ANALYSIS OF THE RELATION BETWEEN VISITORS AND PROTECTED NATURAL AREAS IN THE ZADAR COUNTY

ANALIZA ODNOSA IZMEĐU POSJETITELJA I ZAŠTIĆENIH PODRUČJA PRIRODE U ZADARSKOJ ŽUPANIJI

Vesna KRPINA*

Summary

The aim of the research was to gain insight in the components of the model human-ecosystem (Human ecosystem model) on the specific example of protected natural areas in the Zadar county on one side and promotion and design of tourist offer in protected areas on the other side. In the period of June 1st to December 31st in the area of the NP Paklenica, the NaP Telašćica and the NaP Vransko Jezero, which are legally protected by the Act on Nature Conservation (NN 70/05, NN 80/13) and have a high national level of conservation, the research was conducted using the method of questionnaires and analysis of visitor attitudes, demands, motivations for visit and satisfaction with the services and offer in protected areas. For all three parks the same questionnaires printed in nine languages were used, which allowed an integral analysis of all data collected as well as the comparability of data between the parks. One part of the questionnaire was also answered by the staff of the respective parks and staff of local tourist organisations in order to gain insight in the value orientations of decision makers. The comparison of the answers were analysed by χ2 tests or Fisher's exact test. For the analysis of the main categorical variables, Correspondence Analysis (CA) was used. In this way, a basis for future continuous research was created. The results obtained have been compared to the results of research in other National and Nature Parks in Croatia (Marušić et all. 2007) and they present one of the entries to the models that enable the formulation of recommendations for management that is at the same time focused on nature conservation and visitor satisfaction.

KEY WORDS: protected natural areas, visitors, tourism, Correspondence Analysis, Zadar county

INTRODUCTION
UVOD

Protected natural areas are the main instrument of biodiversity conservation. Tourism and nature conservation started to develop in parallel as a result of a higher level of socio-economic development, with the growing of industrialisation, traffic and urbanisation. Therefore the timely coincidence of the founding of the first National park in the world in Yellowstone (USA) and the first touristic travel around the world (Thomas Cook) in 1872 has to be seen as directly linked instead of accidental. Regarding the fact that mainly ecologically valuable and naturally attractive areas, parts or phenomena of nature are put under conservation, it is clear that they present very attractive touristic motives. The Zadar county has a large number of protected natural areas, of which according to the Law of

* Mr. sc. Vesna Krpina, „Hrvatske šume" d.o.o.,UŠP Split, Ulica Kralja Zvonimira 35, 21 000 Split e-mail: vesna.krpina@hrsume.hr

Nature Conservation (NN 70/05, NN 80/13) the highest level of protection is given to the National Park (NP) Paklenica, Nature Park (NaP) Telašćica, the Nature Park (NaP) Vransko jezero and Nature Park Velebit (partially in the Zadar county). Research done among tourists in 2006 (Krpina 2009), showed that the motive for tourist arrival in the Zadar county is mainly to learn about nature (68%) and protected sites (53%), and the highest satisfaction with the touristic offer is with the beauty of nature and ecological preservation. Protected areas on one hand are public areas that should be accessible to everyone, but on the other hand because of their unique natural ecosystems have to be protected more active and managed by principles of sustainable development. Protected areas are part of the most attractive tourist destinations with a large potential for the development of a complex tourist offer. In the concept of tourism, protected areas present a specific touristic product which is a combination of various contents, including geomorphologic, climatic and landscape characteristics of the area, localities of special attractions or biological recourses, but also of transport means, types of accommodation, specific touristic infrastructure and specific activities (Martinić 2010). Appropriate management of these resources and their conservation can be based only on exact and timely information, both on the status of the natural values of the park as well as on the number, activities, attitudes and characteristics of their visitors.

Such socio-ecological research is conducted continuously every five to ten years. The research work from 2006 (Krpina 2009) presents the introduction to this interdisciplinary research that combines natural science in nature conservation and social and economic science in the area of tourism.

A part of domestic authors work on the touristic valorisation of the NP Paklenica, Lukić (1995) elaborates on the possibility of natural beauty, Radović (1995) comments a number of possibilities of assessment in nature conservation and Salleto-Janković (1995) in his research on the touristic valorisation of the relief of the NP Paklenica raises the question of maximum conservation of the natural environment and its optimal use.

In the Paklenica proceedings, vol. 2 (2004) published on the occasion of the 55th anniversary of the Paklenica National Park, Jović presents a research work on the model of visiting and visitors in the NP Paklenica. Lukač and Hršak, (2005) investigate the impact of visitors on the distribution of birds in the NP Paklenica. Lukač and colleagues (2007) give an overview on biodiversity, visiting and recreation as well as special protected zones within the Paklenica NP. Klarić et all. (2006) produces a local master plan of tourism for the NaP Vransko jezero and its surrounding by assessing the demand for a park on the basis of interest and activities of visitors. In the summer 2010 the NGO „Sunce"

(Split) conducted a project on the research of visitors in the NaP Telašćica. The project was part of the regional MedPan South project, coordinated by the Mediterranean office of the World Wildlife Fund for Nature (WWF MedPO). The first systematic monitoring of visitor characteristics in Croatian national and nature parks was conducted in 2004 (Agriconsulting S. p. A., 2005), as part of the Karst Ecosystem Conservation Project (KEC). Parts of this project included visitor research in the NP Paklenica and NaP Velebit. Marušić et all. (2007) conducts the research (also in Paklenica NP) „Attitudes and spending patterns of visitors in National and Nature Parks in Croatia", shortened Tomas 2006 National and Nature parks, with the aim of marketing natural protected areas and the design of tourist products.

The inclusion of this three parks assured also the representativeness of all three main natural phenomena: mountain landscape (NP Paklenica), island (NaP Telašćica) and wetland landscape (NaP Vransko jezero). The word 'park' in the following text refers to the national park and nature parks included in this research.

## PURPOSE OF RESEARCH
CILJ ISTRAŽIVANJA

The purpose of this research is to gather insight in the various components of the model people – ecosystem (Human ecosystem model) on the specific example of protected areas. A combination of qualitative and quantitative methods of research has been applied as well as an appropriate data processing and analysis.

As the Human ecosystem model is very complicated, for the purpose of this research only certain elements of this model where used, especially the orientation of values of the users (based on the Value orientation theory) and decision makers and their interaction and patterns of behaviour based on the Planned Behaviour theory (Ajzen 1991) which can be mutually interpreted and linked.

Research area – *Područje istraživanja*

Tourist destinations with their natural, historical, cultural and other contents and selective offers, can extend the tourism season on the whole year, which is from an economic and social aspect most important for the destination. This is not easy to achieve, as according to Tadej (1992) a good concept of alternative tourism because of the large amount of specific requests is much more complicated than to develop a well designed concept of mass tourism.

This research was conducted in the following areas: NP Paklenica (in the forest hut, the mountain refugee, at the exit of the park), NaP Telašćica (on an excursion boat of the NaP, in the Mir bay and in a restaurant in the park) and in the NaP Vransko jezero (at the entrance of the campsite Crkvine, on the viewpoint Kamenjak and in the port Prosika).
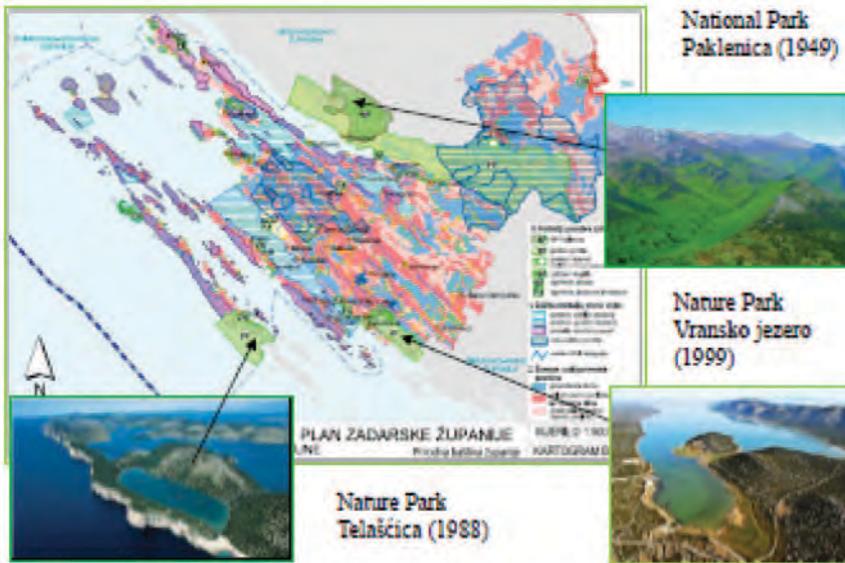
Figure 1 Location of NP Paklenica, NaP Vransko jezero and NaP Telašćica in the Zadar county
Slika 1. Položaj NP Paklenica, PP Vransko jezero i PP Telašćica u Zadarskoj županiji

MATERIALS AND METHODS
MATERIJALI I METODA RADA

The methodology of this work is divided to:

Analysis of park visitor attitudes – *Analiza stavova posjetitelja parka*

In the period from May 1st 2010 to December 31st data were collected on the sites in the park by the method of interviewing visitors.

For all three parks the same questionnaires were used. The analysis was done on the level of each park and by comparing the results of this visitor survey among the three parks, which resulted in the basis for continuous research.

Analysis of attitudes of park users – *Analize stavova korisnika parka*

This part was implemented with the staff of the parks involved as well as staff of tourism organisations from the respective areas (in following 'staff') by direct conversation and the method of interviews with pre-prepared questions (Neuman 2006). The questioned park users in a part of the questionnaire, answered to the same questions as the interviewed visitors. The analysis gave insight in the orientation of values of the decision makers. The results obtained were compared with the results of step 1, what enabled us to draw conclusions and suggestions for future management.

Sample of the visitor survey – *Veličina uzorka posjetitelja*

The sample size for each individual park was defined proportionally to the overall number of visitors in 2009, taking into account the minimum number of examinees for every park in order to ensure the reliability and representivity of the gained results. The planned sample size of 720 examinees was completely achieved.

Design of the questionnaire – *Oblikovanje upitnika*

For the purpose of this research a semi-structured questionnaire was designed and printed in nine languages (Croatian, English, German, Italian, French, Slovene, Czech, Slovak and Polish), according to the analysis of the visitor structure in earlier years. Semi-structured questionnaires are allow-

Table 1 The number of visitors and structure of sample per park
Tablica 1. Broj posjetitelja i struktura uzorka prema parku

Parks *Parkovi*	Number of visitors in the parks in 2009. Broj posjetitelja u parku u 2009. godini	%	Number of examinees in the parks in 2010. Broj ispitanika u parku u 2010. godini	%
NP PAKLENICA	105.452	42,2	293	40,7
NaP VRANSKO JEZERO	46.766	18,8	152	21,1
NaP TELAŠĆICA	97.439	39,0	275	38,2
Total – *Ukupno*	249.657	100,0	720	100,0

Source: Javna ustanova NP Paklenica, Javna ustanova PP Telašćica, Javna ustanova PP Vransko jezero, 2010

ing at the same time the collection of quantitative and qualitative data as well as a statistical analysis. Qualitative data were used to gain deeper understanding of the qualitative data in order for a better interpretation. The specific questions with a number of answers offered, asking the examinee to value his satisfaction with a specific offer according to the Liquert scale and to judge their interest for a certain offer or activity, are designed to reflect the basic orientation of values of the visitors (from ecocentric to anthropocentric) as well as their attitude towards protected areas and to reveal their behaviour, which allows to define their attitude and estimate future behaviour. How this fits into the theory of planned behaviour and the theory of orientation of values will be one of the results of this research.

The content of the questionnaire includes: Socio-demographic profile of the tourist; motives of arrival, characteristic of the visit and activities in the park; quality of the park; satisfaction with the offer in the park. In order to allow the results of this survey to be compared with the results of Tomas 2006 National Parks and Nature Parks (Marušić i dr. 2007), the questionnaire were designed in the same pattern.

Processing and Data Analysis – *Obrada i analiza podataka*

Parallel to the questionnaire survey a Windows Excell database was designed and developed. The data analysis was conducted by using the programme package SAS®System. For all analyzed variables a descriptive statistic was done, meaning the calculation of the frequency of answers as well as the arithmetic mean. The comparison of the results between the parks was analyzed by χ2 test or Fisher's exact test. For the analysis of category variables the CA (Correspondence Analysis), e.g. method of main components of category variables was used.

RESULTS
REZULTATI

The results of the research are presented according to:

1. Socio-demographic profile of park visitors
2. Motives of arrival, characteristics of the visit and activities in the park
3. Quality of the park
4. Satisfaction with the offer of the park

The results of all analysed parameters are shown in graphs and tables by every individual park.

1. Socio-demographic profile of visitors (age, gender, country of origin, level of education, monthly income of the household, connection to nature)

Sociodemografski profil posjetitelja (dob, spol, zemlja porijekla posjetitelja, stupanj obrazovanja, mjesečni prihodi kućanstva, vezanost za prirodu)

Of all visitors 55% are female, 45% male (figure 2). Most female visitors are in the NaP Telašćica, whilst the smallest number is in NaP Vransko jezero. The average age of visitors for all three parks is 38 years (women 37 years, males 40 years). The average age of visitors is a bit younger in the NP Paklenica and a bit older in the NaP Vransko Jezero.
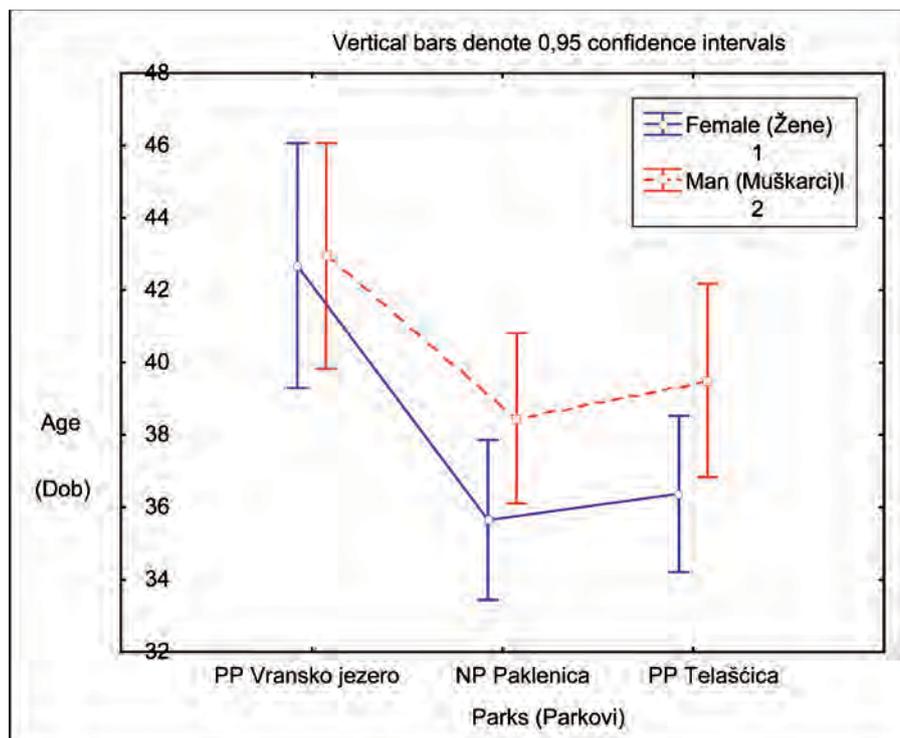
Figure 2 Age and gender of examinees by parks
Slika 2. Dob i spol ispitanih posjetitelja prema parku
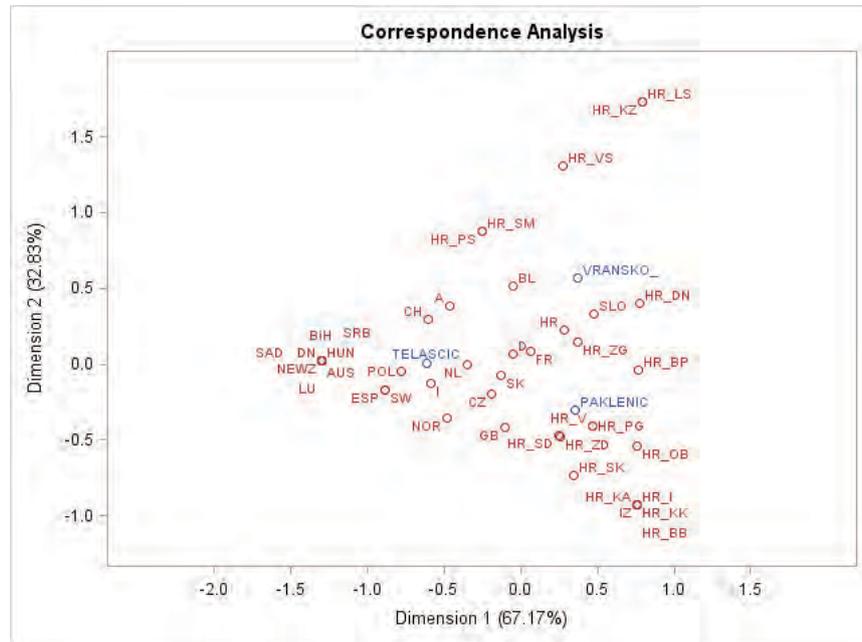
Inertia and Chi-Square Decomposition

Singular Value	Principal Inertia	Chi-Square	Percent	Cumulative Percent	13 26 39 52 65 ----+----+----+----+----+---
0.47239	0.22315	155.760	67.17	67.17	**************************
0.33024	0.10906	76.123	32.83	100.00	*************
Total	0.33221	231.882	100.00		
Degrees of Freedom = 84					

Figure 3 CA of the relation between the country of origin of the visitors and the park
Slika 3. CA odnosa između zemlje stalnog boravka posjetitelja i parka

The CA analysis of the visited park and the country of origin of visitors shows a high attachment of native visitors to the NP Paklenica and NaP Vransko jezero and foreign visitors to the NaP Telašćica. The overall connection (χ2) between the variables of the visited park and the country of origin of visitors (figure 3) is 231,882. The first dimension explains 67,17% of the overall connection, whilst the second one explains 32,83%.

Most of the park visitors have higher or high education (65%). An above average percentage of university educated visitors is present in NP Paklenica (44%). 25% of the visitors have an average income higher than 2,500 €, out of which the majority (32%) are visitors of NaP Telašćica.

In the research (Marušić et all. 2007), we differentiate 'motivated by nature' visitors – motivated by their stay in a natural environment and characterized by a high level of specialization, and 'attracted by nature' visitors for whom natural attractions are of periphery interest. The level of specialisation was measured through the subscription on media related to nature, membership in ecological or similar NGOs and the frequency of visits to protected areas.

The overall measure of connection (χ2) between the variables of following eco media, membership in ecological societies, visiting parks (in Croatia and worldwide in the last year, not referring to the current visit of the interview) and the park is 27,1463. The first dimension explains 77,83% of the overall connection, while the second presents 22,17%. The CA analysis on figure 4 shows that there are more *motivated by nature* visitors in the NP Paklenica and NaP Vransko jezero, while the visitors of NaP Telašćica are more *nature attracted*.

A part of (52%) of the visitors of NaP Vransko jezero are following publications related to nature conservation and ecology, 49% of the visitors of NaP Telašćica and at least (38%) the visitors of Paklenica NP. The highest affinity for active staying in a natural environment is shown by the visitors of the Paklenica NP, 24% are members of some ecological NGO, whilst the number is a bit lower among the visitors of NaP Vransko Jezero (19%) and the NaP Telašćica (17%). Most of the visitors from Croatia and abroad that frequently visit National and/or Nature parks are visiting the NP Paklenica (six or more times), whilst three and more
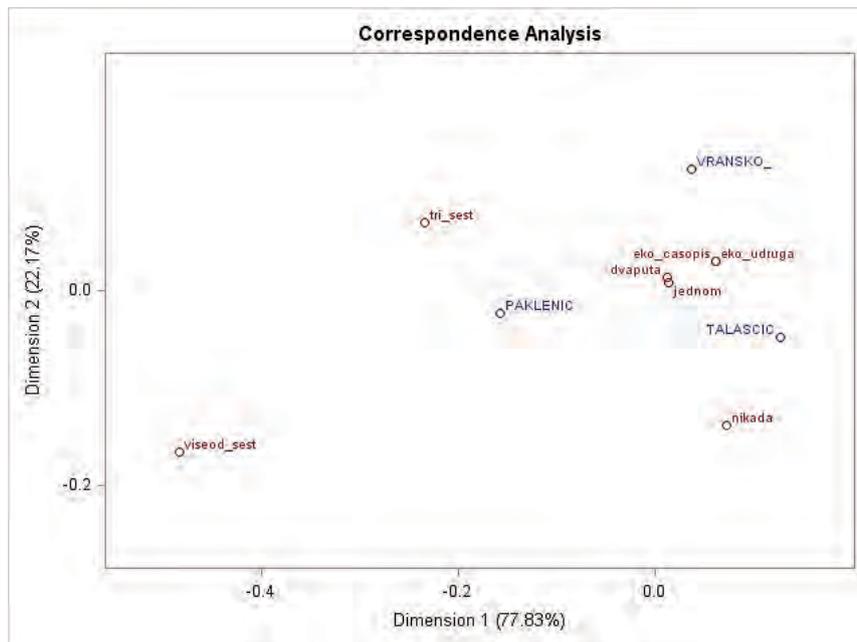
Figure 4 showing Correspondence Analysis plot with Dimension 1 (77.83%) on x-axis and Dimension 2 (22.17%) on y-axis, with points labeled VRANSKO_, tri_sest, eko_casopis, eko_udruga, dvaputa, jednom, PAKLENIC, TALASCIC, nikada, viseod_sest.

Inertia and Chi-Square Decomposition

Singular Value	Principal Inertia	Chi-Square	Percent	Cumulative Percent	16 32 48 64 80 ----+----+----+----+----+---
0.12671	0.01605	21.1280	77.83	77.83	************************
0.06763	0.00457	6.0183	22.17	100.00	*******
Total	0.02063	27.1463	100.00		
Degrees of Freedom = 12					

Figure 4 CA of the relation of following ecological media, membership in an ecological NGO, visiting of parks (in Croatia and worldwide during the last year) per park

Slika 4. CA odnosa praćenja eko časopisa, članstva u eko udruzi, posjećivanja parka (u HR i svijetu u zadnjih godinu dana) i parka

visits in the last year occur in the NP Paklenica and the NaP Vransko Jezero. Most of the examinees were visiting the respective park for the first time: 50% in NP Paklenica, 43% in NaP Vransko jezero and 74% in NaP Telašćica. The highest part of „regular" visitors (have visited the park two or more times) was 32% in the NaP PP Vransko jezero, 29% in the NP Paklenica and 15% of the visitors in NaP PP Telašćica.

2. Motives of arrival, characteristics of the visit and activities in the park – Motivi dolaska, karakteristike posjeta i aktivnosti u parku

The questions like type of visit to the park, the duration of the visit, motives of visit and activities that visitors do in the park were answered also by park staff and staff of touristic organizations in the respective areas.

The data obtained are important for the planning of infrastructure (e.g. access roads, parking areas), or the design of a tourist offer within or outside the park boundaries. More than half of the visitors (52%) realized their visit to the park targeted from the location of their holiday stay what was

also confirmed by the staff of NaP Vransko jezero and NP Paklenica, while 50% of the staff of NaP Telašćica believes that their visitors are coming by organized excursion to the park.

Whole day visits have the highest rate in NP Paklenica (36%), while in Vransko jezero NaP the average stay is up to three hours (40%) because of the lack of an offer and in NaP Telašćica (57%), where the rest of the time is spent by travelling to the park! The staff of NP Paklenica and NaP Telašćica believes that their visitors stay half a day, while the staff of NaP Vransko jezero have correctly estimated a stay of up to three hours.

The research of Krpina (2009) showed that the primary motives to visit the Zadar county are nature (68%) and visits to protected areas (53%). Following this lead we investigated the motives of visit in the three respective parks.

The primary motive for all three parks is to enjoy natural beauties (51%), followed by the wish to learn about the park (41%), rest and relaxation was the motive of 34% of visitors, 24% to enjoy a panoramic trips/sightseeing and 15% rec-
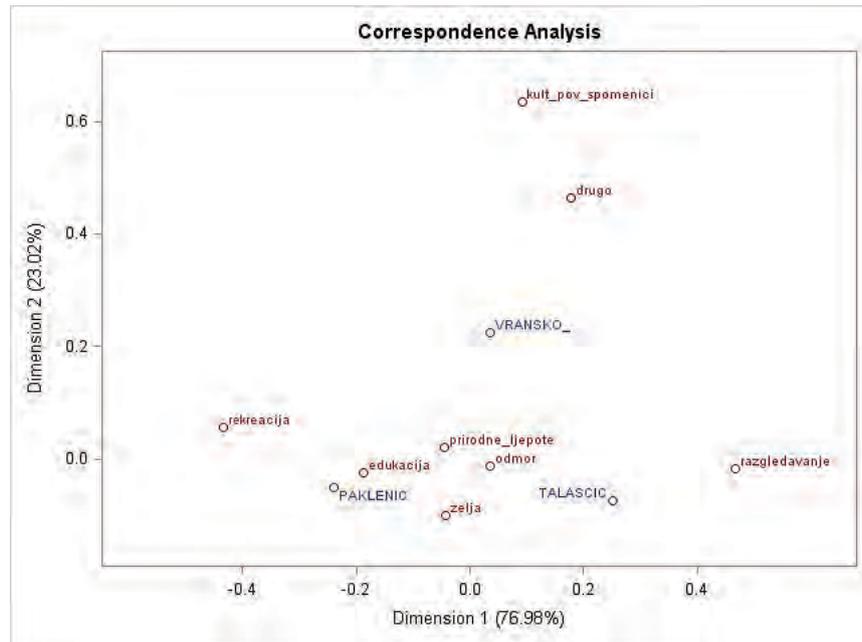
Inertia and Chi-Square Decomposition

Singular Value	Principal Inertia	Chi-Square	Percent	Cumulative Percent	15 30 45 60 75 ----+----+----+----+----+---
0.21765	0.04737	62.7680	76.98	76.98	************************
0.11903	0.01417	18.7742	23.02	100.00	*******
Total	0.06154	81.5422	100.00		
Degrees of Freedom = 14					

Figure 5. CA of relation of motives of visit and parks
Slika 5. CA odnosa motiva posjete parku i parka

reation. 14% of the visitors were motivated by watching or investigating specific species of plants or animals in the park, while the lowest motivation was 4% sightseeing of cultural-historical sites and „something else" (2%). The CA analysis (figure 5) shows that the motivation of visitors differs according to the features and the offers in the park. After enjoying natural beauties, the wish to learn about the park and rest and recreation, the visitors of NP Paklenice are more motivated by recreation and education, while the visitors of NaP Telašćica and NaP Vransko jezero by enjoying panoramic trips/sightseeing. The visitors of NaP Vransko jezero are also motivated by visiting cultural-historical sites (as they exist in the park!)

The overall connection ($\chi 2$) between the variable visit motives and the park is 81.5422. The first dimension explains 76,98% of the overall level of connection, while the second explains 23,02%. The stay of all three parks agrees that the primary motive for visitor's arrival is enjoying the natural beauties. The staff of NP Paklenica recognized the motive – recreation, but not the motive that attracted the visitors by rest and relaxation. The staff of NaP gave preference to

recreation instead of enjoying panoramic trips/sightseeing, and the staff of NaP Telašćica torest and relaxation. The key information for the management of the park visit are the way how to visit the park (given by the visiting system within the park) and the activities of visitors during their stay in the park. The mainly used way of visiting the parks was by hiking on marked trails (73%), but in NP Paklenica this is almost 100%. In the NaP Vransko jezero 47% of the visitors use the park by hiking on marked trails and a bit smaller number (46%) by car. In the NaP Telašćica 67% of the visitors use the park by hiking on marked trails, followed by the visit by boat 42% (by organized excursion vessels or own/rented boat).

The research showed that the main activity among the examinees was hiking (75%). This is followed by taking photographs of nature (48%), swimming (37%), consummation of food/drinks in objects of the park, consummation of own brought food (19%), mountaineering (17%) and visits to info points or centres (16%). Below 10% the following activities were represented: shopping in shops or souvenir shops, climbing (alpinism), bird watching, biking, shopping
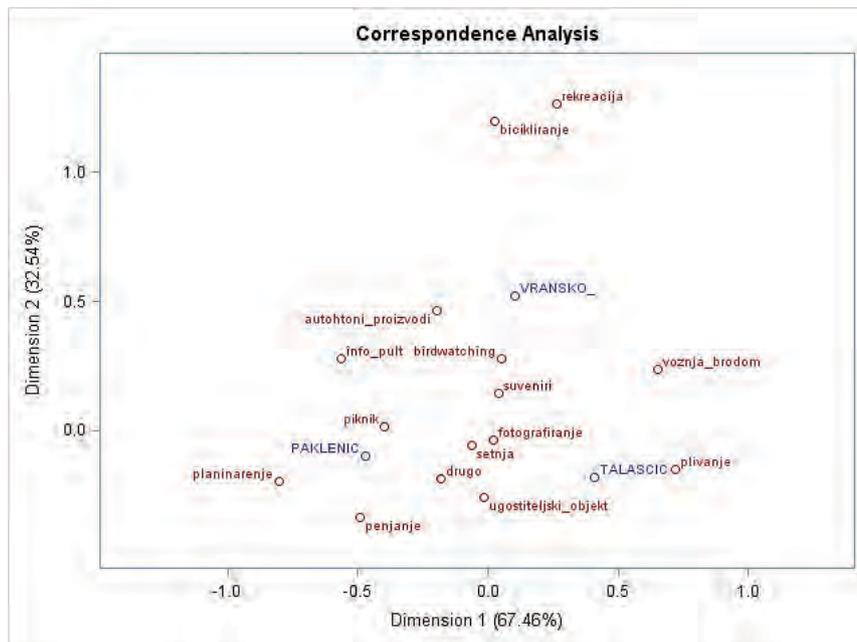
Figure 6. CA of visitor activities and the parks
Slika 6. CA odnosa aktivnosti posjetitelja u parku i parka

Inertia and Chi-Square Decomposition

Singular Value	Principal Inertia	Chi-Square	Percent	Cumulative Percent	13 26 39 52 65 ----+----+----+----+----+---
0.39403	0.15526	327.756	67.46	67.46	*************************
0.27368	0.07490	158.111	32.54	100.00	*************
Total	0.23016	485.867	100.00		
Degrees of Freedom = 28					

of local products and sport/recreation. The activities of the visitors are closely linked to the specific offer of the park, so the intensity of using these activities differs between the parks as shown in the CA analysis in figure 6.

The overall connection ($\chi 2$) between the variables visitor activities in the park and the park is 485,867. The first dimension explains 67,46% of the overall connection, while the second explains 32,54%.

So in NP Paklenica the most frequent activity is hiking (79%), followed by photographing nature (46%) and then mountaineering (34%). The staff of this park considers hiking and mountaineering as the main activities closely followed by climbing (alpinism) which was chosen by only 5% of the examinees. In the NaP Vransko jezero the visitors also choose hiking (66%), than photographing nature (45%), swimming (33%), while bird watching was chosen by 11% of the visitors. The staffs of the NaP Vransko jezero consider the main activity to be hiking, followed by visits of info points and then photographing nature. Only 17% of the staff considers swimming a frequent activity. In the NaP Telašćica the visitors mainly hike (77%), after which they

choose swimming (71%) and photographing nature (53%). The staff of NaP Telašćica put swimming and visits to info points as 100% of visitor activities, while hiking was estimated with 50%. It is interesting to note, that only 4% of examinees chose visit to info points. On the other hand the NaP Telašćica differs from the other parks, as the visitors are more focused on activities typical for marine areas, but not so typical for protected areas.

3. Quality of the park – *Kvaliteta parka*

The examinees estimated the quality of the investigated parks on the basis of: equipped trails and spaces or natural areas, perception of crowdedness in arrival/departure to the park and in the park, existence of tourist pressure in the park and which activities could cause tourist pressure in the park.

More than 50% of the examinees in the parks use as natural areas as possible. Even 66% of the visitors of NaP Vransko jezero use remote natural areas, whilst the staff of the parks believes that they aren't used at all. Such areas are also used by 50% of the visitors of the NaP Telašćica
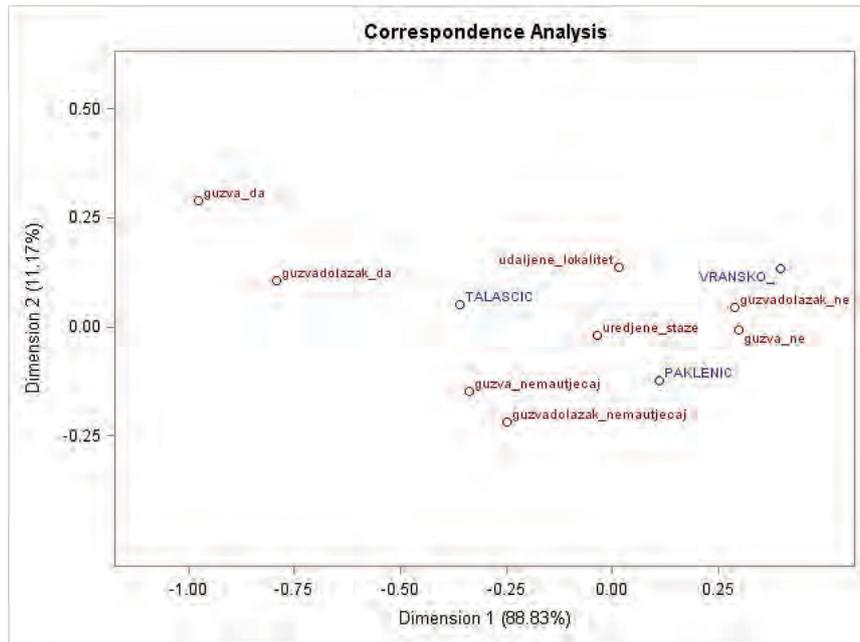
Inertia and Chi-Square Decomposition

Singular Value	Principal Inertia	Chi-Square	Percent	Cumulative Percent	18 36 54 72 90 ----+----+----+----+----+---
0.29889	0.08933	181.347	88.83	88.83	**************************
0.10597	0.01123	22.796	11.17	100.00	***
Total	0.10056	204.143	100.00		
Degrees of Freedom = 14					

Figure 7. CA for the visitors and the use of natural localities and marked trails in the park, as well as the impact of crowdedness in arrival/departure and in the park

Slika 7. CA odnosa posjetitelja i korištenja prirodnih lokaliteta i uređenih staza u parku te utjecaj gužve na odlasku/dolasku u park i u parku

and 100% of the staff agrees with this fact. These areas are used in a lower intensity by visitors of the Paklenica NP (45%), and 33% of the staff agrees. The large majority of visitors (93%) is using marked trails in the park, or respectively 96% of the visitors in NaP Vransko jezero, 93% of the visitors of NP Paklenica and 92% of NaP Telašćica. 100% of the staff of NP Paklenica and NaP Vransko jezero, and 75% of the staff of NaP Telašćica agrees with that. The negative impact of crowdedness is most visible in the NaP Telašćica, mentioned by 23% of the visitors and 67% of the staff agrees. Also every fifth visitor of this park experienced a negative crowdedness in arrival/departure with which 25% of the staff agrees. In the NP Paklenica 3% of the visitors experienced a negative crowdedness and none of the staff. A negative perception of crowdedness in arrival/departure had 5% of the examinees and 67% of the staff agrees. The least negative impact of crowdedness in the park as well as in arrival/departure (1%) was in NaP Vransko jezero and 17% of the staff agrees.

The overall connection (χ2) between the variables for the visitors and the use of natural localities and marked trails

in the park, as well as the impact of crowdedness in arrival/departure and in the park is 204,143. The first dimension explains 88,83% of the overall connection, while the second explains 11,17%.

The overall connection (χ2) between the variables for the relation of visitors and activities that create the highest pressure in the park is 68,2473. The first dimension explains 74,47% of the overall connection, while the second explains 25,53%.

Even 42% of the visitors of the NaP Telašćica consider that there is a touristic pressure within the park, and 67% of the park staff agrees. In the NP Paklenica touristic pressure is felt by 19% of the visitors, while the staff considers that there is none at all. For the NaP Vransko jezero this ratio is 2% of visitors and 17% of the staff. The vistors of NP Paklenica consider the highest pressure are climbers. In the NaP Telašćica almost all examinees consider the number of visitors creates the highest pressure on the park (81%). In the NaP Vransko jezero visitors do not consider any activities that cause touristic pressure.
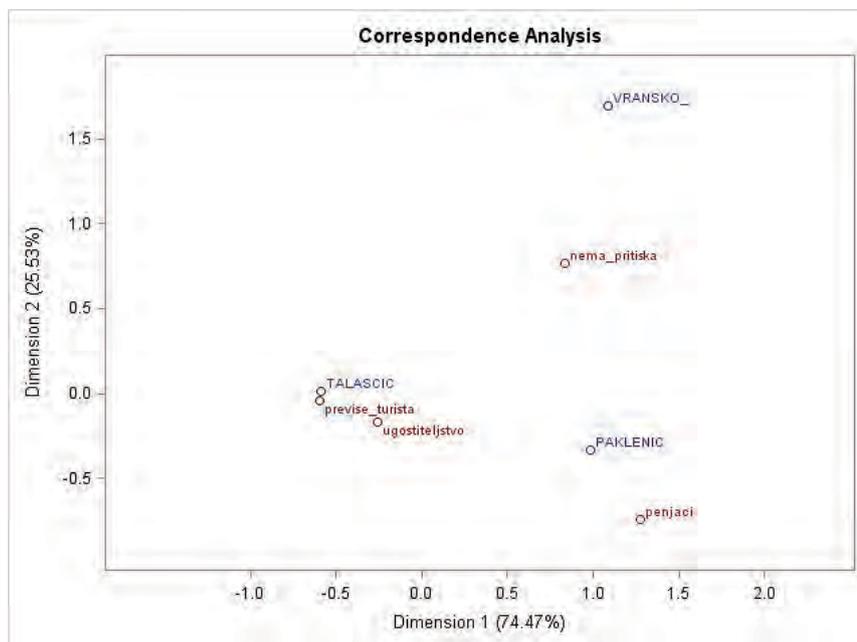
Inertia and Chi-Square Decomposition

Singular Value	Principal Inertia	Chi-Square	Percent	Cumulative Percent	15 30 45 60 75 ----+----+----+----+----+---
0.76876	0.59099	50.8251	74.47	74.47	*************************
0.45009	0.20258	17.4222	25.53	100.00	*********
Total	0.79357	68.2473	100.00		
Degrees of Freedom = 6					

Figure 8. CA of the relation of visitors and activities that create the highest pressure on the park
Slika 8. CA odnosa posjetitelja i djelatnosti koje vrše najveći pritisak u parku i parka

4. Visitor satisfaction with the park offer – *Zadovoljstvo ponudom parka*

In order to compare the results, the level of visitor satisfaction with the park offer was measured in the same way as in the survey (Marušić et all., 2007), where the examinees rated 26 elements of park offer from 1 (lowest mark) to 5 (highest mark) and 0 if they answered „I don't know". In this way it was possible to indicate the elements of tourist offer of the park to the visitors were very satisfying (advantage) and with which they were completely unsatisfied (disadvantage). The ranking was defined by the sum of averages for mark 4 (very good) and 5 (excellent). A very high level of satisfaction is achieved if the sum of very good and excellent ranks is higher than 80%, high level is achieved between 70% and 79,99%, medium level of satisfaction is achieved between 60% and 69,99%, low level of satisfaction is achieved between 50% and 59,99%, while all elements ranked lower than 50% are considered very low. In this research of visitor satisfaction with the park offer as well as the answers on the questions which are the three main reasons for the feeling of satisfaction were also answered by park staff and tourist staff from the respective area.

The overall satisfaction with the visit of NP Paklenica is very high while the staff valuated the satisfaction as medium. The visitors of the NaP PP Vransko jezero are very satisfied, while the staff believes they have a very low level of satisfaction. The visitors of NaP Telašćica have a low overall level of satisfaction, while the staff believes that their visitors are highly satisfied. The highest contributions to visitor satisfaction in the NP Paklenica are: cleanness of the park, clear signposts on main roads and within the park, organisation of trails, hospitality of staff and attractiveness of the park. They are medium satisfied with the availability of information and info materials about the park before the travel, parking areas, information panels, quality of benches and resting areas, the adaptation of objects to the natural environment and the professionalism of park staff. The visitors are less satisfied with the price of the entrance fee, the number of resting points, viewpoints, the number and cleanliness of toilets and least satisfied with transportation within the park, number of benches, number and quality of gastronomic objects, additional programmes of the park (education, excursions) as well as the adaptation to visitors with special needs. A high level of satisfaction visitors in NaP Vransko Jezero is given for acce-

Table 2 Level of visitor satisfaction by parks
Tablica 2. Stupanj zadovoljstva ponudom parka

PARK	NaP VRANSKO JEZERO		NP PAKLENICA		NaP TELAŠĆICA	
ELEMENTS OF OFFER (*ELEMENTI PONUDE*)	**Visitors** *Posjetitelji*	**Staff** *Djelatnici*	**Visitors** *Posjetitelji*	**Staff** *Djaelatnici*	**Visitors** *Posjetitelji*	**Staff** *Djelatnici*
Information about the park before arrival *Informacija o parku prije polaska*	L	VL	M	VL	VL	H
Signage leading to the park on traffic roads *Označenost parka na javnim prometnicama*	VL	L	H	0	VL	L
Entrance fee *Cijena ulaznice*	VL	L	L	M	VL	H
Parking areas *Parkiralište*	L	H	M	VL	VL	0
Availability of info materials (brochures, maps) *Dostupnost informativnog materijala (brošure, karte)*	VL	VL	M	M	VL	L
Clear signpost for moving in the park *Jasnoća oznaka za kretanje unutar parka*	L	VL	H	VL	VL	L
Organization of trails *Uređenost staza*	L	L	H	VL	L	L
Quality of visitor transportation within the park *Kvaliteta prijevoza unutar parka*	VL	0	VL	VL	VL	0
Interpretative panels *Interpretacijske ploče*	VL	VL	M	VL	VL	VL
Sufficiency of benches for rest *Dovoljan broj klupa*	L	H	VL	VL	VL	VL
Quality of benches *Kvaliteta klupa*	L	H	M	M	VL	H
Sufficiency of resting areas *Dovoljan broj odmorišta*	L	0	L	0	VL	0
Quality of resting areas *Kvaliteta odmorišta*	L	L	M	0	VL	VL
Sufficiency of viewpoints *Dostupnost vidikovaca*	H	L	L	VL	L	H
Quality of viewpoints *Kvaliteta vidikovaca*	H	VL	L	VL	L	VL
Cleanness of the park *Čistoća parka*	M	VL	VH	M	L	H
Number/cleanness of toilets *Broj/ čistoća sanitarnih čvorova*	L	0	L	0	VL	0
Number/cleanness of gastronomy objects *Broj/kvaliteta ugostiteljskih objekata*	VL	0	VL	0	VL	0
Adaption of objects to the natural environment *Prilagođenost objekata prirodnom prostoru*	M	L	M	M	VL	VL
Politeness of park staff *Gostoljubivost djelatnika parka*	M	L	H	M	L	L
Professionalism of park staff *Stručnost djelatnika parka*	M	L	M	M	VL	VH
Educational programmes of the parks *Popratni sadržaj parka-edukacija*	VL	L	VL	VL	VL	VL
Guide programmes to the park *Popratni sadržaj parka-izleti*	VL	0	VL	VL	VL	L
Adaptation to visitors with special needs *Prilagođenost osobama s posebnim potrebama*	VL	0	VL	0	VL	L
Attractiveness of the park *Atraktivnost parka*	M	M	H	M	L	H
Overall satisfaction with the park visit *Zadovoljstvo ukupnom posjetom parka*	H	VL	VH	M	L	H

| | VERY HIGH VRLO VISOK | HIGH VISOK | MEDIUM SREDNJE | LOW NISKO | VERY LOW VRLO NISKO |
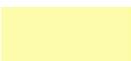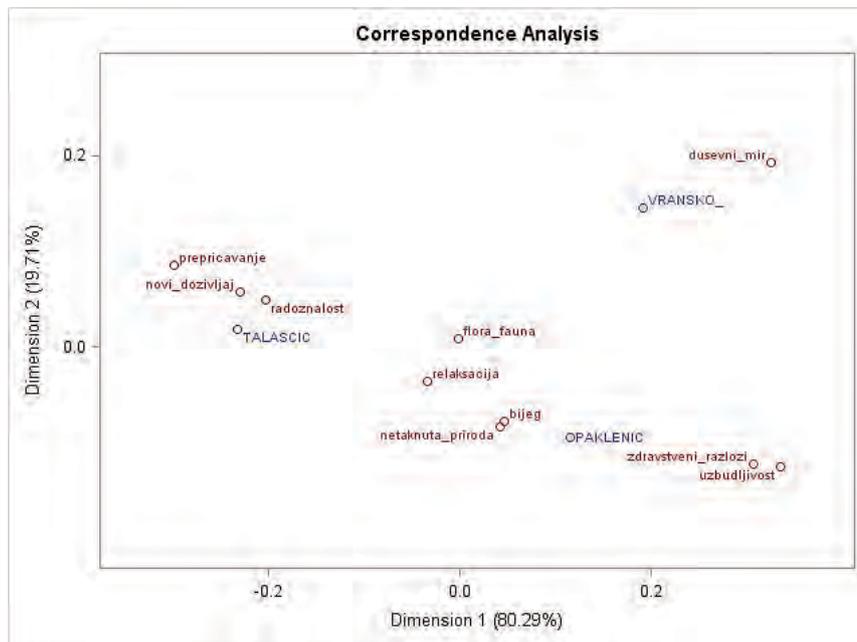
Inertia and Chi-Square Decomposition

Singular Value	Principal Inertia	Chi-Square	Percent	Cumulative Percent	16 32 48 64 80 ----+----+----+----+----+---
0.18372	0.03375	67.2708	80.29	80.29	**************************
0.09104	0.00829	16.5183	19.71	100.00	******
Total	0.04204	83.7891	100.00		
Degrees of Freedom = 18					

Figure 9. CA for the relation of visitors and three main reasons for satisfaction in the park and the parks
Slika 9. CA odnosa posjetitelja i tri najvažnija osjećaja zadovoljstva u posjećenom parku i parka

ssibility and quality of viewpoints. They are medium satisfied with: cleanliness of the park, adaptation to visitors with special needs, adaptation to objects to the natural environment, hospitality and professionalism of park staff and the attractiveness of park. They gave low marks to: availability of information and info materials before the travel, parking areas, clear signposts within the park, organisation of trails and the number and quality of benches, resting points and toilets. The lowest marks were given to: clear signpost on access roads, price of the entrance fee, availability of information material, quality of transportation within the park, interpretative panels, number and quality of gastronomic objects, additional offers in the park (excursions, education) and the adaptation to visitors with special needs. The visitors of NaP Telašćica are least satisfied with the elements of the park's offer. That means that they have a low level of satisfaction with: organisation of trails, accessibility and quality of viewpoints, cleanliness of the park, hospitality of park staff and the attractiveness of the park and a very low level for: availability of information and info material before the travel, clear signpost on access roads, price of the entrance fee, parking areas, clear signpost within the park, quality of transportation within the

park, interpretative panels, number and quality of gastronomic objects, benches, resting areas and toilets as well as the adaptation of objects to the natural environment, professionalism of park staff, additional offers in the park (excursions, education) and adaptation to visitors with special needs. In the NaP Telašćica there is the largest difference between visitor satisfaction and the perception of the park staff.

Asked for the three main reasons for visitor satisfaction while visiting the examined parks, the examinees answered untouched nature (59%), relaxation (52%) and peacefulness (32%). The park staff answered these questions with relaxation (73%), untouched nature (55%) and a new experience and curiosity (45%).

The majority of visitors, 65% in NP Paklenica, 54% in NaP Vransko jezero and 55% in NaP Telašćica are most satisfied with the untouched nature. The staff of the NaP Telašćica agrees with this opinion, while 100% of the examined staff of NP Paklenica and /%% of the staff of NaP Vransko Jezero believes that this is relaxation.

The overall connection (χ2) between the variables for the relation of visitors and three main reasons for satisfaction
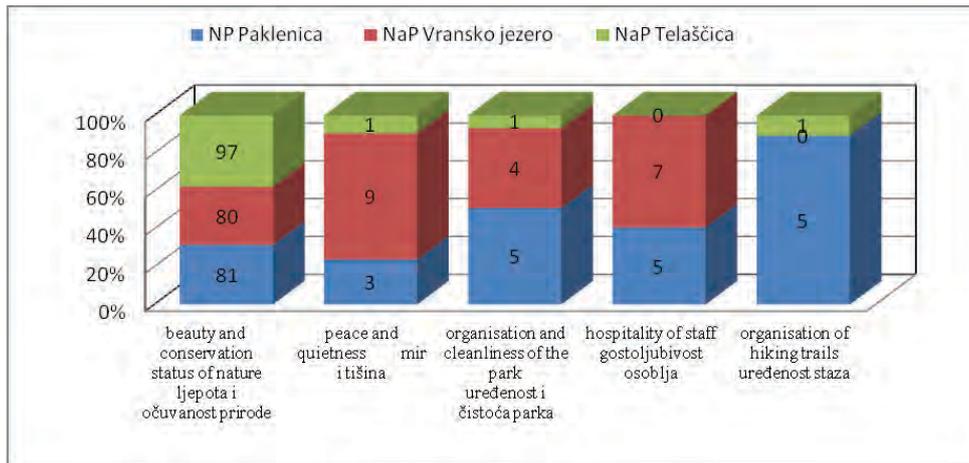
Figure 10 Elements of the park that most impressed the visitors
Slika 10: Elementi parka koji su najviše dojmili posjetitelje

in the park and the parks (Figure 9) is 83,7891. The first dimension explains 80,29% of the overall connection, while the second explains 19,71%.

A large majority of visitors examined in the parks was impressed by the beauty and conservation status of nature, or respectively 97% of visitors in NaP Telašćica, 81% in the NP Pa-
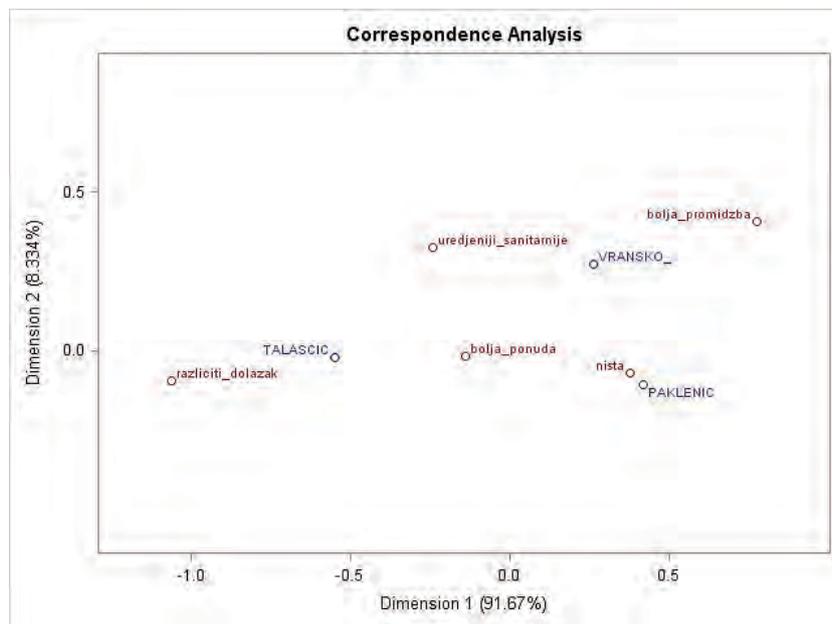
Inertia and Chi-Square Decomposition

Singular Value	Principal Inertia	Chi-Square	Percent	Cumulative Percent	18 36 54 72 90 ----+----+----+----+---
0.45342	0.20559	54.0705	91.67	91.67	************************
0.13672	0.01869	4.9158	8.33	100.00	**
Total	0.22428	58.9862	100.00		
Degrees of Freedom = 8					

Figure 11 CA of the relation of possible improvement of the park offer
Slika 11. CA odnosa mogućeg unapređenja ponude parkova

klenica and 80% of the visitors of NaP Vransko jezero. The next highest ranked explanatory answers are related to peace and quietness, organisation and cleanliness of the park, hospitality of staff and organisation of hiking trails (Figure 10).

The CA analysis in figure 11 shows the overall connection ($\chi2$) between the variables for the possible improvement of park offer and the parks is 58,9862. The first dimension explains 91,67% of the overall connection, while the second explains 8,33%.

More than a third of visitors quoted descriptive answers related to:

–   Improve the offer and contents: 40% in NaP Telašćica, 30% in NaP Vransko jezero and 30% in the NP Paklenica;

–   Put in order the sanitary facilities: 16% in NaP Vransko jezero, 13% in NaP Telašćica and 6% in the NP Paklenica;

–   Arrival of visitors in different times of the day: even 24% in the NaP Telašćica, 2% in the NaP Vransko jezero and 1% in the NP Paklenica;

–   Better marketing on the internet: 4% in the NP Paklenica and 6% in the NaP Vransko jezero.

43% of the examinees consider that nothing has to change in the parks.

DISCUSSION
RASPRAVA

The results of the KEC research (Agriconsulting S.p.A. 2005) conducted in the NP Risnjak, NP Sjeverni Velebit, NP Plitvička jezera, NP Paklenica and NaP Velebit, already showed that a systematic monitoring of visitor characteristics in National and Nature parks in Croatia enables the optimisation of the visiting system, allowing the reception of an increased number of visitors and at the same time not compromising the natural values for which the parks were founded.

Comparing the results of this research conducted in 2010 in the NP Paklenica, NaP Vransko jezero and NaP Telašćica on the level of the Zadar county with the overall results of the study 'Tomas 2006 National parks and Nature parks' (Marušić i dr. 2007) which was conducted in six national parks (Plitvice lakes, Krka, Kornati, Northern Velebit, Paklenica, Brijuni) and two nature parks (Kopački rit and Biokovo) on a Croatian level we can identify the following indicators and trends:

1. **Socio-demographic profile of visitors** – Sociodemografski profil posjetitelja parkova

–   A maintained visitor structure with visitors of average age, high education level and above average income, the majority from foreign countries (mainly from Germany, Italy, Czech Republic, Slovak Republic, Hungary, Poland, France, Great Britain and Austria). The percentage of visitors that are members of an ecological or nature conservation NGO or that receive temporarily/regularly ecological newspapers is increasing.

–   The percentage of first time visitors to a protected area in this year has declined from 58% to 19%, and 53% of visitors have been two or more times in protected areas, which shows a change in lifestyle related to nature.

–   Also the majority of the visitors was the first time in the visited park, so we cannot consider them as „regular" guests of the respective park.

2. **Motives for arrival, characteristics of the visit and activities in the park** – Motivi dolaska, karakteristike posjeta i aktivnosti u parkovima

–   The majority of park visitors are visitors that target their location of holidays (52%). In the research of Marušić et all.(2007) there were 36%, and the majority were tourist in transit (38%). The increase indicates a higher and targeted interest of tourists to visit protected areas.

–   The visitors stay in the park mainly up to three hours (35%), and in the research of Marušić et all. (2007) about half a day. The stay in the park or surrounding of two or more days has increased from 10% to 13%. The results show, that however the main percentage of visitors are still on excursion or short trips.

–   Hiking on organised trails is the main mean of visiting the park, what was also the case in the investigated national and nature parks in Croatia in 2006.

–   The main motive for park visits are still enjoying natural beauties (51%), general wish to visit the park (decreased from 48% to 41%) and rest and relaxation (increased from 29% to 34%).

–   The main activities in the parks of the Zadar county are hiking (75%), photographing nature (48%), swimming (37%) and consummation of food/drinks in gastronomic objects of the park (32%), while on a Croatian level they were photographing nature (84%), consummation of food/drinks in gastronomic objects of the park (38%), visits to an info centre and shopping in markets/souvenir shops (31%). Hiking was also the main activity in the KEC research (Agriconsulting S. p. A. 2005).

3. **Quality of the park** – Kvaliteta parka

–   Crowdedness in the park as well as crowdedness on arrival/departure to the park was experienced by 36% of the visitors, which is by a third lower than in the parks on Croatian level. Then and now, about

10% of the visitors stated that crowdedness had a negative impact on their visit. Crowdedness in arrival/departure was exceptionally marked in the NP Krka (Marušić i dr. 2007), and in this research in the NaP Telašćica.

4. Satisfaction with the park offer – Zadovoljstvo ponudom parka

- A large majority of visitors in 2006 on a Croatian level was very satisfied with the overall visit to the park (93%), as well as with the attractiveness of the park (86%). The park visitors in Zadar county quote an overall satisfaction with the park visit (73%), but are only medium satisfied with the attractiveness of the park (66%).

- The largest contribution to visitor satisfaction in the parks investigated in Croatia in 2007 was given to: general cleanliness, maintenance of trails, professionalism and hospitality of park staff, quality of transportation and clear information on moving in the park, interpretative panels, information material, gastronomic facilities, and quality signposts on arrival/departure, while the lowest marks were given to the quality of sanitary facilities. The visitors of the parks in this research are satisfied or medium satisfied with the cleanliness of the park and the hospitality of park staff, and at least satisfied by the quality of transportation within the park, adaptation to visitors with special needs and additional offers in the park (excursions/education) for which the majority of visitors claimed 'I don't know'.

- The visitors are still most impressed by the beauty and conservation status as shown in the work of (Agriconsulting S.p.A. 2005), Marušić et all. (2007) and Krpina (2009).

- The improvement of the offer and content of the park (fixing trails, improved cleanliness of the park and sanitary facilities, improved signposts in the park, information panels in different languages, more shops, more recreational elements, more offers for people with special needs, improvement of environment, infrastructure or buildings) is still important for park management. The visitors of Zadar county propose the dispersion of visitors during the day and a better marketing on the internet. 43% believe that nothing in the offer should be changed.

The comparison of results in this site-time analysis indicates the special features of the parks, the differences and similarities of the visitors in the national and nature parks of the Zadar county and the visitors in the other Croatian national and nature parks.

Finally, it can be claimed, that considering the complexity of the topic, it is broadly and variously covered in literature.

Beside the listed native authors that examined the relation between visitors and protected areas in Croatia, similar results were achieved also by foreign researchers. Dalrymple i Hanley (2005), investigated on the example of the newly founded National Park Loch Lomond and Trossachs in Scotland the problem of noise, crowdedness and environmental damage and the results show that an economic evaluation of the environment can support the management of touristic resources like national parks.

Leon et all. (2005) carried out a valuation of natural features in natural areas of the Canary Islands and landscapes that tourist visit. The research was conducted by the method of conditional evaluation that includes also a questionnaire. The results show that the respective natural resources present an economic value for the tourist market on the Canary Islands, and that political measures for their improvement can contribute to a sustainable tourist product.

CONCLUSIONS
ZAKLJUČCI

- The aim of this research was to model the management and the conservation of protected areas in order to conserve the originality of nature on one side and the promotion and design of a tourist product in protected areas on the other side.

- The unique methodology comprised in the same time the National Park Paklenica, the Nature Park Vransko jezero and the Nature Park Telašćica, for the first time in the Zadar county with a representative sample on the level of every single park.

- The data achieved allow a deeper insight in the attitudes and habits of the users and assured the comparability of results among different protected areas. The identical questionnaire allowed an integral analysis of all data collected and allowed an insight on the factors that impact the phenomenon of tourism in protected areas.

- The comparison of answers by parks was done by $\chi2$ tests or Fishers exact test. For the analysis of categorical variables, Correspondence analysis (CA), or method of main components of categorical variables, was used.

- The results indicate the similarity and specificity of three protected areas (mountain landscape, island, and wetland) and in this way point out those elements of management that should be developed in an integral way, other than those that are conditioned by specific circumstances in the respective protected area or their visitors.

- The main motive for the visit of parks in the Zadar county as in the other national and nature parks of Croatia (Marušić i dr. 2007), is enjoying the natural beauties (51%). The visitors are still most impressed by the bea-

uty and conservation status of nature (87%). Motives for visit and visitor satisfaction in the Zadar county are in trend with the research from 2006 (Krpina 2009).

- While in other protected areas the main activity is photographing nature, in this area it is hiking. Therefore it is necessary to create a convenient visiting system – good pedestrian infrastructure (maps, clarity of signalisation, quality of trails), and activities of visitors harmonised with the aims of nature conservation.

- Almost every fifth visitor of the NaP Telašćica experienced crowdedness as well in the park and in arrival/departure.

- The visitors of the parks in this research are satisfied or medium satisfied with the cleanliness of the park and the politeness of park staff, and least satisfied by the quality transport within the park, adaption to visitors with special needs and additional offers of the park (excursions/education), for which the majority marked „don't know".

- The improvement of the offer and content of the park (fixing trails, improved cleanliness of the park and sanitary facilities, improved signposts in the park, information panels in different languages, more shops, more recreational elements, more offers for people with special needs, improvement of environment, infrastructure or buildings) is still important for park management. The visitors in the Zadar county additionally propose more variability in arrival of visitors during the day and more marketing via internet.

- The results gained from the examined visitors have been compared with the results of examined staff which lead to specific conclusions. The difference between the perception of visitors and park staff is for the NP Paklenica mostly visible in the marking of overall satisfaction by visitors: very high and medium by staff. In the NaP Vransko Jezero visitors marked high and staff low, while in the NaP Telašćica, visitors marked low while the staff estimated the overall satisfaction as high. The results are one of the inputs to management models and allow the design of management recommendations focused in the same time on conservation of natural resources as well as satisfying the users. They can be applied in management planning in protected areas and in future planning of tourist offers that are directly linked to them.

- Concerning the limited possibilities of use of protected parts of nature as well as the general or specific conservation, these parts of nature can only be used in a strictly controlled and moderate way. In this sense, classic types of tourism are limited and advantage s given to scientific, excursion, rural, healthy, recreational, fishing (hunting),educational and similar types of tourism (Španjol 1993).

- It is necessary to determine the carrying capacity which presents the maximum number of people that can be at the same location at the same time without causing any irreversible change and degradation of the physical surrounding and without violation of the recreational experience of the visitor (Tišma and Maleković, 2009). The tourist offer should be extended on the surrounding area, which would allow the conservation of natural values and the distribution of visitors to a larger area, and at the same time would include the local population with their products.

- In the parks investigated in the Zadar county, no expressed tourist pressure is present. Nevertheless, in order to ensure the future conservation of the overall natural and cultural values that were the reason of conserving these areas, it is necessary to, beside the measuring of attitudes and characteristics of visitors, to measure the impact of visitors on the biodiversity values of these areas. The impact of visitors is not so much dependent on the number of visitors, than on the management level of park visitation.

- Such researches indicate the need of continuous, standardised and comparable data and information collection on visitors in all parks. This will improve the management of the parks as well as on the park level as on the national Croatian level. This will lead to a crucial component for development and planning of tourism as an important part of Croatian economy.

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Sažetak

Zaštićena područja prirode glavni su način očuvanja biološke raznolikosti. Budući da se pod zaštitu stavljaju ekološki vrijedna, a prirodno atraktivnija područja, dijelovi ili fenomeni prirode, svakako je da oni čine vrlo tražene turističke motive. Cilj ovog istraživanja je dobivanje uvida u sastavne komponente modela ljudi-eko-sustav (Human ecosystem model) na specifičnom primjeru zaštićenih područja prirode u Zadarskoj županiji, u svrhu očuvanja izvornosti prirode s jedne strane te promocije i osmišljavanja turističkog proizvoda u zaštićenim prirodnim područjima s druge strane. U razdoblju od 1. lipnja 2010. godine do 31. prosinca 2010. godine na području NP Paklenica, PP Telašćica i PP Vransko jezero koji prema Zakonu o zaštiti prirode (NN 70/05, NN 80/13) imaju visok stupanj zaštite, metodom anketiranja provedeno je ispitivanje i analiza stavova posjetitelja, njihovih zahtjeva, motivacija za dolazak i zadovoljstva kvalitetom usluga i turističke ponude u zaštićenim područjima prirode. Za sva tri parka provedeni su istovjetni upitnici tiskani na devet jezika, koji omogućuju integralnu analizu svih prikupljenih podataka, kao i usporedivost rezultata između parkova. Na dio pitanja iz upitnika dobiveni su podaci i od djelatnika uprava istraživanih parkova i djelatnika turističkih organizacija na području svakog parka, ne bi li se analizom dobio uvid u vrijednosne orijentacije donositelja odluka. Usporedbe na odgovore po parkovima analizirane su χ2 testom ili Fisherovim egzaktnim testom. Za analizu kategorijskih varijabli posjetitelja korištena je CA analiza (Correspondence Analysis) tj. metoda glavnih komponenti kategorijskih varijabli. Na taj način dobila se podloga za kontinuirano istraživanje. Rezultati ukazuju na sličnosti i specifičnosti tri različita zaštićena područja (planinski krajolik, otok, močvarno stanište). Dobiveni rezultati u Zadarskoj županiji uspoređeni su s rezultatima istraživanja provedenim u nacionalnim parkovima i parkovima prirode u Hrvatskoj (Marušić i dr. 2007) i pokazuju da je i dalje glavni motiv posjete parku uživanje u prirodnim ljepotama (51%). Posjetitelji su i dalje najviše dojmljeni ljepotom i očuvanosti prirode (87%), dok je u drugim zaštićenim područjima prirode prva omiljena aktivnost fotografiranje, na ovome području je šetnja. Utjecaj posjetitelja ne ovisi toliko o broju posjetitelja, koliko o načinu na koji se upravlja posjetom parka. Stoga je u parku potrebno osmisliti odgovarajući sustav kretanja, dobru pješačku infrastrukturu i disperziju aktivnosti posjetitelja u skladu s ciljevima zaštite područja. Rezultati ispitanih posjetitelja uspoređeni su i s rezultatima ispitanih djelatnika te ukazuju na različitost percepcije doživljaja posjetitelja u parku od djelatnika i samih posjetitelja u parku. U istraživanim parkovima Zadarske županije nije izražen turistički pritisak, međutim kako bi se i u budućnosti očuvala zaštita ukupnih prirodnih i kulturnih vrijednosti zbog kojih je to područje i proglašeno zaštićenim, nužno je i primarno uz istraživanja stavova i obilježja posjetitelja uključiti i utjecaj posjetitelja na vrijednost biološke raznolikosti toga područja. Ovo istraživanje doprinosi modelu upravljanja u zaštićenom području prirode te omogućava oblikovanje preporuka za upravljanje usmjereno istovremeno na očuvanje prirode te na zadovoljstvo posjetitelja.

KLJUČNE RIJEČI: zaštićena područja prirode, posjetitelji, turizam, CA analiza, Zadarska županija