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Contents

1. Introduction to the local case studies

TESS aims to design a decision support system related to environment and land use that will enable policy makers to integrate knowledge from the regional and local level into the decision making process, while also encouraging local people to maintain & restore biodiversity & ecosystem services.

In this framework TESS partners were asked to develop local case studies, which consisted of two projects: a) the socioeconomic project and b) the mapping project. The Aristotle University of Thessaloniki is the leader of this Work Package (WP5) and responsible for the analysis and synthesis of the results.

The aims of the case study projects were to test (by simulation) how best to meet local decision support needs in exchange for local monitoring that meets central policy requirements, and whether local monitoring (based on schools, local community groups or individuals motivated by use of wild resources) can meet government requirements.

Such information requires mapping of ecological information, for combination with socio-economic information.

The case studies also aimed at assessing local attitudes and capabilities.

1.1. Partners

Partners who participated in this WP are:

1. Aristotle University of Thessaloniki (AUTH) Greece,
2. Szent Istvan University, Institute for Wildlife Conservation (SZIU) Hungary,
3. Pro-Biodiversity Service (PBS) Poland,
4. ERENA, Ordenamento e Gestao de Recursos Naturais Ltd. (ERENA) Portugal,
5. Tartu College, Tallinn University of Technology (IST) Estonia and
6. Danube Delta National Institute for R&D (DDNI) Romania
7. Federation of Associations for Hunting and Conservation of the EU (FACE)
8. WWF-Turkey
9. Bournemouth University (BU) United Kingdom
10. Anatrack Ltd. (Anatrack) United Kingdom

AUTH, SZIU, PBS, ERENA, IST and DDNI prepared one case study each while WWF-Turkey prepared two case studies.

FACE prepared two mapping projects.

BU conducted socio-economic study in the Frome Catchment whereas Anatrack arranged mapping and survey of Arne Parish, within the catchment, with the participation of 335 local residents (in contrast with the rest of the partners who worked with a smaller sample as shown below).

1.2. Local case studies overview

All the case studies reports and the mapping files are in the CD accompanying this report in a separate folder for each case study. The individual socioeconomic report from one case

study, namely the Danube Delta National Institute for R&D (DDNI), Romania, is given in appendix 2. Also the individual mapping project from one case study, namely the Municipality of Kerkini, Greece, is given in appendix 3. Table 1 shows a synopsis of each case study.
The case studies elaborated are as following:

1.2.1. Municipality of Kerkini (Greece)

Location

The Greek Case Study focuses on the Municipality of Kerkini. The Municipality of Kerkini is in the northern part of Greece, in the Region of Central Macedonia, Prefecture of Serres and is adjacent to Lake Kerkini, which is a declared Nature Reserve.

Significance

The case study area is of great significance as:

- it offers food and shelter to lots of species
- the Lake Kerkini is one of the most important wetlands for the protection of birds as it gives shelter to over 300 species of birds
- it is the most important habitat in the Southern Balkans of cormorants, cranes and more
- it is the most important area of hibernation of the Pelecanus crispus in Europe
- in Lake Kerkini lies the greatest wetland in Greece which is covered with water lilies
- most of the buffalos in Greece live around the Lake Kerkini (about 500)
- it is a declared National Park since October 2005
- it is one of the 10 Greek Wetlands of International Importance under the Ramsar Convention
- and one of the 196 Important Bird Areas (IBA) in Greece

Socio-economic project

The area covered by the municipality of Kerkini is well known for the rare species of birds, either settled permanently or passing through during the migration period. Bird watching and hunting are increasingly becoming sources of income for the locals along with the exploitation of other rare species like the water buffalos. The population of the water buffalos in Greece as a whole was decreasing in the past decades, until recently, as their numbers flourished especially in the Kerkini area and helped the initialization and continuation of ecotourism and recreational activities. Since they do not exist in many other habitats in Greece, they helped to keep the local population in the area and not to migrate. Also, the Womens' Association of Ano Poroia (a settlement part of the Kerkini municipality) is using locally collected herbs and fruits like chamomile, oregano or wild blackberries to produce traditional dishes and beverages.
The project aims at helping local people in identifying new sources of income related to tourism activities while protecting the area's biodiversity.

Mapping

This project attempts to utilize the informal hotel owners' cluster and the local riding horses' owners in order to map the routes followed by riding horses, one of the main recreational activities of the area. In addition walking and climbing paths used for recreation have also being mapped.

Finally, the Hunters' association, who have deep knowledge of the various paths around the coastal part and the forests that surround the municipality helped in mapping the wild boars' paths, one of the main games of the area. Wild boars are allowed for hunting certain periods of time every year.

The spatial information acquired will contribute to the conservation of the number of wild boars, as this species has been extinct in other nearby areas.

Duration

The project lasted from April 2010 to September 2010 for 6 person-months.

1.2.2. Participatory development of recreational plan on Laulasmaa Landscape Protection area (Estonia)

In the northern part of Estonia, ~30 km west from Estonian capital Tallinn in a Keila Rural Municipality is located a Laulasmaa Landscape Protection Area. The area was established in 2005 to protect sandy coast with permanent vegetation, forested dunes and limestone cliff. Its' total area is 42 hectares and it is developed into popular recreational area among local inhabitants and areas' visitors although no special conditions had not been created for recreational activities (moving paths, ball fields, beach infrastructure etc). The project activities consisted mapping suitable moving paths for recreational use with an objective to fit them with relevant protection regimes and carry out a survey among local inhabitants. The main objectives of the project were:

- to find out inhabitants'
    - current uses of the area
    - awareness on conservation values
    - needs for information types and sources concerning case study area
- to introduce mapping results to inhabitants
- to gather feedback and input if choosing between different alternatives.

The case study project was carried out in late summer of 2010. Firstly the relevant equipment was acquired which consisted Garmin Edge 705 Bundle GPS bicycle computer and Algiz 7 tablet computer to map the paths. After preparing relevant basis data the mapping with bicycles by bicycling club Velo Clubbers took place during to weeks in August 2010. The paths with adequate length had to be adjusted into the area with the aim of using existent paths and sparing the protected areas' values as much as possible. As a result 2 alternative paths were mapped - 2 km path and 4 km path. After mapping a questionnaire

was prepared and a ~40 local inhabitants took part of the survey carried out by local NGO – Laulasmaa Open Youth Centre in September 2010.

1.2.3. Cycle route and flooded area in Bózsva (Hungary)

Location of case study: Bózsva

Bózsva is a small village in the county of Borsod-Abaúj-Zemplén in Hegyköz region in north-eastern Hungary ("Northern Hungary") on the border with Slovakia.

Bózsva originally was two different villages, Kisbózsva and Nagybózsva, but in 1977 the two villages were unified. The two parts of Bózsva have not reached each other; the distance between them is 650 m. The town has an area of approximately 16,39 km^2. The 2009 census shows there were 205 people and 103 occupied houses in Bózsva. The average household size was 2,15 people/km^2. The local government is directed by five elected representatives and a mayor. Tasks of policy administration are managed by the office of district notary in Füzéskomlós.

Approximately, 50% of the population is the working-age, 25% of the population is over 60 years, younger decisively are in the school-age and secondary school-age. Nursery school and elementary school are in Füzérkomlós and Pálháza. Many of the local people work in the neighborhood, for example, in Kovácsháza or in Pálháza. Bózsva is located in the middle of the Zemplén Mountains, Bózsva is bordered by forest and cultivated area. Local people are working in the agriculture and forestry, and many of them are officially hunters. Complementary activity is collecting of fungi, and recent time is village tourism. Useability mineral raw material is the perlite. The only one perlite mine in Hungary is at the border-line of Bózsva, in Kishuta. It has been operated since 1958. In the village there is electricity, gas, water and the disposal of sewage. In Bózsva, there is a positive process presently. More and more young people move there. More and more people buy houses there as a summer-house.

This year was an especially difficult year for the people of Bózsva. Heavy rains caused problems in more villages and towns in Hungary and in Bózsva, there were floods, too. Houses and bridges were collapsed, the product of land rotted off. Not only in the life of the local people caused the flood problems, but in the building of the cycling route, too. The roadbed was taken away by water, so excavations had to be started to rebuilt.

Description, aims and significance of the case study

Two different tasks were carried out. The first one was the assessment of the area of flood. Bózsva has been flooded this year because of the large amount of rain. Since one of the main income source of Bózsva is tourism, assessment of flood and its effects has prominent importance not only in terms of natural reserve, but economic, too. The aims were to map the places, where its floods, the position of structures, assessment of endangered natural resources and natural values are important in order to be able to forecast the effect of future floods.

The second one was the mapping of the cycle route and its environment. Cycling is very important in terms of ecotourism. The socio-economic project was to know the implementation of building of the cycle route. Importance of structure a cycling road is unquestionable in terms of ecotourism. The problem is a rubbish-heap located near the cycling road. Clarification of property rights makes the progress more difficult. Task: mapping the bureaucratic labyrinth of Hungary with an aim of achieving its goals.

Time period of the analysis

The case study started in September 2009. A preliminary survey was made, when the task of mapping and the subject of the socio-economic project were talked over. Local people were given information on TESS and on its aims. A measurement was made with three different GPS tools (Garmin Geko 301 (Navigation GPS); THALES Mobile Mapper CE (Developed for field work – GIS- GPS); Garmin Nuvi 770 (car navigation GPS)) in October 2009. The aim of the measurement was to test the accuracy and applicability under foliage of these GPS tools. Evaluation of the GPS test and development of the whole case study were carried out in winter. The work was continued with more consultations in June and July 2010. The necessary changes were talked over on these consultations. Testing of the GPS was continued in July 2010 and filling in the questionnaire was started then. Filling in the questionnaire was achieved in more periods.

1.2.4. Zator (Poland)

The Carp Valley region and its part - the Zator District is characterized by very high values of nature and local economy based on using natural resources. Fishponds and post-gravel gravel water bodies cover over 22 % of the Zator District territory and aquaculture remains the major sector of the study area economy for hundreds of years. The natural values linked to fishponds and water bodies within the region are the major component to a local sustainable development strategy. Therefore, the Polish part of TESS team intended to demonstrate the importance of access information on the livelihood level to sustainable management of natural resources, in a way which benefits both nature and people.

In practical terms the case study intended to demonstrate potential for setting up voluntary system of mapping environment and biodiversity with a use of modern GPS techniques, as well as to develop a socio-economic project proposal related to better and sustainable use of natural resources based on fishponds, as bird watching, angling (fishing), recreational tourism and extensive aquaculture (perhaps organic one) allowing for protection of biodiversity on one hand and economic survival of fishpond production on the other one. This co-existence is the indispensable condition for both long-terms survival of natural values and fishponds and livelihood of various professions linked.

The sustainable use of these resources is complicated by some conflicts between interests of stakeholders, including nature conservations substantially strengthened by establishing Natura 2000 areas over significant part of all water bodies in the Zator District. Bird

watchers and other nature conservation groups are mostly interested in maintaining and where necessary improving ecological status of areas concerned. However, other members of the local community look after their livelihoods that provide their income through the use of wild resources.

The conflicts of interest between the ownership, protection and the use of wild resources result from two reasons at least. The first is lack of understanding of what Natura 2000 is and what it does allow for in terms of various land uses. This leads directly to absence of development concept which would result in partnership and co-existence of nature conservation and economic use, ensuring both financial and biodiversity results.

The second reason is lack of proper and transparent information on nature resources, their spatial distribution and business opportunities could be based on these resources. This call directly for developing habitat and species maps which would enable to develop proposal aiming at economic revitalization fishponds, same time providing active protection measures for their biodiversity. Further on, while ensuring implementation of Natura 2000 perceptions, the plan is to look at the multifunctionality of the fishpond complex as a way of diversification of incomes of people living in that area.

The case study was to address above problems, designing a project proposal to promote development of pro-biodiversity businesses based on compromises in resource management among all the stakeholders, and creating this way the conditions to improve management of nature resources of fishponds and local livelihoods.

Achieving this goal requires mapping of information on the spatial distribution of biodiversity, existing and potential risks and threats. Therefore, the two projects planned in the framework of the case study – the development of socio-economic project was closely linked and integrated with mapping project. The latest, apart testing possibilities of setting up volunteers based mapping systems, provides also necessary information on vegetation overgrowth on fishponds of Przyreb complex, which otherwise would not be available.

The work on the case study area began in 2009 while implementing the WP3. The core part of the work was, however, implemented in 2010. The planning of work was, unfortunately, heavily affected by three floods which were seriously limiting cooperation with local stakeholders, including district authorities. The problems with the flood, which came about in beginning of September last time, caused substantial delay in case study execution, in particular mapping. Consequently mapping became the bottle neck to the development of socio-economic project.

To ensure effective implementation of the case study 7 work months were allocated to cover all costs labor input.

1.1.5. Iberian lynx (*Lynx pardinus*) conservation in Holm oak montados in Southeastern Alentejo (Portugal)

The project area comprises the territory of the Portuguese municipality of Barrancos, located in SE Portugal. The municipality is economically depressed but includes high value

natural areas. The municipality of Barrancos, the central government environment administration and the more decisive stakeholders in the region are aware that conserving and increasing natural value is a key question for the future of this community.

The region's socio-economic equation can be described as follows: Since the beginning of the last decade of the XXth century there was a considerable decline of the traditional systems of agriculture based on labor, that were not replaced by globally more productive systems. This was associated to a decline in population, product and increased unemployment. During this period cereal production diminished to irrelevant levels and, at the same time, cattle and iberian pig production raised. The high quality, origin certified ham and other pig products are produced in Barrancos, but agriculture based on animal production and the ham industry is not enough to generate sufficient jobs to the local population.

Council Regulation (EC) No 73/2009 of 19 January 2009, allowed the maintenance of suckler cow coupled payments, essential to maintain cattle production in the region. However, these payments are subject to tight thresholds and conditions, and only are able to "freeze" the situation and give additional time to reform the productive base. Almost all the Barranco's territory is included in Natura 2000 network and is also included in the priority territories for the iberian lynx (*Lynx pardinus*) conservation. For this two reasons the environmental services associated with biodiversity have a potentially high added value. The solutions that improve the payment of this kind of services, affected by a market failure, are one of the more important questions to the future of the people of Barrancos and for biodiversity conservation in the region.

A large number of working papers related with the pos – 2013 CAP (e.g. European Parliament Resolution 2009/2236(INI)), clearly state that the payment of biodiversity goods keeps being an important concept in the future formulation of the rural development policies. The Portuguese government created (Portuguese execution of Regulation (CE) 1698/2005) an integrated agro – environmental intervention applied to the Barrancos territory, that includes compensation of income loss and additional costs to farmers that accept the scheme proposed by the program focused in Iberian lynx conservation. If approved and applied, this program will last until 2013.

The EU agro – environmental schemes are only an initial and partial solution (limited in total amount and only applicable to income loss and additional costs). A sustainable solution may include a public support component (addressed to compensate the market failure) and a component linked to the economic development of the regions. In the foreseeable future it is expectable that the component of public support will be composed of three main lines: a line associated with the remuneration of environmental services in the scope of rural development policy, a line associated with the remuneration of environmental services in the scope of the environment policy and a line associated to activities and rendering of services of the central administration, autarchies and public companies.

The first line is at the moment represented by the Regulation (CE) 1698/2005, that will probably evolve to a new regulation within the same orientation for the next programming

period. The B2B environmental services in the scope of the environmental impact policy (Directive 85/337/CEE with the changes introduced by Directives nr 97/11/CE and 2003/35/CE) and in the scope of environmental responsibility (Directive 2004/35/CE), are arising opportunities. In Portugal, at present, these activities are organized by a public managed finance fund (Biodiversity Conservation Fund), created in 2008 and regulated in 2010. The activity of this finance fund consist in allocate funds, originated in the processes above mentioned, to conservation projects and market biodiversity conservation instruments development.

The activities and service rendering by the central administration, autarchies and public companies result of their missions and legal obligations in the scope of land management and environmental compensation. The coordinated action of public institutions in behalf of integrated conservation programs is an important and efficient line of public support, already active in the project region. The component associated with economic development is associated with the qualification of the territory for biodiversity conservation, and the opportunities for development that this qualification generates. In the project region nature-related tourism and hunting are increasingly important activities, which increase added value, due to their importance to increase public awareness on conservation issues.

The new terms of Barranco´s socio-economic equation will, therefore, include biodiversity with all the components described. This generates the need of an update in people's qualification to work in new activities. The emerging activities are nature-related tourism activities (lodging, guiding, managing and others) and activities of conservation management. In the project area, public and private investments are being made in the tourism sector and in biodiversity conservation. Local people have advantages in getting the new jobs created due to their good knowledge of the territory, but have disadvantages due to lack of technical skills or merely specific training.

This new socio-economic process will also promote changes in governance. The foreseen migration will transform a "State dominated" model with low community participation, low adaptability to ecosystem feedback and low integration of local knowledge to a mix of a "Policy Network based" and "Adaptative management" models, where community participation, adaptability to ecosystem feedback and integration of local knowledge will increase, and the global objectives of management include sustainability and the maintenance of ecosystem services.

Information about species and habitat is essential to biodiversity management and the need of this information is a potential generator of jobs to local people. In the project area, information about wild-rabbit population, mammal carnivores population or health condition of evergreen oak stands are good and practical examples among many possible others. Particularly important is the information about wild-rabbit population, because of the species importance in Iberian-lynx conservation program. A regular monitoring program of wild-rabbit population is an important component of a comprehensive monitoring program in the project area already active, however with little participation of local people.

However, local people seem to only partially consider the idea that activities related with conservation can be relevant to income and employment. (CIS, 2010) reports that only 10% of the landowners in the region agree that investments in conserving biodiversity can be compensated by EU payments, 60% consider that conservation regulations generate lower "production levels" and are "complicated". 70% consider that conservation regulations bring "new problems" without "pointing solutions". None considers that conservation regulations "contributes to ameliorate the state of natural resources in the region".

In the other hand, 70% of the respondents consider that Iberian-lynx conservation can "increase tourism in the region", 80% considers that the species should be conserved because is "typical of the region" and 40% respond that the species can "increase game estates value". But, for more than 70% the personal involvement in Iberian-lynx conservation activities depends on "compensation in case of income loss" or "amelioration of the estate conditions".

If practical cases of biodiversity activities generating income and jobs, this local perception will probably change. This is the case of Noudar project an agriculture, conservation and tourism project that is generating tourism flow and employment and positively perceived by local people. The essential idea of this socio-economic and mapping project was to evaluate whether local people can incorporate work (paid or voluntary) in wild-rabbit monitoring and other regular monitoring programs in the Barranco´s region, thus contributing to generate a new field of activity for locals. The project should also elaborate on the socio-economic framework of these new activities.

The specific objectives of the socio-economic project were:

a) To identify the socio-economic framework of the project region regarding the foreseeable shift in the productive base oriented to activities linked with biodiversity conservation.
b) Identify the baseline situation of the actual local participation in biodiversity related activities.
c) To identify the stakeholders and the possible evolution of biodiversity management governance models.
d) To identify the new activities emerging in the region associated of biodiversity management and their capacity to generate employment

The general aim of the mapping project was to evaluate the ability of local non-specialist and untrained people to collect biological data. In the scope of the mapping project we also evaluate and discuss the adequacy of the hardware and software equipment used in relation to its cost, operational conditions and positioning errors.

The specific objectives of the mapping project were:

a) Compare trained professional with untrained non-professional observers in a concrete wild-rabbit monitoring situation in the study area.
b) Map the results of the test.
c) Evaluate the adequacy of the equipment used in the test.

The preparation of the case study was initiated in April 2010, when the first contacts were established with local population with the objective of presenting both project TESS and the local case study and invite local people to participate. Field work went on until the end of August, when the enquiries to helpers were finished. The time allocated by partner ERENA for the completion of the case study was approximately of 4 man-months.

1.2.6. Sfantu Gheorghe commune (Romania)

Sfantu Gheorghe is a fishermen community, based mainly on fishing andromous migratory fish stocks, Pontic shad (*Alosa imaculata*) and sturgeons as well as marine costal fishing for small species as sprat, (*Sprattus sprattus)* and anchovy (*Engraulis encrasicolus)*. Due to the collapse of fish stocks in April 2006, Romania banned sturgeon catching for ten years and costal fishing with giant trap nets was abandoned, this affecting the community livelihoods. The fishermen are still fishing other fish species, but the ban on sturgeon and abandoning costal fishing have affected their income. The alternative to this negative impact is their involvement in tourism by providing tourists services like boat trips, guiding, accommodation or local cuisine and products.

The project intends to stimulate local community to promote the use of the other alternative natural resources to improve community livelihoods. The goal of the project is to help local people to identify the exploitable natural resources within their area and to develop local products for visiting tourists or open market. This will require the collection of the information on the main locations of the resources, species and habitats their abundance and on the risks of exploitation. These data could also be used when designing tourist trails, avoiding a negative impact on the valuable biodiversity resources. The data collected by the local people and stakeholders will be further use in local planning and development, i.e. the development of a community based tourism highlighting the local natural products and resources or in designing tourist packages by the tour-operators.

The objective of this project is to bring together local community, stakeholders with interests within the region and experts with the aim of creating community-based socio-activity in the Danube delta using the well known Sea-buckthorn ***(****Hippophae rhamnoides****)*** to provide the local community with sustainable alternatives to sturgeon fishing and costal fishing.

Specific objectives are:

1. to enhance knowledge and understanding of the biology of the Sea-buckthorn *(Hippophae rhamnoides)* to maximize the economic potential, respectively tourism potential of this species
2. to build competence and improve practice of local products-based tourism in the Tulcea region at the Lower Danube
3. to provide a model for the development of sustainable, environmental tourism in Romania as an alternative to the well spread mass tourism.

For planning the project we involved the main local stakeholders and the local people in identifying and evaluate their other exploitable biodiversity resources than fish. We also tried to involve the stakeholders for the socio-economic aspects of the project (potential income and market).
The time period of project simulation has extended for six months started from April 2010 and ended to September 2010, with a total estimated time allocation of 300 person-hours for stakeholders and local community representatives.

1.1.7. Firtina Valley, Rize (Turkey)

Main economic activity in the lower plains and hills of Firtina Valley is tea cultivation due to available weather conditions (semi tropical rainy). It is a traditional agricultural activity being carried out at the areas gained from clear cutting of the forest in the past. Cattle breeding is the secondly important economic activity in the alpine zone, especially seasonal hay cutting. Although tourism is gaining importance in the region each year, traditional income still has the higher importance.
Although there is small scale agriculture, the main impact on natural resources is pollution in freshwaters (especially rivers) due to pesticides used in tee and hay cultivation. The rivers of Firtina basin are water supply for households and tourism sector, besides an important habitat for endemic sea trout (*Salmon trutta labrax*). Local authorities, NGOs and universities give high importance for the conservation of this species. However, not much attention is given for prevention of pollution created from agriculture and waste disposal. In last few years, governmental organizations and research institutes are making research on cultivation of sea trout in local fishing farms which can be an alternative income for local people.
This study will focus on reducing of pollution created by agriculture through raising awareness and developing of a system for monitoring of water pollution and habitat degradation.

1.2.8. Egirdir lake, Isparta (Turkey)

Lake eğirdir provides Isparta and Eğirdir with drinking and agricultural irrigation water. Fruit agriculture, especially apple, is a common practice around the lake. With around 500.000 tons per year, 20 % of the apple production of Turkey (which equals to 1% of the worldwide apple production) is done in the Eğirdir Lake Basin.
Apple production is the most significant source of income in the region. The downside of this production, on the other hand, is the pollution caused by it. It has been recorded that the indicators showing the deterioration of the water quality in Lake Eğirdir, resulting from especially agricultural pollution has been increasing in number and intensity. Besides the increase in biomass (pointing to euthrophication), disruption of sight, decrease in the

amount of plankton and fish, various scientific research has shown that there has also been an increase in concentration of polluters like pesticides and heavy metals.
In recent years, it is easy to observe the trend towards projects aiming at decreasing agricultural pollution while maintaining and improving the quantity of production. Transforming the irrigation systems from surface irrigation to drip irrigation, employment of 'early alert systems' in the fight against pests are some of these projects.

1.2.9. Biodiversity and ecosystem services in the Frome Catchment (UK)

The case study project carried out had a strong socio-economic focus and involved the mapping and public perception of the values derived from ecosystem services in the Frome River basin, Dorset, UK.

Ecosystem Services in the Frome River Basin

The key objective of this project was to examine the linkages between human well-being and the benefits derived from ecosystem services as perceived by the local community and other stakeholders. Participatory rural appraisal (PRA) techniques were used to elicit the relative importance of the benefits identified to the different societal sectors and to develop suitable indices to measure recreation and aesthetic value of landscapes from the community perspective. The study involved assessment of the provision of selected ecosystem services as identified by local stakeholders, a stakeholders' workshop and an online survey designed to engage the wider community. Outputs include an assessment of the spatial variation in provision of ecosystem services and their associated values, both under the current situation ('business as usual', BAU), and under a scenario of potential land cover change, focusing on ecological restoration at the landscape scale.
More specifically the objectives were to:

1 Provide a measure of the value of the environment to local people, and how this varies across the landscape.
2 Identify synergies and trade-offs between different ecosystem services, and between ecosystem services and biodiversity.
3 Illustrate the impacts of potential land-use decisions on biodiversity and benefits derived from ecosystem services.

Mapping of Deer, their Habitats and Impacts in Arne Parish

The return from Arne Parish to the WP3 enquiry on information requirements at local level recorded "Deer damage: crops, gardens, road accidents" as the environmental issue of second highest concern but with highest frequency of attention required by the local council. Deer numbers have increased greatly in the area in recent years, with large herds of introduced sika (*Cervus nippon*) finding refuge on protected heathland and then foraging in nearby fields and gardens, which often involves crossing roads. Control measures by local volunteers operate in some parts of the parish, but elsewhere there is frequent poaching. Conflicts about deer damage and management are exacerbated due to lack of knowledge of

exactly where deer are and where they are causing damage. The mapping project therefore aimed to establish if local people can map deer and deer-damage hotspots in a way that helps deer managers, and also to map habitats widely in ways that could be used to model deer populations in the future. After detailed planning in June-July 2010, field work was conducted primarily during August and early September 2010. Extensive further data were provided during a survey, during early September, of all voting parish members for a revision of the Parish Plan.

The project involved mapping native roe deer (*Capreolus capreolus*) as well as introduced sika deer and their habitats. The area mapped was primarily the western 4.6 km^2 of the 29.6 km^2 total in Arne Parish, including the two main settlement areas of Stoborough and Ridge that contain more than 90% of the population. In the study, there was cooperation of farmers, foresters, reserve managers, hunters and the local community in general.

Key objectives were for

(i) local people to map where they see deer (in their usual daily activities (strolling, driving, dog walking, riding, in the garden);

(ii) a skilled deer counter to assess where deer are;

(iii) local people to map the local habitats and where they go in their usual routines (i.e. the transect area they cover, to compare to where they see deer).

1.2.10. Mapping of the European Brown Hare (FACE)

FACE was given the task to report on a mapping project carried out by local hunters within Germany and how it integrates into the national level. The aim of the mapping project is to demonstrate which type of information is being generated at local level by a resource beneficiary group, and how this information can meet central policy requirements at local to national level.

The local mapping project was carried out in the German *Bundesland* of Lower Saxony (*Niedersachsen*), in the municipality of *Gehrden*, within the borders a village called *Leveste*. The subject of the mapping was the assessment of the local European brown hare (*Lepus europaeus*) population on a hunting area of 792,8 ha. The mapping is carried out by local hunters and hunting the hunting area manager.

The monitoring of the brown hare is part of a wider programme within Lower Saxony (*Wildtiererfassung in Niedersachsen* - WTE), which was previously initiated by the hunters collective of Lower Saxony already in 1991 and is scientifically accompanied by the Institute for Wildlife research (*Institut für Wildtierforschung* - IWFo). It is funded through incomes by hunting rights, allocated by the *Bundesland* of Lower Saxony, Ministry for Agriculture.

The aim of the monitoring is to evaluate estimations made by hunting area managers through out all of Lower Saxony in a standardised way, and in long term to evaluate the trends of hare populations.

The local mapping project feeds then through the WTE into a German nation-wide monitoring programme, called the *Wildtier-Informationssystem der Länder Deutschlands*

(WILD). WILD is a programme which collects data on the sightings, frequency and populations of wild animals. It is initiated by the *Deutscher Jagdschutz-Verband* (DJV - German Hunting Association) and its' regional hunting associations, and, since 2001 has been a permanent part of the ecological environment study. The most important goal is to develop strategies for conservation and sustainable use of wild animals.

The local mapping project in *Leveste* was carried out in 24th February - 5th April 2010. The whole process took about 20 hours (preparation, mapping of the area, hare counting and evaluation)

Table 1

Partner	Study area	a. Size b. Population	a. Per capita income b. Unemployment rate	Mapping: a. Species-Habitats b. Stakeholders	Socio-economic: a. Abstract b. Stakeholders
AUTH	Municipality of Kerkini (Greece)	a. - b. 10037	a. 21.000 € (yearly) b. 12-14%	a. Riding horses, wild boars, walking and climbing paths b. Hotel owners' informal cluster, Riding Horses owners, Hunters' association	a. Development of tourism activities related to the area's biodiversity such as bird watching, herb collecting etc. b. Hotel owners' informal cluster, Riding Horses owners, Hunters' association, Womens' Association of Ano Poroia, fishermen, individual volunteers
IST	Laulasmaa Landscape Protection area (Estonia)	a. 180 km^2 b. ≈5000	a. 888 € b. 12.6%	a. Routes for recreational activities b. Bicyclists	a. To organize recreational activities to better fulfill the walkers, joggers, bicyclists, skiers, anglers, etc. need b. Local authorities, local NGOs, local residents
SZIU	Bózsva (Hungary)	a. 16.39 km^2 b. 205	a. 231.5 € b. 22-24%	a. Mapping of the cycle route and its environment / of the area of the flood b. Locals	a. Implementation of building of the cycle route b. Mayor of Bózsva; Notary of Bózsva, Zemplén Bike Tourism Association (NGO); Happy Bike Ltd.; Coordination Center for Transport Development
PBS	Zator (Poland)	a. 51.44 km^2 b. 9045	a. 2000 PLN b. 10%	a. Mapping the overgrowth of fishpond with some emphasis addressed to flora protected species b. Locals	a. Active protection of habitats and species through the revitalization of fishponds in the Przyreb fishpond complex in the Zator district. b. Fisheries Research Station in Zator, Carp Valley Association, with its seat in Zator, Society for the Earth in Oswiecim, Ornithological Working Group of the Upper Vistula River Valley CZAPLON, District Management of Polish Hunting Association, Krakow
ERENA	Southeastern Alentejo (Portugal)	a. - b. 1670	a. 630.2 € b. 24%	a. Wild rabbit b. Local residents	a. Evaluate whether local people can incorporate work (paid or voluntary) in wild-rabbit monitoring and other regular monitoring programs in the Barranco´s region, thus contributing to generate a new field of activity for locals b. Ffarmers, game keepers (representing hunters), land-

					owners, government environmental agency technicians, local administration elected officers, managers and technicians of local companies
DDNI	Sfantu Gheorghe commune (Romania)	a. 541.21 km^2 b. 860	a. 300-400 € b. 0.88%	a. Sea-buckthorn fruit (*Hippophae rhamnoides)* & ii) Sand bindweed/Sand Morning Glory (*Convulvus persicus)* b. Schoolchildren	a. Identify the exploitable resources within their area (fruit trees, medicinal plants, mushrooms) and to develop local shops or supplying networks to sell the products b. Local stakeholders, tour-operators, associations
WWF-Turkey-1	Egirdir lake, Isparta (Turkey)	a. - b. 38306	a. 15.392 $ (yearly) b. 10.5%	a. Demonstration of land use in Kovada Lake National Park b. Locals	a. The identification of priority habitats for conservation. Case study area has different habitats and land use types, therefore income of local people based areas near protected areas and its affect on that areas. b. local stakeholders
WWF-Turkey-2	Firtina Valley, Rize (Turkey)	a. - b. 28760	a. 15.392 $ (yearly) b. 4.6%	a. Demonstration of land use in Çamlıhemşin district b. Locals	a. The aim of the case study in Firtina Basin is to guide local NGOs and authorities in monitoring and management of land use. b. local stakeholders
BU/Anatrack	Frome Catchment (UK)	a. 48295 ha b. 25000	a. 27,993 € (yearly) b. 1.6%	a. Deer and their habitats b. Local adventure scouts, local residents	a. Assess the linkages between human well-being and the benefits derived from ecosystem services as perceived by the local community and other stakeholders b. Environmental NGOs, government agencies and wider community
FACE	Municipality of Gehrden - Leveste (Germany)	a. 792.8 ha b. 1800	a. 1.383 € b. 3.4 %	a. European brown hare b. Hunters	---

2. Methods of analysis

2.1. Socioeconomic project

For the elaboration of the socioeconomic projects a task group of TESS partners was initially created in order to develop a common framework/template for all partners. A questionnaire was developed (please check Annex 1: Questionnaire of WP5 local case studies) to assist TESS partners gather socioeconomic data, which would be relevant both to the mapping and to the socio-economic projects planned by the local community to link their socioeconomic needs with biodiversity gains.

As well as information on the projects themselves, the questionnaire requested background socio-economic data on the local Tier 1 administrative area to be collected at the start of the work and further data to be collected.

The first set of questions entitled “Administrative Area Background” included questions on population size, per capita income, unemployment rate and other information which define the case study area. With the second set of questions the partners presented the general descriptions of the socioeconomic and mapping projects as well as the local residents involved. The third set of questions regarded the end of the case study implementation and included questions on the local community participation, the collected data and the evaluation of both the mapping and the socioeconomic projects.

Of the most important parts of the questionnaire is the “Before, for community and helpers”. The partners, with the help of local volunteers (helpers) were asked to survey around 20 households at random in their study area in order to assess the locals’ attitudes and knowledge of environmental issues at the start and finish of the study. To do this, they needed to obtain a list of households, or of the electorate, if this was available in their administrative area, or to randomize from a comprehensive list of street names and house sequence in streets (or selected on a stratified basis). Helpers were also to answer this set of questions; the last set of questions was addressed to helpers and involved questions on motivations, expectations, suggestions etc. Finally, a Gantt diagram was also filled by all partners.

The questionnaires were tabulated by the partners before sent to the WP leader for the analysis of the results and synthesis according to specific instructions for data tabulation given by the WP leader. The case studies template was followed by the partners in order to help the WP leader in doing an integrated statistical analysis for all local case studies. According to the instructions given to them the partners firstly included a general introduction on their case studies regarding the aims and significance of their case study, a short description of it as well as the time period of the analysis. The individual socioeconomic report from one case study, namely the Danube Delta National Institute for R&D (DDNI), Romania, is given in appendix 2. The individual reports from the other 8 case study areas are on the CD accompanying this report.

The next section regarded the socioeconomic report and basically included the results of the questionnaires. Especially the B4 section “Before, for community and helpers” demanded the processing of the relevant questions, their statistical analysis and the presentation of results.
Instructions were given to partners regarding the data tabulation. According to them their data files should include the 49 variables of the questionnaire (in 49 columns) and more than 20 rows (equal to their sample size i.e. the number of questionnaires). A sample size more than 25 was recommended (for parametric tests, if necessary).
Partners were instructed to use simple univariate and multivariate analysis to analyze their data, describe their sample and present the results as well as to use frequencies (for the categorical variables) or means (for the quantitative variables) and charts for each separate variable. They were also instructed to use Cross tabulation, ANOVA (where applicable) and correlation analysis to investigate any relations between two or more variables. The same applied for the B5 section “Helpers after” taking into account that the size of this sample was relatively small.

2.2. Mapping projects

The template included also questions on the mapping exercise; each partner provided files in.ams format produced by the Anatrack mapper, or relevant files by other software they might have used (please check the individual case studies reports).
.ams files are AnatrackMapperSettings files which carry all the info about the image, the alignment points and the habitats/species to be mapped. They are created in the Mapper Settings Editor and, when a new mapping project is created, it is copied to the Projects folder. The points data (ie the work) is in the AnatrackMapperObjects file (.amo). Every project has an .ams and an .amo and the points are saved in the points file with every update.
Apart from the .ams files partners have added according to the instructions the .cvs files with the coordinates of all points mapped and the .jpg files with the case study area photos used in the Anatrack mapper.
The individual mapping project from one case study, namely the Municipality of Kerkini, Greece, is given in appendix 3. The individual mapping projects from the other 8 case study areas are on the CD accompanying this report; a separate folder for each case study.

3. Results

The letters in the subheadings correspond to the letters of the WP5 Questionnaire in Annex 1.

3.1 Administrative area background

3.1.a Where did you get the information about the population size of the case study area?

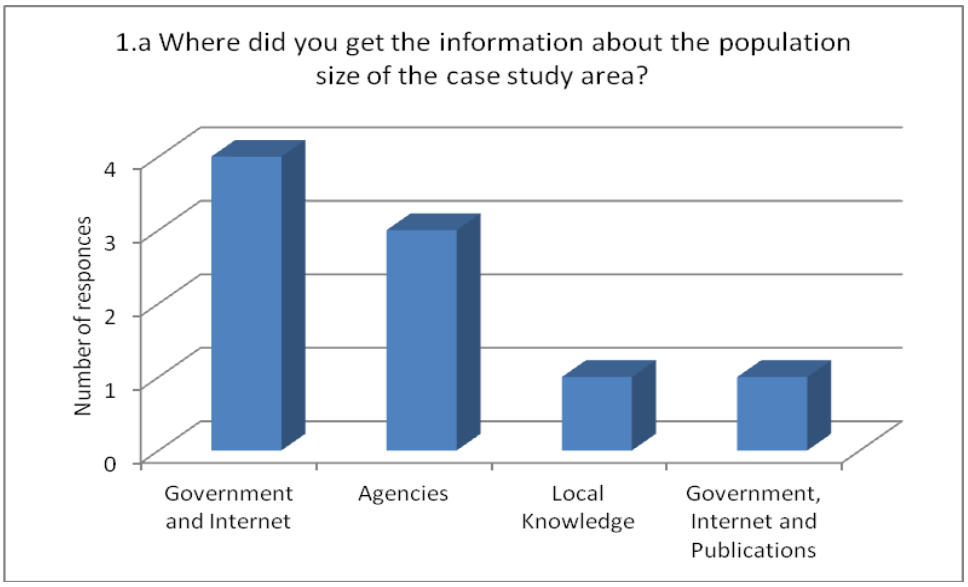


Figure 1

3.1.b Where did you get the information about the per capita income of the case study area?

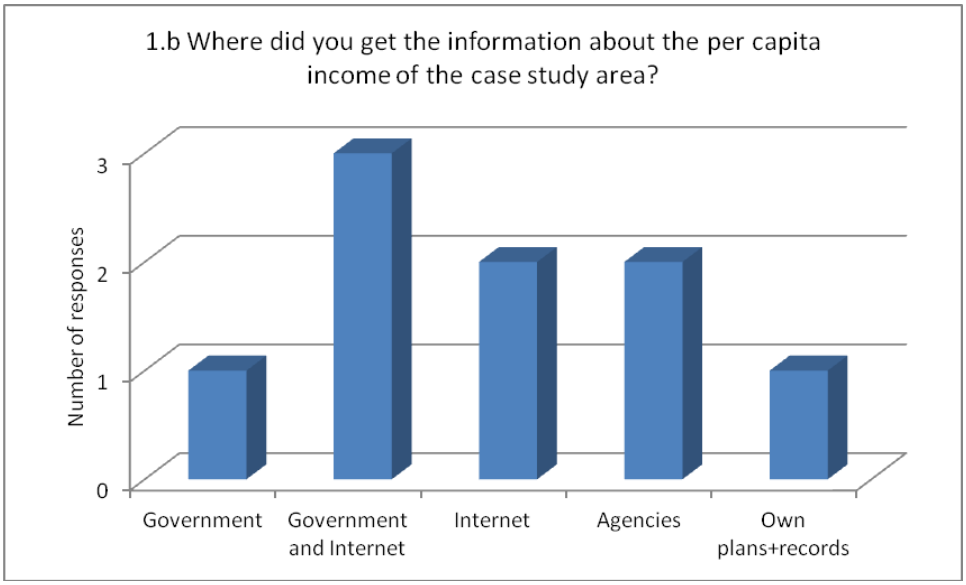


Figure 2

3.1.c Where did you get the information about the unemployment rate of the case study area?

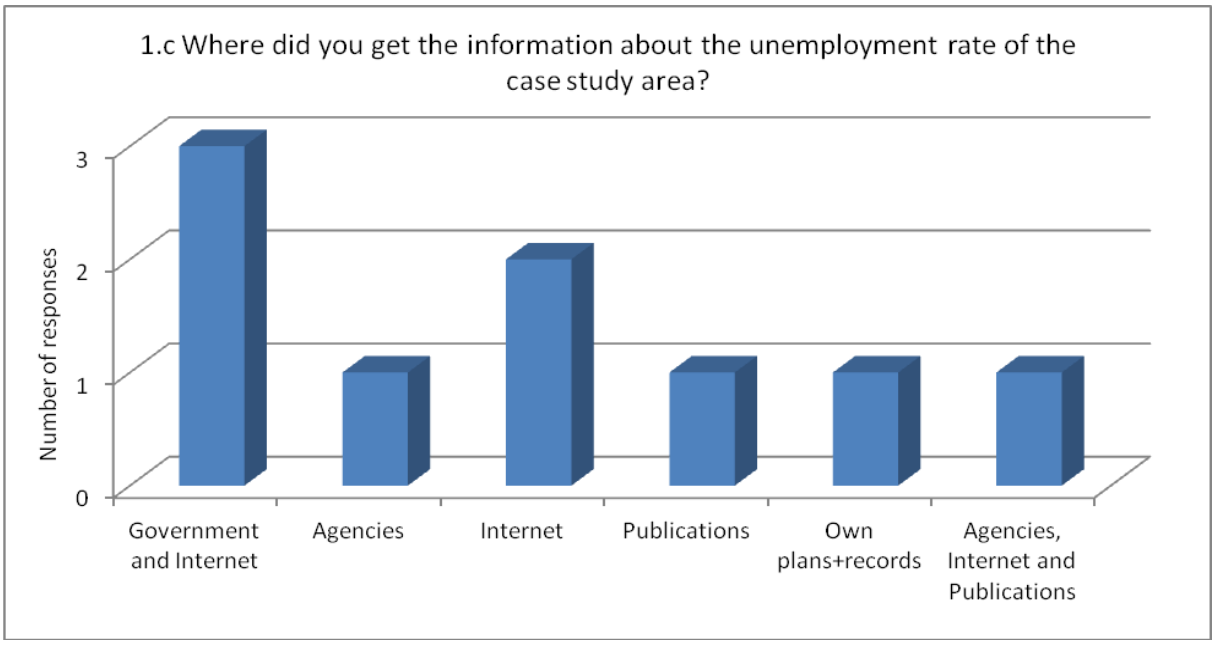


Figure 3

Data on questions 1a-c (figures 1, 2 and 3) were extracted mainly by government, agencies and internet; other sources, such as local knowledge, records and publications were less used.

It is apparent that government and internet sources (i.e. statistics provided by government agencies through internet) are very important and need to be easily accessible when official data on population, employment and per capita income is concerned, since they are considered most reliable sources.

3.1.d For the main occupations and other sources of income dependent on land, biodiversity or other ecosystem services in the last 20 years, please indicate if they have increased or declined (for all case studies)

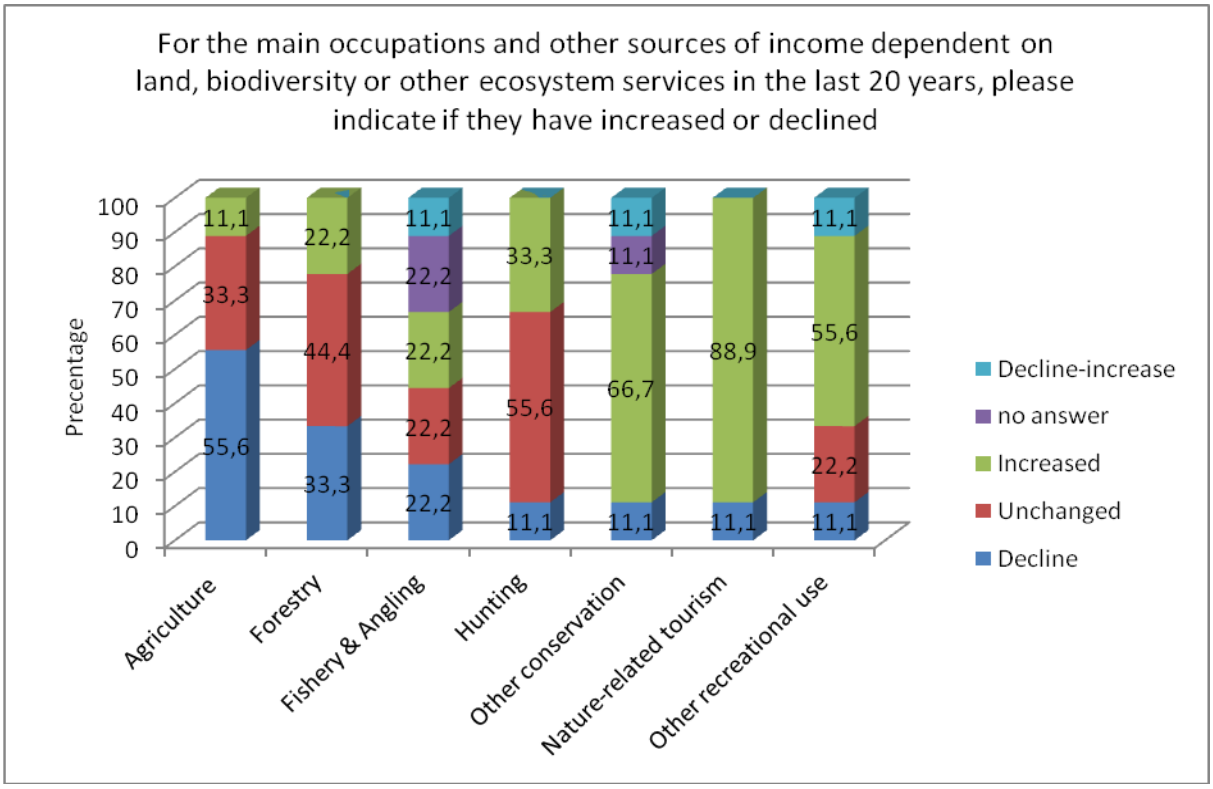


Figure 4

We observe from figure 4 that nature-related tourism has extremely increased in the case studies areas. A considerable increase is also visible in other recreational and conservation uses which is related to the nature-related tourism's increase already identified.

It is becoming clear by studying the relevant case studies that more and more people are involved in ecotourism activities or/and enjoying nature-related activities.

Forestry and hunting remain mainly unchanged as a result of particular policies and laws regulating these activities.

Not surprisingly, agriculture has declined in the last 20 years largely due to decoupling and Single Farm Payment as well as the fact that a considerable number of farmers have now turned to other activities, mainly ecotourism.

Evidence for fishery and angling do not reveal substantial changes.

3.1.e Has there been any mapping by local people (before this project)?

Table 2

Case study country	Kind (all cases are digital)
Greece	• Walking paths
Hungary	• Species
Poland	• Land-use
UK	• Species • Recreational value • Cultural value • Aesthetic value

Most of the local people involved had no experience in mapping (table 2) before this project and were not aware of other mapping projects in their area. In Greece, Hungary, Poland and UK there has been some mapping before of walking paths, species, land-use and in UK in particular, of recreational, cultural and aesthetic value.

3.2 Case study project planning – engagement with the local communities – for administrators

This group of questions includes general description of the socioeconomic and the mapping projects as well as information on the local participants. Please check the individual case study files.

3.3 End of the case study implementation (part: evaluation of socioeconomic planning)

3.3.n Please rate the difficulty of the socio-economic project planning for the local team and other volunteers

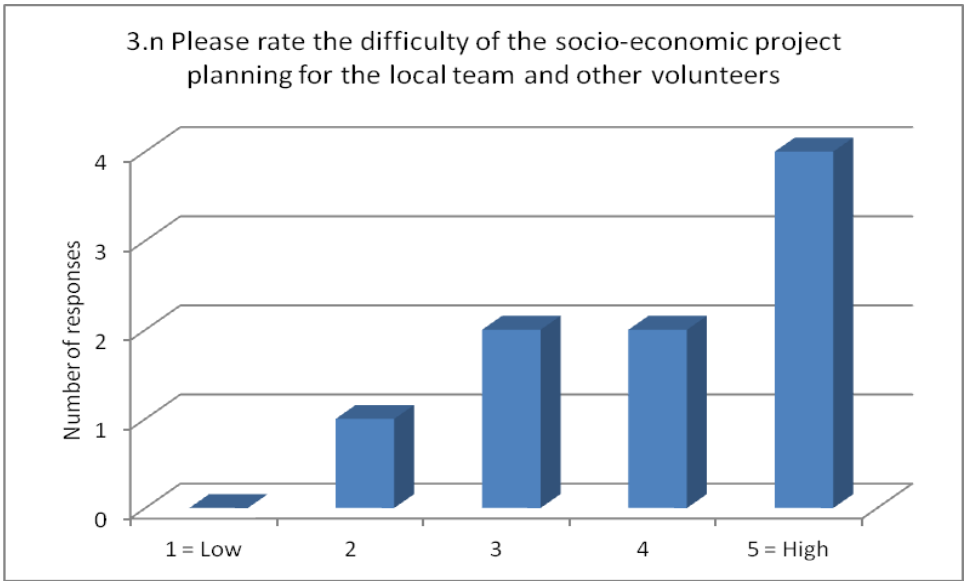


Figure 5

As indicated in figure 5 the socioeconomic project planning was not an easy task for the local participants. Reasons for this may vary across cases study countries but the most common are:

a) lack of IT education and training
b) mistrust between the locals as well as towards authorities
c) lack of necessary data
d) complicated decision making process
e) local people not fully aware of the opportunities for activities related with biodiversity

3.3.o. To what percentage of your satisfaction did the local team provide data needed for the socio-economic project planning?

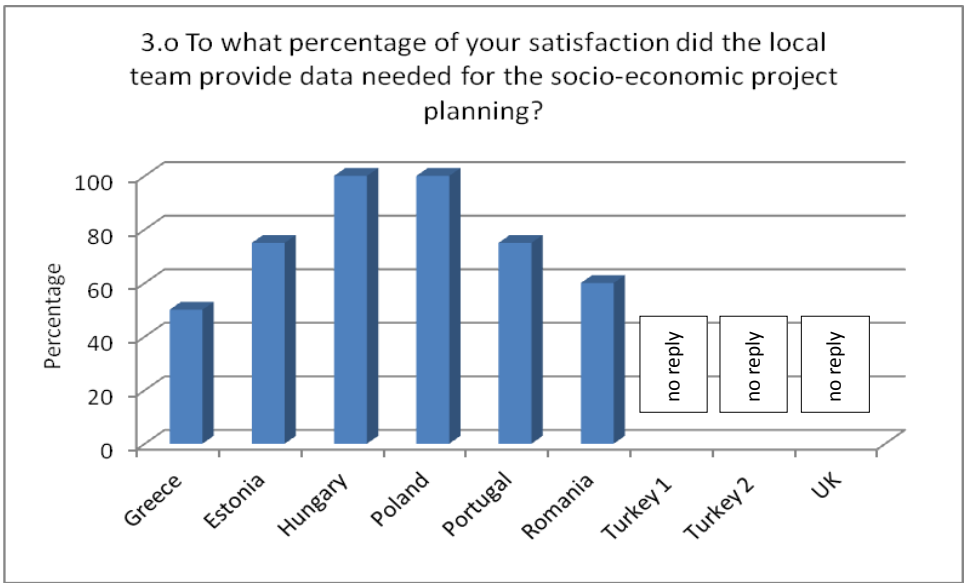


Figure 6

3. p. How adequate did you consider the models in the WP4 database for planning (1=poor, 5=excellent). Please report any improvements needed.

3. q. What gaps in available information and predictive models did you identify?

3. r. What information is abundant or not needed?

Table 3 below presents the comments of participants regarding the adequacy of the models in the WP4 database (3p), the identification of gaps in available information (3q) and the needs in information (3r).

Table 3

Question	Greece	Estonia	Poland	Portugal	Romania	UK
3p (comments)	WP 4 models in the database are mathematical programming models. The local residents haven't got the necessary expertise in order to comprehend those models. There was an attempt to explain some of them (those with an adequate non mathematical description) but the results were not satisfactory.	Models needed some adjustments for local conditions	The immediate project development team was neither eager nor capable to use any of system they were aware of.	We did not use any model, since we did not find one that specifically addressed our type of thematic: the sustainable management and conservation of a protected and endangered species (such as the Iberian lynx).	There weren't used any decision support models in the WP4 database for planning. Actually we have only a metadata base for Decision Support Models in WP4, but not real software.	
3q	We would like each model to be accompanied by a short text explaining exactly was this model is for, in an easy to understand by the non-expert way. More precisely what this model is for, the input-output data and some usage scenarios without any mathematical notation if possible.		• Digitalized topographic maps of the area • Map of potential and real plant (vegetation) cover • Map of birds nest, breeding chicks, feeding areas • Sufficient knowledge on bird species active protection measures • Preventing methods from cormorants and otters • Best practice on timing, extent and sequence of restoration works on fishponds in relation to protection requirements of both fauna and flora species	Spatialized, up-to-date information (e.g. from 2009) regarding cattle and pig production.	We wish that more detailed biodiversity GIS data should be available for Sfantu Gheorghe, respectively Danube Delta, and predictive decision models.	Information on the relative value of different ecosystem services for specific land use types would have been helpful (e.g. as a basis for calculating willingness to pay values)
3r	Not reliable information on hotel capacity and incoming tourists.		• Old topographical maps with roads, dikes, and water regulation facilities • Data on social, economic and technological aspects of fish production, fishponds management and restoration process • Data on occurrence and population of protected bird species • Data on occurrence and population of game birds	Information on the performance of EDIA (a local company involved in habitat management for nature conservation) and information originally collected from locals.	Many information regarding the Sea-buckthorn distribution within the Sfantu Gheorghe area were collected from the locals, through the meetings held or just during casual discussions. In this way we also find out that there several surface covered with spots of Sea-buckthorn around of the commune, preserved in good conditions.	Data held at the local level was very limited, apart from selected biodiversity data (distribution data for selected species)

3.4 Before, for community and helpers

In the figures from this point and on, country names refer to the individual communities elaborated in each case study.

3.4.1 Do you (or others in your household) ever engage in the following:

a1.1: Feed birds or other wildlife?

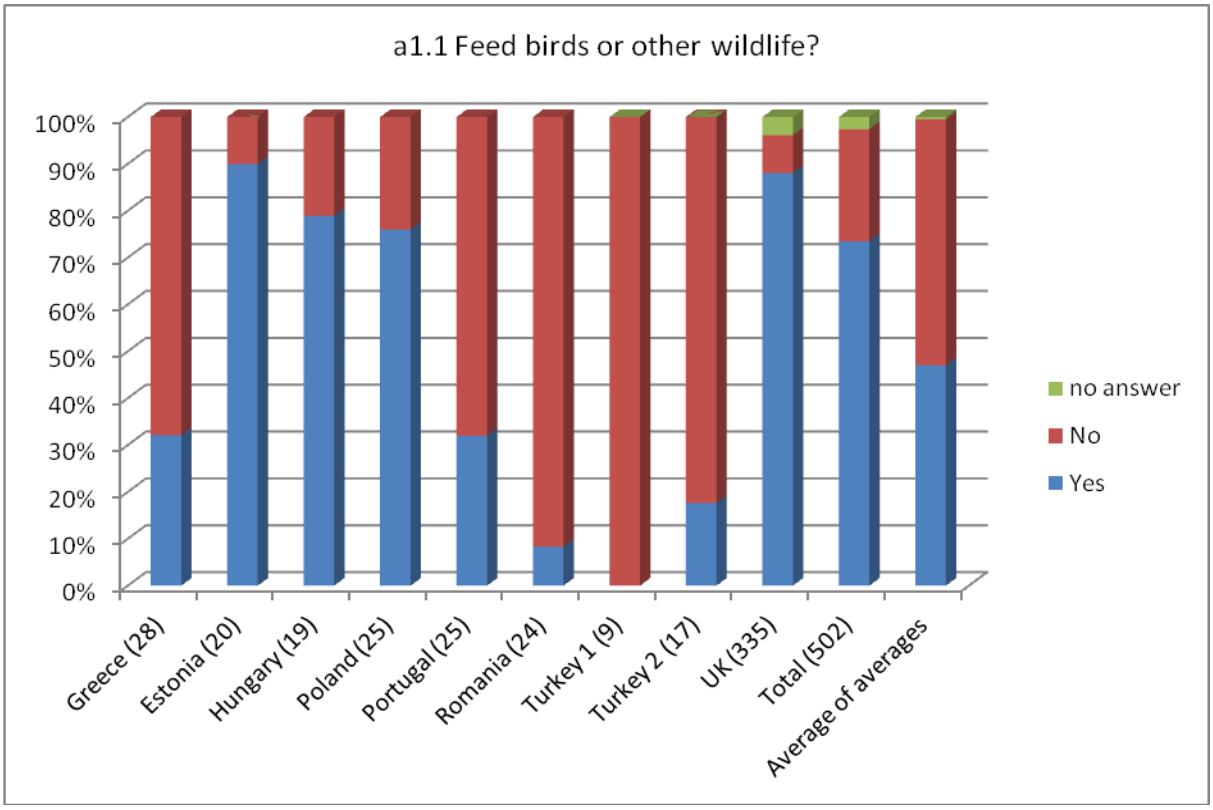


Figure 7

Table 4

a1.1 Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Yes	32.14	90.00	78.95	76.00	32.00	8.33	0.00	17.65	88.06	73.51	47.01
No	67.86	10.00	21.05	24.00	68.00	91.67	100.00	82.35	8.06	23.90	52.55
No answer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.88	2.59	0.43

UK and Estonia present the highest percentages of people engaged in bird and other wildlife feeding, followed by Hungary and Poland. In the opposite Turkey and Romania seem not to engage in such activities at all.

a2.1: Collect wild snails, fungi, fruits, flowers or other plant materials?

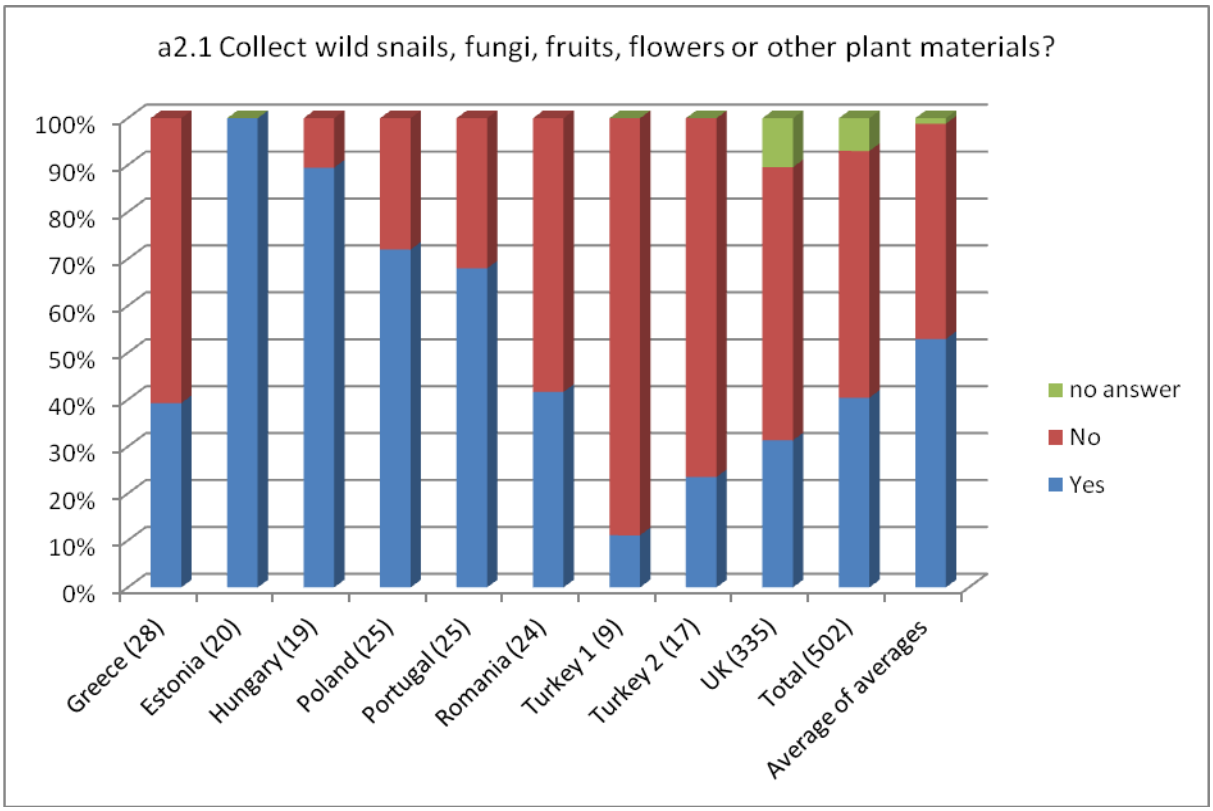


Figure 8

Table 5

a2.1 Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Yes	39.29	100.00	89.47	72.00	68.00	41.67	11.11	23.53	31.34	40.44	52.93
No	60.71	0.00	10.53	28.00	32.00	58.33	88.89	76.47	58.21	52.59	45.90
No answer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.45	6.97	1.16

Again in Estonia and Hungary locals are used to collect wild snails, fungi, fruits, flowers and other plant materials, while in Turkey it is not very common.

a3.1: Do outdoor pursuits eg. walking/skiing/climbing/boating/camping/off-road cycling?

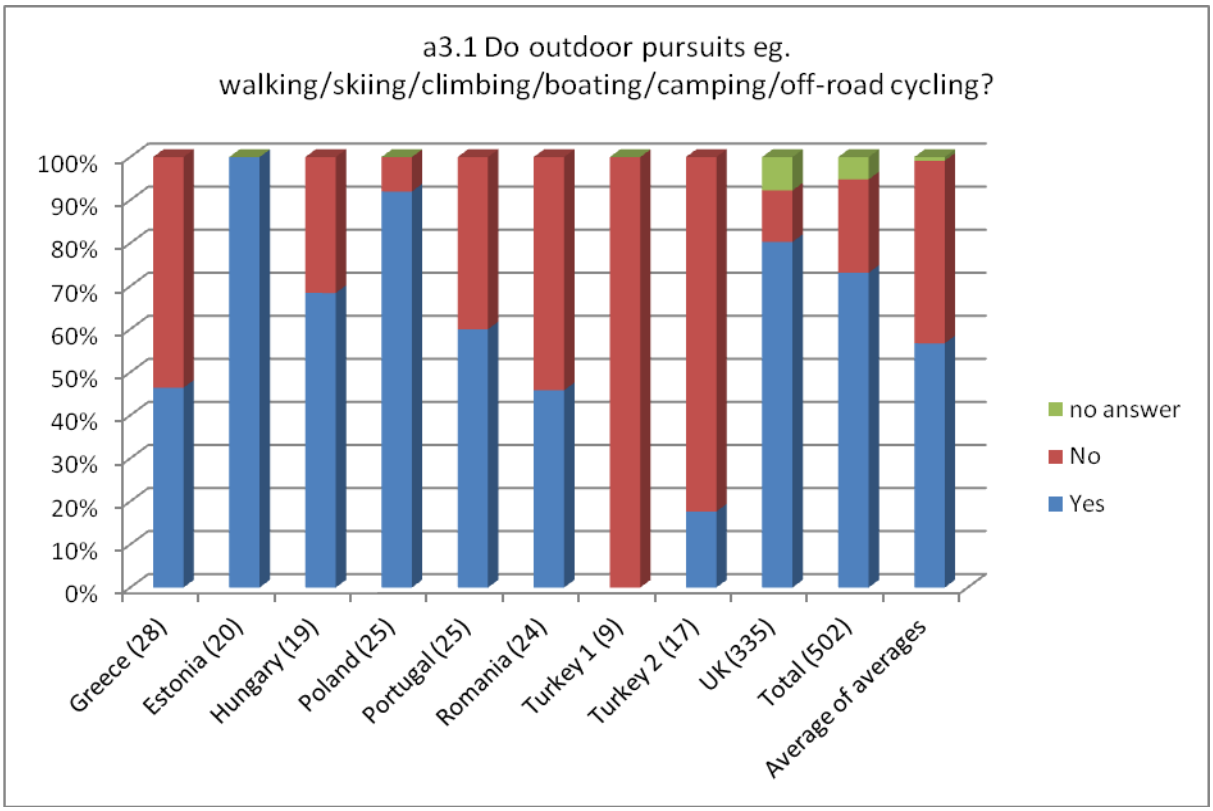


Figure 9

Table 6

a3.1 Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Yes	46.43	100.00	68.42	92.00	60.00	45.83	0.00	17.65	80.30	73.11	56.74
No	53.57	0.00	31.58	8.00	40.00	54.17	100.00	82.35	11.94	21.71	42.40
No answer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.76	5.18	0.86

Outdoor pursuits appear to be the main activities for residents in Estonia, followed by Poland, UK and Hungary. On the contrary they are very uncommon in Turkey, while almost half of the locals in the rest of the case study countries (Greece, Portugal and Romania) engage in outdoor pursuits.

a4.1: Go horse-riding?

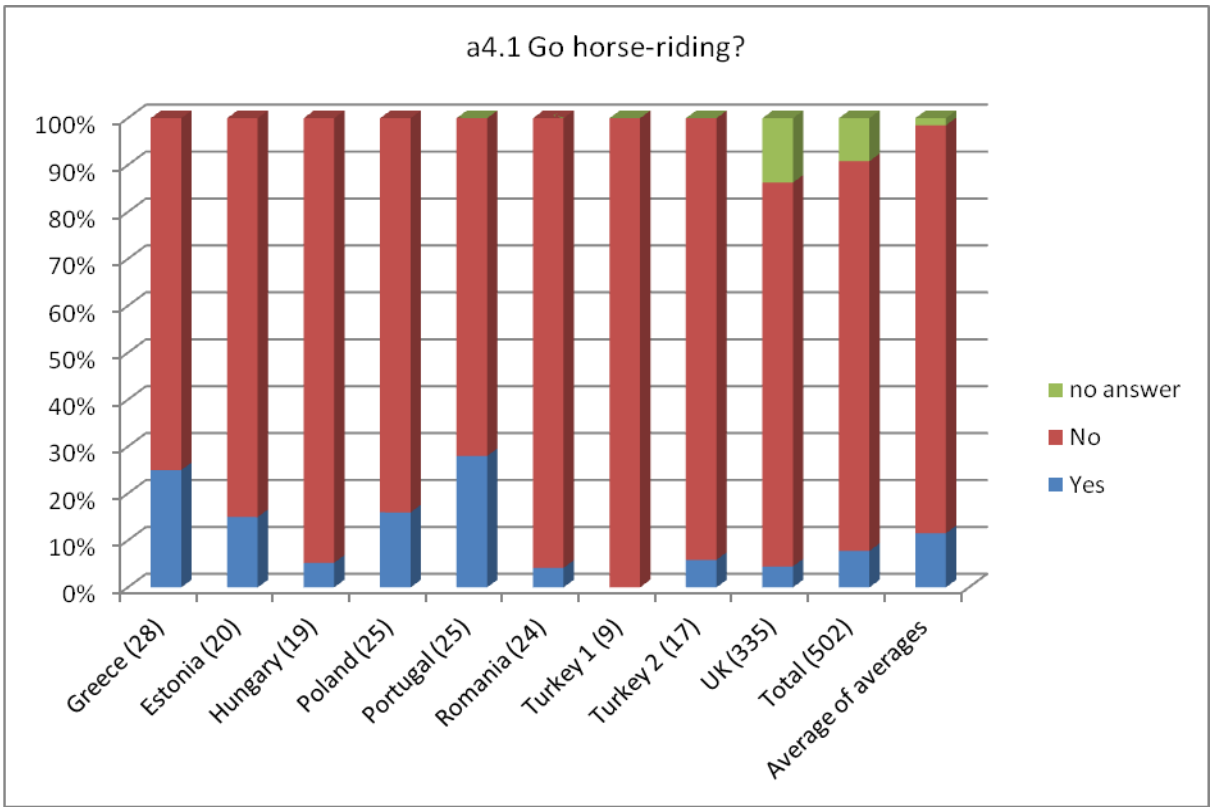


Figure 10

Table 7

a4.1 Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Yes	25.00	15.00	5.26	16.00	28.00	4.17	0.00	5.88	4.48	7.77	11.53
No	75.00	85.00	94.74	84.00	72.00	95.83	100.00	94.12	81.79	83.07	86.94
No answer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.73	9.16	1.53

Horse-riding is the least common activity in all case studies, although in some countries (i.e. Greece) it is the occupation of many locals who are involved in ecotourism activities.

a5.1: Make excursions in order to watch wildlife?

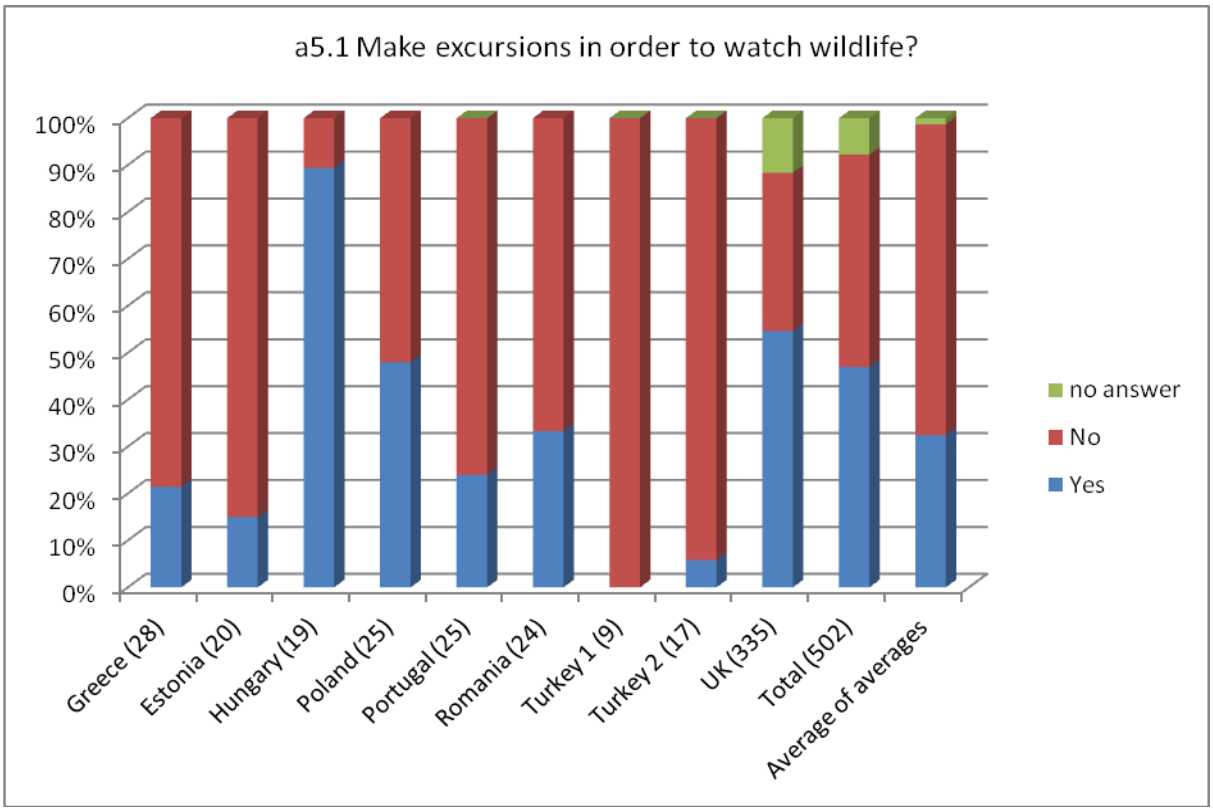


Figure 11

Table 8

a5.1 Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Yes	21.43	15.00	89.47	48.00	24.00	33.33	0.00	5.88	54.63	47.01	32.42
No	78.57	85.00	10.53	52.00	76.00	66.67	100.00	94.12	33.73	45.22	66.29
No answer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.64	7.77	1.29

Apart from Hungary and UK, less than half the locals sampled in our case studies made excursions in order to watch wildlife. This is an activity mainly designated for tourists for the rest of the study countries.

a6.1: Cultivate a garden or lawn?

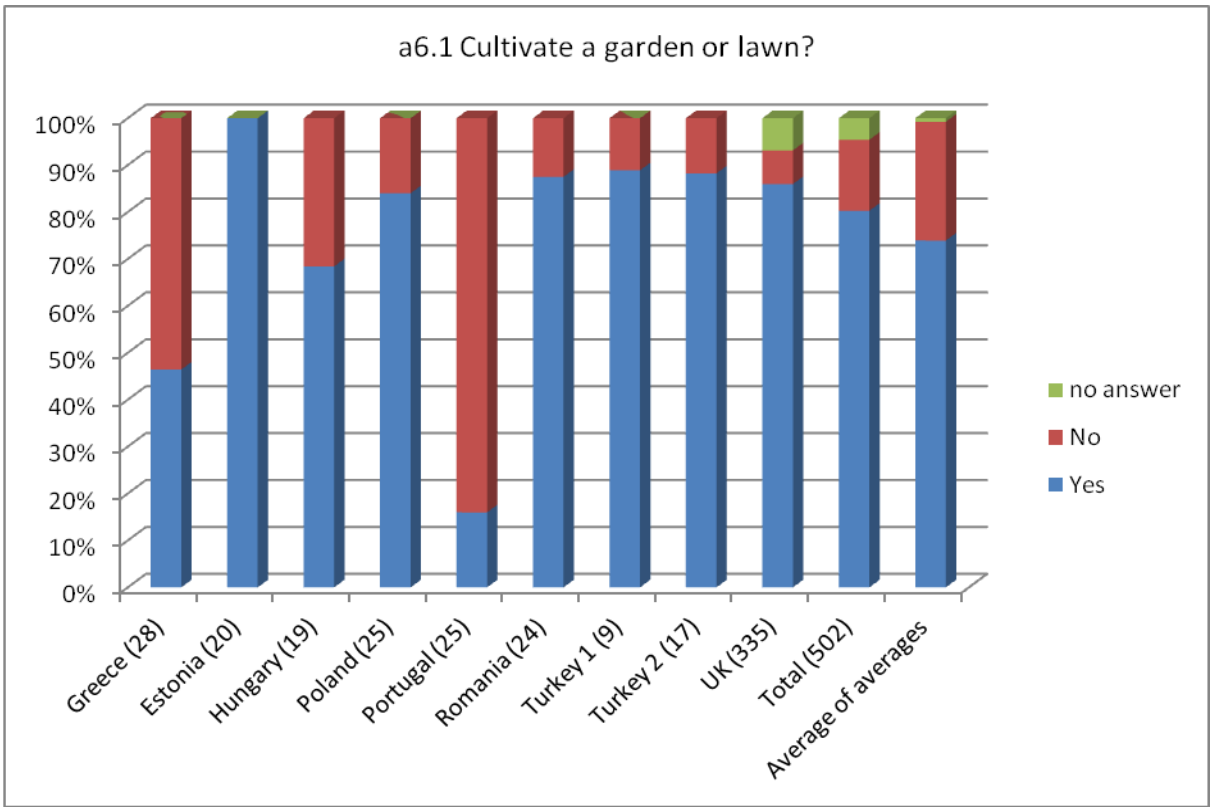


Figure 12

Table 9

a6.1 Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Yes	46.43	100.00	68.42	84.00	16.00	87.50	88.89	88.24	85.97	80.28	73.94
No	53.57	0.00	31.58	16.00	84.00	12.50	11.11	11.76	7.16	15.14	25.30
No answer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.87	4.58	0.76

Local residents in almost every country cultivate their own garden or lawn with Estonia, Turkey, Romania, Poland and UK to have the highest percentages. In Greece almost half of the residents are engaged in this activity, while in Portugal it is rather uncommon.

a7.1: Go fishing?

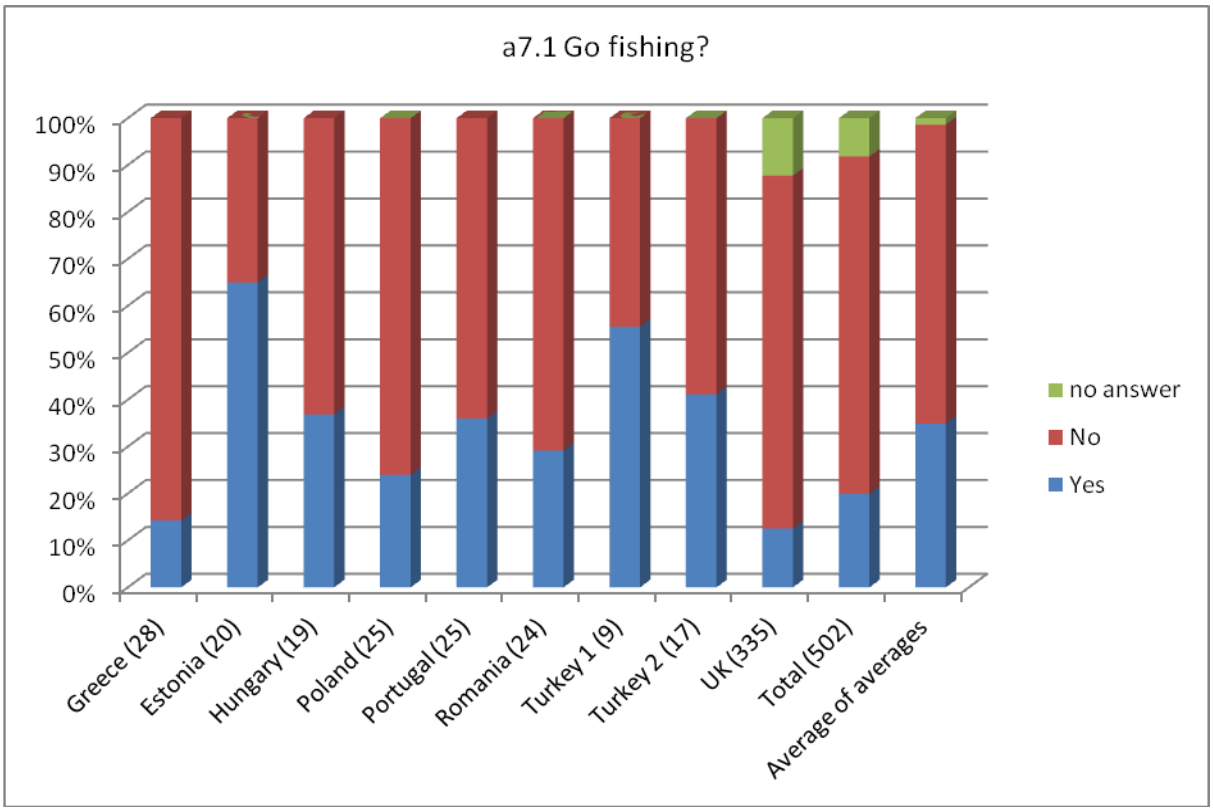


Figure 13

Table 10

a7.1 Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Yes	14.29	65.00	36.84	24.00	36.00	29.17	55.56	41.18	12.54	19.92	34.95
No	85.71	35.00	63.16	76.00	64.00	70.83	44.44	58.82	75.22	71.91	63.69
No answer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.24	8.17	1.36

Fishing is not a especially common activity for locals in our case studies areas; of course this basically depends on the study area and the access they have in water resources as well as on the legal restrictions regarding fishing permissions etc.

a8.1 Go hunting with gun, dog or other animal?

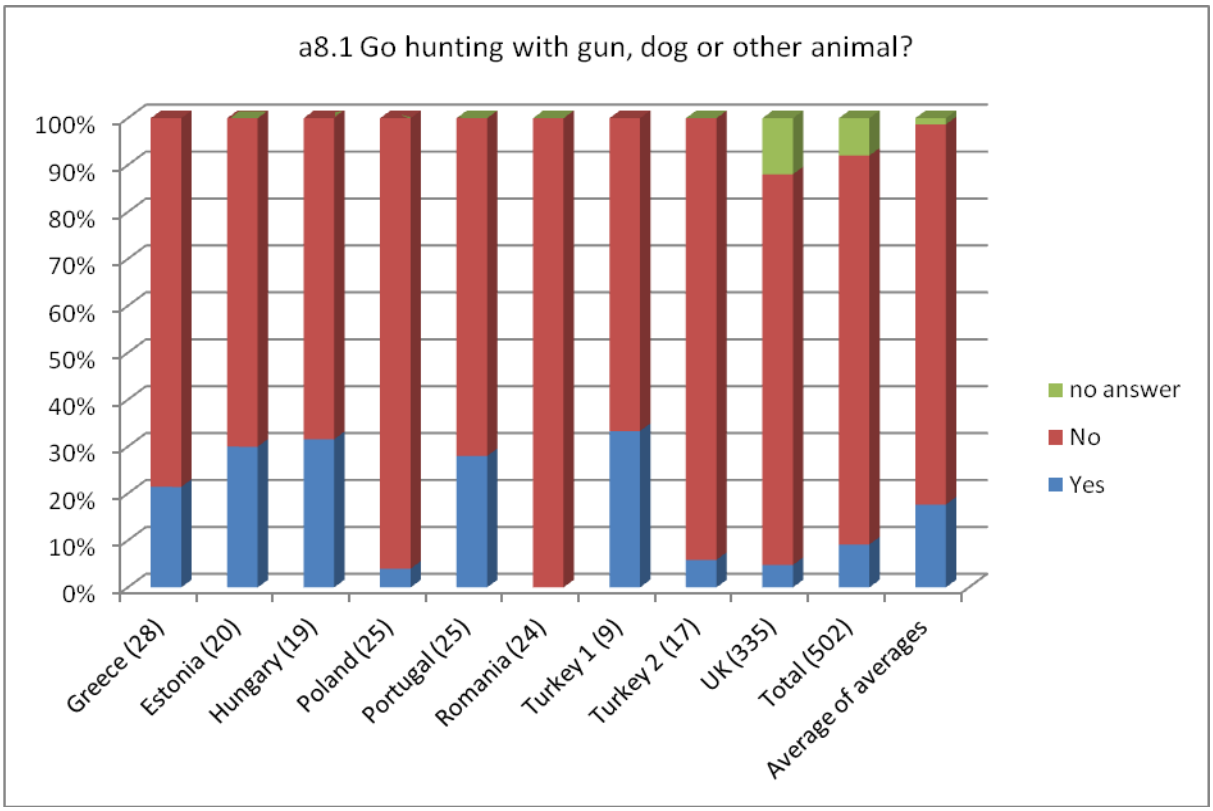


Figure 14

Table 11

a8.1 Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Yes	21.43	30.00	31.58	4.00	28.00	0.00	33.33	5.88	4.78	9.16	17.67
No	78.57	70.00	68.42	96.00	72.00	100.00	66.67	94.12	83.28	82.87	81.01
No answer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.94	7.97	1.33

Again hunting is a rather uncommon activity, which also depends on legal permissions and the availability of game in the study area.

a9.1: Farming?

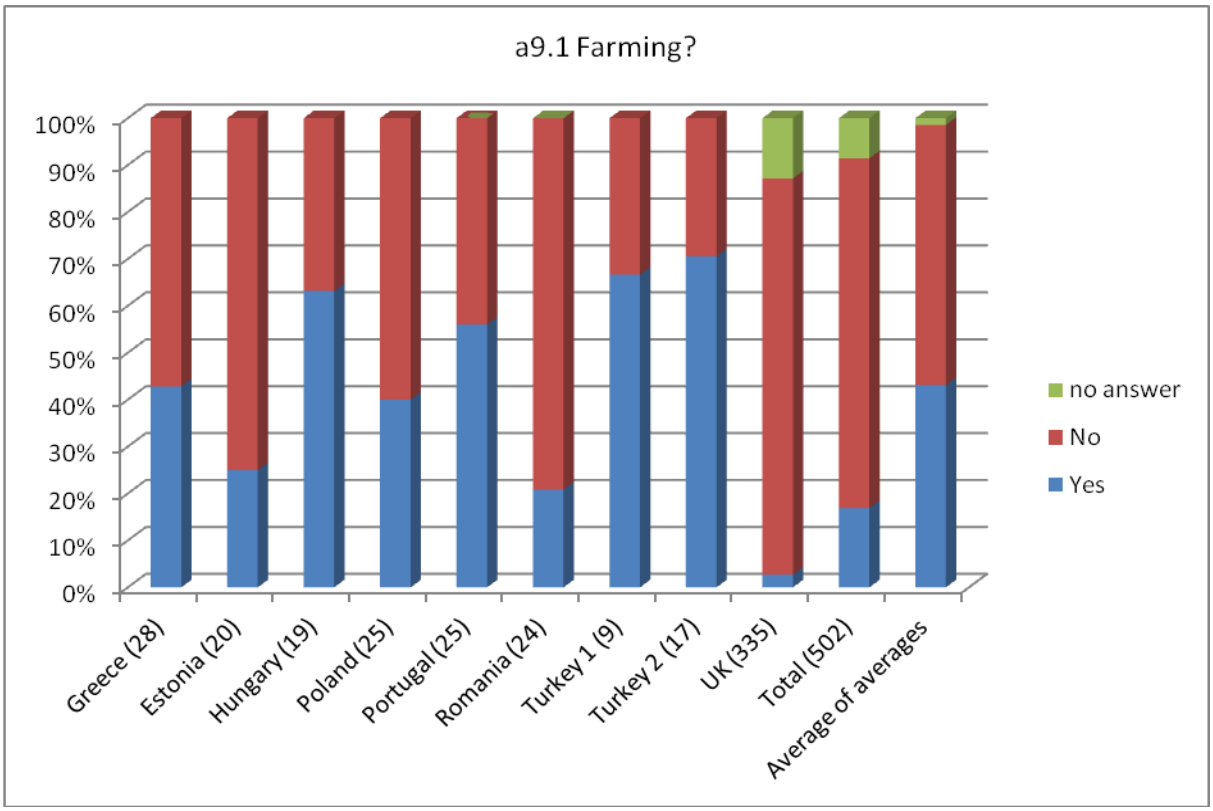


Figure 15

Table 12

a9.1 Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Yes	42.86	25.00	63.16	40.00	56.00	20.83	66.67	70.59	2.69	16.93	43.09
No	57.14	75.00	36.84	60.00	44.00	79.17	33.33	29.41	84.48	74.50	55.49
No answer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.84	8.57	1.43

While all study areas are rural, local engagement in farming was very variable, being frequent for Turkey and Hungary, followed by Portugal, Greece, and Poland with much lower percentages. People in Estonia, Romania and especially UK did little farming.

a10.1: Forestry?

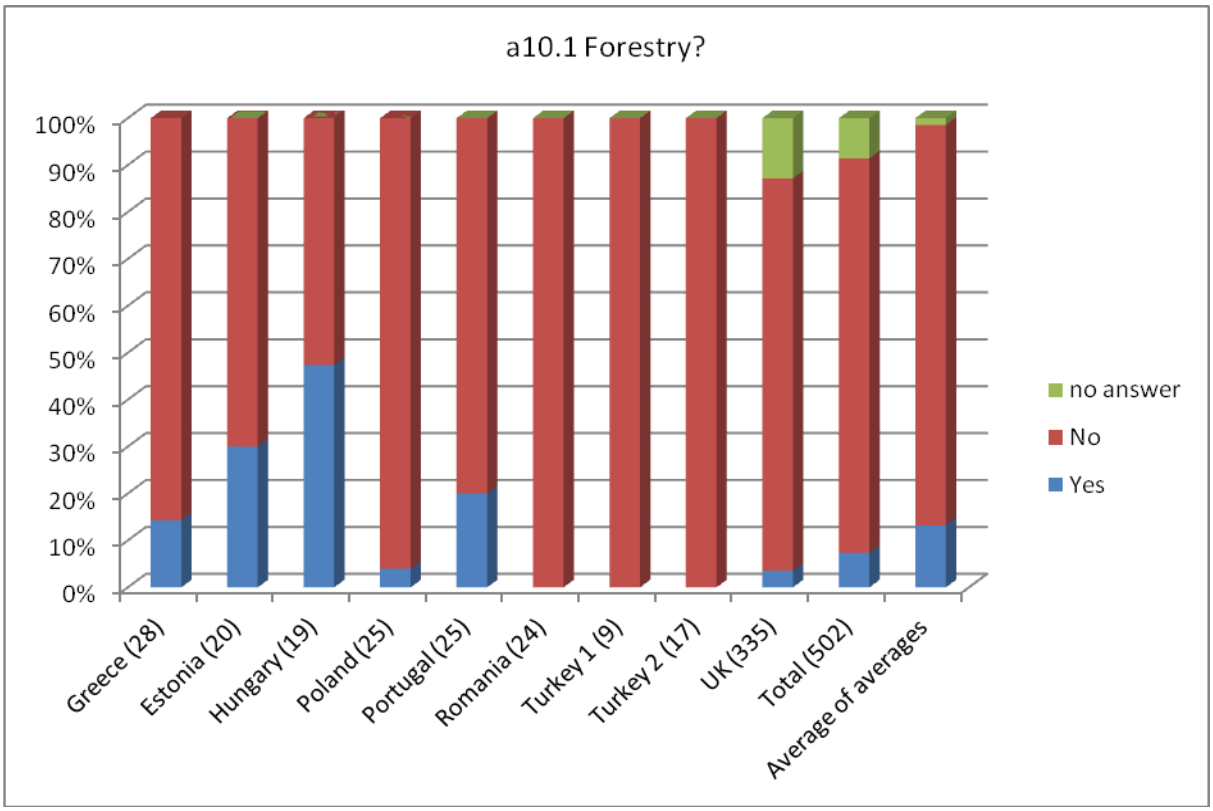


Figure 16

Table 13

a10.1 Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Yes	14.29	30.00	47.37	4.00	20.00	0.00	0.00	0.00	3.58	7.37	13.25
No	85.71	70.00	52.63	96.00	80.00	100.00	100.00	100.00	83.58	84.06	85.33
No answer	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.84	8.57	1.43

Forestry is quite uncommon, too, for locals in our case studies. Only Hungary presents a relatively high percentage.

Local residents in the Estonian case study appear to be the most engaged in activities regarding wildlife and outdoor activities, followed by Hungary, UK and Poland. On the contrary, in Turkey locals are more engaged in activities related to direct economic benefits from biodiversity, such as cultivating their own garden, farming and fishing.

In total (average of the averages) the inhabitants of the case studies areas are mostly engaged in cultivating their own garden or lawn. Horse-riding, hunting, and forestry are the least common activities largely due to legal restrictions (i.e. in Romania the forest was a conservation area with hunting forbidden; in other countries there are lot of restrictions too) and in the case of horse-riding because it is not an available activity in all case studies.

3.4.2 Do you consider that those engaged in these activities are also working to protect, maintain or restore wild species and/or habitats?

a1.3: Feed birds or other wildlife?

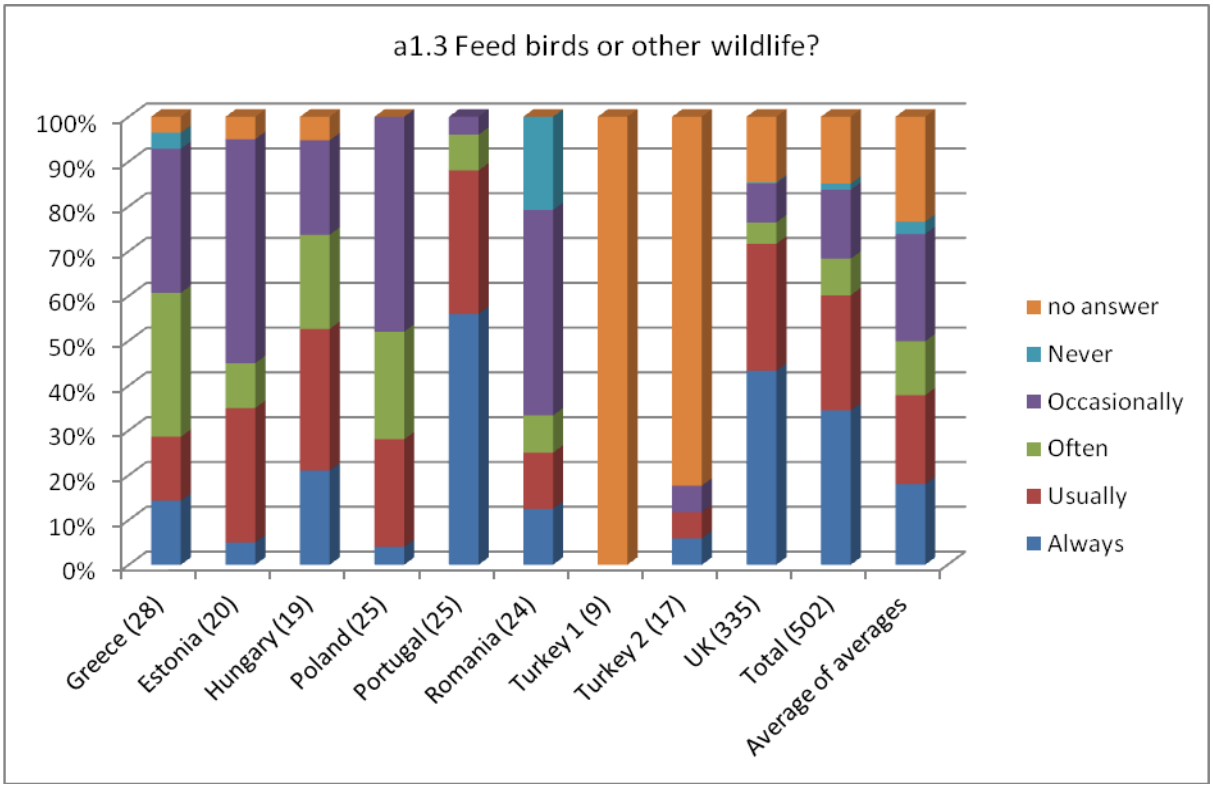


Figure 17

Table 14

a1.3 Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Always	14.29	5.00	21.05	4.00	56.00	12.50	0.00	5.88	43.28	34.46	18.00
Usually	14.29	30.00	31.58	24.00	32.00	12.50	0.00	5.88	28.36	25.70	19.85
Often	32.14	10.00	21.05	24.00	8.00	8.33	0.00	0.00	4.78	8.17	12.03
Occasionally	32.14	50.00	21.05	48.00	4.00	45.83	0.00	5.88	8.66	15.34	23.95
Never	3.57	0.00	0.00	0.00	0.00	20.83	0.00	0.00	0.30	1.39	2.74
No answer	3.57	5.00	5.26	0.00	0.00	0.00	100.00	82.35	14.63	14.94	23.42

A high percentage of local residents believe that people engaged in feeding birds and other wildlife are working to protect and restore wild species and/or habitats (18% answered “always” and almost 20% “usually”). There is one significant variation, that of Romania, where locals share this belief only “occasionally”.

a2.3: Collect wild snails, fungi, fruits, flowers or other plant materials?

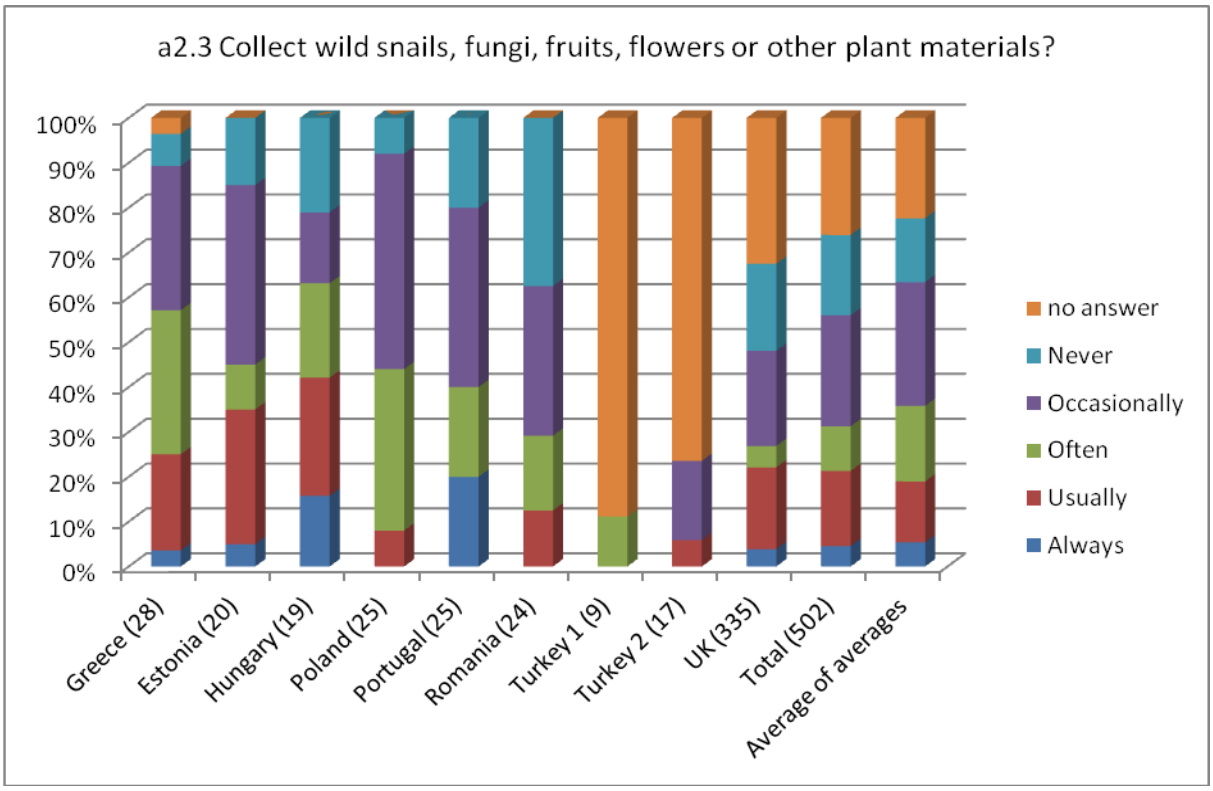


Figure 18

Table 15

a2.3 Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Always	3.57	5.00	15.79	0.00	20.00	0.00	0.00	0.00	3.88	4.58	5.36
Usually	21.43	30.00	26.32	8.00	0.00	12.50	0.00	5.88	18.21	16.73	13.59
Often	32.14	10.00	21.05	36.00	20.00	16.67	11.11	0.00	4.78	9.96	16.86
Occasionally	32.14	40.00	15.79	48.00	40.00	33.33	0.00	17.65	21.19	24.70	27.57
Never	7.14	15.00	21.05	8.00	20.00	37.50	0.00	0.00	19.40	17.93	14.23
No answer	3.57	0.00	0.00	0.00	0.00	0.00	88.89	76.47	32.54	26.10	22.39

A relatively lower percentage of local residents consider those engaged in collecting fungi etc. to be working in favor of the wild species'/habitats' restoration. Again in Romania a 37.50% think that those engaged in this activity are never working to this cause.

a3.3: Do outdoor pursuits?

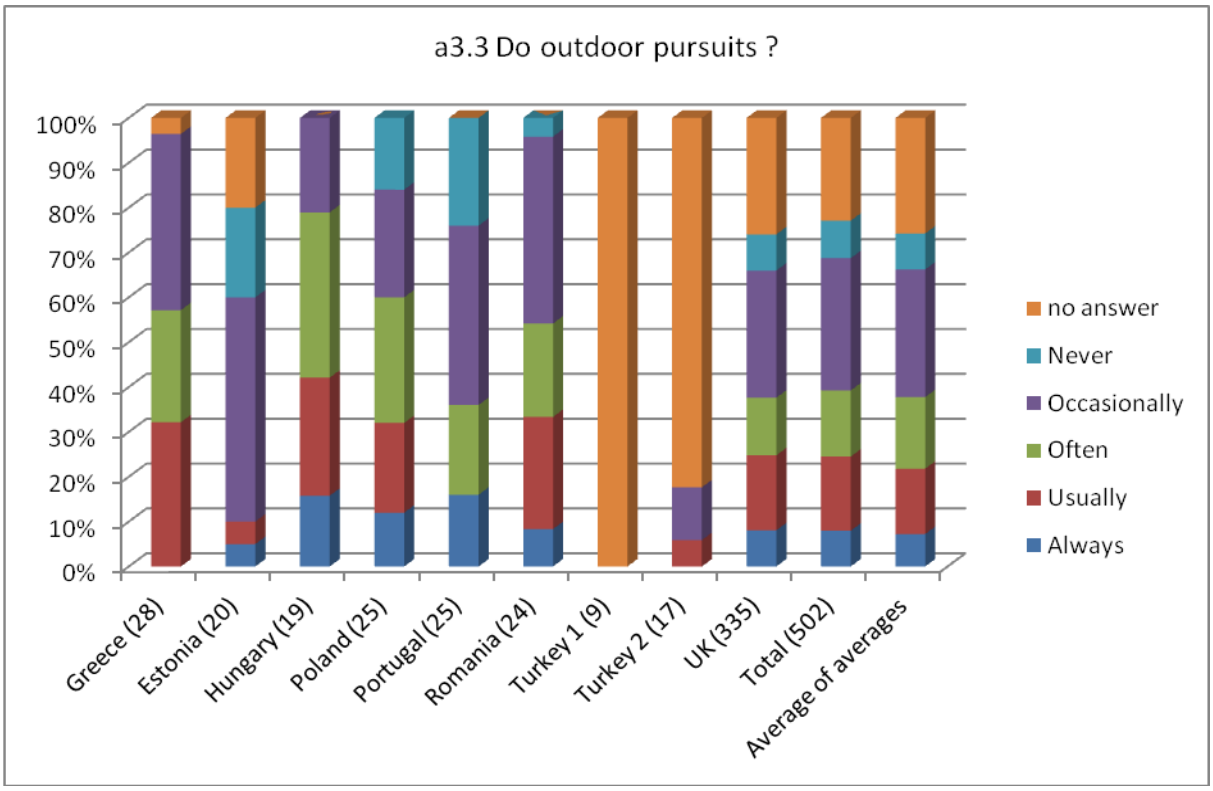


Figure 19

Table 16

a3.3 Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Always	0.00	5.00	15.79	12.00	16.00	8.33	0.00	0.00	8.06	7.97	7.24
Usually	32.14	5.00	26.32	20.00	0.00	25.00	0.00	5.88	16.72	16.53	14.56
Often	25.00	0.00	36.84	28.00	20.00	20.83	0.00	0.00	12.84	14.74	15.95
Occasionally	39.29	50.00	21.05	24.00	40.00	41.67	0.00	11.76	28.36	29.48	28.46
Never	0.00	20.00	0.00	16.00	24.00	4.17	0.00	0.00	8.06	8.37	8.03
No answer	3.57	20.00	0.00	0.00	0.00	0.00	100.00	82.35	25.97	22.91	25.77

The majority of the locals across case studies who answered next question on outdoor pursuits think that people engaged in outdoor pursuits only “occasionally” are working to restore and maintain wild species and habitats. In Hungary people seem to think higher of those engaged in this activity while in Estonia is quite the opposite.

a4.3: Go horse-riding?

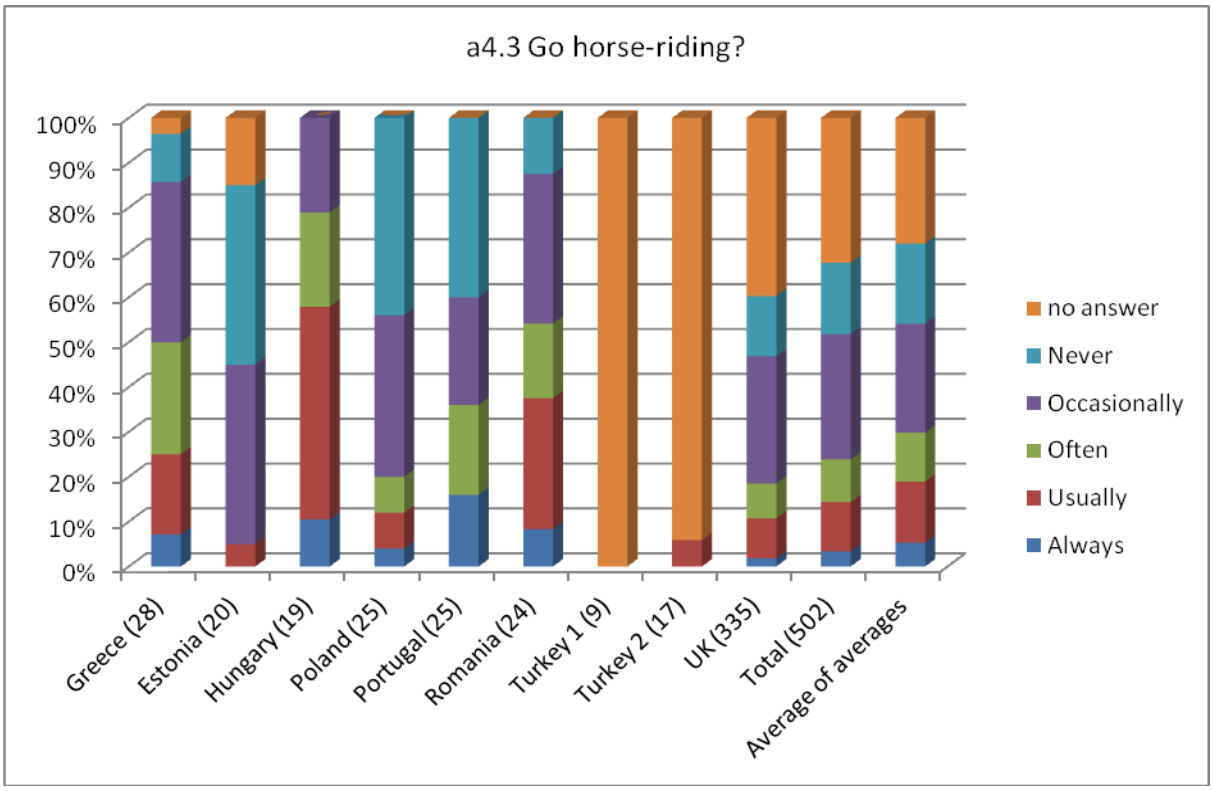


Figure 20

Table 17

a4.3 Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Always	7.14	0.00	10.53	4.00	16.00	8.33	0.00	0.00	1.79	3.39	5.31
Usually	17.86	5.00	47.37	8.00	0.00	29.17	0.00	5.88	8.96	10.96	13.58
Often	25.00	0.00	21.05	8.00	20.00	16.67	0.00	0.00	7.76	9.56	10.94
Occasionally	35.71	40.00	21.05	36.00	24.00	33.33	0.00	0.00	28.36	27.89	24.27
Never	10.71	40.00	0.00	44.00	40.00	12.50	0.00	0.00	13.43	15.94	17.85
No answer	3.57	15.00	0.00	0.00	0.00	0.00	100.00	94.12	39.70	32.27	28.04

Again the majority of those answering the question about horse-riding believe that people engaged in horse-riding only “occasionally” or “never” work in favor of maintaining and protecting habitats and species. Especially in Estonia, Poland and Hungary we see the higher percentages of this thought among the locals. Of course this answer is related to the fact that horse-riding is not very popular among locals, as we have discovered in previous questions.

a5.3: Make excursions in order to watch wildlife?

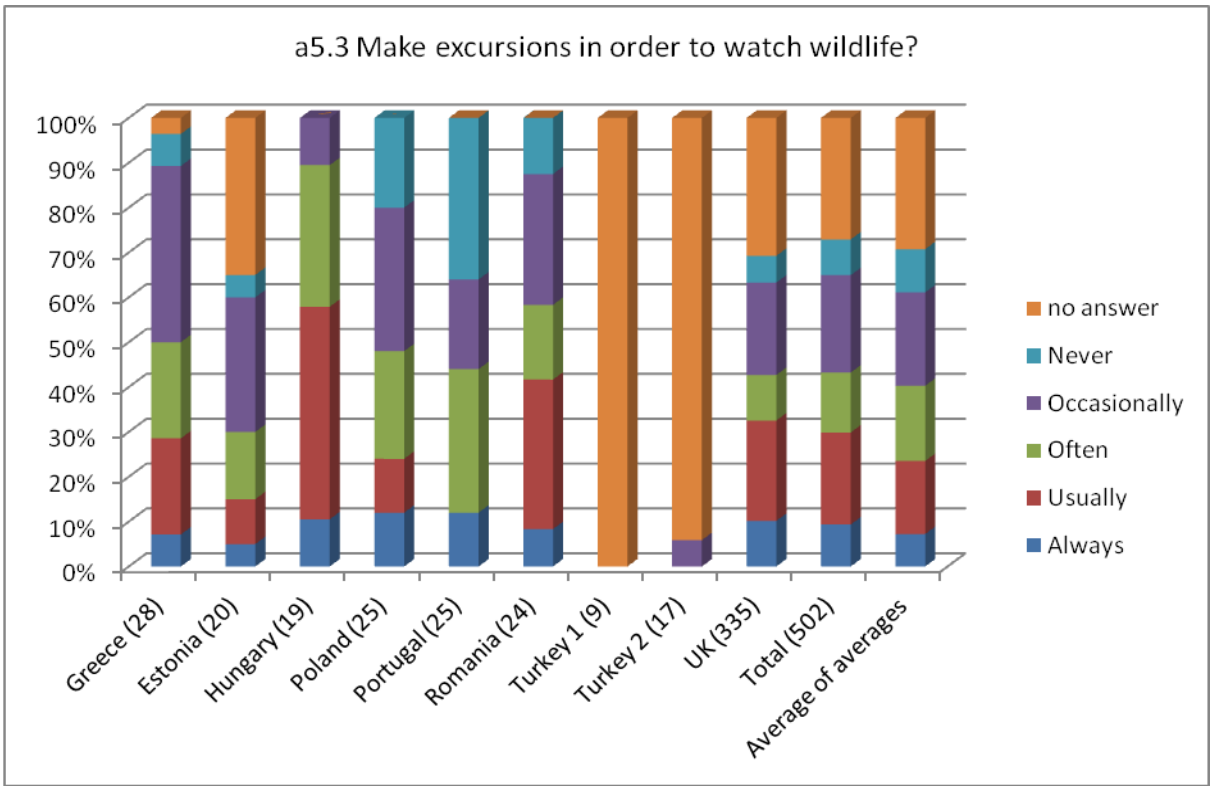


Figure 21

Table 18

a5.3 Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Always	7.14	5.00	10.53	12.00	12.00	8.33	0.00	0.00	10.15	9.36	7.24
Usually	21.43	10.00	47.37	12.00	0.00	33.33	0.00	0.00	22.39	20.52	16.28
Often	21.43	15.00	31.58	24.00	32.00	16.67	0.00	0.00	10.15	13.35	16.76
Occasionally	39.29	30.00	10.53	32.00	20.00	29.17	0.00	5.88	20.60	21.71	20.83
Never	7.14	5.00	0.00	20.00	36.00	12.50	0.00	0.00	5.97	7.97	9.62
No answer	3.57	35.00	0.00	0.00	0.00	0.00	100.00	94.12	30.75	27.09	29.27

Those engaged in excursions to watch wildlife (i.e. bird-watching etc.) are considered to work for such aims such as restoration and protection of wild species and habitats by a significant percentage of local residents. Of those who answered this question an almost 40% answered “always”, “often” and “usually”, especially in Hungary and Romania.

a6.3: Cultivate a garden or lawn?

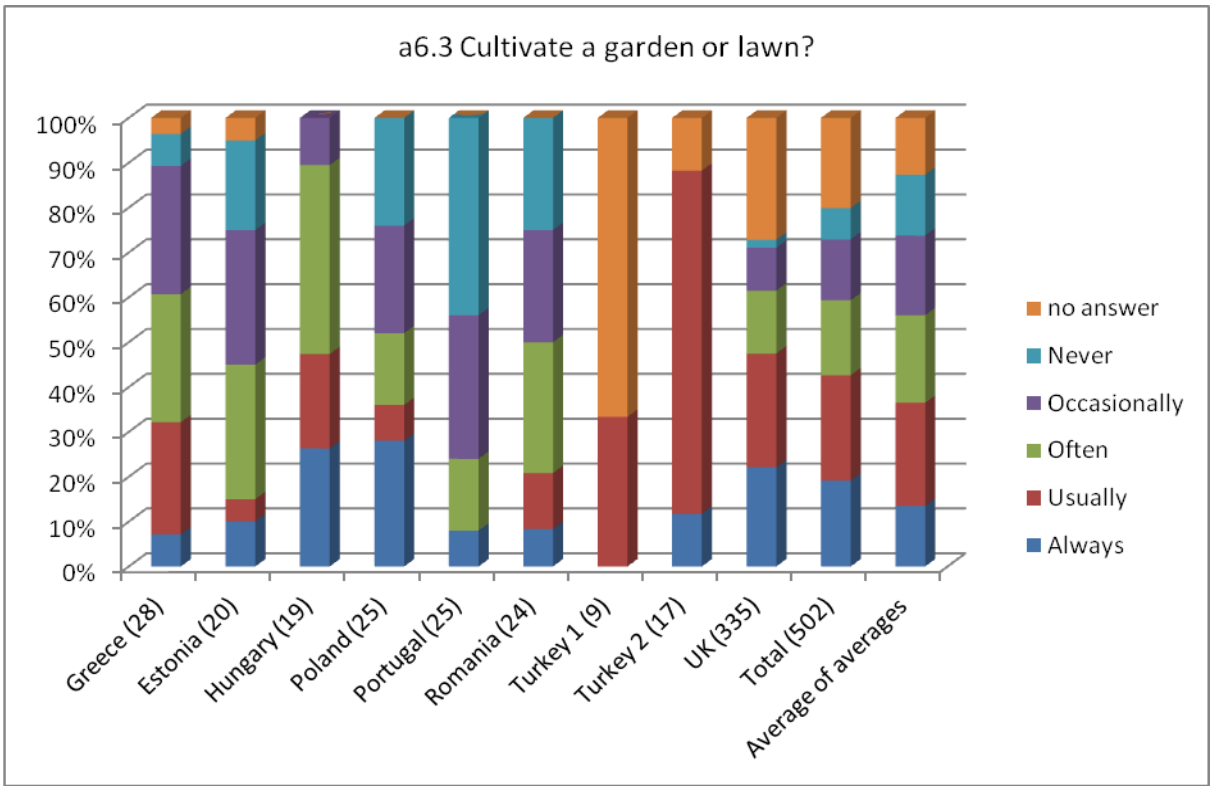


Figure 22

Table 19

a6.3 Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Always	7.14	10.00	26.32	28.00	8.00	8.33	0.00	11.76	22.09	19.12	13.52
Usually	25.00	5.00	21.05	8.00	0.00	12.50	33.33	76.47	25.37	23.51	22.97
Often	28.57	30.00	42.11	16.00	16.00	29.17	0.00	0.00	14.03	16.73	19.54
Occasionally	28.57	30.00	10.53	24.00	32.00	25.00	0.00	0.00	9.55	13.55	17.74
Never	7.14	20.00	0.00	24.00	44.00	25.00	0.00	0.00	1.79	6.97	13.55
No answer	3.57	5.00	0.00	0.00	0.00	0.00	66.67	11.76	27.16	20.12	12.69

Answers to a.6.3 (cultivate a garden/lawn) are quite diverse; people engaged in this activity seem to be considered to work for such purposes, although 13.55% answered “never” and 17.74 % “occasionally”. These answers present higher percentages in Portugal and Estonia. On the contrary, in Turkey local residents think that those engaged in cultivating gardens and lawns are working to this end “always” and “usually”.

a7.3: Go fishing?

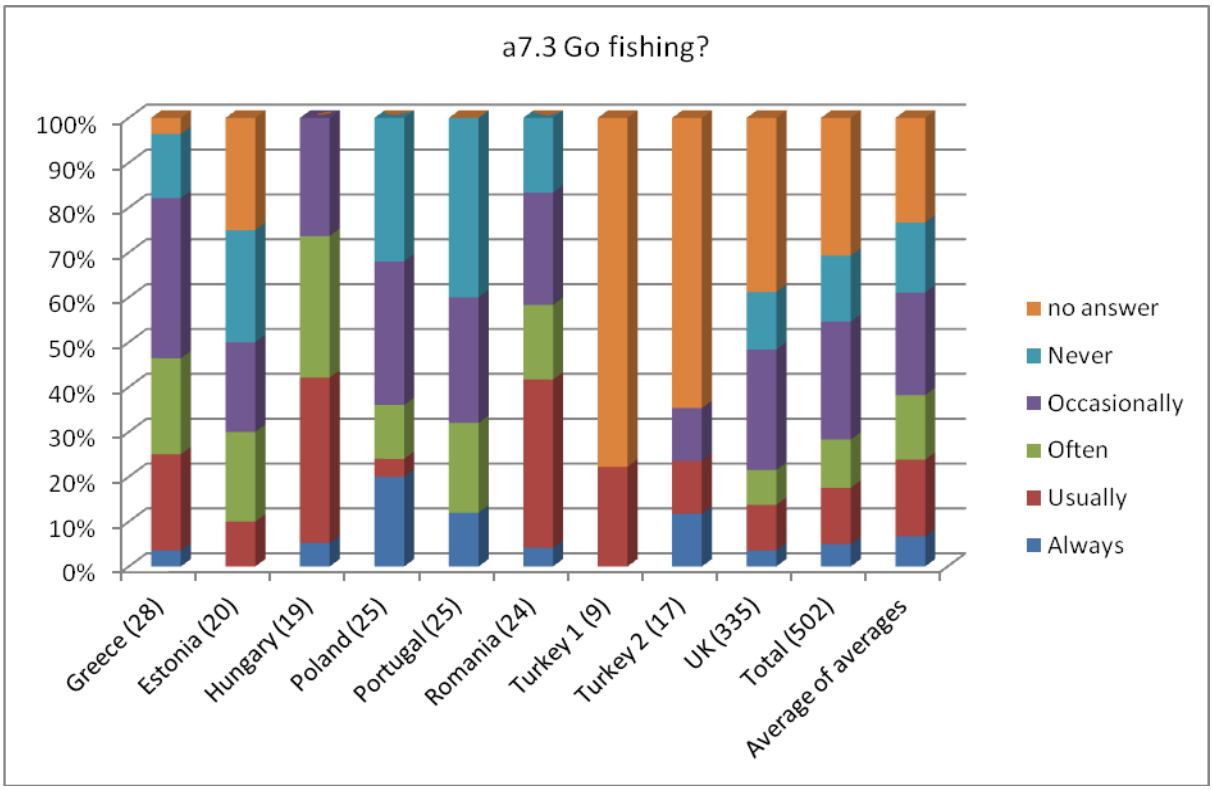


Figure 23

Table 20

a7.3 Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Always	3.57	0.00	5.26	20.00	12.00	4.17	0.00	11.76	3.58	4.98	6.71
Usually	21.43	10.00	36.84	4.00	0.00	37.50	22.22	11.76	10.15	12.55	17.10
Often	21.43	20.00	31.58	12.00	20.00	16.67	0.00	0.00	7.76	10.76	14.38
Occasionally	35.71	20.00	26.32	32.00	28.00	25.00	0.00	11.76	26.87	26.29	22.85
Never	14.29	25.00	0.00	32.00	40.00	16.67	0.00	0.00	12.84	14.74	15.64
No answer	3.57	25.00	0.00	0.00	0.00	0.00	77.78	64.71	38.81	30.68	23.32

Diversity characterizes the answers to a.7.3 (go fishing) too. In Hungary and Romania local residents seem to think higher of those engaged in fishing than the local residents in Greece, Poland and Portugal. Of course, this also relates to the fishing habits of local population and tourists which are not always sustainable.

a8.3: Go hunting with gun, dog or other animal?

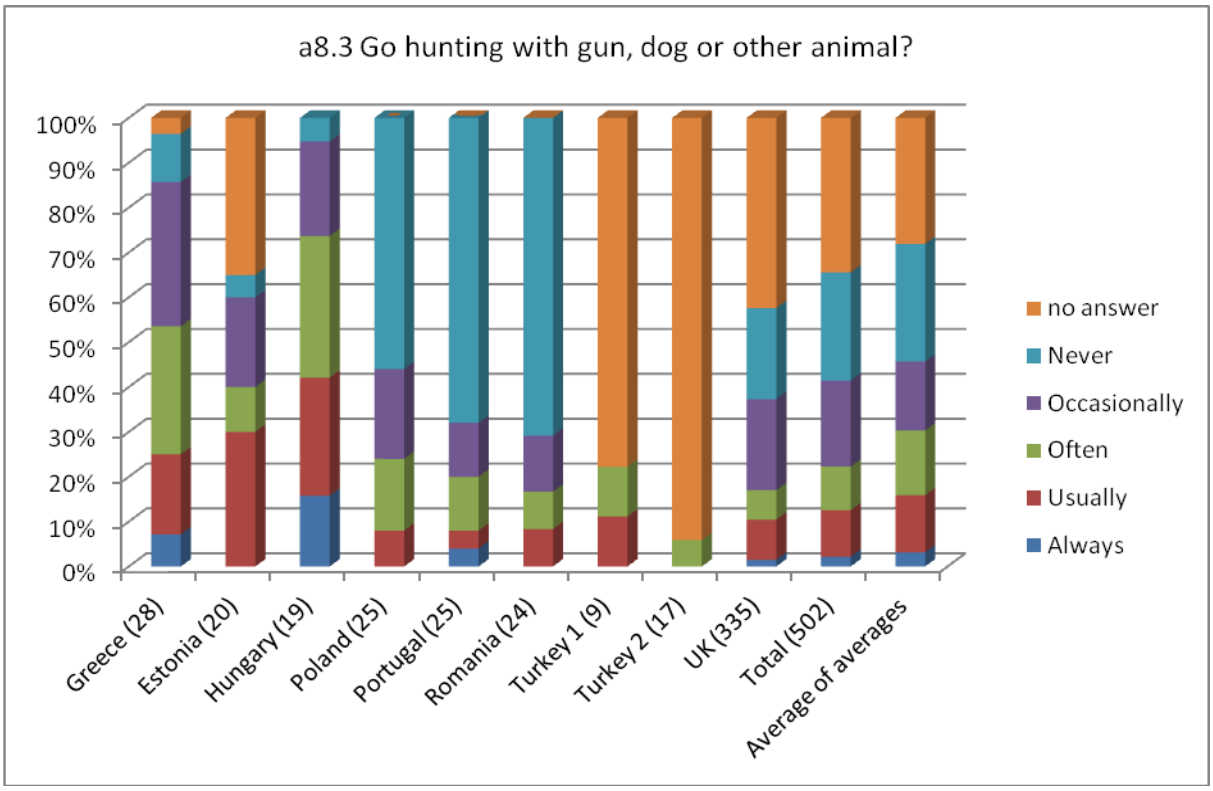


Figure 24

Table 21

a8.3 Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Always	7.14	0.00	15.79	0.00	4.00	0.00	0.00	0.00	1.49	2.19	3.16
Usually	17.86	30.00	26.32	8.00	4.00	8.33	11.11	0.00	8.96	10.36	12.73
Often	28.57	10.00	31.58	16.00	12.00	8.33	11.11	5.88	6.57	9.76	14.45
Occasionally	32.14	20.00	21.05	20.00	12.00	12.50	0.00	0.00	20.30	19.12	15.33
Never	10.71	5.00	5.26	56.00	68.00	70.83	0.00	0.00	20.30	24.10	26.23
No answer	3.57	35.00	0.00	0.00	0.00	0.00	77.78	94.12	42.39	34.46	28.09

The percentage of those who answered “always” and “usually” in question about hunting is relatively one of the smallest. In Poland, Portugal and Romania a strong percentage answered “never”. This negative perception of those engaged in hunting regarding their work in favor of wild species and habitats does not seem to apply in Hungary, Estonia and Greece.

a9.3 Farming?

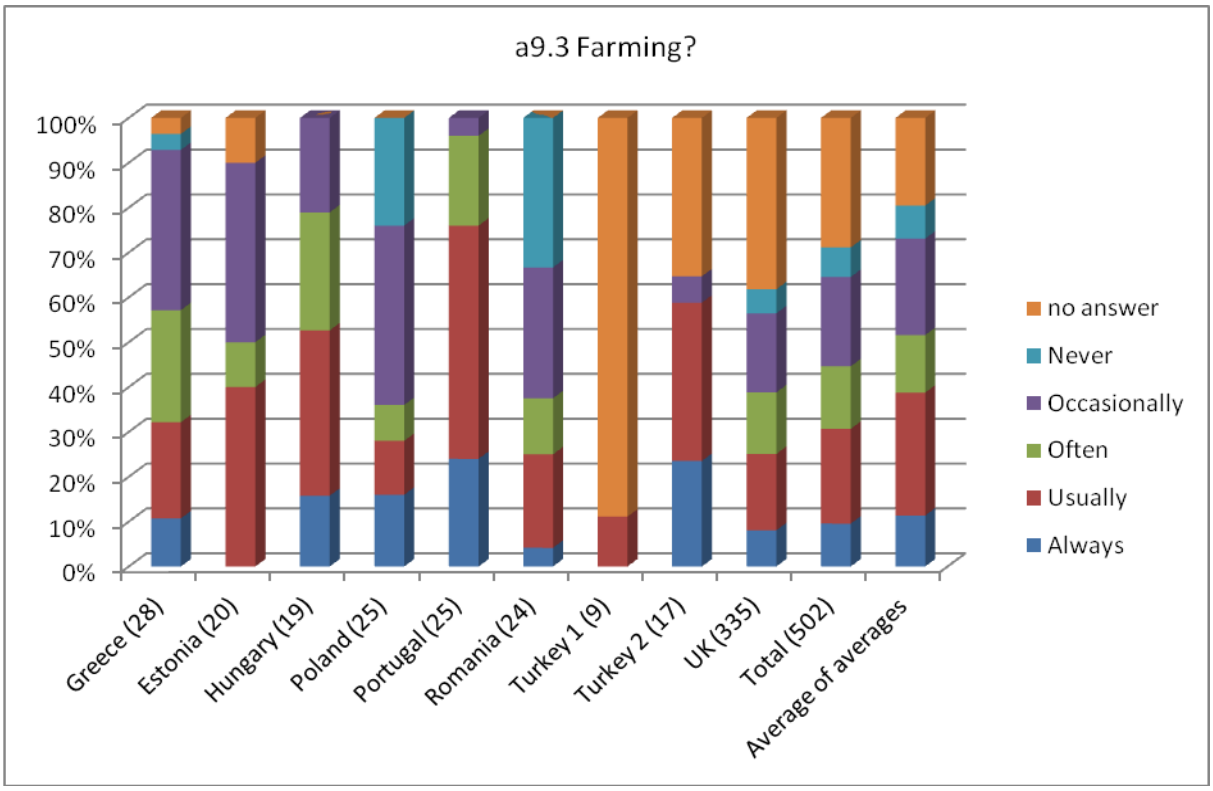


Figure 25

Table 22

a9.3 Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Always	10.71	0.00	15.79	16.00	24.00	4.17	0.00	23.53	8.06	9.56	11.36
Usually	21.43	40.00	36.84	12.00	52.00	20.83	11.11	35.29	17.01	21.12	27.39
Often	25.00	10.00	26.32	8.00	20.00	12.50	0.00	0.00	13.73	13.94	12.84
Occasionally	35.71	40.00	21.05	40.00	4.00	29.17	0.00	5.88	17.61	19.92	21.49
Never	3.57	0.00	0.00	24.00	0.00	33.33	0.00	0.00	5.37	6.57	7.36
No answer	3.57	10.00	0.00	0.00	0.00	0.00	88.89	35.29	38.21	28.88	19.55

People engaged in farming are considered to usually work to protect and maintain wild life/habitats, especially in Hungary and Portugal, while it's quite the opposite in Poland and Romania.

a10.3: Forestry?

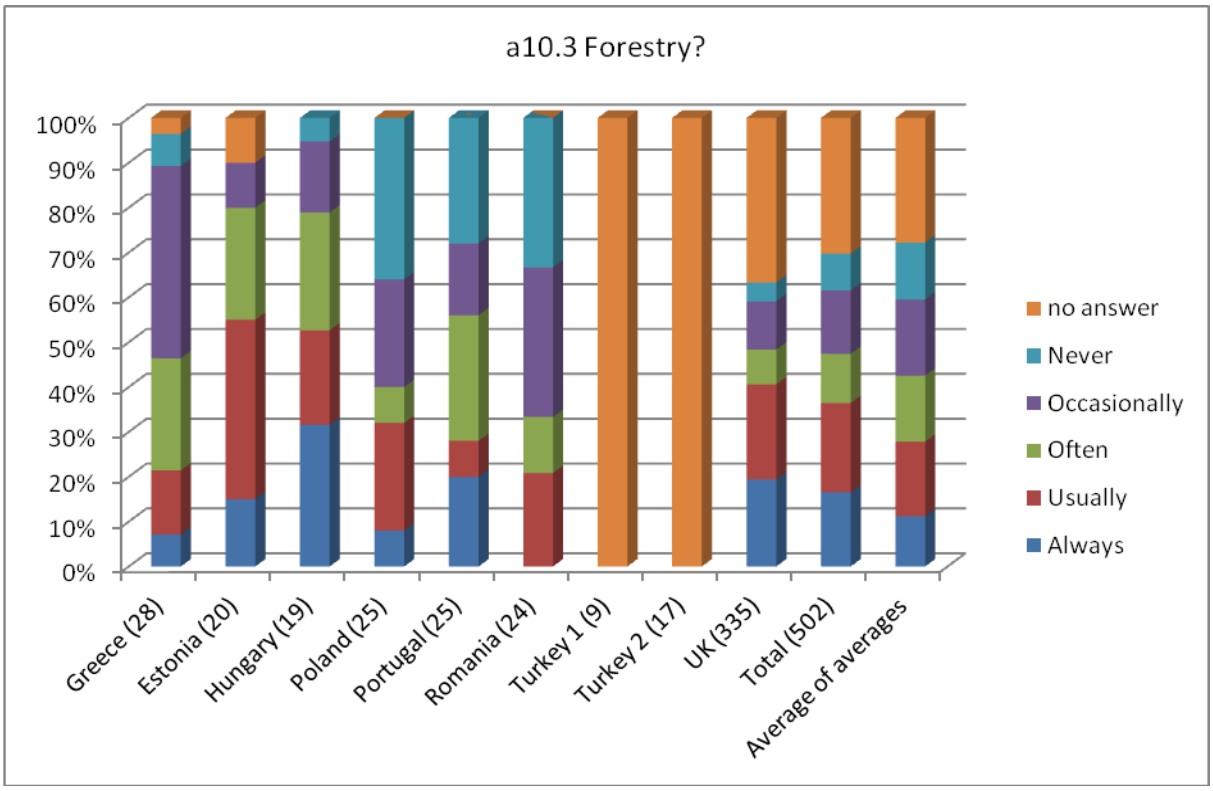


Figure 26

Table 23

a10.3 Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Always	7.14	15.00	31.58	8.00	20.00	0.00	0.00	0.00	19.40	16.53	11.24
Usually	14.29	40.00	21.05	24.00	8.00	20.83	0.00	0.00	21.19	19.92	16.60
Often	25.00	25.00	26.32	8.00	28.00	12.50	0.00	0.00	7.76	10.96	14.73
Occasionally	42.86	10.00	15.79	24.00	16.00	33.33	0.00	0.00	10.75	14.14	16.97
Never	7.14	0.00	5.26	36.00	28.00	33.33	0.00	0.00	4.18	8.17	12.66
No answer	3.57	10.00	0.00	0.00	0.00	0.00	100.00	100.00	36.72	30.28	27.81

In Romania and Poland most of the respondents answered that people engaged in forestry “occasionally” or “never” work to protect species and habitats. On the contrary, in Estonia most of them answered “usually” and “often”. This question was not answered by locals in Turkey and almost half locals in UK.

3.4.3 Do you (or others in your household) value wild species for:

b1. Food

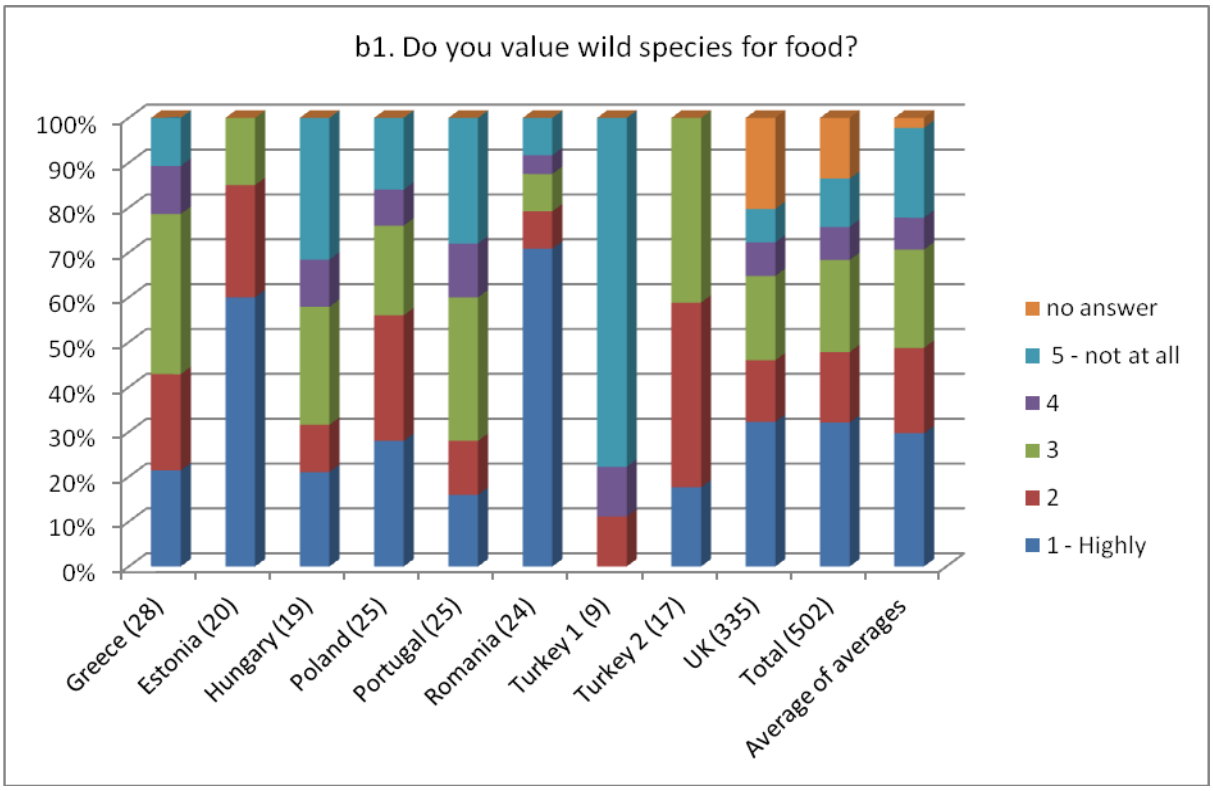


Figure 27

Table 24

b1. Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
1 - Highly	21	60	21	28	16	71	0	18	32	32	30
2	21	25	11	28	12	8.3	11	41	14	16	19
3	36	15	26	20	32	8.3	0	41	19	21	22
4	11	0	11	8	12	4.2	11	0	7.5	7.4	7.1
5 – Not at all	11	0	32	16	28	8.3	78	0	7.5	11	20
No answer	0	0	0	0	0	0	0	0	20	14	2.3

The majority of the respondents value wild species for food especially in Estonia and Romania. One may notice that in Turkey the answers in the two case studies areas are rather opposite; in Egirdir people do not value that much wild species for food, while in Firtina they do. This diversity has to do with the differences in the two rural areas (refer to the case studies for further details).

b2. Wildlife-related recreation as listed above

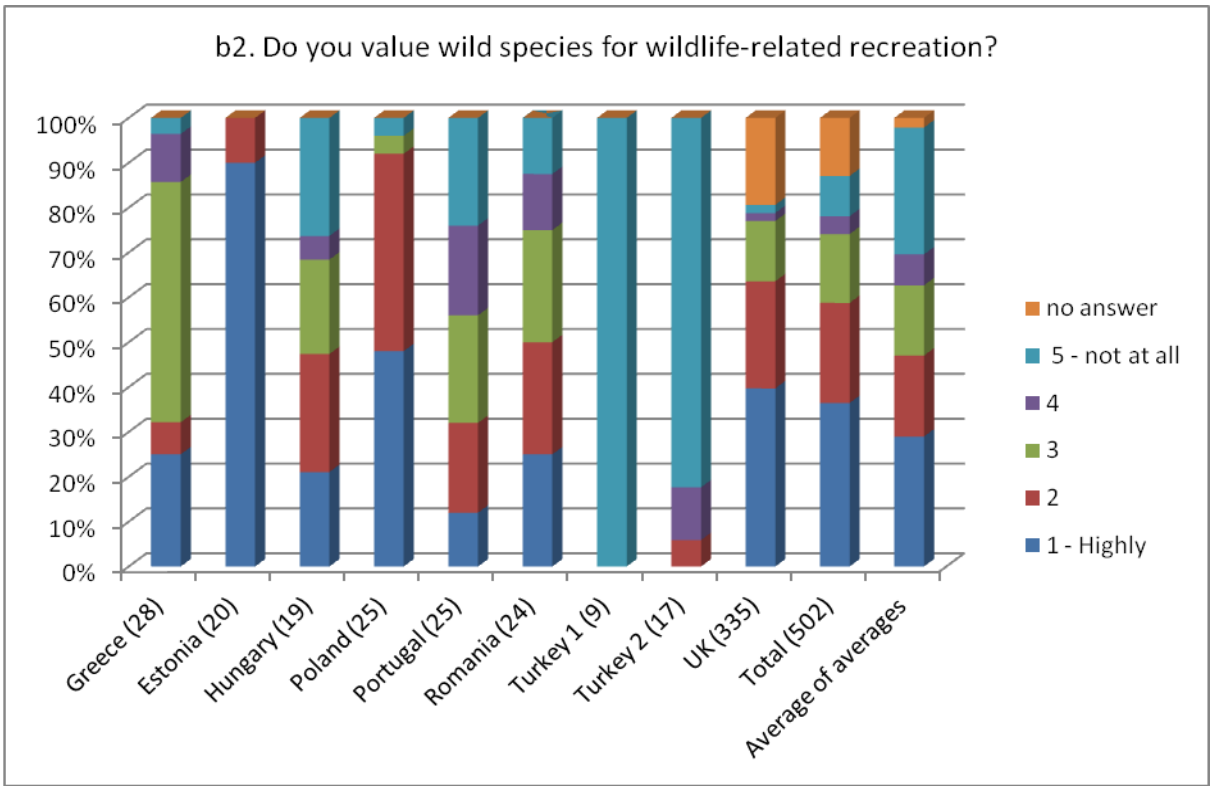


Figure 28

Table 25

b2. Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
1 - Highly	25	90	21	48	12	25	0	0	40	36	29
2	7.1	10	26	44	20	25	0	5.9	24	22	18
3	54	0	21	4	24	25	0	0	13	15	16
4	11	0	5.3	0	20	13	0	12	1.8	4	6.9
5 – Not at all	3.6	0	26	4	24	13	100	82	1.8	9	28
No answer	0	0	0	0	0	0	0	0	19	13	2.2

In most countries wild life is also valued for recreational purposes except for Turkey, which may well be related to the low tourism development in these areas.

b3. Tourism

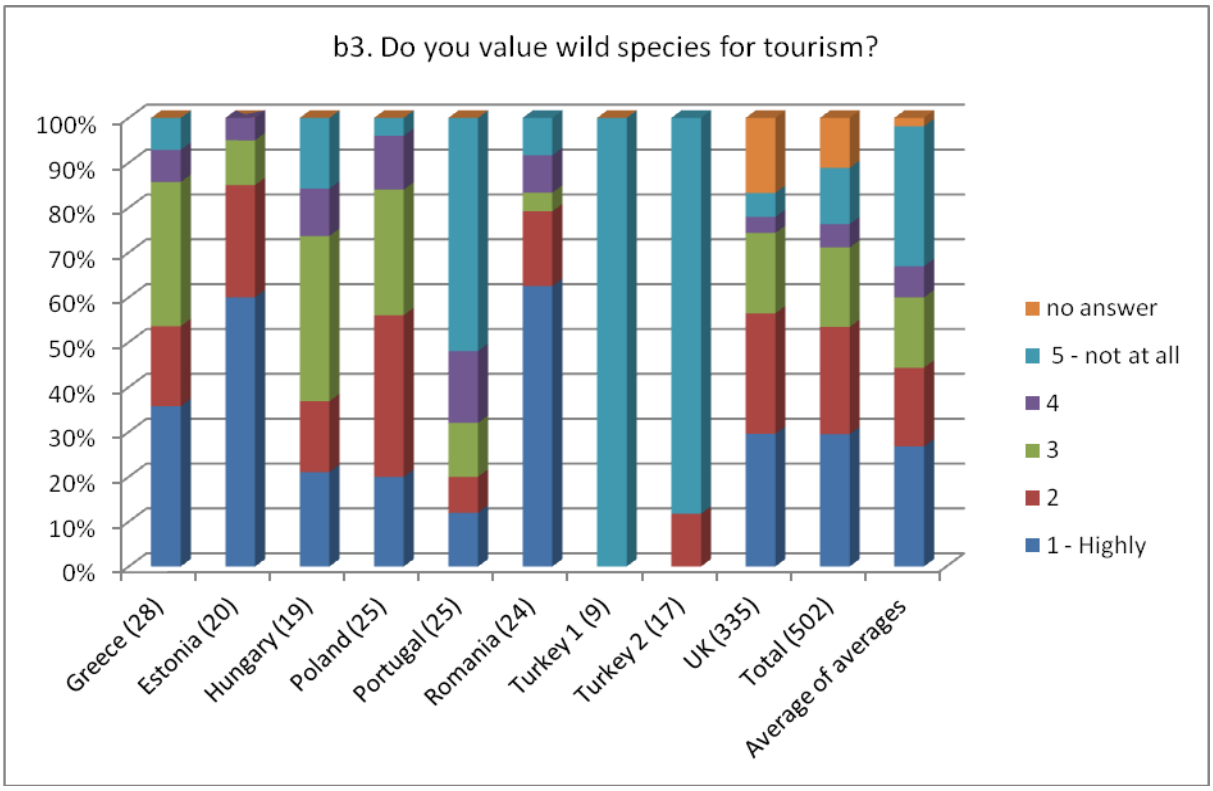


Figure 29

Table 26

b3. Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
1 - Highly	36	60	21	20	12	63	0	0	30	29	27
2	18	25	16	36	8	17	0	12	27	24	18
3	32	10	37	28	12	4.2	0	0	18	18	16
4	7.1	5	11	12	16	8.3	0	0	3.6	5.2	7
5 – Not at all	7.1	0	16	4	52	8.3	100	88	5.4	13	31
No answer	0	0	0	0	0	0	0	0	17	11	1.9

Areas which benefit from ecotourism activities such as Romania and Greece value wild species for tourism. The negative answers in Turkey are related to the fact that people at their study areas are not that much engaged in tourism activities.

b4. Other biodiversity-based source of income

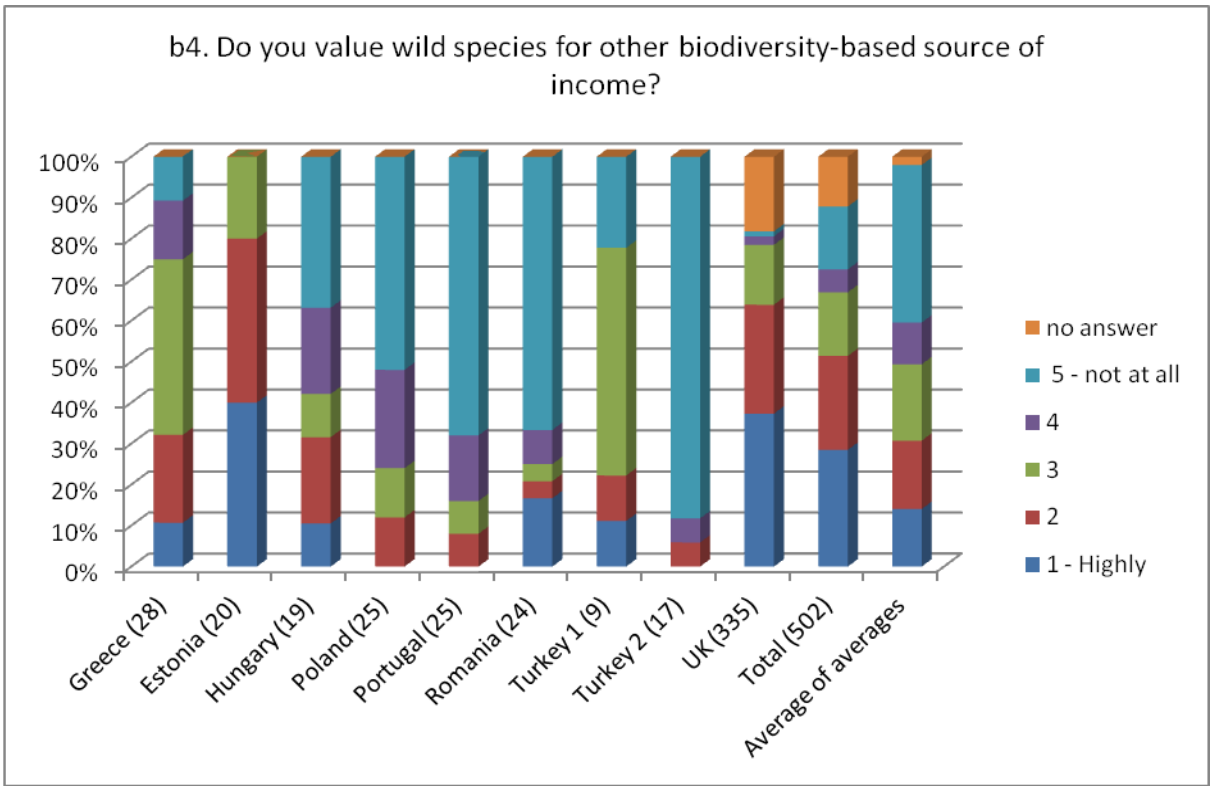


Figure 30

Table 27

b4. Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
1 - Highly	11	40	11	0	0	17	11	0	37	28	14
2	21	40	21	12	8	4.2	11	5.9	27	23	17
3	43	20	11	12	8	4.2	56	0	15	16	19
4	14	0	21	24	16	8.3	0	5.9	2.1	5.6	10
5 – Not at all	11	0	37	52	68	67	22	88	1.2	15	38
No answer	0	0	0	0	0	0	0	0	18	12	2

Tourism is the main biodiversity-based source of income for most of the locals across countries, although in Estonia and UK wild species are valued for other biodiversity-based sources of income, as well.

b5. Aesthetics and other intrinsic value

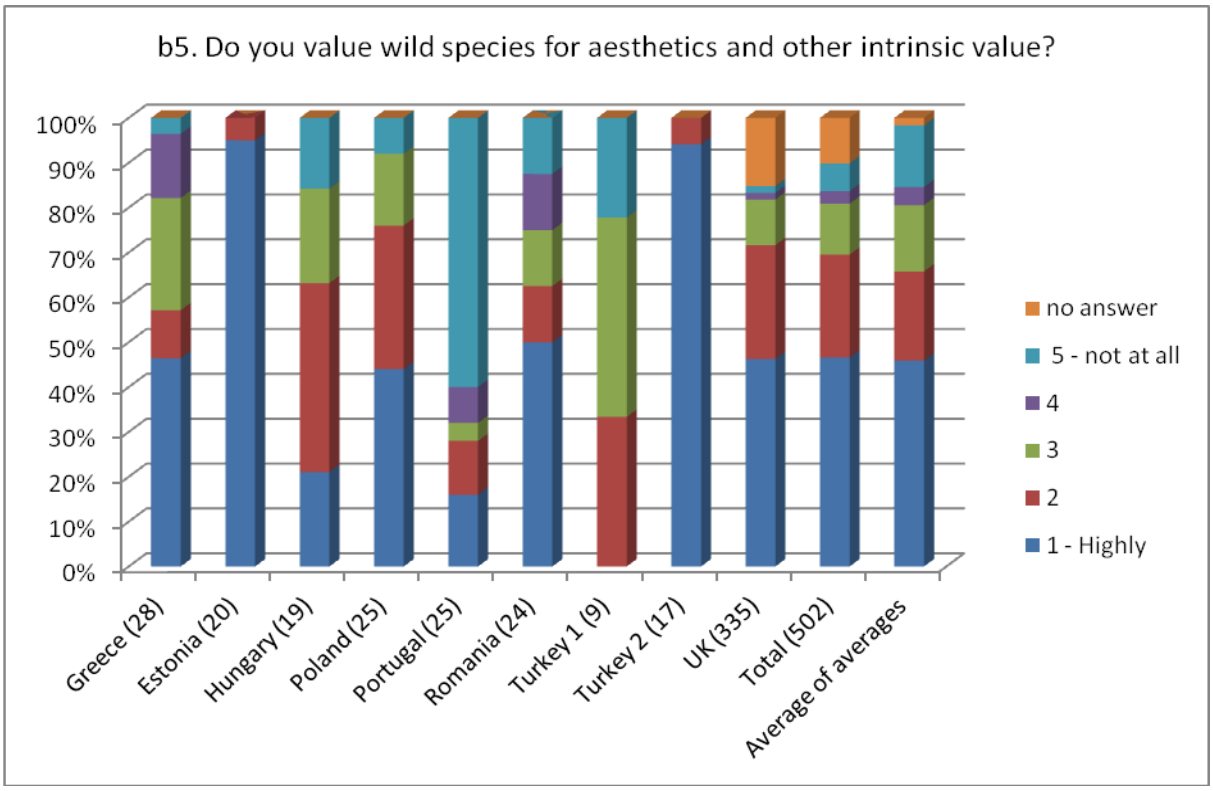


Figure 31

Table 28

b5. Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
1 - Highly	46	95	21	44	16	50	0	94	46	47	46
2	11	5	42	32	12	13	33	5.9	25	23	20
3	25	0	21	16	4	13	44	0	10	11	15
4	14	0	0	0	8	13	0	0	1.5	2.8	4
5 – Not at all	3.6	0	16	8	60	13	22	0	1.5	6.2	14
No answer	0	0	0	0	0	0	0	0	15	10	1.7

People at all case study areas value wild life for aesthetic reasons, except for Portugal where there is a high percentage of locals who answered “not at all”.

b6. Environmental security such as flood protection

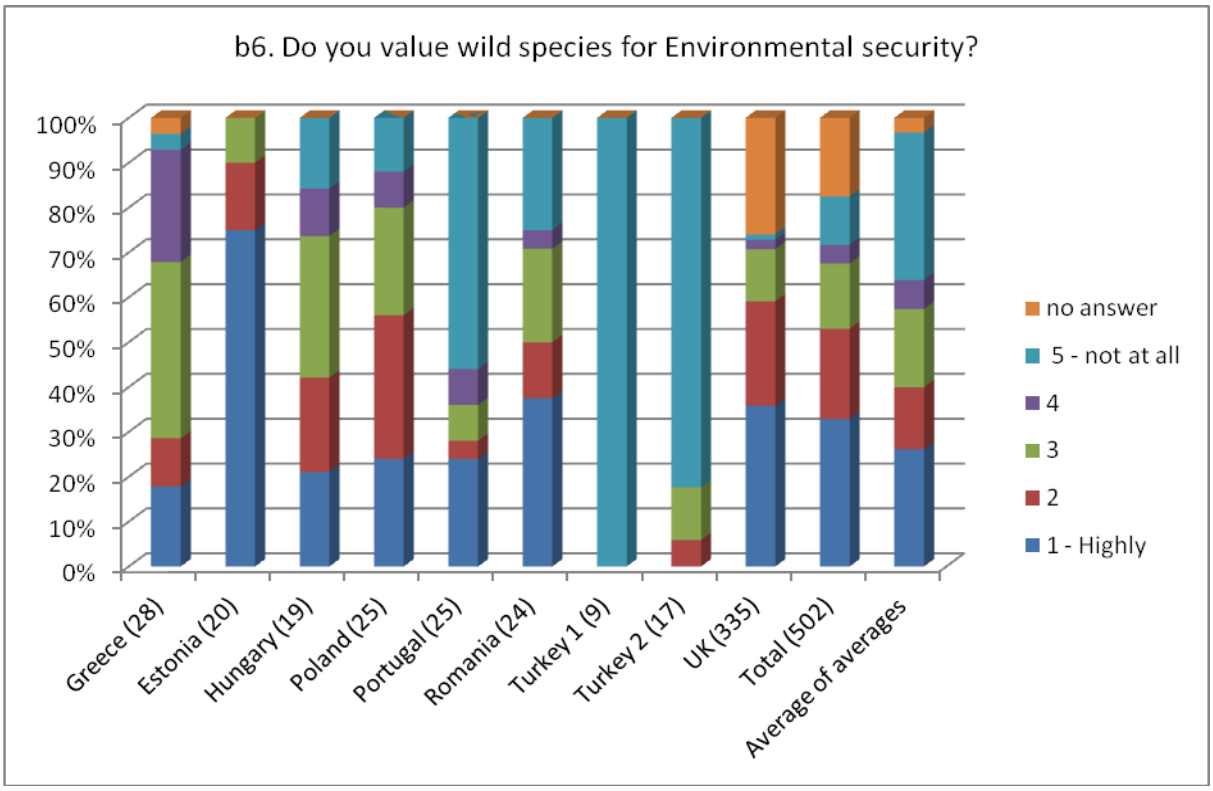


Figure 32

Table 29

b6. Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
1 - Highly	18	75	21	24	24	38	0	0	36	33	26
2	11	15	21	32	4	13	0	5.9	23	20	14
3	39	10	32	24	8	21	0	12	12	15	17
4	25	0	11	8	8	4.2	0	0	2.1	4.2	6.4
5 – Not at all	3.6	0	16	12	56	25	100	82	1.2	11	33
No answer	3.6	0	0	0	0	0	0	0	26	18	3.3

Apart from Turkey, local residents across countries seem to realize the relation of wild species with environmental security; this attitude depends of course on the special characteristics of each case study area.

b7. Other benefits

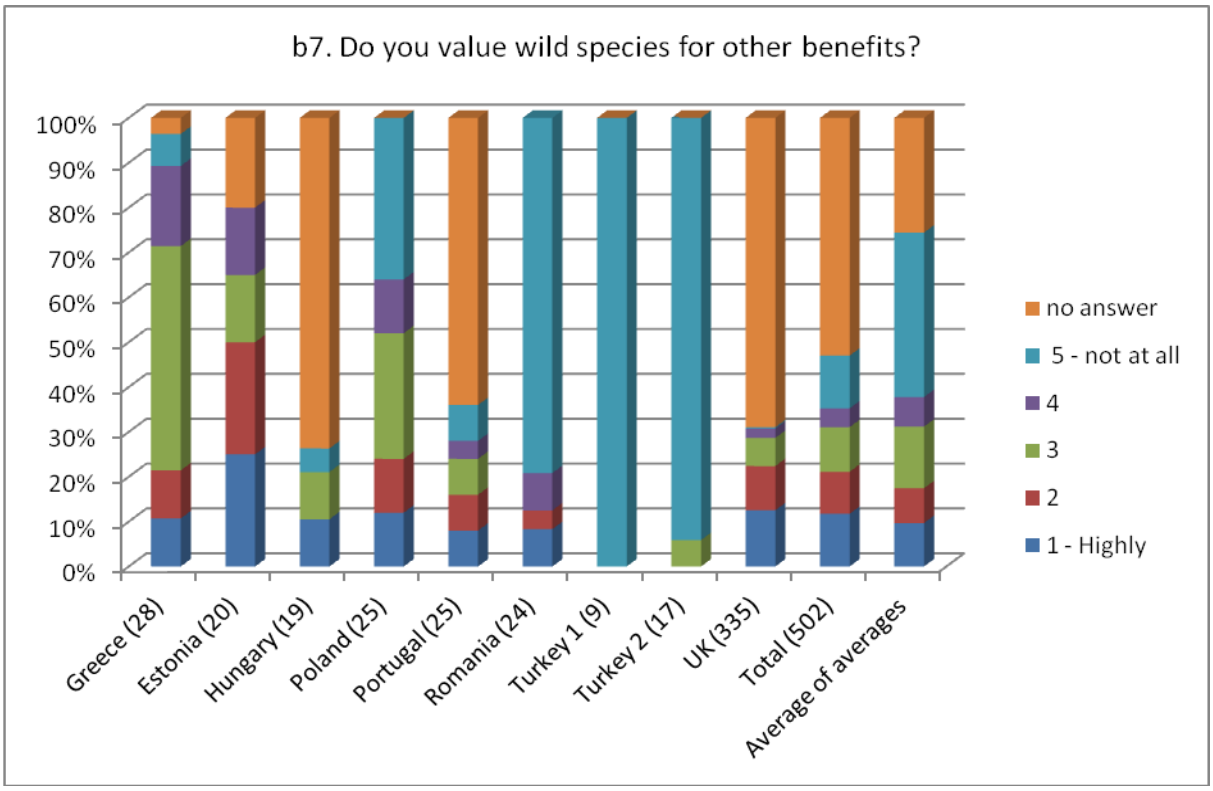


Figure 33

Table 30

b7. Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
1 - Highly	11	25	11	12	8	8.3	0	0	13	12	9.7
2	11	25	0	12	8	4.2	0	0	9.9	9.4	7.7
3	50	15	11	28	8	0	0	5.9	6.3	10	14
4	18	15	0	12	4	8.3	0	0	2.1	4.2	6.6
5 – Not at all	7.1	0	5.3	36	8	79	100	94	0.3	12	37
No answer	3.6	20	74	0	64	0	0	0	69	53	26

In conclusion, it's worth noticing that in Estonia people appear to value wild species more than anywhere else, especially regarding food, recreation and aesthetics.

3.4.4 Do you (or others in your household) suffer costs, in time or money, from wild species or habitats?

c1. Damage from pest species to household food or property

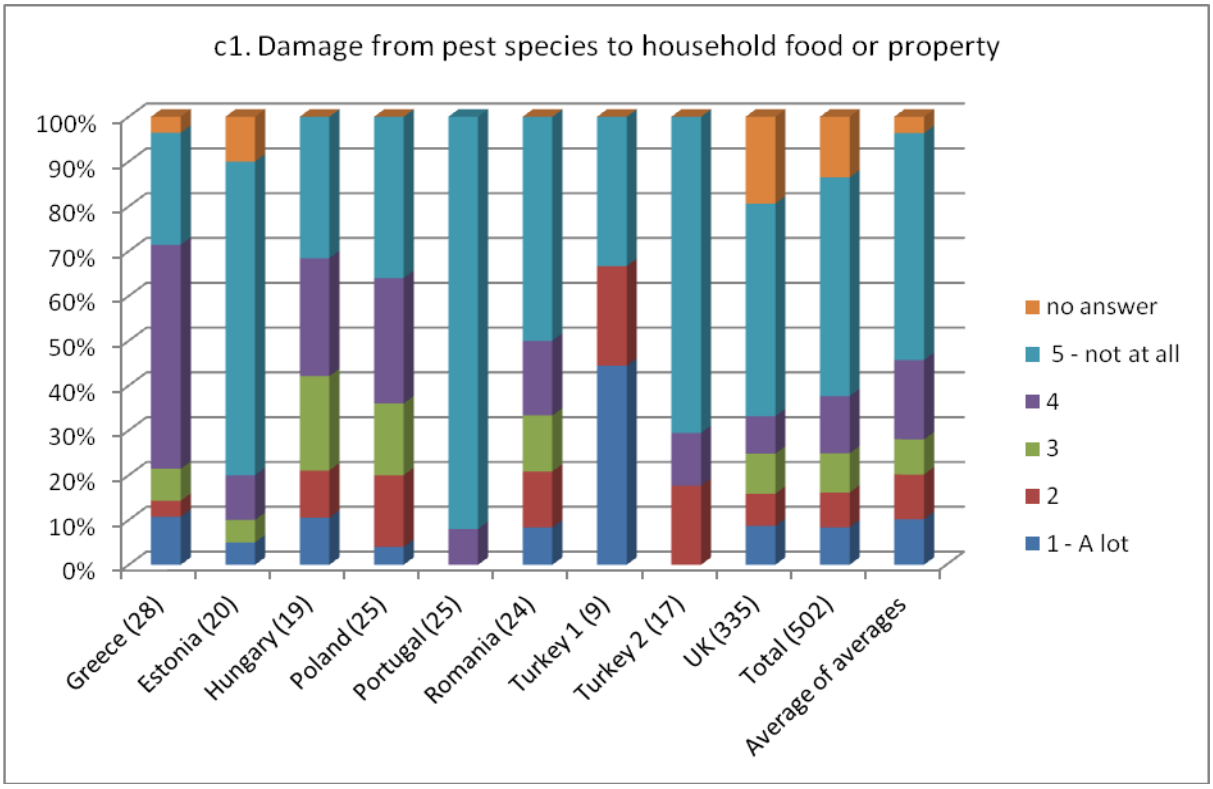


Figure 34

Table 31

c1. Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
1 – A lot	11	5	11	4	0	8.3	44	0	8.7	8.4	10
2	3.6	0	11	16	0	13	22	18	7.2	7.8	10
3	7.1	5	21	16	0	13	0	0	9	8.8	7.9
4	50	10	26	28	8	17	0	12	8.4	13	18
5 – Not at all	25	70	32	36	92	50	33	71	47	49	51
No answer	3.6	10	0	0	0	0	0	0	19	14	3.7

c2. Damage from pests, predators or weeds to livestock, crops or woodland

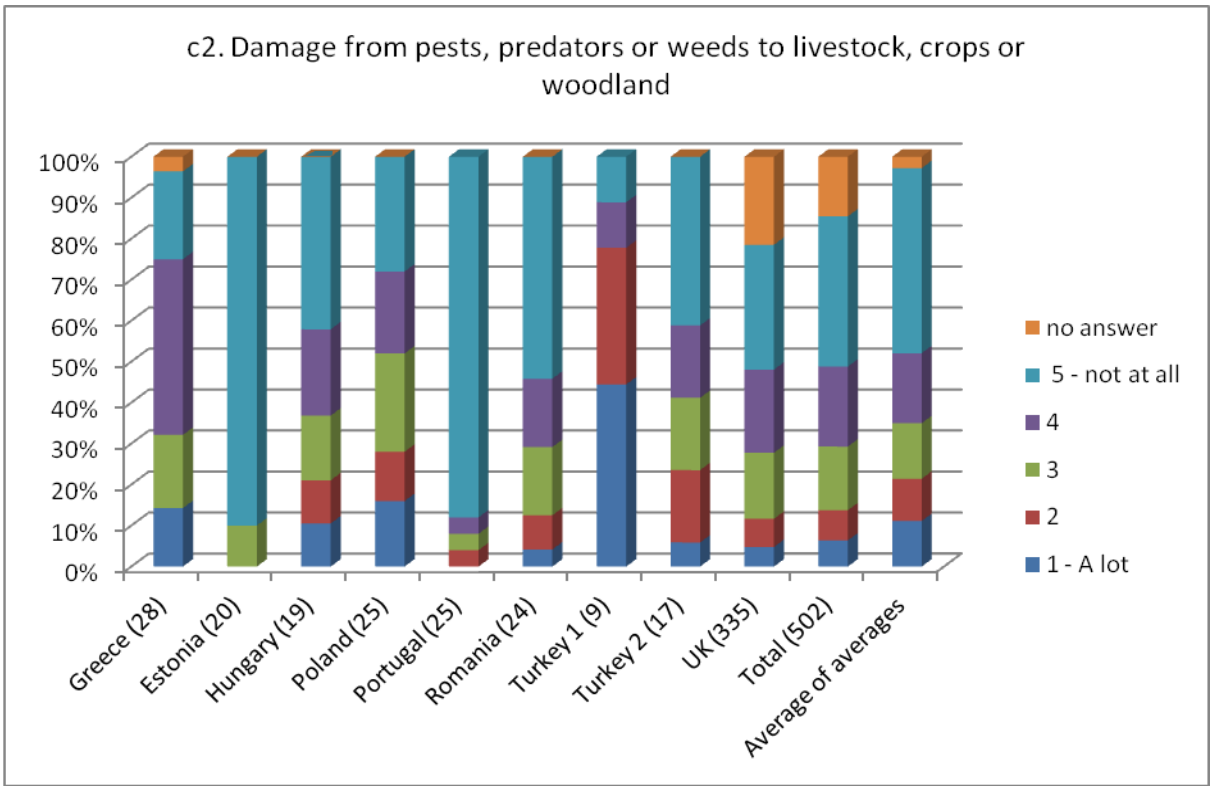


Figure 35

Table 32

c2. Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
1 – A lot	14	0	11	16	0	4.2	44	5.9	4.8	6.4	11
2	0	0	11	12	4	8.3	33	18	6.9	7.4	10
3	18	10	16	24	4	17	0	18	16	16	14
4	43	0	21	20	4	17	11	18	20	20	17
5 – Not at all	21	90	42	28	88	54	11	41	30	37	45
No answer	3.6	0	0	0	0	0	0	0	21	15	2.8

c3. Increasing the risk of fire

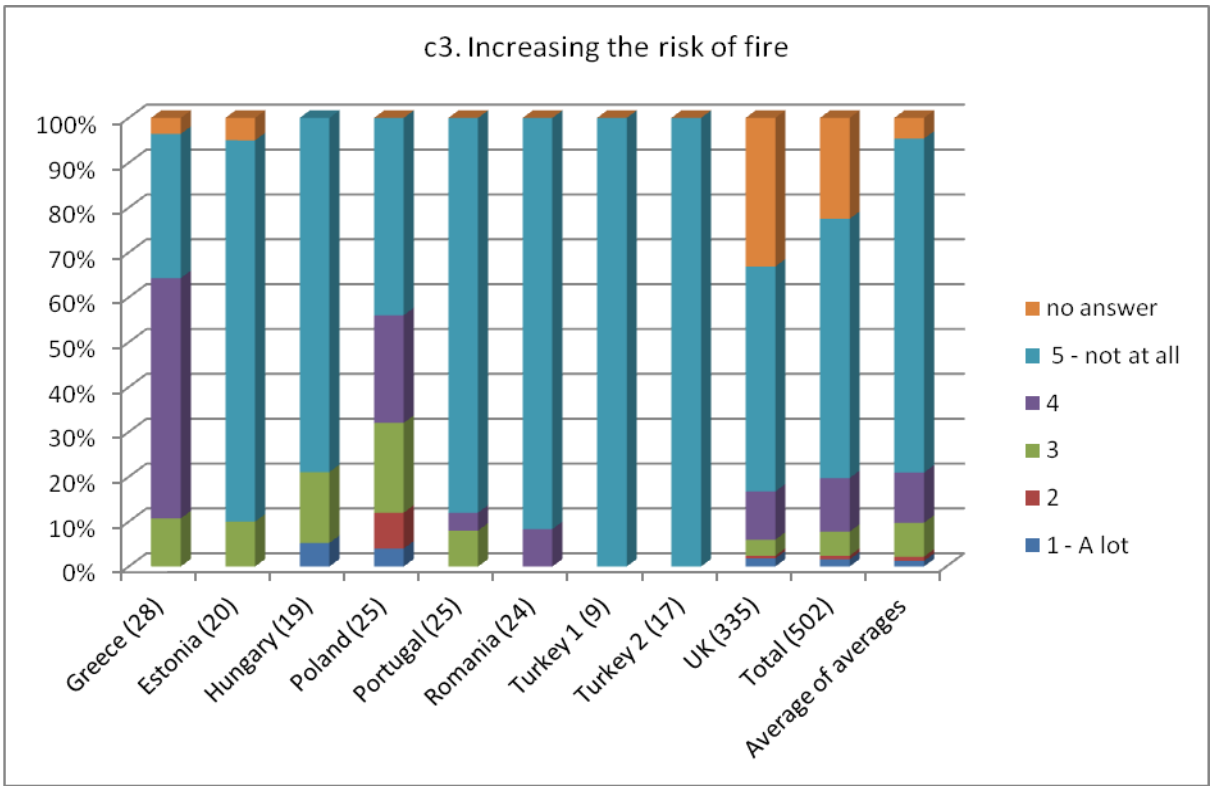


Figure 36

Table 33

c3. Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
1 – A lot	0	0	5.3	4	0	0	0	0	1.8	1.6	1.2
2	0	0	0	8	0	0	0	0	0.6	0.8	1
3	11	10	16	20	8	0	0	0	3.6	5.4	7.6
4	54	0	0	24	4	8.3	0	0	11	12	11
5 – Not at all	32	85	79	44	88	92	100	100	50	58	74
No answer	3.6	5	0	0	0	0	0	0	33	23	4.6

c4. Increasing the risk of flooding

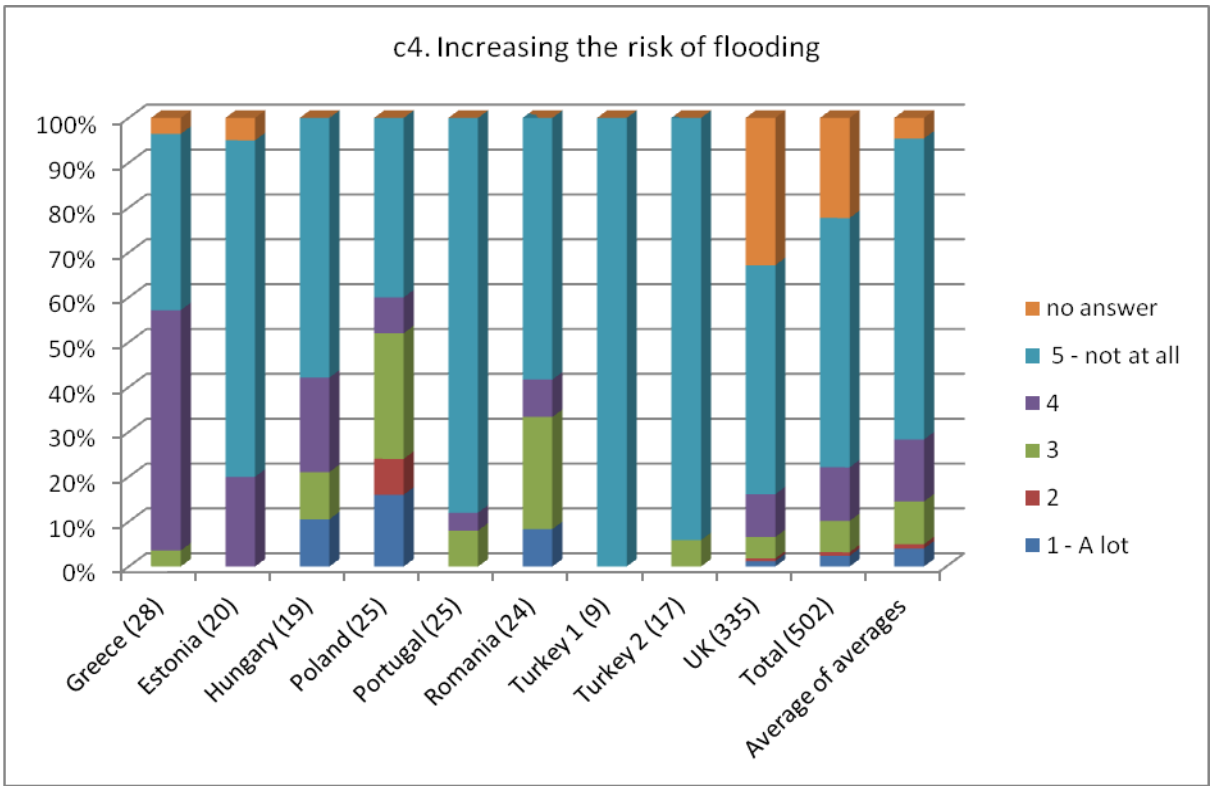


Figure 37

Table 34

c4. Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
1 – A lot	0	0	11	16	0	8.3	0	0	1.2	2.4	4
2	0	0	0	8	0	0	0	0	0.6	0.8	1
3	3.6	0	11	28	8	25	0	5.9	4.8	7	9.5
4	54	20	21	8	4	8.3	0	0	9.6	12	14
5 – Not at all	39	75	58	40	88	58	100	94	51	56	67
No answer	3.6	5	0	0	0	0	0	0	33	22	4.6

c5. Transmission of disease to humans or livestock

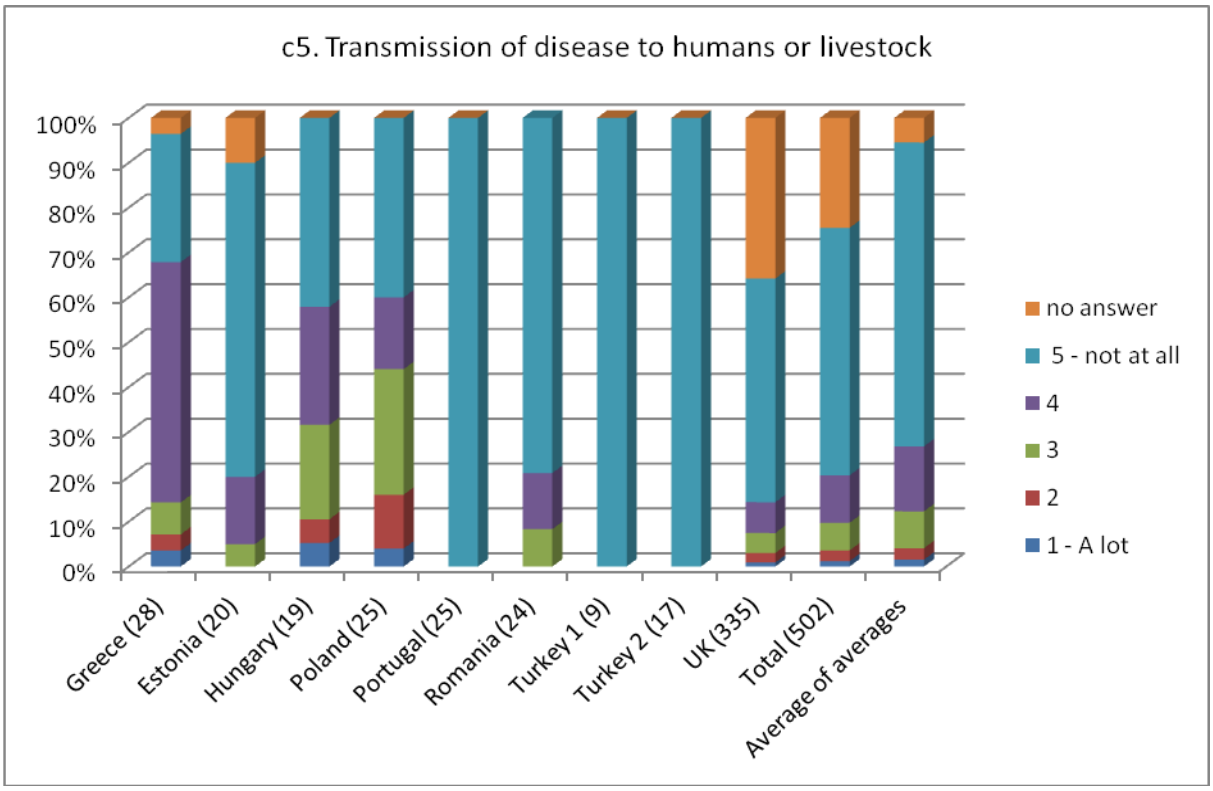


Figure 38

Table 35

c5. Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
1 – A lot	3.6	0	5.3	4	0	0	0	0	0.9	1.2	1.5
2	3.6	0	5.3	12	0	0	0	0	2.1	2.4	2.5
3	7.1	5	21	28	0	8.3	0	0	4.5	6.2	8.2
4	54	15	26	16	0	13	0	0	6.9	11	14
5 – Not at all	29	70	42	40	100	79	100	100	50	55	68
No answer	3.6	10	0	0	0	0	0	0	36	25	5.5

c6. Other issues

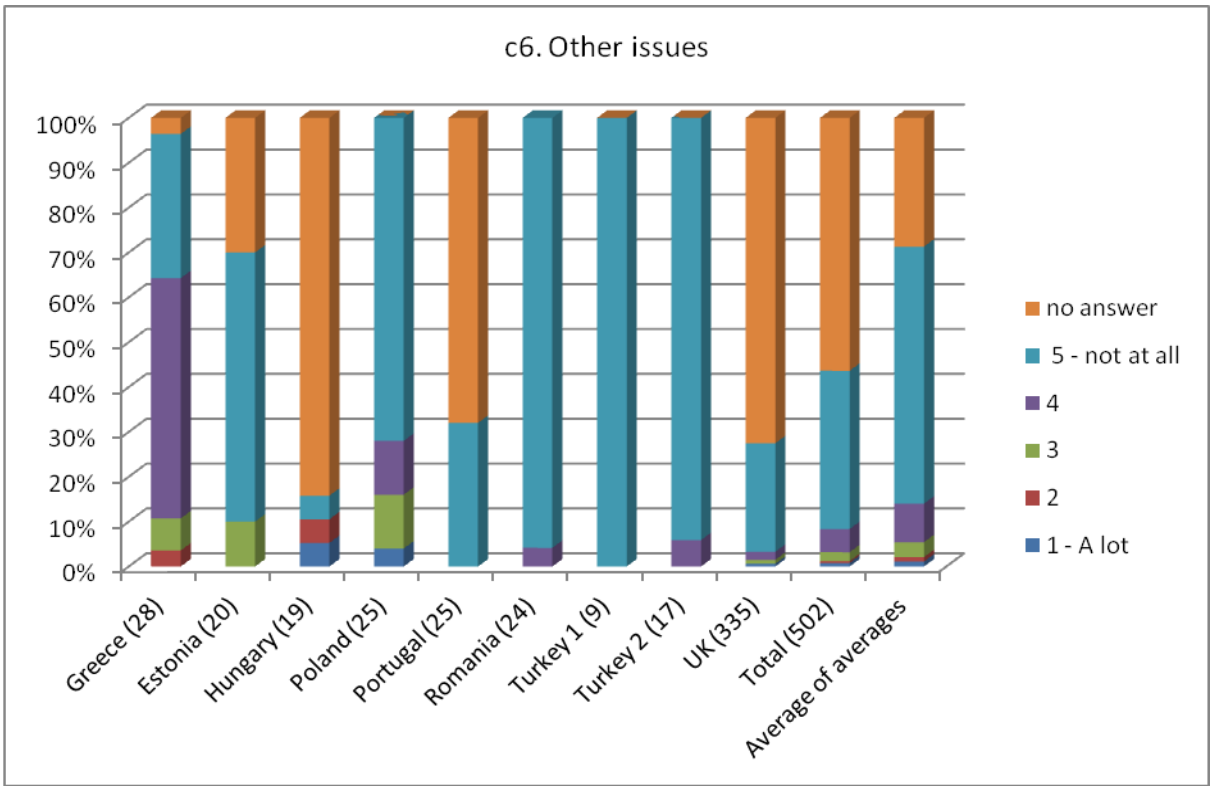


Figure 39

Table 36

c6. Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
1 – A lot	0	0	5.3	4	0	0	0	0	0.6	0.8	1.1
2	3.6	0	5.3	0	0	0	0	0	0	0.4	1
3	7.1	10	0	12	0	0	0	0	0.9	2	3.3
4	54	0	0	12	0	4.2	0	5.9	1.8	5.2	8.6
5 – Not at all	32	60	5.3	72	32	96	100	94	24	35	57
No answer	3.6	30	84	0	68	0	0	0	73	56	29

The majority of the respondents across countries answered that they do not suffer costs in time or money from wild species/habitats nor do they think that there are any increasing risks of fire /flooding due to wildlife.

This is an important admission as it may help local communities realize they may gain benefits from preserving biodiversity without facing unbearable costs.

3.4.5 Computers

d1. Do you (or others in your household) use computers at home?

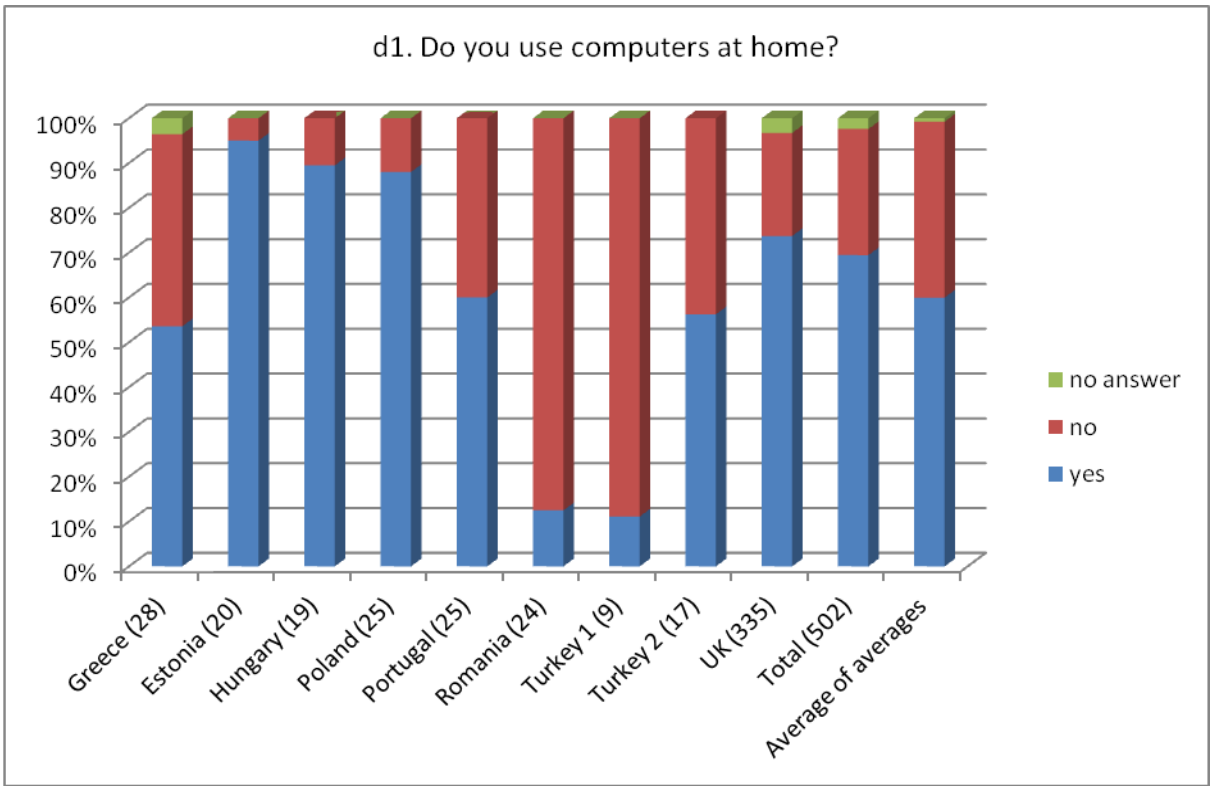


Figure 40

Table 37

d1. Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Yes	53.6	95	89.5	88	60	13	11.1	52.9	73.7	69.3	59.6
No	42.9	5	10.5	12	40	88	88.9	41.2	22.9	28.1	39.0
No answer	3.6	0	0	0	0	0	0	0	3.3	2.4	0.8

Familiarity with computers is more obvious in Estonia, Hungary, Poland and UK. On the contrary, percentages are quite low in Romania and Egirdir (Turkey). It must be noticed though that this questions does not refer only to the respondents but to other members of their family as well (i.e. children). In Greece for instance the respondents answered that computers at home are mostly used by their children.

d2. Do you (or others in your household) use computers at work?

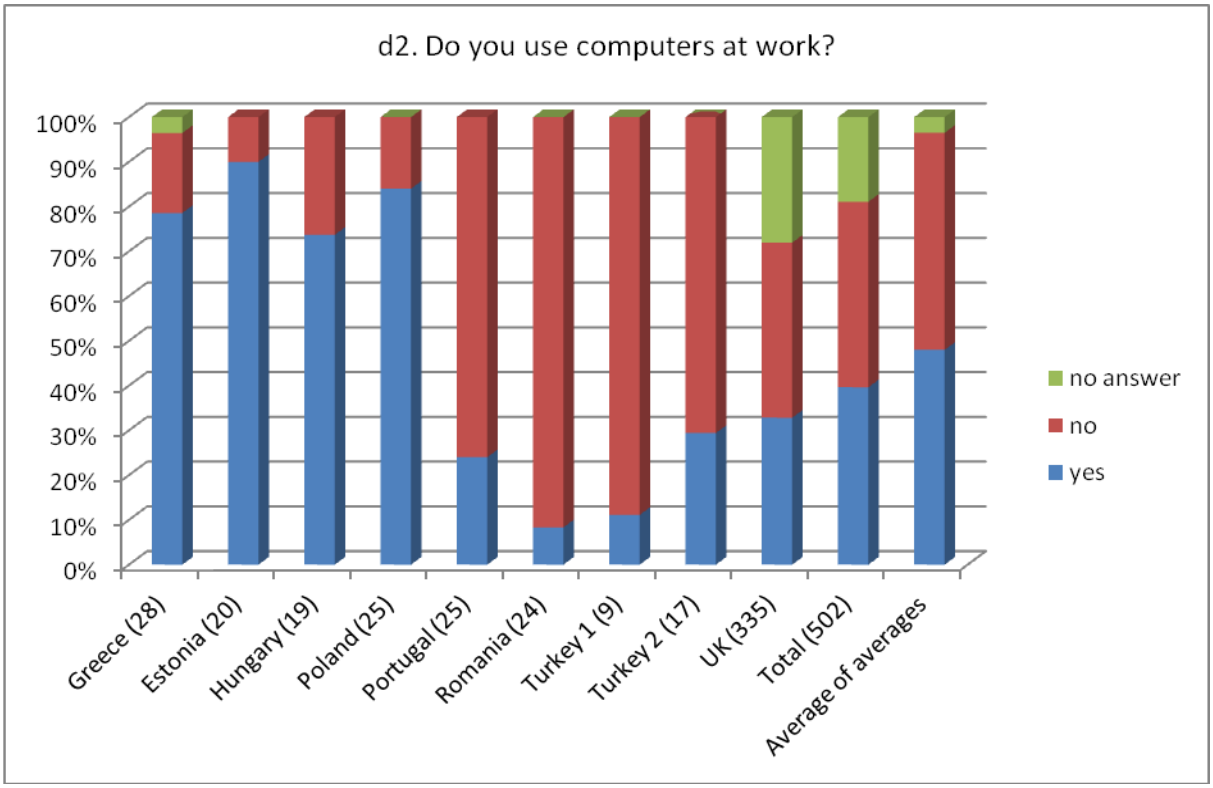


Figure 41

Table 38

d2. Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Yes	78.6	90	73.7	84	24	8.3	11.1	29.4	32.8	39.6	48.0
No	17.9	10	26.3	16	76	92	88.9	70.6	39.1	41.4	48.5
No answer	3.5	0	0	0	0	0	0	0	28.1	18.9	3.5

Computers at work are mostly used by respondents in Greece, Estonia, Hungary and Poland and less in Romania, Turkey and Portugal. In total the percentage of local residents across countries using computers at work (48%) is quite similar to those not using them (48.5%).

3.4.6 Internet

e1. Do you (or others in your household) use the internet?

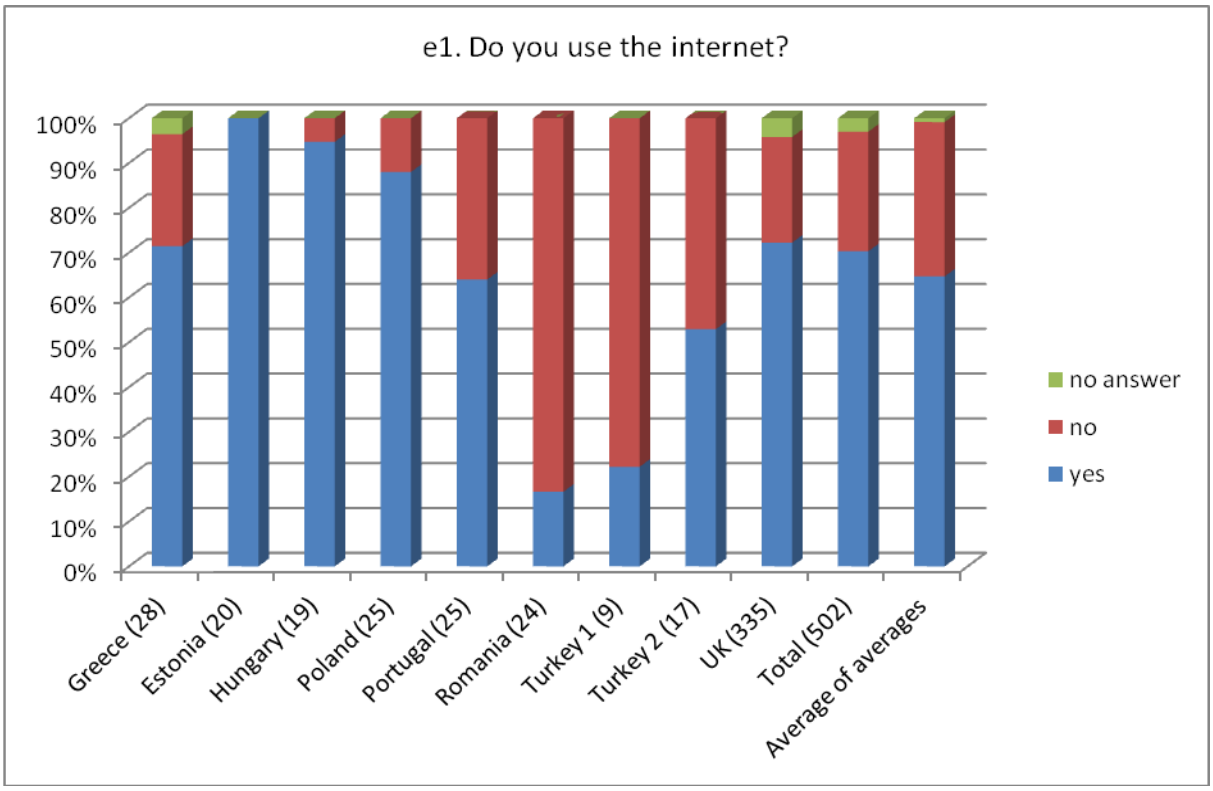


Figure 42

Table 39

e1. Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Yes	71.4	100	94.7	88	64	17	22.2	52.9	72.2	70.3	64.7
No	25	0	5.3	12	36	83	77.8	47.1	23.6	26.7	34.4
No answer	3.6	0	0	0	0	0	0	0	4.2	3	0.9

Internet is widely used by local residents across countries or by others in their household apart from Romania and Turkey.

e2. Do you (or others in your household) pay for goods on the internet?

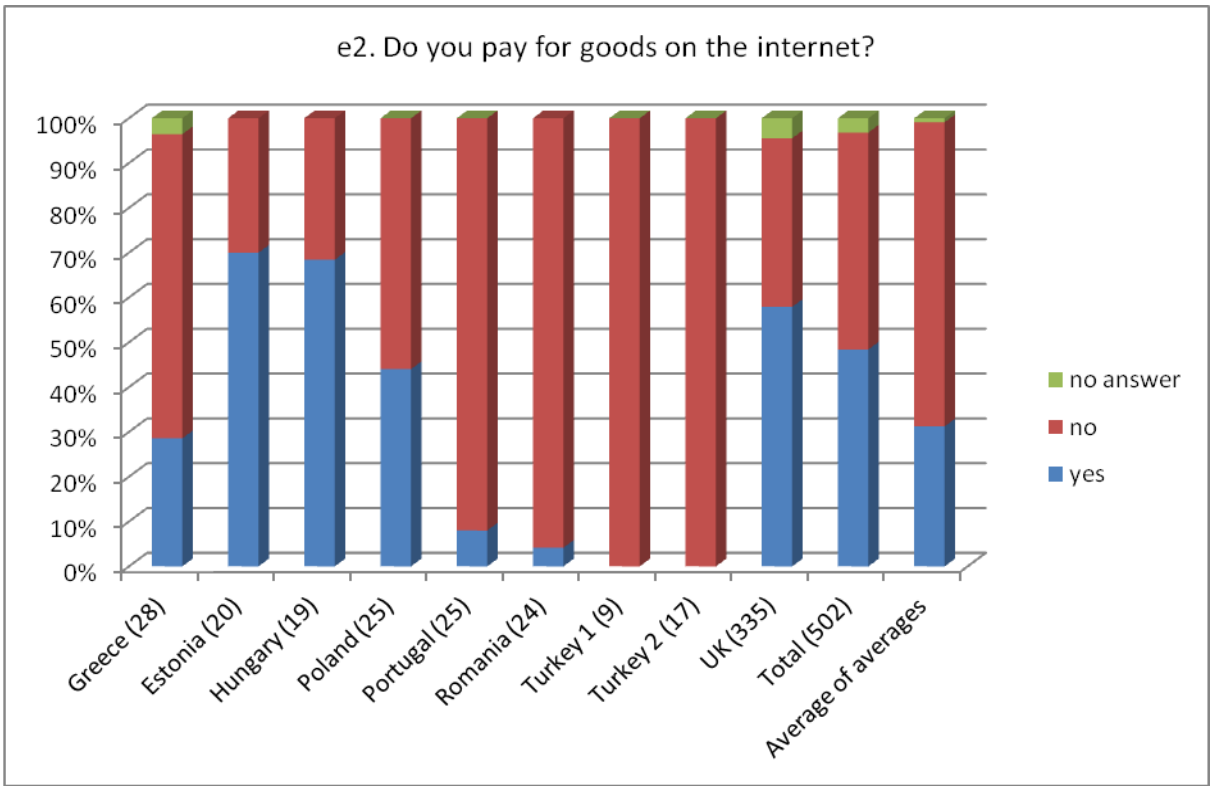


Figure 43

Table 40

e2. Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Yes	28.6	70	68.4	44	8	4.2	0	0	57.9	48.4	31.2
No	67.9	30	31.6	56	92	96	100	100	37.6	48.4	67.9
No answer	3.6	0	0	0	0	0	0	0	4.5	3.2	0.9

However, it is hardly used for purchases except for Estonia and Hungary followed by UK and Poland.

In total we'd say that people across case studies areas are familiar with computers, although this answer may imply that other members of their family are familiar and not the respondents themselves. Internet is used by most of them, not for purchases, though, which shows reluctance and perhaps distrust to such services.

f. Education level

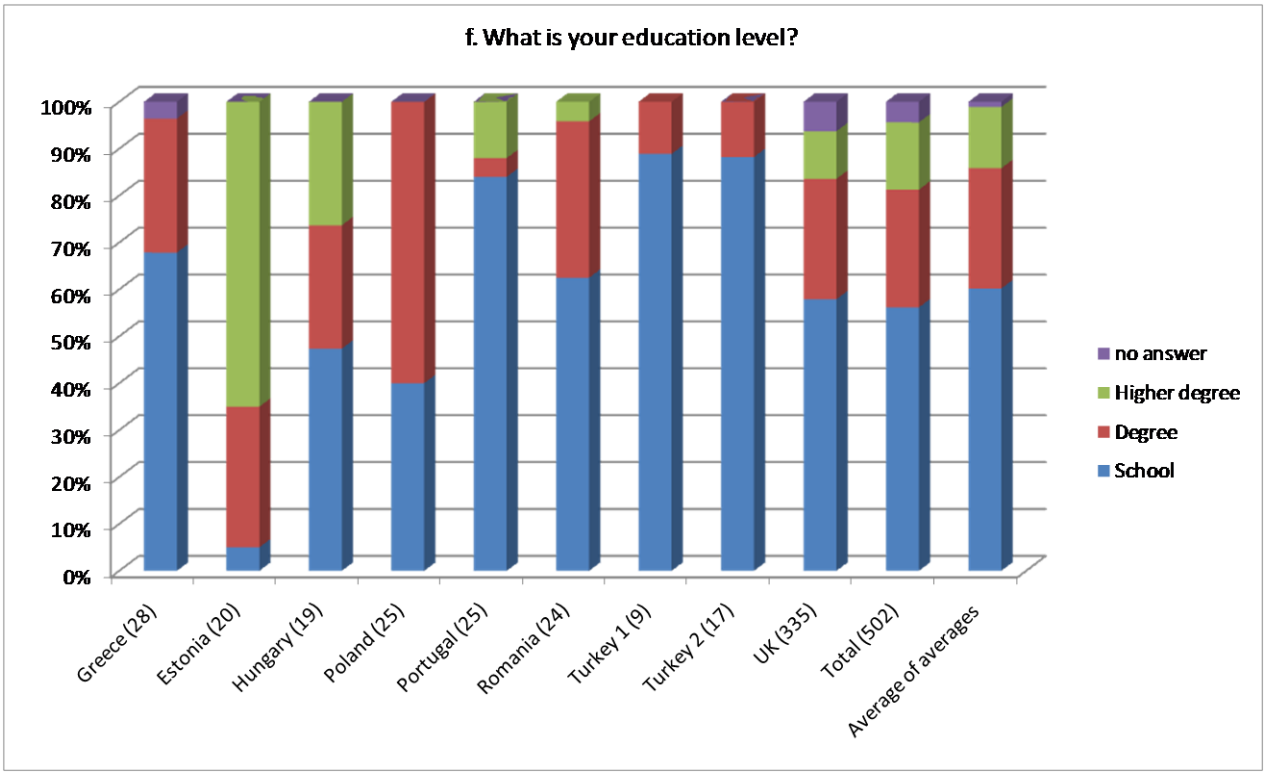


Figure 44

Table 41

f. Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
School	67.9	5	47.4	60	84	63	88.9	88.2	57.9	56.2	55.8
Degree	28.6	30	26.3	40	4	33	11.1	11.8	25.7	25.1	23.0
Higher degree	0	65	26.3	0	12	4.2	0	0	10.1	14.3	20.2
No answer	3.5	0	0	0	0	0	0	0	6.3	4.4	1.1

Most of the respondents have attended secondary education except for Estonia and Poland, where the percentages of degree and higher degree are higher. For Estonia, it must be noted that by higher education it is usually meant not only a university degree but a certificate from trade-schools as well.

g. How strongly do you agree or disagree with the following statement?

"It is time for all those who benefit from the richness of nature (biodiversity) and the services of ecosystems, not just those who wish to protect the environment, to contribute to its conservation"

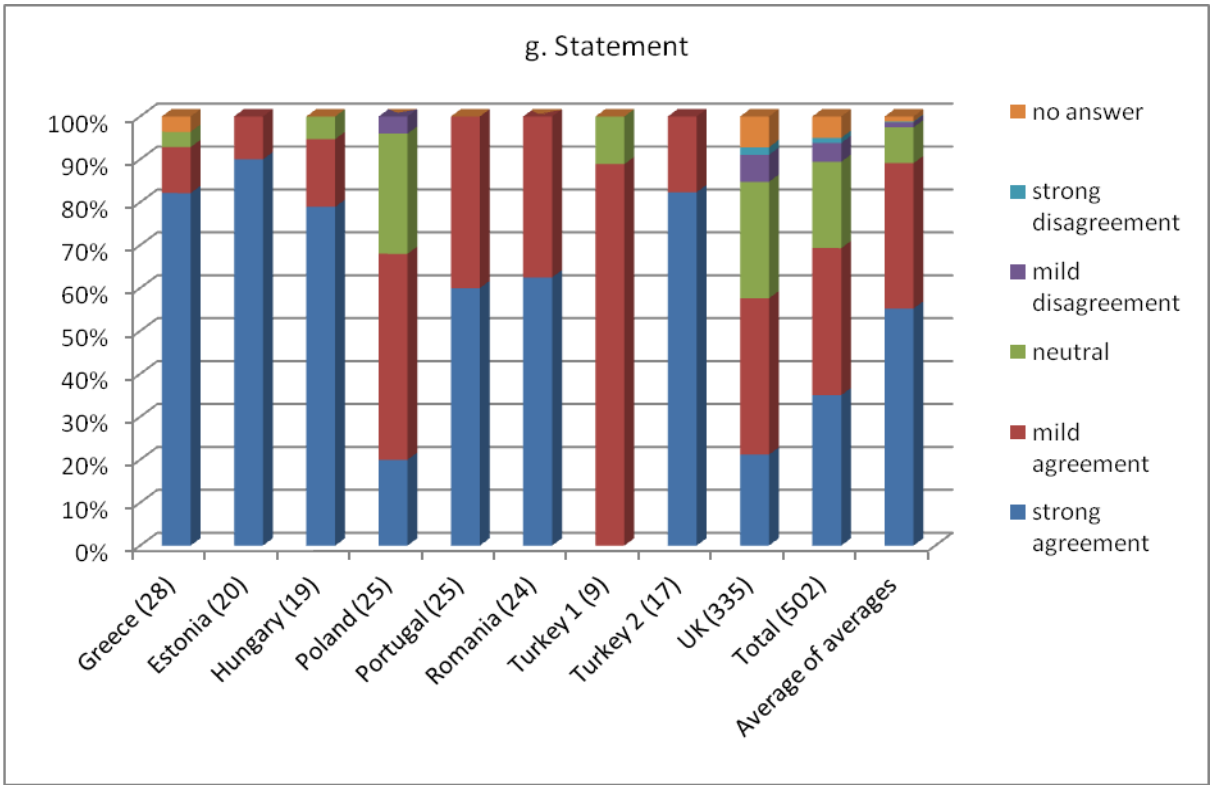


Figure 45

Table 42

g. Result percentages											
	Greece	Estonia	Hungary	Poland	Portugal	Romania	Turkey 1	Turkey 2	UK	Total	Average of averages
Strong agreement	82.1	90	78.9	20	60	63	0	82.4	21.2	35.1	55.2
Mild agreement	10.7	10	15.8	48	40	38	88.9	17.6	36.4	34.3	33.9
Neutral	3.6	0	5.3	28	0	0	11.1	0	27.2	20.1	8.3
Mild disagreement	0	0	0	4	0	0	0	0	6.3	4.4	1.1
Strong disagreement	0	0	0	0	0	0	0	0	1.8	1.2	0.2
No answer	3.6	0	0	0	0	0	0	0	7.2	5	1.2

The vast majority of inhabitants agree strongly or mildly with this statement. A small percentage is neutral, which seems to be higher, though, in UK and Poland.

This agreement indicates a positive and quite active attitude on biodiversity conservation issues. It is also in harmony with previous answers regarding value of wild species; people do value wild species and biodiversity for both economic and other benefits, such as recreation, aesthetics and environmental security and seem to realize the benefits from protecting the environment while benefiting from it.

4 Further analysis

4.1 Education level

Table 43

Education level					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	School	295	58.2	60.8	60.8
	Degree	132	26.3	27.5	88.3
	Higher degree	56	11.2	11.7	100.0
	Total	480	95.6	100.0	
Missing	System	22	4.4		
Total		502	100.0		

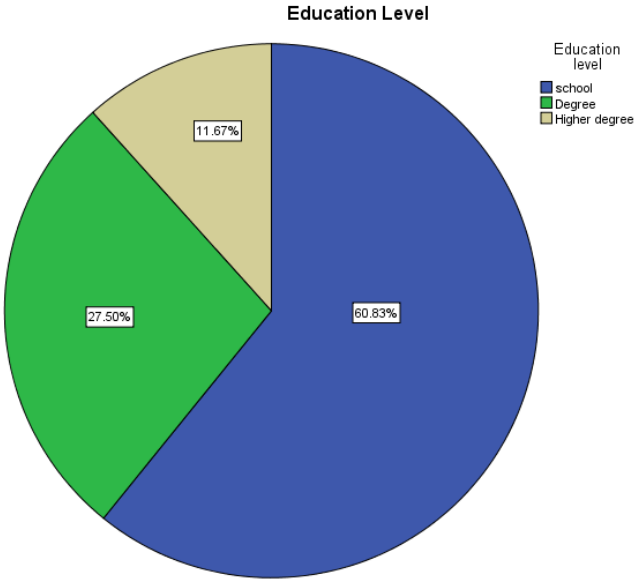


Figure 46

Most of the respondents have attended secondary education, while a significant percentage also has a degree and a higher degree; figure 46 includes valid questions only as opposed to figure 44.

In the following tables we can observe the relationship between education level and the use of computers/internet as well as between the statement and education level.

4.2 Education level and use of computers at home

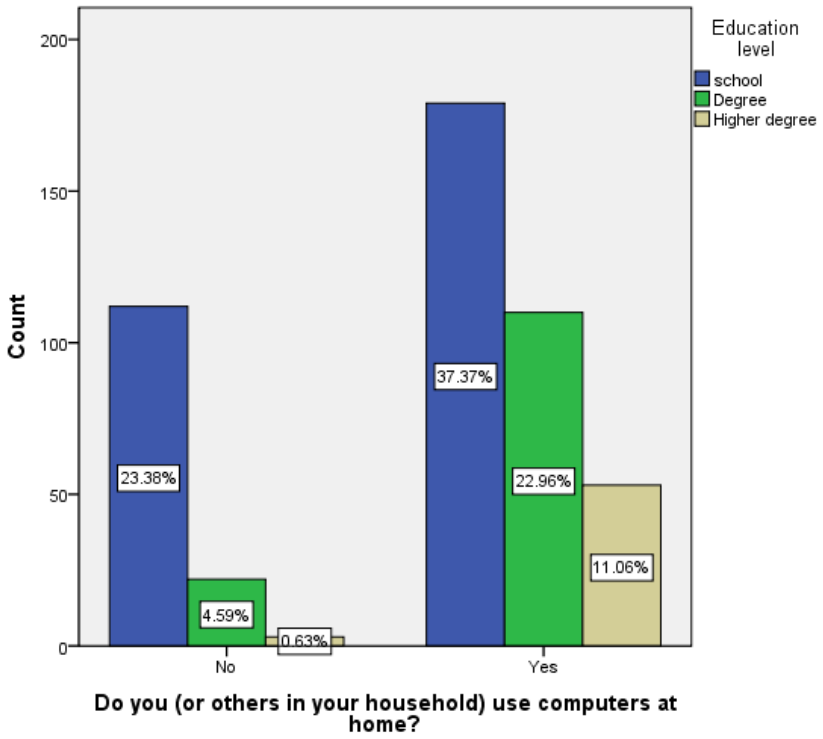


Figure 47

Table 44

		Education level			Total
		school	Degree	Higher degree	
Do you (or others in your household) use computers at home?	no	112	22	3	137
	yes	179	110	53	342
Total		291	132	56	479

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	37.952[a]	2	.000
Likelihood Ratio	43.213	2	.000
Linear-by-Linear Association	36.826	1	.000
N of Valid Cases	479		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 16.02.

4.3 Education level and use of computers at work

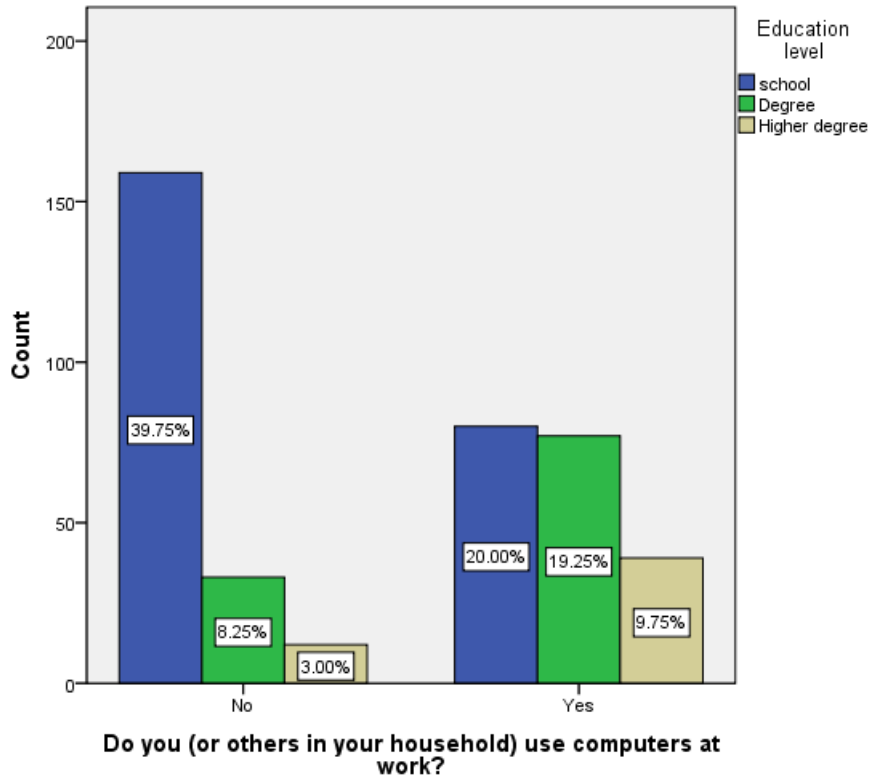


Figure 48

Table 45

		Education level			Total
		school	Degree	Higher degree	
Do you (or others in your household) use computers at work?	no	159	33	12	204
	yes	80	77	39	196
Total		239	110	51	400

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	57.870[a]	2	.000
Likelihood Ratio	59.603	2	.000
Linear-by-Linear Association	51.731	1	.000
N of Valid Cases	400		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 24.99.

4.4 Education level and internet

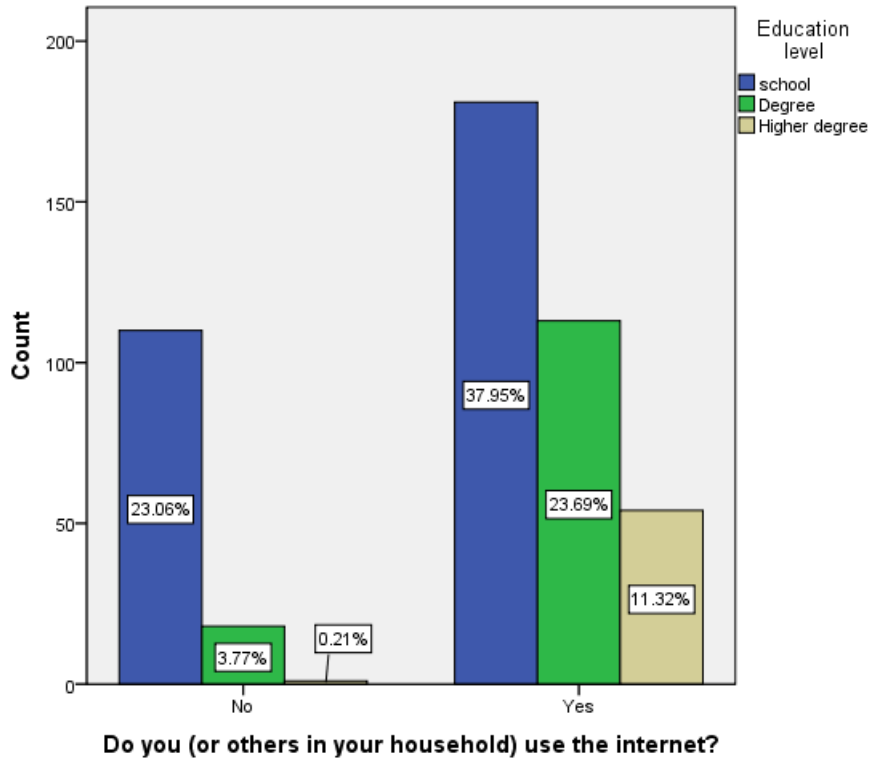


Figure 49

Table 46

		Education level			Total
		school	Degree	Higher degree	
Do you (or others in your household) use the internet?	no	110	18	1	129
	yes	181	113	54	348
Total		291	131	55	477

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	46.555[a]	2	.000
Likelihood Ratio	56.079	2	.000
Linear-by-Linear Association	45.029	1	.000
N of Valid Cases	477		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 14.87.

4.5 Education level and internet purchases

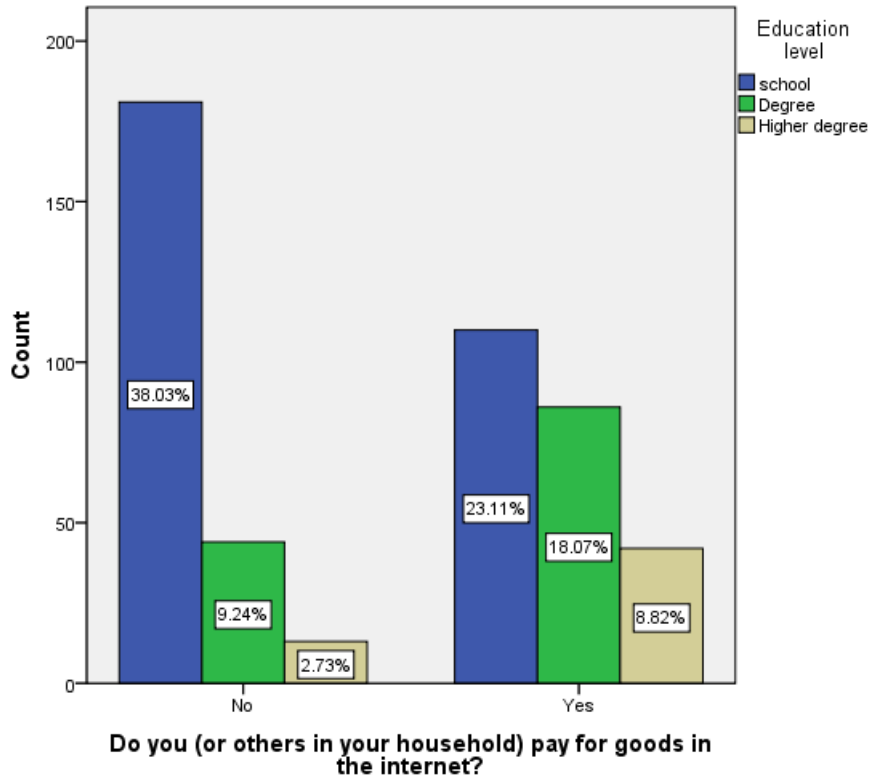


Figure 50

Table 47

		Education level			Total
		school	Degree	Higher degree	
Do you (or others in your household) pay for goods in the internet?	no	181	44	13	238
	yes	110	86	42	238
Total		291	130	55	476

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	46.183[a]	2	.000
Likelihood Ratio	47.407	2	.000
Linear-by-Linear Association	43.578	1	.000
N of Valid Cases	476		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 27.50.

Thus, those with degrees are most likely to be using computers, especially for work.

4.6 Statement and education level

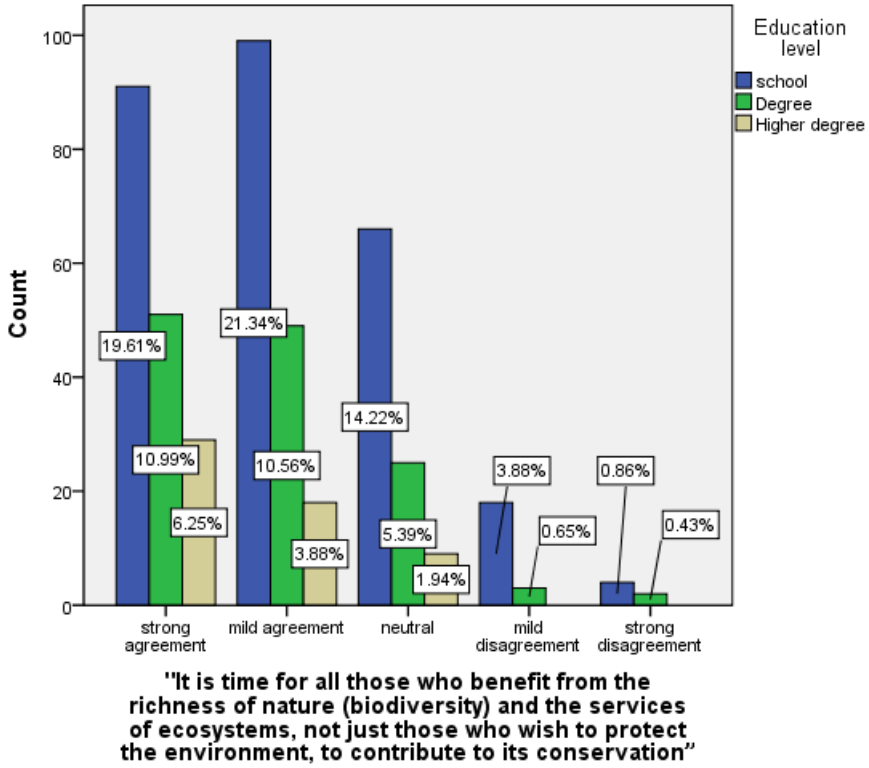


Figure 51

Table 48

		Education level			Total
		school	Degree	Higher degree	
"It is time for all those who benefit from the richness of nature (biodiversity) and the services of ecosystems, not just those who wish to protect the environment, to contribute to its conservation"	strong agreement	91	51	29	171
	mild agreement	99	49	18	166
	neutral	66	25	9	100
	mild disagreement	18	3	0	21
	strong disagreement	4	2	0	6
Total		278	130	56	464

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.045[a]	8	.081
Likelihood Ratio	17.071	8	.029
Linear-by-Linear Association	11.583	1	.001
N of Valid Cases	464		

a. 4 cells (26.7%) have expected count less than 5. The minimum expected count is .72.

Those with degrees are slightly more likely to have answered positively to the question about pragmatic conservation but perhaps only because they understood the question best.

4.8 Tourism and education level

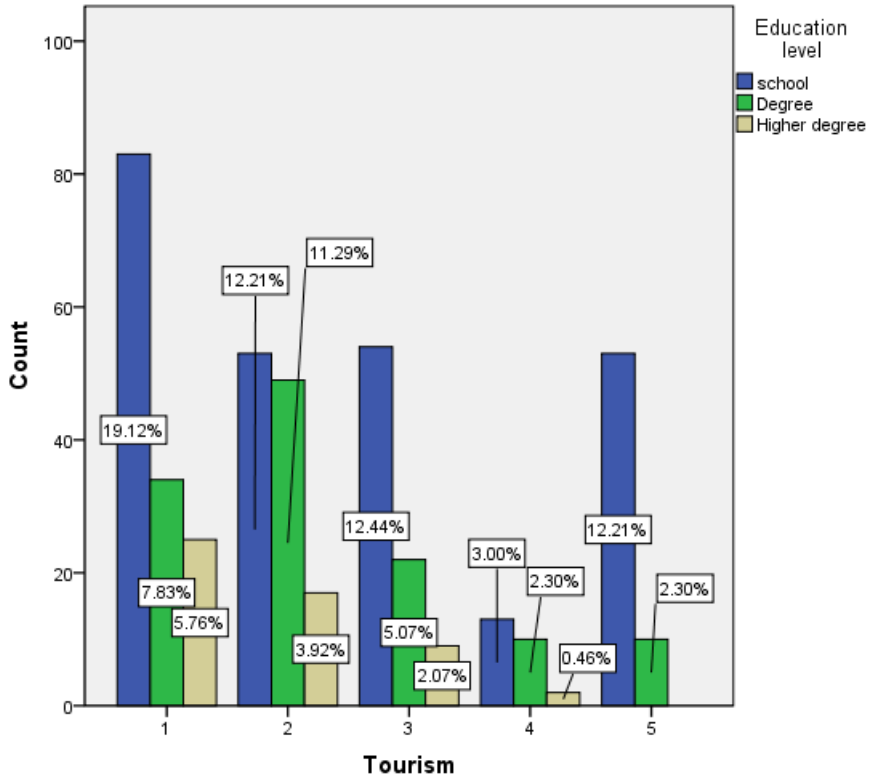


Figure 52

Table 49

		Education level			Total
		school	Degree	Higher degree	
Tourism	1	83	34	25	142
	2	53	49	17	119
	3	54	22	9	85
	4	13	10	2	25
	5	53	10	0	63
Total		256	125	53	434

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	36.002[a]	8	.000
Likelihood Ratio	42.851	8	.000
Linear-by-Linear Association	16.990	1	.000
N of Valid Cases	434		

a. 1 cells (6.7%) have expected count less than 5. The minimum expected count is 3.05.

Tourism activities (especially eco-tourism) constitute an important source of income or potential source at some point in the future for many of the case studies areas. Also, the higher the education level the higher is the use of new information technologies in order to attract more tourists.

4.9 Other biodiversity-based source of income and education level

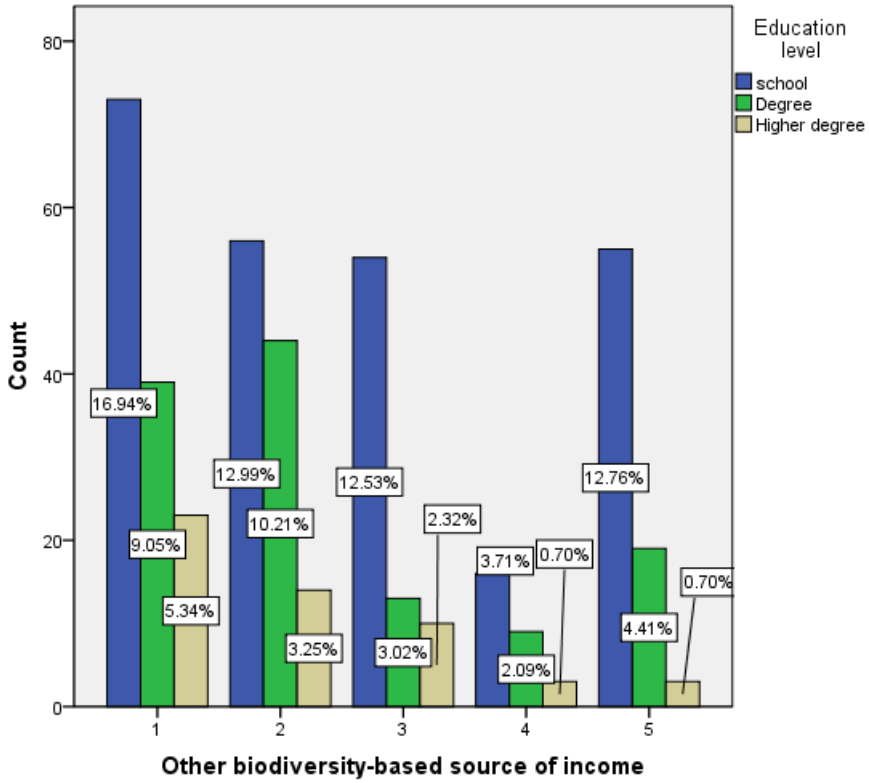


Figure 53

Table 50

		Education level			Total
		school	Degree	Higher degree	
Other biodiversity-based source of income	1	73	39	23	135
	2	56	44	14	114
	3	54	13	10	77
	4	16	9	3	28
	5	55	19	3	77
Total		254	124	53	431

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	21.236[a]	8	.007
Likelihood Ratio	22.807	8	.004
Linear-by-Linear Association	10.785	1	.001
N of Valid Cases	431		

a. 1 cells (6.7%) have expected count less than 5. The minimum expected count is 3.44.

The higher the education the higher the probability for a local resident to benefit from subsidies and other funding for biodiversity related economic activities.

5. Helpers after

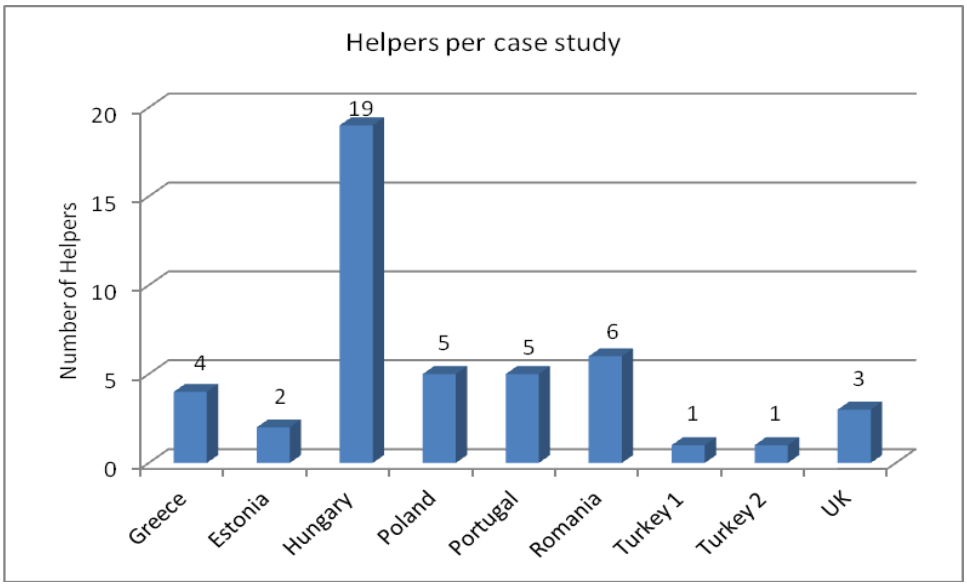


Figure 54

The number of helpers involved in each case study was significantly lower, as expected, except for Hungary. Due to the small sample, statistical analysis was not possible for every question of this section; however, the following tables present some very interesting results, as well as the comments of the helpers, which are included in the next table (please check Annex 1 “Questionnaire of WP5 Local Case Studies”).

Table 51

Country	Questionnaire no	Questions					
		a What was your motivation to participate in this task?	b What were your expectations from this project?	f What are your suggestions for further improvement?	h What are your suggestions for further improvement?	l How do you rate the overlap between your thinking before TESS and now?	m Do you feel that this kind of project will influence the land use practice?
GREECE	1	service to the community	The complete mapping of the Kerkini municipality	-	Greek translation	Yes	Yes
	2	presentation of my Community	The protection of the environment	-	-	Yes	Yes
	3	Love for my community	The promotion of my community	-	-	Yes	Yes
	4	interest for nature related issues	Updating of knowledge	better map coverage and better software	-	Yes	Yes
ESTONIA	5	High, as it was closely related to my academical and professional background	To gain relevant data and local knowledge about case study area, to contribute into development of its recreational values		It should work better with other GIS file formats	Project provided some new data about the area, but general thinking was the same	Yes
	6	Quite high, to find new cycling routes in area	Did no have any	Too heavy, can not use with bicycle		New recreational area introduced, 2km and 4km paths too short for advanced bikers though	Yes
HUNGARY	7						yes
	8	interest	new information	more sensitive touch-screen	better map		yes
	9	interest	nothing				maybe
	10	interest	nothing	better map			yes
	11	interest	nothing				yes
	12	interest	new information	more sensitive touch-screen	faster, right hand covers the whole map using the left menu		maybe
	13	interest	new information		better map		probably
	14	interest	new information, knowledge of a new GPS device		larger types		yes
	15	interest	knowledge of a new device	handle needed	better, large-scale map		yes
	16	interest, knowledge of a new device and new information	new opportunity to competitions	it is heavy, it should be more usable	working of GPS would be very important		no
	17	interest	different information getting into one database, facilitating of determination of aim and	larger touch-screen			maybe yes

			strategy				
	18	interest, curiosity	improving of tourism and job creation as its consequence	batteries			maybe
	19	interest	knowledge of a new technique	working GPS, newer map	any of software knows these functions		no
	20	interest	improving of an open-air school, mapping of more forest paths	it is too expensive	better quality of the map		slightly, it would be a slow progress
	21	knowledge of a new technique	mapping of the immediate environment, wildlife		better map		no
	22	new information	opportunity of the further development of the support system				no
	23	interest	research experiences, especially in the field of environmental protection				no
	24	interest	it can contribute to personal things	batteries			maybe
	25	interest	it is accepted by people		problems of GPS, its manageability is difficult, enhancement of capacity of batteries		yes
POLAND	26	The work on fishponds included into Natura 2000 site needs mapping, monitoring, hence requires ability to work with GPS and knowing mobile mapping methodology	My expectations were entirely met, I learnt how to map and use GPS in practice	No suggestions	Better work with GPS device. To slow. Possibly should automatically register the track, should be able to export and import of gpx files, and able to use precise topographic maps. Setting files is a mystery.	Environmental information gathered within TESS project may be much helpful for various groups of people representing various disciplines. Information can also be well used by tourists and other visitors the get better oriented in nature values of the area as well as other attractions.	It may have quite strong impact if such information gathering technology is made widely available and information shared with all interested people/stakeholders.
	27	Intention and dedication to safeguard the fisheries farm and fishponds of the station at the same level of intensity and nature values protected. The management of fishponds should protected also traditions history of the region and ensure protection not only the nature but also people living around fishponds.	Protection of fishponds, assistance in solving problems, especially those which arose after establishing Natura 2000 site	It looks pretty good for mapping in a field. No suggestions	It looks much promising but still needs more work to make it working well with GPS. It should provide similar functions as e.g.. ArcPad.	I already understood importance of information, but project turned my attention towards potential role of voluntary system of inventorying and monitoring environment.	Yes, I think so

	28	The commune need better strategy on use natural and cultural attraction in the region> The fishponds represent area potentially providing mass opportunities for sustainable development based on such values.	To provide example how to well compromise economy and nature protection	Nothing to suggest Perhaps to costly.	Very good idea with using the satellite images. Simple and user friendly, but to complicated preparation of project files	I learn a lot from the training workshop, which showed me a lot of good ideas in using GPS as well as creating voluntary monitoring system	Potential yes, but it depends of there is something called geoportal to share important information
	29	Interests in protecting important bird area	Developing an approach to revitalizing fishponds as a way of active protection of birds and their habitats	No any	Possibility to use maps and satellite images as option. It could also be good if there icons of habitat types, and perhaps some species as well	Not much change	Yes, if relevant information is really made available for everybody and law will push to respect good practice inland use.
	30	A good opportunity to start developing a convincing example on "Natura 2000 good for nature, birds and people"	To lead the project team and prepare project proposal to be funded by national funds or EU Live +	The pen is not precise enough, need some experience	It looks much promising but still needs more work to make it working well with GPS. At this stage already can be used for geo-tagging protection activities and some solutions in the field as well to demonstrate overall planning of revitalizing measures. It has high potential and needs further development.	Not change, I have realized importance of the information far ago	Yes, it will be so in the future due to growing possibilities (geoportals) as well as need, often imposed by law even.
PORTUGAL	31	New experience, interest for nature related issues	-	-	-	Acquired new knowledge about this type of equipment and greater sensitivity to nature conservation	No
	32	Interest for nature related issues	Learn new skills	-	-	Knowledge of a new technology	Yes
	33	New experience	Learn new skills	-	-	Had practically no knowledge about these issues, so learned a lot	Yes
	34	Retired, no present occupations	-	Screen too sensitive to touch	-	Knowledge of a new technology and methodology	-
	35	Interest for nature related issues	-	Screen visibility should be improved	-	Knowledge of a new technology	Yes
ROMANIA	36	Attractiveness of the theme involved, desire to learn and find out new things.	Identifying opportunities for sustainable exploitation of the potential area.	I'm not a specialist so I can't make any suggestions	I'm not a specialist so I can't make any suggestions	The activities undertaken answered my expectations.	Probably

	37	To know more about places in the Delta.	My expectations were ok.	I'm not a specialist so I can't make any suggestions	I'm not a specialist so I can't make any suggestions	I can't make any evaluations.	It will improve the land use practice.
	38	Desire to learn new things.	Obtaining information that we use in the future.	I'm not a specialist so I can't make any suggestions	I'm not a specialist so I can't make any suggestions	I can't make any evaluations.	Yes
	39	Desire to learn new things.	The project is very good but would have liked a continuation in practice.	A better background map.	I'm not a specialist so I can't make any suggestions	From the awareness point of view it's ok.	Only on terrier, in the area not being any agricultural lands.
	40	Curiosity, my obligation to attend all events including the village in which I am a mayor.	Others. To offer solutions related to the specific locality, that of the fisherman community.	I'm not a specialist so I can't make any suggestions	I'm not a specialist so I can't make any suggestions	My expectations were quite different.	I don't think so. Not for Sfantu Gheorghe Commune.
	41	I am interested about any new project regarding this area.	To offer me information about a field which I already knew.	I'm not a specialist so I can't make any suggestions	I'm not a specialist so I can't make any suggestions	I have the same opinion as the one presented within the project, namely that people should get involved in their community development.	No
TURKEY 1: EGIRDIR	42	I was born in Kovada and have been living in the area ever since. I am a part-time voluntary part-time official ranger in Lake Kovada. Therefore I am constantly monitoring the changes in and around the lake. I am also working as a tourist guide in Kovada Lake. I believe that the use of local knowledge in decision making processes is very important for sound decisions.	Reflection of my knowledge to relevant authorities.	A smaller device would be much more useful.	It would be much more instrumental if we had real time Google earth connection. Combined with the internal GPS, this would enable us to do real mapping. It would especially be very useful for drawing trekking routes.	I believe that the integration of local knowledge to decision making processes is very important. TESS is an important project, whose effect will depend on how much it will be able to reflect our input to higher level officers.	I don't think that such projects might immediately affect land use practices. However, they would be instrumental in monitoring the land use and influence the relations afterwards.
TURKEY 2: FIRTINA VALLEY	43	How to learn mapping	I believe this project will help future projects on ecosystem and nature protections projects	I haven't any suggestions.	I haven't any suggestions.	Project will create benefits and seems useful.	It will helpful.
UK	44	It seemed like an interesting project	Didn't really have any	Improve the screen	None	Don't understand	It might
	45	I love the outdoors and the project seemed interesting	None	GPS enablement needs improving	Better visibility of display in sunlight	Don't understand	In time, yes
	46	An interest in local fauna & flora - deer particularly	Better publicize deer as an integral ingredient to our country-side	Can't answer	need ability to show number and species of deer	Don't understand	Hope so

Table 51, along with the case studies reports, provides us with very useful results regarding a) local residents' motivations to participate in the project and b) their future information needs.

Motivations to participate in the project could be generally divided in three categories:

a) special personal interest, such as relation of the project to their academic and professional background, desire to acquire new knowledge and skills (i.e. GPS, mapping), obligation to attend similar projects because of involvement in local management or government
b) sentimental reasons, such as love for their community, desire to service their community
c) ecological reasons, such as interest in nature-related issues, willingness to protect the environment.

Of course, sometimes curiosity was the simple motive for participating.

Another useful aspect of the case studies' analysis is the acknowledgment of local residents' future information needs. As already described in Table 51 information needs as indicated by locals across case studies vary. However, we can distinguish three major categories:

a) data on protected species and other biodiversity related information
b) information on economic aspects of ecosystem services
c) more topographic data (GIS, maps, images etc.)

The most abundant comments on the mapping facilities from the 46 users were a need for better GPS capabilities (9), an improved map (9), more sensitive touch screen (4), more visible screen (3), less weight (3) and longer battery life (2).

c. Before the project, had there been other projects like this in your area?

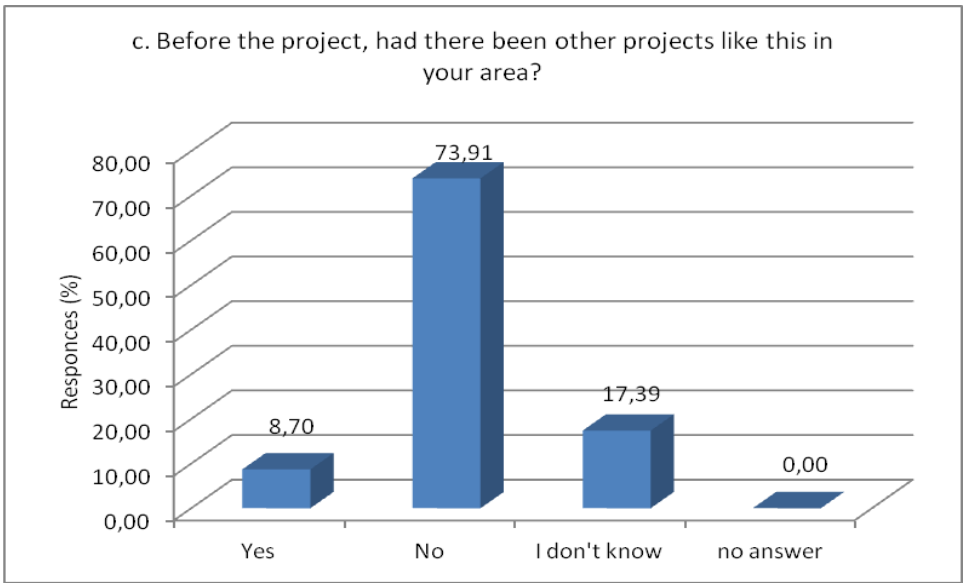


Figure 55

In most case studies areas there had been no other similar projects except for Greece (mapping of walking paths), UK (mapping of species, recreational value, cultural value, aesthetic value), Hungary (species) and Poland (land-use).

d. Before the project, did you have any experience with mapping equipment?

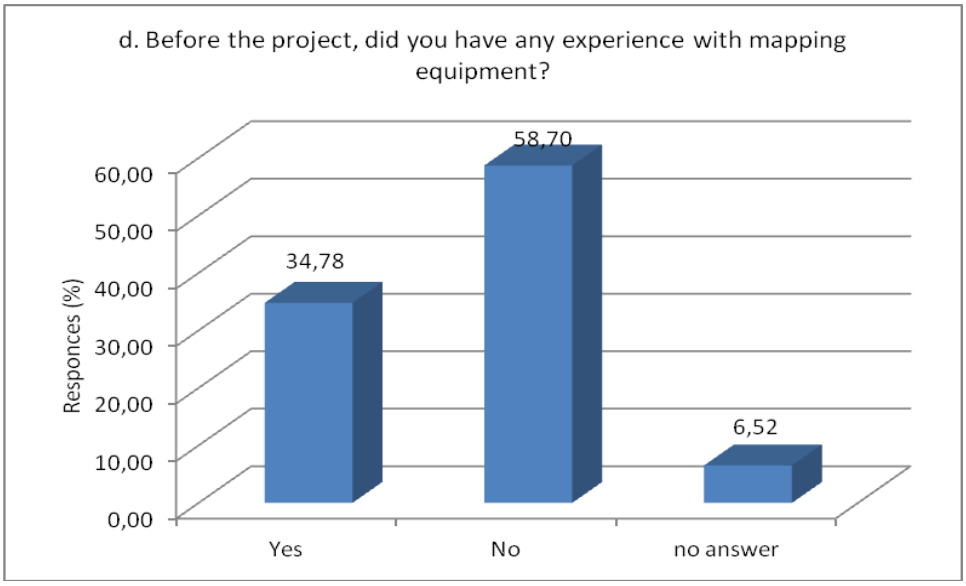


Figure 56

The majority of helpers had no previous experience with mapping equipment, which makes very interesting their comments on the assessment of mapping hardware.

e. How do you assess the mapping hardware?

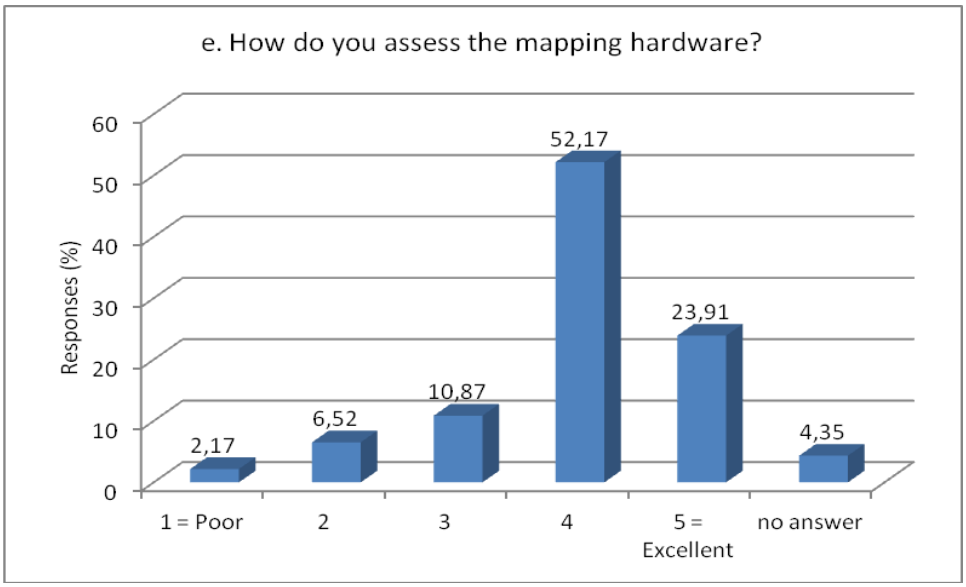


Figure 57

g. How do you assess the mapping software?

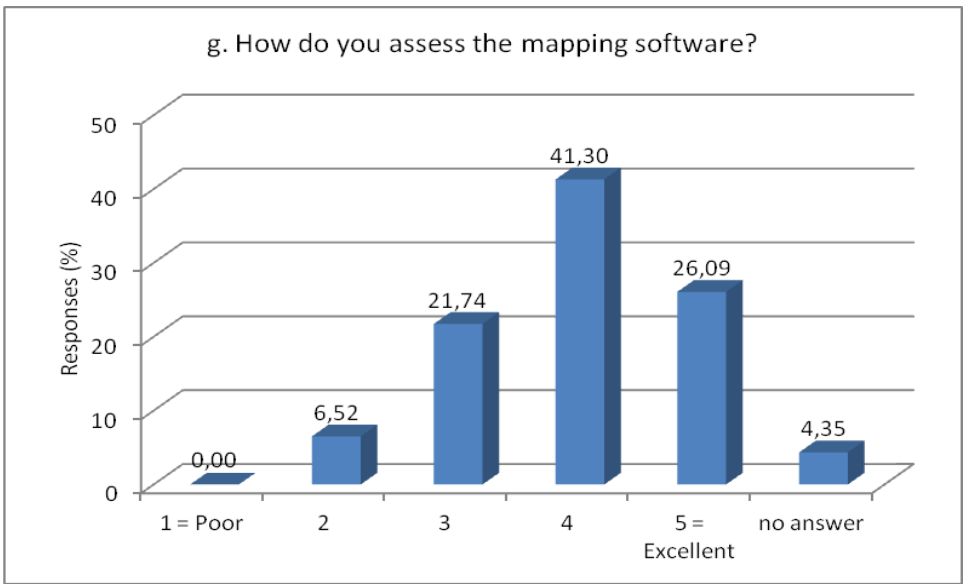


Figure 58

Most of the helpers rated highly the mapping hardware and software. As already shown in table 50 with their comments they characterized it user-friendly but with room for further improvements, such as GPS enablement, better maps and better screen visibility.

i. How do you assess the mapping instructions?

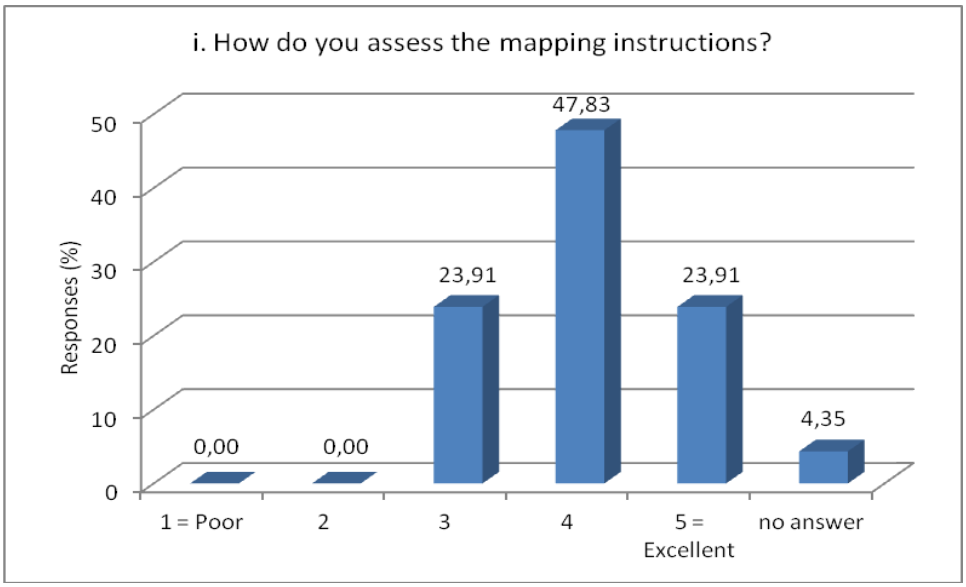


Figure 59

In general, helpers were satisfied with the mapping instructions, which is very important since the majority of them had no previous experience in using such hardware and software.

j. How do you rate your gain in knowledge from participation?

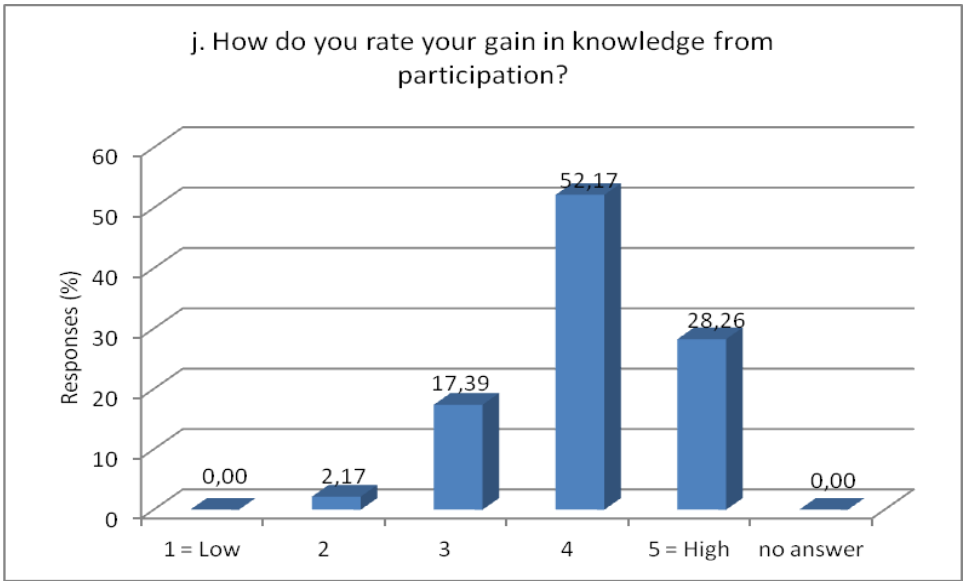


Figure 60

k. How likely would you be to do such a project again?

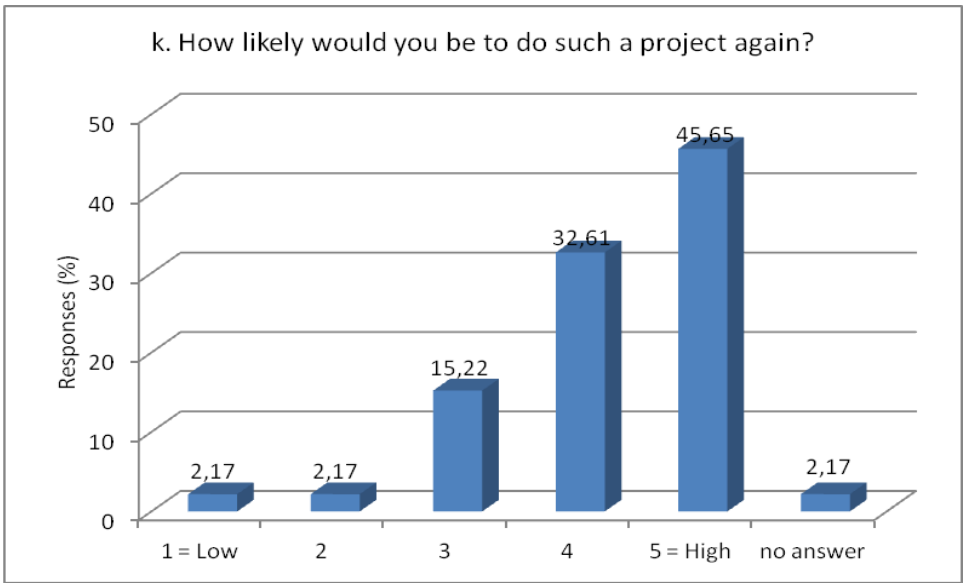


Figure 61

The vast majority of helpers consider they have gained in knowledge from their participation in the project and they would be willing to participate in such projects in the future.

n. Do you think that this kind of projects must be supported nationally too?

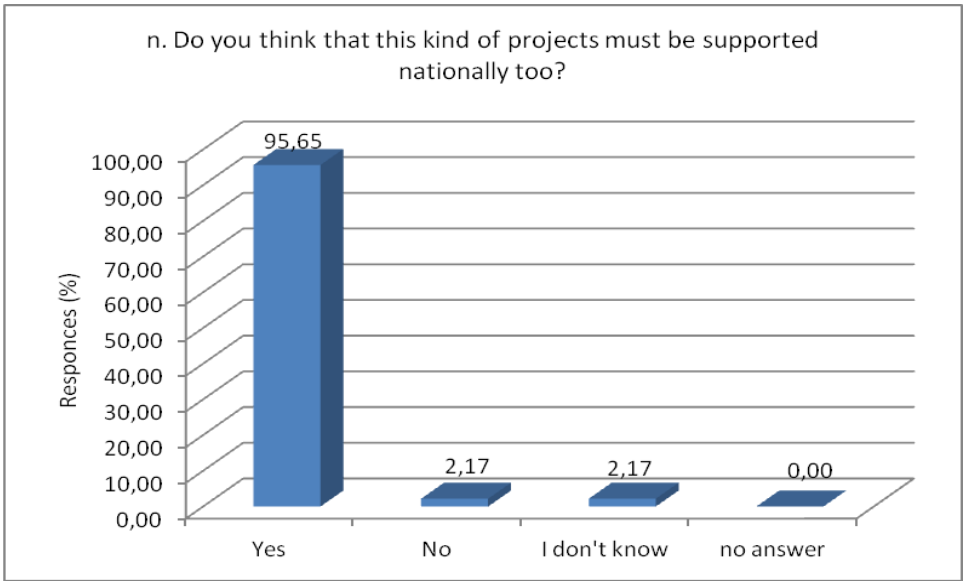


Figure 62

An extremely high percentage thinks that such projects should be supported nationally too. This response was largely due to the great interest most helpers have in their community, the protection of their natural environment and especially the benefits they are expecting

from implementing this kind of projects (acquiring new skills, identifying new ways of sustainable exploitation etc.). Please also check table 50 with helpers' comments.

Experience of helpers and issues regarding mapping are indicated in the following tables (o-s).

o. Before the project, how often did you use maps?

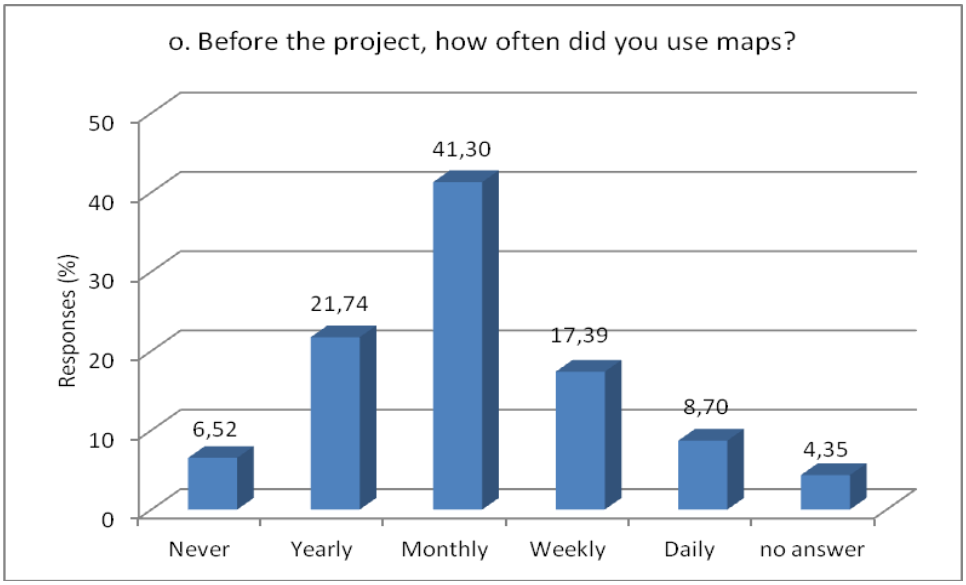


Figure 63

p. What kind of maps did you use?

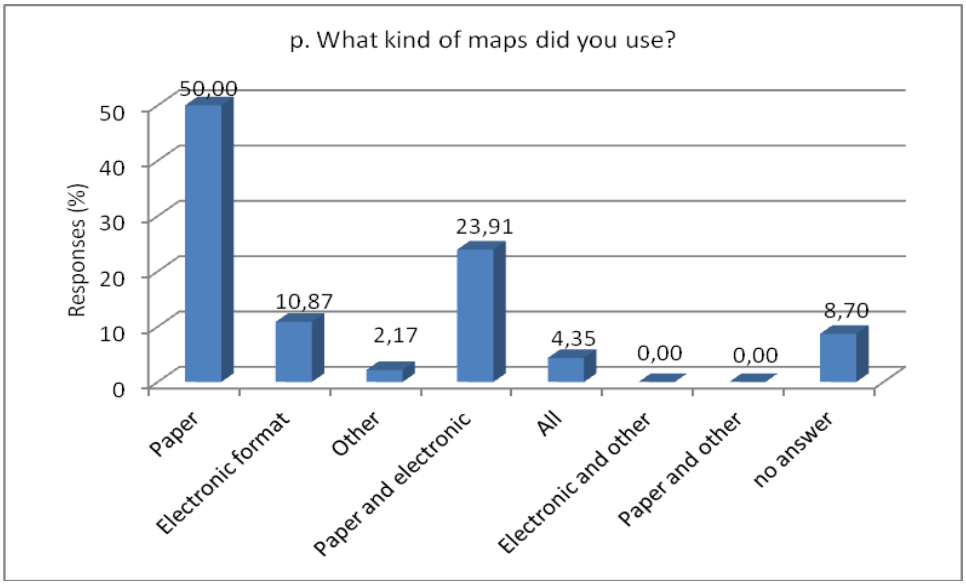


Figure 64

q. How often did you use GPS?

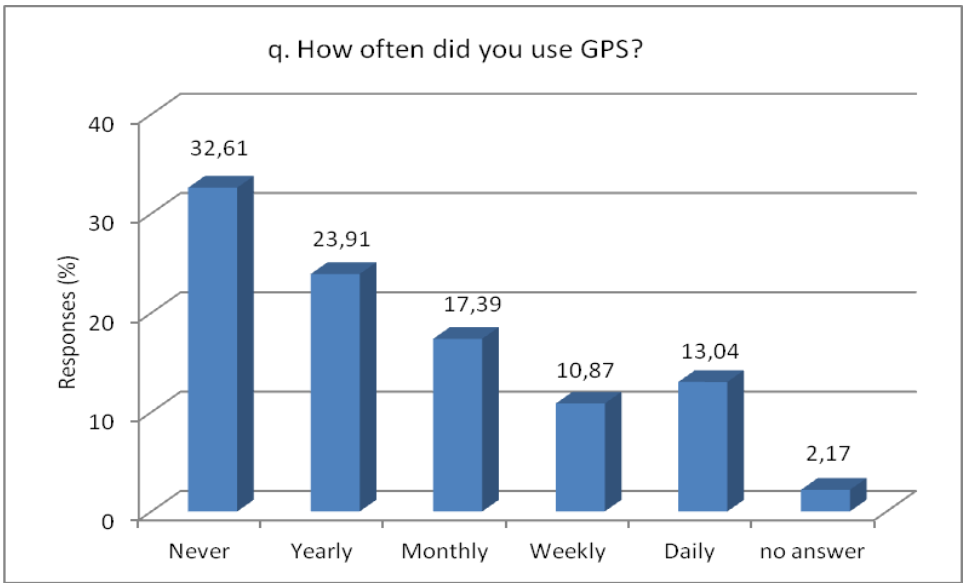


Figure 65

r. Which kind of GPS do you use?

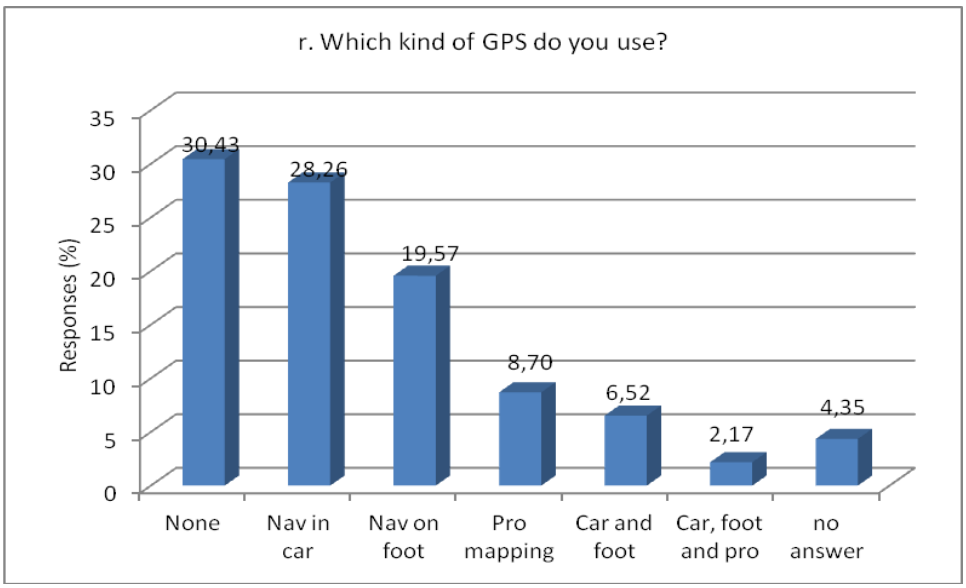


Figure 66

s**. How are you satisfied with maps provided by the project for your area?**

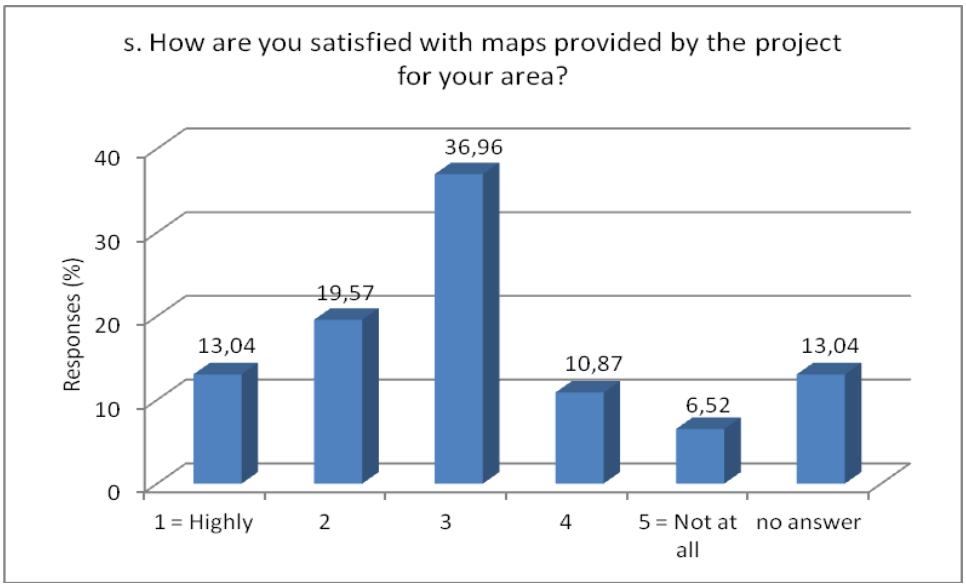


Figure 67

6. Comparison with data from LAUs

Next analysis and the corresponding figures can help us compare the data obtained from individuals during the elaboration of the case studies (WP5) with what the Local Administration Units (LAUs) have recorded in the survey of WP3.
Percentages from case study survey of individuals who are engaged in particular activities (feeding birds, collecting wild snails, outdoor pursuits, horse-riding, making excursions to watch wildlife, fishing and hunting) are presented against estimates from a) LAU1 administrators for the same areas as recorded in WP3 (blue bars), b) LAU2 administrators for those areas from WP3 (red bars) and (c) averages from the LAU2s surveyed at random in WP5 (green bars). Finally, purple bars are for the responses of the local residents from the case study areas.

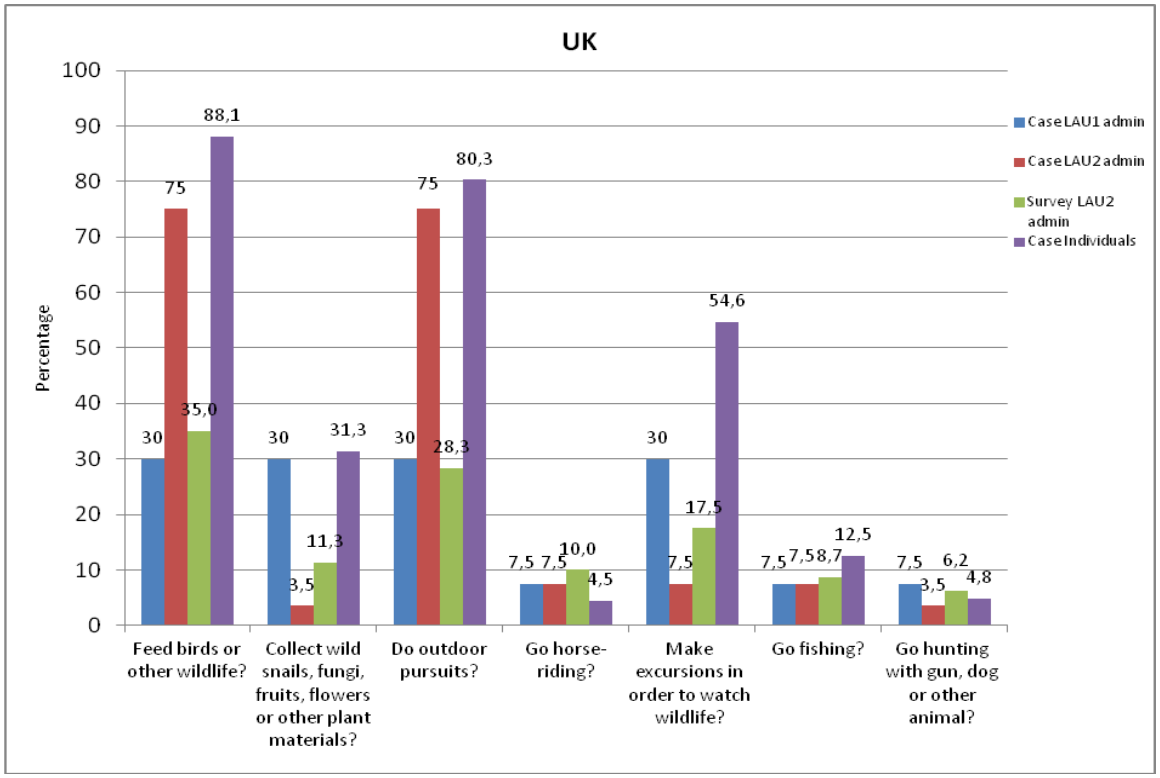


Figure 68. Percentages of people involved in particular activities in UK according to estimates from LAU1, LAU2, averaged LAU2 and Individuals

In the UK, feeding birds and/or other wildlife along with outdoor pursuits are the most common activities between locals and making excursions in order to watch wildlife follows next. Horse-riding, hunting and fishing are not that popular. As shown in figure 68, there seems to be a better match between what local residents have answered and estimates the case study local administrators have provided us with for the less common activities.
In contrast, there are considerable differences between the averaged LAU2 data (in green color) and that from local residents' responses, but similarity with LAU1 estimates. On the other hand data from LAU2 Administrators in case studies is quite similar with local

residents' in those same studies except for gathering wild foods, and especially for feeding birds and outdoor pursuits. For all the major activities, participation was also greater in the case study than estimated in the random survey areas.

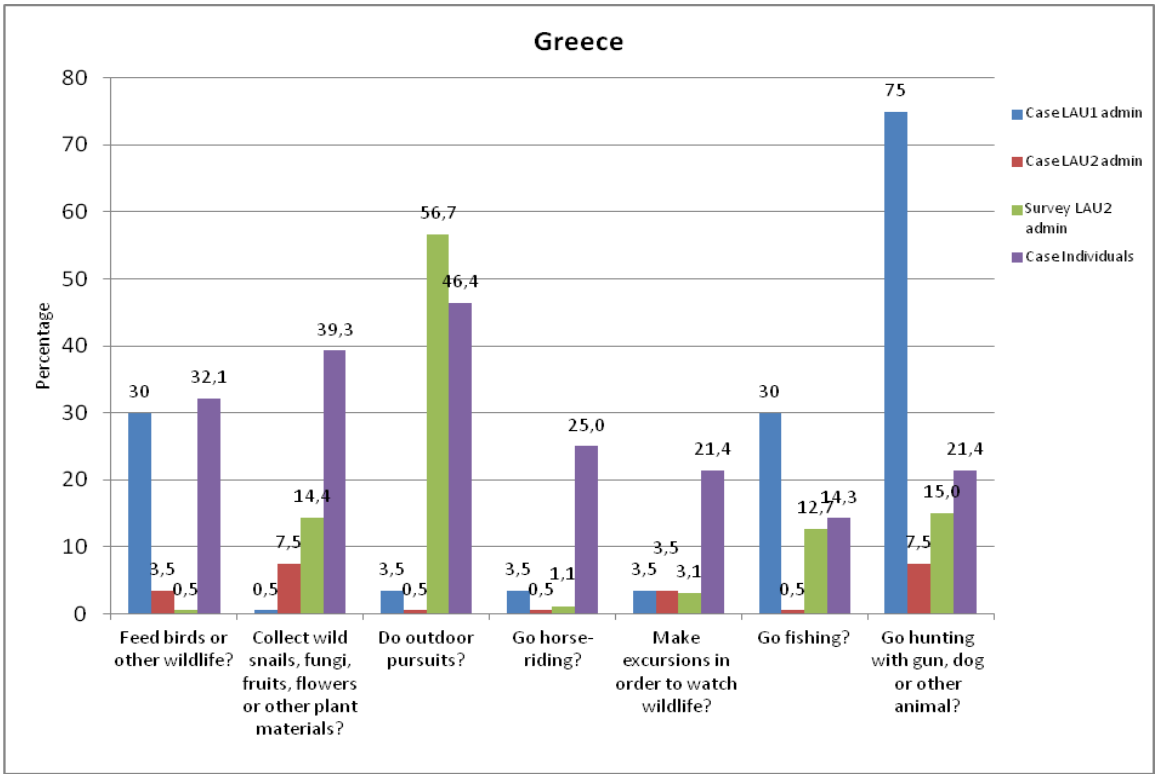


Figure 69. Percentages of people involved in particular activities in Greece according to estimates from LAU1, LAU2, averaged LAU2 and Individuals

As shown in figure 69, significant variations between estimates from individuals and estimates from Local Administrators can be noticed in Greece. Apart from the first question (feeding birds and/or other wildlife), responses from LAU1 and LAU2 hardly match with what local residents have responded during the case study. We can observe that the same also happens with averaged data from LAU2 (in green color). Administrators in the local areas overestimated participation in fishing and especially hunting, but generally underestimated for other activities and especially dramatically in the case of LAU2s. For all the activities except non-specific outdoor pursuits, participation was also greater in the case study than estimated in the random survey areas.

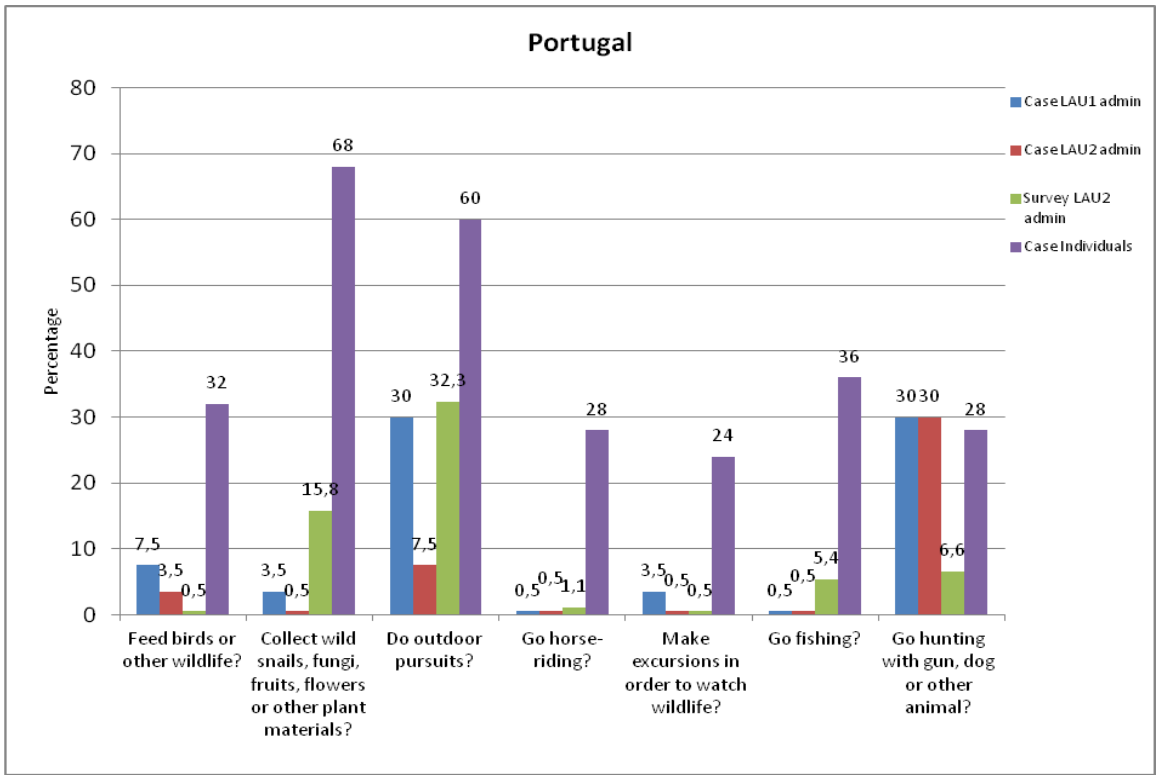


Figure 70. Percentages of people involved in particular activities in Portugal according to estimates from LAU1, LAU2, averaged LAU2 and Individuals

In Portugal estimates from LAUs and individuals' responses vary significantly, too. As indicated in figure 70 the only match concerns data for hunting (for which there will have been official data on licenses), both between LAU1 and 2 and between LAUs and individuals. Despite that, there seems to be a match between estimates from LAU1 and 2 in most of the questions (questions 1, 2, 4, 5, 6, 7), but case study LAUs were generally greatly underestimating participation in other activities. For all the activities, participation was also greater in the case study than estimated in the random survey areas, though the effect was least for non-specific outdoor pursuits.

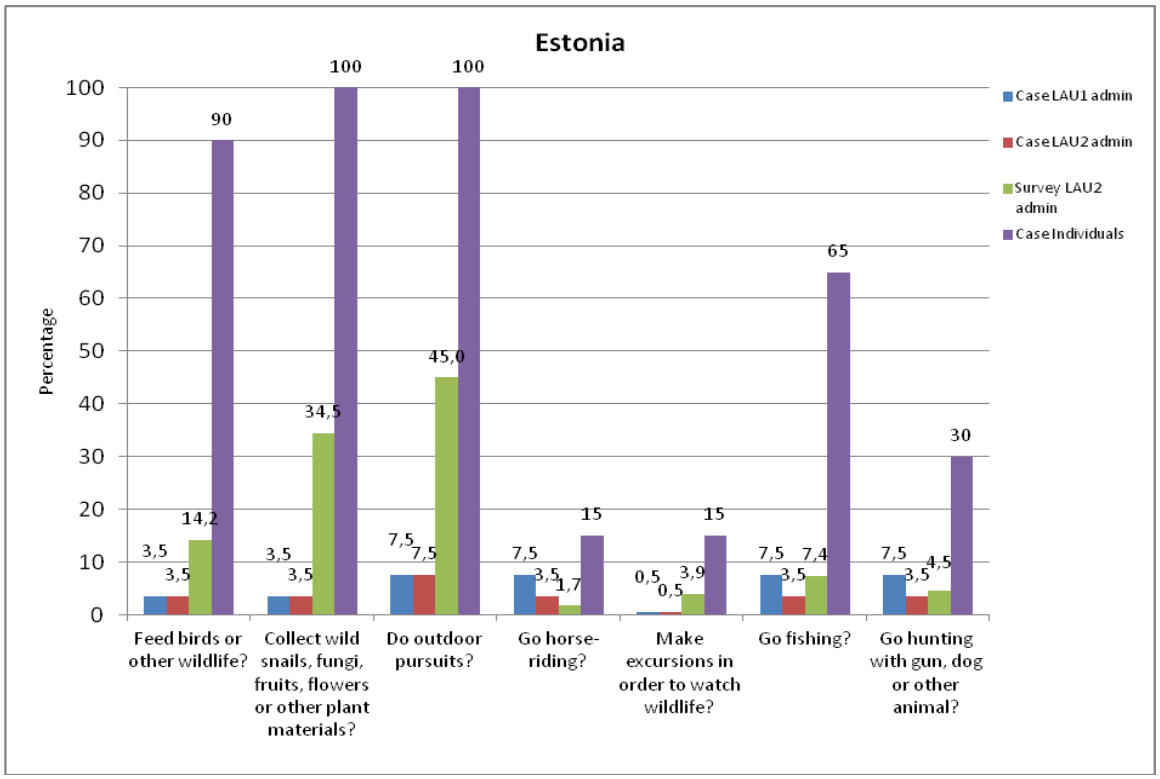


Figure 71. Percentages of people involved in particular activities in Estonia according to estimates from LAU1, LAU2, averaged LAU2 and Individuals

Once again we can notice significant variation between data from individuals and LAUs in Estonia (figure 71). There appears to be a better result when comparing data from LAU1 with LAU2 though, which may well indicate that in the same case study area the perceptions of officials at least seemed to be consistent. However, again the officials were greatly underestimating participation in the activities. For all the activities, participation was also greater in the case study than estimated in the random survey areas, with the effect least for non-specific outdoor pursuits.

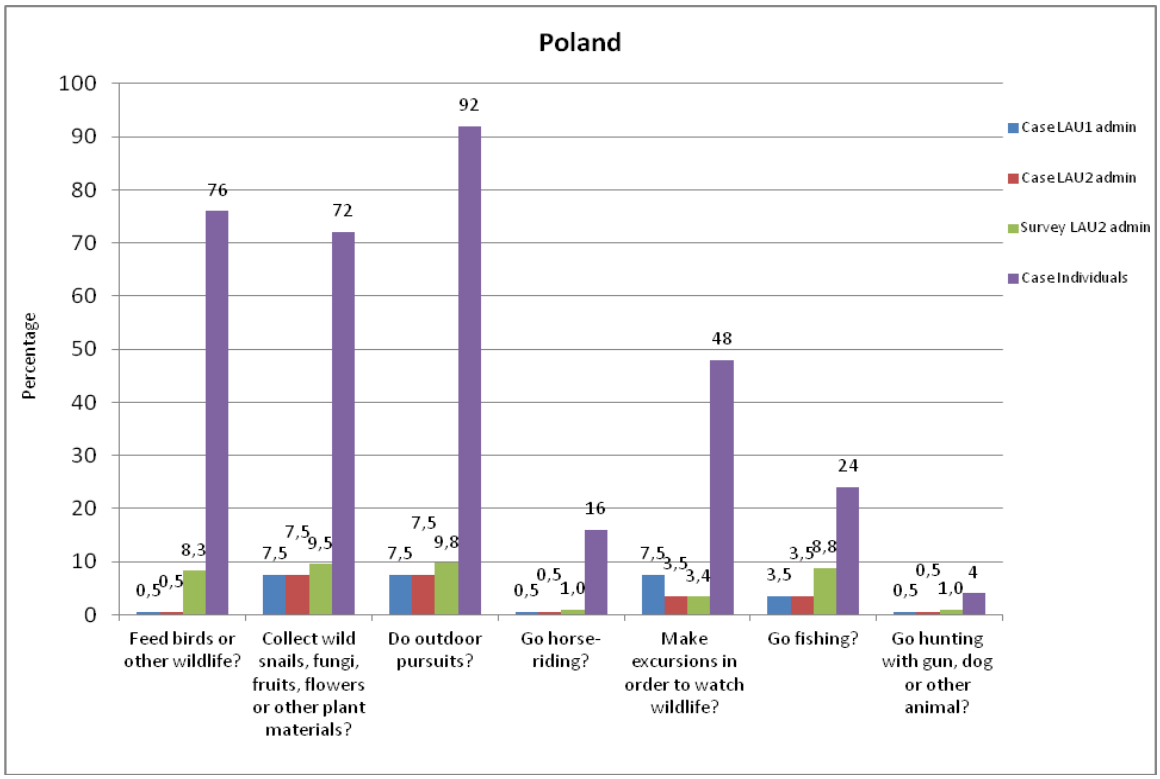


Figure 72. Percentages of people involved in particular activities in Poland according to estimates from LAU1, LAU2, averaged LAU2 and Individuals

In Poland (figure 72) estimates coming from LAU1, 2 and average LAU2 administrators are quite similar; we have to highlight, though, the significant variations when comparing with individuals' responses at almost every activity. As in Estonia and Portugal, there was strong underestimation by officials of the actual participation in case study areas, which themselves had far greater participation than estimated for random survey sites.

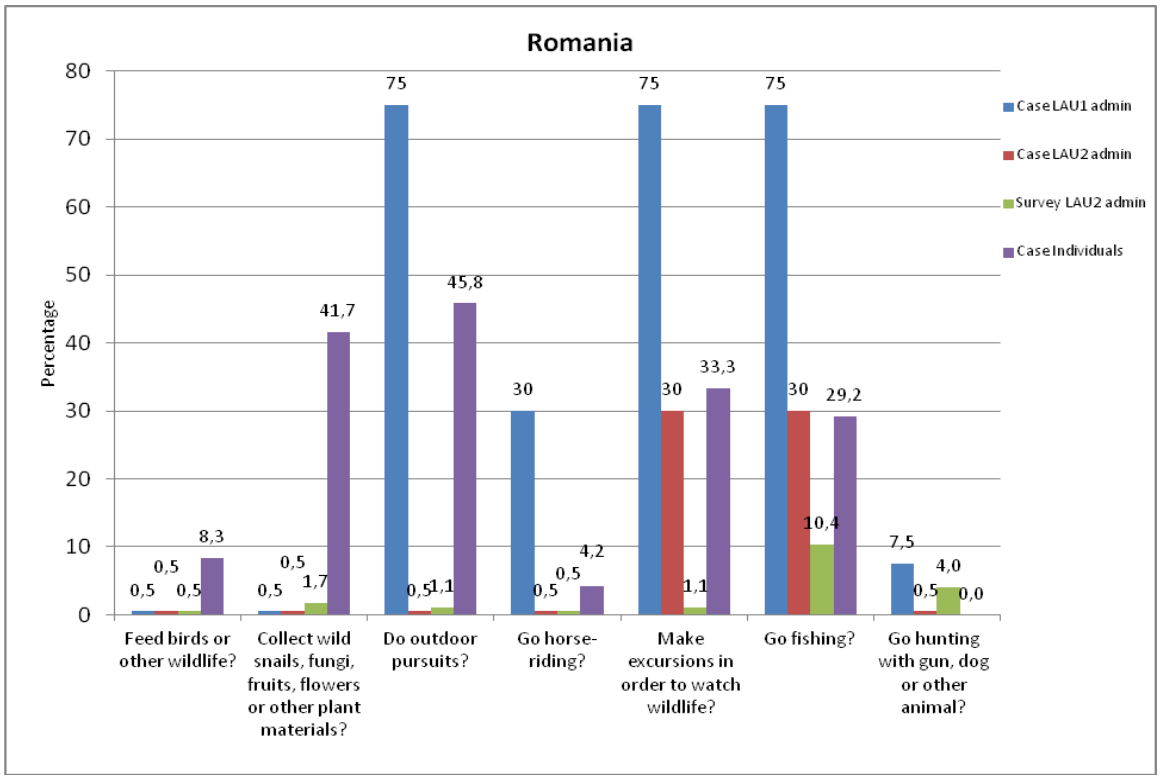


Figure 73. Percentages of people involved in particular activities in Romania according to estimates from LAU1, LAU2, averaged LAU2 and Individuals

In Romania (figure 73), individual answers are very different from the data provided by LAU1 and 2 concerning the engagement of locals in certain activities. Averaged data from LAU2 is also quite diversified. In a case study area with much work on tourism and fishing, the local authority (LAU2) estimates came close to reality for these activities and hunting (which was banned locally), but were dramatically low for other activities. The LAU1 estimates tended to over-estimate greatly for all except feeding and gathering wild species, which were underestimated.

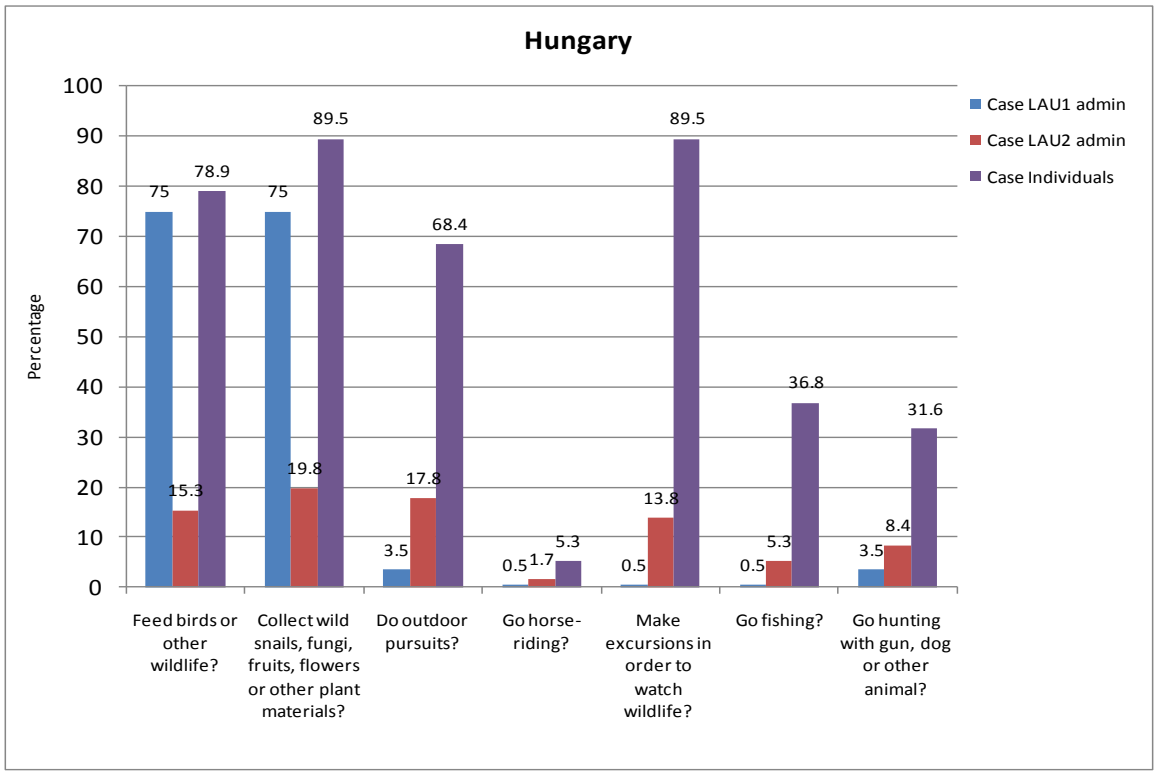


Figure 74. Percentages of people involved in particular activities in Hungary according to estimates from LAU1, LAU2 and Individuals

In Hungary, as indicated in figure 74, there is no data on averaged LAU2 administration's estimates. Regarding the first two activities (feeding birds and collecting wild snails etc.) estimates from LAU1 and individuals' responses seem to converge. However, this is not the case with the rest of the activities where we notice significant variation between data.

Data from LAU1 and 2 present significant divergence, too. Once again, LAU2s were underestimating the participation, and LAU1 officials too for most activities.

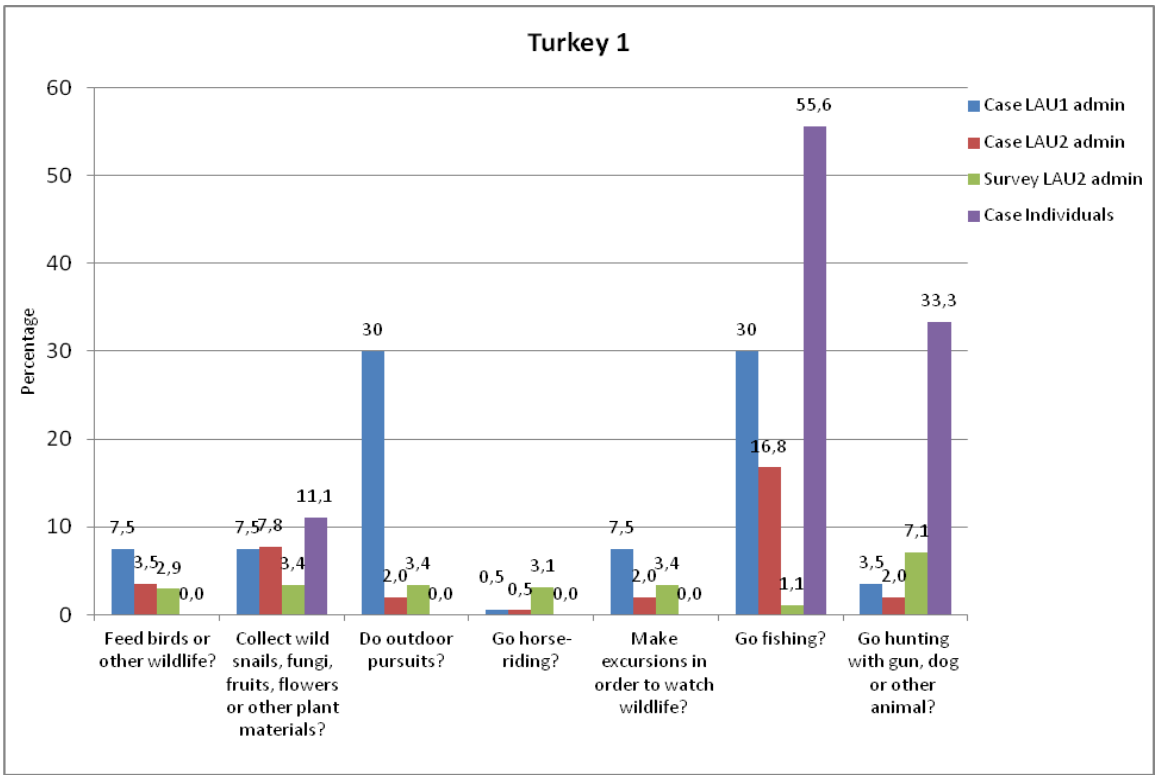


Figure 75. Percentages of people involved in particular activities in Turkey (Egirdir) according to estimates from LAU1, LAU2, averaged LAU2 and Individuals

In Turkey's first case study (Egirdir, figure 75) data on individuals' responses on particular activities are missing, since the relevant questions were not answered at all. As far as the rest of them are concerned, data from individuals and LAUs are quite diverse, except for collecting wild snails etc. On the contrary, data from LAUs present similarities apart from two activities (go fishing and outdoor pursuits). Where individual responses were available, the same pattern of underestimation by officials, especially at LAU2, was again evident.

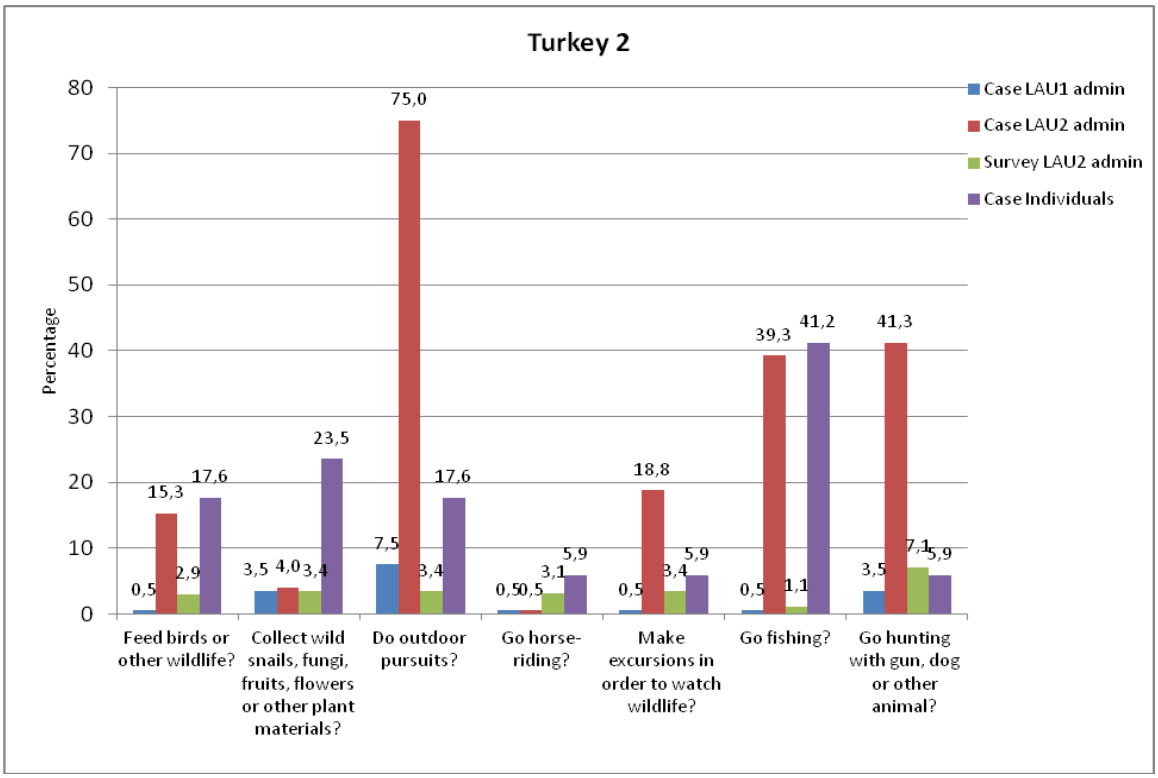


Figure 76. Percentages of people involved in particular activities in Turkey (Firtina) according to estimates from LAU1, LAU2, averaged LAU2 and Individuals

In the second case study (Firtina, figure 76) we can notice significant variations between data from individuals and LAUs as well as between LAUs themselves. Firtina shows for the first time overestimation by LAU2s of hunting, fishing, watching and other outdoor pursuits.

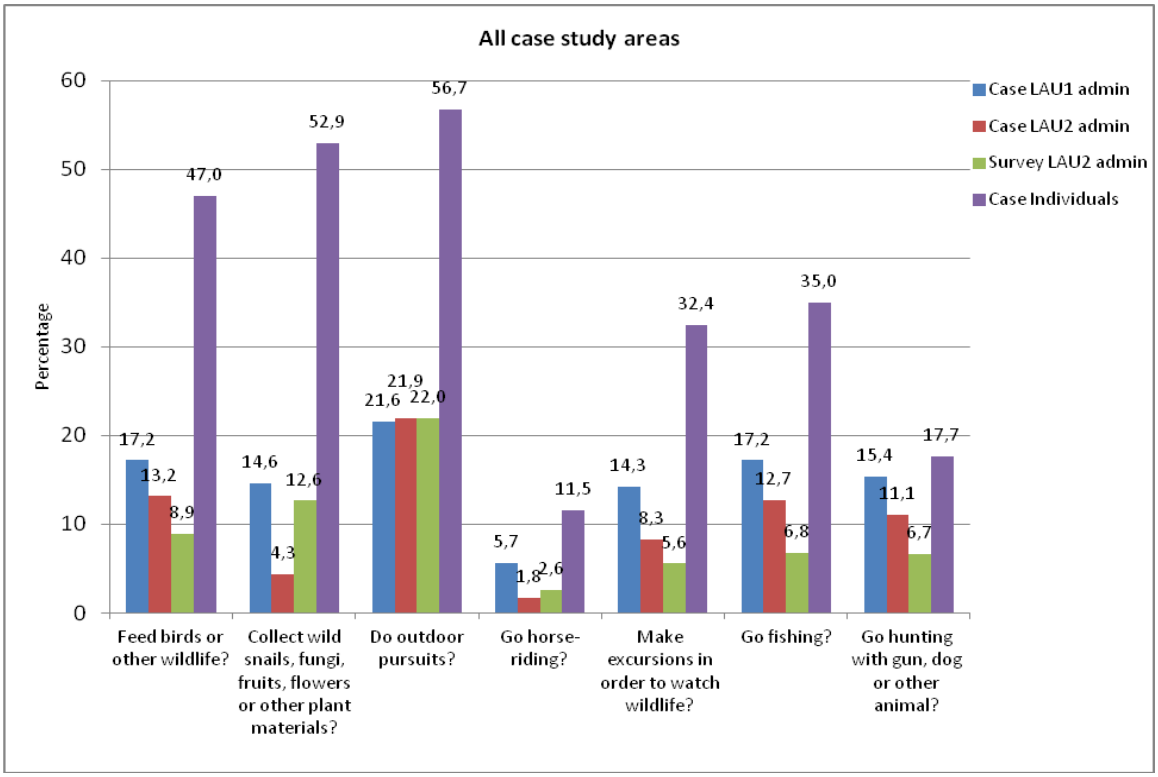


Figure 77. Percentages of people involved in particular activities in all case studies according to estimates from LAU1, LAU2, averaged LAU2 and Individuals

It is evident from the results as specifically shown in the last figure (figure 77) that:

a) individuals' responses and LAUs' estimates vary significantly
b) estimates between LAU1 and LAU2 administrators present variations, too
c) data does not align between LAU2 and average LAU2 either, although not in the same extent
d) officials tend to underestimate participation in all activities, though this is least at the LAU1 level which is more removed from the local population.

The variations observed between the responses of individuals and the ones of local administrators in all above questions indicate a mismatch of local authorities' estimates with local residents' views and preferences for the particular activities.
It seems that this mismatch is connected to the lack of relevant data by local authorities; to a great extent local administrators' responses were generally based on personal estimates and best judgment.
It is not surprising that hunting presents a relatively good match of results, which is due to specific legal requirements and restrictions usually implemented in almost all case studies areas.

7. Correlation between Individuals' responses and LAUs' estimates

In order to investigate relationships between the variables we used the correlation coefficient (r), a statistical coefficient that can show whether and how strongly pairs of variables are related.

In the following we proceed to correlation analysis between estimates from Local Administration Units - LAUs (WP3 surveys) and individuals' responses regarding their engagement in a) feeding birds and/or other wildlife, b) collecting wild snails, fungi, etc., c) doing outdoor pursuits, d) going horse-riding, e) making excursions in order to watch wildlife, f) fishing and g) hunting.

This analysis helps us to:

a) integrate the results presented in the previous section for all case studies together regarding each activity separately and
b) reach overall conclusions.

In specific, next figures show for each of the activities the relationships between individuals' responses and a) LAU1 administrators' estimates, b) LAU2 administrators' estimates and c) averaged LAU2 administrators' estimates in all case studies but for each activity separately.

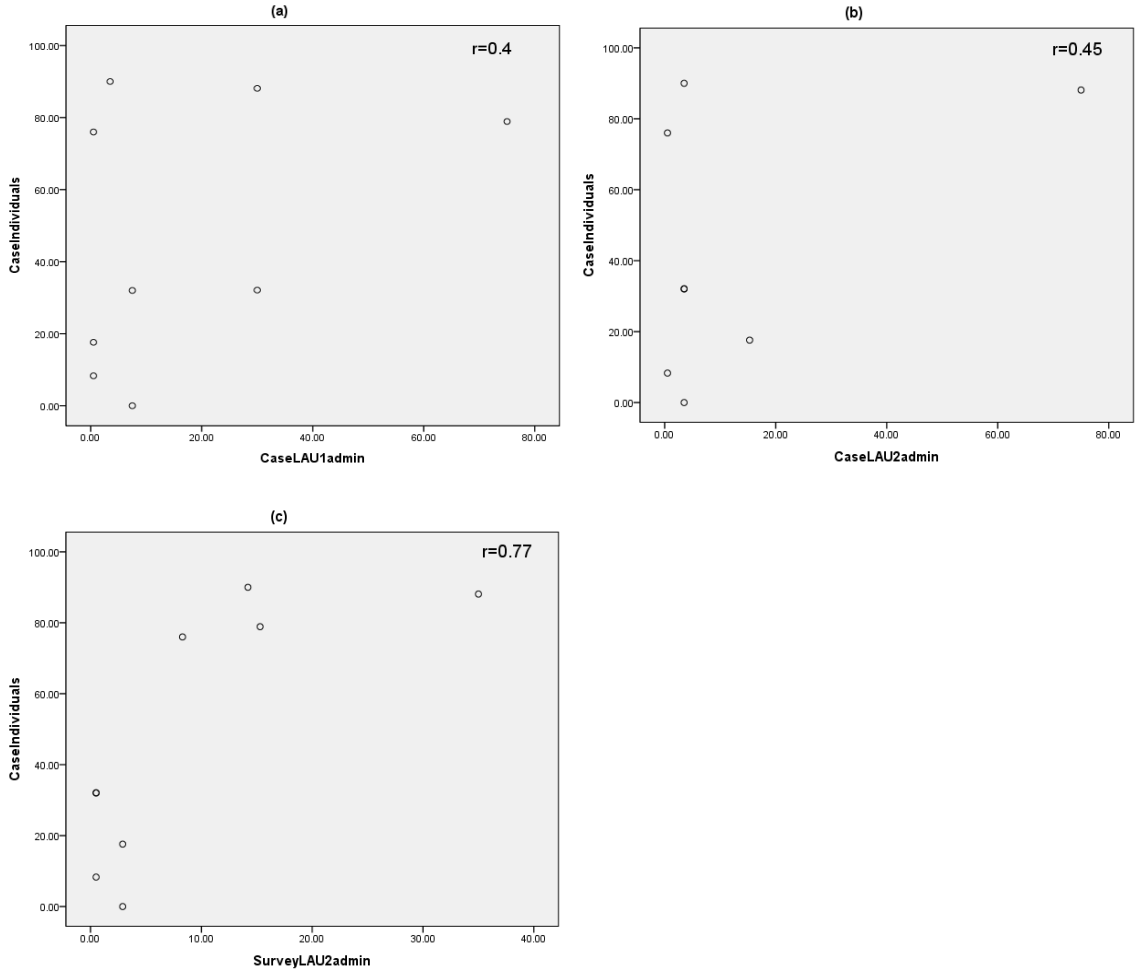


Figure 78. Feed birds or other wildlife

Individuals' responses are correlated with those from LAU1 (figure 78a), LAU2 (figure 78b) and averaged LAU2 (figure 78c) regarding feeding birds and/or other wildlife. The first two figures indicate weak positive correlation, while the third one shows significant correlation (P<0.02).

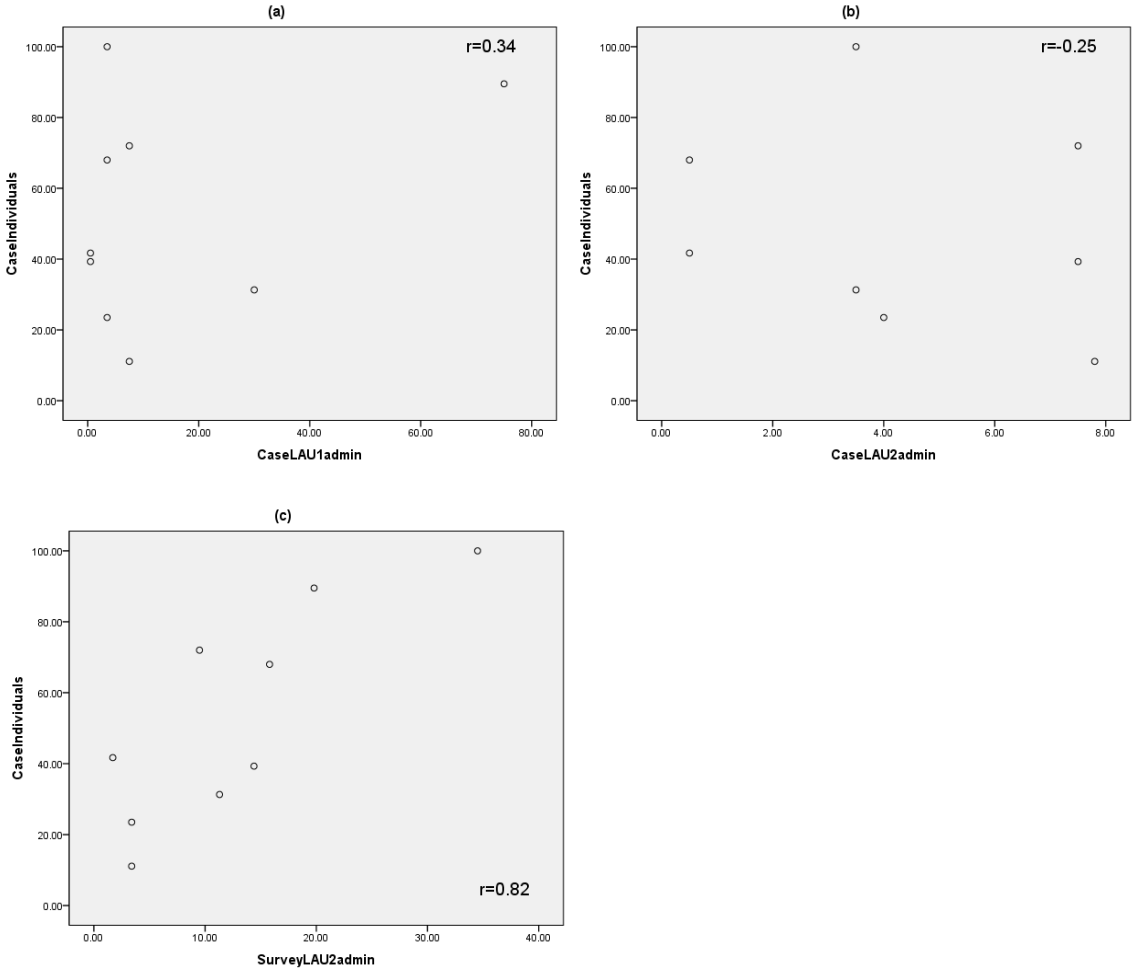


Figure 79. Collect wild snails, fungi, fruits, flowers or other plant materials?

Regarding collecting fungi etc., figures for LAUs 1 and 2 (figure 79a and b) show insignificant correlations, but correlation is strong (P<0.01) as far as averaged LAU2 is concerned (figure 79c).

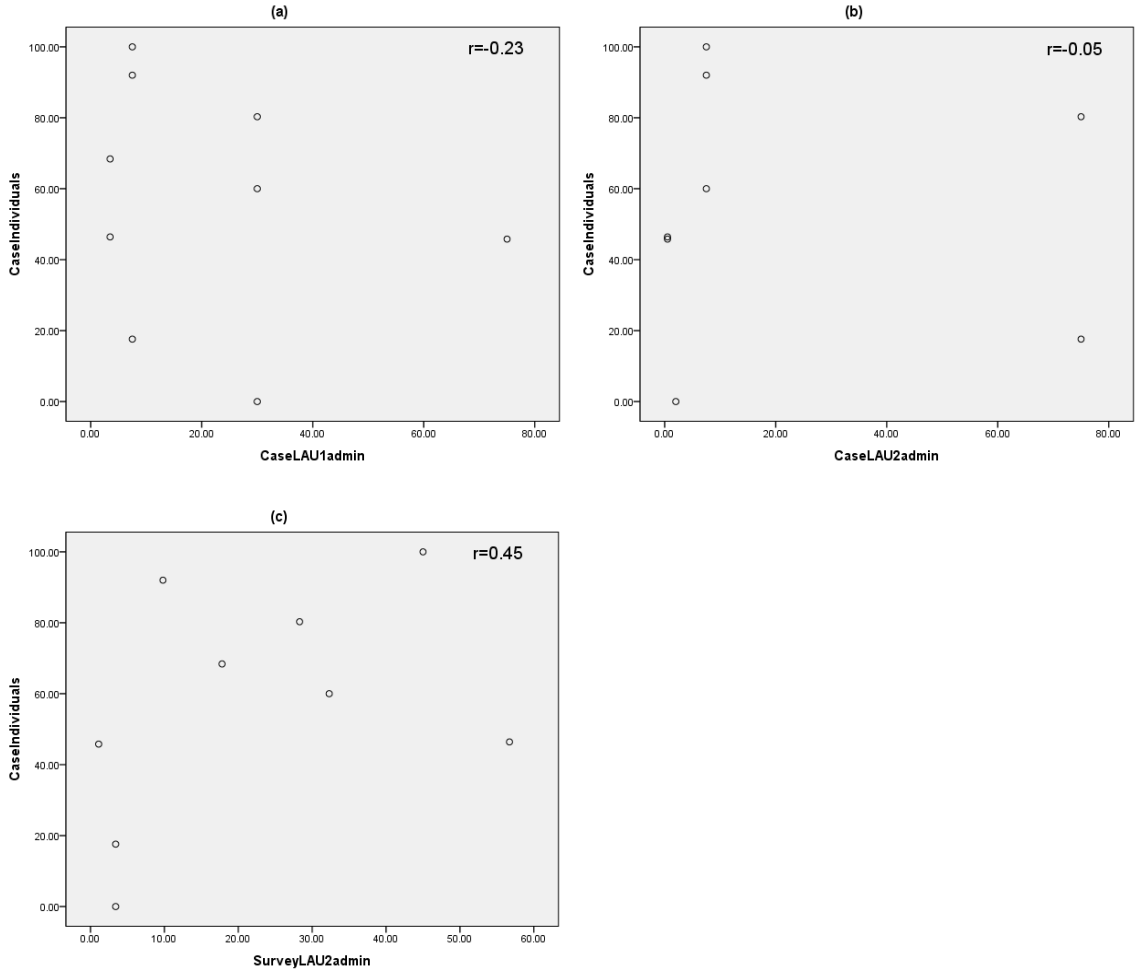


Figure 80. Do outdoor pursuits?

Correlations between individuals' responses and estimates from LAU1 and 2 are positive but not significant (figure 80a, b and c), but figure 80c is most positive.

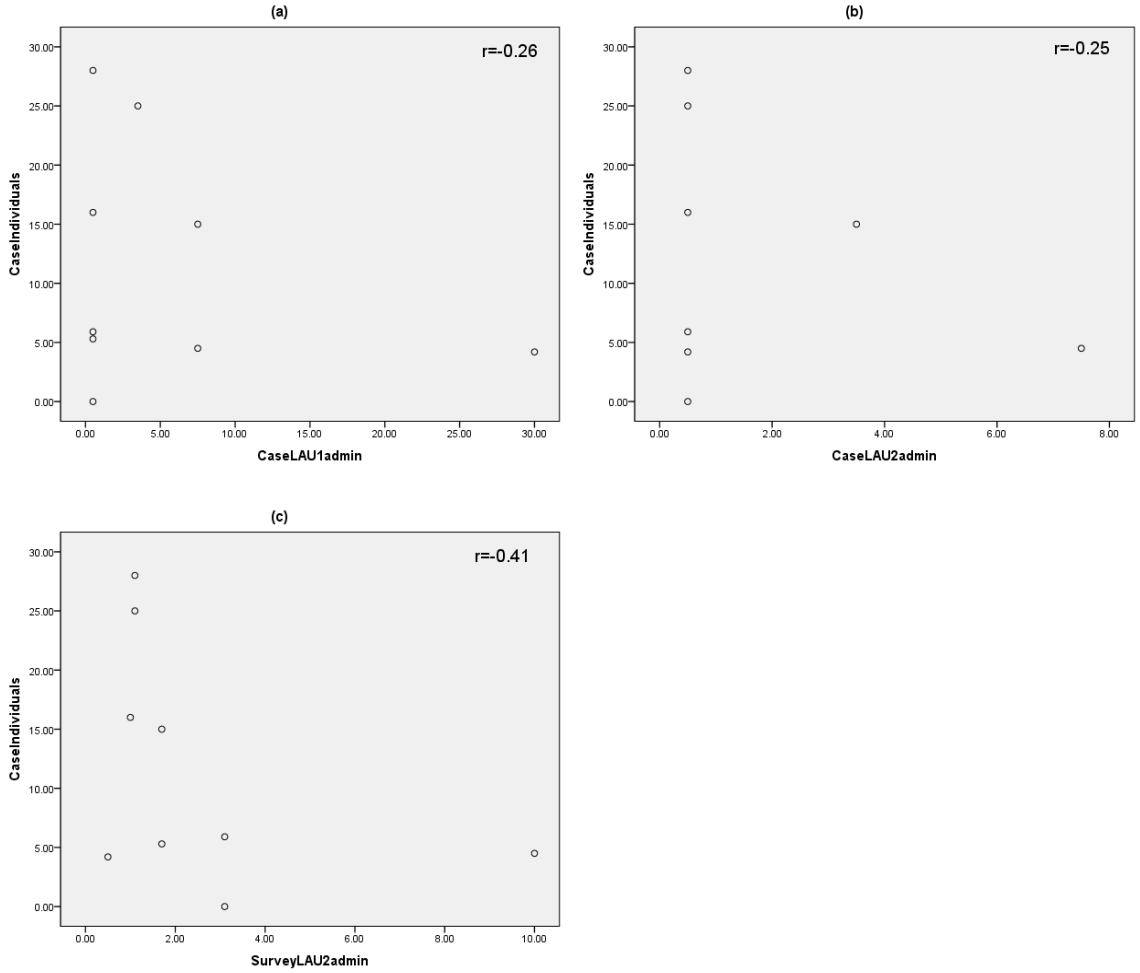


Figure 81. Go horse-riding?

Horse-riding shows weak negative correlation between data from LAUs and individuals in all three figures.

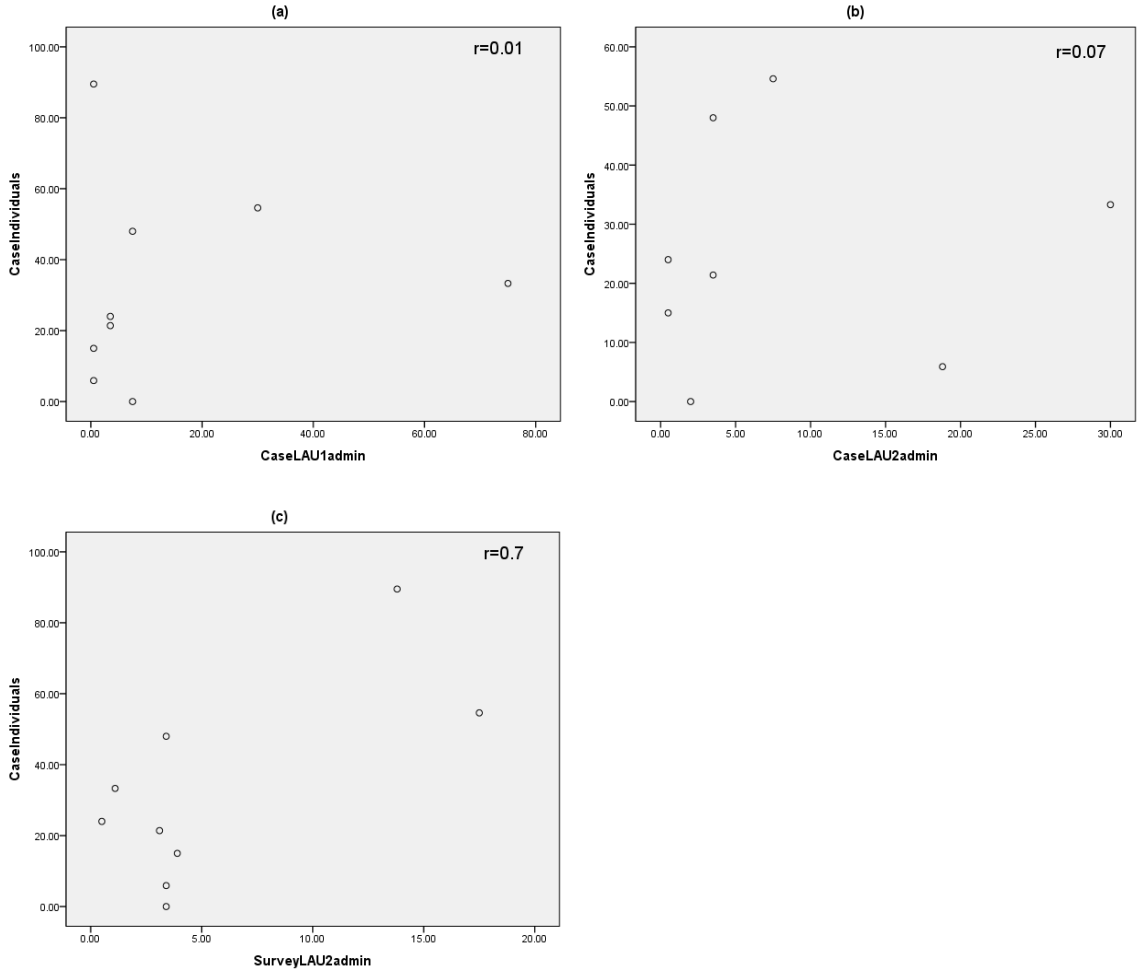


Figure 82. Make excursions in order to watch wildlife?

Although figure c shows significant correlation (P<0.05) between individuals' responses and estimates from averaged LAU2, the other two figures (figure 82a and b) show insignificant relationships.

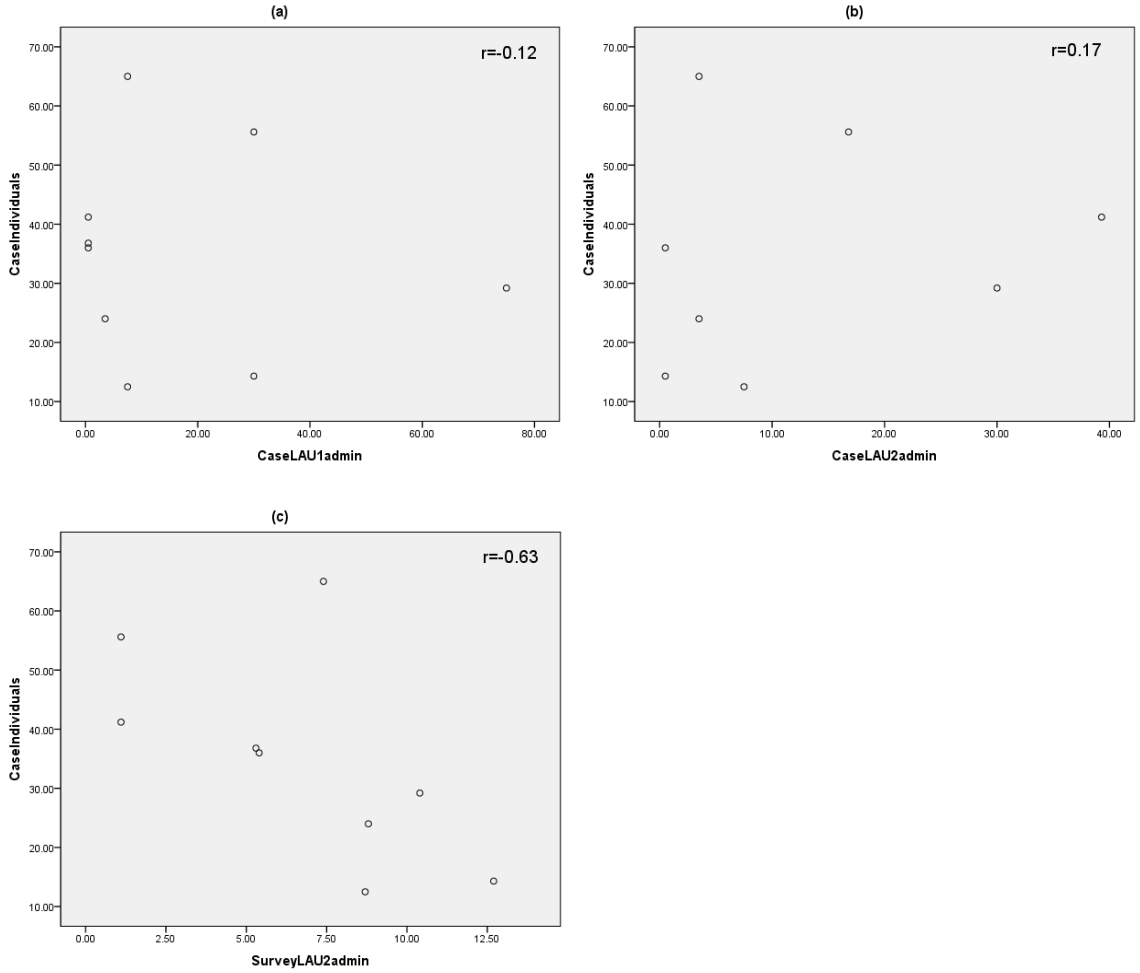


Figure 83. Go fishing?

Regarding fishing, figure 83c shows a negative correlation between individuals' responses and estimates from averaged LAU2 (0.10>*P*>0.05), the other two figures (figure 83a and b) show insignificant effects.

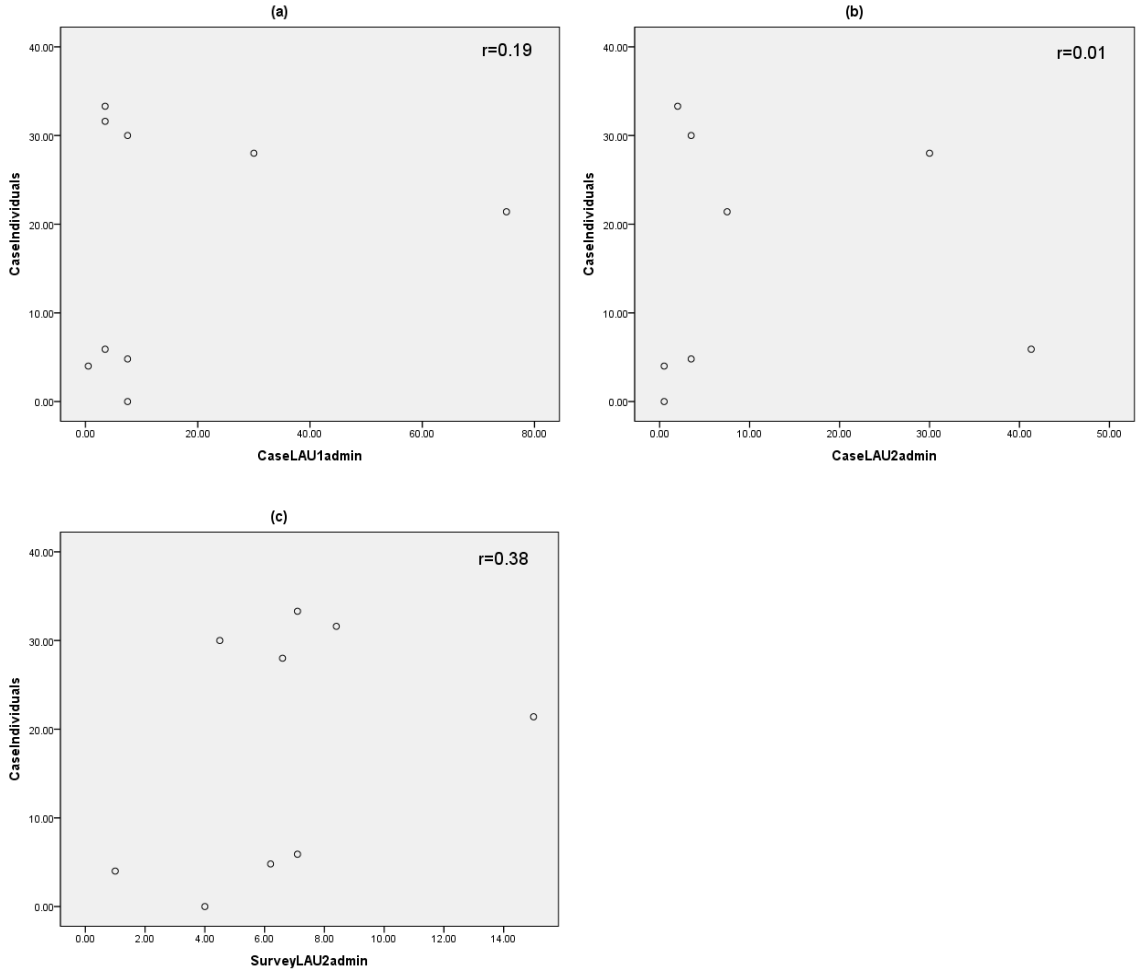


Figure 84. Go hunting with gun, dog or other animal?

Similar results are presented regarding hunting; figures show insignificant (figure 84a, b and c) correlations.

Correlation appears to be strongest and most positive between individuals' responses and averaged LAU2 estimates, except for two activities, horse-riding and fishing. These two weakly negative correlations are probably chance phenomena for relatively uncommon activities. In contrast, correlations between individuals' responses and estimates provided by LAU1 and 2 administrators in local areas were not significant, perhaps because the sample used for LAU1 and LAU2 in each case study was one questionnaire, while the sample in averaged LAU2 survey was bigger.

8. Estimation of relationships

Regression analysis is a statistical method for modeling and analyzing the relationship between two or several variables, when the focus is on the relationship between a dependent variable and one or more independent variables. More specifically, regression analysis helps one understand how the typical value of the dependent variable changes when any one of the independent variables is varied, while the other independent variables are held fixed. Transformations, such as the use of logarithms, can be used to try to normalise data, but are not always effective. A trend-line was fitted in some of the produced figures plus a value r^2. The coefficient r^2 is equal to the percent of the variation in one variable that is related to the variation in the other; a relationship in which one variable explains more than 50% of variation of another is considered strong.

In this framework, we present the results of regression analysis considering the percentages of local residents from all case studies involved in each activity separately versus a) their educational level and b) their attitude towards the statement.

Regarding educational level values represent a) secondary education (1.00), b) degree (2.00) and c) higher degree (3.00).

As far as responses to the statement are concerned, values stand for a) strong agreement (1.00), b) mild agreement (2.00), c) neutral (3.00), d) mild disagreement (4.00) and e) strong disagreement (5.00). However, we have to notice here that there were extremely few responses of mild and strong disagreement; thus, the horizontal axis does not include these two values.

8.1 Feed birds or other wildlife

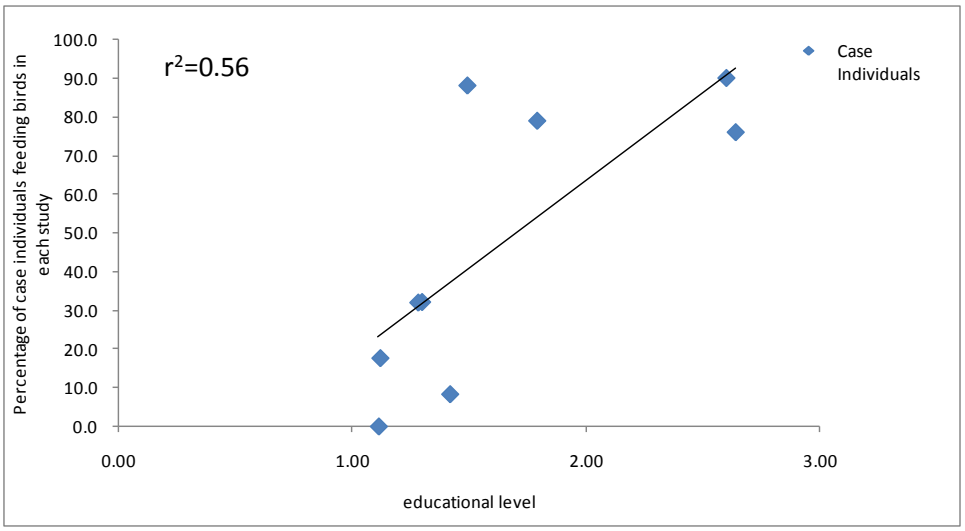


Figure 85

There is a positive linear relation between engagement in feeding birds and/or other wildlife and respondents' educational level (r=0.75, d.f.=7, P=0.02). The higher is their educational level the higher is their engagement in this particular activity.

8.2 Make excursions in order to watch wildlife?

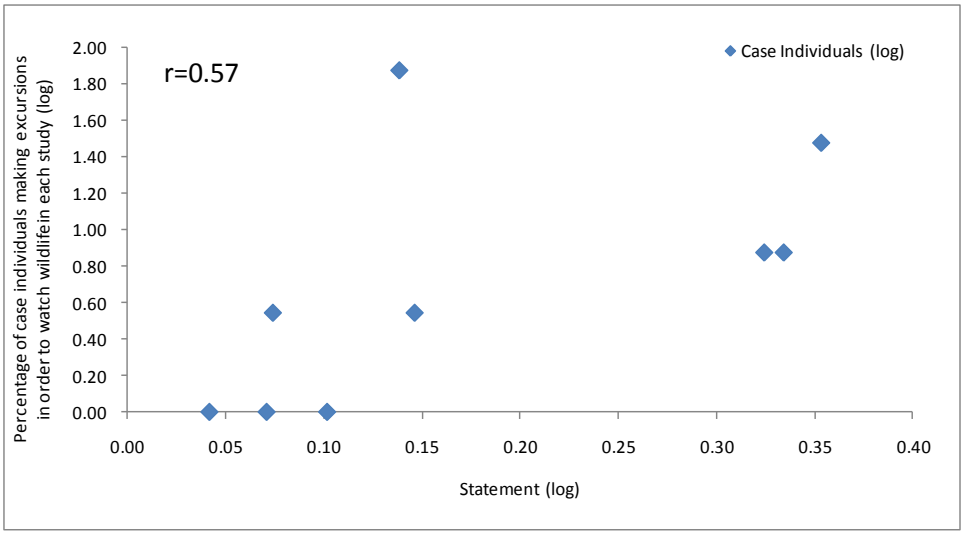


Figure 86

We can notice in figure 86 that the percentages of people involved in making excursions are positively affected by their agreement or disagreement to the statement, but there is no statistical significance (r=0.57, d.f.=7, P>0.10).

8.3 Go hunting with gun, dog or other animal?

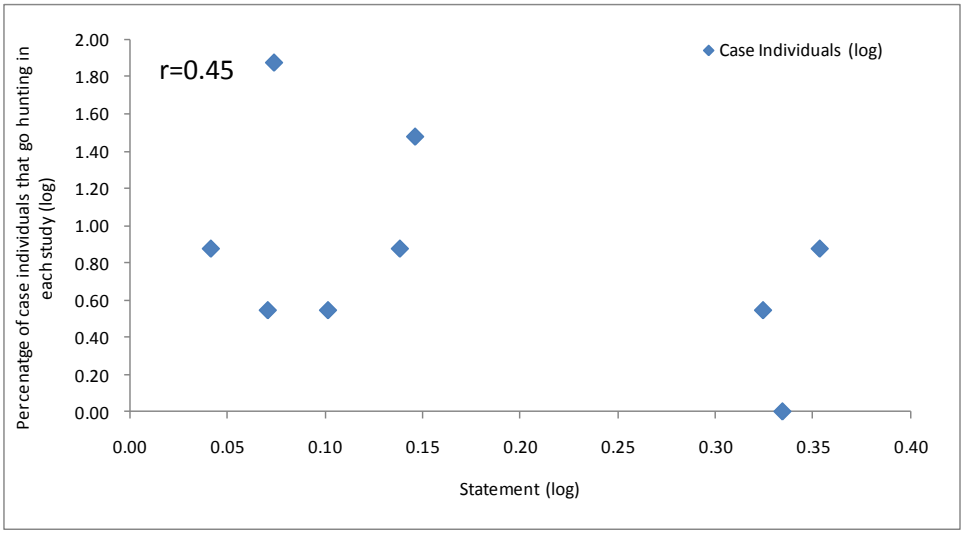


Figure 87

Response to the statement is not significantly linked to engagement in hunting activities (figure 87).

8.4 Wildlife positivity index

Positivity index is a very important weighted index developed during the TESS project; it indicates the ratio of benefits to costs from biodiversity, describing the attitudes of local authorities to the people that manage species and land. The following figures present the relation between the positivity index and a) locals' educational level, b) locals' response to the statement, c) LAU1 administrators' estimates and d) LAU2 administrators' estimates.

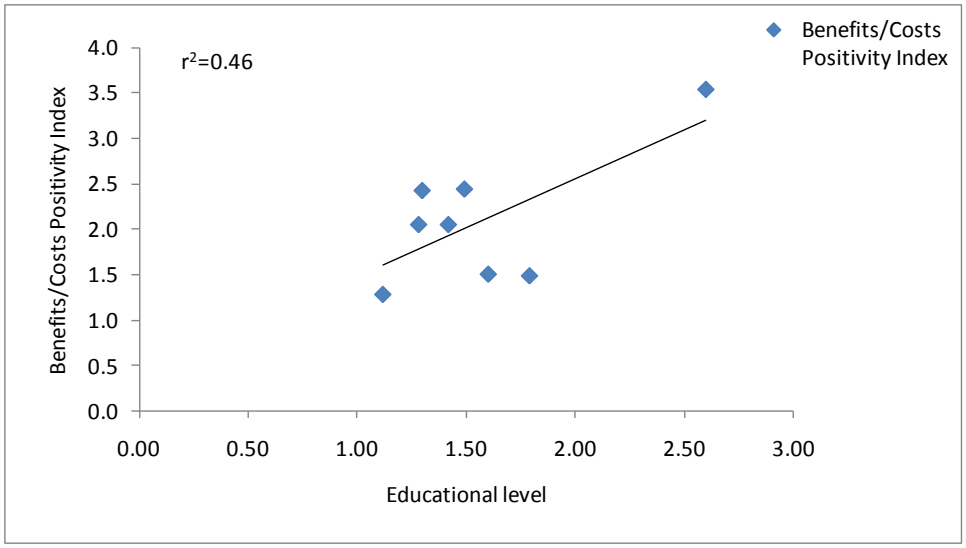


Figure 88

Figure 88 shows a positive linear relation between the positivity index and educational level; the higher is the respondents' educational level the higher is the positivity index (r^2=0.46).

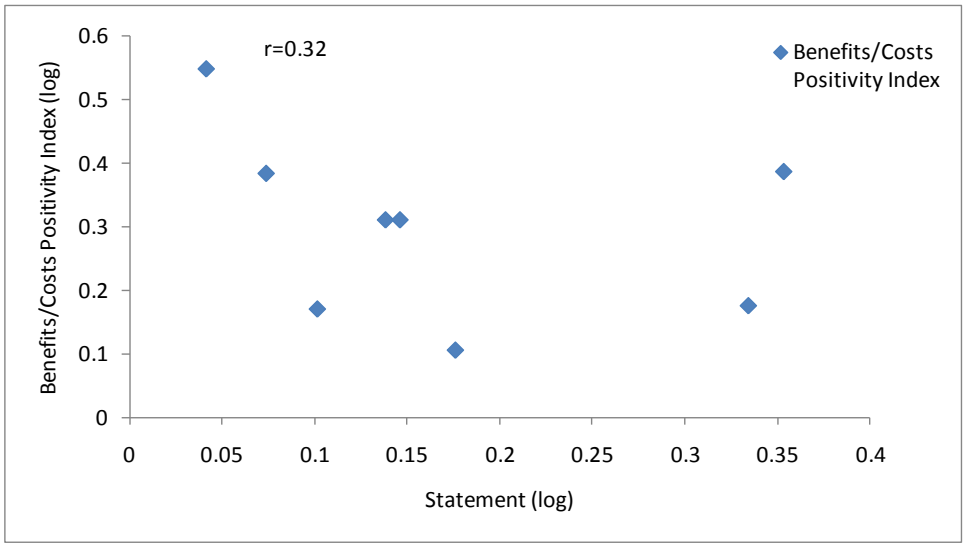


Figure 89

As figure 89 indicates there is a weak relation between the positivity index and respondents' agreement to the statement (r=0.32).

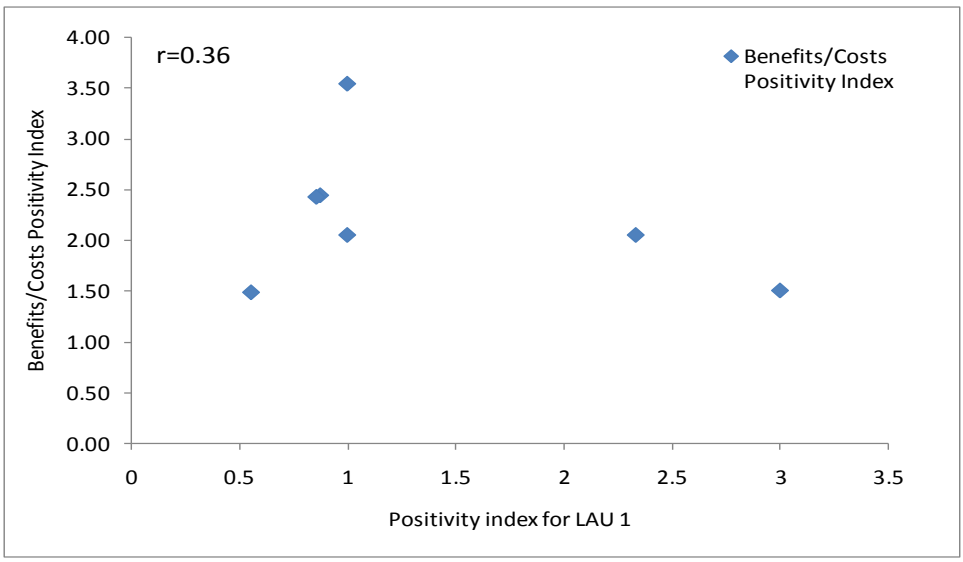


Figure 90

Figure 90 also shows a weak relation between the positivity index (from individuals) and LAU1 administrators' estimates for the positivity index (*r*=0.36).

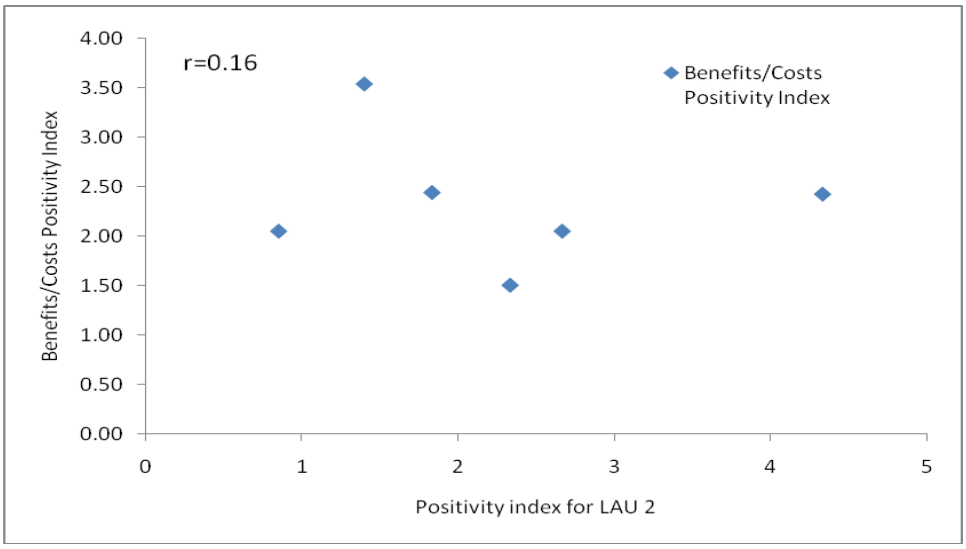


Figure 91

The relation between the individuals positivity index and LAU2 administrators' estimates for the positivity index is not statistically significannt (*r*=0.16).

9. Participation and spending

Participation in all the rural interests varied considerably between case study countries. The most consistently popular activity was gardening, which involved on average about 70% of households, though as few as 16% in Portugal and 46% in Greece. Enjoying the countryside for exercise also engaged more that 45% of all households, except in Turkey. The third most frequent activity was gathering wild flowers, fruits, fungi and other wild vegetative products, which engaged 39-100% of all households except in the UK (31%) and Turkey (11-25%). Attracting wildlife with food was popular with 76-90% of households in Poland, Hungary, UK and Estonia and engaged 32% in Greece and Portugal, but less than 18% in Romania and Turkey. Interest in excursions to watch wildlife engaged 48-90% of households in Poland, UK and Hungary but no more than a third elsewhere. Fishing too was popular, with 13-65% of households engaging and about a third overall. Hunting and riding were the least frequent recreational activities, but still engaged averages of 18% and 13% respectively. So there were about twice as many people fishing as hunting and riding, with 2-3 times as many people nature-watching and gathering products of nature. In terms of work, farming engaged 25-70% of households except in the UK (3%), with forestry only important in Hungary (47%) and Estonia (30%).

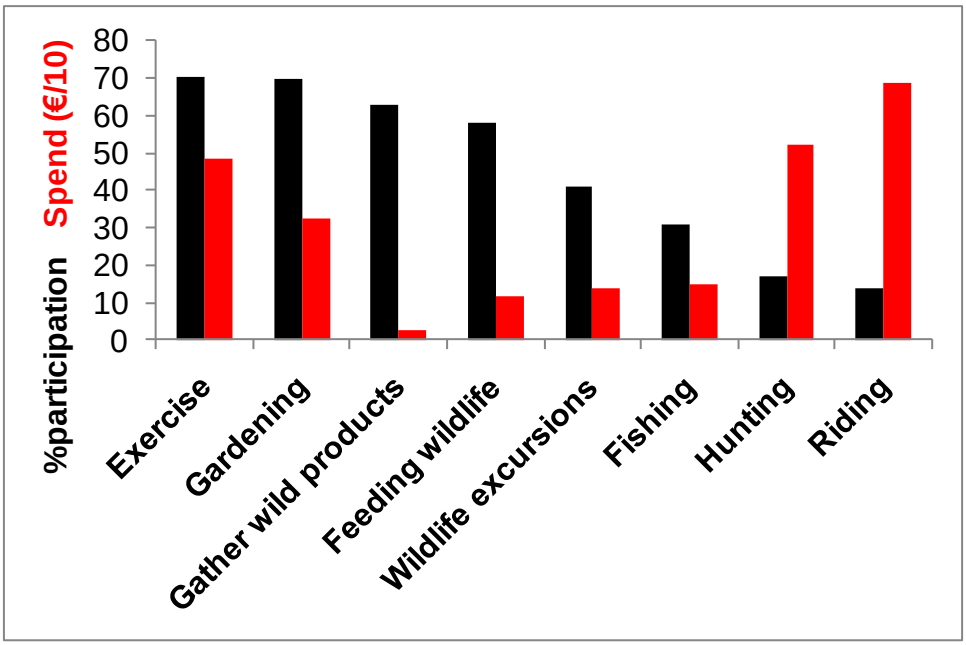


Figure 92. The percentage of rural households sampled across 8 EU states participation that participated in various activities in the countryside (black bars) and their average annual spending on it (red bars).

Spending was high on the least frequent recreational activities, with an average €690 spent annually per household engaged in riding and €520 on hunting. Spending of €485 annually on countryside exercise and €325 on gardening was relatively high too. Rather less was spent on fishing (€150), making excursions to watch wildlife (€135) and feeding wild animals (€115 if one excluded annual budgets of €5000 or more for 3 people who were feeding

wildlife professionally). Gathering natural products was the least expensive pastime, with annual spending averaging just €27 per household.

In terms of the rural economy, the average annual spending per rural household on these recreational activities linked to biodiversity and the countryside in these 8 countries was about €850. Of this total, about €240 was on gardening, €80 on riding and €275 on other exercise in the countryside. Spending on activities that required wild species included €145 on hunting and fishing, €100 on providing food or making excursions to view wildlife and €14 on gathering wild products. If these sample areas were representative for the EU, grossing up from an independent estimate of €35 billion total annual spend on hunting and fishing in the EU (Kenward *et al*. 2009) gives a total private biodiversity-dependent spending of €62 billion, which is close to the annual €57 billion of the CAP.

10. Summary – Conclusions

From the case studies reports it is evident that local residents' motivations to participate in both the socio-economic and mapping project vary from desire to acquire new skills and knowledge to love for their community and interest in nature-related issues. Also, it is a common desire for locals across case studies to have more data regarding biodiversity (species etc.) as well as information on possible economic benefits from protecting their natural resources. More robust, continually updated and easily and freely accessed databases would be very welcomed, especially if they are capable of providing data for the very local level; it must be noted that the case studies implementation teams recorded a genuine interest of the local populations' willingness to participate voluntarily in such projects.

Across all case studies, local people appeared to be in position to provide a) data regarding mostly previous mapping and other relevant projects, if any, b) some data on species/habitats and c) on main occupations and economic activities (i.e. ecotourism activities, farming etc.).

On the other hand, local participants encountered problems during the socioeconomic project planning. Main reasons for this were lack of IT education and training, mistrust between the locals as well as towards authorities, lack of necessary data, complicated decision making processes and the fact that local people are not fully aware of the opportunities for activities related to biodiversity.

A very strong proportion of the local residents across case studies have a rather positive and pragmatic attitude towards biodiversity, as indicated by their perceptions of benefits and costs from biodiversity and their responses to the statement that conservation should be engage all interests and not be based purely on protection. Their engagement in particular activities (feeding birds and/or other wildlife, collecting wild snails, fungi, fruits, flowers or other plant materials, doing outdoor pursuits, going horse-riding, making excursions to watch wildlife, fishing and hunting) was minimally affected across case studies either by their educational level or response to the statement.

Estimates of participation in the activities at LAU1 and LAU2 in the case studies generally underestimated the actual participation of individuals quite strongly. This indicates a considerable lack of information among governance officials about the interests of the local population they represent.

Bearing all of the above in mind, knowledge and data shared by local residents could be integrated from the regional and local level into environmental decision making and support sound elaboration of EIAs and SEAs, as long as local needs in accessible information are met.

11. References

1 Hodder, KH and Sharp, RJA. “D2.1 / D3.1 Combined Report Local and Government information workshop requirements”. TESS technical report (2010).

2 Sharp, RJA, Ewald, J, Kenward, RE. “D2.2 Model of information flows from local & regional to central”. TESS technical report (2010).

3 Perrella, L, Ewald, J, Kenward RE, Hodder, KH. “D3.2 – Model of the local decision making process”. TESS technical report (2010).

4 Hodder, KH, Sharp, RJA, Perrella, L, Butters, J, Kenward RE, Ewald, J. “D3.3 Synthesis report: Central and local information flows and decision making requirements”. TESS technical report (2010).

5 Kenward RE, Ewald, J, Sharp, RJA. “D5.1 Pan-European survey of assessment processes”. TESS technical report (2010).

6 Beja, P, Ewald, J, Kenward RE. “D6.1 Biodiversity trends associated with SEA, SIA and EIA practices”. TESS technical report (2011).

Annex 1: Questionnaire of WP5 local case studies

Introductory note and guidelines for the Questionnaire
TESS aims to design a decision support system related to environment and land use that will enable policy makers to integrate knowledge from the regional and local level into the decision making process, while also encouraging local people to maintain and restore biodiversity and ecosystem services. At local level, the system should deliver, to those who manage land and species, information to enhance livelihoods while also benefitting the environment and especially biodiversity. The case study projects will test (by simulation) how best to meet local decision support needs in exchange for local monitoring that meets central policy requirements, and whether local monitoring (based on schools, local community groups or individuals motivated by use of wild resources) can meet government requirements. Such information requires mapping of ecological information, for combination with socio-economic information. The case studies will also assess local attitudes and capabilities. This document is a guidance manual to assist TESS partners gather socioeconomic data, which will be relevant both to the mapping and to the socio-economic projects planned by the local community to link their socioeconomic needs with biodiversity gains. As well as information on the projects themselves, it requests background socio-economic data on the local Tier 1 administrative area to be collected at the start of the work and further data to be collected.

Please try not to change the width of the text boxes in order for the questionnaire to be printed correctly. You may change the height of the text boxes as you see fit.

Please send the results to: Dimitra Manou, dimj@law.auth.gr

1. Administrative area background									
Question		**Answer**							
	What is the population size of the area?								
a)	Did you get this information from somewhere in government/other contacts/publications/the internet? Please specify the exact source	Please insert X to show the source(s) of information used ?							
		government	agencies	NGOs	Other consultants or advisors	internet	publications	Local knowledge	Own plans+records
	What is the range of per capita income for the local population, either as a median or range between deciles?								
b)	Did you get this information from somewhere in government/other contacts/publications/the internet? Please specify the exact source	Please insert X for all the sources of information now used to guide decisions on each issue?							
		government	agencies	NGOs	Other consultants or advisors	internet	publications	Local knowledge	Own plans+records
	What is the approximate unemployment rate?								
c)	Did you get this information from somewhere in government/other contacts/publications/the internet? Please specify the exact source	Please use X for all the sources of information now used to guide decisions on each issue?							
		government	agencies	NGOs	Other consultants or advisors	internet	publications	Local knowledge	Own plans+records

d)	For the main occupations and other sources of income dependent on land, biodiversity or other ecosystem services in the last 20 years, please:	List	Have they(please use X to indicate your answer):			Comments?	
			declined	unchanged	increased		
		Agriculture					
		Forestry					
		Fishery & Angling					
		Hunting					
		Other conservation of wildlife or habitats					
		Nature-related tourism					
		Other recreational use of (semi)natural land					

e)	Has there been any mapping by local people of (please use X to indicate your answer):		Yes	No		Yes	No
		Species?			Was this digital?		
		Land-use?			Was this digital?		
		other (please specify)?			Was this digital?		

2. Case study project planning - engagement with the local community - for administrators				
Question		**Answer**		
a)	Please give a general description of the proposed socio economic project:			
b)	Please give a general description of the proposed mapping project:			
c)	For each local community member of the case study implementation group, please list:	Name	Phone	E-mail
d)	Which economic activities listed in 1d are not represented? Please list.		Why is this group not represented?	
		1		
		2		
		3		
		4		
		...		

3. At the end of the case study implementation, administrators please specify:		
Question		**Answer**
participation		
a)	How many local residents participated in the mapping work?	
b)	How many person-hours did they spend?	
c)	How many local residents participated in the socio-economic planning?	
d)	How many person-hours did they spend in total?	
e)	How many meetings did you hold?	
f)	How many people attended in total, for mapping and socio-economics combined?	
g)	Please provide a timeframe scheme of the tasks, preferably a Gantt diagram	Please use Sheet 6 ('Gantt') for this question
data		
h)	Who will be responsible for the collected data?	
i)	Are you planning to disseminate the results of the project?	Yes ☐ No ☐
	If yes, how?	

evaluation of mapping							
j)	What are your suggestions for further improvement to mapping hardware?						
k)	What are your suggestions for further improvement to mapping software?						
l)	What is the mean % error of the mapping?		How was the error measured?	e.g., for shapes, the survey team should independently map a sample and test overlap (Anatrack can provide software to test overlaps if required)			
m)	What percentage of the planned mapping exercise was completed? …%.						

evaluation of socio-economic planning							
n)	Please rate the difficulty of the socio-economic project planning for the local team listed in 2c and other volunteers? (1=low, 5=high)	1	2	3	4	5	
o)	To what percentage of your satisfaction did the local team provide data needed for the socio-economic project planning? ….%						
p)	How adequate did you consider the models in the WP4 database for planning (1=poor, 5=excellent). Please report any improvements needed.	1	2	3	4	5	comments
q)	What gaps in available information and predictive models did you identify?	Please complete the section in the separate detailed report					
r)	What information is abundant or not needed?	Please complete the section in the separate detailed report					
s)	A bottleneck is a phenomenon where the performance or capacity of an entire system is limited by a single or limited number of components or resources. Did you encounter any such 'bottlenecks'?						

4. Before, for community and helpers.

You will need to survey 20 households at random in your area to assess their attitudes and knowledge of environmental issues at the start and finish of the study. To do this, you will need to obtain a list of households, or of the electorate, if this is available in your administrative area, or to randomise from a comprehensive list of street names and house sequence in streets (or selected on a stratified basis). This sheet should also be filled by all helpers (i.e. those from the local community who volunteer to assist with the project work as advisors or in the field). Partners who have problems accessing the above lists may use selected well stratified samples.

Question		Answer							
All before									
	Do you (or others in your household) ever engage in the following (please use X to indicate your answer):	Yes	No	If "Yes", about how much per adult was spent on this (fees, equipment, travel, lodging etc) in 2009?	Do you consider that those engaged in these activities are also working to protect, maintain or restore wild species and/or habitats?				
					always	usually	often	occasionally	never
a)	Feed birds or other wildlife?								
	Collect wild snails, fungi, fruits, flowers or other plant materials?								
	Do outdoor pursuits eg. walking/skiing/climbing/boating/camping/off-road cycling?								
	Go horse-riding?								
	Make excursions in order to watch wildlife?								
	Cultivate a garden or lawn?								
	Go fishing?								
	Go hunting with gun, dog or other animal?								
	Farming?								
	Forestry?								
	Do you (or others in your household) value wild species for (please use X to indicate your answer):	Highly		Not at all					

b)	Food					
	Wildlife-related recreation as listed above					
	Tourism					
	Other biodiversity-based source of income					
	Aesthetics and other intrinsic value					
	Environmental security such as flood protection					
	Other benefits					

c)	Do you (or others in your household) suffer costs, in time or money, from wild species or habitats (please use X to indicate your answer):	A lot				Not at all
	Damage from pest species to household food or property					
	Damage from pests, predators or weeds to livestock, crops or woodland					
	Increasing the risk of fire					
	Increasing the risk of flooding					
	Transmission of disease to humans or livestock					
	Other issues					

d)	Do you (or others in your household) use computers at home? At work?	Home		Work	
		Yes	No	Yes	No

e)	Do you (or others in your household) use the internet? Do you pay for goods on the internet?	Internet use		Goods	
		Yes	No	Yes	No

f)	What is your education level: school/degree/higher-degree	School	Degree	Higher degree

g)	How strongly do you agree or disagree with the following statement? "It is time for all those who benefit from the richness of nature (biodiversity) and the services of ecosystems, not just those who wish to protect the environment, to contribute to its conservation" (please use an X to show your answer)	strong agreement	mild agreement	neutral	mild disagreement	stro ng disagre ement

Helpers (i.e. those from the local community who volunteer to assist with the project work as advisors or in the field) after						
a)	What was your motivation to participate in this task?					
b)	What were your expectations from this project?					
c)	Before the project, had there been other projects like this in your area?					
d)	Before the project, did you have any experience with mapping equipment?					
e)	How do you assess the mapping hardware? (1=poor, 5=excellent)	1	2	3	4	5
f)	What are your suggestions for further improvement?					
g)	How do you assess the mapping software? (1=poor, 5=excellent)	1	2	3	4	5
h)	What are your suggestions for further improvement?					
i)	How do you assess the mapping instructions? (1=poor, 5=excellent)	1	2	3	4	5
j)	How do you rate your gain in knowledge from participation? (1=low, 5=high)	1	2	3	4	5
k)	How likely would you be to do such a project again? (1=low, 5=high)	1	2	3	4	5
l)	How do you rate the overlap between your thinking before TESS and now?					
m)	Do you feel that this kind of project will influence the land use practice?					
n)	Do you think that this kind of projects must be supported nationally too?					
o)	Before the project, how often did you use maps?	Never	Yearly	Monthly	Weekly	Daily
p)	What kind of maps did you use?	Paper	Electronic format	Other		

q)	How often did you use GPS?	Never	Yearly	Monthly	Weekly	Daily
r)	Which kind of GPS do you use?	None	Navigation in car	Navigation on foot	Professional mapping	
s)	How are you satisfied with maps provided by the project for your area?	Highly				Not at all

Annex 2: Case study reports

The Danube Delta National Institute for R&D (DDNI), Romania

A. General introduction

Sfantu Gheorghe is a fishermen community, based mainly on fishing andromous migratory fish stocks, Pontic shad (*Alosa imaculata*) and sturgeons as well as marine costal fishing for small species as sprat, (*Sprattus sprattus)* and anchovy (*Engraulis encrasicolus)*. Due to the collapse of fish stocks in April 2006, Romania banned sturgeon catching for ten years and costal fishing with giant trap nets was abandoned, this affecting the community livelihoods. The fishermen are still fishing other fish species, but the ban on sturgeon and abandoning costal fishing have affected their income. The alternative to this negative impact is their involvement in tourism by providing tourists services like boat trips, guiding, accommodation or local cuisine and products.

The project intends to stimulate local community to promote the use of the other alternative natural resources to improve community livelihoods. The goal of the project is to help local people to identify the exploitable natural resources within their area and to develop local products for visiting tourists or open market. This will require the collection of the information on the main locations of the resources, species and habitats their abundance and on the risks of exploitation. These data could also be used when designing tourist trails, avoiding a negative impact on the valuable biodiversity resources. The data collected by the local people and stakeholders will be further use in local planning and development, i.e. the development of a community based tourism highlighting the local natural products and resources or in designing tourist packages by the tour-operators.

The objective of this project is to bring together local community, stakeholders with interests within the region and experts with the aim of creating community-based socio-activity in the Danube delta using the well known Sea-buckthorn ***(****Hippophae rhamnoides****)*** to provide the local community with sustainable alternatives to sturgeon fishing and costal fishing.

Specific objective are:

4. to enhance knowledge and understanding of the biology of the Sea-buckthorn *(Hippophae rhamnoides)* to maximize the economic potential, respectively tourism potential of this species
5. to build competence and improve practice of local products-based tourism in the Tulcea region at the Lower Danube
6. to provide a model for the development of sustainable, environmental tourism in Romania as an alternative to the well spread mass tourism.

For planning the project we involved the main local stakeholders and the local people in identifying and evaluate their other exploitable biodiversity resources than fish. We also tried to involve the stakeholders for the socio-economic aspects of the project (potential income and market).
The time period of project simulation has extended for six months started from April 2010 and ended to September 2010, with a total estimated time allocation of 300 person-hours for stakeholders and local community representatives.

B. Socioeconomic report

B1. Administrative area background (for administrators)

a1. What is the population size of the area?

Sfantu Gheorghe has 860 inhabitants (1st of July 2008). According to the Tulcea County Department of Statistics village population was 971 people in 2002, increased to 880 in 2006 and decreased to 860 in 2008 (**Tab.1**).
The average birth rate was 5.8% for 2008, the mortality rate was 12.8 % and natural increase had a value of -7 %, indicator that explains the continuous decrease in the number of people in Sfantu Gheorghe village. Migration balance for the Sfantu Gheorghe's residents has a positive value (2), for the first time since 1990, the number of the residents' departures from the village being lower than that of arrivals (-2). The village is facing with a widened demographic deficit, mainly motivated by the high levels of migration, especially of the young population to urban areas, but also with declining of the birthrates and increasing of the death rate (**Tab.2**).

Table 1 Demographic indicators in the area of Sfantu Gheorghe (*** 2008)

Town / commune	Inhabitant	Total administrative surface	Inland territory	Population density relative to the administrative	Population density relative to the inland territory
	no.	*km²*	*km²*	*inhabitant /*	*inhabitant /*
Sfantu Gheorghe	860	541,21	1,23	1,60	699,19
Total delta	12.484	2.761,62	30,90	39,70	3.793,01

Table 2 The demographic evolution (2000-2008) within the Sfantu Gheorghe area (***2008)

Population	**2000**	**2001**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Total population - 1st of July	1006	1003	947	924	906	880	867	860
Women population - 1st of July	520	518	461	450	438	425	413	405
Total population - 1st of January	1008	1021	983	932	921	891	875	865
Women population - 1st of January	519	527	485	452	449	431	424	406
Live new borns	6	4	5	5	2	7	3	5
Total deceased	12	15	24	10	23	21	14	11
Weddings	5	4	0	4	2	1	4	3
Divorces	1	2	0	2	0	0	1	2
New-comers in town	11	7	3	9	3	6	19	18
People leaving town	13	24	34	15	8	12	19	16

a2. Did you get this information from somewhere in government/other contacts/publications/the internet? Please specify the exact source.
Please insert X to show the source(s) of information used

Government	Agencies	NGOs	Other consultants or advisors	Internet	Publications	Local knowledge	Own plans + records
	x						

b1. What is the range of per capita income for the local population, either as a median or range between deciles?

The only data that refer to the population icomes are only at national level and the level of Tulcea County:

1. Nominal monthly earning, activity of national economy at level of cane, by total employees, which is 301.95 Euro for 2008 (Source: National Institute of Statistics).
2. Average gross nominal monthly earning, activity of national economy at level of cane, by total employees, which is 404.87 Euro for 2008 (Source: National Institute of Statistics).

The national average income was 6,353.78 EUR/inhabitant (1st of July 2008)
- 1 EUR = 3.6827 lei for 2008 (Source: The National Bank of Romania, 2010).
However, Tulcea county incame is lower than country average and even more Sfantu Gheorge income is lower than Tulcea county.

b2. Did you get this information from somewhere in government/other contacts/publications/the internet? Please specify the exact source.
Please insert X to show the source(s) of information used

Government	Agencies	NGOs	Other consultants or advisors	Internet	Publications	Local knowledge	Own plans + records
	x						

c1. What is the approximate unemployment rate?

According to the Tulcea County Department of Statistics, the unemployment rate was 0,88% (1st of July 2008) (**Tab.3**).
Considering year 2008 as a year with peak of economy development, in 2010 when economy is in recession the unemployment rate increase substantially.

Table 3. Active population, employment and unemployment in Sfantu Gheorghe area compared to higher levels, namely Tulcea County and Romania (*** 2008)

Locality	**Active population**	**Employed population**	**Un employed population**	**Percentage of unemployed people into active population %**
Sfantu Gheorghe	565	560	5	0,88
Tulcea County	50.461	47.000	3.461	3,40
Romania	9.944.000	9.369.000	575.000	5,80

c2. Did you get this information from somewhere in government/other contacts/publications/the internet? Please specify the exact source.
Please insert X to show the source(s) of information used

Government	Agencies	NGOs	Other consultants or advisors	Internet	Publications	Local knowledge	Own plans + records
	x						

d. For the main occupations and other sources of income dependent on land, biodiversity or other ecosystem services in the last 20 years, please:

List	Have they (please use X to indicate your answer):			Comments?
	declined	unchanged	increased	
Agriculture		x		Raising cattle in loose housing
Forestry		x		Forest in conservation
Fishery & Angling	x		x	The commercial fishing – decreasing and the angling – increasing
Hunting		x		Genofond area – hunting is forbidden
Other conservation of wildlife or habitats			x	DDBR establishment led to increased environmental protection
Nature-related tourism			x	Rural tourism, based on Delta's landscape and the Black Sea's beaches become more attractive.
Other recreational use of (semi)natural land		x		Natural beaches.

e. Has there been any mapping by local people of (please use X to indicate your answer):

	Yes	No		Yes	No
Species?		x	Was this digital?		
Land-use?		x	Was this digital?		

other (please specify)?	x		Was this digital?		x

Another type of “mapping” was designing of the map of "Natura Trail Sf. Gheorghe" Touristic route. This design was made by the local Ecological Club, belonging to the Sfantu Gheorghe secondary school, with the help of the Nature Friends Romania during their activities programmed within the “Danube Delta – landscape of the year 2007-2009”. Nature Friends Romania is an NGO affiliated to the Austrian NGO Nature Friends International.

B2. Case study project planning - engagement with the local community (for administrators)

a. Please describe the socio economic project in 2-3 pages.

1. Title of Project:

The sustainable use of White Sea-buckthorn *(Hippophae rhamnoides),* as a development alternative for the local communities of the Delta, given the decline of fisheries resources.

Saint George Pilot Project.

2. Objectives

The objective of this project is to bring together local community, stakeholders with interests within the region and experts with the aim of creating community-based socio-activity in the Danube delta using the well known Sea-buckthorn to provide the local community with sustainable alternatives to sturgeon fishing and costal fishing.

Specific objective are:

1. to enhance knowledge and understanding of the biology of the Sea-buckthorn to maximize the economic potential, respectively tourism potential of this species
2. to build competence and improve practice of local products-based tourism in the Tulcea region at the Lower Danube
3. to provide a model for the development of sustainable, environmental tourism in Romania as an alternative to the well spread mass tourism.

3. Duration

The project took place over seven month, including desk preparation of materials, acquisition of mapping equipment, translation of questionnaires and mapping software and collecting of reference information on Sea-buckthorn biology and potential economic exploitation by DDNI project team, one workshop/focus group meeting, completion of 24 questionnaire (Before), first round mapping of Sea-buckthorn and Sand Morning Glory with Ecological club of Sfântu Gheorghe Elementary School students, performing 6 questionnaire (After), second round of mapping by project team for accuracy estimation and informal meetings of different stakeholder for project discussion.

4. Stakeholders involved

The stakeholders involved included a wide variety of activities as administration (mayor and counsellor), education (school's teacher) and economy (fishery, cattle breeding, tourism) (**Photo 1**). Some of those present at the workshop were involved in the past in Sea-buckthorn cultivation and exploitation within the area of Sfantu Gheorghe and so we had the opportunity to compare the information obtained by us with those held by those who actually worked in this field.

5. Data collected

The data collected regarded the specificity of Sea-buckthorn as specie and its qualities that could be useful in future exploiting activities. Also the collected data

followed the way a Sea-buckthorn culture can be created or wild species can be exploited, the sources of financing, the technologies used for optimum cleaning and packing and the difficulties that arise during the writing, approval and then implementation of such a project.

6. Possible problems identified

Problems were found more in community capacity to adapt to changes in the labor market and the range of vocational activities that can be applied to specific conditions required for living in a Biosphere Reserve. To these are added the new environmental regulations imposed by Romanian joining to EU, as well as CITES regulation and especially banning on sturgeon fishing, the community's basic activity.

In this sense, the community is hard to persuade to adopt the new proposed activities and prefers to go on the road already known, hoping it, that in time ban on sturgeon fishing will be lifted and they will resume their traditional activities, much more as community's members are extremely reluctant to communicate openly with outsiders.

7. Best practice examples

One of the examples of good practices in the community of Saint George is the exploitation of the alternative resources, respectively of the Sea-buckthorn, idea from which the designing of the socio-economic project started. The Sea-buckthorn is widely used in the community, as raw material for many "home made" products like jams, syrups, juices, teas and even wine. These products are used only for their own consumption, with no intention to extend this to a commercial activity, much more as the capability to exploit the surface already covered with Sea-buckthorn can not be extended (in other words, existing wild plants can not support a greater demand than the current one, that of the community of Saint George).

Taking, as a starting point, the local custom to exploit a natural resource, but which properly unexplored it will degrade it, the idea of making a Sea-buckthorn plantation or to exploit an already existing one came, a plantation which should satisfy the local demand and to ensure a sustainable exploitation of Sea-buckthorn in time, while developing a business opportunity which might contribute to community's income.

8. Future information needs

Further information could be focused on updating knowledge on biology, enlarge distribution map, estimation of sustainable use potential of Sea-buckthorn and the development of future technology and business related to this plant. Future it is need to increase the local community's information and capacity to develop new projects, much more as community expects practical ideas that meet its needs and the specificity of the area where they live.

b. Please give a general description of the mapping project:

The mapping project in the Romanian case study area (Sfantu Gheorghe village) focused on 2 plant species: i) Sea-buckthorn fruit (*Hippophae rhamnoides)* & ii) Sand bindweed/Sand Morning Glory (*Convulvus persicus).*

For accomplishing the tasks regarding mapping project in Sfantu Gheorghe village, the School Ecology Club in Sfantu Gheorghe was involved. In this regard, the parties agreed to work together to involve students of this school, students with ages between 10 and 14 years. The activity of mapping lasted 3 days, in which were informed by the experts of DDNI about their locally biodiversity and the opportunity to use local resources to improve living standards as Sea-buckthorn but also about the importance of conserving biodiversity, as the Sand bindweed specie. After this awareness presentation, the students were trained in the field to use the devices provided – Algiz7 tablet PC and the 'Anatrack Mapper for TESS' mapping software provided free by Anatrack for the purposes of the TESS project.

The DDNI team tested the functionality of the software and hardware before training the students and replied to the Anatrack developers several comments regarding the real GPS position, issue that was successfully resolved.

Firstly The Ecological school team mapped Sea-buckthorn and Sand Morning Glory in July.

The DDNI team re-mapped in September whole area after improving of software GPS functionality for error estimation in mapping and species abundance. Those two species were mapped and saved on same mapping project.

The total mapped area for the Sea buckthorn specie summarizes 216,084.62 square meters divided in 8 polygons from South to North along the Saint George Black Sea beach. Taking into account the mixture of the Sea-buckthorn with the Russian olive plant we approximate the abundance of each plant related to each polygon's area. After this field analyze was revealed that the percentage of the Sea-buckthorn does not increase 25% from the polygon's areas; in some cases there are polygons in which the abundance is less then 1% from their area. Also, we focused on the abundance of the specie considering the plant gender, because only the female plants produce orange berry – like fruits important for different uses. It was observed that the percentage for female plants is between 5 and 40 %, meanwhile the male plants have an abundance of 60 to 95% from the areas covered with sea buckthorn plant.

For the Sand Morning Glory specie was mapped a total area of 27,018.98 square meters divided in 25 polygons with an abundance of the plant ranged from 1% to 35% from the polygon's surface analyzed.

c. For each local community member of the case study implementation group, please list:

Name	Phone	E-mail
Adnana Patrascoiu	0745073361	adnanamp@hotmail.com scoala_sf.gheorghe@yahoo.com
Valentin Sidorenco	0740150943	primar@primariasfantugheorghe.ro valentin.sidorencu@primariasfantugheorghe.ro
Dinu Lucian	0240535029 0747287452	dinulucianion@yahoo.com
Cladiade Claudiu Dragos	0747 985117	dragossf@yahoo.com
Nichifor Stefan	0740279685	-
Cladiade Mircea	0748187302	-
Sidorencu Atanase	0741620886	-
Dimache Dumitrel	0744670100	-
Poimschi Andrei	0742696043	-

d. Which economic activities listed in B1.d are not represented? Please list.

	Why is this group not represented?
1. Hunting	Genofond area – hunting is forbidden
2. Forestry	Forest in conservation

B3. End of the case study implementation (for administrators)

Participation

a. How many local residents participated in the mapping work?

10 persons participated in mapping work, including 9 schoolchildren plus their teacher.

b. How many person-hours did they spend?

150 person-hours (10 persons x 3 days x 5 hours/day)

c. How many local residents participated in the socio-economic planning?

There were 10 persons. Among these persons the mayor of the community, director of school and leader community members involved in traditional activities (fishing and tourism) was present. Some of those present at the workshop were involved in the past in Sea-buckthorn cultivation and exploitation activities within the area of Sfantu Gheorghe, and so we had the opportunity to compare the information obtained by us with those held by those who actually worked in this field.

d. How many person-hours did they spend in total?

150 person-hours: 50 person hours (10 persons x 5 hours) in focus group meeting organized by the DDNI team, plus other time in two informal meeting and small group discussion during the summer estimated at around 100 person-hours.

e. How many meetings did you hold?

There were three meetings. We hold one meeting named Focus Group for discussing the economic and social trends of Sfantu Gheorghe village. There were also another two informal meetings, one between the local stakeholders and one with the helpers at the end of the project. At these meetings we add the discussions carried on with the locals during those 24 Before queries and the 6 Helpers surveillances.

f. How many people attended in total, for mapping and socio-economics combined?

20 persons from local community participate in Sfantu Gheorghe study case.

g. Please provide a timeframe scheme of the tasks, preferably a Gantt diagram (in the annex of this document).

See Annex 1

Data

h. Who will be responsible for the collected data?

The responsible for collecting the data on the biology of the species targeted by the project, their potential of use and opportunities of financing of economic projects was the administrator (DDNI) with local knowledge contribution of stakeholders, while for the biodiversity and the mapping data was administrator (DDNI) with the Ecological Club of Sfantu Gheorghe's school.

i1. Are you planning to disseminate the results of the project?

Yes [x] No [ ]

i2. If yes, how?

We are planning to disseminate the results through leaflets, posters and scientific papers by presenting them on international symposiums (Deltas & Wetlands International Symposium, 2010), discussing with different people interested about the project and its results like: scientists, local community, local administration, various stakeholders, etc.

Evaluation of mapping

j. What are your suggestions, if any, for further improvement to mapping hardware?

For Algiz7 tablet PC, we recommend to increase the readability of screen by improving brightness and contrast to be more readable in sunny beach area. We noticed that battery has discharging during shutdown status of computer, and ask manufacturer resolve this issue.

k. What are your suggestions, if any, for further improvement to mapping software?

We noticed that Anatrack Mapper does not work properly with tablet PC GPS for real time positioning in the field, and developer resolved this issue. We recommend to include in biodiversity mapping software the facilities to record abundance data for species mapped.

l1. What is the mean % difference between the mapping and any duplication done for testing repeatability (if this was done)?

In our case the difference from schoolchildren mapping and check mapping made by DDNI team should be quite different due to using first time equipment without GPS location, just doubled with external GPS and in checking mapping we have facilitation of real time positioning. However, low resolution of support map from Google, do not help for more accurate mapping.

l2. How was the error measured? (NB if repeats of data from the same areas are provided to Anatrack, errors can be estimated for you)

We have not measured the error, but we can provide the two round of mapping files for error estimation by Anatrack.

m. What percentage of the planned mapping exercise was completed? …%.

100%

Evaluation of socio-economic planning

n. Please rate the difficulty of the socio-economic project planning for the local team listed in 2c and other volunteers? (1=low, 5=high)

1	2	3	4	5
		x		

o. To what percentage of your satisfaction did the local team provide data needed for the socio-economic project planning? …. 60%

During the workshop, two representatives provided data on their previous background regarding Sea –buckthorn growing as well as data on the status and development tendency of the Sea-buckthorn due to human impact (burning, harvesting for firewood, etc.). The mayor reviewed the status of the community after the prohibition of sturgeon. Other project participants discussed the appropriateness and potential success. It has also been discussed the number of potential new jobs created by the project and the number of families who would benefit from the project.

p. If you used any decision support models in the WP4 database for planning, please rate them as (1=poor, 5=excellent) and please comment on any improvements needed. If you did not use any of the models, please comment why not?

1	2	3	4	5

comments
There weren't used any decision support models in the WP4 database for planning. Actually we have only a metadata base for Decision Support Models in WP4, but not real software.

q. What information, including predictive models, would you have liked but it was not available?

We wish that more detailed biodiversity GIS data should be available for Sfantu Gheorghe, respectively Danube Delta, and predictive decision models. Many information regarding the Sea-buckthorn distribution within the Sfantu Gheorghe area were collected from the locals, through the meetings held or just during casual discussions. In this way we also find out that there several surface covered with spots of Sea-buckthorn around of the commune, preserved in good conditions.

z. A bottleneck is a phenomenon where the performance or capacity of an entire system is limited by a single or limited number of components or resources. Did you encounter any such 'bottlenecks'?

A bottleneck could be the community itself, more precisely its specificity: a sturgeon fishing community in decline in a remote area and with good opportunities for future touristic developments, activity that is also related with the fishing industry through its gastronomy, traditions, culture, and architecture. All this aspects suffer due to demographic decline and due to modernization assault and the locals can't adapt as faster as other communities, most of them refusing to accept that other activities like collecting/cultivation of medicinal plants (Sea-buckthorn) could be a course of income for many families.

B4. Before, for community and helpers

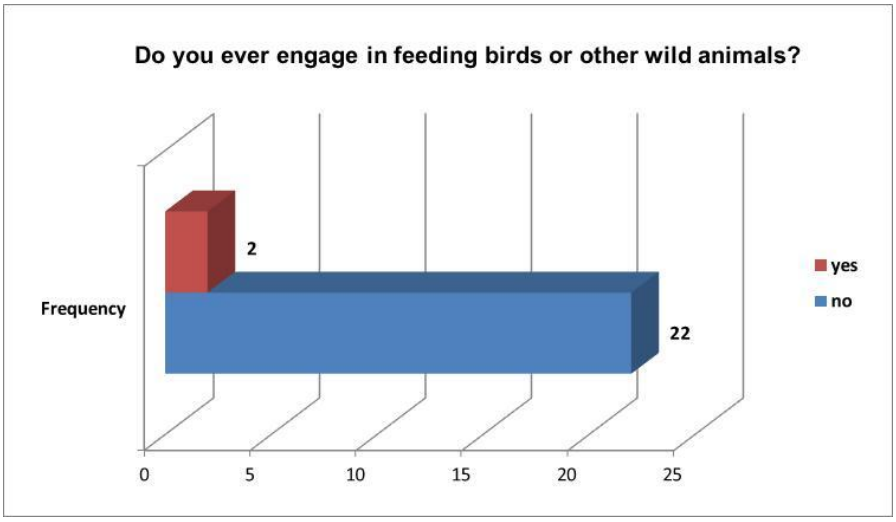
Introduction

As established from the start, polls were conducted on a sample of 24 randomly selected households. Communication was done face to face going from house to house, considering that Saint George is a small community. Subjects were persons of average age and education, whose main occupation is fishing or tourism, mostly both.

We must mention from the beginning that we did not encounter any problems in the availability of the people to respond to the interviews, but there were some difficulties in understanding with the question, especially in terms of the aesthetic or intrinsic value of species and habitats. (*Aesthetics and other intrinsic value* question)

1.1 Do you ever engage in feeding birds or other wild animals? (a 1.1)

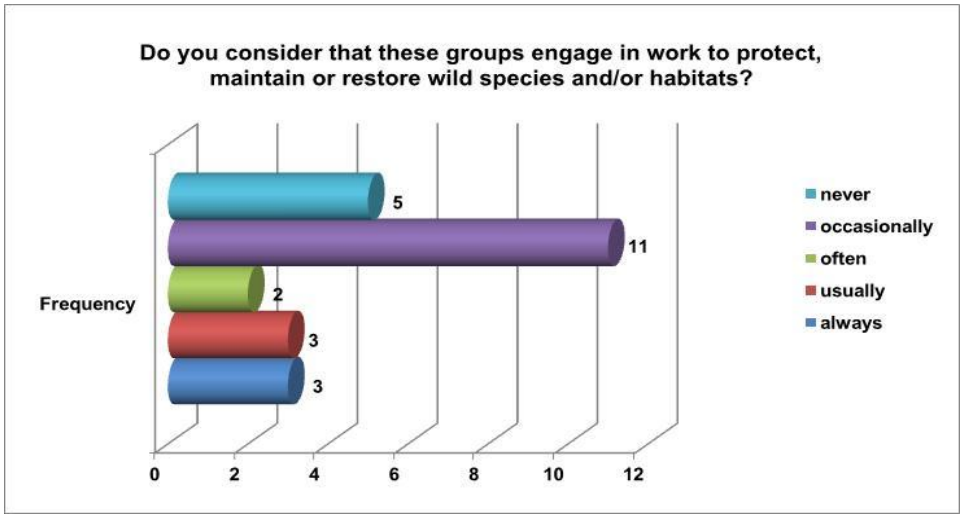
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	22	91,7	91,7	91,7
	yes	2	8,3	8,3	100,0
	Total	24	100,0	100,0	



Most respondents answered **No** because the community is not accustomed to feed wild animals, even more as the area is a protected area does not recommend this.

1.3 Do you consider that these groups (feeding birds or other wild animals) engage in work to protect, maintain or restore wild species and/or habitats? (a 1.3)

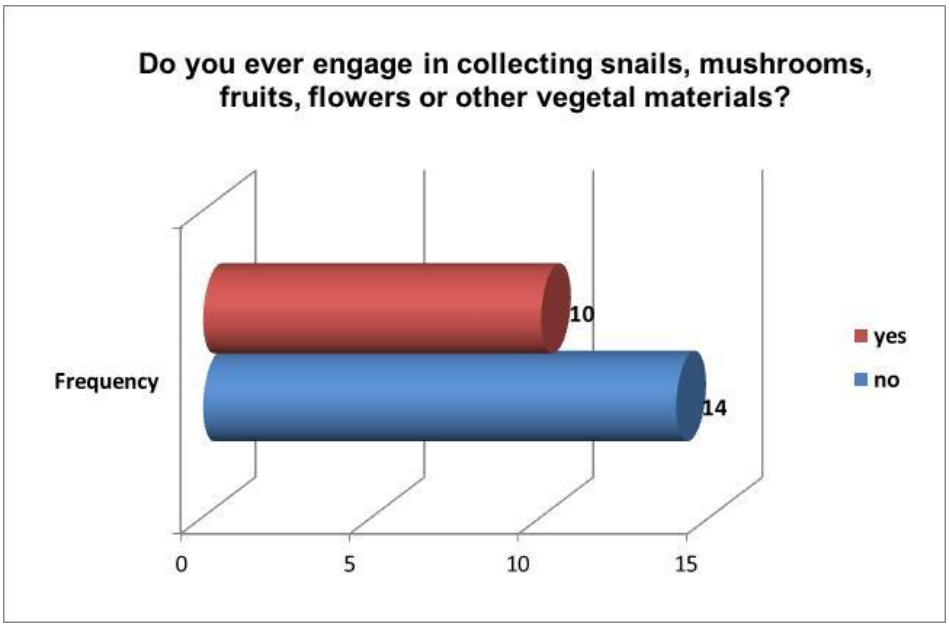
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	always	3	12,5	12,5	12,5
	usually	3	12,5	12,5	25,0
	often	2	8,3	8,3	33,3
	occasionally	11	45,83	45,8	79,1
	never	5	20,83	20,9	100,0
Total		24	100,0	100,0	



The answers and therefore the opinions of the respondents were very heterogeneous, just as in the case of most focusing on the option ***occasionally***. This wide range of responses can be explained by the specific of the community (residents of the delta) and the multitude of regulations and restrictions that accompany this status and the area, regulations that conducts to contradictions.

2.1 Do you ever engage in collecting snails, mushrooms, fruits, flowers or other vegetal materials? (a 2.1)

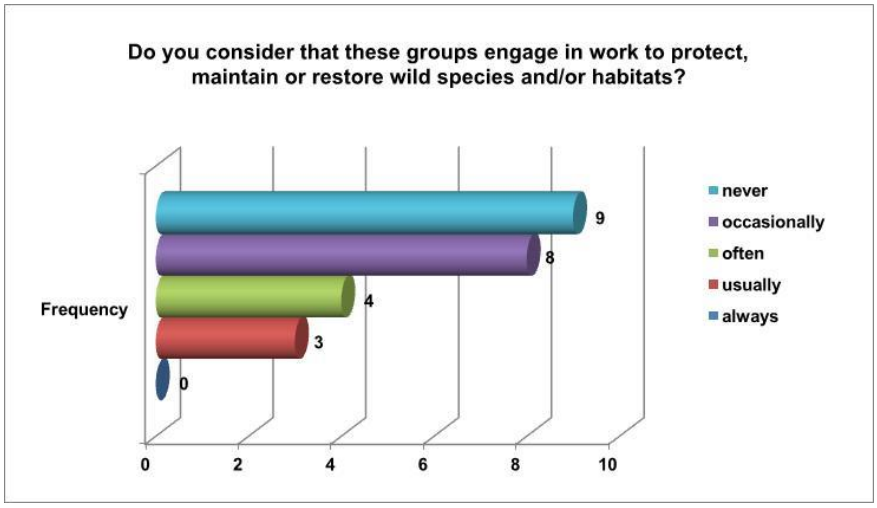
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	14	58,33	58,3	58,3
	yes	10	41,66	41,7	100,0
	Total	24	100,0	100,0	



The answers are almost divided. The community collects mostly plants for medicinal purposes like: Sea-buckthorn, Mint, Chamomiles, etc. and sometimes for educational purposes when a teacher or a professor takes the pupils into a school trip or use the materials in a biology class.

2.3 Do you consider that these groups (collecting snails, mushrooms, fruits, flowers or other vegetal materials) engage in work to protect, maintain or restore wild species and/or habitats? (a 2.3)

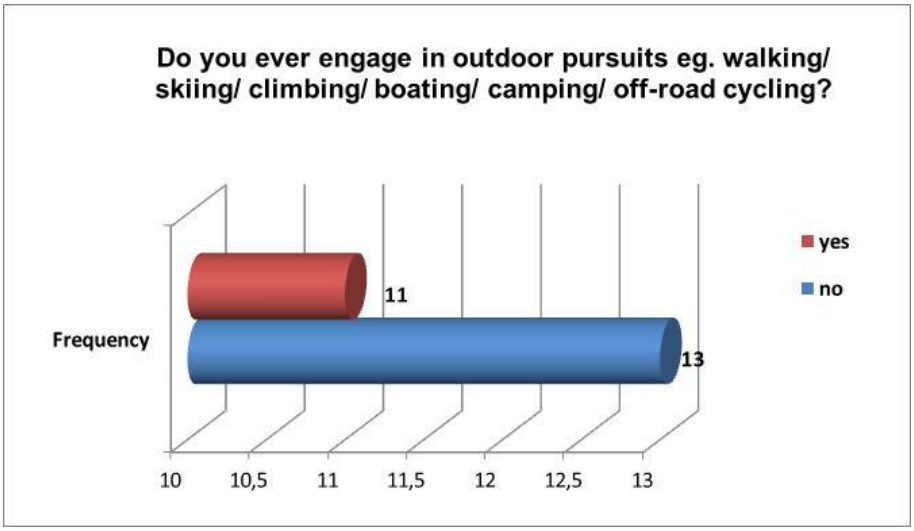
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	always	0	0,0	0,0	0,0
	usually	3	12,5	12,5	12,5
	often	4	16,66	16,7	29,2
	occasionally	8	33,33	33,3	62,5
	never	9	37,5	37,5	100,0
Total		24	100,0	100,0	



The majority of the respondents do not consider that collecting snails, mushrooms, fruits, flowers or other vegetal materials is an activity that protects in any way the environment.

3.1 Do you ever engage in outdoor pursuits eg. walking/ skiing/ climbing/ boating/ camping/ off-road cycling? (a 3.1)

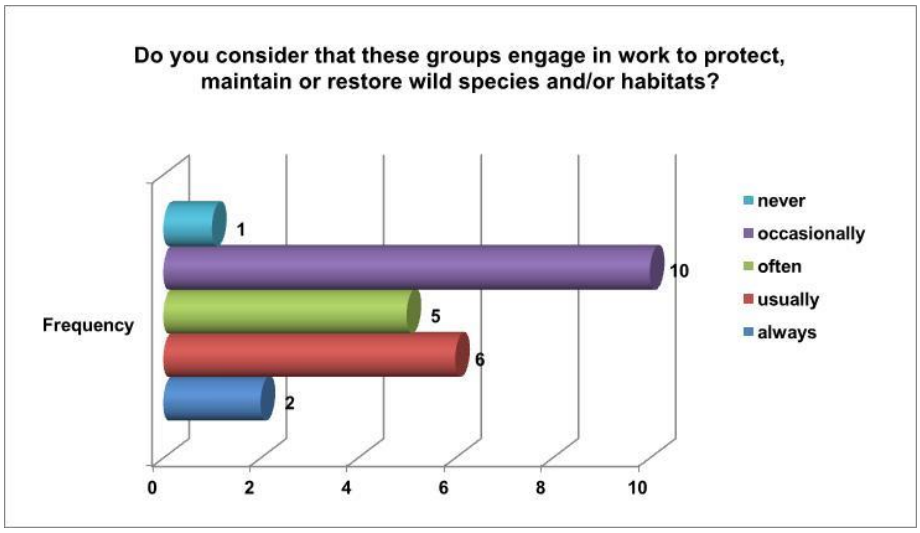
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	13	54,166	54,17	54,17
	yes	11	45,833	45,83	100,0
	Total	24	100,0	100,0	



The respondents told us that they engage in outdoor pursuits in the surroundings of the village by boating, most of them never being able to go into a vacation or a trip. At the same time these activities involve fishing.

3.3 Do you consider that these groups (engaging in outdoor pursuits eg. walking/ skiing/ climbing/ boating/ camping/ off-road cycling) engage in work to protect, maintain or restore wild species and/or habitats? (a 3.3)

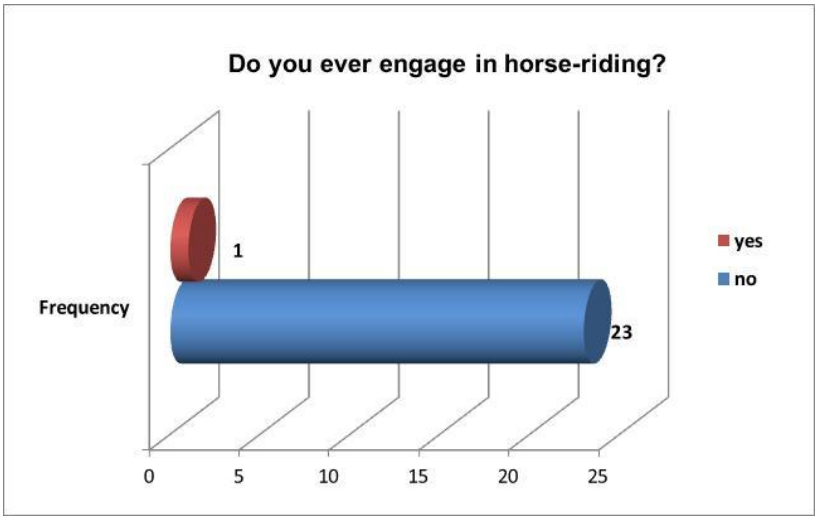
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	always	2	8,33	8,33	8,33
	usually	6	25,0	25,0	33,33
	often	5	20,83	20,83	54,16
	occasionally	10	41,67	41,67	95,83
	never	1	4,17	4,17	100,0
Total		24	100,0	100,0	



Due to the fact that the area generally, and the community especially are the target of the summer tourism, and not only, the community consider that the groups that engage in outdoor pursuits eg. walking/ skiing/ climbing/ boating/ camping/ off-road cycling, do not harm the environment but also do not have any major contribution in its conservation or protection.

4.1 Do you ever engage in horse-riding? (a 4.1)

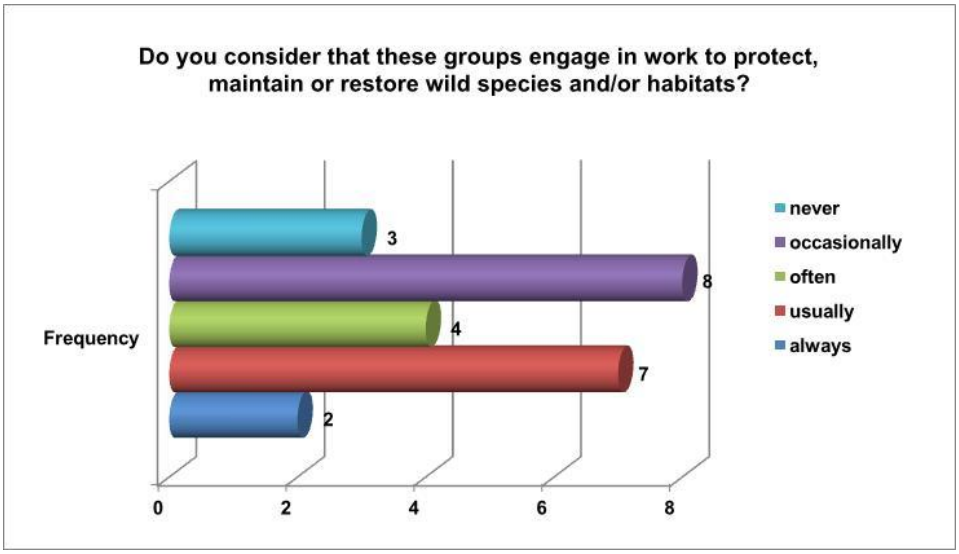
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	23	95,833	95,83	95,83
	yes	1	4,166	4,17	100,0
	Total	24	100,0	100,0	



The respondents don't have this option among their entertainment activities, considering that horses are primarily a truck (carrying luggage) animal.

4.3 Do you consider that these groups (going horse-riding) engage in work to protect, maintain or restore wild species and/or habitats? (a 4.3)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	always	2	8,33	8,33	8,33
	usually	7	29,17	29,17	37,5
	often	4	16,67	16,67	54,17
	occasionally	8	33,33	33,33	87,5
	never	3	12,5	12,5	100,0
Total		24	100,0	100,0	

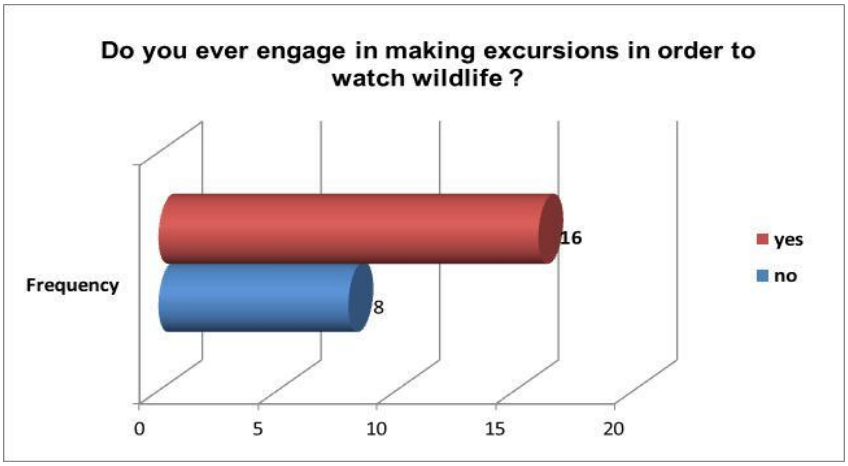


Just as in the case of question a.1 the answers and therefore the opinions of the respondents were very heterogeneous, due to the specific of the community (residents of the delta) and the multitude of regulations and restrictions that accompany this status and the area, regulations that conducts to contradictions.

5.1 Do you ever engage in making excursions in order to watch wildlife? (a 5.1)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	8	33,33	33,3	33,3
	yes	16	66,66	66,7	100,0

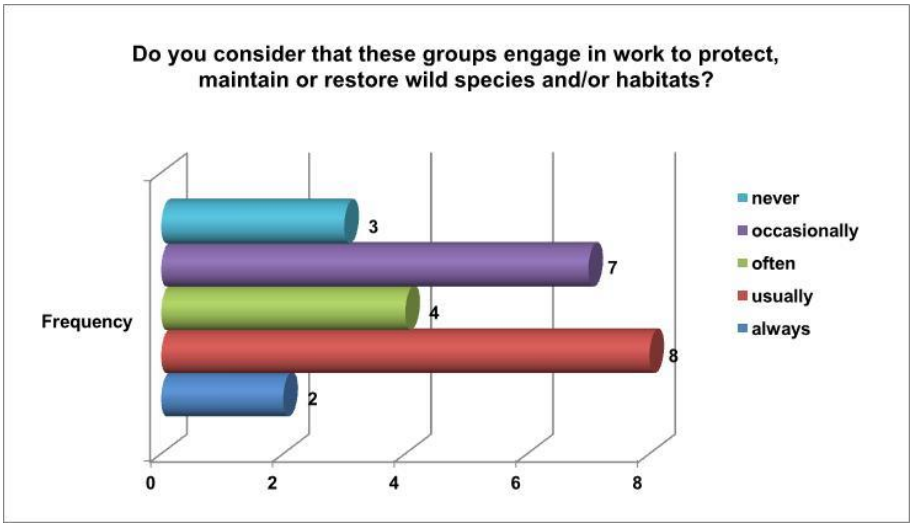
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	8	33,33	33,3	33,3
	yes	16	66,66	66,7	100,0
	Total	24	100,0	100,0	



The respondents answered that they make excursions in order to watch wildlife only as a biology school teacher for documentation or with the pupils during a biology class. The others, that don't relate their work with this, make excursions only extremely rare due to the fact that their entire life is going on in a wildlife environment. At the same time, most of them are involved in tourism activity, providing wildlife trips all the season.

5.3 Do you consider that these groups (making excursions in order to watch wildlife) engage in work to protect, maintain or restore wild species and/or habitats? (a 5.3)

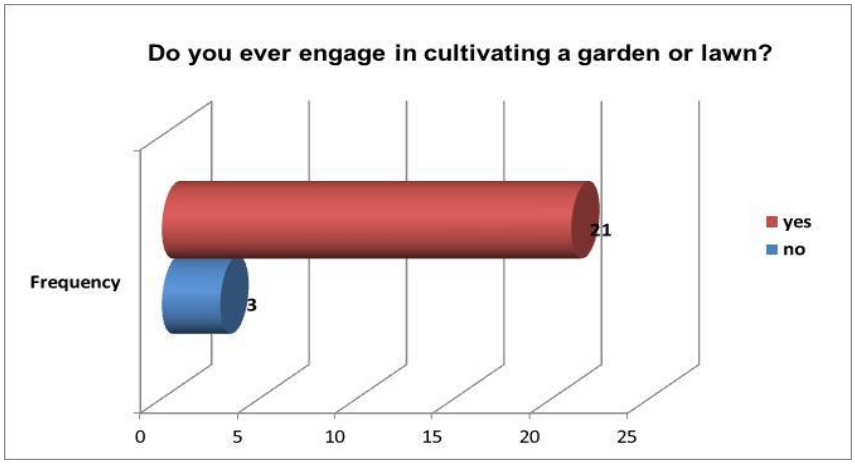
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	always	2	8,33	8,33	8,33
	usually	8	33,33	33,33	41,66
	often	4	16,67	16,67	58,33
	occasionally	7	29,17	29,17	87,5
	never	3	12,5	12,5	100,0
Total		24	100,0	100,0	



Fishing and tourism being the major and sometimes the only activities in this area, inhabitants are used to consider them profitable, and thus to appreciate tourists or anglers as an income source. At the same time these two categories are competitors to the limited resources of this area. In this way some respondents answered with yes or no depending on their interests (teachers, fishermen, mansion owners, housewives, etc.)

6.1 Do you ever engage in cultivating a garden or lawn? (a 6.1)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	3	12,5	12,5	12,5
	yes	21	87,5	87,5	100,0
	Total	24	100,0	100,0	

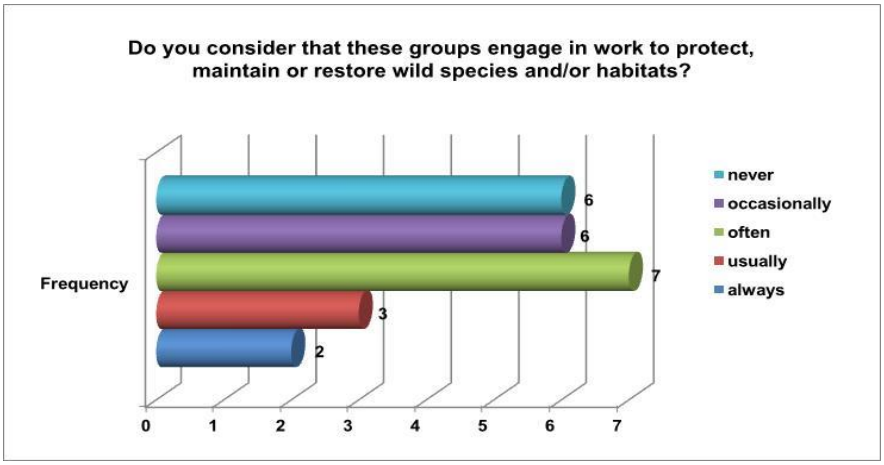


The big majority of the inhabitants cultivate a garden in their courtyard, because the garden is the only source for fresh vegetables or fruits in this area. The vegetables

obtained are used for their own consumption but also for feeding the tourists accommodated in their mansions. So it is natural that the most respondent answered with **Yes** to this question.

6.3 Do you consider that these groups (cultivating a garden or lawn) engage in work to protect, maintain or restore wild species and/or habitats? (a 6.3)

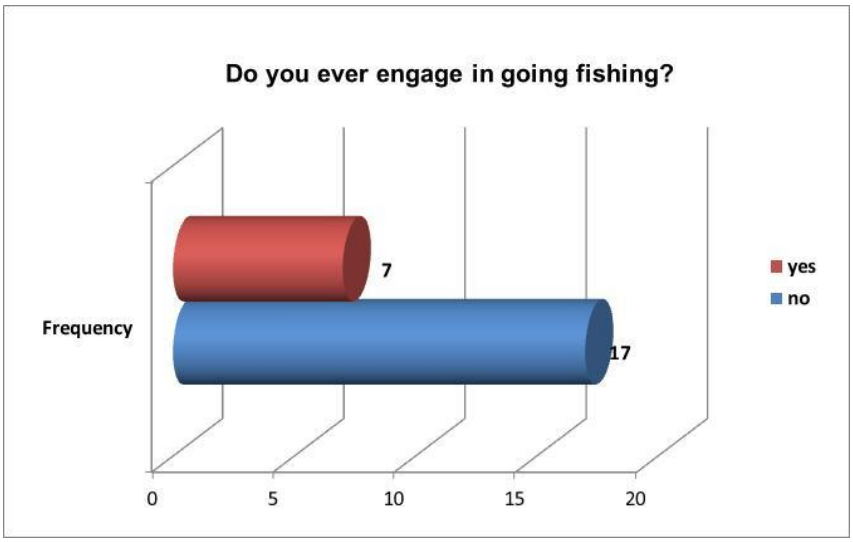
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	always	2	8,33	8,33	8,33
	usually	3	12,5	12,5	20,83
	often	7	29,17	29,17	50,0
	occasionally	6	25,0	25,0	75,0
	never	6	25,0	25,0	100,0
Total		24	100,0	100,0	



The majority of the respondents think that cultivating a garden or a lawn does not protect in any way the environment, and almost 30% think that this activity is not harmful but at the same time is also not protective for the wild species or habitats.

7.1 Do you ever engage in going fishing? (a 7.1)

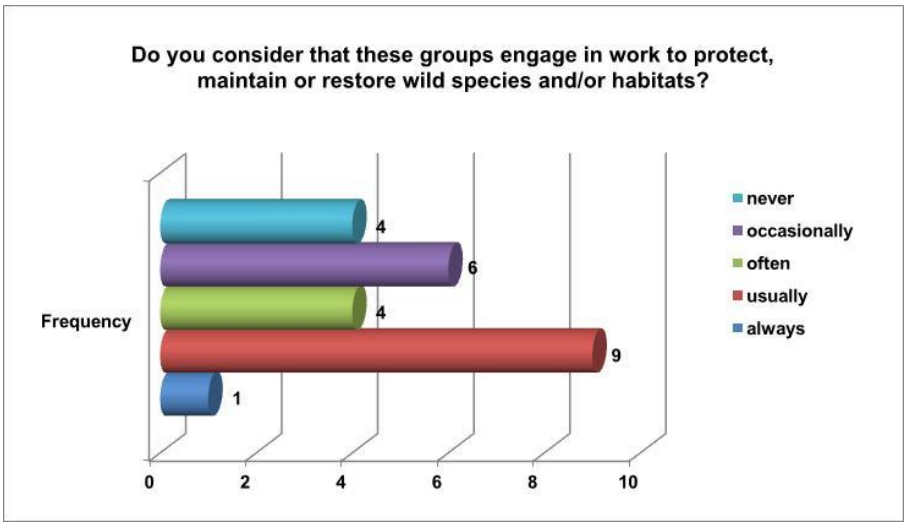
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	17	70,83	70,83	70,83
	yes	7	29,17	29,17	100,0
	Total	24	100,0	100,0	



The graphic expose a result much expected, due to the fact that Sfantu Gheorghe is a fishermen community, but activity of fishing does not concern the sportive fishing or angling, or at least not in a proportion that should count. The fishing activity developed by this community involves the commercial aspect, as their primarily basic activity for supporting themselves. That is why almost the 17 of the respondent answered with **No.**

7.3 Do you consider that these groups (going fishing) engage in work to protect, maintain or restore wild species and/or habitats? (a 7.3)

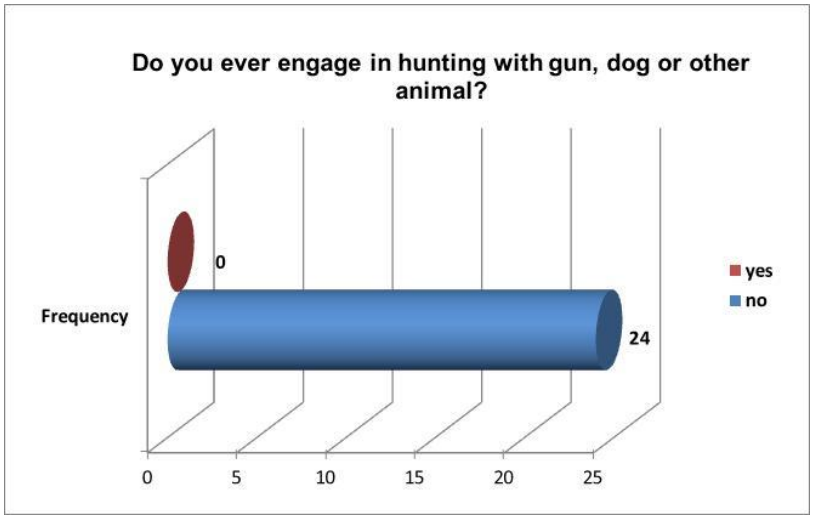
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	always	1	4,17	4,17	4,17
	usually	9	37,5	37,5	41,67
	often	4	16,67	16,67	58,34
	occasionally	6	25,0	25,0	83,34
	never	4	16,66	16,66	100,0
Total		24	100,0	100,0	



The same aspect that produces heterogeneous answers from all the respondents is noticed here. This aspect is determined on one side by the intensive activity of tourism determined by the arrivals of the sportive fishermen or anglers, during summer and autumn, and on the other side by the decreasing of the fishing activity as a supportive source of income and the increasing number of restrictions and regulations that accompany this domain.

8.1 Do you ever engage in hunting with gun, dog or other animal? (a 8.1)

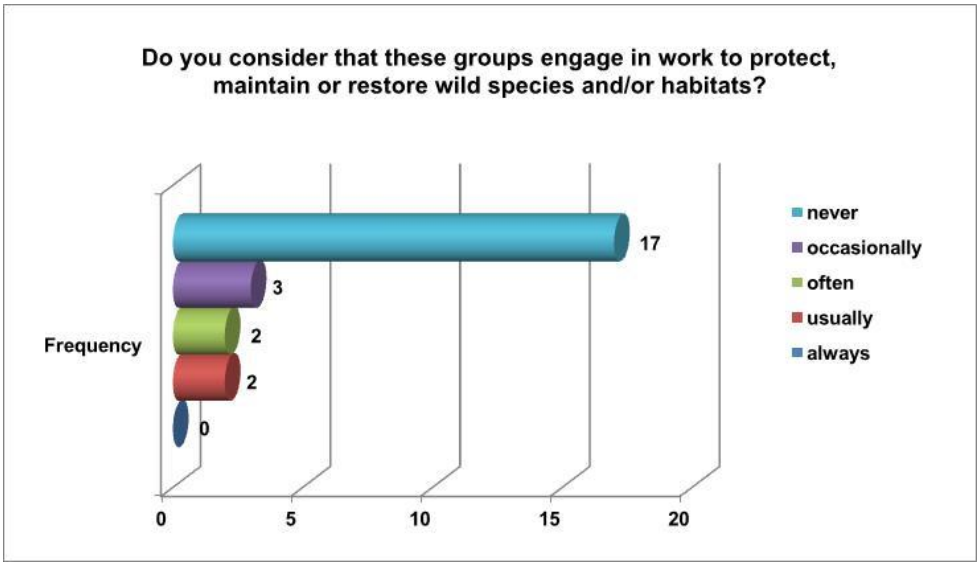
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	24	100,0	100,0	100,0
	yes	0	0,0	0,0	100,0
	Total	24	100,0	100,0	



Regarding that this area is a Biosphere Reserve with strict regulations on hunting, and the hunting fund that exists within the perimeter of Sfantu Gheorghe Commune is a genofond area (hunting is forbidden), it is obviously that all the respondent answered in the same way. Most of the respondents said that do not own a gun or don't like to practice this kind of entertainment, so we can conclude that they don't engage in hunting not in this area and not in the other.

8.3 Do you consider that these groups (hunting with gun, dog or other animal) engage in work to protect, maintain or restore wild species and/or habitats? (a 8.3)

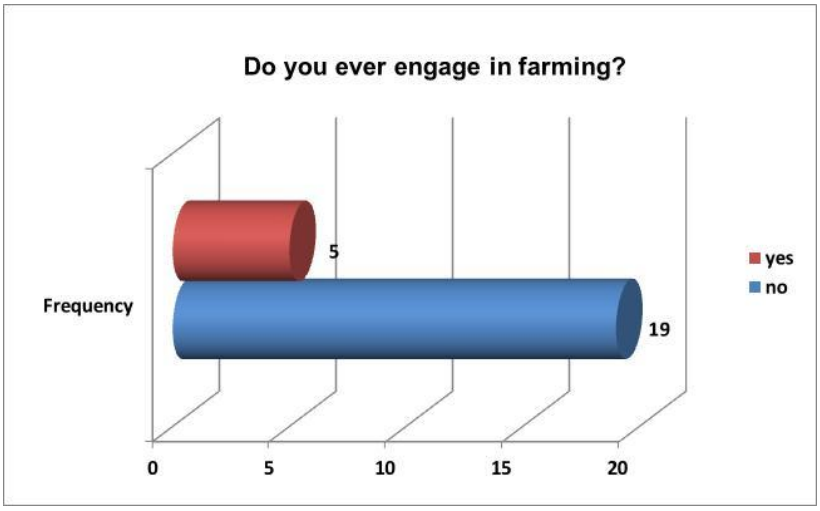
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	always	0	0,0	0,0	0,0
	usually	2	8,33	8,33	8,33
	often	2	8,33	8,33	16,66
	occasionally	3	12,5	12,5	29,16
	never	17	70,83	70,84	100,0
Total		24	100,0	100,0	



Related with the previous graphic, it is natural that the respondents considered that involving in hunting does not mean protection of the wild species. We could also explain their answers by the reluctance this community has towards the outsiders, manifested through the communication of only the "harmless" information for the community.

9.1 Do you ever engage in farming? (a 9.1)

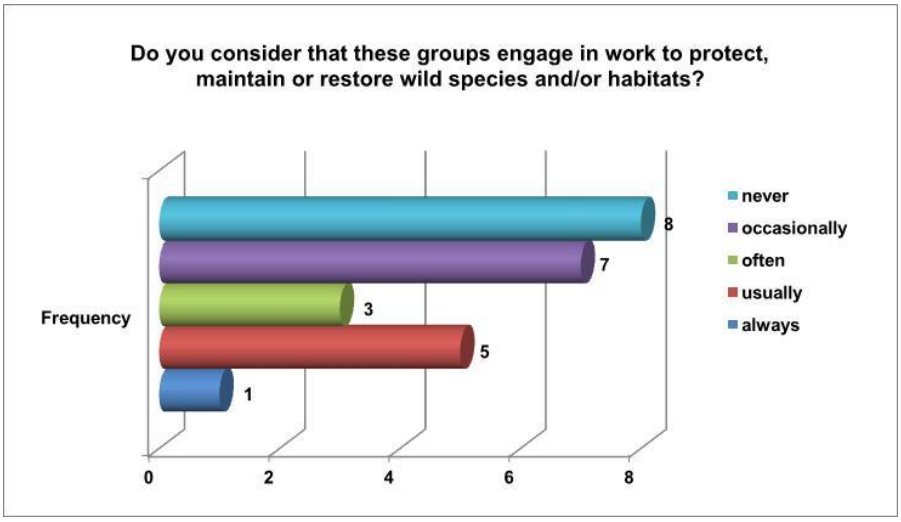
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	19	79,17	79,17	79,17
	yes	5	20,83	20,83	100,0
	Total	24	100,0	100,0	



Sfantu Gheorghe area has not any arable land. The only lands that are cultivated are the yards, or some small portions of lands on which people cultivate corn or alfalfa for feeding the animals, but these areas are not appropriate for agriculture as an industrial activity.

9.3 Do you consider that these groups (farming) engage in work to protect, maintain or restore wild species and/or habitats? (a 9.3)

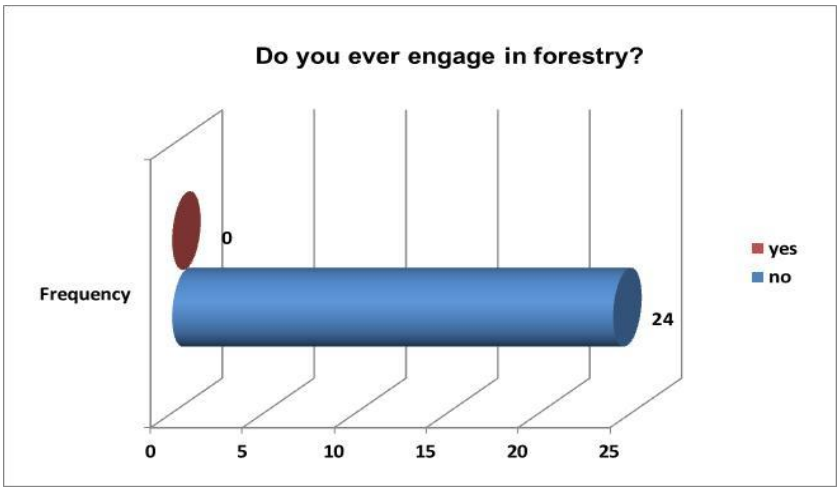
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	always	1	4,17	4,17	4,17
	usually	5	20,83	20,83	25,0
	often	3	12,5	12,5	37,5
	occasionally	7	29,17	29,17	66,67
	never	8	33,33	33,33	100,0
Total		24	100,0	100,0	



Sfantu Gheorghe's inhabitants consider that is very good to work the land in the sense on not neglecting them, but agriculture as an activity means modifying the aspect of a natural area through human impact so it can't be a protective activity for wild species or habitats.

10.1 Do you ever engage in forestry? (a 10.1)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	24	100,0	100,0	100,0
	yes	0	0,0	0,0	100,0
	Total	24	100,0	100,0	

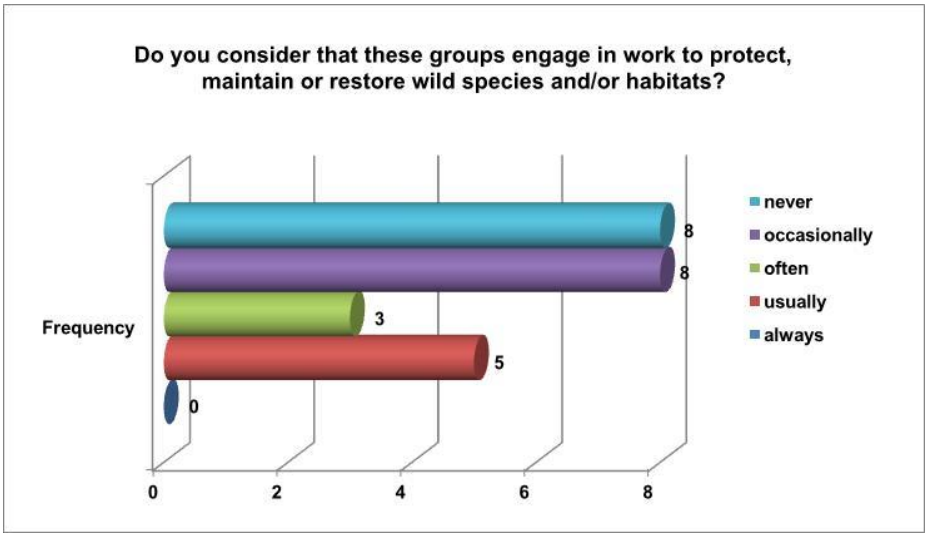


Here we meet that same situation as in the question referring to hunting or farming. The natural area determines the occupational employment of the inhabitants. The area does not have any land that could sustain forestry as an activity, although here

it is a small forestry yard in conservation. This small forestry yard is not specific for this area being planted here with the purpose of further researches before 1990.

10.3 Do you consider that these groups (forestry) engage in work to protect, maintain or restore wild species and/or habitats? (a 10.3)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	always	0	0,0	0,0	0,0
	usually	5	20,83	20,83	20,83
	often	3	12,5	12,5	33,33
	occasionally	8	33,33	33,33	66,66
	never	8	33,33	33,34	100,0
Total		24	100,0	100,0	

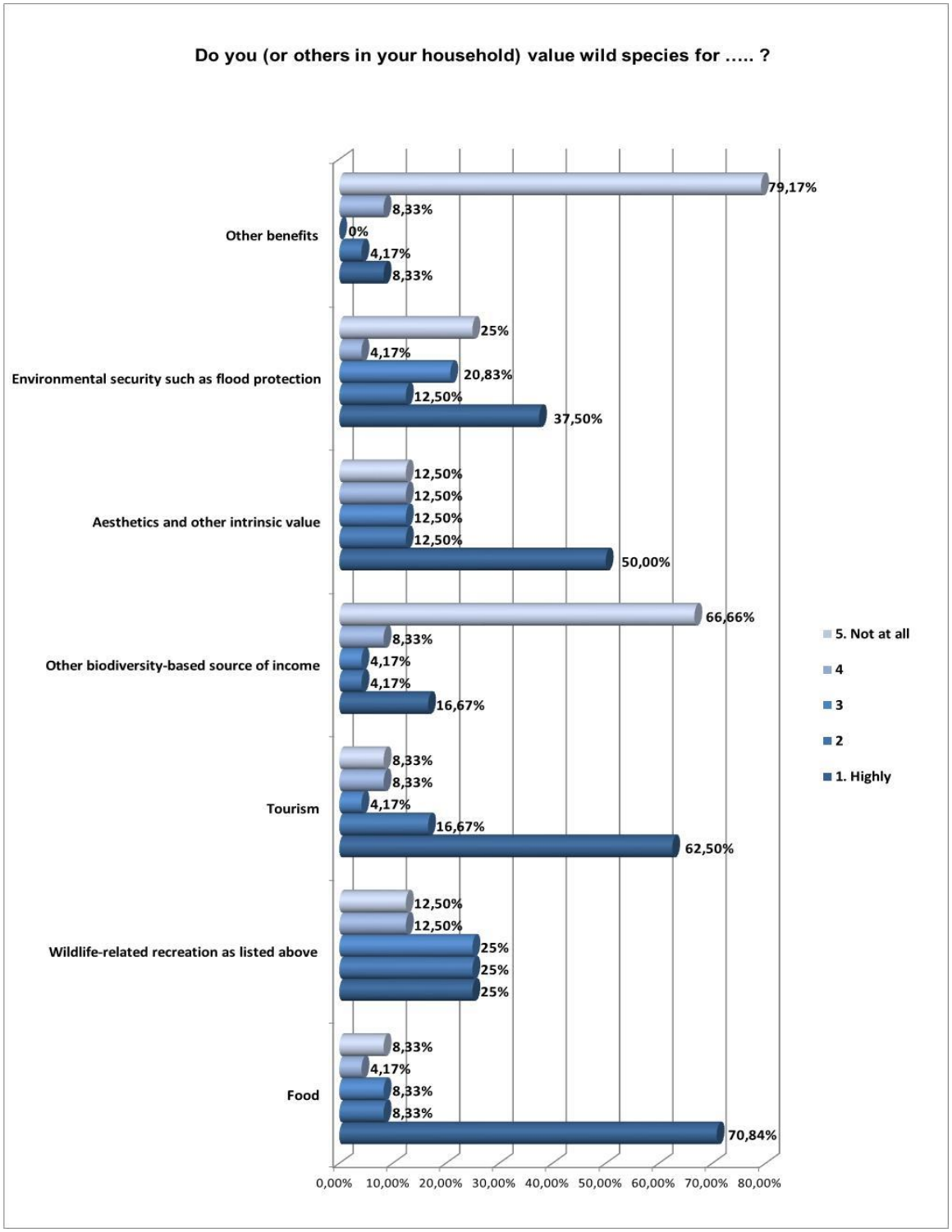


The answers are similar with the ones involving the farming activity. The respondent consider this activity suppose a large percentage of human impact so it can not be named harmless for the wild species or habitats.

b. Do you (or others in your household) value wild species for ….. ?

			1. Highly	2.	3.	4.	5. Not at all	Total
Value	Food	Count	17	2	2	1	2	24
		% within value Food	70,84 %	8,33 %	8,33 %	4,17 %	8,33 %	100 %
	Wildlife-	Count	6	6	6	3	3	24

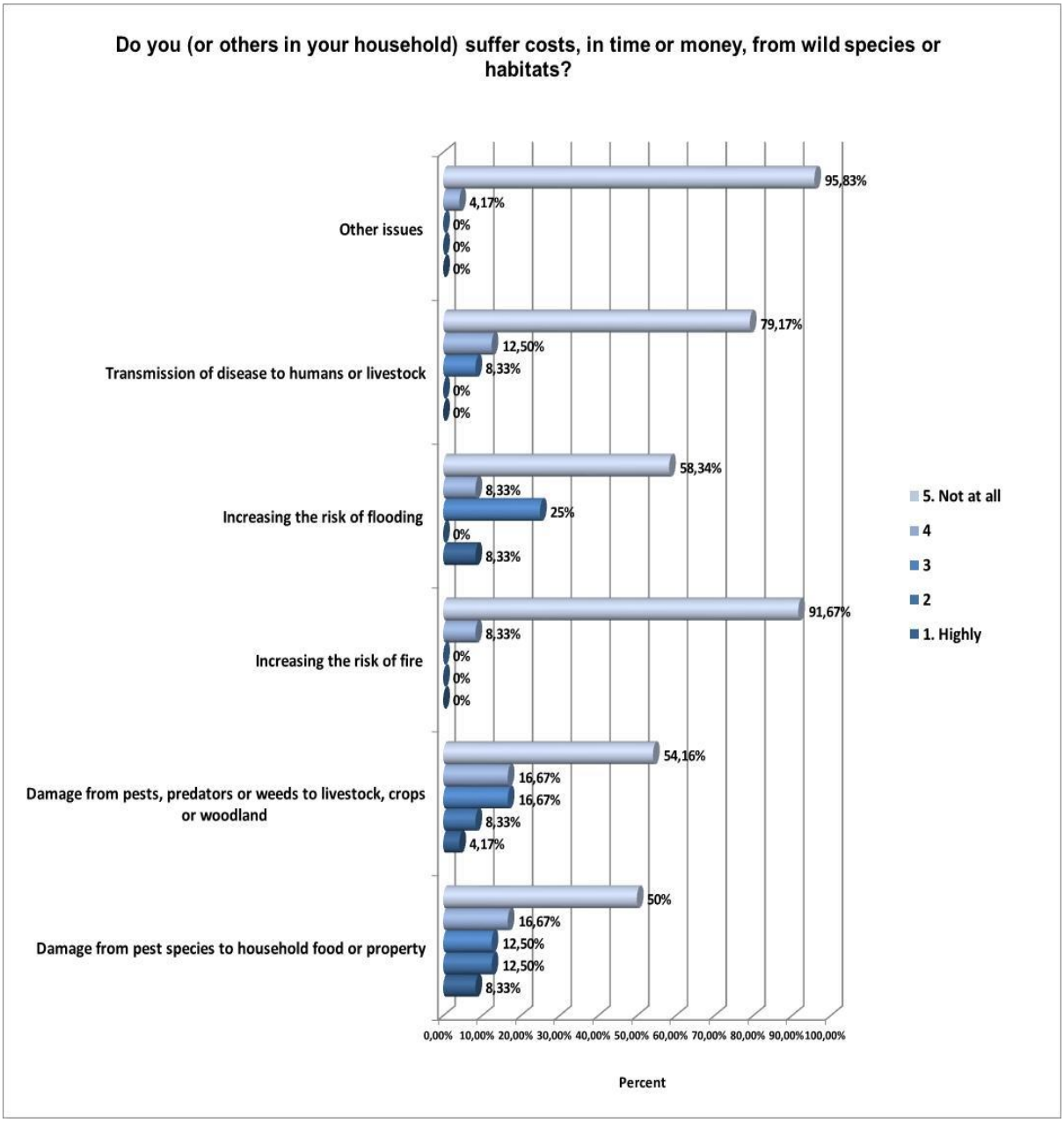
	related recreation as listed above	% within value Wildlife-related recreation as listed above	25 %	25 %	25 %	12,5 %	12,5 %	100 %
	Tourism	Count	15	4	1	2	2	24
		% within value Tourism	62,5 %	16,67 %	4,17 %	8,33 %	8,33 %	100 %
	Other biodiversity-based source of income	Count	4	1	1	2	16	24
		% within value Other biodiversity-based source of income	16,67 %	4,17 %	4,17 %	8,33 %	66,66 %	100 %
	Aesthetics and other intrinsic value	Count	12	3	3	3	3	24
		% within value Aesthetics and other intrinsic value	50,0 %	12,5 %	12,5 %	12,5 %	12,5 %	100 %
	Environmental security such as flood protection	Count	9	3	5	1	6	24
		% within value Environmental security such as flood protection	37,5 %	12,5 %	20,83 %	4,17 %	25 %	100 %
	Other benefits	Count	2	1	0	2	19	24
		% within value Other benefits	8,33 %	4,17 %	0 %	8,33 %	79,17 %	100 %



Related with the previous section, it is almost obviously that locals appreciate wild species and habitats as sources for food, shelter, contraction materials (reed, wicker) or sources of income (tourism, fishing). Actually their entire life is connected with nature, seasons and weather, living in such remote area and depending only on themselves and what nature can provide. In the category of ***Other benefits*** enters the activity of raising animals (cattle, pigs, ducks, gooses, etc.) benefits that are not directly connected with the nature but depend in a very high range on it.

c) Do you (or others in your household) suffer costs, in time or money, from wild species or habitats?

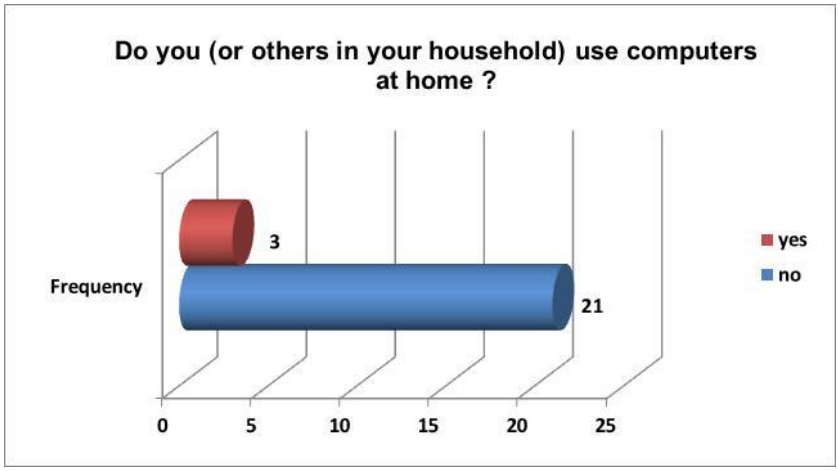
			1. Highly	2.	3.	4.	5. Not at all	Total
Value	Damage from pest species to household food or property	Count	2	3	3	4	12	24
		% within suffer Damage from pest species to household food or property	8,33 %	12,5 %	12,5 %	16,67 %	50 %	100 %
	Damage from pests, predators or weeds to livestock, crops or woodland	Count	1	2	4	4	13	24
		% within suffer Damage from pests, predators or weeds to livestock, crops or woodland	4,17 %	8,33 %	16,67 %	16,67 %	54,16 %	100 %
	Increasing the risk of fire	Count	0	0	0	2	22	24
		% within suffer Increasing the risk of fire	0 %	0 %	0 %	8,33 %	91,67 %	100 %
	Increasing the risk of flooding	Count	2	0	6	2	14	24
		% within suffer Increasing the risk of flooding	8,33 %	0 %	25 %	8,33 %	58,34 %	100 %
	Transmission of disease to humans or livestock	Count	0	0	2	3	19	24
		% within suffer Transmission of disease to humans or livestock	0 %	0 %	8,33 %	12,5 %	79,17 %	100 %
	Other issues	Count	0	0	0	1	23	24
		% within suffer Other issues	0 %	0 %	0 %	4,17 %	95,83 %	100 %

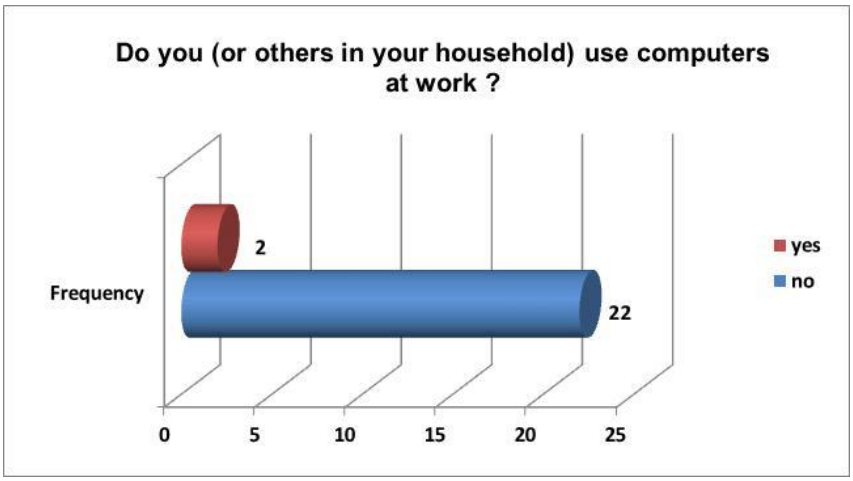


As it emerges from the graphic, the inhabitants suffer costs from wild species or habitats but not more than people within the other areas. The risk of pests is not more than usual, people and animals in this area having a strong immunity. The interviewer asked them if there were problems with swine flu, avian influenza (transmitted through wild migratory birds), West Nile virus (transmitted through mosquitoes), and all respondents answered **No**, even they heard about these diseases. The risk of flooding is also present but not due to Danube, but due to the Black Sea that comes close to the village during serious storms.

d) Do you (or others in your household) use computers?

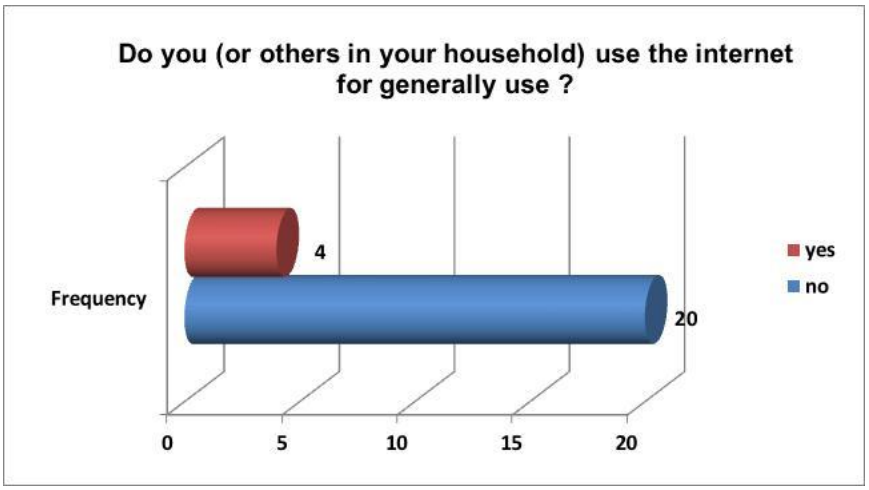
			Yes	No	Total
Value	At home	Count	3	21	24
		% within value At home	12,5 %	87,5 %	100 %
	At work	Count	2	22	24
		% within value At work	8,33 %	91,67 %	100 %

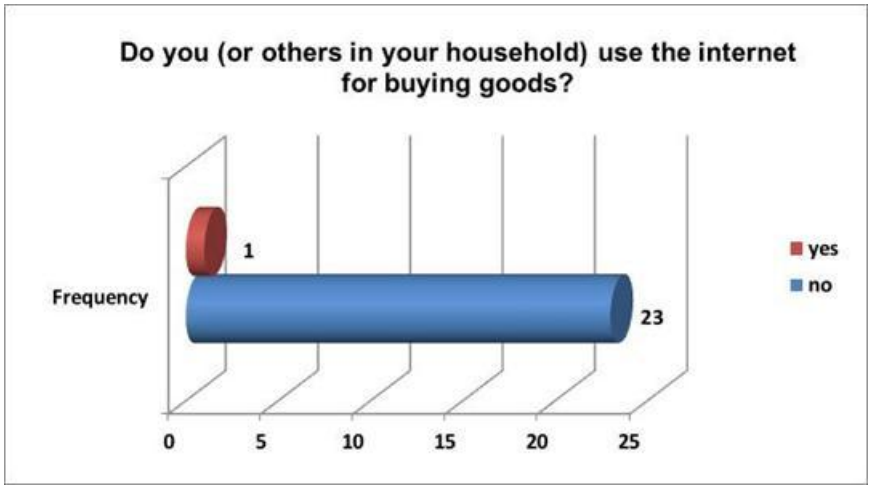




e) Do you (or others in your household) use the internet?

			Yes	No	Total
Value	Generally use	Count	4	20	24
		% within value Generally use	16,67 %	83,33 %	100 %
	Buying goods	Count	1	23	24
		% within value Buying goods	4,17 %	95,83 %	100 %



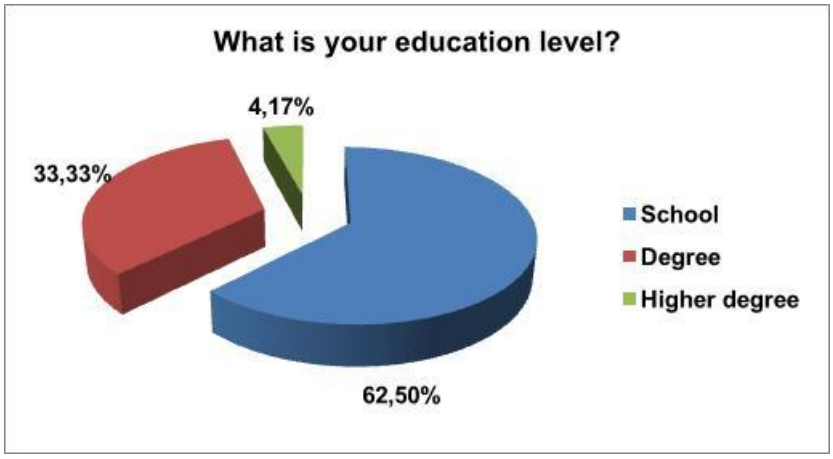


The answers to these two questions (d, e) emphasize the remote character of the community especially that a large percentage of it is made by middle age persons. The only persons that are using the computer for being updated with the news or just for buying goods are the teachers or the people working in the public administration.

We have to take into consideration that all the houses have a satellite antenna in order to receive the television signal. So the inhabitants are connected all the time with the news through different programs and media channels.

f) What is your education level?

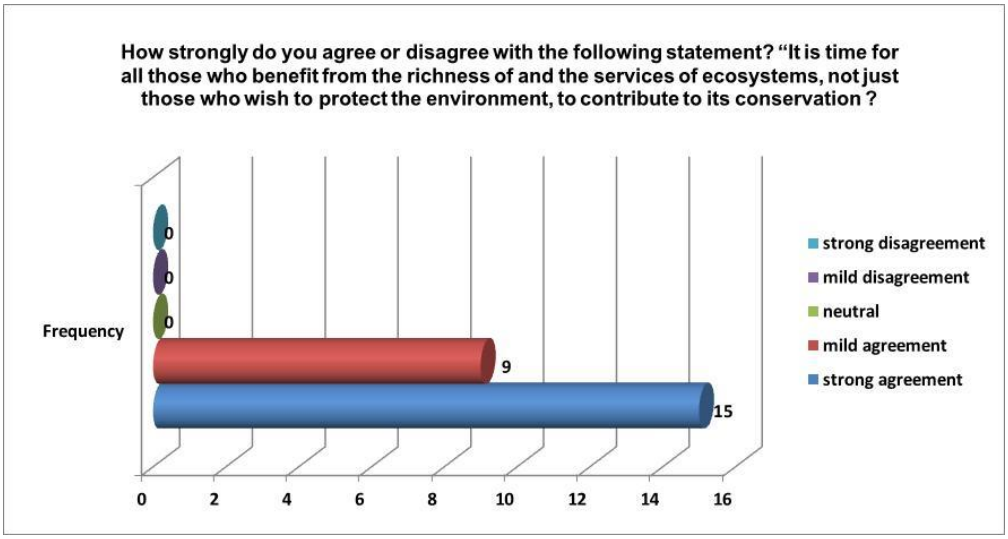
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	School	15	62,5	62,5	62,5
	Degree	8	33,33	33,33	95,83
	Higher degree	1	4,17	4,17	100,0
Total		24	100,0	100,0	



As it emerges from the graphic the majority of the inhabitants have an intermediate level of education (8 classes). The only inhabitants that own a higher degree are the teachers.
This gap can be explained by the small number of children enrolled in school in the village annually (for example only one pupil was enrolled in the 1st class in 2010), by extremely heavy conditions which must bear a teacher who comes to teach here (community isolation, difficult access to villages or cities nearby, unattractive pay, etc.) and the education received by children within their families namely that either remain in the village to work as fishermen or in tourism business, or go on to high school and then college and not coming back.

g) How strongly do you agree or disagree with the following statement? "It is time for all those who benefit from the richness of nature (biodiversity) and the services of ecosystems, not just those who wish to protect the environment, to contribute to its conservation"?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strong agreement	15	62,5	62,5	62,5
	mild agreement	9	37,5	37,5	100,0
	neutral	0	0,0	0,0	
	mild disagreement	0	0,0	0,0	
	strong disagreement	0	0,0	0,0	
Total		24	100,0	100,0	



All those surveyed responded positively to the question of the interviewer, thinking that it is time for all those who benefit from the richness of nature (biodiversity) and the services of ecosystems not just those who wish to protect the environment.

CROSS TABULATION

a) DO YOU EVER ENGAGE IN……VS THE EDUCATION LEVEL

Do you ever engage in ……. * Education level - Cross tabulation

			Education level			
			School	Degree	Higher degree	Total
Feed birds or other wildfile	no	Count	15	7	0	22
		% within Feed birds or other wildlife	68,18 %	31,82 %	0 %	100 %
	yes	Count	0	1	1	2
		% within Feed birds or other wildlife	0 %	50 %	50 %	100 %
Total		Count	15	8	1	24
		% within Feed birds or other wildlife	62,5 %	33,33 %	4,17 %	100 %
Collect snails, mushrooms, fruits, flowers or other vegetal materials	no	Count	8	4	1	13
		% within Collect snails, mushrooms, fruits, flowers or other vegetal materials	61,54 %	30,77%	7,69 %	100 %
	yes	Count	6	4	0	10
		% within Collect snails, mushrooms, fruits, flowers or other vegetal materials	60 %	40 %	0 %	100 %

Total		Count	15	8	1	24
		% within value Collect snails, mushrooms, fruits, flowers or other vegetal materials	62,5 %	33,33 %	4,17 %	100 %
Engage in outdoor pursuits eg. walking/ skiing/ climbing/ boating/ camping/ off-road cycling	no	Count	10	3	0	13
		% within value Engage in outdoor pursuits eg. walking/ skiing/ climbing/ boating/ camping/ off-road cycling	76,92 %	23,08 %	0 %	100 %
	yes	Count	5	5	1	11
		% within value Engage in outdoor pursuits eg. walking/ skiing/ climbing/ boating/ camping/ off-road cycling	45,45 %	45,45 %	9,10 %	100 %
Total		Count	15	8	1	24
		% within value Engage in outdoor pursuits eg. walking/ skiing/ climbing/ boating/ camping/ off-road cycling	62,5 %	33,33 %	4,17 %	100 %
Engage in horse-riding	no	Count	15	8	0	23
		% within value Engage in horse-riding	65,22 %	34,78 %	0 %	100 %
	yes	Count	0	0	1	1
		% within value Engage in horse-riding	0 %	0 %	100 %	100 %
Total		Count	15	8	1	24
		% within value Engage in horse-riding	62,5 %	33,33 %	4,17 %	100 %
Make excursions in order to watch wildlife	no	Count	11	5	0	16
		% within value Make excursions in order to watch wildlife	68,75 %	31,25 %	0 %	100 %
	yes	Count	4	3	1	8
		% within value Make excursions in order to watch wildlife	50 %	37,5 %	12,5 %	100 %
Total		Count	15	8	1	24
		% within value Make excursions in order to watch wildlife	62,5 %	33,33 %	4,17 %	100 %
Cultivate a garden or lawn	no	Count	0	3	0	3
		% within value Cultivate a garden or lawn	0 %	100 %	0 %	100 %
	yes	Count	15	5	1	21

		% within value Cultivate a garden or lawn	71,43 %	23,81 %	4,76 %	100 %
Total		Count	15	8	1	24
		% within value Cultivate a garden or lawn	62,5 %	33,33 %	4,17 %	100 %
Go fishing	no	Count	12	4	1	17
		% within value Go fishing	70,60 %	23,52%	5,88 %	100 %
	yes	Count	3	4	0	7
		% within value Go fishing	42,86 %	57,14 %	0 %	100 %
Total		Count	15	8	1	24
		% within value Go fishing	62,5 %	33,33 %	4,17 %	100 %
Go hunting with gun, dog or other animal	no	Count	15	8	1	24
		% within value Go hunting with gun, dog or other animal	62,5 %	33,33 %	4,17 %	100 %
	yes	Count	0	0	0	0
		% within value Go hunting with gun, dog or other animal	0 %	0 %	0 %	0 %
Total		Count	15	8	1	24
		% within value Go hunting with gun, dog or other animal	62,5 %	33,33 %	4,17 %	100 %
Farming	no	Count	11	7	1	19
		% within value Farming	57,90 %	36,84 %	5,26 %	100 %
	yes	Count	4	1	0	5
		% within value Farming	80 %	20 %	0 %	100 %
Total		Count	15	8	1	24
		% within value Farming	62,5 %	33,33 %	4,17 %	100 %
Forestry	no	Count	15	8	1	24
		% within value Forestry	62,5 %	33,33 %	4,17 %	100 %
	yes	Count	0	0	0	0
		% within value Forestry	0 %	0 %	0 %	0 %
Total		Count	15	8	1	24
		% within value Forestry	62,5 %	33,33 %	4,17 %	100 %

As shown by the table and in our observations, it is difficult to establish a correlation between the levels of education of those interviewed, respectively the residents, and activities they take part. This is due to the existence of special circumstances related primarily by the community's location, situated on a distance of 5 hours away by boat, whose only access is by water and which during the winter is completely isolated. In these conditions it is obvious that most of them cultivate a garden (if they don't live at block), more like a necessity and less as a way and that the range of leisure activities is very small, most of the people being engaged in a proportion of 70 % in taking care of the household or for vocational activities.

a) VALUE SPECIES FOR ……..VS THE EDUCATION LEVEL

Value species for……. * Education level - Cross tabulation

			Education level			
			School	Degree	Higher degree	Total
%Food	1. Highly	Count	12	5	0	17
		% within value Food	70,59 %	29,41 %	0 %	100 %
	2.	Count	0	2	0	2
		% within value Food	0 %	100 %	0 %	100 %
	3.	Count	2	0	0	2
		% within value Food	100 %	0 %	0 %	100 %
	4.	Count	1	0	0	1
		% within value Food	100 %	0 %	0 %	100 %
	5. Not at all	Count	0	1	1	2
		% within value Food	0 %	50 %	50 %	100 %
Total		Count	15	8	1	24
		% within value Food	62,5 %	33,33 %	4,17 %	100 %
Wildlife-related recreation as listed above	1. Highly	Count	5	1	0	6
		% within value Wildlife-related recreation as listed above	83,33 %	16,67 %	0 %	100 %
	2.	Count	1	4	1	6
		% within value Wildlife-related recreation as listed above	16,67 %	66,66 %	16,67 %	100 %
	3.	Count	5	1	0	6
		% within value Wildlife-related recreation as listed above	83,33 %	16,67 %	0 %	100 %
	4.	Count	3	0	0	3
		% within value Wildlife-related recreation as listed above	100 %	0 %	0 %	100 %

	5. Not at all	Count	1	2	0	3
		% within value Wildlife-related recreation as listed above	33,33 %	66,67 %	0 %	100 %
Total		Count	15	8	1	24
		% within value Wildlife-related recreation as listed above	62,5 %	33,33 %	4,17 %	100 %
Tourism	1. Highly	Count	10	5	0	15
		% within value Tourism	66,67 %	33,33 %	0 %	100 %
	2.	Count	0	3	1	4
		% within value Tourism	0 %	75 %	25 %	100 %
	3.	Count	1	0	0	1
		% within value Tourism	100 %	0 %	0 %	100 %
	4.	Count	2	0	0	2
		% within value Tourism	100 %	0 %	0 %	100 %
	5. Not at all	Count	2	0	0	2
		% within value Tourism	100 %	0 %	0 %	100 %
Total		Count	15	8	1	24
		% within value Tourism	62,5 %	33,33 %	4,17 %	100 %
Other biodiversity-based source of income	1. Highly	Count	2	2	0	4
		% within value Other biodiversity-based source of income	50 %	50 %	0 %	100 %
	2.	Count	0	0	1	1
		% within value Other biodiversity-based source of income	0 %	0 %	100 %	100 %
	3.	Count	0	1	0	1
		% within value Other biodiversity-based source of income	0 %	100 %	0 %	100 %
	4.	Count	2	0	0	2
		% within value Other biodiversity-based source of income	100 %	0 %	0 %	100 %
	5. Not at all	Count	11	5	0	16
		% within value Other biodiversity-based source of income	68,75 %	31,25 %	0 %	100 %
Total		Count	15	8	1	24
		% within value Other biodiversity-based source of income	62,5 %	33,33 %	4,17 %	100 %
Aesthetics and other intrinsic value	1. Highly	Count	6	5	1	12
		% within value Aesthetics and other intrinsic value	50 %	41,67 %	8,33 %	100 %

	2.	Count	2	1	0	3
		% within value Aesthetics and other intrinsic value	66,67 %	33,33 %	0 %	100 %
	3.	Count	1	2	0	3
		% within value Aesthetics and other intrinsic value	33,33 %	66,67 %	0 %	100 %
	4.	Count	3	0	0	3
		% within value Aesthetics and other intrinsic value	100 %	0 %	0 %	100 %
	5. Not at all	Count	3	0	0	3
		% within value Aesthetics and other intrinsic value	100 %	0 %	0 %	100 %
Total		Count	15	8	1	24
		% within value Aesthetics and other intrinsic value	62,5 %	33,33 %	4,17 %	100 %
Environmental security such as flood protection	1. Highly	Count	4	4	1	9
		% within value Environmental security such as flood protection	44,44 %	44,44 %	11,12%	100 %
	2.	Count	2	1	0	3
		% within value Environmental security such as flood protection	66,67 %	33,33 %	0 %	100 %
	3.	Count	3	2	0	5
		% within value Environmental security such as flood protection	60 %	40 %	0 %	100 %
	4.	Count	0	1	0	1
		% within value Environmental security such as flood protection	0 %	100 %	0 %	100 %
	5. Not at all	Count	6	0	0	6
		% within value Environmental security such as flood protection	100 %	0 %	0 %	100 %
Total		Count	15	8	1	24
		% within value Environmental security such as flood protection	62,5 %	33,33 %	4,17 %	100 %
Other benefits	1. Highly	Count	2	0	0	2
		% within value Other benefits	100 %	0 %	0 %	100 %
	2.	Count	0	0	1	1
		% within value Other benefits	0 %	0 %	100 %	100 %
	3.	Count	0	0	0	0
		% within value Other benefits	0 %	0 %	0 %	0 %
	4.	Count	1	1	0	2
		% within value Other benefits	50 %	50 %	0 %	100 %

	5. Not at all	Count	12	7	0	19
		% within value Other benefits	63,16 %	36,84 %	0 %	100 %
Total		Count	15	8	1	24
		% within value Other benefits	62,5 %	33,33 %	4,17 %	100 %

The data presented reveal no major differences in the assessment of wild species or habitats depending on the level of education, but emphasize that what was expected in an area with rich natural potential so as Delta and Black Sea shore, namely that people know the value of wildlife and the environment in which they live in and that their appreciation depends on the personal interests of the community they belong.

b) SUFFER COSTS FROM WILD SPECIES OR HABITATS VS EDUCATION LEVEL

Suffer costs from wild species or habitats……. * Education level - Cross tabulation

			Education level			
			School	Degree	Higher degree	Total
Damage from pest species to household food or property	1. Highly	Count	1	1	0	2
		% within value Damage from pest species to household food or property	50 %	50 %	0 %	100 %
	2.	Count	2	1	0	3
		% within value Damage from pest species to household food or property	66,67 %	33,33 %	0 %	100 %
	3.	Count	1	2	0	3
		% within value Damage from pest species to household food or property	33,33 %	66,67 %	0 %	100 %
	4.	Count	4	0	0	4
		% within value Damage from pest species to household food or property	100 %	0 %	0 %	100 %
	5. Not at all	Count	7	4	1	12
		% within value Damage from pest species to household food or property	58,34 %	33,33 %	8,33 %	100 %
Total		Count	15	8	1	24

		% within value Damage from pest species to household food or property	62,5 %	33,33 %	4,17 %	100 %
Damage from pests, predators or weeds to livestock, crops or woodland	1. Highly	Count	0	1	0	1
		% within value Damage from pests, predators or weeds to livestock, crops or woodland	0 %	100 %	0 %	100 %
	2.	Count	1	1	0	2
		% within value Damage from pests, predators or weeds to livestock, crops or woodland	50 %	50 %	0 %	100 %
	3.	Count	4	0	0	4
		% within value Damage from pests, predators or weeds to livestock, crops or woodland	100 %	0 %	0 %	100 %
	4.	Count	4	0	0	4
		% within value Damage from pests, predators or weeds to livestock, crops or woodland	100 %	0 %	0 %	100 %
	5. Not at all	Count	6	6	1	13
		% within value Damage from pests, predators or weeds to livestock, crops or woodland	46,15 %	46,15 %	7,70 %	100 %
Total		Count	15	8	1	24
		% within value Damage from pests, predators or weeds to livestock, crops or woodland	62,5 %	33,33 %	4,17 %	100 %
Increasing the risk of fire	1. Highly	Count	0	0	0	0
		% within value Increasing the risk of fire	0 %	0 %	0 %	0 %
	2.	Count	0	0	0	0
		% within value Increasing the risk of fire	0 %	0 %	0 %	0 %
	3.	Count	0	0	0	0
		% within value Increasing the risk of fire	0 %	0 %	0 %	0 %
	4.	Count	1	1	0	2
		% within value Increasing the risk of fire	50 %	50 %	0 %	100 %
	5. Not at all	Count	14	7	1	22

		% within value Increasing the risk of fire	63,63 %	31,82 %	4,55 %	100 %
Total		Count	15	8	1	24
		% within value Increasing the risk of fire	62,5 %	33,33 %	4,17 %	100 %
Increasing the risk of flooding	1. Highly	Count	2	0	0	2
		% within value Increasing the risk of flooding	100 %	0 %	0 %	100 %
	2.	Count	0	0	0	0
		% within value Increasing the risk of flooding	0 %	0 %	0 %	0 %
	3.	Count	4	2	0	6
		% within value Increasing the risk of flooding	66,67 %	33,33 %	0 %	100 %
	4.	Count	2	0	0	2
		% within value Increasing the risk of flooding	100 %	0 %	0 %	100 %
	5. Not at all	Count	7	6	1	13
		% within value Increasing the risk of flooding	53,83 %	46,15 %	7,69 %	100 %
Total		Count	15	8	1	24
		% within value Increasing the risk of flooding	62,5 %	33,33 %	4,17 %	100 %
Transmission of disease to humans or livestock	1. Highly	Count	0	0	0	0
		% within value Transmission of disease to humans or livestock	0 %	0 %	0 %	0 %
	2.	Count	0	0	0	0
		% within value Transmission of disease to humans or livestock	0 %	0 %	0 %	0 %
	3.	Count	1	1	0	2
		% within value Transmission of disease to humans or livestock	50 %	50 %	0 %	100 %
	4.	Count	1	2	0	3
		% within value Transmission of disease to humans or livestock	33,33 %	66,67 %	0 %	100 %
	5. Not at all	Count	13	5	1	19
		% within value Transmission of disease to humans or livestock	68,42 %	26,32 %	5,26 %	100 %
Total		Count	15	8	1	24
		% within value Transmission of disease to humans or livestock	62,5 %	33,33 %	4,17 %	100 %

Other issues	1. Highly	Count	0	0	0	0
		% within value Other issues	0 %	0 %	0 %	0 %
	2.	Count	0	0	0	0
		% within value Other issues	0 %	0 %	0 %	0 %
	3.	Count	0	0	0	0
		% within value Other issues	0 %	0 %	0 %	0 %
	4.	Count	1	0	0	1
		% within value Other issues	100 %	0 %	0 %	100 %
	5. Not at all	Count	14	8	1	23
		% within value Other issues	60,87 %	34,78 %	4,35 %	100 %
Total		Count	15	8	1	24
		% within value Other issues	62,5 %	33,33 %	4,17 %	100 %

Like the other two tables before (a, b) it is clear that education level does not affect the costs the residents support, costs which are strictly related to climate and weather and the specific of the area and locality.

Conclusions:

Saint George is an extremely complex community, with particular problems related to everyday living of a community in a protected natural area, but with great development opportunities, opportunities that make their presence felt and strongly modifying the specific of this community. Emergence and development of tourism and fisheries decline as a basic activity, led to changes in community's structure, the impact of these changes being felt at all levels: architectural, occupational, recreational, demographic, ethnic, etc. In this way, the specific of the community underwent significant changes turning from a fish community into a specific tourist destination.

Development of tourist activity, seasonality and volatility of tourist traffic, demographic decline, the acquisition by the outsiders (domestic and foreign residents) of houses in the area in order to develop a future business in tourism has changed the character of the community from one predominantly Ukrainian in a cosmopolitan one, altering the unique character of the area.

B5. Helpers after

a) **What was your motivation to participate in this task?**
The respondent's motivations were very diverse from curiosity, attractiveness of the theme involved, desire to learn and find out new things to obligation to attend all events regarding the village due to its official duties.

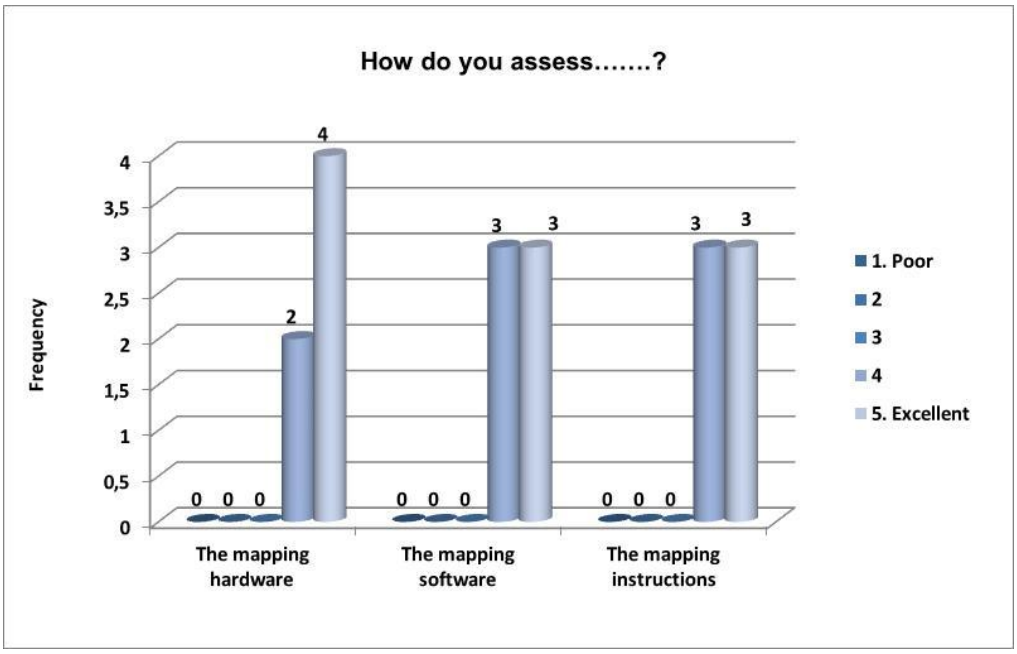
b) **What were your expectations from this project?**
The respondent's expectations were as diverse as their motivations: identifying opportunities for sustainable exploitation of the potential area, obtaining information that could be useful in the future, to offer solutions related to the specific locality, that of the fisherman community, obtaining information about a field which they already knew. Some of the interviewers appreciated positively the projects ideas and themes but they would have wanted a continuation in practice of this project.

c) **Before the project, had there been other projects like this in your area?**
All the respondents said that they don't have any idea about any project within this area, at least not involving mapping equipment.

d) **Before the project, did you have any experience with mapping equipment?**
Not one of the respondents has experience with mapping equipment.

e) **How do you assess…….?(e, g, i)**

			1. Poor	2.	3.	4.	5. Excellent	Total
Value	The mapping hardware	Count	0	0	0	2	4	6
		% within The mapping hardware	0 %	0 %	0 %	33,33 %	66,67 %	100 %
	The mapping software	Count	0	0	0	3	3	6
		% within The mapping software	0 %	0 %	0 %	50 %	50 %	100 %
	The mapping instructions	Count	0	0	0	3	3	6
		% within The mapping instructions	0 %	0 %	0 %	50 %	50 %	100 %



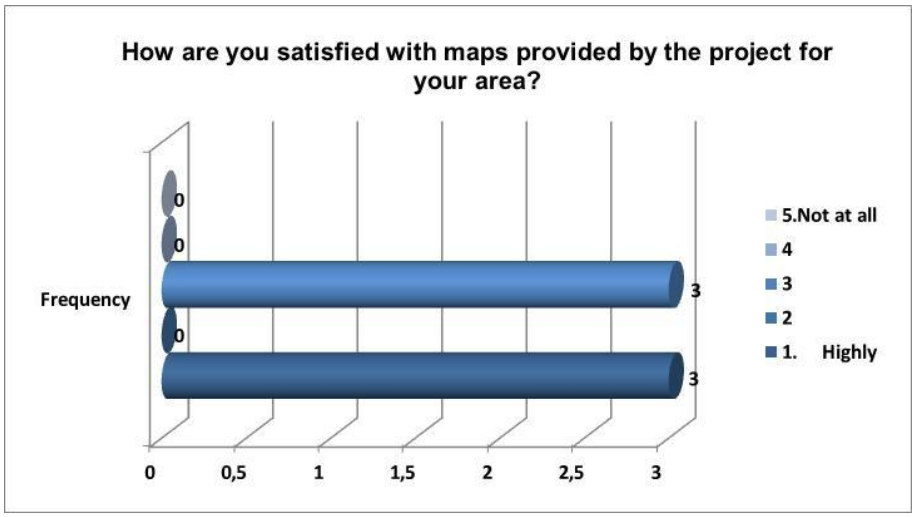
Respondents are not knowledgeable in the field, nor have any experience in using mapping equipment, except when they rarely use the maps and sometimes a GPS. However they said they were pleased with the equipment, but more so rarely they have the opportunity to interact with it.

f) What are your suggestions for further improvement? (f, h)

Regarding that not any of this respondents had any interaction with this type of equipment or project, they aren't able to offer any suggestions.

g) How do you rate your gain in knowledge from participation? (j)

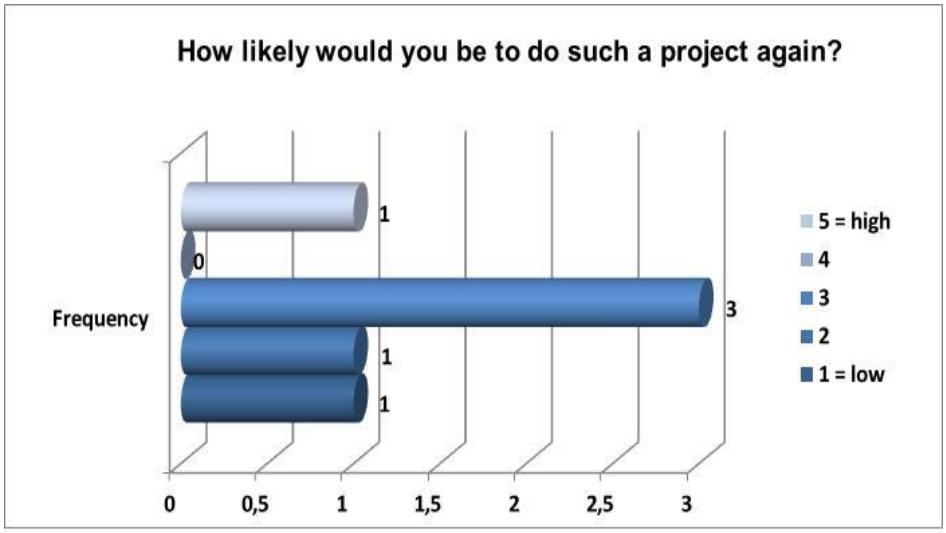
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 = low	0	0,0	0,0	0,0
	2	0	0,0	0,0	0,0
	3	1	16,67	16,67	16,67
	4	2	33,33	33,33	50,0
	5 = high	3	50,0	50,0	100,0
Total		6	100,0	100,0	



All the respondents appreciate positively the information offered, especially the children and their teacher which don't have many opportunities to work with this equipment.

h) How likely would you be to do such a project again? (k)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 = low	1	16,67	16,66	16,67
	2	1	16,67	16,67	33,33
	3	3	50,0	50,0	83,33
	4	0	0,0	0,0	83,33
	5 = high	1	16,67	16,67	100,0
Total		6	100,0	100,0	



As it emerges from the graphic, the respondents that are involved in projects related with the environmental issues appreciate that they have medium chances to participate in such project again. The others don't think this opportunity will appear any sooner.

i) How do you rate the overlap between your thinking before TESS and now? (l)

The respondent's answers varied from not having any evaluation to the fact that the projects ideas were quite similar with those of the respondent. Some of the respondents said that from the awareness point of view, the project answers to its theme, but a practical continuation would be more appropriate. There are also respondents with different expectations from this project, particularly a more specifically approach on the domains that municipality has interests (fishery for example).

j) Do you feel that this kind of project will influence the land use practice?(m)

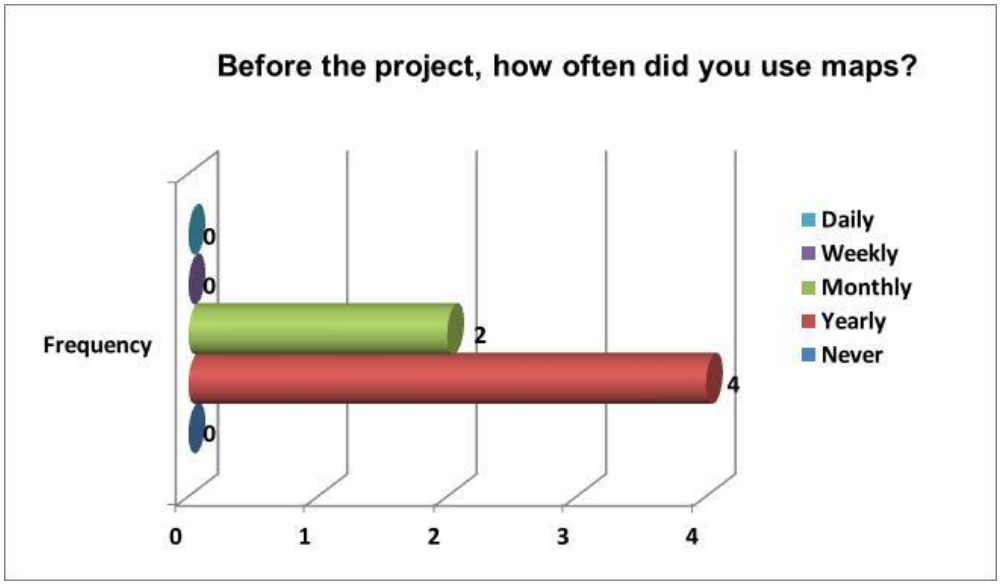
The majority of the respondents said that this projects will probably improve the land use practice, but not in the area of Sfantu Gheorghe, because this area is very poor in land, so there are no opportunities to use the project's results but only in terrier domain.

k) Do you think that this kind of projects must be supported nationally too? (n)

Most of the interviewers said **Yes** to this question, especially if the practical opportunities to use the projects' results appear.

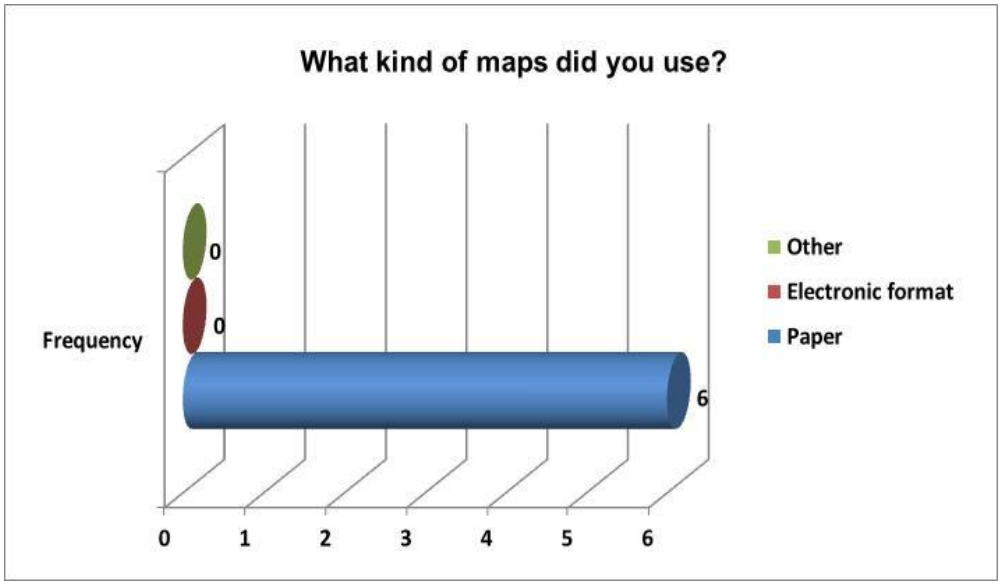
l) Before the project, how often did you use maps? (o)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	0	0,0	0,0	0,0
	Yearly	4	66,67	66,67	66,67
	Monthly	2	33,33	33,33	100,0
	Weekly	0	0,0	0,0	100,0
	Daily	0	0,0	0,0	100,0
Total		6	100,0	100,0	



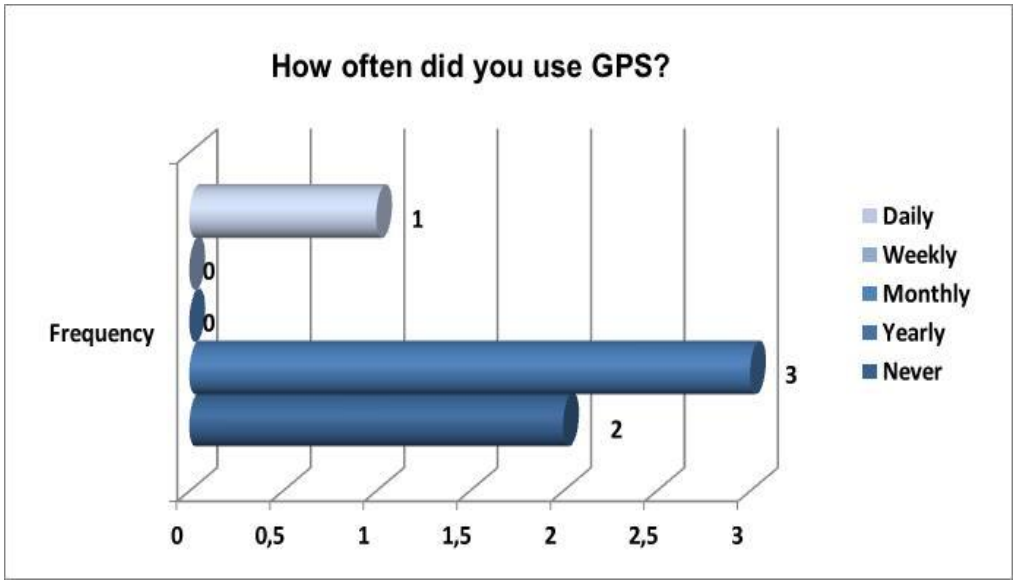
m) What kind of maps did you use? (p)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Paper	6	100,0	100,0	100,0
	Electronic format	0	0,0	0,0	
	Other	0	0,0	0,0	
Total		6	100,0	100,0	



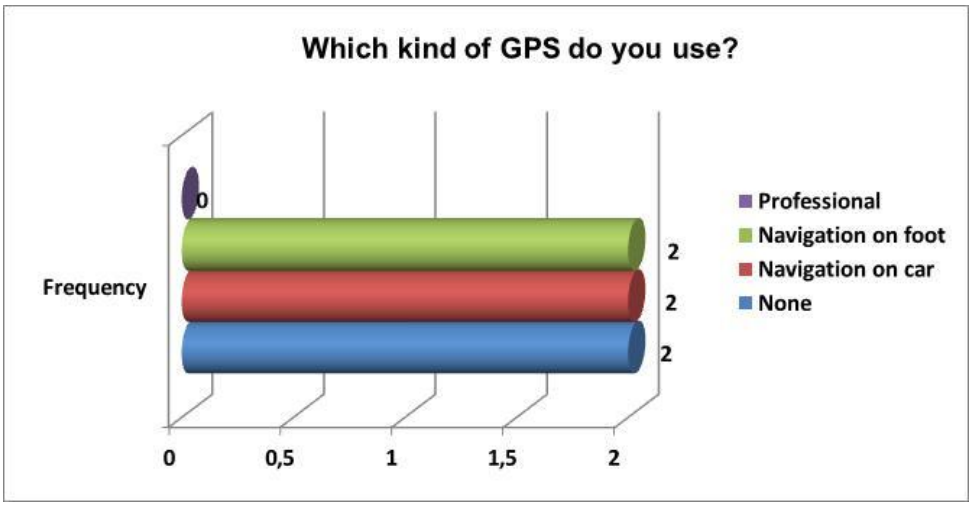
n) How often did you use GPS? (q)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	2	33,33	33,33	33,33
	Yearly	3	50,0	50,0	83,33
	Monthly	0	0,0	0,0	83,33
	Weekly	0	0,0	0,0	83,33
	Daily	1	16,67	16,67	100,0
Total		6	100,0	100,0	



o) Which kind of GPS do you use? (r)

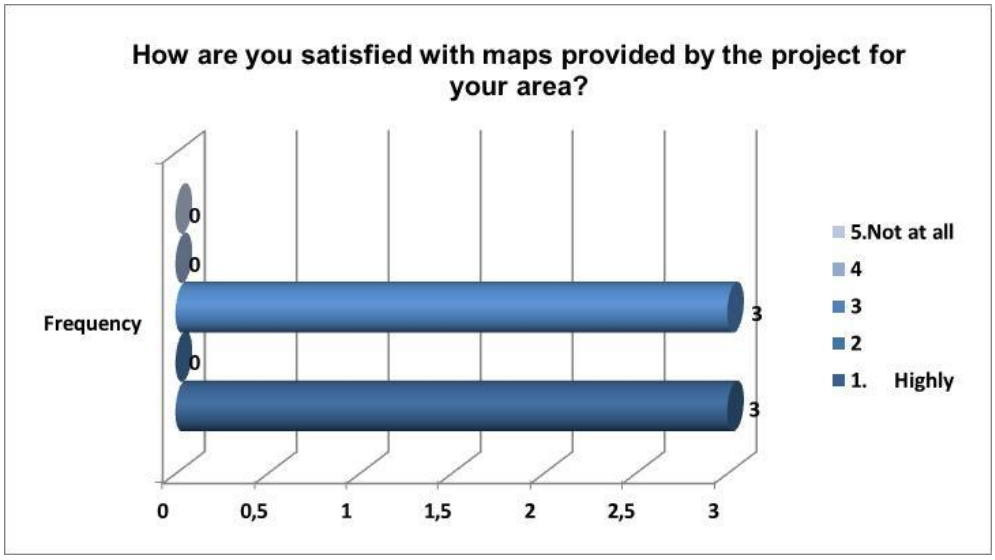
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	None	2	33,33	33,33	33,33
	Navigation on car	2	33,33	33,33	66,66
	Navigation on foot	2	33,33	33,34	100,0
	Professional	0	0,0	0,0	100,0
Total		6	100,0	100,0	



Being a remote area it is almost a necessity to use a map, especially a paper one, but regarding that all respondents are local inhabitants it's natural that they know the surroundings, so the use of the maps is limited to several times a year. At the same time, people that have more financial opportunities are able to acquire and to use a GPS, especially to find location in the sea for their fishing gears.

p) How are you satisfied with maps provided by the project for your area? (s)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1. Highly	3	50,0	50,0	50,0
	2.	0	0,0	0,0	50,0
	3.	3	50,0	50,0	100,0
	4.	0	0,0	0,0	100,0
	5.Not at all	0	0,0	0,0	100,0
Total		6	100,0	100,0	



All the respondents appreciated positively the maps provided by the project, but they emphasize the importance of using them and of the results for further projects, and not and not to remain at this stage, that of a paper project.

Annex 3: Mapping projects

Municipality of Kerkini, Greece

The mapping project in the Greek case study area includes thee subprojects:

1. Wild boars paths
2. Riding horses paths
3. Walking and climbing paths

Three local volunteers were responsible for the three mapping projects, one for each project. They used a Fujitsu Lifebook T 4410 tablet PC provided by the Aristotle University and the 'Anatrack Mapper for TESS' mapping software provided free by Anatrack for the purposes of the TESS project. The AUTH team did a thorough beta testing of the Anatrack Mapper before delivering the software and hardware to the volunteers and produced some comments and feedback for the Anatrack developers most, if not all, of which were dealt with successfully in recent versions of the Anatrack Mapper. The volunteers had the tablet PC in their possession for 10 days each, a time period allocated to the completion of each mapping project.
The .jpg, .ams and .csv files for each mapping project are in the CD accompanying this report and the image files used in the Anatrack Mapper were taken from Google Earth.

C1. Mapping project 1: Wild boars paths

a. Please add a description of study area

The study area, in all three cases is just north of the ‘Ano Poroia’ village, in the municipality of Kerkini, Prefecture of Serres, Greece. This is a heavily forested area with oaks, beeches and pines being the main tree species. The density of the forest is such, that it is difficult (if not impossible in some cases) to map paths using Google Earth images, as the vegetation covers them from the satellites.

b. What is the socio-ecological importance of the mapping and the people and organisations engaged (expanded as relevant from the abstract)

Wild boars are one of the main games of the area, a fact well known outside local boundaries. In the recent years there have been many developments regarding tourism activities (and eco-tourism) and a lot of hunters are drawn to the area. Therefore, successful game management, following widely accepted sustainability directives is essential for the continuous development of the local community. Apart from the TESS volunteer that performed the mapping exercise, there is a local hunters association that has shown some interest on the software and TESS in general, however there is not adequate experience among its members regarding computer activities.

c. How were organisations and people motivated to help with the mapping (including what was offered and how they responded)

Major Thomaides was born in the village of ‘Ano Poroia’ and has a keen interest on the development of his hometown, as happens with other members of the local hunters association. When the TESS team members approached him, they explained to him the goals of the TESS project and asked his assistance, which he was glad to offer.

d. What did they map, including screen-shots or Anatrack mapper jpeg output:

The responsible person for this mapping exercise was major Konstantinos Thomaides. He is a regular hunter in the area north of the ‘Ano Poroia’ village, at the mountain of Belles. Figure 1 is the result of his work, the yellow areas picturing the ‘Ano Poroia’ settlement and other solely buildings around the main village, the brown line a dirt road, accessible only by 4-wheel drive (off-road) vehicles and not at all times of the year; mainly in the summer and spring periods. The blue shaded area is a flat area without any vegetation that is used by local hunters as a gathering point before and after their activities. He mapped the 4 main paths used by the wild boars in red color; the wild boars are one of the main games of the area; they are allowed for hunting certain periods of time every year. The green line provides the limits of the forest; everything north of this line is covered by the forest.

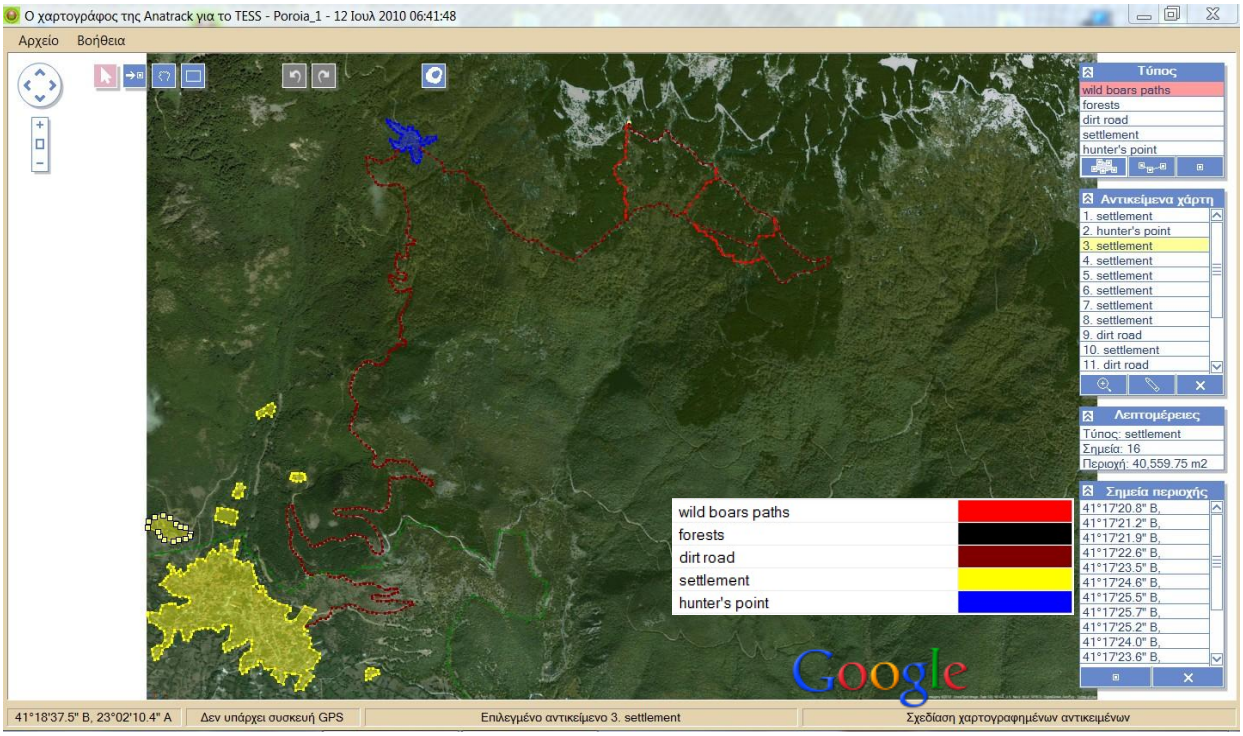


Figure 1 (©2010 Google - Imagery ©2010 Cnes/Spot Image, DigitalGlobe, GeoEye**)**

e. How the maps are being used for socio-ecological purposes (i.e. local or wider outcomes of the study)

Currently maps of this kind are not used by the local community. There have not been any mapping activities in the area and no game management as well. This TESS activity can act as the first step toward this goal.

f. The experience and comments of the local people (including comments on hardware/software performance)

Major Thomaides had some experience working with GPS devises during his work with the Greek army. However, his background using tablet PCs was not sufficient and assistance was provided by the AUTH TESS team. The tablet was operated by this assistant with the guidance of Major Thomaides.

g. The experience of the researchers (including comments on quality of mapping)

A member of the AUTH TESS team with tablet PC and mapping experience assisted major Thomaides.

h. Practicality for extending such work through web-services without direct engagement of researchers

Currently this is difficult. However broadband and Wi-Fi connections are expanding and the local population (especially younger generations) are becoming more and more familiar with the web. Local primary and secondary schools are equipped with computer labs (to some extent). The employees of the local municipality authorities are for the greater part familiar with the internet technologies and use it in every day work. Things are expected to change rapidly, i.e. in the next 3-4 years.

i. Main conclusions and recommendations from the case study mapping

Mapping the wild boars paths is a task that can assist the local community development, taking into account the popularity of the area to hunters outside the region as well. Much work is needed aiming at motivating the local community in order to endorse new and emerging technologies, especially web based ones.

j. If you did not use the Anatrack mapper, please explain the reasons.

The volunteer used the Anatrack Mapper provided by the TESS team.

C2. Mapping project 2: Riding horses paths

a. Please add a description of study area

The same as C.C1.a

b. What is the socio-ecological importance of the mapping and the people and organisations engaged (expanded as relevant from the abstract)

Mr Nikolaos Varkas was the responsible person for mapping the paths used by riding horses, one of the main recreational activities of the area. He has made a business out of about 30 horses he owns and offers local residents and tourists horse riding activities. Mr Varkas is hoping to extend his horse riding business and to employ more locals at a later stage and to this end, he is willing to utilize new and emerging technologies.

c. How were organisations and people motivated to help with the mapping (including what was offered and how they responded)

The TESS team will keep Mr Varkas informed on the project developments and assist him with information technologies. At a later stage he hopes to create a webpage advertising his business and the ‘Ano Poroia’ village in general and he could include the maps produced by the TESS project in this webpage or updated versions of them.

d. What did they map, including screen-shots or Anatrack mapper jpeg output

The horses follow 2 paths shown on figure 2; a small circle one pictured with a red line (area 1) that lasts about 30 minutes and a bigger one (area 2) which includes area 1 as well and takes around one hour in order to complete. The yellow areas are solely buildings and other man made infrastructures in the area. The image used is a part of the outskirts north of the village of ‘Ano Poroia’.

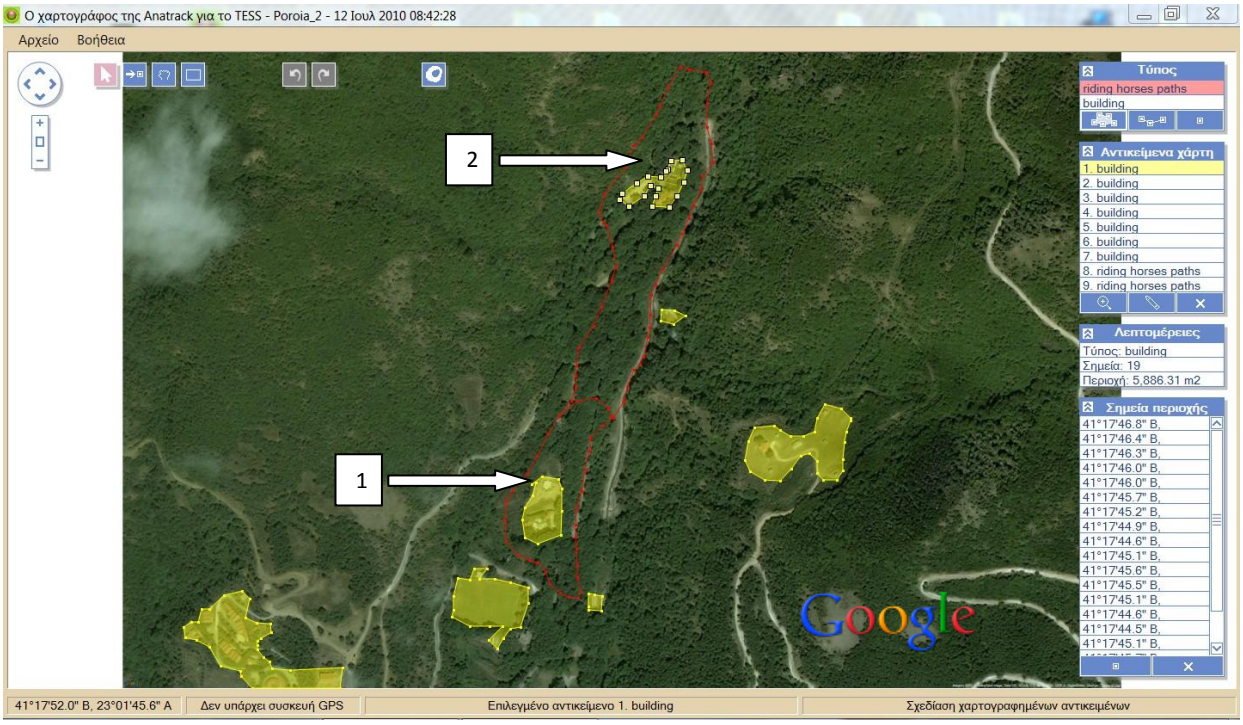


Figure 2 (©2010 Google - Imagery ©2010 Cnes/Spot Image, DigitalGlobe, GeoEye**)**

e. How the maps are being used for socio-ecological purposes (i.e. local or wider outcomes of the study)

Mr Varkas hopes to advertise his enterprise through the web and to identify new paths for his horses.

f. The experience and comments of the local people (including comments on hardware/software performance)

Mr Nikolaos Varkas, in his early 40s, has no experience at all using computers and the internet. He expressed a vivid desire to assist in any way to the project and to acquire computer skills if possible at some point in the near future, as he was impressed by the capabilities modern computers have, especially the use of Google Earth.

g. The experience of the researchers (including comments on quality of mapping)

A member of the AUTH TESS team with tablet PC and mapping experience assisted Mr. Varkas.

h. Practicality for extending such work through web-services without direct engagement of researchers

Same as C.C1.h

i. Main conclusions and recommendations from the case study mapping

Google maps should update more frequently.

j. If you did not use the Anatrack mapper, please explain the reasons.

The volunteer used the Anatrack Mapper provided by the TESS team.

C3. Mapping project 3: Walking and climbing paths

a. Please add a description of study area

The same as C.C1.a

b. What is the socio-ecological importance of the mapping and the people and organisations engaged (expanded as relevant from the abstract)

There are a lot of eco tourism activities in the ‘Ano Poroia’ area and they are a major part of the local family income. The hotel owners have formed an unofficial cluster to promote their businesses and activities like climbing and walking are considered as capable of drawing eco-tourists. The greater area has many other eco-tourism activities to offer (cycling, rafting, kayaking and so on).

c. How were organisations and people motivated to help with the mapping (including what was offered and how they responded)

Mr. Stelios Kalesis, one of the hotel owners of the ‘Ano Poroia’ village was the responsible person for mapping 4 main walking paths used by tourists and locals who want to experience the local nature. He, and the hotel owners’ cluster recognize the importance of projects like this and are willing to assist. Moreover, Mr. Kalesis was born and raised in ‘Ano Poroia’ and has a keen interest to anything he believes can help his village.

d. What did they map, including screen-shots or Anatrack mapper jpeg output; e.g.:

Mr. Stelios Kalesis mapped the following: the yellow line in figure 3 is the border with neighboring Bulgaria in the north and the area is the north part of the ‘Ano Poroia’ settlement, at the mountain of Belles. The four paths, accessible mostly only by foot, are: a. ‘Ano Poroia’ (440 m) to ‘Kis Bounar’ (1330 m), the red line in figure 3. b. ‘Ano Poroia’ (440 m) – ‘Kouri Giol’ (950 m) - ‘Kis Bounar’ (1330 m) – border (1750 m) – Pyramid E19 (1830 m), the blue line in figure 3. c. ‘Ano Poroia’ (440 m) – ‘German fountain’ (1648 m) – border path (1757 m), the black line in figure 3. d. ‘Ano Poroia’ (440 m) – ‘Mavi Giol’ (1648 m) – border path (1757 m), the white line in figure 3. All the paths require for some parts climbing equipment and experience.

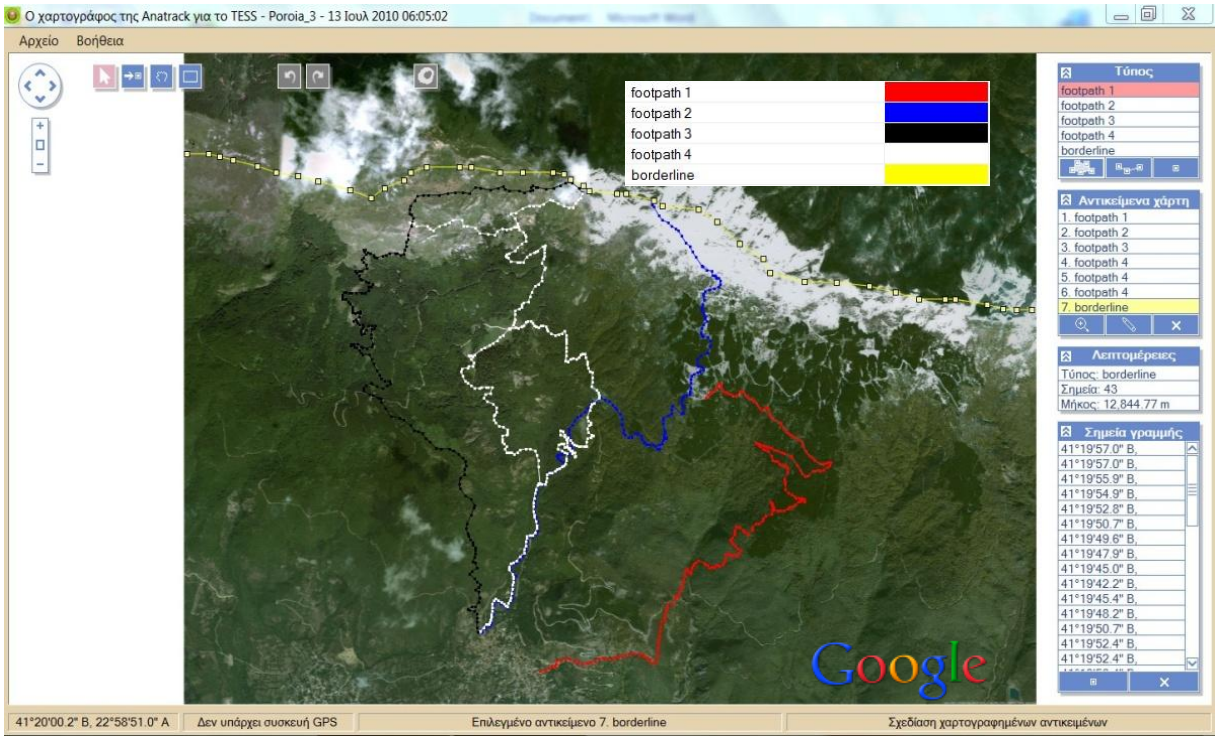


Figure 3 (**©2010 Google - Imagery ©2010 Cnes/Spot Image, DigitalGlobe, GeoEye**)

e. How the maps are being used for socio-ecological purposes (i.e. local or wider outcomes of the study)

Mr Kalesis sees this as an opportunity to produce more maps of this kind. He hopes at a later stage to map of-road cycling paths used by residents of his hotel.

f. The experience and comments of the local people (including comments on hardware/software performance)

Mr Kalesis has his own GPS equipment and used it many times in the past. He is used to working with computers and the internet; his hotel has a website he administers himself. The zooming capability of the Anatrack Mapper was particularly helpful in this exercise, as a high level of detail was needed in order to perform it.

g. The experience of the researchers (including comments on quality of mapping)

Mr Kalesis did not require any assistance.

h. Practicality for extending such work through web-services without direct engagement of researchers

Same as C.C1.h

i. Main conclusions and recommendations from the case study mapping

Same as C.C1.i

j. If you did not use the Anatrack mapper, please explain the reasons.

The volunteer used the Anatrack Mapper provided by the TESS team

Annex 4: CD contents

The CD accompanying this report includes each individual case study report in a separate folder as an MS Word document plus all the files used for the mapping exercise of each project. It is reminded that FACE has only a couple of mapping projects. Finally, a report about hardware for mapping with habitat and species monitoring software is also included.