

ORIGINAL ARTICLE

Statistical Analysis of the Visitors' Motivations in Mangrove Forests (Case Study: Hara Biosphere Reserve of Iran)

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ABSTRACT

Mangrove forests play an important role in providing ecological and societal goods and services to coastal communities including stabilizing shorelines and helping reduce the devastating impact of natural disasters such as tsunamis and hurricanes, serving as breeding and nursing grounds for many marine and pelagic species, and providing food, medicine, fuel, and building materials as well as opportunities for recreational activities. Sustainable usage of these ecosystems consists of wise exploitations of resources without any harm effect on ecosystem. Ecotourism is a promising option to guarantee maximum benefits as well as minimum hazard to the environment. From an ecotourism point of view, a visitor not only enjoys the aesthetics of wetlands, but also contributes in conservation of soil and water and protection of fauna and flora. At the same time a perfect ecotourist never destroys the facilities or reduces the natural richness. According Ramsar Convention documents, Hara biosphere reserve with its high biodiversity has been ranked among top important wetlands in Iran. Hara biosphere reserve attracts plenty of visitors every year and the study of visitors' behavior is a definite obligation for any assessment of the wetland potential. This study which was conducted during the spring and summer 2015, examined the visitors' activities alongside the Hara biosphere reserve. Multivariate analyze based on the results from the questionnaires distributed between 100 visitors, clearly showed that the way of expending leisure time of the visitors of Hara biosphere reserve is ecological friendly, and they can be recognize as true ecotourists. Their activity can be use as a template for evaluating other visitors of the mangroves of Iran.

Keywords; Ecotourism, Visitors' behavior, Hara biosphere reserve, Iran

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INTRODUCTION

Mangrove forests, which are found in saline coastal environments around the tropical and subtropical latitudes, are among the most productive terrestrial ecosystems in the world [1]. These forests play an important role in providing ecological and societal goods and services to local communities [2][3], including stabilizing shorelines and helping reduce the devastating impact of natural disasters such as tsunamis and hurricanes [4][5][6], serving as breeding and nursing grounds for many marine and pelagic species [3], and providing food, medicine, fuel, and building materials as well as opportunities for aquaculture and recreational activities [7]. A United Nations Environment report has estimated the total economic value of mangroves at around US\$900,000 per square kilometer. This includes the value that mangroves have for fisheries, tourism and shore protection [8]. As a consequence, mangrove ecosystems have attracted an increasing amount of attention from land and ocean managers, conservation communities and academia. Sustainable usage of these ecosystems consists of wise exploitations of resources without any harm effect on ecosystem. Ecotourism is a promising option to guarantee maximum benefits as well as minimum hazard to the environment. From an ecotourism point of view, a visitor not only enjoys the aesthetics of wetlands, but also contributes in conservation of soil and water

and protection of fauna and flora. At the same time a perfect ecotourist never destroys the facilities or reduces the natural richness.

What is ecotourism and why is it of interest to tourism professionals? Valentine [9] points out four qualifying components of ecotourism: it is based on relatively undisturbed natural areas; it is non-damaging, non-degrading, and ecologically sustainable; it is a direct contributor to the continued protection and management of the natural areas used; and it is subject to an adequate and appropriate management regime. Weaver [10] defines it as a form of tourism that fosters learning experiences and appreciation of the natural environment, or some component therefore, within its associated cultural context. The International Ecotourism Society [11] forwards the following definition: "responsible travel that conserves natural environs and sustains the well-being of local people". Ceballos-Lascuráin[12] believes that the term ecotourism should only be used if tourism activities take place in a natural environment, encourage conservation and help society achieve sustainable development.

Regardless of how it is defined, Sirakaya and McLellan [13] suggest that ecotourism, or tourism to natural areas, continues to be of interest to tourism professionals because it is considered a sustainable alternative to mass tourism or other forms of economic development [14][15][16][17][18][19]. Other researchers argue that the rising interest in ecotourism is a result of the negative impacts mass tourists have had on the environment [20][21][22][23][24]. A second equally compelling question is, "who are ecotourists?" According to the Office of National Tourism[25], ecotourists generally appear to be seeking travel experiences that involve areas or attractions of natural beauty, small groups and being away from crowds, some level of interaction with the environment, interaction with other people (preferably like-minded and compatible), some degree of information and learning, and fun and enjoyment. Weiler and Richins[26] propose a three-dimensional model of the concept of who is an ecotourist: the model involves the level of environmental responsibility or impact; the level of intensity of interaction with the environment; and the level of physical difficulty or challenge of the experience.

Ecotourists vary, from minimal to extreme ecotourist according to the degree they assume at these levels. Fennell and Eagles [27] referred to individuals visiting a natural setting as "ecotourists." Others [21][24][28][29] challenged this assumption and argued that ecotourists are individuals who spend a predetermined number of days engaged in environmentally based activities, have unique motives for visiting natural areas, etc. They are, as Eagles and Cascagnette [30] suggested, individuals who "...travel with the intent of observing, experiencing and learning about nature". However, Wight [28] contended that it is difficult to define ecotourists because their motivations overlap with those of other types of neither tourists, nor can ecotourists be solely defined by the products in which they express interest.

Adopting a descriptive approach, Eagles and Cascagnette [30] define an ecotourist simply as an adult who travels with the intent of observing, experiencing and learning about nature. They also differ from mass tourists in terms of the benefits they seek from nature [31][32][33]. There exist some studies about the profile of ecotourists, most of them limited to visitors of selected areas or origin. For example, Wight [28][29] analyzed the North American ecotourism market. Experienced ecotourism travelers are found in all age groups, but most (76%) are between 25 and 54 years old. They have high educational levels and the genders are distributed equally. Most live in households without children, one-fourth as families and one-fourth alone; 61% like to travel as couples; 15% with family and 13% single. The most attractive activities are wilderness experience, wildlife viewing, and hiking/trekking, rafting / canoeing/kayaking and casual walking. The North American ecotourists prefer camping and/or mid-range accommodation and their principal travel motivations are scenery/nature, new experiences/places, wildlife viewing, wilderness and uncrowded places. Eagles [21] and Eagles and Cascagnette [30] investigated the motivations and profile of Canadian ecotourists. Results indicate that Canadian ecotourists have a high education level, can be of any age, but tend to be older and have an income higher than those of the general population. They like to learn about nature and to photograph, and the principal travel motives are wilderness, nature, and landscapes, which reveal an ecologicistic attitude. The study also showed that the Canadian ecotourists do not require luxurious accommodation, food or nightlife and that they are willing to accept local conditions, culture and food. Weiler and Richins [26] studied participants of Earthwatch expeditions. The typical participant is female, single, between the ages of 26 to 35, well educated and well paid. She is not only environmentally responsible but also wants to enhance the environment visit, and has an intense level of interaction with the environment.

There is lack of research on visitors' profiles in Iranian wetlands. A hypothesis of the study was that visitors of Hara biosphere reserve could be considered ecotourists, as defined in the literature.

THE STUDY AREA

Hara Biosphere Reserve with 85686 hectares areas is located in the south of Iran in the Straits of Khuran between Queshm Island and the Persian Gulf. The study area lies at 26°45' to 26°58'N; 55°30' to 55°50'E Situated in the Mehran River delta, it hosts the largest *Avicennia* mangrove along the Persian Gulf shoreline and, therefore, represents a center of biodiversity in Iran. The Strait of Khuran is also a Ramsar site, providing habitat to two globally threatened species: a wintering habitat for the pelican *Pelecanus crispus*, and a regular feeding place for the green turtle *Chelonia mydas*. In 2006, about 42,500 people lived in the area, mainly engaged in trading. Additionally, there are some palm tree plantations, animal husbandry and fishing activities and ship construction industries. Lacking freshwater supply and salty water intrusions constrain agriculture mainly close to the shoreline. Government owned, and administered by the Department of the Environment. The designated site includes 82,360 ha in Hara National Park, which was enlarged and upgraded from the 65,750ha Hara Protected Region established in 1972, and 85,360ha in the fully protected Hara Biosphere Reserve approved in June 1976. The unprotected areas in the east are threatened with degradation through illegal logging of the mangroves. Ramsar convention in 1975 has introduced 100,000 hectares of this region as on 23 June 1975 an international wetland and named it Khouran Straits [34]. Mangrove forests are 8000 hectare. For ecological reasons such as wetland environment, mangrove forests and biodiversity, this region has attracted many visitors and can be considered as the most spectacular regions of Iran for a unique coastal Seascape.

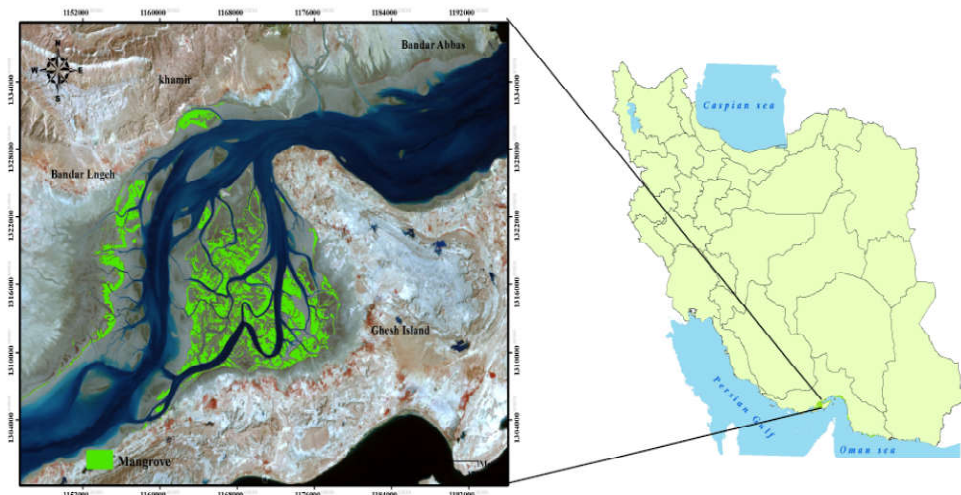


Fig 1: Geographic location of Hara biosphere reserve in mangroves of Iran

MATERIALS AND METHODS

A questionnaire with 22 questions was designed to conduct a visitor survey. It was administered during the spring and summer 2015 on the Hara biosphere reserve located in the coastal area of Hormozgan province. Visitors were chosen randomly and interviewed personally; the average duration of an interview was about 30 minutes, and 100 interviews were conducted. The results were compiled, with average and standard deviations, where applicable. Questionnaires were designed so visitors could express their opinion according to Lycert range by one of 5 degrees of important level (Fig. 2).

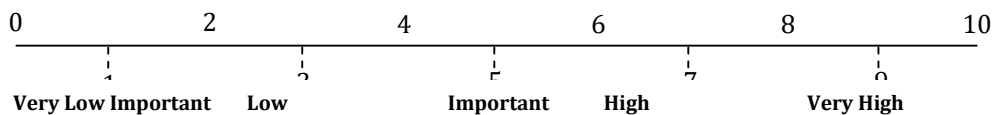


Fig. 2: Lycert range for determination of the important level of factors

RESULTS AND DISCUSSION

Age

Most of the visitors were over 30 years age, the biggest portion (27.3%) being found in the age group 30–34 years; 21.5% were between 35-39, 13.5% between 40- 44, 9.3% between 45-49 and only 2.8% were older than 50 years old (Figure 3).

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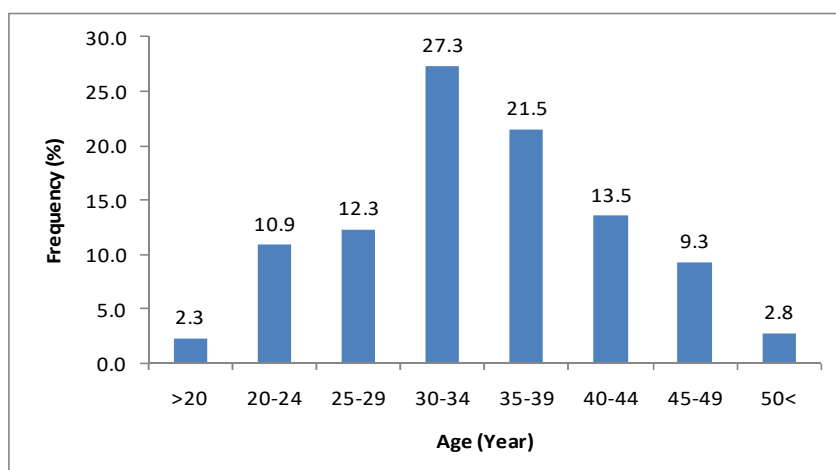


Fig. 3: Age classes of visitors of Hara biosphere reserve

Education

The majority of respondents completed high school (36.17%) or graduated (44%). Only 10.64% had not completed high school or had a lower level of education (Table 1).

Table 1. Education of visitors of Hara biosphere reserve

Education	Frequency	(%)
High school uncompleted	10	10
High school completed	15	15
Graduated	56	56
Master degree	15	15
PhD	4	4
Total	100	100

Gender

Visitors were 53% male and 47% female, showing that there is no preference for visiting Hara biosphere reserve related to gender.

Income

The average family income of visitors to the Hara biosphere reserve is shown in Table 2. From table It is concluded that majority of visitors (25%) had average monthly income more than 15000000 Iranian Rials (1\$US= 36000 Rials).

Table 2. Average monthly family income of visitors of Hara biosphere reserve

Family income (in Rials) per month	Frequency	(%)
Lower than 5000000	4	4
5000000 to 7000000	8	8
7000000 to 9000000	12	12
9000000 to 10000000	13	13
10000000 to 11000000	10	10
11000000 to 13000000	11	11
13000000 to 15000000	12	12
More than 15000000	25	25
More than 8000000	8	8

Marital status

About 12% of respondents were singles and 88% were married, showing the predominance of married among wetland visitors.

Origin of visitors

Most of the visitors (43%) come from the neighboring Province of Fars and 10% are inhabitants of in Hormozgan province. Table 4 shows the distance of cities of origin from Hara biosphere reserve.

Table 3. Distance of cities of visitors' origin from Hara biosphere reserve

Distance from wetland	Frequency	(%)
Up to 250 km	58	58
251 to 500 km	20	20
5001 to 750 km	10	10
751 to 1000 km	8	8
1001 to 1250 km	4	4

Purpose of trip

The main purpose of the trip to Hara biosphere reserve was tourism, in 74% of cases. Some visitors came for tourism and research (15%), only research (1%) and tourism and work (10%).

Willingness to pay entrance fees

Most (96%) of the respondents knew that they were visiting mangroves. Asked whether they agreed with charging entrance fees for Hara biosphere reserve using a scale from 1 (not correct) to 9 (absolutely correct). The average response was 8.41, indicating a high disposition to pay entrance fees. About 47% of visitors would pay up to 10000 Iranian Rials (1\$US= 36000 Rials), 36% would pay 120000 to 140000 Rials and 17% would pay more than 140000 Rials.

Travel characteristics

Sixty-eight percent of visitors knew about Hara biosphere reserve from friends or family. Only 9% read about it in newspapers. Other sources of knowledge were travel guides (4%), radio/TV (4%) and others (7%), which included basically the Internet and tips while traveling. eighty-nine percent of tourists came directly from home and 11% had visited another destination before coming to the park; 67% returned home directly after the visit and 33% intended to visit another destination. This pattern can be explained by the origin of visitors who mainly came from nearby cities. The average trip duration was about 7 days; 68% of visitors stayed 2-3 days, 20% 3-7 days and 9% more than 7 days. Only 3% stayed just one day. The trip duration is not representative of visits throughout the year, as the survey was conducted during the holiday seasons. Thirty-five percent of those surveyed visited the Hara biosphere reserve for the first time. 48% had visited it already from two to five times, and 17% more than five times.

Motivation

Visitors were asked about the motives for their visit to Hara biosphere reserve and to indicate the degree of importance of some given motives, using a 5-point Likert-scale (1 = not important; 5 = very important). The three most important motives were observing Landscape/Nature, Rest and observing Wildlife. Average values of responses are shown in Table 4.

Table 4. Visitors' motivation

Motive	Average	s
Wildlife	4.92	.28
Landscape	4.86	.32
Historical values	4.68	.48
Cultural values	4.25	.95
Adventure	4.11	.96
Rest	3.78	1.03
Sports	3.55	1.18

Activity preferences

Respondents were given a list of possible activities in Hara biosphere reserve and asked about their interest in practicing in these activities, using a 5-point-Likert-scale (1 = not interested and 5 = very interested). The top rated activities were observation of landscape, and observation of flora and fauna, showing the visitors' high interest in nature (Table 5).

Table 5. Activity preferences of wetland visitors

Activity	Average	S
Observation of flora	4.64	.72
Observation of fauna	4.62	.74
Landscape	4.57	.77
observation	4.44	.79
Boat trips	4.34	.80
Beach	4.28	.82
Photography	4.12	.86
Swimming	3.43	1.50
Fishing	3.34	1.36

Desired infrastructure

Visitors were given a list of items of infrastructure and asked how important they judge these items in Hara biosphere reserve, using again a 5-point Likert-scale (1= not important; 5 = very important). Average values for responses are shown in Table 6.

Table 6. Infrastructure desired by visitors

Item	Average	s
Information centre	4.41	1.35
Visitor centre	4.25	1.24
Guides	4.01	1.03
Organized campground	3.90	1.20
Others	3.85	1.25
Shop with local handcraft	3.28	2.25
Cabins	3.21	1.18
Hotels	2.84	1.01

It should be stressed that under the item 'Others' 74% of those interviewed mentioned a better medical supply. Hotels and cabins were generally considered as not appropriate for the Hara biosphere reserve and handcraft and guides should be local.

General evaluation

Regarding their satisfaction with their trip, 80% of the visitors responded 'Very satisfied' and 10% were 'Satisfied', 5% were indifferent, 3% were dissatisfied and 2% were very dissatisfied. Asked about their intention to return, 74% of the visitors intend to return definitely, 20% would like to return and only 6% do not want to return. Nobody chose 'indifferent' or 'definitely not'.

About 71% of visitors used the opportunity to make additional comments. Many of the comments showed also a concern about the inclusion of the local community in the planning process and a way to guarantee that locals take advantage of the touristic development and not outsiders. The most frequent comments (61%) were something like: 'I do not want more visitors here'; 'I want it to stay like it'.

The survey indicates that the visitors are mainly between 30 to 34 years old, married, well educated and with high average income. As can be seen from the responses, visitors are less demanding in terms of infrastructure for accommodation and food. Activity preferences and motivations are strongly linked to nature.

All these characteristics, using commonly accepted definitions and known profiles of ecotourists, indicate that the visitors of Hara biosphere reserve are ecotourists, and not 'common' tourists. There is no management plan for the wetland. Therefore, one of the most significant results is the infrastructure desired by the visitors, because it provides bases for the formulation of management strategies for the Hara biosphere reserve, facilitating the combination of the goals for environmental preservation with the interests of both the local population and (eco) tourists. It is to be expected that the number of visitors to the wetland will increase with the improvement of the infrastructure. Therefore, the zoning of areas which can be visited and which must remain untouched inside the Hara biosphere reserve is as necessary as the control of the number of visitors. The presented results are preliminary. The survey will be extended to other mangrove forests of Iran, where one expects to find a different visitor profile.

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