QUALITY OF LIFE AND THREATS IN PROTECTED AREAS. A FIRST APPROACH OF THE CASE OF EVROS DELTA NATIONAL PARK

G. ARABATZIS*, S. TSIANTIKOUDIS, A. KOKKINAKIS

*Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace, 193 Pantazidou Street, 68 200 Orestiada, Greece
E-mail: garamp@hmenr.duth.gr; stsianti@fmenr.duth.gr

School of Forestry and Natural Environment, Aristotle University of Thessaloniki, Thessaloniki, Greece
E-mail: akokkin@for.auth.gr

Abstract. The protected area of the Evros delta constitutes one of the 27 Greek protected areas having a management authority. It has an unique and significant ecological value as it constitutes the habitat for a number of rare and threaten bird species. Nowadays, the protection regime of the area does not prohibit the continuation of the human presence and activity and especially outdoor recreation. Various dangers threat the Evros delta protected area such as biotic and abiotic, human activities or management problems. From the other side the management of this area is directly related with the quality of local people life. However, there are several aspects that are related with the threats in natural resources as with the way which the area can contribute to the quality of local people. The precise knowledge of these aspects could lead to a more efficient communication among the management authorities and residents and create a mutual relationship of respect and dependence. This study attempts to outline the opinion of local people on the dangers that threat the natural resources of the protected area and their contribution in the quality of life. In our study we used a structured questionnaire with predetermined answers and face-to-face interview. We choose the sample by using the simple random sampling, descriptive statistics and the chi-square test. Our results showed that all respondents consider the problem of pollution and illegal dumps as a very significant threat for the natural environment as also for the development of the greater area. They agree that the Evros Delta National Park offers a series of values that can contribute in a significant degree in the improvement of the quality of local people life.

Keywords: threats in protected areas, quality of life, the Evros delta, National Park.

AIMS AND BACKGROUND

The creation of national parks is now the most universally adopted means of conserving a natural ecosystem and/or relevant cultural heritage for a broad range of human activities. The IVth World Congress on National Parks and Protected Areas...
defined national parks as natural areas which protect the ecological integrity of ecosystems and provide a foundation for economic, spiritual, scientific, educational, recreational and visitor opportunities\textsuperscript{1}.

National Parks and protected areas are unique and attract significant public interest. Public interest leads to an annual stream of visitors who invest large amounts of money, time and effort to experience these areas in person\textsuperscript{2}.

There is a common assumption that human activities deplete natural resources all over the world. This is mainly attributed to the biodiversity loss connected with activities and practices related to industrial and urban development, construction of infrastructure, intensive agriculture and livestock, plantation forestry and massive tourism\textsuperscript{3,4}.

There are however cases, where the long-lasting human activities and their interaction with nature have created ecosystems with high conservation value for their fauna and flora. Such ecosystems are among others, old grasslands and meadows, specific forms of traditionally managed forests, or even mosaics of grasslands, cultivated fields and forests\textsuperscript{5}.

Also, due to their high aesthetics and the harmonious scenery that they usually present, the protected areas and among them the national parks, contribute greatly to the quality of life of all people by providing opportunities for recreation, education, inspiration, mental and physical renewal in a healthy environment, which further are sources of economic benefit for the local populations\textsuperscript{6–9}.

Cultural landscapes face nowadays problems arising from changes in the land uses and are related either to land use intensification or abandonment. On fertile and/or lowland sites where productive or industrial activities prevail, such as agriculture and forestry, or urbanism, industrialisation and massive tourism, the intensification of the land uses leads to simple and homogeneous landscapes. This is usually followed by severe ecological changes, for example in soil fertility, water and nutrient cycle and the wildlife habitats in general. These processes affect the stability of the ecosystem and are related to landscape degradation and loss of biodiversity. On the other side, on marginal, usually remote, mountainous areas, the traditional land use systems are considered unprofitable and are increasingly abandoned. This process also affects the ecosystems and the landscape by altering their composition, structure and functions, and is again associated with loss in landscape and biological diversity\textsuperscript{4, 9–14}.

The continuous degradation of the natural environment due to the impact of human activities, particularly in recent centuries, resulted in the establishment of protected areas and parks at the end of the 19th century\textsuperscript{15}. National parks and protected areas are unique and attract significant public interest. Public interest leads to an annual stream of visitors who invest large amounts of money, time and effort to experience these areas in person\textsuperscript{16,17}.
The contribution of these areas has been proven to be highly significant for the preservation of biodiversity and of genetic material, for maintaining the productive capacity of the related ecosystems, for the protection of man-made, cultural elements and for rural development as a whole\textsuperscript{15,18}.

The zoning of protected areas is of particular use, when various categories of land exist within the same protected area; they may range from virgin natural areas to land used mainly for outdoor recreation or even for productive purposes. Protected areas constitute an important part of the local productive, socio-economic and cultural potential of a region. Therefore, their efficient management is a particularly vital issue, as it is linked both to the developmental process in general, and to development on a local level\textsuperscript{19}.

In Greece, the institution of protected areas was applied for the first time in 1938 (Ref. 15). At present, 10 national parks, 19 aesthetic forests, 51 protected natural monuments and 11 Ramsar sites have been instituted, while the NATURA 2000 network includes 390 sites (239 sites of Community Importance and 151 Special Protection Areas for wild birds)\textsuperscript{20}.

This study attempts to investigate the attitudes of local people of the Evros delta National Park about the degree in which this protected area contributes to the quality of their life and the degree in which a number of human activities mainly that are practiced in the area constitute a threat for the natural environment.

STUDY AREA

The study area is the Evros delta National Park and the nearby municipalities which are most affected by the presence of it. The Evros delta is in the south-eastern part of the Evros prefecture and lies east of Alexandroupolis, the capital city of the prefecture and is fixed among the railway line of Thessaloniki–Constantinople, the administrative boundaries of Feres and Traianoupolis municipality, the main bed of the Evros river and the sea shoreline (Fig. 1). The study area is included between the boundaries of the two mentioned municipalities with their districts. The total number of residents is approximately 13 174, decreased about 2.7% compared to the previous census of 1991 (13 529 residents\textsuperscript{21}).

The main driving attributes determining the future of nature conservation and rural development in the Evros delta National Park are the marginal land productivity, which does not favour large scale productive activities, and the ecotouristic potential associated with the high ecological, cultural and aesthetic value of the area\textsuperscript{22,23}. 
The Evros delta National Park is touristically attractive and has high ecotouristic potential. Ecotourism is seen the last years as an alternative to the economic decline of the heavily depopulated local communities and as a means against further immigration. Within this frame small scale interventions in the villages and the infrastructure of the National Park have been carried out for improving the tourism facilities and providing jobs and additional income to the inhabitants.

ECOLOGICAL IMPORTANCE OF THE STUDY AREA

The Evros delta area is one of the most important wetlands of Greece and has become national park in January 2006 by the name ‘Evros Delta National Park’ and this ecosystem is of international importance. The size of the deltaic plain is approximately 19 000 ha. From this area 15 000 ha are in the Greek territory and 8000 ha of the previous mentioned are referred in the Ramsar Catalogue.

The flora and the variation of the floral communities are generally in good levels regardless of the human activities that put pressure on the ecosystem. Extremely impressive are the halophyte and waterweed communities, while the sand-friendly floral communities and the riverside forests are very important from the side of the ecological and scientific importance. Grazing in wetland areas is a common practice for many years and is continuing till to date. Evros and the Axios delta and the grasslands near the lakes Vistonida and Small Prespa are support of a large number of cattles and sheeps. Grazing animals influence the wetland environment and vise versa unambiguously. The question is, in which way the interactions be-
tween grazing and wetlands can maintain in equilibrium in order to avoid facing undesirable and irreversible influences in these ecosystems.

The Evros delta is widely known as an ecosystem that accommodates a rich and unique flora and fauna, recently, just about in 1969 and 1979 when the first scientific researches have been published\textsuperscript{25,26}. Till now researchers have indicated about 350 floral species. They have reported also about 316 bird species from 407 species of Greece, a number which is continually increasing, as monitoring becomes more intense and bird-watchers from all over the world visit the area more often. This rich diversity is unique according to the European standards and proves the great importance of the Evros delta\textsuperscript{27}.

The importance of the Evros delta ecosystem was unknown for most people till the ’60, when two German ornithologists, Bauer and Miller, published a report. According to their research concluded that the Evros delta area needs to be in a protected status as soon as possible. In 1971 the Evros delta is among the 11 wetlands that are protected by the Ramsar International Convention due to the important species it accommodates. Also, part of the area is a Special Protection Area (Directive 79/409) and (proposed) Site of Community Importance (Directive 92/43)\textsuperscript{28–30}.

By ministerial decision hunting is prohibited in certain areas of the Delta. This was the only protected measure that has been undertaken since now.

The Evros delta wetland, as also every wetland, is one of the most productive and renewable natural resources with multiple benefits for human: provides fresh water for irrigation and water supply, works as natural filter by cleaning the water from pollution, inhibits sea water to break through the land, influences favourably the climate of the area and provides the suitable conditions for rangeland and fishery development.

The Evros delta is one the most important ecosystems in the Mediterranean, not only for the volume of birds that accommodates but also for its unique landscape. The richness in the morphology is due to the debris the river deposits for thousands of years in its banks, a few thousand meter before it meets the sea.

A sequence of attributes like its geographical position in related to the migration lines of birds, the relatively mild climate of the area, the isolation of the area, up to a few years ago and the difficulty in access in some parts of the area, has as a result to become a vital place for the preservation of a large number of plants and animals. In the Evros river and delta have been recorded about 46 fish species, 7 amphibious species, 21 reptiles and more than 40 species of mammals. Undoubtedly the great value of the Evros delta is owed to its abundant bird fauna. 317 bird species have been indicated from 407 species of Greece. Also, in the area we meet all the typical formations and vegetation units of a delta. More than 350 floral species have been recorded in the delta area and along the river.
HuMan actIVItIEs

In the greater region of the Evros delta we meet a series of human activities that are related mostly with the primary and secondary sector and less with tertiary sector. A quite large number of people are occupied in various rural activities (agriculture, livestock, fishery) while there are few locals that are both farmers and stock breeders or fishermen in order to complete their income. Farming is mostly of extensive form, with wheat, corn, cotton and beet as the main cultivations. The cultivated areas cover an area of approximately 6000 ha and are gather mainly in west and center part of the Evros delta. Also, some parts of the area are used by the stock breeders as rangelands for their herd mostly during summer. During winter months herds are transferred in stables. The total number of domestic animals in the area amounts between 2000 cattle and 2000 sheep and goats during winter and approximately 4000 cattle and 2500 sheep and goats during summer.

Livestock is supplementary in the occupation of the rural population and in the financial aid of rural income.

EXPERIMENTAL
RESEARCH METHODOLOGY

In this research we used a questionnaire in order to indicate the attitudes of the local people. The questionnaire included questions (mainly closed-type) related with natural environment of area, its threats, the benefits that offer and the socio-demographic characteristics of locals. The research was conducted using a structured questionnaire and the method selected was face-to-face interviews.

The interview is the best way of collecting statistical data and is broadly used in sampling research. Simple random sampling was the sampling method selected, due to its simplicity and the fact that it requires a minimal knowledge of the population compared to any other method. The ‘population’ under study is the total number of households in the two municipalities Feres and Traianoupolis.

Simple random sampling presupposes the existence of a full list (sampling frame) of the population without omissions or repetitions. The sampling framework used involved lists of consumers of household electricity. These lists were considered the most appropriate choice, since almost 100% of households in the region under research use electricity.

Using households is a classic example of using groups of people as a sampling unit, instead of individual persons. This is a preferred solution in certain cases, since it is a more convenient and less costly method. The selection process for the respondents (from a household chosen at random) was organised so that the same family member would not always be chosen (i.e. always the head of the family, his wife, etc.).
In order to estimate the population proportion that share a specific characteristic, we can proceed with the following admissions. If \( i \) in the unit sample has this characteristic, we then write \( p_i = 1 \), if it does not, then we write \( p_i = 0 \). In this case, the estimated population proportion, which is also the unbiased estimation of the actual population proportion \( p_h \), is provided by the following formula:

\[
p_h = \frac{\sum_{i=1}^{n} p_i}{n}.
\]

The estimation of the variance of the population proportion \( s_p^2 \) and the standard error of the population proportion \( s_p \), without the correction of the finite population because the sampling fraction is small, is given by the following formulas:

\[
s_p^2 = \frac{p (1-p)}{n-1}, \quad s_p = \sqrt{\frac{p (1-p)}{n-1}}.
\]

The confidence interval for this proportion can be taken from tables or special abacus, and can also be calculated with the help of the Student \( t \)-distribution

\[
p = p \pm t s_p
\]

where \( t \) is the value of the Student distribution for probability \((1 - \alpha) = 95\%\), \( n \) – the sample size, and \( n-1 \) – degrees of freedom.

When planning a sampling research, one decision involves the size of the sample \( n \) that will be selected from the population. If we select a larger sample than is required, then we definitely waste time and money. On the other hand, if we select a smaller number of units for the sample, this means that we are ‘buying’ information that does not suffice to estimate the parameter of the population we are interested in. In this case, we are not in a position to support our results as reliable, in the sense that the parameters have been estimated using the predetermined margin error and the required estimation credibility\(^{33}\). Although simple random sampling without replacement was used, the correction of a finite population can be ignored because the size of the sample \( n \) is small compared to the size of the population \( N \) (Ref. 39).

Since the variables refer to proportions, the determination of the total sample size is provided by the formula:

\[
n = \frac{t^2 p (1-p)}{e^2}
\]

where \( p \) is the estimation of proportion; \( t \) – the value of the Student distribution for probability \((1 - \alpha) = 95\%\) and \( n-1 \) – degrees of freedom. Since the size of the conducted pre-sampling is large (over 50), the value of \( t \) is taken from the probability tables of the normal distribution for the desired probability. In practice, for 95\% probability the value is 1.96 (Ref. 36); \( e \) – the maximum admitted difference.
between the sampling mean and the unknown mean of the population. We accept that $e = \pm 0.05, \pm 5\%$.

In order to calculate the size of the sample, we were obliged to conduct pre-sampling on a sample size of 50 persons. Thus, the population proportion ($p$) was calculated for each variable.

The use of a questionnaire is not restricted to estimate only one variable, but more, which is why we need to estimate the sample size for each one of these variables. If the estimated sample sizes are similar, and the size of all is within the financial means of the sampling, then the sample size selected is the maximum. In this way, the variable with the greatest variance is estimated with the desired precision, while the rest are estimated with a greater accuracy than was initially defined.$^36$

The variables that presented the largest sample size are the answer ‘little’ in the question about the degree in which fires, as a human activity, are threat for the Evros delta area and the answer ‘medium priority’ about the degree of priority for the attribute ‘visitor attraction’, with a proportion of $p = 0.5$, therefore, $1 - p = 0.5$, which means that the sample size is:

$$n = \frac{t^2 \times p \times (1 - p)}{e^2} = \frac{1.96^2 \times 0.5 \times (1 - 0.5)}{0.05^2} = 384.16.$$

We therefore accepted a sample size of 385 persons, which means that the other variables are calculated with greater accuracy with the specific sample size.

The households in the sample were then precisely identified (full name and address) using random numbers that we chose from random number tables. Face-to-face interviews were conducted in the selected households, with a member of the family that was selected at random. When the household occupants were not found or refused to answer, two more attempts were made to obtain their opinion. When this was not possible, we used the same procedure in order to select new sampling units. The data collection took place in summer 2008 and the statistical package SPSS was used to implement descriptive statistics and the chi-square ($X^2$) test for investigating if there are differences in the attitude according to the gender and according to the profession of the respondents.

**SURVEY QUESTIONNAIRE**

For the structure of the questionnaire we based on the related bibliography.$^{38-44}$ The primary data that were gathered for this research were classified in three groups: (1) the contribution of the Evros delta National Park natural environment in the quality of life. These questions were closed type and we used the 5-level scale where 5 represents the highest attitude (absolutely I agree) and 1 the lowest attitude (absolutely I disagree); (2) human activities that constitute threat for the area. These questions were also closed type and we used a 4-level scale where
4 represents the highest attitude (very threaten) and 1 the lowest attitude (none), and (3) the socio-demographic profile of the sample. The socio-demographic characteristics that examined were gender, age, educational level, profession and annual income.

RESULTS
SAMPLE DESCRIPTION
As far as the participants are concerned, male respondents represent 62.60% of the sample and 37.40% are women. The average age is between 18 and 50 years. More than the half of the respondents (72.10%) have finished obligatory education, while their main occupations are farmer, cattle farmer, private employees and civil servants. Although the Evros delta area is characterised as rural, the relatively big percentage of private and civil employees can be explained by the fact that in a small distance from the area is located the capital city and administrative and economic center of the prefecture where a number of residents work. More than the half of the respondents (56.40%) are occupied in various agricultural activities (agriculture, livestock) mainly or partially. Their mean annual income varied from 5000–15000 Euro (Table 1).

QUALITY OF LIFE
Respondents agree and absolutely agree (82.10%) to the assumption that the natural environment of the Evros delta upgrades the quality of life of the locals. In a great percentage also (approximately 70%) they think that it can provide the necessary labour opportunities to local people through the appropriate measures and interventions in the infrastructure and in some human activities that can provide employment. During face-to-face interview we find out that one of the reasons of not taken advantage of these opportunities is the lack of necessary financial subsidies or because of the lack of personal initiative. One of the features of a protected area and especially of a river delta is its multifunctional character. Except for the labour opportunities, a river delta must provide recreation opportunities that can also contribute to the quality of life. The majority of the respondents (88.50%) seems to agree with this assumption, as they want their protected area to provide the ideal environment for well-being.

The population that live and work around the Evros delta area, either they dependent directly or indirectly, recognise its protective character for the air, the water and land resources against pollution (72.50%) and every human activity that threat the natural environment in various levels.
<table>
<thead>
<tr>
<th>Table 1. Socio-demographic profile of the sample, N= 385 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gender</td>
</tr>
<tr>
<td>Man: 62.60  Woman: 37.40</td>
</tr>
<tr>
<td>2. Age</td>
</tr>
<tr>
<td>3. Educational level</td>
</tr>
<tr>
<td>Primary school: 12.20, High school: 13.20, Lyceum, technical degree: 6.20, Lyceum: 40.50, Vocational Education Institute: 5.20, Technological education: 11.40, University: 10.60, Post-graduate: 0.50</td>
</tr>
<tr>
<td>4. Profession</td>
</tr>
<tr>
<td>Farmer – cattle farmer: 22.90, Housewife: 4.70, Private employee: 22.60, Civil servant: 22.10, Freelance professional (merchant, plumber, electrician, etc.): 16.10, Freelance professional (doctor, lawyer, engineer, etc.): 4.70, Entrepreneur: 1.00, Undergraduate: 3.60, Unemployed: 2.30</td>
</tr>
<tr>
<td>5. Agricultural activities as main or secondary occupation</td>
</tr>
<tr>
<td>yes: 56.40, no: 43.60</td>
</tr>
<tr>
<td>6. Annual income (Euro/year)</td>
</tr>
</tbody>
</table>
A quite significant percentage of the respondents think that not all residents benefit from the existence of the Evros delta (41%), while almost the same percentage thinks the opposite (41.90%). The rest 17.10% present a neutral attitude against this assumption. This deference can be explained mainly by the fact that there are a lot of local people that are not depended directly or indirectly on the existence of the Evros delta and therefore the importance of this ecosystem has not the same value for them.

Finally, the overwhelming majority (90%) supports the attitude that the Evros delta contribute and can contribute to the future development of the area in a number of ways, pointing out the necessity of implementing these necessary measures which will maintain this ability in a high degree (Table 2).

### Table 2. Quality of life in the Evros delta National Park (%)

<table>
<thead>
<tr>
<th>Attributes of quality of life</th>
<th>Absolutely I agree</th>
<th>I agree</th>
<th>Neither agree/neither disagree</th>
<th>I disagree</th>
<th>Absolutely I disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upgrades the quality of life of local people</td>
<td>43.60</td>
<td>38.50</td>
<td>12.20</td>
<td>5.20</td>
<td>0.50</td>
</tr>
<tr>
<td>Offers employment opportunities to the locals</td>
<td>32.70</td>
<td>36.90</td>
<td>19.00</td>
<td>10.90</td>
<td>0.50</td>
</tr>
<tr>
<td>It constitutes a special and attractive landscape</td>
<td>55.80</td>
<td>34.80</td>
<td>6.80</td>
<td>1.00</td>
<td>1.60</td>
</tr>
<tr>
<td>Protects the air, the water resources and the land from pollution</td>
<td>38.70</td>
<td>33.80</td>
<td>14.50</td>
<td>9.40</td>
<td>3.60</td>
</tr>
<tr>
<td>Permits land uses that are related with the protection and restoration of the environment</td>
<td>34.30</td>
<td>36.10</td>
<td>20.00</td>
<td>6.80</td>
<td>2.90</td>
</tr>
<tr>
<td>Not all locals have benefits from the existence of Evros delta National Park</td>
<td>11.90</td>
<td>29.10</td>
<td>17.10</td>
<td>33.50</td>
<td>8.40</td>
</tr>
<tr>
<td>Offers recreation opportunities</td>
<td>44.90</td>
<td>43.60</td>
<td>6.80</td>
<td>4.40</td>
<td>0.30</td>
</tr>
</tbody>
</table>

**THREATS**

For the various human activities that are practiced in the Evros delta area, most of the respondents (58.40%) think as the most serious and the most detrimental threat for the natural environment, the pollution and illegal dumps that are spread in a lot of places in the area. According to the answers of the respondents threat in a quite big percentage (49.10%) is also the attribute ‘inadequate management’, for which they believe that the inability of the state authorities (prefecture, for-
est service) to implement an integrated planning and the appropriate managerial projects, has as a result, the inadequate development of the natural resources of the area, for the production of goods and services that improve the living standard of the locals, a fact that leads to the quantitative and qualitative degradation of these resources. While, hunting constitutes, for the respondents, the third major threat for ecological equilibrium of the area (37.90%).

For forest fires, which mostly break out due to anthropogenic reasons and less from natural causes, respondents indicate that they are little threat for the area in a 48.80% and great threat in 32.50%.

As far as woodcutting concerns, respondents indicate that constitutes little threat (42.60%) or no threat (28.30%) for the natural ecosystem of the area. Since a significant proportion of locals that live and work around the Evros delta has in a quite high degree relation with the various outdoor activities (agriculture, range management, forestry) consider themselves to be very familiar with the natural environment of the area, in a degree that have no intention to cause significant damage to the natural resources they utilise and earn a part of their income.

Although hunting is a common free time activity and is realised in certain places in the Evros delta area with significant economic benefits for the local economy (hunting equipment, licenses, apartment rents, etc.), respondents in a great percentage consider the degree of threat as moderate (36.90%) and very (37.90%) for the natural environment as it disturbs the biological cycle and the reproduction of many rare and threaten fauna and bird species. It creates also some kind of pollution in the water area as the cartridges from the guns end into the water and it can cause even the death of some birds.

About the agricultural-livestock activities, approximately 45% of the respondents (44.90%) regard little threat for the environment and 32.50% as no threat. Only the 17.90% consider these activities to be an important threat.

The Evros delta as every protected area is a special touristic destination for people that want to visit and see a rich natural ecosystem and admire the unique flora and fauna. Considering the touristic character of the area, respondents state that tourism is not a threat for the natural environment of the Evros delta National Park (50.90%), although a quite significant percentage (44.40%) considers the tourism activities as ‘moderate’ to ‘very’ degree of threat. According to the recent statistical data, every year visit the national park of the Evros delta approximately 16 000–23 000 visitors, most of which arrange tours in the wetland area, hiring the local fishing boats. These prearranged tours are held by local people who mainly are occupied as fishermen and in order to complete their incomes hire their boats for the above reason (Table 3).
Table 3. Activities and degree of threat (%)

<table>
<thead>
<tr>
<th>Threats</th>
<th>Very</th>
<th>Moderate</th>
<th>Little</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fires</td>
<td>32.50</td>
<td>48.80</td>
<td>17.10</td>
<td>1.60</td>
</tr>
<tr>
<td>Pollution – illegal dumps</td>
<td>58.40</td>
<td>29.10</td>
<td>10.10</td>
<td>2.30</td>
</tr>
<tr>
<td>Extensive woodcutting</td>
<td>17.40</td>
<td>42.60</td>
<td>28.30</td>
<td>11.70</td>
</tr>
<tr>
<td>Illegal woodcutting</td>
<td>23.60</td>
<td>35.30</td>
<td>28.30</td>
<td>12.70</td>
</tr>
<tr>
<td>Hunting</td>
<td>37.90</td>
<td>36.90</td>
<td>22.60</td>
<td>2.60</td>
</tr>
<tr>
<td>Agricultural-livestock activities</td>
<td>17.90</td>
<td>44.90</td>
<td>32.50</td>
<td>4.70</td>
</tr>
<tr>
<td>High number of visitors</td>
<td>10.90</td>
<td>33.50</td>
<td>50.90</td>
<td>4.70</td>
</tr>
<tr>
<td>Residential development (houses, store-houses)</td>
<td>19.00</td>
<td>41.60</td>
<td>36.10</td>
<td>3.40</td>
</tr>
<tr>
<td>Inadequate management</td>
<td>49.10</td>
<td>29.90</td>
<td>7.00</td>
<td>14.00</td>
</tr>
</tbody>
</table>

ATTITUDES OF THE LOCAL PEOPLE FOR THE QUALITY OF LIFE EVROS DELTA NATIONAL PARK

According to their gender. The attributes that are contribute to the quality of life, according to the gender men respondents have different opinions from women for the following attributes, as it seems from the study ‘It constitutes special and attractive landscape’, ‘Protects the air, the water resources and the land from pollution’, ‘Not all locals have benefits from the existence of the Evros delta National Park’ and ‘Offers recreation opportunities’. For all the other attributes men and women have similar attitudes (Table 4).

Table 4. Attitudes of local people according to gender and profession

<table>
<thead>
<tr>
<th>Attributes of quality of life Evros delta National Park</th>
<th>Gender $(X^2)$</th>
<th>Profession $(X^2)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upgrades the quality of life of local people</td>
<td>6.863</td>
<td>73.216*</td>
</tr>
<tr>
<td>Offers employment opportunities to the locals</td>
<td>6.157</td>
<td>112.885*</td>
</tr>
<tr>
<td>It constitutes special and attractive landscape</td>
<td>10.019*</td>
<td>60.386*</td>
</tr>
<tr>
<td>Protects the air, the water resources and the land from pollution</td>
<td>10.590*</td>
<td>72.696*</td>
</tr>
<tr>
<td>Permits land uses that are related with the protection and restoration of the environment</td>
<td>3.553</td>
<td>93.291*</td>
</tr>
<tr>
<td>Not all locals have profits from the existence of the Evros delta National Park</td>
<td>24.461*</td>
<td>118.276*</td>
</tr>
<tr>
<td>Offers recreation opportunities</td>
<td>9.977*</td>
<td>56.232*</td>
</tr>
</tbody>
</table>

* Statistically significant at $p < 0.05$.

According to their profession. We found that there are differences in the attitudes of the respondents according to their profession in all of the attributes that contribute to the quality of life. This can be explained by the fact that every professional
category perceives in its own way the contribution of every attribute in the general
well-being of the residents (Table 4).

ATTITUDES OF THE LOCAL PEOPLE FOR HUMAN ACTIVITIES AS A THREAT

According to their gender. The study indicated the following: For all the activities
that can be a threat for the natural environment of the Evros delta National Park we
perceive different attitudes between men and women as also among the professions
except for the threat of ‘pollution-illegal dumps’ and ‘inadequate management’
where respondents seems to have the same attitude about the degree in which these
two activities are threat for the area.

In particular, men respondents consider ‘fires’ as a very significant threat in a
greater percentage than women, which they consider it as moderate ($X^2 = 18.259$,
with 3 degrees of freedom (df), level of significance $p<0.05$, and the Crammer $V = 0.218$).

As far as the attributes of ‘extensive woodcutting’ and ‘illegal woodcutting’
are concerned there are differences in opinions between men and women where the
greater percentage of women (77% approximately) consider that these two activi-
ties are little or moderate threat. From the other side men consider that constitute
moderate or very significant degree of threat (70% approximately) ($X^2 = 21.304$, 
df=3, $p<0.05$ and the Crammer $V = 0.235$ for extensive woodcutting and $X^2 =$
21.570, df=3, $p<0.05$ and the Crammer $V = 0.237$ for illegal woodcutting).

For the activity of ‘hunting’ we observe a relatively different attitude between
men and women respondents where the greater percentage in both genders (ap-
proximately 82% men and 71% women) consider that hunting constitutes moderate
and very significant threat as they connect it with the disturbance that creates in
fauna bird fauna mainly as also to the quiet of the locals ($X^2 = 9.329$, df=3, $p<0.05$
and the Crammer $V = 0.156$).

For the various agricultural-livestock activities we also observe a differentia-
tion in opinions according to gender where most of women respondents (85% of
women against 65% of men, respectively) indicate that these activities are little
or moderate threat for the area ($X^2 = 20.165$, df=3, $p<0.05$ and the Crammer $V =$
0.229).

According to their profession. As far as the human activities are concerned with the
professional level of the respondents we make the following observations: For the
case of the natural or anthropogenic fires that could break out into the boundaries
of the Evros delta area we indicate a differentiation in opinions according to the
professional category.

For example, farmers, private employees, civil servants, undergraduates and
unemployed state that fires are a moderate threat for the area. From the other side,
freelance professionals such as doctors, lawyers and engineers and entrepreneurs
consider that fires constitute a very significant threat for the natural resources of the area ($X^2 = 63.731$, df=24, $p<0.05$ and the Crammer V = 0.235).

Respondents stated different opinions, according to their profession, for the degree of threat that constitutes the activities of ‘extensive woodcutting’ and ‘illegal woodcutting’ ($X^2 = 50.274$, df=24, $\alpha<0.05$ and the Crammer V = 0.209 for extensive woodcutting and $X^2 = 53.389$, df=24, $\alpha<0.05$ and the Crammer V = 0.215 for illegal woodcutting).

We also observe differences in the attitudes of the respondents for the activity of ‘hunting’ as every professional category has different relation with this activity ($X^2$ Pearson = 49.231, df=24, $\alpha<0.05$ and the Crammer V = 0.209).

In the case of agricultural and livestock activities we indicate a relatively small differences in the attitudes among the respondents, as most of the professional categories (farmers, private employees, civil servants, freelance professionals) state that the above activities are little or moderate threat for the Evros delta National Park ($X^2 = 37.036$, df=24, $p<0.05$ and the Crammer V = 0.179).

The same attitude have the respondents for the attribute ‘high number of visitors’ as most of them consider that the tourism activity and the presence of visitors in the area are little or moderate threat ($X^2 = 61.837$, df=24, $p<0.05$ and the Crammer V = 0.231).

There is no relation between profession and the attribute ‘residential development’ as most of the respondents have about the same attitudes. They consider that this attributes is a little or moderate threat for the area ($X^2 = 41.128$, df=24, $p<0.05$ and the Crammer V = 0.189).

Finally, the relation between ‘inadequate management’ and profession is not statistically significant, therefore, respondents present the same attitude for the degree of threat that the above attribute consists ($X^2 = 60.811$, df=24, $p<0.05$ and the Crammer = 0.229) (Table 5).

**Table 5. Attitudes of local people according to gender and profession**

<table>
<thead>
<tr>
<th>Threats</th>
<th>Gender ($X^2$)</th>
<th>Profession ($X^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fires</td>
<td>18.259*</td>
<td>63.731*</td>
</tr>
<tr>
<td>Pollution – illegal dumps</td>
<td>3.445</td>
<td>27.291</td>
</tr>
<tr>
<td>Extensive woodcutting</td>
<td>21.304*</td>
<td>50.274*</td>
</tr>
<tr>
<td>Illegal woodcutting</td>
<td>21.570*</td>
<td>53.389*</td>
</tr>
<tr>
<td>Hunting</td>
<td>9.329*</td>
<td>49.231*</td>
</tr>
<tr>
<td>Agricultural-livestock activities</td>
<td>20.165*</td>
<td>37.036*</td>
</tr>
<tr>
<td>High number of visitors</td>
<td>7.283</td>
<td>61.837*</td>
</tr>
<tr>
<td>Residential development (houses, storehouses)</td>
<td>6.755</td>
<td>41.128*</td>
</tr>
<tr>
<td>Inadequate management</td>
<td>2.682</td>
<td>60.811*</td>
</tr>
</tbody>
</table>

* Statistically significant at $p < 0.05$. 
CONCLUSIONS

As we outlined in the previous sections, most of the respondents in this research are men as they were more available and more willing to participate in the research than women. The average age is between 18- and 50-year old. The most usual occupations in the study area are agricultural-livestock activities and private employees and civil servants. Most of the respondents have finished the obligatory education and their annual income is between 5000 and 15 000 €. More than half of the respondents are occupied in the agricultural sector mainly or partially in order to complete their income proving the importance and the contribution of the primary sector in the rural development of the area.

As major problems, regardless of gender and occupation, respondents consider the attribute of ‘pollution and illegal dumps’, ‘inadequate management’ from the side of the relevant services and authorities and ‘hunting’, especially when this activity becomes poaching. For the activity of ‘hunting’ we observe only a little difference in attitudes according to gender and occupation and this can be explained by the fact that the impacts of this activity in the natural environment is not perceptible by all the respondent categories. Also, respondents consider that the nuisance that ‘agricultural and livestock activities’ cause is moderate and it could be minimised through the implementation of an appropriate planning and management. The residents of the Evros delta National Park believe that the greater area has very good opportunities for tourism development provided that this scenario will be realised though the appropriate planning and management, considering the needs and priorities of local human communities and the protection status as they think that tourism activities does not cause serious impacts to the natural ecosystem.

From the other side, most of the respondents agree that the protected area of the Evros delta with its rich and unique fauna and flora and its attractive landscape can offer in a significant degree a number of benefits, like protection of water resources from pollution, labour opportunities to the locals and especially to young people, recreation opportunities to locals and to foreign visitors, attributes that can lead to a better way of life and development for the greater area.

REFERENCES


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