Namak-Abrood Forest using the degradation model, in which ecological vulnerability was computed and classified based on physiographic, soil, hydrologic and vegetation maps, then eight degradation factors were calculated in the region based on topographic maps, field observations and expert's opinions. Using degradation model, degradation coefficient was calculated and the area was studied.

Conclusion
Generally, the results of primary and secondary hypotheses of the present research, which are management and conservation strategies with participation and relying on the opinions of people and tourists regarding the conservation of Dalkhani Forests and utilizing the opportunity and strength points of this region to reduce the existing weaknesses and threats and to increase the strength points, were approved with a significance level of 99%. However, the significance level obtained for the weakness points of Dalkhani Forest (0.125) is larger than 0.05. Hence, this research hypothesis is rejected. Accordingly, suggestions based on the present study can be expressed as follows:

Research Article

- Restricting the specific areas in Dalkhani Forest as the storage for increasing the grass cover and plants, reducing the pruning height, burning the tree trunk, the trash, soil erosion, and wildlife increase.
- Providing the facilities for surface scratching in order to fix the plant and help the reproduction considering the aging of trees in the recreational sector, stiff soil, and the lack of plants.
- Equipping the exhibition, preparing brochures, legislating in Dalkhani Forest, using installations, signposts, warning signs which are all congruent with nature
- Restricting the recreational sector to several stages and making the surface scratch to fix the plants, planting them, and individual protection of them. Providing facilities and establishing installations in coastal zone in order to help the forest sector and to reduce the tourism pressure in this sector
- Providing facilities and establishing buildings to be used by students and researchers in various sciences
- Planning and determining the maximum capacity to reduce the damage to the environment in order to conserve Dalkhani Forests
- Improving the agricultural and industrial manufacturing processes, and the water consumption. And codifying some enforceable criteria to prevent the degradation of tourism areas of Dalkhani Forest
- The projects for the efficiency of attractive areas to invest in tourism areas, giving priority to conservation of the environment of Dallkhani Forest.
- A principled planning to deal with disasters such as flood and fire in protected areas of Dalkhani Forest
- Developing the forests and fields on land in where the vegetation has been already destroyed for various reasons (becoming pasture for livestock etc.).

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Research Article

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