VISITOR MANAGEMENT TOOLS FOR PROTECTED AREAS
FOCUSED ON SUSTAINABLE TOURISM DEVELOPMENT:
THE CROATIAN EXPERIENCE

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Abstract

The protected natural areas are becoming increasingly popular vacation destinations with both international and domestic travellers. Protected area may be an area of land and/or sea dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other means. It might have many different purposes. This means that biodiversity protection, though a critically important function is far from being the only purpose and is often not the primary purpose of many protected areas. As an ever-growing activity, tourism in protected areas produces benefits and cost that often interact in complex ways. Therefore, it is obvious that special attention has to be paid to the protected areas governance model and its effectiveness, especially in terms of the planning and control process enhancement for the purpose of avoiding possible conflicts over nature protection and tourism development.

This paper focuses on the analysis of problems that protected areas are facing in relation to tourism development, in particular from the Croatian protected areas’ point of view (specifically, national parks and nature parks). Additionally it offers some recommendations concerning possible environmental management strategies, specifically those related to visitor management, whose tools ought to be implemented in order to keep both the protected areas’ system and tourism development sustainable. These recommendations are to be discussed from the prospective of the new governance system implementation that might help in achieving the sustainability goals of Croatian protected areas.

Key words: Croatia, protected areas, sustainability, tourism, visitor management tools

Received: August, 2013; Revised final: May, 2014; Accepted: June, 2014

1. Introduction

The specific evolution from mass tourism to sustainable tourism has resulted in a new tourist offer based on preserved and indigenous resources. An ever rising tourist interest in such resources leads to the need for their protection from possible degradation (Pérez-Kallens et al., 2013). According to the Institute for Tourism report (IT, 2006), demand for nature-based tourism in the early 2000 contributes 7% to the world’s total tourism demand with its annual growth rates ranging from 10% to 30%.

Additionally, adventure tourism demand, which is also nature-based, has been growing annually by 8% and ecotourism demand has contributed total world’s tourist demand between 7% and 10% with its growth rates ranging between 2% and 4%.

Ecotourism, the main topic of this research, is usually considered to be more than just nature-based tourism (Hernández-Mogollón et al., 2013). According to the World Conservation Union’s Commission on National Parks and Protected Areas (IUCN), ecotourism is defined as an “environmentally responsible travel and visitation to relatively undisturbed natural areas, in order to enjoy and appreciate nature (and any accompanying cultural features - both past and present) that
promotes conservation, has low visitor negative impact and provides for beneficially active socio-economic involvement of local populations” (as cited in Tsaur et al., 2006). United Nations World Tourist Organization (UNWTO) defines it as an activity that improves the quality of life of the local community, offers extraordinary experience to visitors, and maintains the quality of the environment on which it depends (Sanjay, 2000). Drumm and Moore (2005) see ecotourism as a journey to a relatively undisturbed, intact natural area in order to study, admire and enjoy the landscape and its wildlife as well as its cultural heritage.

Hundreds of articles and books have been written so far dealing with the ecotourism definition and related issues. As Weaver and Lawton (2007) have reported, it was only in the period from 1997 to 2007 that at least 300 of refereed English language journal articles and an equally large number of books and book chapters have been written on this topic. However, the authors have agreed that despite such an abundance of literature and definitions, consensus has been reached that “ecotourism should satisfy three core criteria, i.e. (1) attractions should be predominantly nature-based, (2) visitor interactions with those attractions should be focused on learning or education, and (3) experience and product management should follow principles and practices associated with ecological, socio-cultural and economic sustainability” (Weaver and Lawton, 2007).

What is seen as the greatest benefit of ecotourism is the acquisition of personal experience and education that allow the visitors to understand and start appreciating the natural and spatial values that may frequently be taken for granted (Obenaus, 2005). However, due to the ever rising threats posed to the protected areas by the growth of both the visitor numbers as well as the number of tourism suppliers, it is of the utmost importance to manage such areas holistically and in an integrated way, by designing effective management plans and governance regimes to implement them.

A good and effective governance regime includes not only governments but also other stakeholders, actors and non-state agencies and requires a multi-faceted and multi-disciplinary approach (Buteau-Duitschaever et al., 2010; Ioppolo et al., 2013; Sampford, 2002). To this end, apart from the benefits gained from the traditional scientific methods on environment and its management, it is also important to recognize the importance of engaging local ecological knowledge in the management of protected areas.

In order to fully engage this alternative knowledge system (as opposed to the western/scientific management approach currently in place), local people need to be partners at all stages of research and management (Gerhardinger et al., 2009).

2. Research theoretical framework

2.1. Tourism and protected areas

Although it might be assumed that the term ‘protected’ implies that any activities are banned from such areas, nowadays they are seen as a perfect location to develop ecotourism and meet the needs of specific segments in the tourist market (Obenaus, 2005). However, as stated earlier, to generate the positive effects for the local community, protected areas have to be properly managed. The starting point of this process is the classification of a concrete area under one of the categories of protected parts of nature (Dudley, 2008). The mere classification of a particular area as a protected part of nature and determination of its formal geographical boundaries does not necessarily mean that the area has been adequately protected.

The protection and adequate use of the resources has to be defined by the legal framework and realised by the corresponding strategic plans implemented by a proactive and expert management (IUCN, 1994). This ensures optimization and achievement of all goals without negative effects on the particular protected area. The IUCN 2007 Guidelines stimulate the protection of its ecosystem bio-integrity and development of its recreational and tourist potential, which requires the management bodies of national parks to actively promote sustainability by developing recreation and tourism (Mayer et al., 2010).

The development of ecotourism in protected areas is increasingly seen as an ideal development strategy for rural and peripheral areas (Geić, 2011; Petrić, 2011). The decision on development of ecotourism in a protected natural area such as a national park has to be preceded by a complex process based on a number of assessments of its effects (Dharmaratne et al., 2000; Eagles et al., 2002; Obenaus, 2005). In an atmosphere of increasing dissatisfaction with the consumerist attitudes of the government and society in general, ecotourism is perceived as a promoter of sustainable development and environmental awareness (Björk, 2000). It is also an increasingly important source of revenue in the protected areas, since they are typically financed through public (often insufficient) sources (Björk, 2000). Besides, it helps increase employment and income for the locals, it stimulates and diversifies the local economy, encourages local manufacture of goods, supports research and development of good environmental practices etc.

The Austrian data show that as much as 33% of the total revenues from tourism are (directly and indirectly) generated by the national parks (Obenaus, 2005). On the other hand, the benefits generated by tourism in protected areas are accompanied by rising costs: financial, economic, socio-cultural and environmental (Eagles et al., 2002; Petrić and Mikulić, 2012).
Most of the rising costs are caused by uncontrolled expansion of the number of tourists accompanied by the expansion of investment in tourist infrastructure (boom-bust cycle), which leads to the short-term increase in tourist consumption and consequently revenues, but is followed by an economic decline, thus generating problems for the environment and spatial planning (Epler Wood, 2002). Only way to deal with this problem is to define the limits of acceptable change in terms of interrelated carrying capacities, which can be spatial, perceptual, social and economic (Gösling, 1999). Based on these capacities, a proper management system ought to be introduced with the set of tools aimed at avoiding and/or minimizing negative effects of tourism development.

2.2. Managing development of tourism in protected areas as a precondition of sustainable development

The model of managing protected areas, especially national parks, largely depends on the financing model. There are two basic models of national park financing:

a) Budget financing, characteristic for North American national parks, by which the government allocates part of tax revenues to national parks. The revenues depend on the government budget, disregarding the number of visitors to the park.

b) Self-financing, characteristic for South-East African national parks, where revenues result from ticket sales, accommodation and services fees, and donations. The number of visitors here is of utmost importance (Eagles and McCool, 2000).

As for the European protected areas governance and financing regime, different patterns could be observed. Hence, apart from the model of the government financed protected area management bodies that exist in most European countries, some countries (such as Belgium, Bosnia and Herzegovina, UK) have vested most management and budgetary responsibilities for nature conservation at sub-national (regional) level. Some protected areas are managed and financed by the local authorities in partnership with other stakeholders (e.g. Dutch national parks, French and Italian regional nature parks, West German nature parks, and all Swiss parks). Some protected areas with the lower level of protection are managed by the non-governmental organisations (such as Belgium’s Natagora and Natuurpunt) or by the partially privatized government enterprises (e.g. Finish Metsähallitus). In Central and Eastern Europe, protected areas run by non-governmental organisations are still the exception rather than the rule (Nolte et al., 2010).

However, regardless the financing model in use, managing the number of visitors, either attracting or limiting them, is of crucial importance for the sustainability of a protected area. Managing visitor flows requires detailed information on interaction between visitors and the environment, and on their time and spatial distribution (Cole and Daniel, 2003). According to Eagles et al. (2002), it is possible to control the number of visitors to a park by using various strategies: supply management, demand management, resource management, and space usage effect management. Within these strategic approaches, a number of authors (Eagles et al., 2002; Page, 2011; Petrić, 2011; Weaver, 2006, etc.) point to the possibility of using different visitor management tools that can be generally divided into four groups: institutional tools, economic tools, managerial tools, and information technology tools.

Institutional, or, according to Weaver (2006), hard tools include: area zoning, limiting of free access, concentration or dispersion of tourist flows, limiting some activities, spatial planning, application of eco-certificates, setting quotas and limiting the size of visitor groups. This group of tools is the basis for setting the sustainability principles in the protected natural area. Their number and intensity allows the managers to take a restrictive but sufficiently flexible approach to decision making. Hence, their implementation is dominant in the management of Croatian protected areas.

Zoning is the crucial institutional instrument in managing protected area. It is applied to limit the movement of visitors and ensure the adequate balance between the concentration and dispersion of visitors and activities within the park. Zoning is a complex process differing from park to park and depending on the size of the protected area (Obenaus, 2005). Rollins (as cited in Fennell, 1999) states that the zoning process must be primarily based on the features of natural resources rather than on recreational potential. The zoning process involves the managerial choice between the strategy of concentration and dispersion of recreational activities within the park (Eagles et al., 2002). To implement the zoning system successfully, it is necessary to simultaneously apply other institutional tools, among which spatial planning is a basic one. All other institutional tools can be applied individually or as part of the zoning decisions. Although belonging to the category of institutional tools (once they have been adopted), when dealing with limiting visitor pressure, eco-certificates are not so important. Regarding the way of their application, they could rather be categorised as managerial (marketing) tools. Thus, for example, some protected areas have decided to acquire the Pan Parks certificate to attract environmentally sensitive visitors.

Economic tools to manage visitor flows are: price differentiation, environmental-tourist taxes, Environmental Management Charge (EMC), visitor payback, incentives to private and public sector aimed at spatial and time dispersion of tourist traffic, stimulation of rational use of energy and other resources by public or private sector. The first three tools are restrictive and they can significantly affect the number of visitors. On the other hand, since every economic instrument eventually translates into a cost to the visitor, the optimal solution would rather be to manage the visitor flow by institutional tools. When
introducing differentiated prices, it is necessary to take into account the attendance rate to a particular protected area. Visitor payback is based on collecting donations from visitors. As such, the instrument can be implemented anywhere providing that there are visitors willing to donate.

Managerial (soft tools) include reservation techniques, information management, training of planners, local community education, and choice of specific market segments, i.e. target marketing and market control by agreements with the main service providers. Application of these tools is characteristic for the areas that are achieving the upper limit of carrying capacity, or for those coping with excessive attendance. The fourth group relates to the information technology tools that involve geographical-information systems and decision-making support systems. These highly sophisticated tools are in fact technical support to the management process, thus contributing to an easier managing of visitor flow and monitoring of any exceeding of a park (destination) capacity. Implementation of these tools requires a complex and systematic approach to the management of protected areas as micro destinations. The information system for the protection of nature in Croatia is managed by the National Institute for Nature Protection which manages all the records necessary to set up the geographical-information system and decision-making support system.

Unfortunately, sometimes all of the above tools are not sufficient to ensure sustainability and protection of some valuable area because of human irresponsibility that can come from any group of stakeholders.

3. Case study: protected areas in Croatia

3.1. Institutional framework of development and management of protected areas

Protected natural areas, particularly national parks and nature parks, are which the object of this research, make an important segment in the tourist offer of the Republic of Croatia. Therefore, it is no wonder that they are regulated by a number of legal acts and strategic documents (OG, 2013a), among which the most important are:

a. Sustainable development strategy of Croatia
b. Environmental protection plan of Croatia
c. Environmental protection program
d. Report on environmental conditions
e. Protected area management plans
f. Spatial plans.

Environmental protection in Croatia requires cooperation and coordination of numerous institutions and bodies such as the Government, ministries, counties, the National Institute for Nature Protection, the National Environmental Protection Agency, and the National Environmental Protection and Energy Efficiency Fund.

The Nature Protection Law (OG, 2013a), based on the generally accepted classification of IUCN, defines nine categories of protection of attractive natural areas on the territory of Croatia, among which the most significant are strict nature reserve, national park, special reserve, and nature park. In the context of tourism exploitation, national parks and nature parks are the most important areas under direct government protection.

In June 2008, the Croatian protected areas, including those under preventive protection, covered 7,457.31 sq km. The total protected area comprises 11.32% of land and 3.38% of the territorial sea, or 8.51% of the total area of Croatia, which includes 8 national parks and 11 nature parks (MC, 2008). Most of the protected areas are located in the coastal region (6 national parks and 6 nature parks). Among these, there are 3 marine national parks and 2 marine parks of nature (Fig. 1). It is important to stress that coastal region is the most visited by both domestic and international tourists. Thus, in 2012 out of 62.7 mil overnights realized in Croatia, 96% were realized in the seven coastal counties, compared to only 4% of overnights realized in the remaining 14 counties (MT, 2012).

3.2. Tourism development in the Croatian protected areas

Managing protected areas and developing tourism within them is a very challenging process. Due to the ambiguity of the key documents such as spatial plans and management plans, their managers are often compelled to act in a disorganised way, sometimes making arrangements that may not have positive effects nor be in the best interest of the area itself or its visitors.

The research carried out by the World Bank (Valuation of Tourism Benefits for Croatia’s Protected Areas) confirms a continuing rise of the number of visitors to Croatian national parks, but also points to the increasing problem of congestion occurring at their entrances and exits (Spurgeon et al., 2010). The data from this research as well as those from the research made by the Institute for Tourism (IT, 2006), reveal the high propensity of domestic and foreign visitors to ‘consume’ the protected areas, which will be further elaborated in this paper.

Spatial organization, the usage and protection mode in national parks and nature parks are regulated by spatial plans (MC, 2008). According to the data presented on the National Institute for Nature Protection web site, the following national parks have spatial plans: Brijuni (2001), Kornati (2003), Krka (1990), Mljet (2012), Paklenica (1999), Risnjak (2001), and Sjeverni (Northern) Velebit (2012), while for the national park Plitvička jezera (Plitvice lakes) there is a proposal of the spatial plan (National Institute for Nature Protection, 2013a).
Among the eight national parks, only three have recently created new spatial plans, while the rest have spatial plans that are more than ten years old, and the spatial plan for the NP Krka is 23 years old (a new one is being prepared). The situation in the nature parks is even worse. Only a few of them have spatial plans, while for most of them they are only being prepared. According to the National Institute for Nature Protection, the following nature parks have spatial plans: Kopački rit (2006), Lonjsko polje (2010), Telašćica (1988) – a new spatial plan under preparation. Učka (2006), while for Biokovo, the Lastovsko otocje (Lastovo Archipelago), Papuk, Vrana Lake and Žumberak they are being prepared, and there is a spatial plan proposal for Medvednica nature park (National Institute for Nature Protection, 2013b). Concerning the current situation in strategic spatial and developmental planning, it is obvious that ecotourism cannot adequately affirm its positive environmental, economic or ethical aspects.

Protected areas are managed by public institutions established by the Croatian Government. According to the regulations of the Environmental Protection Law (OG, 2013b), management of the strict reserve, national park, regional park, and protected landscape is to be based on the ten year management plan, which clearly defines the mode of protection, usage and management of the protected area, and provides the guidelines for protection and preservation of its natural values, taking into account the needs of the local population. Management plans were worked out and adopted by the following national parks: Plitvička jezera (MC, 2007a), Paklenica (MC, 2007b), Risnjak (MC, 2007c), Sjeverni Velebit (MC, 2007d) and nature parks: Velebit (MC, IBRD/GEF, 2007), Učka (PI Učka, 2010) and Lonjsko polje (PI Lonjsko polje, 2008).

The national parks Brijuni, Krka, Kornati and Mljet, as well as nature parks Lastovo, Medvednica, Telašćica and Papuk are still preparing them. Unfortunately, it must be noted that, in spite of the defined obligation of monitoring, none of the management plans completed so far include any scenarios or measures that are to be taken if the values of the protected area are threatened. Furthermore, the plans do not include a clear strategy of visitor flow management, but only a seasonal differentiation of the entrance ticket price.

When working out spatial plans and management plans for protected areas, all legal acts defining the use of such areas have to be taken into account. The Nature Protection Law (OG, 2013a) strictly defines which activities can be carried out in any protected natural areas. Paradoxically, the Law does not clearly state both the activities that can threaten the protected features, or which business activities can be undertaken, except for the national parks. Such ambiguities have to be corrected by regulations provided in the management plans.

Additional problems of the national parks and nature parks in Croatia are lack of financial and human resources (Petrić, 2008; Petrić and Mikulić, 2012). Namely, the main financial resource for national parks and nature parks is the government budget, while only a small part of resources results from the park activities.

The Nature Protection Law is partly to blame for this situation, because while it prescribes a strong autonomy of the institutions that run the national parks, it significantly limits the management of nature parks. Another problem of the Croatian protected areas is a lack of qualified workforce, especially in the field of tourism and recreation (Petrić, 2008; Petrić and Mikulić, 2012).
4. Results of empirical research and discussion

4.1. Research methodology

The need for a more detailed insight in the current application of modern scientific ideas in the Croatian protected areas management led to a specific empirical research. The sample included the management of all 8 national parks of Croatia, e.g. Brijuni, Kornati, Krka, Mljet, Paklenica, Plitvička jezera, Risnjak, Sjeverni Velebit, and the 11 nature parks, e.g. Biokovo, Kopački rit, Lonjsko polje, Medvednica, Papuk, Telašćica, Učka, Velebit, Vransko jezero, Žumberak – Samoborsko gorje, Lastovsko otocje.

The intended sample comprised experts expected to be familiar with the issue. The survey was performed by a questionnaire consisting of 13 questions, of which six were structured, three open-ended, and four asked for agreement/disagreement on a 1-7 Likert scale.

As this study starts from the theoretical assumption that the implementation of various strategic management documents is an indispensable precondition for sustainability of protected areas, particularly in the context of an increasing interest of visitors, the empirical part of the study sets out to investigate to what extent these documents are developed and used, with a special highlight on the visitor flow management plans with the related tools.

The research was carried out in March 2013. The questionnaire was e-mailed to the managers of all national parks and nature parks. As a relatively small number of responses was obtained after the first e-mailing, it was repeated in April, and eventually responses were obtained by the managers of 6 national parks (Brijuni, Kornati, Krka, Paklenica, Plitvička jezera, Sjeverni Velebit) and 8 nature parks (Biokovo, Lonjsko polje, Medvednica, Papuk, Učka, Velebit, Žumberak – Samoborsko gorje, Lastovsko otocje). The sample comprised in total 19 protected areas, while the responses were obtained from 14 of them, which makes a 73.68 % response rate (75% of national parks and 73 % of nature parks). This provides a quite reliable picture of the current situation in the implementation of strategic management documents and tools used by the Croatian protected areas.

4.2. Research results

From the data collected it is evident that the largest number of visitors is recorded by the national park Plitvička jezera, followed by the national park Krka, both of them being located on either an important tourist road or nearby well known tourist destinations in the coastal counties. In 2012 the number of visitors to the national park Plitvička jezera exceeded for the first time a million (amounting to 1,061,616), while Krka national park realized more than 750,000 visitors. This suggests a strong need to implement the strategies of visitor flow management to minimize the threat of degradation of their natural resources. In all the national parks there was a slight decline of visitors in 2009 due to the negative economic trends in the most important emissive markets at that time. The recovery was recorded already in the following year and the rising trend continued throughout 2011.

Special attention is to be paid to the national park Kornati. Since it is an archipelago, statistical recording of visitors is difficult. According to the information obtained from the management, up to 2008 individual tickets were sold per person, and from then on the tickets were charged to vessels, while organized visits were charged per number of visitors up to 2008 and from then on per number of boat entrances.

The fact that this national park covers an area of 320 sq km and 150 islands makes it difficult to control the number of visitors and their activities. The 2008 data refer to the number of tourist boats visiting the archipelago in the pre-season, main season and post-season, while the number of people should be much higher. Taking into account the data supplied by the research done by the Institute for tourism (IT, 2012) stating that the number of passengers per boat were from 1 (1% of respondents) to 7 and more (13.6% of respondents), it can be concluded that the number of visitors to Kornati was much higher than shown in the Fig. 2.

Fig. 2. Total numbers of visitors in National parks from 2006 to 2011 (Based on data collected through own research from National parks official websites)
These are alarming data, taking that there is neither precise control of boats entering the national park area nor any strategy to manage the flow of visitors, as the archipelago is an extremely sensitive biological system.

On the other hand, in spite of their extraordinary natural value, the national parks Paklenica and Sjeverni (Northern) Velebit record an unexpectedly small number of visitors. This may signal the poor implementation or even non-existence of strategies to attract visitors. Another reason can be that in the mountainous area it is difficult to monitor the number of visitors and sell them entrance tickets. That is why the real number of visitors largely exceeds the recorded one. A similar situation is evident in some nature parks, as will be expounded below. Fig. 3 reveals that Biokovo mountain (also located along one of the most visited tourist rivieras, e.g. Makarska Riviera in the Split-Dalmatia County) and the Lastovsko otočje are nature parks with the most recorded visitors. In most of the observed nature parks, the number of visitors dropped in 2009, followed by a recovery in 2010, except in Papuk that records a continuing decline of visitors. Recording the number of visitors is another noticeable problem for some nature parks. Of the 8 nature parks observed here, 2 (Zumberak and Učka) do not record the number of visitors at all.

The number of visitors presented in the Fig. 3 is based on the estimates by their management. Furthermore, as a group of islands, the Lastovsko otočje does not have an official entrance or exit, so the estimation of the number of visitors is based on the number of nautical day-tickets sold. In spite of the continuing rise of visits, Medvednica and Lonjsko polje do not record the total number of visitors, but only those who buy the tickets for some of the attractions in the area. Such a complex situation makes it impossible not only to establish and implement necessary visitor flow management tools, but also to implement the entire management strategy.

The surveyed respondents were asked to estimate the importance of tourism as the source of revenue in the protected area on a Likert scale anchored with 1 (extremely small importance) and 7 (extremely high importance). The mean response in the observed national parks was 5.6, which confirmed tourism as a strong generator of income both currently and in the future, unless the Croatian model of financing national parks is not radically changed. However, these data reveal that all the national parks, and especially those with a low number of visitors, will have to invest in activities that will attract more visitors in order to achieve higher revenues. This makes the requirement for the systematic planning of an optimal number of visitors, and preparation and implementation of the visitor flow management strategy, even more urgent.

The managers of the observed nature parks assessed the importance of tourism as income generator with a lower rating, 4.25, but considering the low number of recorded visitors and the current mode of financing, such assessment was expected. This can be confirmed by the fact that the nature parks with the highest number of recorded visitors (Biokovo and Lastovo) rated the importance of tourism with the highest response (7).

Among the 6 observed national parks, 4 (Sjeverni Velebit, Plitvička jezera, Krka, Paklenica) have adopted the management plan, while in 2 of them (Kornati, Brijuni) it has still been worked on. The preparation of management plans was financed by the national parks themselves, by the Karst Ecosystem Conservation Project (KEC), by the grants of Global Environment Fund, by IBRD (The International Bank for Reconstruction and Development) and by the Croatian Ministry of Culture. Among the observed nature parks, Medvednica, Lonjsko polje, Velebit, Papuk, and Učka have adopted management plans, while in Biokovo, the Lastovo Archipelago and Žumberak it is being processed.

![Fig. 3. Total numbers of visitors in Nature parks from 2006 to 2011 (Based on data collected through own research from Nature parks official websites)](image-url)
The survey also required the managers of national and nature parks with adopted management plans to state their degree of agreement with some key statements (1 for low and 7 for high degree of agreement):

1) The development of tourism in protected natural areas has a negative effect on the sensitive natural resources.

The mean rating in national parks was 5.25, which confirms that their managers recognize the potentially negative effects of tourism. In nature parks the mean rating was considerably lower (2.6). This can be explained in two ways. Namely, it is possible to conclude that the nature park managers do not perceive the negative consequences of tourism in protected natural areas due to the comparatively low number of visitors, while another conclusion may be that the surveyed managers recognized the value of adequate management plans, which among other things also propose measures to prevent and eliminate the negative effects of tourism in protected natural areas.

2) Management plan as the basic strategic document in management of protected areas significantly contributes to the minimization of negative effects of tourism on the environment.

The mean rating in the national parks was 5.25, while in nature parks it was 5.2. These responses lead to the conclusion that both national park and nature park managers recognize the potential of the strategic documents such as the management plan in minimizing the negative effects of tourism on the environment, and also their limitations if there are no clear measures to implement them. It is to be noted that the rating of the National park Plitvička jezera was 4, and of the nature park Velebit was 3. Since the former is a national park with the highest number of visitors and the latter is a nature park with a continuing rise of visitors, such ratings could lead to the conclusion that their managers recognized the need to work out additional planning documents such as the visitor flow management strategy, which could complete the process of strategic planning in given protected areas.

3) The current management plan contains adequate guidelines for active response to all environmental challenges that might arise in the future.

The mean rating in national parks was 5 while in nature parks it was 3.8. This shows that as the basis for prevention of environmental degradation the strategic documents are seen as deficient or inadequately adapted to the needs of the protected area or the needs of the public institutions using them. It may also mean that respondents are not familiar enough with the significance of such a document or with the need for development planning. If the guidelines are not defined by the Management plans, it is necessary to create them by other strategic documents such as Visitor flow management strategy, which may ensure minimization of potential environmental degradation.

4) The current planning documents do not contain adequate tools of visitor flow management in protected areas.

The mean rating in national parks was 4.75, while in nature parks it was 4. The national parks Krka and Plitvička jezera, which are also the two most frequently visited protected areas in Croatia, have defined visitor flow management tools, unlike Sjeverni Velebit and Paklenica. Precise interpretation of responses can lead to the conclusion that pointing to the visitor flow management tools the managers mainly think of zoning, and if they list some other tools it is obvious that they have not been worked out in a separate strategic document such as visitor flow management plan. In nature parks the situation is even worse. The questionnaire offered 19 visitor flow management tools and asked the protected area managers to identify those they currently use. The Fig. 4 shows the frequency of their implementation in the national parks.

![Fig. 4. Visitor flow management tools in the National Parks (Based on data collected through own research)](image-url)
It is to be noted that the Brijuni national park (it achieved national recognition after it was revealed that the former Yugoslav president Tito used it as one of his favourite residences) and Paklenica did not state any of the 19 tools as a measure actively applied on their territory. Taking into account the remaining national parks, it can be concluded that the most frequently used tools are: area zoning and limitation of some activities (actively applied in four of the six observed national parks), and also limitation of free access, dispersion of tourist flows, selection by price differentiation, education of local community and use of GIS (geographical-information systems).

The application of such tools leads to the conclusion that visitor flow management is mainly performed by zoning, as a tool defined by the Management plan, and by differentiating entrance tickets. An insight into ticket prices, for example in the national park Plitvička jezera, reveals that the pricing policy cannot ensure an adequate time redistribution of tourist demand. Namely, only two periods are differentiated (November to March and April to October) with a comparatively small difference in price for particular categories of visitors, and it should be much greater if visitors are to be motivated to come during the low season. Also, by offering additional discounts, the pricing policy is adapted to attracting large groups of visitors and families with children, which enhances the pressure on the area.

In the national park Krka, the pricing policy is to some extent different. They determine three pricing periods for individual and group visits. The ticket price differs significantly between the low/shoulder seasons and the high season (30 kunas for individual tickets in the off season and 95 kunas in the peak season). Implementation of the same tools can also be analysed in the observed nature parks. It is obvious that the most frequently applied tools are area zoning and limitation of activities, as well as education of the local community (Fig. 5). This leads to the conclusion that the tools are elements of the management plan and that their implementation does not result from a separate document such as a visitor flow management plan. It is also to be noted that the managers of Lonjsko Polje and Lastovo Archipelago did not admit the implementation of any of these measures.

The contribution of the implemented visitor flow management tools to better preservation of resources in protected areas was rated 5 by the national parks managers. Considering that these tools were the elements of the management plan in 5 national parks (excluding Plitvička jezera), it can be concluded that a lot remains to be done to develop detailed tools in separate documents that will consider not only the geospatial features of the area, its needs, its current and desired condition and biological diversity, but also the expected market trends and trends in tourism. This can be confirmed by the fact that all managers agreed that all protected natural areas should nowadays have a completed visitor flow management strategy, and that such strategies will have an increasing importance in the future, primarily due to the expected rise of visitors.

The mean rating obtained from the nature parks’ managers was 4.12. The tools applied result mainly from the management plan as the only strategic management document possessed by most of the nature parks. The only exception is the nature park Učka whose management plan anticipates the preparation of a special document to regulate the visitor flows in that protected area.

It is to be noted that the nature parks’ managers also recognized the need to work out a document to regulate the visitor flows in spite of the small number of recorded visitors. A special disadvantage for some nature parks (Zumberak and Učka) is that they do not have any system in place to monitor the number of visitors. In the final part of the questionnaire, the respondents were presented with a list of problems that they potentially faced when managing protected areas. They were asked to assess the importance of the proposed problems (1- low importance, 7- high importance).

![Fig. 5. Visitor flow management tools in the Nature Parks (Based on data collected through own research)](image-url)
The problems proposed by the researchers were:
1) Poor communication and cooperation with the institutions in charge of protected areas,
2) Lack of understanding by the Government for the specific problems facing the managers of protected areas,
3) Lack of financial resources needed for preparation of studies, plans, and strategies,
4) Lack of adequately trained human resources, especially in the areas of marketing and management,
5) Poor knowledge of trends in the tourist market,
6) Low awareness of the need to protect the extremely valuable natural areas.

The results reveal that the greatest problem recognized by the national parks managers was the poor communication and cooperation with the institutions in charge of protected areas (rated 4.4) and lack of understanding by the Government for the specific problems they face (rated 4). Lack of financial resources for preparation of the needed studies, plans, and strategies and the low awareness of the need to protect the extremely valuable natural areas were rated 3.6 and 2.8 respectively, while the least important problem was the poor knowledge of trends in the tourist market (2.6).

The managers of nature parks saw the lack of financial resources for preparation of the needed studies, plans, and strategies (rated 5.9) and the low awareness of the need to protect the extremely valuable natural areas (rated 5.3) as the most serious problems. They also see the lack of understanding by the Government for the specific problems they are facing as a significant problem (rated 4.4). They consider the lack of adequately trained human resources a problem of relatively low importance (2.8), as well as the poor knowledge of trends in the tourist market (2.9). Poor communication and cooperation with the institutions in charge of protected areas obtained an average rating of 3.

Comparing the significance given to particular problems by managers of national parks and managers of nature parks, it is obvious that in national parks the significant problems are communication with institutions in charge of them and lack of understanding for their managing problems by the Government, while in nature parks the significant problems are lack of financial resources needed for preparation of planning documents and the relatively low awareness on the need to protect the extremely valuable natural areas.

The above presented results might also be confirmed by the fact that five Croatian marine protected areas, i.e. Brijuni, Kornati, Mljet, Telaščica and Lastovsko otočje have recently joined an international initiative aimed at improving the management effectiveness of Marine Protected Areas (MPAs) in the south and east Mediterranean and supporting the creation of new ones.

5. Recommendations for further actions

The above explained situation poses the need to design an optimal model to manage Croatia’s protected areas. Due to a number of problems, there has recently been a dispute in Croatia (though a very short one) on the possible changes in the mode of management of protected natural areas, and the proposed solutions have been between the two opposing options - whether to keep the current model where each protected area has its own management or integrate all the management functions in one body following the U.S. model. The former option has prevailed, meaning that the model has not changed at all. Since it achieved very little success thus far, there is an urgent need to make it more efficient especially as the new proposals include a more intensive use of resources for economic purposes, primarily in tourism.
In that sense a number of practical tools might be proposed, such as The Consolidation Scorecard devised by The Nature Conservancy (TNC) (Martin and Reiger, 2003), the Rapid Assessment and Prioritization of Protected Areas Management (RAPPAM) concept, the Management Effectiveness Tracking Tool developed by inter alia the World Wide Fund for Nature (WWF), the Conservation Action Planning Methodology and many others (Fritz-Vietta et al., 2008, Nolte et al., 2010). Besides, the model that has recently been often recommended for an integrated system of territorial planning and performance measurement, that can easily be applied in protected areas management process is the Balance Scorecard (BSC) model, developed by Kaplan and Norton in 1996 (Notarstefano and Volo, 2012), with adaptations and practical applications done by Ioppolo et al. (2013) on the case of two islands, Djerba in Tunisia and Hvar in Croatia. The Balance Scorecard is a strategic analytic tool by which an organisation or a local territory system or in this case, a public institution managing protected area, can measure its performances not only through financial indicators but also through internal processes’ perspective, new public governance perspective, learning and innovation perspective and territorial strategy development perspective (loppolo et al., 2013). The idea of the BSC model, as presented by Notarstefano and Volo (2012), is that if each stakeholder is held accountable for making contributions, and they are measured on their contribution to all the areas that drive the long term viability, sustainability and profitability of the territory, they will shape their behaviour to the necessities for such wide range and long term performance.

Hence, this model represents a departure from traditional performance measures based predominantly on economic and financial indicators, and a transition to a balanced approach that includes multiple measures. Such approach supports the creation of a local (or a protected area) governance system that identifies a shared sustainable development strategy. Unfortunately, the protected areas’ governance model that is in use in Croatia is still pretty far from being efficient, which can be seen not only in terms of deficiencies of both strategic documents and a number of visitor management tools in use, but also in terms of participation and cooperation among the key stakeholders, management and marketing knowledge, capability of human resources etc., all of which have been perceived inefficient to a greater or lesser extent by a number of protected areas’ managers.

6. Conclusions

Development of tourism in the protected areas is an extremely complex and delicate process. For successful affirmation of all the positive effects of this economic activity, it is necessary to take a strategic approach to tourism and spatial planning.

Such an approach has to take into account the current condition of these resources, the desired social, economic and environmental effects, and the principles of sustainability that have to be implemented. Croatia is faced with the challenge of managing abundant natural and anthropogenic resources aiming to improve its attractiveness to tourists.

The survey carried out in Croatian protected areas shows a rising trend in visitor numbers in the recent years and numerous problems facing these areas. In national parks and nature parks, particularly those located on the islands and mountains, controlling the number of visitors is an evident problem, which may be related to the present governance model and its poor effectiveness resulting in inadequate strategic planning and implementation of guidelines stated in the plans.

The survey confirms the existence of management plan as the basic strategic document in a number of national parks and nature parks, but unfortunately not in all of them. None of them developed a visitor flow management strategy containing concrete tools, which is a quite a handicap considering an ever rising trend of visitor numbers. The rise of tourism as an activity that can significantly contribute to the financing of the observed national parks and nature parks will be an additional challenge for their managers. They will have to balance the optimal number of visitors to maximize the positive economic effects and minimize the negative environmental and socio-cultural effects.

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Visitor management tools for protected areas focused on sustainable tourism development: The Croatian experience


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