Programme overview

-socio-economic and policy issues

phased implementation of complementary measures. Changes in the vegetation were recorded by means of complete surveys and transect relevés. Abiotic conditions for the specific flora improved considerably and a marked increase in aquatic macrophyte abundance and structural diversity occurred. Yet, former species composition was only partially restored. Species with a viable seed bank and relic populations that persisted until restoration (*Elatine hexandra*, *Eleocharis acicularis*, *Hypericum elodes*) were most successful. The quality of available surface water is insufficient to allow its use as a source of buffering capacity, whilst atmospheric N-deposition, accumulation of leaf litter and large numbers of exotic geese remain items of concern. Regular drawdown can mitigate some of their effects.

253 Multi attributes project evaluation of ecological restoration: An economic experiment in Kushiro wetland, Japan

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In Japan, Law for the Promotion of Nature Restoration (LPNR) was enforced on January 1, 2003. The LPNR stipulates that the party conducting the nature restoration project should form a Nature Restoration Committee (NRC) with local governments, governmental agencies, and other parties who intend to participate in the project, including local residents and nonprofit organizations. As of March 2007, the numbers of NRC was eighteen. The Kushiro Wetland Nature Restoration Committee, which is one of them, finalized its overall plan in March 2005. As of March 2008, five nature restoration projects were decided to be implemented.
Economic evaluation, based on a questionnaire survey involving the general public, provides valuable insight to conduct restoration projects efficiently. The questionnaire survey for a multi-attributes project requires a researcher to provide a considerable amount of information about the project to the respondents. However, respondents may face difficulties in understanding the project because of their unfamiliarity with it and the complexity of scientific knowledge.
We analyze how public preferences are influenced by the discussion meeting that the respondents can ask questions and share information. Our main findings revealed that discussion meetings can significantly influence participants' preferences and can contribute to reducing the diversity of preferences.
A questionnaire survey generally requires several thousands respondents. However, the evaluation of a multi-attributes project based on unformed public preferences may involve incorrect judgments regarding whether or not the projects are to be implemented.

254 Visitors' profile and their perceptions of the aesthetic forest Kouri of Almyros, Greece

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In Greece there are 151 Special Protection Areas (SPA) and 239 Sites of Community Importance (SCI) which belong to the Natura 2000 Network. These areas cover the 19,1 % of the terrestrial and the 5,5% of the marine surface of the country. Among them, there is significantly a lot which are known only to few people who live close to them. In the present research, an almost unknown protected area, the Aesthetic Forest Kouri of Almyros, was chosen to find out its environmental effects to the community and its visitors' profile. This Aesthetic Forest, member of the Natura 2000 Network, is a unique lowland mixed forest of oak in the Southeast Europe, which offers many environmental benefits to the local community. The Contingent Valuation Method was used in order to estimate the value that the visitors place on it. A sample of the visitors was chosen and they were asked through a questionnaire for their willingness to pay (WTP) an entrance fee to enter in the area as a means to finance it. By using the two-step cluster analysis an attempt was made to specify groups with same characteristics that visit this area. The results show that the Kouri Forest is almost unknown outside the local community, but the latter seems to find extremely beneficial the presence of the former. The groups extracted can help the local authorities to take measures in order to make this protected area known to the whole country.

VISITORS' PROFILE AND THEIR PERCEPTIONS OF THE AESTHETIC FOREST KOURI OF ALMYROS, GREECE

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Abstract: In Greece there are 151 Special Protection Areas (SPA) and 239 Sites of Community Importance (SCI) which belong to the Natura 2000 Network. These areas cover the 19.1 % of the terrestrial and the 5.5% of the marine surface of the country. Among them, there are significantly a lot which are known only to few people who live close to them. In the present research, an almost unknown protected area, the Aesthetic Forest Kouri of Almyros, was chosen to find out its environmental effects to the community and its visitors' profile. This Aesthetic Forest, member of the Natura 2000 Network, is a unique lowland mixed forest of oak in the Southeast Europe, which offers many environmental benefits to the local community. The Contingent Valuation Method was used in order to estimate the value that the visitors place on it. A sample of the visitors was chosen and they were asked through a questionnaire for their willingness to pay (WTP) an entrance fee to enter in the area as a means to finance it. By using the two-step cluster analysis an attempt was made to specify groups with same characteristics that visit this area. The results show that the Kouri Forest is almost unknown outside the local community, but the latter seems to find extremely beneficial the presence of the former. The groups extracted can help the local authorities to take measures in order to make this protected area known to the whole country.

Keywords: environmental policy, socio-economics of nature restoration, increasing public support and participation, aesthetic forests, contingent valuation method, two-step cluster analysis

Introduction

Greece is a country with a large number of natural protected areas. According to the Hellenic Ministry for the Environment, Physical Planning and Public Works (2008), there are 151 Special Protection Areas (SPA) and 239 Sites of Community Importance (SCI) which belong to the Natura 2000 Network. These areas cover the 19.1 % of the terrestrial and the 5.5% of the marine surface of the country. One of the main problems of these areas, except from the fact that there is not for all of them a special management plan, it is that many of them are unknown to the great majority of the Greek population. This means that people miss the opportunity to benefit from the services and assets that these ecosystems offer.

The objective of the present research is to analyse the visitors' profile and perceptions for the aesthetic forest Kouri, their willingness to pay an entrance fee for preserving it and to detect patterns in their characteristics. As Petrosillo et al. (2007) mention, "the management of recreational ecosystem services depends on how they are perceived by people, so that to improve their management it is necessary to consider the perceptions of their users".

Materials and methods

The Aesthetic Forest Kouri is located adjacent to the Municipality of Almyros in the Prefecture of Magnesia, Greece. It belongs to the Natura 2000 Network and it is both a Special Protected Area (SPA) and a Site of Community Importance (SCI). According to UNESCO, also, it is a Biogenetic Reserve. Kouri, as it is usually called in Greece, is a unique lowland mixed forest of oak in the Southeast Europe. It is an even-aged high forest, a hundrend years old, and it incorporates an area of a hundrend hectares. Seventy

hectares are used for grazing and almost thirty hectares for recreation. The main forest species that exist in the area are *Quercus pubescens*, *Q. aegilops var. macrolepis* and *Q. pedunculiflora*. In order to conduct the research, the Contingent Valuation Method (CVM) was used. Data were collected by means of questionnaires administered through personal interviews from August to October 2007 (Venkatachalam 2004, Petrosillo et al. 2007). The questionnaires were pretested to 25 visitors and were found to work correct. The two authors of this research were the interviewers. Due to the fact that there was no available data about the potential population that can visit Kouri, it was impossible to estimate the size of the sample in order to apply the questionnaires. In such cases, the random choice of the visitors is used (Togridou et al., 2006). Every fifth visitor was approached and was given an explanation about the reasons and the scopes of the research. From the 175 visitors that were selected, 152 accepted to answer to the interview (response rate 87%). Every interview lasted 5-10 minutes. The interviewee was asked to reveal anonymously personal socioeconomic data (age, education, occupation, annual income, place of residence, visit frequency), his/her opinion about the environmental functions of Kouri forest (recreation, water production, air filtering, environmental education) and the willingness to pay (WTP) an entrance fee, taking in mind the hypothetical scenario that EU and the Greek State are going to stop financing it. For the WTP the "payment card" method was used ("Nothing", "1 to 2 €", "3 to 4 €", "more than 5 €") (Huhtala, 2004). The analysis of the questionnaires was made with descriptive statistics methods and the multivariate method Two Step Cluster Analysis (Bartholomew, 2002). This method is appropriate because it allowes data with both continuous and categorical attributes to be clustered (Okazaki, 2006). The statistical software SPSS 16.0 was used (Kinnear and Gray, 2008).

Results and discussion

In Table 1, the visitors' profile of the aesthetic forest Kouri is presented, in terms of their socioeconomic data. In Table 2, the visitors' perceptions about Kouri are presented, in terms of its environmental functions and its infrastructure. As it can be deduced, most of the visitors are men, in the age of 36-50 years old, of high educational level, who work as employees, come mostly from the nearby town of Almyros and earn 10,000 to 20,000 €. They believe that the existence of Kouri forest is very important and also its recreational function along with the environmental education and air filtering it offers. They believe the site offers low quality infrastructure (tables to eat, bridges, benches etc.). They seem not to be aware of the water production that Kouri offers as only a 45% of them find it very important. In Table 3, the "willingness to pay" variable is analysed. The percent of those who have a will to pay is presented. Also, the minimum and not the mean WTP is estimated, as Arin and Kramer (2002) do, since in the payment card the last choice was "more than 5 €", so there was not an upper limit. It is deduced that a 84% from the visitors are willing to pay an entrance fee per visit, mostly 1-2 €. The minimum fee they intend to pay is 2.72 €, but the residents outside the town of Almyros place a higher value to Kouri forest than the residents of Almyros, although statistically they differ only in the category 1-2 € (more Almyros residents), comparing them with Z-tests. The application of Two Step Cluster Analysis indicated that a three-cluster solution was the best model, because it minimized the BIC value

Table 1. Visitors' profile (n=152)

Variable		%
Sex	Woman	41
	Man	59
Age	<25	22
	26-35	30
	36-50	34
	51-65	12
	>65	3
Education	Primary school	8
	Secondary school	43
	University	49
Occupation	Pupil - student	11
	Farmer	1
	Employee	45
	Free lancer	31
	Other	12
Place of residence	Almyros	80
	Other	20
Visit frequency	First time	3
	Rarely	7
	Often	42
	Very often	48
Annual Income	<10,000 €	26
	10.000 – 20.000 €	40
	20.000 – 30.000 €	26
	>30,000 €	7

Table 2. Visitors' perceptions (n=152)

Variable		%
Existence of Kouri forest	Not important	0
	Fair	1
	Important	6
	Very Important	93
Recreation	Not important	0
	Fair	14
	Important	27
	Very Important	59
Water production	Not important	8
	Fair	17
	Important	30
	Very Important	45
Environmental education	Not important	0
	Fair	7
	Important	23
	Very Important	70
Air filtering	Not important	0
	Fair	5
	Important	12
	Very Important	84
Quality of existenr infrastructure	Bad	26
	Need improvement	61
	Satisfying	7
	Very good	7

Table 3. Visitors' willingness to pay % and minimum WTP in € (n=152)

Willingness to pay	%	Minimum WTP	€
Nothing	16	per visit	2.72
1 – 2 €	41	per visit per Almyros resident	2.58
3 – 4 €	14	per visit per other resident	3.22
More than 5 €	29		

and the change in them between adjacent numbers of clusters (BIC = 3679.36, BIC change = -14.14) (Okazaki, 2006). The resulting clusters 1, 2, and 3 contained 42, 58, and 37 cases, which corresponded to 30.7, 42.3, and 27.0%, respectively. Fifteen cases were not grouped. For the classification, 14 categorical variables were used. Seven out of them were found to have a significant result to the form of the clusters ($p<0.05$). These variables were age, occupation, annual income, visit frequency, recreation, water production, and air filtering. In Table 4 the attributes of each cluster in terms of these variables is presented. The main attributes of each cluster are marked with bold letters. Cluster 1 contains younger people (students), with low income who visit often, or very often Kouri forest and they have a low impression about its environmental functions. Cluster 2 contains people above 36 years old, who work as employees or free lancers

Table 4. Cluster attributes in % (n=137)

Variable		Cluster 1	2	3
Age	<25	**64**	9	0
	26-35	5	19	**73**
	36-50	17	**50**	24
	51-65	14	17	0
	>65	0	5	3
Occupation	Student	**40**	0	0
	Farmer	0	2	0
	Employee	24	**48**	**65**
	Free lancer	19	**34**	32
	Other	17	16	3
Visit frequency	First time	0	3	3
	Rarely	5	10	3
	Often	**48**	10	**89**
	Very often	**48**	**76**	5

Table 4 (cont.). Cluster attributes in % (n=137)

Annual Income	<10,000 €	**45**	28	11
	10,000 – 20,000 €	33	22	**70**
	20,000 – 30,000 €	14	**47**	3
	>30,000 €	7	3	16
Recreation	Not important	0	0	0
	Fair	21	10	5
	Important	**45**	19	27
	Very Important	33	**71**	**68**
Water production	Not important	7	3	16
	Fair	**45**	9	0
	Important	36	19	**38**
	Very Important	12	**69**	**46**
Air filtering	Not important	0	0	0
	Fair	2	7	3
	Important	**29**	2	5
	Very Important	**69**	**91**	**92**

with high income, visit the forest very often and have a high impression about its environmental functions. Finally, cluster 3 contains young people (26-35 years old), employees, with middle income, that visit Kouri often and have rather high impression about its functions.

Conclusions

The above analysis revealed the profile of the visitors of the aesthetic forest Kouri in Greece, and their perceptions about it. Visitors come mostly from Almyros town, which means that it is unknown outside of this area. Almyros residents will to pay mostly 1-2 € for an entrance fee, and they have a minimum WTP 2.58 €. The overall WTP is 2.72 €. Three clusters of visitors were revealed, separated by variables such as age, occupation, visit frequency, annual income and three environmental functions variables. These clusters can help managers to understand who the visitors are, and try to make Kouri Forest known to more people in Greece.

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