

# ANNUAL REPORT 2013

## NATIONAL PARK OF WHITE MOUNTAINS (SAMARIA GORGE)



*In memory of  
Ioannis Spanoudakis*

*Ranger of the*

*White Mountains National Park*

## **ANNUAL REPORT (2013)**

### **NATIONAL PARK OF SAMARIA (SAMARIA GORGE)**

State: GREECE

Name of the area: NATIONAL PARK OF SAMARIA (WHITE MOUNTAINS) (SAMARIA GORGE)

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## GENERAL INFORMATION

### 1. Natural heritage (general abiotic description: geomorphology, geology and hydrogeology, habitats, flora, fauna, landscape) – Conservation situation

#### 1.1 Environment: changes or deterioration in the environment, of natural or anthropic origin, accidental or permanent, actual or anticipated.

No changes can be detected.

#### 1.2 Flora and vegetation: changes in the plant population and in the vegetational cover: presumed causes

The vegetational cover of the Calabrian pine (*Pinus halepensis* subsp. *brutia*) forests in the area of the Samaria Gorge displays a slow but steady increase, mainly due to attributes relating to the species' characteristics to dominate empty spaces. The Management Body of the Park will shortly elaborate a study concerning the evaluation of forest diseases observed in the Park's pine forests as well as the tendency of pine forests to expand against other forest species, in order to extract management solutions for dealing with these issues.

The Forest Directorate has already requested a preliminary scientific evaluation by specialists in Plant Pathology (Dr. Th. Zagkas-researcher from Aristotle University of Thessaloniki and Dr. D. Avtzis- researcher from Forest Research Institute). The places which the scientists visited were among others the mountainous region of Sfakia and the core of Samaria Gorge.

#### 1.3 Fauna: changes in the sedentary or migratory populations; congregating and breeding places

No changes can be detected.

### 2. Cultural heritage and socio-economic context

#### 2.1 Cultural heritage

##### 2.1.1 Changes concerning cultural heritage

No changes were made.

#### 2.2 Socio-economic context

##### 2.2.1 Changes concerning the socio-economic context



1. The Management Body of Samaria (White Mountains) National Park is currently running a project titled “Protection and Conservation of Biodiversity in Samaria (White Mountains) National Park”, funded by the National Strategic Reference Framework (N.S.R.F.) 2007 - 2013, Operational Program “Environment and Sustainable Development”, with a total budget of 4.460.615,79 €.
2. A new informative page about Samaria National Park (<http://www.nationalparksamaria.com>) and a page on the social network Facebook (<http://www.facebook.com/pages/National-Park-of-Samaria/176306849231434?ref=hl>) have been constructed during 2013 under the management of Forest Directorate of Chania.
3. The internet site, elaborated by the National Observatory of Athens that monitors constantly the meteorological conditions at the northern entrance of the Gorge (Xyloskalo) is still on (<http://www.meteo.gr/stations/samaria>).
4. The internet site of the Management Body of Samaria (White Mountains) National Park has been updated during 2013 and the new version is available on-line to the public (<http://www.samaria.gr>).
5. There are three new internet sites, elaborated by the National Observatory of Athens, that monitors constantly the meteorological conditions, at the old village of Samaria into the Samaria gorge (<http://penteli.meteo.gr/stations/samariagorge>), and near to Askyfou (<http://penteli.meteo.gr/stations/askyfou>) and Agios Ioannis Sfakion villages (<http://penteli.meteo.gr/stations/sfakia>).

### **3. Education and scientific interest**

#### **3.1 Information policy**

##### **3.1.1 Arrangements for receiving and informing the public (building, booklets, maps, cards, etc.)**

Permanent and seasonal staff from the Forest Directorate of Chania was involved. Also three forest rangers were employed by the Management Body of Samaria (White Mountains) National Park. They received visitors at the Information Centres at the northern and southern entrances of the Gorge (Xyloskalo and Agia Roumeli, respectively), as well as student groups, primary and advanced level (only at Xyloskalo). Also the Information Centre at Xyloskalo accepts organized student groups (primary, advanced, university level) during winter.



A delegation from the COBWEB (Citizen OBServatory WEB) research project recently visited two Biosphere Reserves in Greece, one of which was Samaria National Park. During the workshop there was an extent discussion on the potential implementation of the project. The COBWEB brings together expertise from 13 partners and 5 countries. The main context for the project is the Global Earth Observation System of Systems (GEOSS) and the UNESCO World Network of Biosphere Reserves (WNBR). Concentrating on Biosphere Reserves in Wales, Germany and Greece, the main aim is to create a testbed environment which will enable citizens living within Biosphere Reserves to collect environmental data using mobile devices (<http://cobwebproject.eu/>).

In September 2013 it was held a meeting about the conservation of Ampelitsia (*Zelkova abelicea*), the endangered endemic species of Crete. The majority of them are growing in the Lefka Ori, with more than 30 stands. The meeting was organized as an initiative of the University of Fribourg in Switzerland in cooperation with the international organization of Botanic Gardens (Botanic Gardens Conservation International-BGCI) and the Mediterranean Plant Conservation Unit of MAICH. In the meeting were presented results and actions by Scientists (Forest Directorate of Chania included) as well as other kinds of Zelkova by scientists at the University of Fribourg, the BGCI and Institute of Plant Genetics Palermo Sicily. As a result of this workshop is in progress a conservation project of Ampelitsia.

The Forest Directorate of Chania and The Management Body of Samaria (White Mountains) National Park invites and makes scheduled meetings on environmental education programmes regarding the habitats, fauna, flora and special characteristics of the protected area for third consecutive year.

The two abovementioned Services participated as external experts in the SylvaMED Programme, a European territorial cooperation project, part of the MED transnational program that intends to facilitate innovative integration of forests environmental services into regional policies. The program is organized in Chania by the Mediterranean Agronomic Institute of Chania (MAICH). The main goals of this practice were:

- Promoting the social/recreation uses of the forest
- Attract more visitors that are willing to pay for the protection of the forest
- Inform the local population on the idea of the PES (Systems of Payment for Environmental services) and stimulate them by raising awareness about the importance of the forest.

The program has started in 2011 and completed in 2013.

The Forest Directorate of Chania sent informative material (photos, maps) for participating





among others in the creation of a forest informative album in collaboration with the Ministry of Environment Energy and Climate Change.

Thus, leaflets in Greek and English and souvenir cards about the National Park were distributed to the Greek National Tourism Organisation (GNTO) (1000 leaflets) and to Municipality of Platania (1150 leaflets). The brochure was created through the Program REVERSE - INTERREG IVC and the souvenir card with funds of the Decentralized Administration of Crete.

### 3.1.2 Frequentation by visitors and behavior (number, distribution in time and space)

In 2013, the total number of visitors was 136.645 people. Fig. 2 shows the number of visitors per year (purple line). The mean average number of visitors from 1981 to 2013 is approximately 208.344 visitors per year. A decreasing, however stable, trend is obvious in the past few years. It reflects a stabilization trend after a high peak in mid nineties. Another explanation may possibly be the economic crisis which exists in Europe and especially in Greece. This is obvious regarding the amount of visitors throughout the months August and September. The opening to visitors of some adjacent shorter gorges (Agia Eirini, e.tc.) has also infiltrated a great number of tourists in shorter and less tiring ways.

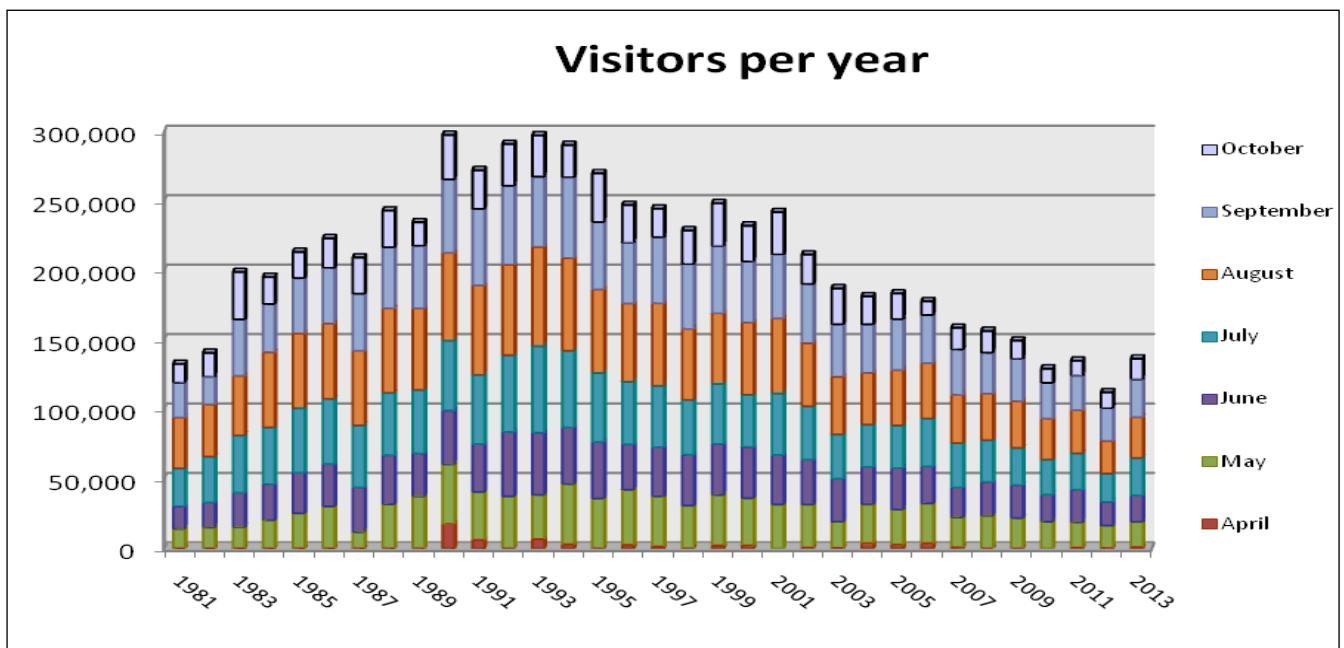
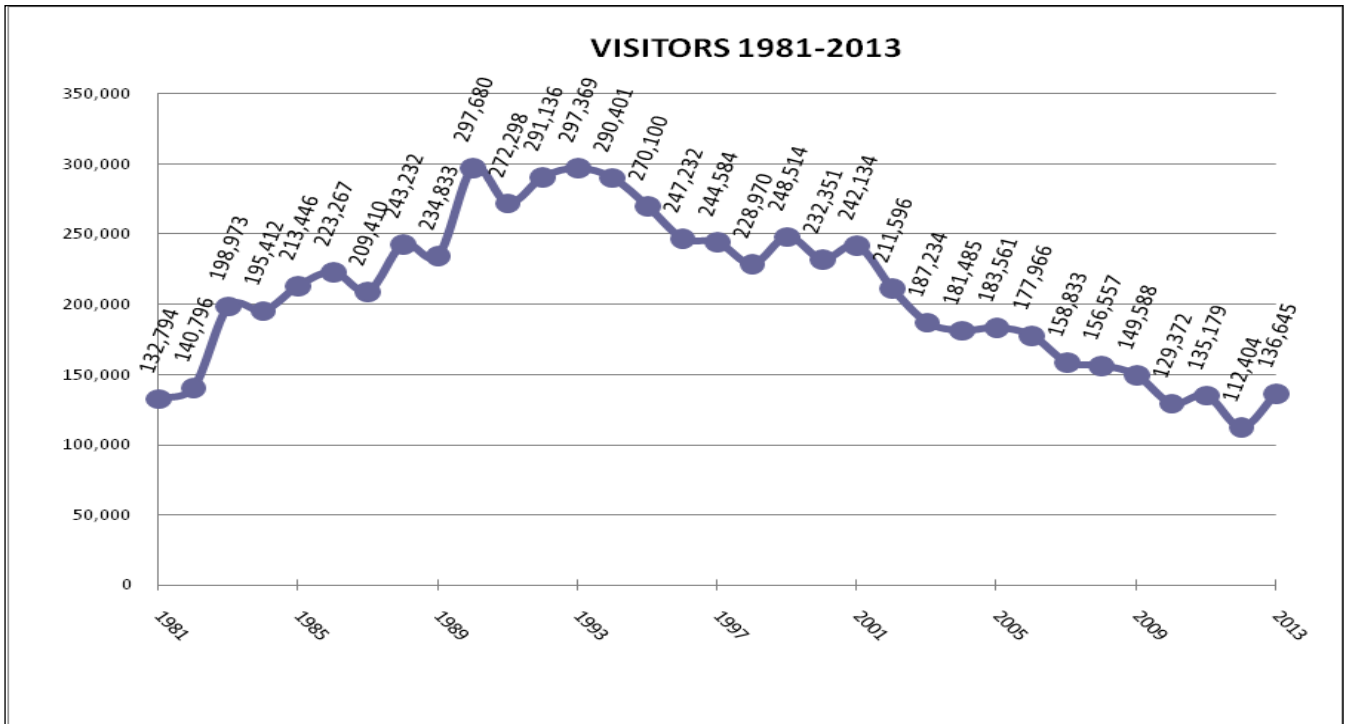


Figure 1. Number of visitors per month per year





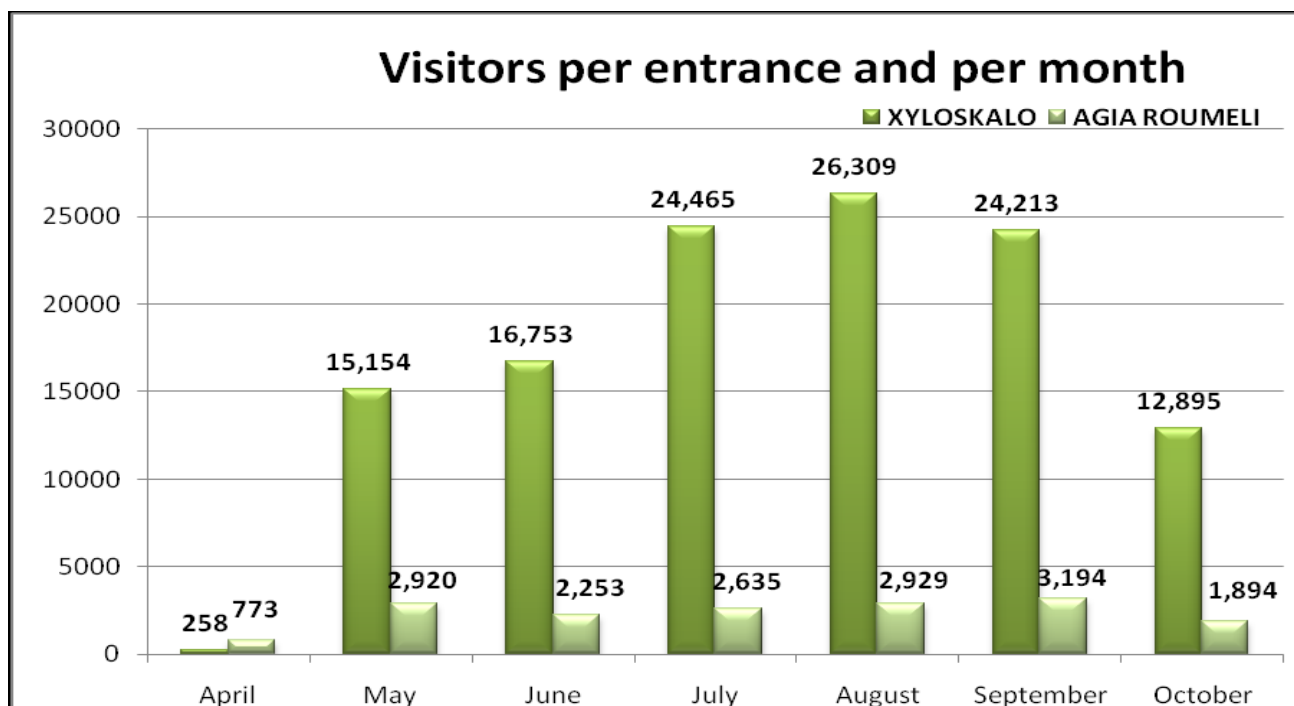
**Figure 2.** Visitation trends of the National Park of Samaria per year

Monthly distributions of visitors in 2013, with their percentages are also shown in Figs 3. April is the first month and the gorge usually accepts a low number of visitors due to bad weather conditions, while July, August and September are the months with maximum visitation. It obviously follows the peak tourist period on Crete. Number of visitors during other months is not significantly different.



**Figure 3.** Monthly distribution of visitors (year 2013)





**Figure 4.** Distribution of visitors in each entrance per month (year 2013)

Most visitors prefer noticeably the North entrance of the National Park (Xyloskalo) to the Southern entrance (Agia Roumeli), mainly due to the great difficulty of going upward the hill from South to North.

The gorge this year accepted visitors for 187 days from Xyloskalo, which is the Northern entrance, and from Agia Roumeli, which is the Southern entrance. The number of visitors that entered the gorge from Xyloskalo were 120.047, while from Agia Roumeli were 16.598, showing a daily average of 642 visitors from Xyloskalo and 81 visitors per day from Agia Roumeli.

Monthly distribution of visitors is only followed by the visitors of Northern entrance (Xyloskalo). Clear maxima are shown in July and August, while visitors from Agia Roumeli generally are more stable per month (Fig 4). The gorge was open until the 31st of October.

The National Park was open for a total of 187 days with a mean daily visitation of 667 visitors per day. The lowest visitation were showed on Fridays, Mondays, Sundays and Thursdays (541, 618, 644 and 669 visitors/day, respectively), while visitors peaked on Wednesdays, Tuesdays and Saturdays (792, 762 and 698 visitors/day, respectively).

### 3.1.3 Special visits (distinguished persons, groups, etc.)

Usual annual visits by groups of scientists and students (Greeks and foreigners) with their teachers,





scouts, soldiers, alpine associations, etc. were made. The Alpine Association of Chania, after requesting for a special permit, organized two events in the National Park:

1. Ceremony of Osia Maria at 27/4/2013 to 28/4/2013
2. A hike race for charity purposes on the route Xyloskalo - Poria – Xyloskalo
3. In March, the Forest Directorate of Chania gave official permission for filming in the National Park for the realization of a cultural documentary about the island of Crete by ARD German channel. The Management Body of the National Park provided information and accompanied ARD and Arte channels filming crews during the creation of two (2) documentaries on Crete and Samaria gorge.
4. The Management Body of the National Park organized for the fourth year a Volunteer Program with the participation of 32 individuals (mainly students from Universities and doctors). The program lasted the entire summer season.

## 3.2 Scientific research

### 3.2.1 Current or completed research (observation, experimentation, identification or inventory of the species listed in the appendices to the Bern Convention)

1. A research architectural project with the title “Sustainable reconstruction of human settlements in Samaria Gorge” was held by funds of ELKE (Technical University of Crete).
2. The Forest Directorate of Chania officially received a holistic study regarding the fire protection of the National Park. The study proposes measures, actions and designs for the adequate fire protection of the area and was funded by the Green Fund.
3. The biologist of the seasonal staff of the Forest Directorate of Chania conducted a study on the dynamic of population of the *Capra aegagrus cretica* that lives in Thodorou Island (Crete). This study is an initial step for potential studies or management measures for genetic enrichment of the living population of the National Park.
4. In the peripheral zones of the National Park under official permission (Ministry of Environment Energy and Climate Change) have conducted scientific studies such as collecting samples of different taxa. For example:
  - Collecting songbirds (Passeriformes) for a phylogenetic study from a biologist at the Yale University Peabody Museum of Natural History in collaboration with Natural History Museum of Crete (NHMC) and Natural History Museum of Belgrade.
  - Collecting Araneae (families of Opilioacaridae, Ctenizidae, Nemesiidae,



Hexathelidae, Dysderidae, Scitodidae, Leptonetidae, Pholcidae) from Dr Jiri Kral (Department of Genetics and Microbiology Faculty of Sciences Charles University) for investigation of imprinting of chromosomal structure of the abovementioned families.

- Collecting plant samples and reproductive material with the goal of creating a Department of Endemic, Rare and Endangered Flora Species of Greece in the Botanical Garden of the National and Kapodistrian University of Athens.
  - Collecting birds of the species *Passer italiae*, *Passer hispaniolensis* and *Passer domesticus* for scientific purposes by scientists from University of Sweden and University of Norway.
  - Collecting Diptera (Class: Insecta) for making a catalogue for cretan species and their geographical distribution (Dr Keith Proter, Evidence Team, Natural England, United Kingdom)
  - Collecting insects for scientific purposes (Thomas Pucci, Cleveland Museum of Natural History).
5. The Natural History Museum of Crete in collaboration with the ITC Faculty of Geo-Information Science and Earth Observation of the University of Twente and the Management Body of the National Park collects data concerning the ecology of the Cretan wild goat by using satellite collars. These radio transmitters have been placed in four *Capra aegagrus cretica* individuals since 2011 aiming at the monitoring of the species.
  6. The Management Body of the National Park, in the framework of the project “Protection and Conservation of Biodiversity in Samaria (White Mountains) National Park”, funded by N.S.R.F. 2007 -2013, Operational Program “Environment and Sustainable Development”, has already started a monitoring project for 34 flora species, 51 species fauna (from invertebrates to mammals, sea and terrestrial), 256 bird species and 20 habitat types in the wider area of the White Mountains and Natura site coded GR 4340008 “White Mountains”.
  7. The Management Body of the National Park in order to monitor wildlife population collects data from thirteen (13) trail cameras ten of them have been installed into the Samaria gorge and three at the adjacent areas (Sfakiano and Agia Irini gorges). Also the two (2) areas that were fenced at the last year, at Aradena and Gre Leska locations, are currently in use as feeding stations for necrophagous bird species and as experimental plots.
  8. This year the Management Body purchased three meteorological stations, as well as



accompanying software and equipment for the tele – transfer and storage of data. The stations are installed within the protected area of Lefka Ori: at Agios Ioannis and, Askyfou villages and at the old settlement within the National Park of Samaria. The information collected includes rainfall, air temperature, air humidity, wind speed and direction data. All actions were funded by the Green Fund (Ministry of Environment, Energy and Climate Change).

#### **Application:**

The Forest Directorate of Chania has conducted public tendering procedure for the fencing restoration project of the core zone. The project has successfully been completed in 2013.

### **4. Site description (vulnerability, protection status, ownership, documentation)**

#### **4.1 Changes in legislation or regulations**

No changes were made.

#### **4.2 Changes in ownership title (conversion to public property, rentings, etc.)**

No changes were made.

#### **4.3 Extension or transfer, new uses (for example, conversion into total reserve)**

For the time being no changes are made.

### **5. Site management (management plans, budget and personnel)**

#### **5.1 Improvements made**

##### **5.1.1 Ecological action affecting the flora and biotopes; controls of fauna**

The implementation of restrictions in the insertion of the domestic goat to the Samaria Gorge has continued. In this way, natural selection and succession were allowed to continue their course without any interference. The effort to diminish poaching of Wild Goats continues drastically.

##### **5.1.2 Protection against the elements (fire, water regime)**

This year after official requests to central agencies, the Forest Directorate employed seasonal personnel for 8 months which consisted of 1 forest engineer, 1 biologist, 1 driver, 3 rangers and 4 mule drivers. On the other hand, permanent staff of the Directorate of Chania performed the task of managing the National Park, including other duties. The following staff was involved: four (4) administrative personnel, twenty five (25) rangers, two (2) drivers, two (2) workers and two (2) forest



engineers.

The seasonal personnel employed by the Management Body of the National Park includes three (3) forest engineers, one (1) environmental engineer, one (1) accountant, one (1) economist, one (1) computer engineer, four (4) wardens (for five months when the Samaria gorge is open to the public) and three (3) forest rangers. This staff is employed in the framework of the project “Protection and Conservation of Biodiversity in Samaria (White Mountains) National Park”, funded by N.S.R.F. 2007 -2013, Operational Program “Environment and Sustainable Development”. The forest rangers following the Gorge closure perform daily patrols within the extent of the protected area.

Fire Brigade employed fifteen (15) firemen this year, with the whole extent of the White Mountains as the working area.

The Forest Directorate of Chania has also made a detail study about the Fire Prevention of the National Park, a public tendering procedure was conducted and the associated works were taken place.

The Management Body of the National Park has installed lightning protection systems in six (6) buildings into the National Park (four guardhouses into and around Samaria gorge, a mountain refuge and an information center near Xyloskalo).

### **5.1.3 Approaches and thoroughfares (paths, roads, car parks, signposting, fencing, etc.)**

Every year, before the official opening of the gorge, the pathway is repaired and stone-covered in areas where needed. The wood railing is also replaced at places. This was the case for this year also.

The Management Body of the National Park run a project for improving and marking two paths both of which starts at Xyloskalo (the entrance of Samaria gorge) and end at Kalergy refuge (first path) and Linoseli spring (second path). This project was financed by the Green Fund (Ministry of Environment, Energy and Climate Change). Also a heavy – type water filter has been installed at a spring above the settlement of Samaria in order to improve the quality of drinking water by visitors.

### **5.1.4 Field equipment (hides and study facilities)**

No changes.

## **5.2 Management**

### **5.2.1 Administrative department: changes made**



No changes were made.

### **5.2.2 Wardens' department: changes made**

Since October 2011, twenty two rangers were transferred in the Forest Directorate of Chania from the Rural Police. Also, in 2013, the Forest Directorate employed seasonal personnel for 8 months which consisted of 3 rangers and 4 mule drivers. All were involved in the management and protection of the Park, in parallel to their main duties.

The Management Body of the National Park employed four (4) wardens and three (3) forest rangers. The forest rangers following the gorge closure perform daily patrols within the extent of the protected area.

### **5.2.3 Internal policing measures**

The Green Fund which was established by the Greek Government (Law 3889/2010) collects the income from the entrance fee of Samaria Gorge and allocates small amount for the function of the National Park.

Also, the Management Body of the National Park, in the funding framework for all Management Bodies in Greece by the Green Fund, has currently received funding for the elaboration of services, supplies and projects relating to the protection and conservation of the Park. For 2013, the overall budget received was 35.926.4 €.

### **5.2.4 Infringement of regulations and damage; legal action**

The responsibility for the National Park's management belongs to the Ministry of Environment, Energy and Climate Change.

## **I. INFLUENCE OF THE AWARD OF THE EUROPEAN DIPLOMA OF PROTECTED AREAS**

The fame given to the gorge by its awards imparts international acknowledgment. The European Diploma in particular makes the gorge known especially around Europe as a stable value certified by the Council of Europe. We would still appreciate a main European diploma Internet site with all awarded areas of Europe with pictures and information on each of them. This would act as an advertisement of the diploma itself.

## **II. CONDITIONS AND/OR RECOMMENDATIONS FOR AWARD OR RENEWAL**





*The renewal of the European Diploma of Protected Areas awarded to the Cretan White Mountains National Park (Samaria) [T-PVS/DE(2009) 4] E, and attaches the following recommendations:*

1. The relevant authorities should accelerate actions to extend the boundaries of the national park to cover a much larger area of the Cretan White Mountains;
2. An expert on biodiversity should be appointed or contracted to carry out regular monitoring of the flora and fauna of the park.
3. An annual budget should be allocated to the park, to be administered by the management board. The income from the entrance fee to the park may also be considered to finance monitoring projects, particularly recommendation 2 above.

*Progress with measures taken in order to meet the conditions and/or recommendations defined during the award or renewal of the European Diploma of Protected Areas (ResDip(2004)5 on the Cretan W.M).*

1. The Specific Environmental Study (S.P.A.) of the White Mountains was completed and is currently inspected by the Department of Management for Natural Environment, Ministry of Environment, Energy and Climatic Change, in order a Presidential Decree to be issued, according to State Law. The S.P.A. proposes extensive boundaries and zonation of the National Park, in relation to the older boundaries. Based on the official information received by the Forest Directorate of Chania, the promotion of the S.P.A. is currently delayed, since it is imperative to harmonize the Study with the recently issued environmental legislation regarding the conservation of biodiversity.
2. The Management Body of the National Park, in the framework of the project “Protection and Conservation of Biodiversity in Samaria (White Mountains) National Park”, funded by N.S.R.F. 2007 -2013, Operational Program “Environment and Sustainable Development”, is currently running several monitoring projects regarding flora (34 species), fauna (51 species), birds (256 species) and ecotopes (20 habitat types) in the wider area of the White Mountains and Natura site coded GR 4340008 “White Mountains”.
3. The Management Body of the National Park and the Forest Directorate of Chania have officially requested to the Ministry of Environment, Energy and Climatic Change for the return of an amount of the budget earned by the entrance fee.

