

# Recreational demand of the Euganean Hills Regional Park (Veneto – Italy)

Tiziano Tempesta, Samer Arkilo

**Abstract** — The Euganean Hills Regional Park is a hilly area of about 180 square kilometres that rises isolated in the central Veneto plain. It was established in 1989 but there is no data available on the number of visitors, and economic benefits for the local economy and for the visitors. With the aim of estimating visitor flow, a telephone survey was conducted. A sample of 309 families living on the Veneto and Emilia Romagna plain was interviewed. In order to estimate the visitors' expenditure, a subsequent in-person survey was made on site. The research highlighted that the Park, with 168 visits per hectare per year, is probably the most frequently visited of the Veneto Region. Also the expenditure of the daily visitors (4.025 euros per hectare per year) and the recreational benefits (837 euros per hectare per year) are much greater than in the other Regional Parks of a similar size.

**Index Terms** — Benefits Estimation, Recreational demand, Regional Park

## 1 INTRODUCTION

The Euganean Hills regional park was the first one established in the Veneto region in 1989. It is a hilly area of about 180 square kilometres that rises isolated in the central Veneto plain, near the city of Padova. The hills are mostly of volcanic origin and have a peculiar morphology that makes the Euganean landscape unique. Due to its geographical position and morphology, there is a marked differentiation of micro-climate and ecosystems that are unique in the regional area. Despite this, the areas of strictly natural interest cover no more than 16% of the territory, while most of the land is cultivated (meadows, vineyards and olive groves on the hills and arable crops in the valleys)[1]. There are also many monuments of great his-

toric and cultural importance in the park (one of these being the house of the 14th century poet Petrarch at Arquà) and the National Archaeological Museum at Este. Near the park and partly within its borders is one of the most popular thermal spa areas in Europe, which is visited by about half a million people every year.

About 50,000 people live in the park (270 inhabitants per square kilometre) and many roads pass through the territory, so it is almost impossible to calculate the number of visitors by using direct or indirect approaches [2].

There is no data available on the number of visitors and economic benefits for the local economy. The main aim of the study is to define a viable approach for collecting data and monitoring the visitor flow in such a complex scenario and to estimate the recreational benefits and the impact of day trippers' expenditure on the park economy.

## 2 METHODS

With the aim of estimating visitor flow, we conducted a telephone survey from January

---

*Tempesta Tiziano, Dipartimento Territorio e Sistemi Agroforestali – Università di Padova, tel 049 8272762, email tiziano.tempesta@unpd.it*

*Arkilo Samer, Dipartimento Territorio e Sistemi Agroforestali – Università di Padova, tel. 049.8272744 email samer.arkilo@unipd.it.*

TABLE 1  
SAMPLING PROCEDURES

Strata	Municipality	Distance from the Euganean Hills	Distance from other hilly areas	Number of interviews
1	Teolo, Torreglia	Euganean Hills		6
2	Padova, Rovigo	< 25 km	> 25 km	73
3	Torri di Quartesolo, Vicenza	< 25 km	< 25 km	24
4	Trecenta, San Martino Buon Albergo, Venezia, Cavarzere, Copparo	25 - 50 km	> 25 km	56
5	Treviso, Vazzola	25 - 50 km	< 25 km	67
6	Marcon, Mozzecane, Ferrara, San Donà di Piave, Mantova	50 - 100 km		83

to April 2007. A sample of 309 families living on the Veneto and Emilia Romagna plain was interviewed. A stratified sample was obtained by dividing the territory near the park into 6 strata, considering the distance from the park and from other hilly areas in the regions (table 1). We excluded mountain and hill municipalities from the survey, but this was not a potential bias because in a subsequent onsite survey we verified that the park is not frequented by people from those areas. The number of families selected from each stratum was proportional to the population living there. The choice of municipality was not random. We tried to select both rural and urban areas in order to better represent the different recreational attitudes of the residents.

During the interview, people were asked to state how many times each member of the family had visited the Euganean Hills Regional Park during the past year, the period and motivation for the trip, in addition to this, some socioeconomic information was also collected. To estimate the total number of visits from each sampled municipality we calculated the ratio between the number of trips and the number of family members ( $g_i$ ). We then estimated the function  $g_i = f(km_i; R_i)$ , where  $km_i$  is the distance of the municipality from the park and  $R_i$  is a dummy variable relating to the type of municipality (urban = 0; rural = 1). Through the function we estimated the total number of trips by multiplying " $g_i$ " for the number of inhabitants of each municipality of the Regions.

### 3 VISITORS' CHARACTERISTICS AND RECREATIONAL ACTIVITIES

Through the 309 interviews it was possible to analyse the behavior of 883 people. The average sample age is 45 and the average family size is 2.7 persons, figures that are quite similar to the whole population<sup>1</sup>. On the contrary, with respect to qualifications, there is a higher presence of graduates in the sample.

In 41% of the families, at least one member had visited the park during the past year and the average number of trips was 5.68. The average number of trips and the percentage of interviewees that visited the park decrease with distance from the park (table 2).

The park is visited most often in spring (69%) and in summer (61%), usually during the weekend (70%) or public holidays (28%). The recreational activities are strongly concentrated in a few days throughout the year and traffic is often congested, especially along the main access roads.

The main motivations for the trips are a generic need to spend time outdoors (63%) and to have lunch or dinner in a restaurant or agritourism (58%). There is less interest in visiting the museums, villas and historic villages (24%), or in walking and hiking in closer contact with the natural settings (29%). On the whole, people seem to be less interested in

<sup>1</sup> The average age of the Veneto population is 43 and the average family size is 2.5 persons.

TABLE 2  
INTERVIEWEES AND TRIPS BY DISTANCE FROM THE PARK

Distance from the park	Families interviewed			% of families that visited the park	Total visits	Average visits
	no visits	yes visits	total			
Less than 25 km	27	65	92	70.7	1296	14.09
from 26 to 50 km	29	24	53	45.3	230	4.34
from 51 to 75 km	74	30	104	28.8	184	1.77
More than 75 km	52	8	60	13.3	45	0.75
Total	182	127	309	41.1	1755	5.68

the natural and historic aspects of the territory that were the basis for establishing the park.

However, it can be seen that people living more than 50 kilometres from the park are more interested in these elements and activities. It can therefore be presumed that there are at least two different groups of visitors. The first is made up of people living inside or near the park. They use the Euganean Hills as a generic green area for spending spare time in order to relax. The second group consists of people coming from further away, who are attracted by the natural and historic elements of the territory that are characteristic of the park.

As mentioned above, in order to estimate the number of visits, a statistical function between the average number of trips, distance from the Euganean Hills and type of the municipality was estimated:

$$g_i = e^{[3.1067 - 0.6108 \ln(km_i) - 0.6422 R_i]} - 1 \quad (1)$$

adjusted  $r^2 = 0.91$

By means of (1), we calculated that the number of visits equals 3.29 million per year.

94% of visits are paid by people living on the plain near the park. The function also highlights that the recreational activities of the park are mainly an urban phenomenon. About 87% of visits have been paid by inhabitants of the urban and metropolitan areas.

The catchment area <sup>2</sup> of the park extends to about 160 kilometres with reference to the urban areas, and 56 kilometres with reference to the rural areas. These figures have been confirmed by a subsequent onsite survey in which 274 visitors were interviewed.

#### 4 RECREATIONAL BENEFITS

The recreational benefits have been estimated by using a partly modified zonal travel cost approach [3]. We considered as dependent variable, not the visiting rates per inhabitant in each zone, but the ratio between the number of trips and the number of the family members ( $g_i$ ) that we interviewed in each municipality. A function similar to (1) was estimated by using the travel cost ( $C_i$ ) instead of the distance:

$$g_i = e^{[2.0529 - 0.6108 \ln(C_i) - 0.6422 R_i]} - 1 \quad (2)$$

adjusted  $r^2 = 0.91$

By the trip generating function (2) we simulated the number of visitors ( $G$ ) coming from each municipality on the Veneto and Emilia Romagna plain under the hypothesis of increasing travel costs (added travel costs – CA) and we estimated the demand function:

<sup>2</sup> The catchment area is defined as ‘the distance covered by the 95th percentile’, could be a significant indicator for the attraction potential of a defined area, and for the value visitors attach to it.

TABLE 3

NUMBER OF VISITORS TO THE EUGANEAN HILLS REGIONAL PARK AND AVERAGE EXPENDITURE PER CAPITA (EXCLUDING TRAVEL COSTS).

distance	visits		expenditure (euros)		
	n.	%	average	total	%
Less than 25 km	1,326,034	43.7	17,20	22,805,479	31.5
from 26 to 50 km	631,182	20.8	28,23	17,816,823	24.6
from 51 to 75 km	655,025	21.6	28,61	18,739,174	25.9
More than 75 km	419,040	13.8	42,62	17,857,551	24.6
Total	3,031,281	100.0	23,91	72,463,570	100.0

$$CA = 27.61 \cdot e_i^{(-1.82E-06G)} \quad (3)$$

adjusted  $r^2 = 0.82$

The consumer surplus is 4.97 euros per trip, and the whole benefits flow is 15 million euros per year.

Through the onsite survey, visitor expenditures has also been estimated. It can be observed that expenditure increases significantly with the distance travelled in order to reach the park (table 3). While the visitors who travelled less than 25 kilometres during the outward journey spent on average 17 euros per capita (excluding travel costs), people travelling more than 75 kilometres spent 45 euros per capita. The total yearly expenditure is equal to about 72.4 million euros.

## 5 CONCLUSIONS

The research highlighted that the Euganean Hills Regional Park, with 168 visits per hectare per year, is probably the most frequented of the Veneto Region. For example, in the Dolomites of Ampezzo Regional Park, which is the most frequented protected area of the entire Alps, there are 48 visits per hectare per year [4], [5]. Also the expenditure of the daily visitors (4.025 euros per hectare per year) and the recreational benefits (837 euros per hectare per year) are much greater than in the other Regional Parks of a similar size [6].

This is probably partly due to the park's location, which is close to urban areas, but it is also due to the presence of an important historic-cultural and natural heritage.

It's also important to underline the fact that the recreational activities, especially during certain periods, currently cause congestion problems. It would therefore seem important that there should not be an increase in the number of visitors in the future and that the park authorities should try to improve the control of the recreational flow and encourage, if possible, some new cultural and recreational activities in autumn or in winter.

## REFERENCES

- [1] A. Finco, Franceschetti G., "I caratteri ambientali e paesaggistici dei colli Euganei", *Sistemi produttivi, redditi agricoli e politica ambientale. Risultati di una ricerca nel parco regionale dei Colli Euganei (Veneto)*, M. Prestamburgo, Tempesta T., eds., Franco Angeli Milano, pp. 49-66, 1994
- [2] A. Muhar, Arnenberger A., Brandenburg C., "Methods for Monitoring in Recreational Protected Areas: An Overview", *Proc. Monitoring and Management of Visitor Flows in Recreational and Protected Areas*, A. Muhar, Arnenberger A., Brandenburg C. eds., Vienna, pp. 1-6, 2002.
- [3] T. Tempesta, *Appunti di estimo rurale e ambientale*, CLEUP, Padova, 2005.
- [4] M. Da Pozzo, Tempesta T., Thiene M., *Turismo e attività ricreative a Cortina d'Ampezzo*, FORUM, Udine, 2003.
- [5] M. Chodziesner, Wiederwald D., *Tourism in the alpine protected areas*, Alparc - Dossier n. 2, 2001.

[6] Tempesta T., Visintin F., Marangon F., Ecotourism Demand in North-East Italy, *Proc. Monitoring and Management of Visitor Flows in Recreational and Protected Areas*, A. Muhar, Arnenberger A., Brandenburg C. eds., Vienna, pp. 373-379, 2002.

**Tiziano Tempesta** is full professor at the Dipartimento Territorio e Sistemi Agroforestali of the Padova University. He is a member of national and international scientific associations. He worked on rural land manage-

ment and explored the connection between agriculture and environment, focusing particularly on rural landscape and tourism and outdoor recreation in rural and mountain areas. He published more than one hundred and fifty papers and books both in Italy and abroad. Web: <http://www.tesaf.unipd.it/people/Tempesta/HomeTT.htm>

**Samer Arkilo** takes the PhD in 2008 and is an expert consultant of the Dipartimento Territorio e Sistemi Agroforestali of the Padova University.