

Case study

Tourism and nature conservation: A case study in Golestan National Park, Iran



Siavash Ghoddousi^a, Pedro Pintassilgo^{b,*}, Júlio Mendes^b, Arash Ghoddousi^c,
Bernardete Sequeira^b

^a Faculty of Economics, University of Algarve, Faro, Portugal

^b Faculty of Economics and Research Centre for Spatial and Organizational Dynamics, University of Algarve, Faro, Portugal

^c Conservation Biogeography Lab, Geography Institute, Humboldt University of Berlin, Berlin, Germany

ARTICLE INFO

Keywords:

Ecotourism
Biodiversity conservation
Human-wildlife conflict
Golestan National Park
Iran

ABSTRACT

This paper addresses the role of ecotourism in promoting biodiversity conservation in Golestan National Park (GNP), located in northeastern Iran. Three communities living close to GNP were selected as a case study. A questionnaire survey to local residents revealed that most respondents (80%) have economic benefits from the national park. However, there is also a significant proportion of individuals (35%), mainly farmers, who experience economic losses from living near GNP. Around 58% of the respondents reveal to have benefits from tourism. The results show an inverse relation between having benefits from tourism and bearing losses as consequence of living near the national park. This reveals that the role of tourism in the conservation of GNP is undermined by the fact that residents with high losses from the park get little benefits from tourism.

1. Introduction

Population growth together with unsustainable development is causing a boom in natural resource extraction and major impacts on nature worldwide (UNEP, 2015). This trend can also be observed in Iran, where lack of sustainable development in rural areas generates significant migration to urban centers. Notwithstanding, tourism is developing in Iran and is raising new opportunities for local communities in rural areas, drawing attention to the conservation of protected areas (PAs).

In recent years, local people's support for PAs management is playing an important role in nature conservation worldwide (Naughton-Treves, Holland, & Brandon, 2005; Udaya Sekhar, 2003). Conservationists recognize that PAs can be an important tool for sustaining local people's livelihood and that the support of local people for conservation is essential for protecting natural resources and endangered species (Ninan & Sathyapalan, 2005). Several studies have concluded that local residents tend to favor conservation in the presence of benefits and oppose it when it generates significant costs such as wildlife depredation of crops and livestock (Jimura, 2011; Maikhuri, Nautiyal, Rao, & Saxena, 2001; Mbaiwa & Stronza, 2011).

Tourism is a strong tool, which gives communities economic and social benefits and encourages them to support conservation (Stem, Lassoie, Lee, Deshler, & Schelhas, 2010). Some studies suggest that a

sustainable way to promote locals' attitude toward PAs and decrease the negative effects on people who are affected by PAs is to share the economic benefits generated by tourism (Mackenzie, 2012; Stem et al., 2010; Udaya Sekhar, 2003). Tourism is viewed as an environmentally friendly way to regenerate rural communities and economies (Kim, Uysal, & Sirgy, 2013; Snyman, 2012). Benefits generated by tourism should be distributed to cover the costs of coexisting with wildlife, such as the protection of livestock and other human resources (Hemson, MacLennan, Mills, Johnson, & Macdonald, 2009). However, the distribution of benefits from tourism among those directly affected by the coexistence with the wildlife are yet understudied.

This study aims to analyze the role of ecotourism in promoting biodiversity conservation and the share of tourism benefits among people affected by human-wildlife conflict in Golestan National Park (GNP), one of the most important natural reserves in Iran. For this purpose, a case study was undertaken, consisting of three Turkmen communities who live in small villages close to GNP. These remote Turkmen communities are considered to be one of poorest communities in the country (Rashidvash, 2013). In these villages, there is a clear conflict between human activity and nature conservation. This manifests in land conversion in GNP, ungulate poaching and killing of predators as a consequence of livestock depredation and crop damage (Ghoddousi et al., 2017; Khorozyan, Soofi, Ghoddousi, & Waltert, 2015). On the other side, diverse natural landscapes of the national

* Corresponding author at: Faculdade de Economia, Universidade do Algarve, Campus de Gambelas, Faro 8005-139, Portugal.
E-mail address: ppintas@ualg.pt (P. Pintassilgo).

park and the rich Turkmen culture makes these villages attractive for tourists.

In this context, the paper aims to determine to what extent the development of tourism in GNP affects the support for conservation. The contribution of the paper is twofold. On the one hand, since tourism is a recent phenomenon in the national park, there is lack of studies on its impacts. Hence, the study fills this gap by providing knowledge on tourism development in a remote rural area of Iran. On the other hand, the lessons of this case study on how tourism can mitigate conflicts between local communities and nature conservation can serve as a reference for other rural areas in the world.

2. Communities and nature conservation

Although nature conservation may benefit not only the local communities but also the whole humanity, the costs are usually imposed to the local communities who depend on the natural resources for different goods and services (Ninan, 2012). Communities located at the boundaries PAs usually bear the costs of conservation (Mackenzie, 2012; Ninan & Sathyapalan, 2005). These costs include, economic losses generated by protected animals such as attacks to livestock and crop damages (Naughton-Treves et al., 2005) and exclusion from resource exploitation (Kijazi & Kant, 2010).

Nevertheless, there are some ways in which local people may profit from nature conservation such as ecosystem services, tourism (Naughton-Treves et al., 2005), conservation and development programs (Goldstein, 2003). Maximizing benefits and minimizing costs is a basic rational in human behavior. If local communities increase their benefits from a PA, they will support its existence and conservation. Hence, policies that make conservation economically beneficial to the local communities and decrease the negative consequences to local livelihood are fundamental to sustainable conservation practices (Clements, Suon, Wilkie, & Milner-Gulland, 2014; Lussetyowati, 2015).

There are studies which emphasize that it is almost impossible to protect natural resources without the commitment of local population (Maikhuri et al., 2001; Sirivongs & Tsuchiya, 2012). Also, there are many examples showing that if local residents are directly involved in PA selection, establishment and management, the local conservation system will more likely be successful (Hamú, Auchincloss, & Goldstein, 2004; Thapa Karki, 2013). Additionally, people may show higher respect for PAs if they are directly involved in reasonable approaches of conservation (Walpole & Goodwin, 2002). Therefore, at any stage, local participation should be encouraged for more effective management (Sirivongs & Tsuchiya, 2012). Also, participation of local communities is based on their local experiences and knowledge, which may result in a stronger conservation management and governance (Maass, 2008; Mackenzie, 2012).

Regarding Iran, Kolahi, Sakai, Moriya, and Makhdom (2012) examines the situation of PAs and conclude that Iran's PAs system require supporting policies and planning instruments. Kolahi, Moriya, Sakai, Khosrojerdi, and Etemad (2014) refers that biodiversity conservation in Iran has been threatened due to aspects such as ineffective management and lack of public participation. However, public awareness on conservation is growing in Iranian society. Through an online questionnaire administrated on Iran's e-society, the authors show that there is a high willingness to participate in conservation and environmental projects. The high support for conservation was also found by Kolahi, Sakai, Moriya, Yoshikawa, and Esmaili (2014) in local communities near the Khojir National Park (KNP), Iran. The study suggests that participatory conservation should be implemented in the management of the park.

3. Tourism as a sustainability tool

Research on the support for conservation through benefits from tourism is still scarce (Lee, 2013; Udaya Sekhar, 2003). It has been

found that tourism can be an environmentally friendly way to restore rural economies (Ghaderi & Henderson, 2012; Rastogi, Hickey, Anand, Badola, & Hussain, 2015). Some studies recommend that a sustainable way to promote local attitudes toward PAs is to share the economic benefits, which can be achieved through tourism (Lee, 2013). A fair sharing of tourism income among the local residents is a key factor to reduce conflicts and negative attitudes toward PAs. Also, it will encourage locals to protect nature as they receive economic benefits from the PAs (Fun, Chiun, Songan, & Nair, 2014; Maikhuri et al., 2001).

In the last decades, tourism has been introduced as a tool for regional economic development in many parts of the world (Kim et al., 2013). There are positive and negative cultural impacts of tourism on local communities recognized in several studies (Andriotis, 2005; Vedeld, Jumane, Wapalila, & Songorwa, 2012). There are also impacts on social welfare (Fun et al., 2014; Lussetyowati, 2015) and on the natural environment (Brightsmith, Stronza, & Holle, 2008; Hemson et al., 2009). Moreover, on the economic dimension, tourism may reduce poverty and unemployment and increase per capita income (Snyman, 2012). Integrating all these aspects, Ashok, Tewari, Behera, and Majumdar (2017) based on a case study in Sikkim, India, proposes a framework for assessing sustainability in ecotourism.

Studies on the environmental impacts of tourism focus on tourism development initiatives (Jonela, Constantin, & Dogaru, 2015; Kim et al., 2013). Regarding positive impacts, some researchers consider that tourism helps generating a greater understanding of the need to preserve the environment by capturing its natural beauty for tourism purposes and increasing the environmental infrastructure and education of the host country (Hillery, Nancarrow, Griffin, & Syme, 2001; Reynolds & Braithwaite, 2001). Also, tourism is known as a comparatively clean industry, creating less pollution compared to other sectors (Stylidis, Biran, Sit, & Szivas, 2014). Tourism as a "clean" industry assists the development process of the community and its neighboring communities (Sirivongs & Tsuchiya, 2012). However, unorganized tourism can lead to the destruction of natural resources, vegetation and depletion of wildlife (Rastogi et al., 2015). Moreover, some studies suggest that economic benefits may not be sufficient to encourage local communities to support conservation (e.g., Stem et al., 2010). Also, some of them do not find a connection between economic benefits achieved through tourism and a positive approach toward conservation (Mbaiwa & Stronza, 2011; Walpole & Goodwin, 2002).

A few studies found that the attitude of local communities toward conservation is mainly dependent on the levels of human-wildlife conflict (Hemson et al., 2009; Mbaiwa & Stronza, 2011; Snyman, 2012). Boer and Baquete (1998) found that promoting conservation and ecotourism, as a practical land use in rural areas is a feasible effort to decrease human-wildlife conflicts and reduce the negative impacts of living near wildlife. Tourism can bring benefits to different groups of a community and hence contribute to reduce human-wildlife conflict (Sebele, 2010). Benefits generated by tourism should be distributed to cover the costs of coexisting with wildlife, such as livestock protection improvement and other human activities (Hemson et al., 2009). A fair distribution of tourism income between the local residents is a key factor to decrease conflicts and negative attitudes toward PAs (Maikhuri et al., 2001). Community groups who benefit from tourism usually show positive attitudes toward conservation and tourism development in PAs (Udaya Sekhar, 2003). According to Stem et al. (2010) residents will not express positive attitude toward conservation without receiving direct benefits.

4. Methodology

4.1. Study area

Our study area is Golestan National Park (GNP), located in north-eastern Iran (Fig. 1). GNP was the first area to be designated as a national park in Iran and is situated between the sub-humid Hyrcanian

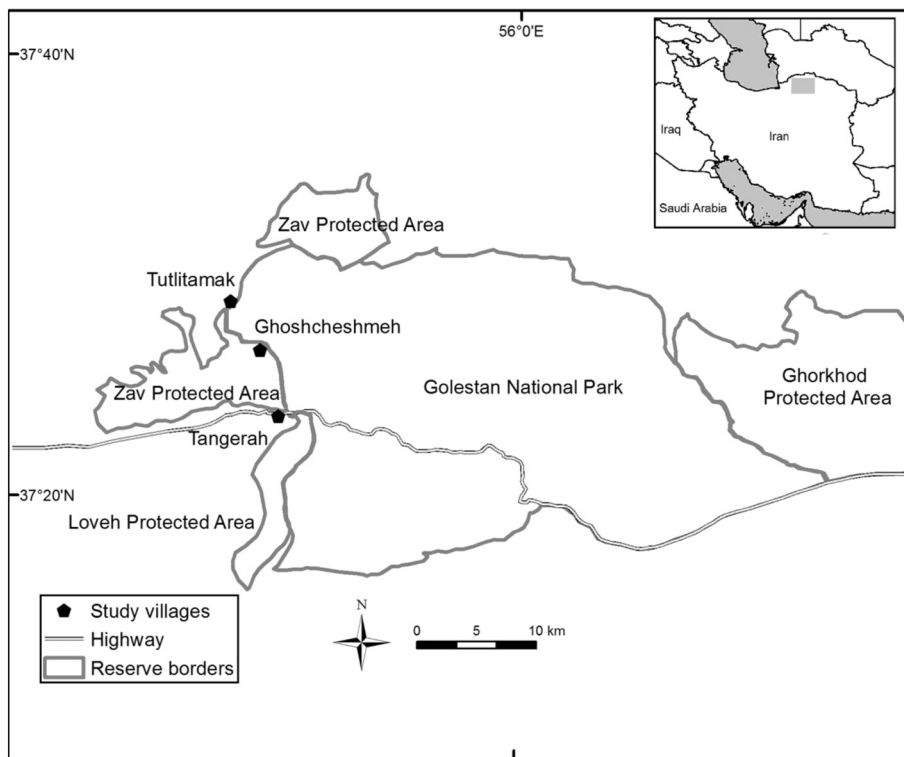


Fig. 1. Location of Golestan National Park (GNP) in Iran (inset map); study villages at the boundary of GNP; and the buffer areas: Zav Protected Area, Loveh Protected Area and Ghorkhod Protected Area.

forests and semi-arid Irano-Turanian steppes (Djamali et al., 2009). This UNESCO Biosphere Reserve comprises of 874 km², with an elevation range of 450 to 2411 m above sea level. GNP represents three biomes, namely temperate forests, semi-deserts and highlands. A large variety of habitats such as open woodlands, scrublands, mountains, steep rocky cliffs, and steppes can be found in this national park.

GNP presents a large variety of flora and fauna (Ghoddousi et al., 2016). Its flora contains 1365 species, some of which endemic to national park. Fauna consist of 69 mammals, 150 birds, 2 amphibians and 24 reptile species. This spectrum of biodiversity contains large animals such as leopard (*Pantherapardus*), wolf (*Canis lupus*), brown bear (*Ursusarctos*), red deer (*Cervuselaphus*), wild boar (*Susscrofa*), goitered gazelle (*Gazellasubgutturosa*) and bezoar goat (*Capra aegagrus*).

GNP was chosen as the study area due to its long history of environmental protection, existence of local and international tourism, and ongoing conservation and development projects. The villages around GNP are inhabited by various ethnic groups: Kurdish, Persian, Turk and Turkmen. Their main activities are agriculture, livestock farming, small businesses, silk production and tourism. Three Turkmen villages were selected as a case study: Tangerang, Ghoshcheshmeh and Tutlitamak.

4.2. Research methods and techniques

This research is based on the case study method, which is appropriate when the research questions have exploratory and descriptive nature (Yin, 2009). In GNP, tourism is a recent and expanding phenomenon and hence there is lack of studies on its social, economic and environmental impacts, and particularly on nature conservation. In order to obtain information on tourism and conservation issues in GNP, we used both qualitative and quantitative techniques (Hemson et al., 2009). In particular, a questionnaire survey was used together with non-systematic direct observation.

The qualitative approach included participant's direct observations, from January 2012 to November 2015, during regular visits to GNP and also exploratory interviews with accommodation providers and people who have income from tourism (Rastogi et al., 2015). During these

visits the researchers recorded the information in “field notes” in an open registration system (Flick, 2005). The information collected in these visits were particularly useful for the researchers to understand the impacts of tourism in the study villages and to interpret the results of the questionnaire.

The quantitative approach was conducted during October–November 2015, through a questionnaire survey. The goal was to obtain information from around 10% of the 425 households of the three selected villages through a quota sampling approach. We tried to collect information from a wide variety of respondents to avoid sampling bias. The aim of the questionnaire was to get an overview of the local people's attitude toward tourism in GNP and their support for conservation. The respondents were interviewed in public spaces inside the villages. To conform to the social norms of the communities, we ensured that a female interviewed female participants.

The questionnaire included a set of socio-demographic questions on age, gender, education and profession. This was followed by a group of questions related to respondents' benefits from GNP and losses from living near the park. The last group included questions related to tourism in the villages, focusing on aspects such as benefits from tourism, negative effects on the community, tourist's respect for the local culture, the willingness to have more tourism, and actions required to have more tourists. Some of the questions were formulated as close ended with a nominal scale (agree, disagree, don't know). This simple scale was considered appropriate given the low literacy level of the local population. Two questions were open-ended: “What are the reasons for tourists to visit your village?” and “What do you need in your village to attract more tourists?”. The questionnaire was implemented in the local languages: Persian and Turkmen.

Our study was approved by the Golestan provincial office of the Department of Environment and Golestan National Park management. Interviewees were informed about the aim of the study and were ascertained that their data would be handled with care and would not be disclosed to a third-party. We interviewed 40 people from the three study villages: 22 in Tangerang (TR), 7 in Ghoshcheshmeh (GC) and 11 in Tutlitamak (TT). Due to the social restriction to ask females to answer the questionnaire, the number of female participants was

considerably lower than that of males (4 in TR, 1 in GC, 2 in TT). We should add the fact that in most of the Turkmen households, economic activities are male-dominated. Moreover, in Turkmen societies women usually only speak in the presence of a family member men (Rashidvash, 2013).

This paper relies largely on the information gathered in the questionnaire survey. The data collected through this technique were systematized, organized and registered through the SPSS 21.0 software. Descriptive statistics and contingency tables were computed to understand respondent's socio-economical characteristics and responses about tourism and GNP conservation. In order to test the relationship between respondent's benefits from tourism and their losses as the consequence of living near GNP, the Pearson's chi-square test was undertaken. This is a non-parametric test used to investigate the independence of two categorical variables. In the hypothesis testing the p-value was computed and a significance level of 5% was considered.

5. Results

Our case study focuses on three Turkmen villages located at a short distance from GNP, which have some sources of income from tourism. Overall, they comprise a total of 425 households. Tangerang is the biggest village in the area, with 292 households. It is located on a major road connecting north of Iran to northeast and attracts many tourists every year. In this village there are conflicts between local residents and GNP over livestock depredation, crop damage by wildlife and illegal hunting (Ghoddousi et al., 2017; Khorozyan et al., 2015). Ghoshcheshmeh is a small village with 74 households, which has a difficult accessibility via dirt road to Tangerang. However, the beautiful landscapes of this village attract some tourists each year. The third village is Tutlitamak, which is also a small village, with 59 households, located in the northwest of GNP. Some international and Iranian tourists have visited this village since 2010 because of the establishment of an eco-lodge inside the village. This eco-lodge (Turkmen Eco-lodge) has goals of sustainable tourism in the area, supports conservation and local participation. The main results from the questionnaire surveys in our case study villages and the statistical analyses conducted on the data are presented below.

5.1. Socioeconomic characteristics

Table 1 shows the distribution of respondent's gender, age, employment status and educational qualification in the studied villages.

The large majority of the sample is composed by men (82.5%), this was due to the social limitations on asking female residents to answer the questionnaire. Regarding age, we can conclude that the respondents are relatively young, as only 25% are over 40 years old.

In our study villages, agriculture, public services and private services are the main employment sectors, each with a share of 22.5%. Agriculture includes crops and livestock farming, public services stands for formal governmental jobs, and private services include employment in private services such as tour guides and construction work. Business

Table 1
Socioeconomic characteristics of the respondents.

Variable	Distribution of answers
Gender	Male: 82.5%; Female: 17.5%
Age	18–25: 40%; 26–40: 35%; 41–60: 20%; Over 60: 5%
Employment	Agriculture: 22.5%; Public services: 22.5%; Business owners: 17.5%; Private Services: 22.5%; No job: 15%
Educational qualifications	Traditional education: 2.5%; Primary education: 35%; Secondary or high school: 45%; University degree: 17.5%

Table 2
Benefits and losses from living near to Golestan National Park – % of Answers.

	Agree	Disagree	Don't known
Do you have benefits from GNP?	80	20	0
Does your community benefit from GNP?	97.5	2.5	0
Do you have losses as consequence of living near GNP?	35	65	0

owners represent 17.5% of the respondents and they are mainly people who own small shops or sell handicraft. Finally, 15% referred having no job, this represents housewives and unemployed people. The most frequent educational qualification among the respondents is secondary or high school degree (45%), followed by primary education (35%). Only 17.5% of respondents hold a university degree.

5.2. Benefits and losses from GNP

In the survey, most respondents (80%) stated that they have economic benefits from the national park and the vast majority (97.5%) agreed that their community benefits from GNP (Table 2). Around 35% of the respondents stated to have economic losses by living near GNP. By analyzing the qualitative information from the respondents, these losses are mostly due to wildlife such as depredation of livestock by leopards and wolves, or because of damages to their agricultural lands and products by wild boars and porcupines.

To the question “What type of benefit do you receive from GNP?”, 75% of the respondents answered the collection of wild fruits and other timber and non-timber forest products such as wild berries, medicinal herbs, and firewood. Tourism (25%) and livestock herding (12.5%) were also among the other benefits stated by the respondents.

In order to explore the association between the answer to the question “Do you have losses as a consequence of living near GNP?” and the employment sector, a contingency table was constructed (Table 3).

The results show that in the sample the proportion of individuals who have losses is higher in the agriculture sector (67%) when compared to the other sectors (26%).

5.3. Resident's perceptions about tourism

Most respondents (82.5%) disagree that tourism has negative effects on the community and agree that tourists respect their culture (Table 4). The majority disagree that tourists leave garbage in their villages (60%), however nearly 38% have the opposite opinion and showed disappointment with tourist behavior on this issue. Regarding the willingness to receive more tourists, the results show that the vast majority of the locals would like to have more tourists in their villages (85%).

Most participants stated that tourists visit their villages because of nature-based activities (62.5%), this includes hiking, mountain climbing and spending holidays in surrounding landscapes (Table 5). The second reason was GNP (57.5%). The rich Turkmen culture was also mentioned (25%): “Many tourists love to know about our culture and food” said a local shopkeeper in Tangerang. Moreover, Turkmen are

Table 3
Participant's responses to the question “Do you have losses as a consequence of living near GNP?” according to their employment sector.

	Do you have losses as a consequence of living near GNP?		
	Disagree	Agree	Total
Employment			
Agriculture	3 (33%)	6 (67%)	9
Other	23 (74%)	8 (26%)	31
Total	26	14	40

Table 4
Respondent's perceptions about tourism impacts – % of Answers.

	Agree	Disagree	Don't known
Does tourism have negative effects on your community?	15.0	82.5	2.5
Do tourists respect your culture?	82.5	2.5	15
Do tourists leave garbage in your village?	37.5	60.0	2.5
Do you like to have more tourists in your village?	85.0	10.0	5.0

Table 5
Reasons why tourists visit their villages.

Reason	Number of respondents	Percentage
Nature-based activities	25	62.5
GNP	23	57.5
Local culture	10	25.0
Handicraft	6	15.0

known for making beautiful carpets and rugs. Among the respondents, 15% referred that tourists visit their villages to see and buy these handicrafts.

Regarding what is needed to attract more tourists to the villages, the most frequent answer (42.5%) was basic facilities such as restaurants, sports facilities and tourism centers (Table 6). A significant proportion of respondents (35%) mentioned the poor road accessibility. Most of these respondents were from the Ghoshcheshmeh village, which is only accessible via a dangerous unpaved road. The need for more and better accommodation for tourists was stated by 22.5% of the respondents. Others complained about water issues (20%) such as lack of water in some days of the year, as it is provided by seasonal springs. A proportion of 17.5% mentioned other aspects, such as advertising and investing in tourism, promoting handicraft production, waste management, and tour guide formation. Finally, 10% of respondents suggested establishment of health centers.

Around 58% of the respondents reveal to have benefits from tourism (Table 7). Moreover, the vast majority (90%) expressed that their community have benefits from tourism. Our qualitative information shows that these benefits are mainly through renting accommodation, local tour guides, small shops and handicraft selling.

By looking at the employment sectors, the sample results show that individuals working in agriculture show a lower proportion of responses stating benefits from tourism, 11%, compared to other sectors, 71% (Table 8).

5.4. Benefits from tourism in relation to losses from GNP

In this section we test whether there is a relation between the answers of respondents to the following questions: “Do you have benefits from tourism?” and “Do you have losses as a consequence of living near GNP?”. For this purpose a contingency table was constructed (Table 9).

The results show that the large majority (86%) of those to have benefits from tourism do not have losses as a consequence of living near GNP. Thus, among those who benefit from tourism, there is not much

Table 6
Respondents' opinions on what is needed to attract more tourists to their villages.

What is needed to attract more tourists?	Number of respondents	Percentage
Basic facilities	17	42.5
Road	14	35.0
Better accommodation	9	22.5
Water	8	20.0
Others	7	17.5
Health center	4	10.0

Table 7
Benefits from tourism – % of Answers.

	Agree	Disagree	Don't known
Do you have benefits from tourism?	57.5	42.5	0
Does your community benefit from tourism?	90.0	7.5	2.5

Table 8
Participant's responses to the question “Do you have benefits from tourism?” according to their employment sector (agriculture vs. other sectors).

		Do you have benefits from Tourism?		
		Disagree	Agree	Total
Employment	Agriculture	8 (89%)	1 (11%)	9
	Other	9 (29%)	22 (71%)	31
	Total	17	23	40

Table 9
Relationship between benefits from tourism and losses as consequence of living near GNP.

		Do you have losses as a consequence living near GNP?		
		Disagree	Agree	Total
Do you have benefits from Tourism?	Disagree	5 (30%)	12 (70%)	17
	Agree	20 (86%)	3 (14%)	23
	Total	25	15	40

conflict with the conservation of the national park. This contrasts with the results for those who do not have benefits from tourism. Among them, 70% have losses from leaving near GNP, which indicates a clear threat to the conservation of the park.

Applying the chi-square test of independence, a value of 13.811 was obtained for the Pearson chi-square statistics, which corresponds to a p-value close to 0.000 (Table 10). Thus, there is a significant relation between having benefits from tourism and having losses as a consequence of living near GNP. The null hypothesis of independence between variables is rejected and it can be concluded that there is a (negative) relationship between benefits from tourism and losses as a consequence of living near GNP. This indicates that the role of tourism in the conservation of GNP is undermined by the fact that residents with the highest losses from the park get little benefits from tourism.

6. Discussion

6.1. Resident's benefits and losses from Golestan National Park

The three Turkmen communities surveyed in this study live in small villages with close proximity to the forest zone of Golestan National Park. The majority of the respondents had benefits from Golestan National Park (80%), being the collection of timber and non-timber forest products the most common one. Only 25% of them expressed to have benefits from GNP through tourism. On the other hand, 35% of the respondents had economic losses by living near the national park mainly because of human-wildlife conflicts (Khorozyan et al., 2015) or fines by the Department of Environment due to illegal grazing. Such

Table 10
Results of the chi-square test.

	Values
Pearson chi-square	13.811
Degrees of freedom (df)	1
p-Value	< 0.000

high percentage of people having losses from the national park shows a high level of conflict between locals and conservation authorities. This conflict is also evident from the high rate of ungulate poaching, killing of predators, and land conversion inside and around the national park (Ghoddousi et al., 2017; Khorozyan et al., 2015). Mackenzie (2012) obtained similar results in a case study, with > 70% of respondents having conflicts with Kibale National Park in Uganda. The types of conflicts in Mackenzie's study have similarities with the conflicts in our case study such as crop raiding and livestock depredation. Mackenzie (2012) suggests that benefits from the national park should be significantly higher than losses in order to increase positive attitudes toward conservation, compensate losses and improve local's perception about national parks. When compared to other sectors, farmers had more losses due to neighboring GNP as their livestock are killed or their farms destroyed by the wild animals. Therefore, conservationists should focus on this group of the community to reach viable solutions for the current conflicts between local communities and the national park.

6.2. Resident's perceptions about tourism

Most of our respondents claim that tourists are attracted to their villages because of the natural attractions and Golestan National Park. The results show that the majority of the local residents are aware of the national park's potentials to attract more tourism to the region and are willing to host more tourists.

More than 80% of the residents considered that tourists respect their culture and do not have negative effects on their communities. The few complaints expressed were regarding the social behavior of some tourists, namely making noise at night, littering and wearing inappropriate clothing. Overall, the survey results show that tourism has a considerable presence in household's economy and is a source of benefits for the villages. However, most of these benefits to the locals in the study villages derive from renting accommodation and selling goods. By analyzing the status of farmers in the sample we can observe that they receive less benefits from tourism, compared to other professions. Only a small fraction of farmers claims to receive economic benefit from tourism at the moment. On the other hand, the majority of residents who own a business or work in the services sector make some benefits from tourism in the three communities.

An ecotourism project is operating in the Tutlitamak village as an eco-lodge since 2009. This eco-lodge receives domestic and international tourists every year. It has sustainable tourism goals, supports conservation and local participation. However, most of the surveyed Tutlitamak residents showed a low awareness of the importance of Golestan National Park in terms of creating income by attracting tourists to their community. Ecotourism projects are established to bring benefits to local communities and create business opportunities, but in many cases ecotourism make the outsiders benefit more than the majority of resident communities (Wishitemi, Momanyi, Ombati, & Okello, 2015).

In addition, according to a local inhabitant, conflicts between the park and locals have not decreased in the last years in Tutlitamak. Stem, Lassoie, Lee, and Deshler (2003) believe that ecotourism may fail in having an effective influence on conservation if the awareness of the local community is not drawn in that direction. One of the policies of the eco-lodge in Tutlitamak is that tourists and locals should not interact. Thus, tourists start their visit from the eco-lodge directly to the national park and back without passing through the village. As Tutlitamak is a small, remote and conservative village, this policy was implemented to preserve the social values of the community. However, this policy is eliminating the indirect benefits of tourism to many residents of the village, such as exchange of ideas and local involvement. A local participant in this study said: "There is a fear of tourists among the locals". Stem et al. (2010) argue that indirect tourism benefits such as exchange of ideas showed significant associations with pro-environmental responses among the locals. It can strengthen positive

attitudes toward conservation among local residents.

6.3. Benefits from tourism in relation to losses from GNP

In the study villages, farmers bear most losses from the national park and receive least benefits from tourism. Thus, tourism by itself is not able to solve the conflict between farmers and the park. A similar result was also found by Hemson et al. (2009) who studied the Makgadikgadi community in Botswana, which presents a high range of conflicts with a protected area. In the case of the Makgadikgadi community, the role of tourism in nature conservation was very limited. In fact, the study shows that only 13% of the community received benefits from tourism, which is far below what was found in our case study.

In order for tourism to be a solution for the conflict between farmers and GPN, the benefits of tourism must reach this social group. Hence, tourism development should be planned and managed having this goal in mind. This will ensure a sustainable development of tourism and the protection of the national park.

7. Conclusion

The survey results on three local communities living near Golestan National Park (GNP) show that different employment sectors stated contrasting views about losses and benefits from living near the national park. In particular, people in the agriculture sector showed the highest losses from GNP, due to conflict with wildlife. This conflict is a major threat for the conservation of the park.

The perceptions of locals toward tourists in their community were generally positive, showing willingness to welcome more tourists. The majority of respondents claim that tourists do not have negative cultural and environmental effects on their community. Moreover, the study results show that tourism is a source of income for most individuals and communities in the three study villages. Thus, as tourism largely depends on GNP it plays a clear role toward its conservation. Our results also reveal that there is an inverse relation between having benefits from tourism and bearing losses as consequence of living near the national park. In particular, locals who do not have benefits from tourism have the most losses as a consequence of living near GNP. This aspect limits the role of tourism in the conservation of the park and requires a policy that allows those who experience losses, mainly the farmers, to earn benefits from tourism.

The study results suggest that an equitable distribution of tourism benefits in the study villages has the potential to reduce the conflicts between humans and wildlife. To strengthen-up attitudes and participation toward conservation, the engagement of farmers is necessary. Ecotourism could be an appropriate form of tourism for these communities. Ecotourism can offer economic benefits to the communities and also encourage locals to conserve nature and wildlife (Hunt, Durham, Driscoll, & Honey, 2014; Santarém & Paiva, 2015). This is particularly relevant as tourism growth can cause social and environmental problems in small villages such as Tutlitamak and Choshcheshmeh. Tourism development in these remote communities requires understanding the local culture and the environment. Otherwise, negative impacts such as loss of identity and cultural traditions may occur (Vedeld et al., 2012).

Most of protected areas in Iran are still developing their management plans in terms of sustainable tourism (Reihanian, Mahmood, Kahrom, & Hin, 2012). Management plans are necessary in GNP to facilitate community participation in tourism (Kijazi & Kant, 2010; Walpole & Goodwin, 2002). In particular, it is required that farmers get more benefits from tourism in order to decrease the range of conflicts between locals and wildlife and improve their attitude toward conservation. One option to engage farmers in tourism activities is ecogritourism, a combination of ecotourism and agritourism (Tuzon et al., 2014). Other forms of Community-based tourism (CBT), engaging the communities in the development, control and management of the

tourism projects are also recommended (Ruiz-Ballesteros, 2011; Tolkach & King, 2015). CBT has the potential to promote local cultural and natural values, better distribute benefits among local communities, and resolve existing conflicts of local communities with the national park.

One limitation of our study is the sample size, which limits the generalization of the results. A natural avenue for further research is to assess the economic, cultural and environmental effects of different tourism developments in GNP. In particular, whether these developments can foster the sustainable development of the local communities and promote nature conservation.

Acknowledgements

Siavash Ghoddousi would like to thank Soofi family for hosting him during the research stay at the Golestan National Park, as well as Alborz Boghrat, Taher Saadizade, Mobin Soofi and Safoura Sadeghianpour who helped out as volunteers in the case study villages. The authors also thank the Golestan National Park authorities for their cooperation with our study. Financial support from the Portuguese Foundation for Science and Technology (FCT) [grant number UID/SOC/04020/2013] is acknowledged by the members of Research Centre for Spatial and Organizational Dynamics.

References

- Andriotti, K. (2005). Community groups' perceptions of and preferences for tourism development: Evidence from crete. *Journal of Hospitality and Tourism Research*, 29(1), 67–90.
- Ashok, S., Tewari, H. R., Behera, M. D., & Majumdar, A. (2017). Development of ecotourism sustainability assessment framework employing Delphi, C&I and participatory methods: A case study of KBR, West Sikkim, India. *Tourism Management Perspectives*, 21, 24–41.
- Boer, W. F., & Baquete, D. (1998). Natural resource use, crop damage and attitudes of rural people in the vicinity of the Maputo elephant reserve, Mozambique. *Environmental Conservation*, 25(3), 208–218.
- Brightsmith, D. J., Stronza, A., & Holle, K. (2008). Ecotourism, conservation biology, and volunteer tourism: A mutually beneficial triumvirate. *Biological Conservation*, 141(11), 2832–2842.
- Clements, T., Suon, S., Wilkie, D. S., & Milner-Gulland, E. J. (2014). Impacts of protected areas on local livelihoods in Cambodia. *World Development*, 64, 125–134.
- Djamali, M., de Beaulieu, J. L., Campagne, P., Poneil, P., Leroy, S. A. G., & Akhiani, H. (2009). Modern pollen rain-vegetation relationships along a forest-steppe transect in the Golestan National Park, NE Iran. *Review of Palaeobotany and Palynology*, 153(3–4), 272–281.
- Flick, U. (2005). *Métodos qualitativos na investigação científica*. Lisboa: Monitor - Projectos e Edições, Lda.
- Fun, F., Chiun, L., Songan, P., & Nair, V. (2014). The impact of local communities' involvement and relationship quality on sustainable rural tourism in rural area, Sarawak. The moderating impact of self-efficacy. *Procedia - Social and Behavioral Sciences*, 144, 60–65.
- Ghaderi, Z., & Henderson, J. C. (2012). Sustainable rural tourism in Iran: A perspective from Hawraman village. *Tourism Management Perspectives*, 2–3, 47–54.
- Ghoddousi, A., Soofi, M., Hamidi, K. A., Ashayeri, S., Egli, L., Ghoddousi, S., ... Waltert, M. (2017). The decline of ungulate populations in Iranian protected areas calls for urgent action against poaching. *Oryx*, 1–8. <http://dx.doi.org/10.1017/S003060531600154X>.
- Ghoddousi, A., Soofi, M., Hamidi, K. A., Lumetsberger, T., Egli, L., Khorozyan, I., ... Waltert, M. (2016). Assessing the role of livestock in big cat prey choice using spatiotemporal availability patterns. *PLoS One*, 11(4), 1–14.
- Goldstein, E. (2003). Introduction to environmental economics. *European Journal of Political Economy*, 19(2), 391–392.
- Hamú, D., Auchincloss, E., & Goldstein, W. (2004). *Communicating protected areas*. IUCN.
- Hemson, G., MacLennan, S., Mills, G., Johnson, P., & Macdonald, D. (2009). Community, lions, livestock and money: A spatial and social analysis of attitudes to wildlife and the conservation value of tourism in a human-carnivore conflict in Botswana. *Biological Conservation*, 142(11), 2718–2725.
- Hillery, M., Nancarrow, B., Griffin, G., & Syme, G. (2001). Tourist perception of environmental impact. *Annals of Tourism Research*, 28(4), 853–867.
- Hunt, C. A., Durham, W. H., Driscoll, L., & Honey, M. (2014). Can ecotourism deliver real economic, social, and environmental benefits? A study of the Osa Peninsula, Costa Rica. *Journal of Sustainable Tourism*, 23(3), 339–357.
- Ionela, G.-P., Constantin, B. M., & Dogaru, L. (2015). Advantages and limits for tourism development in rural area (Case study Ampoi and Mureş valleys). *Procedia Economics and Finance*, 32, 1050–1059.
- Jimura, T. (2011). The impact of world heritage site designation on local communities – A case study of Ogimachi, Shirakawa-mura, Japan. *Tourism Management*, 32(2), 288–296.
- Khorozyan, I., Soofi, M., Ghoddousi, A., & Waltert, M. (2015). The relationship between climate, diseases of domestic animals and human-carnivore conflicts. *Basic and Applied Ecology*, 16(8), 703–713.
- Kijazi, M. H., & Kant, S. (2010). Forest stakeholders' value preferences in Mount Kilimanjaro, Tanzania. *Forest Policy and Economics*, 12(5), 357–369.
- Kim, K., Uysal, M., & Sirgy, M. J. (2013). How does tourism in a community impact the quality of life of community residents? *Tourism Management*, 36, 527–540.
- Kolahi, M., Moriya, K., Sakai, T., Khosrojerdi, E., & Etemad, V. (2014). Introduction of participatory conservation in Iran: Case study of the rural communities' perspectives in Khojir National Park. *International Journal of Environmental Research*, 8(4), 913–930.
- Kolahi, M., Sakai, T., Moriya, K., & Makhdoum, M. F. (2012). Challenges to the future development of Iran's Protected Areas System. *Environmental Management*, 50, 750–765.
- Kolahi, M., Sakai, T., Moriya, K., Yoshikawa, M., & Esmaili, R. (2014). From paper parks to real conservations: Case study of social capital in Iran's biodiversity conservation. *International Journal of Environmental Research*, 8(1), 101–114.
- Lee, T. H. (2013). Influence analysis of community resident support for sustainable tourism development. *Tourism Management*, 34, 37–46.
- Lussetyowati, T. (2015). Preservation and conservation through cultural heritage tourism. Case study: Musi riverside Palembang. *Procedia - Social and Behavioral Sciences*, 184, 401–406.
- Maass, P. (2008). *The cultural context of biodiversity conservation: Seen and unseen dimensions of indigenous knowledge among Q'eqchi' communities in Guatemala*. Universitätsverlag Göttingen.
- Mackenzie, C. A. (2012). Accruing benefit or loss from a protected area: Location matters. *Ecological Economics*, 76, 119–129.
- Maikhuri, R. K., Nautiyal, S., Rao, K. S., & Saxena, K. G. (2001). Conservation policy—people conflicts: A case study from Nanda Devi Biosphere Reserve (a World Heritage Site), India. *Forest Policy and Economics*, 2(3–4), 355–365.
- Mbaiwa, J. E., & Stronza, A. L. (2011). Changes in resident attitudes towards tourism development and conservation in the Okavango Delta, Botswana. *Journal of Environmental Management*, 92(8), 1950–1959.
- Naughton-Treves, L., Holland, M. B., & Brandon, K. (2005). The role of protected areas in conserving biodiversity and sustaining local livelihoods. *Annals of Tourism Research*, 30(1), 219–252.
- Ninan, K. N. (2012). *The economics of biodiversity conservation: Valuation in tropical forest ecosystems*. Earthscan.
- Ninan, K. N., & Sathyapalan, J. (2005). The economics of biodiversity conservation: A study of a coffee growing region in the Western Ghats of India. *Ecological Economics*, 55(1), 61–72.
- Rashidvash, V. (2013). Turkmen status within Iranian ethnic identity (cultural, geographical, political). *Research on Humanities and Social Sciences*, 3(22), 88–93.
- Rastogi, A., Hickey, G. M., Anand, A., Badola, R., & Hussain, S. (2015). Wildlife-tourism, local communities and tiger conservation: A village-level study in Corbett Tiger Reserve, India. *Forest Policy and Economics*, 60, 11–19.
- Reihanian, A., Mahmood, N., Kahrom, E., & Hin, T. W. (2012). Sustainable tourism development strategy by SWOT analysis: Boujagh National Park, Iran. *Tourism Management Perspectives*, 4, 223–228.
- Reynolds, P. C., & Braithwaite, D. (2001). Towards a conceptual framework for wildlife tourism. *Tourism Management*, 22(1), 31–42.
- Ruiz-Ballesteros, E. (2011). Social-ecological resilience and community-based tourism. *Tourism Management*, 32(3), 655–666.
- Santarém, F., & Paiva, F. (2015). Conserving desert biodiversity through ecotourism. *Tourism Management Perspectives*, 16, 176–178.
- Sebele, L. S. (2010). Community-based tourism ventures, benefits and challenges: Khama Rhino Sanctuary Trust, Central District, Botswana. *Tourism Management*, 31(1), 136–146.
- Sirivongs, K., & Tsuchiya, T. (2012). Relationship between local residents' perceptions, attitudes and participation towards national protected areas: A case study of Phou Khao Khouay National Protected Area, central Lao PDR. *Forest Policy and Economics*, 21, 92–100.
- Snyman, S. L. (2012). The role of tourism employment in poverty reduction and community perceptions of conservation and tourism in southern Africa. *Journal of Sustainable Tourism*, 20(3), 395–416.
- Stem, C. J., Lassoie, J. P., Lee, D. R., Deshler, D. D., & Schelhas, J. W. (2010). Community participation in ecotourism benefits: The link to conservation practices and perspectives. *Society & Natural Resources*, 16(5), 387–413.
- Stem, C. J., Lassoie, J. P., Lee, D. R., & Deshler, D. J. (2003). How "Eco" is ecotourism? A comparative case study of ecotourism in Costa Rica. *Journal of Sustainable Tourism*, 11(4), 322–347.
- Stylidis, D., Biran, A., Sit, J., & Szivas, E. M. (2014). Residents' support for tourism development: The role of residents' place image and perceived tourism impacts. *Tourism Management*, 45, 260–274.
- Thapa Karki, S. (2013). Do protected areas and conservation incentives contribute to sustainable livelihoods? A case study of Bardia National Park, Nepal. *Journal of Environmental Management*, 128, 988–995.
- Tolkach, D., & King, B. (2015). Strengthening Community-Based Tourism in a new resource-based island nation: Why and how? *Tourism Management*, 48, 386–398.
- Tuzon, T. P., Hilao, L. A., Marana, I. D., Villalobos, K. N., Garcia, E., & Medallon, M. C. (2014). Transformation to eco-agri tourism: The case of Casile, Cabuyao City, Laguna, Philippines. In M. A. Othuman Mydin, & A. Marzuki (Vol. Eds.), *SHS Web of Conferences*. 12. *SHS Web of Conferences* (pp. 10–48).
- Udaya Sekhar, N. (2003). Local people's attitudes towards conservation and wildlife tourism around Sariska Tiger Reserve, India. *Journal of Environmental Management*, 69(4), 339–347.

- UNEP (2015). *Environmental sustainability for human well-being in the post-2015 development agenda*. United Nations Environment Programme.
- Vedeld, P., Jumane, A., Wapalila, G., & Songorwa, A. (2012). Protected areas, poverty and conflicts. *Forest Policy and Economics*, 21, 20–31.
- Walpole, M. J., & Goodwin, H. J. (2002). Local attitudes towards conservation and tourism around Komodo National Park, Indonesia. *Environmental Conservation*, 28(02), 160–166.
- Wishitemi, B. E., Momanyi, S. O., Ombati, B. G., & Okello, M. M. (2015). The link between poverty, environment and ecotourism development in areas adjacent to Maasai Mara and Amboseli protected areas, Kenya. *Tourism Management Perspectives*, 16, 306–317.
- Yin, R. K. (2009). *Case study research: Design and methods* (4th ed.). Thousand Oaks, California: Sage Publications.



Arash Ghoddousi is a postdoctoral researcher at the Geography Department of Humboldt University of Berlin, Germany. He holds a PhD in Biodiversity and Ecology from the University of Göttingen, Germany. He is interested in conservation of endangered species through linking ecological perspectives to human dimensions. He also teaches conservation and biogeography at the university. His research interest falls into poaching mitigation approaches, conservation law enforcement practices, wildlife monitoring techniques of large mammals and human-wildlife conflict.



Siavash Ghoddousi has a MSc in Tourism Economics and Regional Development at the University of Algarve, Portugal. His dissertation was focused on ecotourism, community-based tourism and wildlife conservation. He is co-founder of Kareez Foundation, a non-for-profit organization, which uses wildlife tourism as a tool for helping wildlife conservation in Iran. His research interest lies at the intersection of wildlife conservation and ecotourism specifically in Iran and southwest Asia.



Bernadete Dias Sequeira holds a PhD in Sociology and a MSc in Organization and Information Systems from the University of Évora, Portugal. She is Assistant Professor at the Faculty of Economics, University of Algarve, Portugal, and a member of the Research Centre for Spatial and Organizational Dynamics (CIEO). Her current research interests include Sociology of Organizations, and Management of Tourism Organizations.



Pedro Pintassilgo holds a PhD in Economics from the New University of Lisbon. He is Assistant Professor at the Faculty of Economics, University of Algarve, Portugal, where he got the Aggregation title. He is also Director of the Master in Tourism Economics and Regional Development. He has been a visiting researcher at several European Universities: University of the Balearic Islands, University of Bath, University of Helsinki, University of Southern Denmark, and University of Stirling. He has published in influential journals in the fields of Environmental Economics and Tourism. One of his core research interests is the interactions between tourism and the environment.



Júlio Mendes, PhD in Management (Strategy and Organizational Behaviour), is a Professor at the Faculty of Economics, University of Algarve, where he is also Director of the Master in Tourism Organizations Management and an active member of the board of the PhD program in Tourism. He is also a research member of the Centre for Spatial and Organizational Dynamics (CIEO). Author and co-author of numerous scientific articles, chapters and papers related to Marketing Management, Tourism Experiences, Integrated Quality Management of Tourism Destinations, Community-Based Tourism and Sustainability.