LIFE Project Number

**LIFE11 NAT/GR/001014**

# FINAL Report

## Covering the project activities from 01/09/2012 to 30/11/2019

Reporting Date

**31/03/2020**

Conservation of priority forests and forest openings in "Ethnikos Drymos Oitis" and "Oros Kallidromo" of Sterea Ellada

# ForOpenForests

Project Data

| | |
|---|---|
| **Project location** | Mount Oiti and Mount Kallidromo, Region of Sterea Ellada, Greece |
| **Project start date:** | 01/09/2012 |
| **Project end date:** | 30/11/2019 |
| **Total budget:** | 1,750,840 € |
| **EC contribution:** | 1,309,840 € |
| **(%) of eligible costs:** | 74.81 |

Beneficiary Data

| | |
|---|---|
| **Name of the coordinating beneficiary:** | Hellenic Society for the Protection of Nature |
| **Contact person:** | Mr Christos Georgiadis |
| **Postal address:** | Nikis, 20, 10557, Athens, Greece |
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## 1. Table of contents

List of abbreviations

| | |
|---|---|
| **AT** | Administrative Team |
| **CG** | Coordinating Group |
| **EAP** | 6th Environmental Action Plan |
| **EASME** | Executive Agency for Small and Medium-sized Enterprises |
| **EC** | European Commission |
| **EMT** | External Monitoring Team |
| **EU** | European Union |
| **FR** | Final Report |
| **FT** | Financial Team |
| **HAO DEMETER** | Hellenic Agricultural Organization DEMETER |
| **HLGD** | Hellenic Livestock Guarding Dogs |
| **HSPN** | Hellenic Society for the Protection of Nature |
| **IMFE** | Institute of Mediterranean Forests Ecosystems |
| **IncR** | Inception Report |
| **MRDF** | Ministry of Rural Development and Food |
| **MtR** | Mid-term Report |
| **ONP** | National Park of Mt. Oiti |
| **PA** | Partnership Agreement |
| **PC** | Project Coordinator |
| **PM** | Project Manager |
| **PR** | Progress Report |
| **RST** | Region of Sterea Ellada |
| **ST** | Scientific Team |
| **STAC** | Stakeholders Committee |
| **TG** | Technical Group |
| **YPEKA** | Ministry of Environment, Energy and Climate Change |
| **YPEN** | Ministry of Environment and Energy |
| **UoA** | National and Kapodistrian University of Athens |

## 2. Executive summary

### 2.1 Project objectives

The main objective of the project was the implementation of management of forests and forest openings for the conservation of biodiversity at species, habitat, and landscape level in two mountainous Natura 2000 sites of Central Greece, in the Region of Sterea Ellada: "Ethnikos Drymos Oitis" (GR2440004) and "Oros Kallidromo" (GR2440006).

### 2.2 Key deliverables and outputs

1. A series of preparatory Actions (Actions A) would provide sound, scientifically based specifications for the concrete conservation and dissemination actions. Actions A.1, A.2, A.3, A.4, A.5, A.6, A.7, A.9, and A.10 included studies of the target habitats and species and investigation of the factors influencing them. These actions would also provide the initial status of the target habitats and species, as well as specifications for monitoring the impact of the conservation actions on them (actions D). Action A.8 would provide specifications for interventions mainly related to access control and infrastructure. Actions A.11 and A.12 included investigation of stakeholders' opinions and expectations, as well as determination of the governance structure and of the legal status of the target habitats and species. The last two actions would provide a concrete basis for ensuring the consent and involvement of stakeholders.

2. The concrete conservation Actions (Actions C) implemented the project objectives set.

- Maintenance of forest openings would be achieved by implementing grazing management regimes and woody vegetation clearing (Action C.3). The effects of various degrees of grazing, implemented in combination with various regimes of vegetation clearing on the habitat quality of mountain grasslands and temporary ponds would be investigated, and the appropriate management for biodiversity conservation determined. These practices would also restore habitat quality of the target habitats by restoring the vegetation composition and structure.
- The hydrogeology of the temporary ponds would be restored by removal of modifications, and by erosion control which would inhibit sedimentation (Action C.4). Also access control measures and the creation of visitor infrastructure (Action C.1) would prevent trampling which causes soil compaction, pollution, and increase of nitrates caused by leaching due to waste disposal and by grazing animals.
- The restoration of the temporary pond biotic communities would be achieved by the above interventions, but also by direct interventions on the biotic communities (Action C.4), such as removal of competitors and re-introduction of the characteristic species. In addition, pilot introduction of *Veronica oetaea** at a new site would be implemented (Action C.2, in Louka temporary pond on Mt. Oiti).
- Restoration of the *Juniperus foetidissima* forests would be achieved by producing and planting *Juniperus* saplings, and by pilot re-introduction of the habitat at two sites (Action C.5). Following the results of action A.7, enhancement of the population of *Juniperus foetidissima*, removal of competitive fir trees at c. 60 ha of existing habitat was added to this action.

- The protection of *Juniperus foetidissima* forests and *Pinus nigra* forests from wild fires would be achieved by enhancement of the fire protection infrastructure (Action C.6) and also by reducing the occurrence of accidental fires through visitor control measures (creation of camping and recreation sites).
- *Ex situ* conservation of the target habitats and plant species would be achieved by establishing a seed-bank of the keystone species, and by developing methods for their propagation and outplanting (ActionC.7). This Action would also provide the plant material for restoration Actions C.2, C.4 and C.5.
- Enhancement of the population, expansion of the area of occurrence, and protection of the five Annex I bird species (Action C.8) would be achieved by: conservation of natural nesting sites and of food resources (preservation of old trees and of dead wood); increase of nesting sites through installation of nesting boxes; application of favourable forestry practices; enhancement of feeding sites in grasslands.
- Enhancement and protection of the population of the Brown bear (Action C.9) would be achieved by: minimising conflict with producers through the distribution of Hellenic Livestock Guarding Dogs and electric fences for apiaries, thus minimising human induced mortality; preserving and enhancing wild fruit trees.
- Legal protection of the project sites would be achieved by: the preparation of two legal documents which would establish the legal framework necessary for the conservation and management of Mt. Oiti and Mt. Kallidromo Natura 2000 sites and surrounding areas; and by the adoption of the relevant legislation by Ministry for the Environment, Energy and Climate Change.

3. The impact of the concrete conservation actions on the target habitats and species would be monitored by the D Actions. Regular monitoring would allow for amendments to the specifications of the conservations actions if necessary.

4. The dissemination Actions (Actions E) were aiming to:

- Disseminate the results of the project to the general public, to site managers, and to the scientific community by: establishing a project website (Action E.3); the presentation of the results at conferences; publications in scientific journals and bulletins; participation in specialised scientific groups (Action E.5).
- Ensure the assent and consent of the stakeholders and encourage their involvement in conservation through local events, educational seminars, and training workshops (Actions E.1, E.4). This would contribute to the after-LIFE maintenance of the results of the project.
- Achieve public education and raise public awareness by: distributing informative/educational material; issuing information in the mass media (Action E.1); establishing education and information centres (Action E.2).

5. A series of overall coordination and management actions (Actions F) would facilitate the project operation and facilitate communication with stakeholders and with other interested site users, and would ensure the continuation of conservation actions after the end of the project.

- Action F.1 would establish a clear management structure headed by the Project Manager. It would ensure adherence to the schedule, timely production of good quality deliverable products and fulfilment or reporting obligations to the EU, and ensure good financial administration, assisted by external auditing (Action E.3).

- The Stakeholder Committee (Action F.2) would be an important element of the project operation and for achieving the project objectives. It would represent the means of direct stakeholder involvement in the project, and would provide guidance in order to ensure public support and commitment and to overcome potential administrative and political problems. It would also be instrumental in producing the after-LIFE habitat and species conservation plan (Action F.4).
- Networking with similar projects (Action F.5) would achieve exchange of information at national and EU level, and increase experience in the management of target habitats and species.

### 2.3 Summarising the chapters

This Final Report consists of 8 chapters according to the guidelines provided in the official webpage of LIFE+. Chapter 1 provides information about the content of the Report and the abbreviations list. Chapter 2 includes the executive summary of the Report, providing information about the objectives, the key deliverables, the main outputs and main actions of the project. Chapter 3 includes the overall and specific objectives, the sites involved and the priority species and habitats being targeted by the project. Chapter 4, includes information about the administrative aspects of the project providing the organigram. Chapter 5 provides information about the implementation of all Actions, Chapter 6 provides information about the financial issues, including two tables: the first is the general table with the expenses accrued during the implementation period of the project; the second is the summary of costs incurred by category with relevant comments. Chapter 7 covers the dissemination activities and Chapter 8 contains all Annexes of the project.

## 3. Introduction

### 3.1 Description of background, problem and objectives

#### 3.1.1 Overall and specific objectives

The main objective of the project was the implementation of management of forests and forest openings for the conservation of biodiversity at species, habitat, and landscape level in two mountainous Natura 2000 sites of Central Greece, in the Region of Sterea Ellada: "Ethnikos Drymos Oitis" (GR2440004) and "Oros Kallidromo" (GR2440006). The target habitats of the project are:

**Annex I 92/43/EEC priority habitats:**

- Endemic Mediterranean forests with *Juniperus foetidissima* (habitat type 9560*),
- Mediterranean pine forests with endemic Black Pines (habitat type 9530*),

- Semi-natural dry grasslands on calcareous substrates (*Festuco brometalia*) (*important orchid sites) (habitat type 6210*),
- Species-rich *Nardus* grasslands, on siliceous substrates in mountain areas (habitat type 6230*),
- Mediterranean temporary ponds (habitat type 3170*).

### 3.1.2 Which sites are involved

- **ETHNIKOS DRYMOS OITIS (National Park of Mt. Oiti), Surface area (ha)**: 7,210, **EU protection status:** SCI GR2440004 ETHNIKOS DRYMOS OITIS, SPA GR2440007 ETHNIKOS DRYMOS OITIS - KOILADA ASOPOU, IBA: GR 104 MOUNT OITI.
- **OROS KALLIDROMO (Mount Kallidromo), Surface area (ha)**: 6,685, **EU protection status:** SCI GR2440006 OROS KALLIDROMO

### 3.1.3 Which habitat types and/or species are targeted

The target species are:

**Annex II Directive 92/43/EEC priority species:**

- *Veronica oetaea** a critically endangered endemic temporary pond species,
- Brown Bear (*Ursus arctos**) a threatened forest species.

**Annex I Directive 79/409/EEC birds:**

- Tengmalm's Owl (*Aegolius funerus*),
- Black Woodpecker (*Dryocopus martius*),
- White-Backed Woodpecker (*Dendrocopus leucotos*),
- Grey-headed Woodpecker (*Picus canus*),
- Rock Partridge (*Alectoris graeca*).

### 3.1.4 Main conservation issues targeted (including threats)

The main conservations issues targeted by the project are the following:

- Lack of grazing management
- Forest management and deforestation
- Modifications of the hydrological cycle of the temporary ponds
- Trampling by vehicles
- Waste disposal
- Wildfires
- Uncontrolled game practices
- Human induced mortality of the brown bear
- Global Climate Change

## 3.2 Expected longer-term results

**Species:** Priority species *Veronica oetaea**: Pilot establishment of the species in one more locality (currently known from only 3 localities) in Action C.2. Guidelines were provided at the end of the project and the methodology has mainly local application. Bird Directive 79/409 ANNEX I Species: Improvement of the conservation status of *Aegolius funerus* by providing supplementary artificial nesting sites (20 nest boxes) and by maintaining forest openings necessary for hunting; of the three woodpecker species by preserving suitable nesting and feeding areas; of *Alectoris graeca* by improving feeding habitat. Guidelines were provided at the end of the project and the methodology will be applicable to other areas in Greece. Priority species *Ursus arctos**: Improvement of the conservation status of *Ursus arctos** through the reduction of bear-human conflicts by providing Hellenic Livestock Guarding Dogs and electric fences, and through improving food resources by planting wild fruit trees. Guidelines were provided at the end of the project and the methodology will be applicable at other areas in Greece.

**Habitats:** Priority habitat type 3170*: Mediterranean temporary ponds. Improvement of the conservation status of the habitat in 3 of the 7 ponds in the project areas (Action C.4): Louka (0.06 ha), Mourouzos (0.04 ha) and Nevropoli (2 ha). Guidelines were provided at the end of the project and the methodology will be applicable at other high altitude ponds in Greece and the EU. Priority habitat type 9560*: *Juniperus foetidissima* forests (Action C.5). Improvement of the conservation status of the habitat on Mt. Oiti, mainly by enhancement of the population of *Juniperus foetidissima* and by removal of competitive fir trees. A total of c. 60 ha of habitat is under restoration out of the c. 140 ha of the current area of the habitat. Guidelines were provided at the end of the project and the methodology will be applicable at other *Juniperus foetidissima* projects in Greece and the EU. Priority habitats 6210* and 6230* (mountain grasslands). Pilot application of management techniques and procedures for the improvement of the conservation status and management of the habitat in both project sites (Action C.3). The project developed a low-intensity pasture system management technique, which can be used by farmers in order to both maintain the targeted habitats and improve their practices towards a sustainable management. Also, the project developed sustainable forestry practices. Farmer education (Action E.4) will multiply that effect. Guidelines were provided at the end of the project by HAO DEMETER) and the methodology is applicable at other grassland systems in Greece and the EU.

## 4. Administrative part

### 4.1 Description of the management system

#### 4.1.1 Description and schematic presentation of the working method

Coordination and management of the project was the responsibility of the Coordinating Beneficiary (HSPN).

The Project Manager was:

- Contact person with the European Commission.
- Contact person with the External Monitoring Team.
- Organiser of meetings regarding management and administration.

- Contact person between the beneficiaries of the project.
- Responsible for the implementation progress of all actions, including day-to-day monitoring.
- Responsible for the preparation of all reports.

The management of the project was facilitated through the following bodies:

**Administrative Team (AT)**

The AT held meetings two times per year, specifically every June and December, according to its members' decision. Several additional meetings were held to ensure adherence to the project timetable.

The members of the AT were:

1. Nikos Petrou, Project Coordinator, HSPN
2. Christos Georgiadis, Project Manager, HSPN
3. Spyros Missiakoulis, AT Member, HSPN
4. Georgios Politis, AT Member, HSPN (until 11/01/2018)
5. Kyriacos Georghiou, AT Member, UoA
6. Giorgos Karetsos, AT Member, IMFE
7. Ioanna Mattheaki, AT Member, RST (until 30/11/2014) replaced by Gogo Koumbarou (after 01/12/2014)
8. Lazaros Georgiadis, AT Member, ARCTUROS replaced by Mr Nikos Grammenopoulos on April 1, 2014.

**Financial Team (FT)**

The creation of this group was deemed necessary for the overall financial monitoring of the expenses of the project. The members of the FT were:

1. Spyros Missiakoulis, HSPN
2. Lena Chatzivasileiou, HSPN
3. Efrosini Lazi, UoA
4. Georgios Lyritzis, IMFE
5. Georgios Kirkos, RST
6. Petros Siopis, ARCTUROS

**Scientific Team (ST)**

The creation of this group was deemed necessary for the overall quality monitoring of the scientific deliverables of the project. It included members of the project team and external experts, who participated on a voluntary basis. The group did not meet regularly, but only when needed to discuss scientific issues regarding the implementation of the project.

The members of the ST were:

1. Kyriacos Georghiou, UoA
2. Giorgos Karetsos, IMFE
3. Michail Stamatakis, UoA
4. Vasileios Papanastasis, AUTh
5. Lazaros Georgiadis, ARCTUROS
6. Pinelopi Delipetrou, UoA
7. Georgios Mantakas, IMFE
8. Giorgos Handrinos, HSPN
9. Tasos Legakis, UoA
10. Georgios Politis, HSPN (until 11/01/2018)

**Stakeholders Committee (STAC)**

The STAC was established in the framework of actions A.11 and F.2, to support the project management by providing guidance and helping to achieve public support and commitment and to overcome potential administrative and political problems.

The members of STAC were:

1. Christos Georgiadis, Project Manager, HSPN
2. Georgios Politis, Coordinator of Legislative Framework Actions, HSPN (until (11/01/2018)
3. Ioanna Mattheaki, Team Coordinator, RST (until 30/11/2014) replaced by Gogo Koumbarou, AT Member, RST (after 01/12/2014)
4. Stakeholders' Representatives (the list was provided as Annex 3 of the IR)

The Project Manager informed the Managing Body of ONP, the RST and the Forest Directorate about the planned visits of project team members in the project area. Staff members of the Managing Body of ONP accompanied the visiting experts during fieldwork, in order to gain knowledge and experience.

The Project Manager regularly held meetings with all partners in order to monitor the project implementation according to the timetable, and to consult about administrative issues.

### 4.1.2 Presentation of the coordinating beneficiary, associated beneficiaries and project organisation

The Coordinating Beneficiary had the overall responsibility of the project management. The Coordinating Beneficiary and all partners unanimously decided to appoint as Project Coordinator (PC) Nikos Petrou, President of the HSPN. Nikos Petrou participated in the preparation of the proposal, and has close contact and good relations with all partners. Moreover, he has previous experience in the implementation of nature conservation projects and is a keen ornithologist, providing assistance in the relevant actions.

The main role of the PC was to facilitate effective implementation of the project according to the timetable. He was also the chairman of the Administrative Team. Nikos Petrou contributed his work throughout the project on a voluntary basis.

Additionally, the HSPN appointed three more members of the AT: Christos Georgiadis, Project Manager, Spyros Missiakoulis, Financial Manager and Georgios Politis Coordinator of Legislative Framework Actions (until 11/01/2018).

As Coordinating Beneficiary, the HSPN carried out the technical and financial administration of the project. Spyros Missiakoulis was responsible for the overall monitoring of financial issues. The financial administration of the project was assigned to Lena Chatzivasileiou, an accountant with experience in the financial management of projects.

The partners unanimously appointed Professor Kyriacos Georghiou, of the UoA, as overall Scientific Coordinator of the project. His role was to provide scientific guidance and to monitor the technical implementation of all actions.

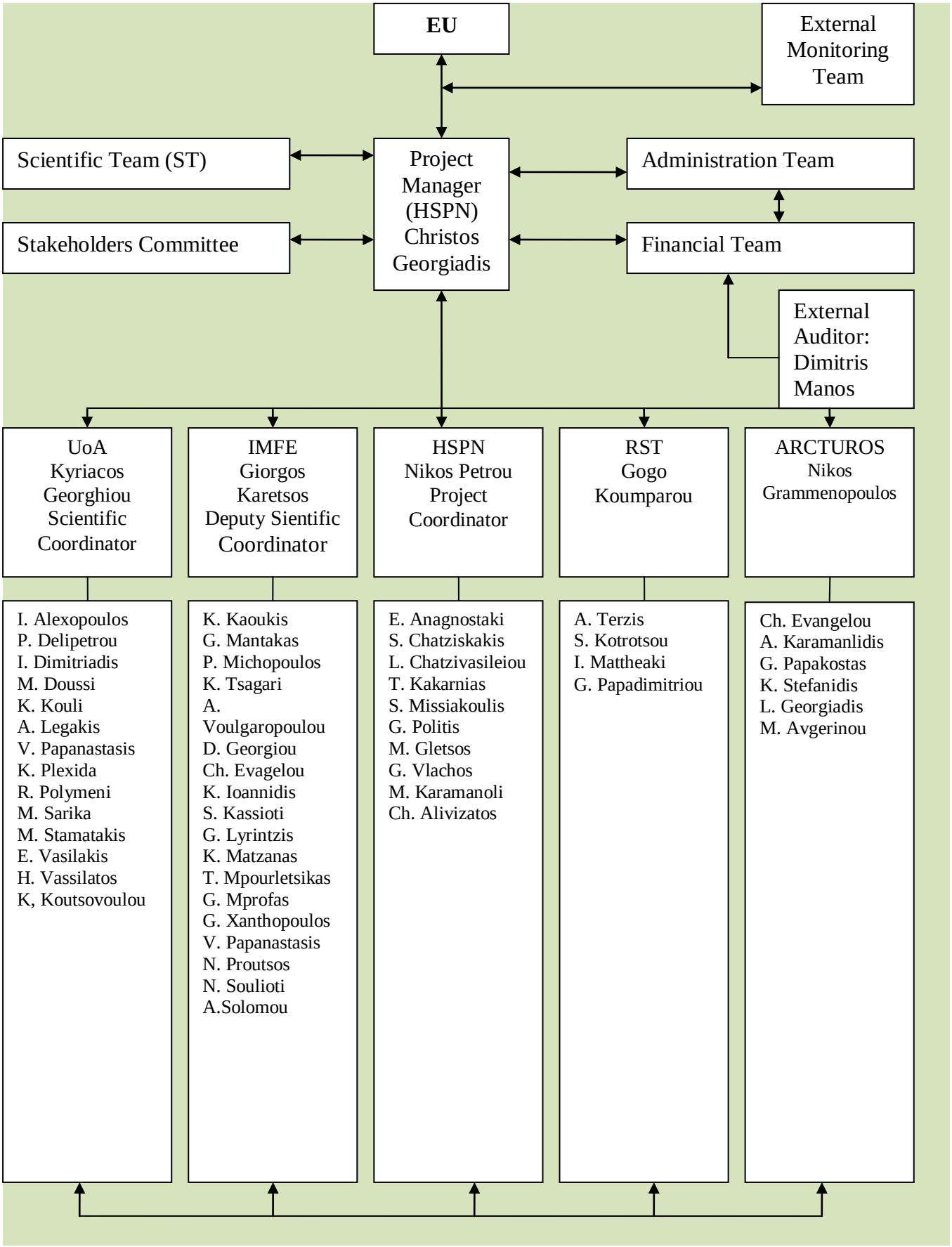
The partners also unanimously appointed Giorgos Karetsos, of the IMFE, as Deputy Scientific Coordinator, responsible for forest ecosystem actions. He also participated in the ST as coordinator of forest ecosystems actions.

The associated beneficiary RST was the contact point for the local community and implemented concrete conservation actions, as well as being responsible for the organisation of the Stakeholders Committee (STAC). The RST appointed Ioanna Mattheaki as its representative in the AT. Mrs. Mattheaki was replaced by Mrs. Gogo Koumparou after December 1, 2014.

The associated beneficiary ATCTUROS appointed Lazaros Georgiadis as its representative in the AT. He also participated in the ST as coordinator for Brown bear *Ursus acrtos** actions. Lazaros Georgiadis was replaced by Mr Nikos Grammenopoulos on April 1, 2014.

The scientific/professional expertise of project team members and their role in the project are provided in Annex 25 of IR – June 2013.

**Organigramme**


EU
External Monitoring Team
Scientific Team (ST)
Project Manager (HSPN) Christos Georgiadis
Administration Team
Stakeholders Committee
Financial Team
External Auditor: Dimitris Manos
UoA Kyriacos Georghiou Scientific Coordinator
IMFE Giorgos Karetsos Deputy Sientific Coordinator
HSPN Nikos Petrou Project Coordinator
RST Gogo Koumparou
ARCTUROS Nikos Grammenopoulos
I. Alexopoulos
P. Delipetrou
I. Dimitriadis
M. Doussi
K. Kouli
A. Legakis
V. Papanastasis
K. Plexida
R. Polymeni
M. Sarika
M. Stamatakis
E. Vasilakis
H. Vassilatos
K, Koutsovoulou
K. Kaoukis
G. Mantakas
P. Michopoulos
K. Tsagari
A. Voulgaropoulou
D. Georgiou
Ch. Evagelou
K. Ioannidis
S. Kassioti
G. Lyrintzis
K. Matzanas
T. Mpourletsikas
G. Mprofas
G. Xanthopoulos
V. Papanastasis
N. Proutsos
N. Soulioti
A.Solomou
E. Anagnostaki
S. Chatziskakis
L. Chatzivasileiou
T. Kakarnias
S. Missiakoulis
G. Politis
M. Gletsos
G. Vlachos
M. Karamanoli
Ch. Alivizatos
A. Terzis
S. Kotrotsou
I. Mattheaki
G. Papadimitriou
Ch. Evangelou
A. Karamanlidis
G. Papakostas
K. Stefanidis
L. Georgiadis
M. Avgerinou

### 4.1.3 Description of changes due to amendments to the Grant Agreement

On July 20, 2017 the project team in cooperation with the external monitor submitted a modification request. Its main reason was to ask for a two-year extension of the project. The request was accepted by the EC LIFE Unit and the amendment to the Grant Agreement was signed by the coordinating beneficiary and the European Commission. The project's implementation timetable was updated accordingly.

## 4.2 Evaluation of the management system

### 4.2.1 The project management process

The management process of the project has been described in chapter 5.1 of this Report. The only problem encountered was the delay in submission of the MtR. According to the Grant Agreement of the project, submission of the MtR was foreseen at the end of November 2014. As the beneficiaries of the project did not succeed in spending 150% of the first allocation, the project team in cooperation with the then External Monitor Ms Anastasia Koutsolioutsou, decided to submit instead a Progress Report. Due to this problem, the foreseen reporting plan has to be changed to: Mid-term Report: February 2016 – Progress Report 2: January 2017 – Progress Report 3: 30 November 2018 and Final Report: March 2020. Submission of the Final Report was also delayed until July 2020, because of the restrictions and conditions imposed by the covid-19 pandemic, which affected the response of all involved parties.

The coordinating beneficiary signed a Partnership Agreement with each beneficiary. The four Partnership Agreements were submitted both to the European Commission and the External Monitoring Team in Annex 4 of the IR.

The project team after several meetings and communication with the Region of Sterea Ellada, decided to transfer implementation of some of the subactions, as well as the corresponding budget from the RST to the beneficiaries HSPN, UoA and IMFE. These transfers are presented in the following table:

**Table 1**: Reallocation of budget between the beneficiaries

| Action | From RST | To HSPN | To UoA | To IMFE |
|---|---|---|---|---|
| C.4 | 58.000 | 43.000 | 10.000 | 5.000 |
| E.2 | 47.000 | 47.000 | - | - |
| E.4 | 58.000 | 11.000 | 23.000 | 24.000 |
| | **163.000** | **101.000** | **33.000** | **29.000** |

These reallocations were decided in order to ensure timely completion of the subactions because of complicated and time-consuming bureaucratic procedures of RST. The RST remained responsible for the implementation of these Actions. The modified Partnership Agreements were signed and stamped by all beneficiaries and were presented in Annex F.1_I of the MtR.

### 4.2.2 Communication with the Commission and Monitoring team

The Project Manager had close cooperation and communication with the external monitor, Ms Anastasia Koutsolioutsou. The project team prepared every month a brief activity report and submitted it to the external monitor. Before the Mid-term Reports, two Reports were prepared and submitted both to the European Commission and the External Monitoring Team. The Inception Report of the project was submitted at the end of May 2013 and Progress Report 1 was submitted in December 2014. The third Report was submitted both to EC and External Monitoring Team on November 30, 2018.

Ms Koutsolioutsou, in cooperation with the Project Management, organised annual missions. In general, the duration of each mission was two days (one day at the office of the coordinating beneficiary and the next day in the field at the project sites). After 2018, Ms Valaoras replaced Ms Koutsoulioutsou as external monitor of the project.

## 5. Technical part

The concept that led to the submission of the project proposal was that the conservation of the interdependent, and in some ways competitive, habitats of forests and forest openings, and of the species that inhabit them, requires a wide range of integrated management measures. The two mountainous NATURA 2000 sites located on Mt. Oiti and Mt. Kallidromo in Central Greece included priority forest and forest opening habitats, which host priority plant, bird and mammal species. The sites were, till recently, managed by traditional practices and methods. Threats identified for the habitats and species included grazing prohibition or uncontrolled grazing, trampling, lack of awareness and wildfires.

The target habitats of the project were five Annex I 92/43/EEC priority habitats: conifer forests (habitat types 9560* and 9530*), grasslands (habitat types 6210* and 6230*) and temporary ponds (habitat type 3170*) developing at forest openings. The target species were: two Annex II Directive 92/43/EEC priority species, *Veronica oetaea** (a critically endangered endemic temporary pond species), and *Ursus arctos** (a threatened forest species); and five Annex I Directive 79/409/EEC birds, a forest owl (*Aegolius funerus*), three woodpeckers (*Dryocopus martius*, *Dendrocopus leucotos*, and *Picus canus*), and the Rock Partridge, *Alectoris graeca*. The main aim of the project is the implementation of conservation management for the target habitats and species. The project will contribute to the targets set by the EU 2020 Biodiversity Strategy and has a demonstration character regarding the pilot restoration actions for juniper forests and temporary ponds and a best practice character regarding the Brown bear, bird and grassland management actions.

Main Achievements of the project:

- Updated SDFs for the two sites (Please see the relevant correspondence with YPEN in Annex C.10_II).
- Legal protection of the two sites (Please see the relevant correspondence with YPEN in Annex C.10_II).
- Acceptance by the Ministry of Environment and Energy that habitat type 6210* is indeed present in Greece (Please see the relevant correspondence with YPEN in Annex C.10_II).

- Enlargement of the Natura 2000 area in order to include the temporary pond of Alykaina, the newly found third location of *Veronica oetaea** presence. (Please see the Annexes C.10_III, C.10_IV and C.10_VI).
- Germination of the *Veronica oetaea** in a fourth temporary pond (Louka in Mt Oiti).
- Increased scientific knowledge for the two project areas.
- Methodology about management of grasslands, temporary ponds, forest openings, and priority species that can be replicated in other parts of Greece and the EU.
- Significant infrastructures that will benefit conservation of the area and local people, including two Visitor Information Centres that already attract large numbers of visitors.
- Provision to local producers of means to limit human-wildlife conflict (electric fending and HLGDs: 30 electric fences and 25 HLGDs have been distributed in the area of Oiti National Park).
- Increased knowledge of local producers that will help sustainable use of resources (mostly grasslands) on the two mountains.
- Increased knowledge and experience of the ONP staff and other local authority staff that will help conservation and sustainable management of the habitats and species on the two mountains.
- Increased knowledge of local educators about the project areas and their sensitive habitats and species, which will be passed on through the local education system.
- Increased awareness of children about the project areas and their sensitive habitats and species, through participation in environmental education activities.
- Creation and operation of a stakeholders committee (STAC) as a successful means of involving the local community. Members of the STAC are willing to continue the meetings after the implementation of the project.
- Promotion of the areas through continuous dissemination of layman's information over the whole duration of the project.
- A documentary video about the project, which will also help disseminate information and knowledge to the broader public.

## 5.1 Actions

**A. Preparatory actions, elaboration of management plans and/or of actions plans**

### 5.1.1 Action A.1: Priority habitat mapping

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| UoA | 01/09/2012 | 01/09/2012 | 28/02/2015 | 01/06/2017 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| **UoA** | **Target habitat map of Mt. Oiti**<br>**Target habitat map of Mt. Kallidromo** | **28/02/2015** | **30/11/2018** |
| **UoA** | **Remote sensing image time series** | **28/02/2015** | **01/06/2017** |
| **UoA** | **High resolution reference image and 3D virtual representation** | **28/02/2015** | **28/02/2015** |
| **UoA** | **Network based GIS application** | **28/02/2015** | **28/02/2015** |

**High resolution maps of the target habitats** (Deliverable A.1.1, in PR3)

High resolution (1:1000) maps of the target habitats were constructed based on satellite image datasets. These habitats are: Mediterranean temporary ponds (habitat type 3170*), mountain grasslands (habitat types 6230* and 6210*, other or not identified mountain grasslands), *Juniperus foetidissima* forests (habitat type 9560*) and *Pinus nigra* forests, habitat type 9530*). Topographic layers, such as roads, buildings, cultivations, mines, quarries were also mapped. A total of 810 polygons (3,265 polygons when multipolygon parts are counted) were mapped in the site of Mt. Oiti and a total of 882 polygons (2,361 polygons when multipolygon parts are counted) were mapped in the site of Mt. Kallidromo.

The target habitat maps are provided in jpeg form (A.1.1_Kallidromo_map, A.1.1_Oiti map, printable) and in electronic files (ArcGIS shapefiles: A.1.1_Kallidromo_shapefile, A.1.1_Oiti_shapefile).

**Remote sensing image timeseries** (Deliverable A.1.2, 2016 Progress Report, updated in 2018 Progress Report)

The remote sensing data timeseries of both areas include current satellite images (i.e. at different years from 2013 on) as well as the historical aerial photographs produced for Action A6.

High resolution satellite images (World View-2) were acquired. The first cloud free satellite images were acquired in 2013, after repeated ordering at different dates. Due to the frequent clouding, it was decided that new scenes would be bought as soon as the satellite owner acquired cloud free pictures. The new images are dated August 16, 2016 (Oiti and the largest part of Kallidromo) and October 16, 2016 (a small part of Kallidromo). The satellite images were ortho-rectified and atmospherically corrected. These were used for habitat mapping.

Panchromatic (black and white) aerial photos of 1970, 1986, and 1996 were digitised and converted to ortho-rectified images. These were used for assessing the forest expansion on the two mountains (deliverable A.6.1b).

Remote sensing image timeseries are provided in raster datasets. Both the satellite images (2013, 2016, A.1.2_Satellite Image Timeseries) and aerial photos (1970, 1986, 1976, A.1.2_Aerial Photo Timeseries) are accessible at the WebGIS. Please note that the rasters of the satellite images are very big and can only be provided in DVD. There are two links that are provided in the webpage of the project (right down) these two links are: http://webgis-mfk.geol.uoa.gr/Life_Oiti and http://webgis-mfk.geol.uoa.gr/Life_Kallidromo.

**High resolution reference image and 3D virtual representation** (Deliverable A.1.3, 2016 Progress Report, updated in 2018 progress report)

Digital elevation models for the project sites were created and combined with high resolution satellite images (2013).

Digital elevation models with spatial resolution 20 m were constructed for both Mts Oiti and Kallidromo. By combining the satellite (2013) and spatial data that were produced after the image interpretations, two high resolution 3 D virtual scenes (one for each mountain) in digital format were produced.

High resolution reference images and a 3D virtual representation were constructed for both Mts. Oiti and Kallidromo. By combining the satellite (2013) and spatial data that were produced after the image interpretations, two high resolution virtual scenes (one for each mountain) are available in digital format. The user can change views and orientation in order to choose the best angle for extracting more information even if the area of interest is non-approachable. These 3D reference images are provided in raster datasets (GIS files, A.1.3_3 D scenes) and are also accessible at the WebGIS. There are two links that are provided in the webpage of the project (right down) these two links are: http://webgis-mfk.geol.uoa.gr/Life_Oiti and http://webgis-mfk.geol.uoa.gr/Life_Kallidromo.

For the areas of the seven temporary ponds of Mt. Oiti and Mt. Kallidromo, digital elevation models with spatial analysis of 5 m were produced. For these sites, microtopography maps with isolines at a distance of 0.25 m based on high topographic accuracy data were constructed. These are provided in GIS files (A.1.3_contour_shapefiles) and jpeg images (A.1.3_microtopography_maps) and are also accessible at the WebGIS.

**Network based GIS application** (Deliverable A.1.4, 2016 progress report, updated in 2018 progress report)

The spatial data collected in the project are illustrated in a network environment (WebGIS). A geodatabase of spatial data was organised using 18 stable and dynamic information layers which are projected on the background of the satellite images acquired in the project (2013, 2016) and also of World Imagery ESRI satellite images.

WebGIS is accessible at the address http://webgis-mfk.geol.uoa.gr/Life_Oiti/ for Mt. Oiti and at the address http://webgis-mfk.geol.uoa.gr/Life_Kallidromo/ for Mt. Kallidromo.

### 5.1.2 Action A.2: Geo-environmental, hydrogeological and geochemical study of the areas of temporary ponds (3170*)

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| UoA | 01/09/2012 | 01/09/2012 | 30/09/2014 | 31/12/2014 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| UoA | Geoenvironmental, hydrological and geochemical study of temporary ponds (3170*) | 30/09/2014 | 31/12/2014 |
| UoA | Specification of a monitoring protocol for hydrogeological indices for action D.1 and for after-LIFE monitoring. | 30/09/2014 | 31/12/2014 |

The deliverables of the action were provided in Annex_A.2_I and Annex_A.2_II in the MtR.

**Geonvironmental study**

The study was carried out in 2012-2014 at all the ponds of Mt. Oiti (Livadies, Greveno, Alykaina, Louka) and Mt. Kallidromo (Nevropoli, Mourouzos, Mouriza) and also at the wetland of Souvala (Mt. Kallidromo). The fieldwork included eight visits to the project sites. Preparatory work included scanning and georeferencing of the existing geological and topographic maps as well as manual digitization of contour lines, the drainage system, geological formations and tectonic structures. All data were stored and processed in a GIS database in which fieldwork data were added.

- The geological and geomorphological fieldwork included: (i) Geological mapping of the temporary ponds' areas (macroscopic geological study); (ii) Analysis of tectonic structure; (iii) Identification and mapping of water sources (streams and springs); and (iv) Observations on the drainage system development.
- The geophysical survey consisted in the acquisition of geoelectrical field data at all the ponds. The following measurements were performed: 48 Vertical Electrical Soundings (1,344 measurements), 30 Electrical Resistivity Tomograms regarding a total length of subsurface geoelectrical investigation of 5,120 meters (10,680 measurements) along with 1,830 accurate DGPS elevation measurements, 4) electromagnetic VLF sections (1,300 meters total length) with 260 measurements carried out, in order to delineate the tectonic structure (Mt. Kallidromo).
- A detailed topographic survey at the areas surrounding the seven ponds was also carried out. Seven GPS bases were established and topography and micro-topography high accuracy measurements were obtained covering both the bathymetry of the ponds and the surrounding areas. A total of more than 36,000 x, y, z coordinate points were acquired (geophysical measurement locations, biology grid points, geologic observations etc.).
- Two meteorological stations, one on Mt. Oiti beside Greveno pond (altitude 1,890 m) and one on Mt. Kallidromo at the area of Nevropolis pond (altitude 988 m) were installed. Both stations function by special batteries powered by a solar panel. The station of Mt. Oiti has 12 sensors, recording every 15 minutes precipitation, relative air humidity, soil humidity, air temperature, soil temperature, evapotranspiration, wind speed, wind direction, barometric pressure, total radiation, UVA radiation, and photosynthetic radiation. The data are transferred online in real-time to a server located at the Geology Department of UoA and momentary measurements are accessible at the WebGIS site. The station on Mt. Kallidromo has 8 sensors, recording every 20 minutes precipitation, relative air humidity, air temperature, wind speed, wind direction, barometric pressure, UVA radiation, and photosynthetic radiation. The data are transferred online to the server on a monthly basis. High altitude stations are in general few and difficult to maintain in proper function due to severe weather conditions and lack of accessibility for a long period. The data from both project stations, especially the one on Mt. Oiti, which is one of the highest altitude stations in Greece, are valuable for the scientific community. The two stations are still operating and they continue to operate after the end of the project. The data have being received by UoA and Managing Authority of ONP.

As a result of the above a report was made containing:

1. A description of the geo-environmental status and the dynamic processes influencing the relief of the greater area of the ponds.
2. A detailed analysis of the substrate of the ponds and determination of the water-impermeable layers that contribute to water concentration.

3. Detailed topographic analysis, including the wet and dry period of the ponds and the micro-changes of the water bottom.
4. Correlation of microclimate and water concentration.

**Hydrogeological and geochemical study**

The study included collection of bottom sediment and water sampling at all the ponds of Mt. Oiti (Livadies, Greveno, Alykaina, Louka) and Mt. Kallidromo (Nevropoli, Mourouzos, Mouriza) and also at the wetland of Souvala (Mt. Kallidromo). The fieldwork included five phases: autumn 2012, spring 2013, autumn 2013, spring 2014, autumn 2014. Sensitive physicochemical parameters were measured on site. The collected samples were processed at the Faculty of Geology and Geoenvironment of the UoA and in ACME Labs, Canada.

- Water analyses included: a) specification of the nutrients (total phosphorus, total dissolved phosphorus, salts of phosphorus, total nitrogen, total dissolved nitrogen, nitrate, nitrite and ammonia), b) measurements of the main cations in water (magnesium, calcium, sodium, bicarbonate, sulphate), and also analysis of the trace elements content (arsenic, chromium, boron, nickel, strontium, lead, zinc, copper, iron), c) analysis of biogeochemical parameters including chemical oxygen demand [COD], biochemical oxygen demand [BOD], total organic carbon [TOC] in dry and wet periods.
- Bottom sediment analyses included: i) the content in iron, aluminium, silicon, phosphorus, sodium and potassium and also analysis of the trace elements content (arsenic, chromium, boron, nickel, strontium, lead, zinc, copper), ii) the content in soluble and insoluble minerals in different grain fractions, iii) the content in organic material.

As a result of the above a report was made containing:

1. Time series of the chemical analyses of the water and correlation with the meteorological data.
2. Determination and interpretation of the relation between chemistry-geochemistry – vegetation at each of the ponds.
    - The water of the ponds of Mt. Oiti originates from precipitations and there is no interaction between geological substrate and water.
    - The water of the ponds of Mt. Kallidromo originates from precipitations and the water is influenced significantly by the geological substrate.
    - Regarding the oryctological composition, quartz in dominant at the ponds of Mt. Oiti, while at the ponds of Mt. Kallidromo there is increased participation of clay minerals. Regarding the granulometry, at the ponds of Oiti there is increased participation of the fraction of sand, while at the ponds of Kallidromo the fractions of mud-clay are dominant.
    - Lead (Pb) is increased at the water of Mt. Kallidromo probably as a result of the remains of lead shot pellets fired by hunters.
    - Organic material is significantly increased at the ponds of Kallidromo compared to the ponds of Mt. Oiti, apparently due to the increased presence of grazing animals.

### 5.1.3 Action A.3: Determination of vegetation structure and of flora and fauna composition and phenology in the Mediterranean temporary ponds (3170*)

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| UoA | 01/09/2012 | 11/05/2013 | 28/02/2015 | 20/12/2015 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| UoA | Base study and interannual variation of 3170* biotic communities | 28/02/2015 | 20/12/2015 |
| UoA | Specification for 3170* communities restoration | 28/02/2015 | 20/12/2015 |
| UoA | Monitoring protocol for 3170* communities | 28/02/2015 | 20/12/2015 |

The deliverables of the action were provided as annexes in the MtR (Deliverable A.3_I, specifically Annex A3_Ia (Flora and Vegetation), Annex A3_Ib (Fauna: Invertebrates) and Annex A3_Ic (Fauna: Amphibian, Deliverable A.3.2 as Annex A.3_II and Deliverable A.3.3 as Annex A.3_III).

The project site of Mt. Oiti includes four high altitude temporary ponds, namely Livadies, Greveno, Alykaina and Louka. The project site of Mt. Kallidromo includes three high altitude ponds, namely Nevropoli, Mourouzos and Mouriza.

**Flora and Vegetation**

Vegetation structure and flora composition were studied by transects for two years, 2013 and 2014, in order to provide the baseline status of the ponds and data on interannual variation. The ponds of Mourouzos and Mouriza were studied for only one year due to the adverse meteorological conditions. A total of 61 transects and 556 plots were performed each year. The results were coupled with the hydrological data, especially the alternation of the wet and dry ecophase of the ponds. Data process and analysis included species identification, databases of the plot data, and phytosociological[1] and ecological analysis of the plot data using specialised software.

In all ponds there was significant seasonal and interannual variation of the timing and duration of the hygroperiod. This was reflected in the changes in the spatial distribution of the communities between the two years. There was also significant interannual species turnover in most plots and statistically significant overall difference in the abundance of certain typical species. A total of 8 vegetation units were identified in the ponds of Mt. Oiti with a total of 83 species, all of them native and 9 of them typical of the temporary pond vegetation. All the units were assigned to habitat 3170* or to the transition zone between 3170* and mountain grassland. Significant terrestrialisation[2] and degradation due to trampling and grazing was observed only in Louka. A total of 10 vegetation units were identified at the temporary ponds of Kallidromo with a total of 46 species; 3 of them were alien invasive species. There were 7

[1] **Phytosociology** is the branch of science which deals with plant communities, their composition and development, and the relationships between the species within them. A phytosociological system is a system for classifying these communities. (From Wikipedia)

[2] **Terrrestrialisation** is the reduction of the area covered by water of the temporary pond (habitat

typical temporary pond species as well as 4 aquatic species. Four units[3] were assigned to habitat 3170*, 1 unit to aquatic vegetation, and 5 units represented degraded forms of 3170* including synanthropic[4] species.

**Fauna - Invertebrates**

Two visits took place on 11-12/6/2013 (Dr Polimeni and Dr Eleftherakos) and 27-28/5/2014 (Prof. Legakis, Dr Polimeni, and Dr Koulamas). Fieldwork was concentrated on the ponds of Nevropoli and the wetland of Souvala on Mt. Kallidromo and on the ponds of Livadies, Greveno, Louka and Alykaina on Mt. Oiti. In addition, samples from watering troughs and rivulets in the greater areas of the ponds were collected. The collections included adults and larvae mainly of insects such as Odonata, Trichoptera, Ephemeroptera, Neuroptera, Crustacea and Coleoptera. During these two visits, no population fluctuation was noted. In *order to observe such differences, at least 5-10 consecutive years of observation are needed.*

The proposals for any sustainable management must include the determination of the optimum and average duration and intensity of flooding, and the composition of animal and plant species. It is also very important to monitor the quality of water in order to identify any degree of pollution. Moreover, it is necessary to analyse the intensity of use of the sites by livestock and to determine the optimum degree of use, in order to use it to adjust to reasonable levels.

One of the most important activities for the restoration of seasonal ponds and their invertebrate fauna is to preserve not only the most important ponds, but other bodies of water such as springs, streams and wet meadows. Also, there is a need to apply different strategies, depending on the size, importance, sensitivity and location of each body of water.

Additional collections in 2017

In the framework of action F5, collections of non-malacostracan, free living crustaceans were made in May and November 2017 by Dr. Marrone (University of Palermo) and the UoA team. A total of 15 collections were made at the seven temporary ponds of Mt. Oiti and Mt. Kallidromo and at some temporary (6) and permanent (2) water bodies of the greater area, for comparison purposes. A total of 21 species were identified at the ponds of the project forming an assemblage different from the other water bodies. The results of this study have been published (please see Action E.5) and are included in the Annex of action E.5 of this Final Report.

**Fauna - Amphibians**

For the study of amphibians, two visits to the sites were carried out during 2013 (May) and 2014 (June). At Mt. Kallidromo, water was present only at the Nevropoli pond while the other two ponds had dried out due to the seasonal environmental conditions. At the Mt. Kallidromo site, six (6) amphibian species were recorded, with more than adequate numbers. At the Mt. Oiti site, all temporary ponds were dry. Nevertheless, around these ponds five (5) amphibian species were recorded. All of these records indicated that the biological cycles of

[3] The word "**units**" refers to **vegetation units** which is a phytosocialogical term and includes plant species which inhabit the same vegetation zone (aquatic zone, temporary pond zone, degraded zone).

[4] **Synanthropic species** are those that were introduced by human activities.

the species are fulfilled regardless of the temporal presence of water in ponds, as they seem to be able to utilise smaller, permanent water bodies (e.g. small streams, livestock watering troughs, and artificially maintained ponds).

- The results of the above study of the biotic communities are included in Deliverable A.3.1: Base study and interannual variation of temporary pond (3170*) biotic communities in Mt. Oiti and Mt. Kallidromo, provided in the MtR. The deliverable includes 3 parts: Annex A3_Ia (Flora and Vegetation), Annex A3_Ib (Fauna: Invertebrates) and Annex A3_Ic (Fauna: Amphibia).

The results of the study of the biotic communities of the temporary ponds were the basis for the production of:

- A feasibility study and specifications for the conservation of temporary ponds: restoration of biotic communities (Deliverable A.3.2 of the MtR). The specifications include the restoration of habitat 3170* in the pond of Mourouzos (enhancement of 3170* plant communities), in the pond of Nevropoli (removal of alien plant species), and in the pond of Louka (enhancement of 3170* annual plant species, removal of *Convolvulus betonicifolius*). Also general specifications for the conservation and restoration of fauna communities are delineated.
- A monitoring protocol for action D.1 and for after-LIFE monitoring (Deliverable A.3.3 – of the MtR).

### 5.1.4 Action A.4: Study of population dynamics of the priority plant species Veronica oetaea*

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| **UoA** | **01/09/2012** | **11/05/2013** | **28/02/2015** | **20/12/2015** |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| **UoA** | **Population dynamics of *Veronica oetaea***** | **28/02/2015** | **28/02/2015** |
| **UoA** | **Specifications for *Veronica oetaea*** population enhancement** | **28/02/2015** | **28/02/2015** |
| **UoA** | **Monitoring protocol for *Veronica oetaea***** | **28/02/2015** | **28/02/2015** |

- The deliverables of the action were provided in the MtR as Annex A.4_I A.4.1: Population dynamics of *Veronica oetaea**, Annex A.4_II A.4.3: Feasibility study and specifications for the enhancement of the population of the specie and Annex A.4_III A.4.3: Monitoring protocol for action D.1 and for after-LIFE monitoring.

Population dynamics of the priority plant species *Veronica oetaea** were studied for 2 years (2013-2014) at the ponds Livadies, Greveno and Alykaina using a 2x2 grid covering the whole area of the ponds. The results were the following:

1. Phenology. The plant appears after the snow melts in May to early June, depending on the year and the pond. The life cycle is completed by late July.

2. Spatial distribution. The spatial distribution of the plant varied between the 2 years regarding both the position and the number of cells occupied but differently in each pond. In Livadies the plant is restricted to depths of about 10-30 cm.
3. Population size. Population size varied greatly between the 2 years. A total of 16,975 and 68,976 individuals were counted in 2013 and 2014, respectively. This corresponds to a respective estimated total population size of 271,600 and 1,103,616 individuals. The large population size indicated that there is no need of enhancement of the extant populations.
4. Soil seed bank. Soil samples were collected in both 2013 and 2014 but the determination of the methodology of their study was delayed due to the time consuming procedure for determining an efficient germination method. Thus the study was completed in 2015-2017, including new 2016 collections. The interpretation of the results includes population sizes estimated in 2015-2016 in action D.1, so an updated deliverable for the seedbank is included in the deliverables of Action D.1.

- The results of the above study are included in Deliverable A.4.1: Population dynamics of *Veronica oetaea**.

The results of the study of population dynamics were the basis for the production of:

- A feasibility study and specifications for the enhancement of the population of *Veronica oetaea** (Deliverable A.4.2). The specifications include instructions for the establishment (benign introduction) of *Veronica oetaea** at the temporary pond of Louka.
- A monitoring protocol for action D.1 and for after-LIFE monitoring (Deliverable A.4.3).

### 5.1.5 Action A.5: Determination of vegetation composition and structure in the mountain grasslands (6210*, 6230*)

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| IMFE | 01/09/2012 | 11/05/2013 | 28/02/2015 | 20/12/2015 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| IMFE | Vegetation of mountain grasslands | 28/02/2015 | 20/12/2015 |
| IMFE | Monitoring protocol for mountain grasslands | 28/02/2015 | 20/12/2015 |

The results of the study are included in Deliverable A.5.1 (Annex_A.5_I) and they were used to produce the monitoring protocol for mountain grasslands (Deliverable A.5.2, Annex A.5_II both presented in the MtR).

The baseline study of the vegetation composition and structure, and vegetation succession was performed by a total of 8 transects (160 plots) on Mt. Oiti and 17 transects (130 plots) on Mt Kallidromo. Maps of the transects used were provided. Also a total of 25 soil samples were collected for the production of soil profiles at the vegetation transect sites. Data processing and analysis included species identification (a total of 800 plant samples), databases of the plot data, and phytosociological and ecological analysis of the plot data using specialised software.

A total of 12 vegetation units (not in a strict phytosociological sense ) were identified. Habitat 6230* and its transitions to dry grassland and scrub were identified on flysch on Mt. Oiti. Mountain grasslands of the class *Festuco-Brometea* were identified on dolomite and limestone on both mountains, and were divided into two groups depending mainly on altitude and also on land use. The syntaxonomical affinities of the low altitude group are apparently close to the order *Scorzoneretalia villosae* (habitat type 62A0) and of the high altitude group are closer to the order *Festucetalia valesiacae* (habitat type 6210*). However, the circumscription of the syntaxonomy of the orders of the class *Festuco-Brometea* has undergone significant changes during the last years. So, the syntaxonomy of vegetation units identified in the project sites and their assignment to a habitat type, based on the Interpretation Manual of the European Union Habitats and the relevant literature, is debatable. Orchid species were identified at only two sites of Mt. Kallidromo (one at high and one at low altitude).

The results of the study were used to proceed with related Actions C.3 and D.2.

### 5.1.6 Action A.6: Study of forest expansion and of use by livestock in the areas of temporary ponds (3170*) and mountain grasslands (6210*, 6230*)å

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| UoA | 01/09/2012 | 01/09/2013 | 30/09/2013 | 28/04/2016 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| UoA | Livestock grazing in ponds and grasslands | 30/09/2013 | 30/09/2013 |
| UoA | Forest expansion in ponds and grasslands | 28/02/2015 | 30/11/2018 |
| UoA | Specifications for implementation of action C3 | 30/09/2013 | 30/09/2013 |

**Study of livestock use** (Deliverable A.6.1a in Annex A.6_I of the MtR)

Current grazing status and temporal evolution of grazing were studied by interviewing livestock farmers based on a standard questionnaire as well as by using a map of grazing territories and data on animal numbers from local and national authorities. By dividing animal units with the grazed area the stocking rate was calculated. Range condition was evaluated by vegetation measurements with the point method on 67 transects located in the areas of Actions A.3 and A.5; in addition, plant biomass and species composition of the transect areas was assessed. Based on these data, grazing capacity was calculated. Mt. Oiti, a taller mountain, was found to have larger areas of grasslands which are located at higher altitudes and is grazed by all types of livestock (sheep, goat, cattle) for a shorter period every year compared to Mt Kallidromo. Mt. Kallidromo, a shorter mountain, was found to have smaller areas of grasslands located at lower altitudes and is currently grazed only by cattle, for a longer period. Stocking rates for the whole area (forested and open with grasslands) of each mountain were assessed as moderate for the grasslands and heavy for the forested areas. However, range condition results showed that openings attract more animals, so grazing is much heavier in

grasslands. In conclusion, although livestock animals graze the whole area in each mountain, their pressure is concentrated on the forest openings resulting in overgrazing of the grassland habitats, especially in Kallidromo.

**Forest expansion in ponds and grasslands** (Deliverable A.6.1b as Annex A.6_I in PR3)

The deliverable includes a printable pdf file and the following digital deliverables:

1. A.6.1b_Kallidromo_shapefiles: kalli_grass_compare_1970.shp and kalli_grass_compare_2013.shp. Digital maps of the areas compared in Kallidromo in 1970 and in 2013, scale 1:1000.
2. A.6.1b_Oiti_shapefiles: oiti_grass_compare_1970.shp and oiti_grass_compare_2013.shp. Digital maps of the areas compared in Kallidromo in 1970 and in 2013, scale 1:1000.
3. A.6.1b_Kallidromo.jpg. Digital image of the synopsis of the comparison of grasslands for Mt. Kallidromo, scale 1:2800.
4. A.6.1b_Oiti.jpg. Digital image of the synopsis of the comparison of grasslands for Mt. Oiti, scale 1:2400.

Forest and scrub expansion at the expense of the priority target habitats 3170*, 6210* and 6230* was studied in the Natura 2000 sites of Mts. Oiti and Kallidromo. A 2013 satellite image and a 1970 aerial photo were used for the intertemporal comparison. The estimation of forest and scrub expansion at the expense of grasslands was made by comparing the areas of grassland and pond polygons between 2013 and of 1970. The comparison included all the 2013 grassland and pond polygons with presence or possible presence of the habitats 3170*, 6210* or 6230* and their neighbouring areas, irrespective of grassland habitat type as well as the areas where Action C.3 was implemented.

On the whole, approximately 50% of the grassland areas mapped in 2013 were included in the comparison throughout the study. However, the comparison included the great majority of the area of the target habitats, specifically: 100% of 3170*, 89% of 6230* and 97% of 6210*. A significant reduction in grassland area due to scrub and forest expansion in 2013 as compared to 1970 was observed for both Mt. Oiti (35%) and Mt. Kallidromo (47%). The reduction was smaller on Mt. Oiti, especially for priority habitat 6230* (27%). This is probably due to the lower rate of afforestation in the high altitude areas, especially at the higher altitudes (above 1,800 m), where the main distribution area of habitat 6230* lies, and the Greek Fir forest which is dominant on the mountain is close to its bioclimatic limits. On Mt. Kallidromo where all altitudes are below 1,400 m, the expansion of forest and scrub was in general greater than on Mt. Oiti, and similar for 6210* (49%) and the other grasslands (47%). Virtually no forest and scrub intrusion was observed in habitat 3170*.

- Based on the results of both the above studies, the specifications for action C.3 were prepared (Deliverable A.6.2 Annex A.6_I of the MtR).
- It must be noted that the delay in the completion of the forest expansion mapping did not affect the specifications for action C.3 since forest expansion, although not mapped in detail and quantified, was verified for both mountains, especially in the areas of the priority habitats by simple comparison of the satellite and areal images. Specifications were also based on the results of the study of livestock grazing and of the study of mountain grasslands (Action A.5) which were completed in time.

### 5.1.7 Action A.7: Study of *Juniperus foetidissima* population and forests (9560*)

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| NAGREF | 1/9/2012 | 1/9/2012 | 30/9/2013 | 30/11/2015 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| IMFE | *Juniperus foetidissima* forest status | 30/9/2013 | 30/11/2015 |
| IMFE | *Juniperus foetidissima* monitoring protocol | 30/9/2013 | 30/11/2015 |
| IMFE | Specifications for *Juniperus foetidissima* restoration | 30/9/2013 | 30/11/2015 |

The aim of Action A.7 was to study the composition and structure of *Juniperus foetidissima* forests (9560*) and of the population of *Juniperus foetidissima* which is the characteristic (diagnostic and dominant) species of habitat 9560* in ONP (GR2440004).

Field trips were conducted during 2013, 2014 and 2015. Tree height, diameter at breast height, geographic coordinates, number of crowns per tree and gender were recorded for each of the 299 trees measured in all accessible places within the studied areas at locations Fakitsa and Trapeza (the only known ones at the time of proposal submission). Apart from the two *Juniperus foetidissima* sites mentioned above, 10 more new sites were also identified within the Natura 2000 core zone on Mt. Oiti, at which presence of habitat 9560* was confirmed. The results of this Action have been delivered to YPEN (please find the relevant correspondence in Annex C.10_II). All these *Juniperus foetidissima* stands cover an area of about 150 ha within the Natura 2000 site. In each location, geological substrate, exposure and inclination were also recorded in addition to tree data. The reproductive effort was estimated by counting the number of seeds on representative twigs taken from the trees. For the population density estimations, a representative area of 0.1 ha was selected in each site and all the parameters mentioned above were recorded. Soil samples were taken in each location at representative positions in the habitat, in order to establish a complete picture of soil fertility, which can affect tree growth. Furthermore, vegetation data in representative sites were also recorded.

Measurements of diameter at breast height, tree height, population density and gender, as well as geological substrate, soil, inclination and exposure recordings, and estimations of the reproductive effort and age were taken in all new sites.

More than 1,500 tree positions, either isolated or within stands, were recorded. A total of 528 trees were used as a sample in order to investigate the forest status at all sites within the Natura 2000 core and peripheral zone.

From the data collected from all 12 sites where the presence of habitat 9560* was confirmed, the following general conclusions are extracted:

- Habitat type 9560* on Mt. Oiti is in a better status than that estimated at the beginning of the project especially about the total area.
- The regeneration of the population of *Juniperus foetidissima* is not adequate.
- The ratio of male to female trees, and the reproductive effort is considered satisfactory.

- The population is expanded to at least 12 sites within the Natura 2000 core zone, a very significant fact for the habitat's conservation.
- The main threat for the habitat's conservation is the competiveness of the *Abies cephalonica*, which expands quickly, even within the areas of habitat 9560*, constituting a significant factor that restricts *Juniperus foetidissima*.
- Another significant threat is the illegal logging of *Juniperus foetidissima* individuals for use of their wood mainly by the local people, probably due to the lack of knowledge about the importance of the habitat and the need for its conservation and protection. This information has been transferred to the authorities at local and regional level by disseminating it through seminars addressed to the personnel of the Forestry Services and staff of the Management Body of the ONP. Moreover, this information has been already included in the Special Environment Study for Mt. Oiti after organizing a meeting with the subcontractor.
- In each site where *Juniperus foetidissima* is present, different threats were detected and different kinds of interventions are required. Specific data of forest status of *Juniperus foetidissima* and the proposed measures in all locations, are presented in the deliverables "*Juniperus foetidissima* forest status", and "Specifications of *Juniperus foetidissima* restoration", in Annex A.7_II of the MtR. The deliverable entitled "*Juniperus foetidissima* monitoring protocol" was also produced and submitted as Annex A.7_III of the MtR, based on the proposed measures for the restoration and conservation of *Juniperus foetidissima* forests.

The newly detected sites caused a significant delay in the completion of action A.7, because of the need to study them thoroughly. However, the results of this action were very significant for the proposed interventions of Action C.5. The extracted results mainly affected Action C.5, since different measures were proposed for the restoration and conservation of habitat 9560* than those initially described in the proposal. Although restoration and conservation of *Juniperus foetidissima* populations still remained the main objective of Action C.5, the specific interventions in order to achieve this objective were quite different. The final interventions were grouped into four main categories:

- Logging or necrosis of specific *Abies cephalonica* trees (young or adult individuals) within the habitat, in order to diminish competition with *Juniperus foetidissima* trees and avoid displacement of the habitat.
- Placement of informative signboards at the locations where *Juniperus foetidissima* illegal logging was detected, referring to the significance of the species' protection and preservation.
- Establishment of new *Juniperus foetidissima* plants at the sites where the species' density and regeneration dynamics are strongly inadequate.
- Monitoring (Action D.3) the effectiveness of the above interventions on a yearly and/or 5-year basis (after Life) and adoption of supplementary measures if necessary in order to ensure the habitat's restoration and conservation.

### 5.1.8 Action A.8: Elaboration of specifications for priority habitat protection

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| **HSPN** | **01/07/2013** | **01/07/2013** | **31/03/2015** | **31/12/2015** |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| **HSPN** | Specifications for priority habitat protection | **30/09/2013** | **30/11/2015** |

Experts of the HSPN elaborated the specifications for the implementation of Action C.1. The set of specifications was sent to the RST on October 2013 (Annex 14 of PR 1). Following that, the studies for the creation/restoration of the two paths (one each on Mts. Oiti and Kallidromo) and for the fences for temporary ponds were delivered to RST (Annex 15 of PR1). Many meetings were held with the Forestry Service of Fthiotida and other involved authorities (e.g. Fire Department), in order to discuss and finalise the locations of the remaining interventions included in this Action. Some of the original planning had to be modified according to the requirements of the final users (e.g. the location of the observation towers and the water reservoirs for fire-fighting were determined according to the suggestions of the Fire Department based on ease of access, etc.). The relevant final letter from the Fire Department was submitted along with the MtR as Annex A.8_I.

Numerous visits to the project area also took place in order to finalise the specifications for Actions C.4, C.6 and E.2. The specifications for implementation of these three Actions were provided along with the MtR as Annex A.8_II.

### 5.1.9 Action A.9: Study of the population status of five Annex I Greek resident mountain bird species: *Alectoris graeca, Dryocopus martius, Dendrocopos leucotos, Picus canus* and *Aegolius funerus*

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| **HSPN** | **01/09/2012** | **01/09/2012** | **30/09/2014** | **30/11/2014** |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| **HSPN** | **Population Status of 5 Annex I birds** | **31/10/2014** | **30/11/2014** |
| **HSPN** | **Specifications for Annex I bird management** | **31/10/2014** | **30/11/2014** |
| **HSPN** | **Specifications for Annex I bird monitoring** | **31/10/2014** | **30/11/2014** |
| **HSPN** | **Specifications for the legal framework on birds** | **31/10/2014** | **30/11/2014** |

Surveys of the study area, by the ornithologist Charalambos Alivizatos and his colleagues (E. Shogolev and S. Shogolev), started in November 2012 and ended in November 2014 with one visit per month; during March, April and May of 2013 and 2014, two visits per month took place, according to the specifications of this Action. Each visit lasted from three to five days. During each visit, attempts were made to cover all the study area, with emphasis on the ONP area, where we estimate the higher concentrations of the target species. Since four of the five target species occur in mature forest (mainly *Abies cephalonica* in the study area), our efforts

were concentrated in those areas. In each location, point and transect counts were made, and calls of the woodpeckers and, at night, of the Tengmalm's Owl (*Aegolius funereus*) were played back. All observations were entered in a database, created especially for this project, including records of other bird species of interest. The database is accessible in the project's website (Deliverables of Action A.9).

From January to April 2013, it was not possible to visit the highest parts of Mt. Oiti, including nearly all the core area of the ONP, because of snowfall, and this somewhat limited our work in the main habitat of the target species.

All target species were recorded. The Tengmalm's Owl (*Aegolius funereus*) was recorded only once, in high altitude fir forest near the tree line. This species probably has a very small population in the order of 1-5 pairs. The Rock Partridge (*Alectoris graeca*) was recorded in several areas of the ONP, but mainly in the buffer zone. It inhabits glades and stony meadows in rather steep slopes at medium to high altitudes and its population appears to be limited more by hunting and poaching than by habitat factors. Its population is estimated at 50-100 pairs. Of the woodpeckers, the Black Woodpecker (*Dryocopus martius*) is the most common, with a population of 40-60 pairs. It occurs nearly everywhere in the fir forests above an altitude of about 900 m. The Grey-headed Woodpecker (*Picus canus*) is rather rare, occurring in rather specialised habitats (forest and grassland mosaic in rather level areas in intermediate altitudes) and has an estimated population of 10-20 pairs. The White-backed Woodpecker (*Dendrocopos leucotos*) is widespread, although at rather low densities (population probably 20-25 pairs). It does not appear to be limited by any specific factor but it needs large territories.

For Tengmalm's Owl, the installation of nest boxes was considered important. For the woodpeckers, the presence of plentiful potential nesting trees mostly negates the use of nest boxes, and they are to be used mainly experimentally, while protection of areas in the buffer zone to retain breeding habitat is more important. For the Rock Partridge, the limited impact of habitat factors on population density indicates that habitat improvement was carried out mainly experimentally; the main goal was better enforcement of the hunting laws and control of access in the ONP area.

The deliverable and the final database of the Action were provided in Annex 16 of PR1. The deliverable was also sent to the Management Authority of the ONP, Ministry of Environment and Energy and Green Fund. The deliverable is available in the webpage of the project as well.

### 5.1.10 Action A.10: Study of the priority mammal species *Ursus arctos** for the determination of management specifications

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| **ARCTUROS** | **1/10/2012** | **1/10/2012** | **30/09/2013** | **30/11/2014** |

**Action Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| **ARCTUROS** | **Specifications for *Ursus arctos** management** | **30/09/2013** | **30/11/2014** |
| **ARCTUROS** | **Specifications for *Ursus arctos** monitoring** | **30/09/2013** | **30/11/2014** |
| **ARCTUROS** | **Specifications for the legal framework regarding *Ursus arctos**** | **30/09/2013** | **30/11/2014** |

The project activities implemented by ARCTUROS, in the framework of this Action, include study and research to verify the presence and evaluate the status of the Brown Bear in the areas of Mts. Oiti and Kallidromo, and to collect information about livestock, beekeeping and the presence of native fruit trees in these areas.

Data collection took begun in October 2012 and lasted until September 2014; three different procedures were used:

1. Field visits in the project area (7 visits in total).
2. Development of a network of special social target groups, including beekeepers and livestock breeders, as well as local authorities and services, and data collecting through interviews.
3. Data collection from the scientific staff of the other project partners.

According to the IncR and the initial project schedule, this Action was expected to last from September 1, 2012 till September 30, 2013, but was finally completed in September 2014. The collected information covers the period 2010-2014, which includes the two years prior to the initiation of the project, and is separated in four data categories:

1. Evidence of bear presence (tracks, scratch marks, hairs).
2. Bear sightings.
3. Oral report from a third party.
4. Damages to beehives, livestock and agricultural production.

Additionally, information concerning livestock (37 livestock owners with a total of 10,300 animal units) and beekeeping (47 beekeepers) in the area was collected, and the sites with fruit trees were identified. Based on this information, the study produced three scientific and technical specifications necessary for the appropriate management actions and monitoring protocols required for the next phases of the project:

1. Specifications for *Ursus arctos** management.
2. Specifications for the legal framework.
3. Specification for the monitoring protocols for *Ursus arctos**.

At the end of 2014, there was a total of 69 records, distributed throughout an area including the Regional Units of Fthiotida (where the project area is situated), Evritania and Fokida, all three within the Region of Sterea Ellada. All the data from Fthiotida (32 records) originated from the project area. There were 31 records from Evritania and 6 from Fokida. Within the project area, most records were damages to beehives (19 instances); tracks were found in 8 cases, while there were 3 oral reports and 2 direct sightings.

Temporal distribution of the data leads to the conclusion that the Brown bear, most likely, has a seasonal presence in the area, with repeated evidence of active presence coinciding with the summer and autumn. On the other hand, there is clear evidence (footprints on snow) of presence in December and March before and after the period of winter-sleep.

The small number of records leads us to estimate a very low number of individuals (1-2), while the direction of the connecting corridor to the main bear population in the South Pindos mountain range is to the west, through the Regional Unit of Evritania.

The Study resulting from Action A.10 with the three deliverables was presented in Annex A.10_I of the MtR.

### 5.1.11 Action A.11: Stakeholder consultation and development of a communication and participation strategy

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| HSPN | 01/09/2012 | 01/09/2012 | 30/09/2013 | 31/03/2014 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| HSPN | Stakeholder consultation results and analysis | 30/09/2013 | 31/03/2014 |
| HSPN | Communication and participation strategy | 30/09/2013 | 31/03/2014 |

Implementation of this action started at the beginning of the project, according to schedule. During its implementation period, HSPN staff distributed the two questionnaires in order to determine the level of awareness, perceived values, recommendations and expectations of the stakeholders regarding the conservation of the natural environment of the NATURA 2000 sites of Mt. Oiti and Mt. Kallidromo. Both questionnaires in Greek were also available online in the project website (http://www.foropenforests.org/Questionaire-A11-Q1 and http://www.foropenforests.org/Questionaire-A11-Q2). According to comment 20 of the EC letter **ARES 3046108** (20 July 2015) the questionnaire for visitors in English was uploaded to the project site (http://www.foropenforests.org/en/Questionaire-A11-Q2-en). Additionally, a total of 15 semi-structural interviews with decision makers from the area were carried out (Annex 18 of PR1). Indicative questions in these semi-structural interviews were provided in the IR as Annex 9. The updated report with the results, analysis and evaluation of the stakeholder consultation was available in Annex A.11_I of the MtR.

Finally, the HSPN prepared a detailed description of the communication and participation strategy to be implemented by the dissemination and project management Actions, this deliverable was submitted as Annex 20 of PR1.

### 5.1.12 Action A.12: Determination of governance structure and legal status of the areas of the target habitats and species

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| HSPN | 01/09/2012 | 01/09/2012 | 30/09/2013 | 31/03/2014 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| **HSPN** | **Governance structure & legal status of targets** | **30/09/2013** | **31/12/2015** |

Implementation of Action A.12 started according to the project timetable and was completed based on a specific methodology, as follows:

1. Determination of the governance structure - Step 1: Investigation of relevant legislation and policies. The role and competence of local government (Municipalities and Region). The draft was provided in Annex 21 of PR1.

2. Determination of the governance structure - Step 2: Preparation of a draft review of the relevant legislation. The draft was provided in Annex 22 of PR1.

During 2015, HSPN staff completed the final deliverable of the Action, which was provided in Annex A.12_I of the MtR.

The deliverable of this Action was the base for the elaboration of the two Legislative texts that have been sent to the Ministry of Environment and Energy. Recommendations of the local communities have been incorporated in the two texts.

**B. Purchase/lease of land and/or rights**

**No actions in this section**

**C. Concrete conservation actions**

### 5.1.13 Action C.1: Protection of priority habitats: access control and visitor management

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| **RST** | **01/07/2013** | **01/01/2014** | **30/11/2017** | **31/10/2019** |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| **RST** | **None** | **-** | **-** |

According to the proposal description, this Action included construction of two paths (one in Mt. Oiti and one in Mt. Kallidromo), parking and recreational sites, info kiosks and placement of signboards in priority habitats, as follows: a) Mt Oiti: 10.8 Km of path, 2 recreation sites, 4 parking sites, 3 info kiosks and 12 signboards; b) Mt Kallidromo: 8.1 Km of path, 1 recreation site, 3 parking sites, 1 info kiosk and 8 signboards. There was a significant delay in this Action, caused by the complicated and extremely slow bureaucratic processes of the RST regarding tendering. These required that all works (of this Action, as well as those foreseen under Action C.6) be lumped into one tender, as well as agreements

and permits from relevant authorities (e.g. the Forestry Service), repeated approvals by the Regional Board and then authorisation by the competent Ministries, through a Special Contract. This process was further impeded by the change of Regional Council in the second year of the project, and by repeated changes between 2013 and 2017 in legislation and procedures regarding allotment of funds and tendering procedures (resulting from the MoU between Greece and its Lenders), the latter necessitating changes in the calls for tender, and leading to repetition of the whole process. Additionally, the staff of the RST had limited experience in dealing with European projects.

In order to overcome the delays, a way was found to separate the fencing of the four temporary ponds (Nevropoli in Mt Kallidromo and Greveno, Livadies and Alykaina in Mt Oiti) from the other the works (the two paths, parking and recreation places, signs, water tanks and guard houses) included in the tender, so that monitoring of the ponds could start. The fencing of temporary ponds (7 in total) was completed in October-November 2016; only the fence in Nevropoli was completed in September 2018. The fencing of three of the temporary ponds (Louka, Mourizos and Mouriza) was completed by IMFE.

The remaining works of this Action (except fencing), as well those foreseen in Action C.6, were finally included in the same call for tender, announced during summer 2018. Soon thereafter the subcontractor was selected and the contract was signed. The contractor completed all the works in summer and autumn 2019. The external monitor and desk officer visited the works in October 2019.

The report of the action is provided in Annex C.1_I including photos of the infrastructure and the contract that was been signed between RST and the subcontractor.

### 5.1.14 Action C.2: Enhancement of the population of *Veronica oetaea**

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Expected End Date |
|---|---|---|---|---|
| **UoA** | **31/08/2015** | **01/11/2016** | **30/11/2017** | **30/11/2018** |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| **UoA** | **Manual for *Veronica oetaea** reintroduction** | **30-11-2019** | **30/11/2019** |

**Activities undertaken and outputs achieved**

The action was implemented according to the specifications outlined in Deliverable A.4_2 of the MtR. It included pilot establishment (benign introduction) of *Veronica oetaea** at the pond of Louka on Mt. Oiti, a new locality, within the distribution range of the species but where the plant had never been found. The selected method of introduction was seeding of the plant in autumn (before or just after the first rains) and in spring (on wet soil).

Seeding was implemented in November 2016, 2017, and 2018 and in May 2017 and 2018. For each seeding, a total of 30,000 *Veronica oetaea** seeds were used (see also Annex C.4). Seeds were sown both at the periphery and the centre of the pond. The plant material (seeds) was provided by action C.7.

The pond of Louka was fenced in part with poles preventing trampling by vehicles and in part with both poles and horizontal planks preventing both trampling by vehicles and trampling and grazing by animals. Seeding was applied in both fenced areas.

*Figure 1 Seeding of Veronica oetaea* at Louka pond*

Seeding in November 2016 was successful, since 10 – 20 individuals of *Veronica oetaea** at the stage of flowering and early fruiting were observed in the pond of Louka on 5 May 2017. This means that the plant managed to germinate, grow and complete its life cycle. It was proven that the locality of Louka is appropriate for the introduction of the species, despite the lower altitude (1,150 m) compared to the known localities of the plant (1,850 – 1,910 m). It was also proven that the method of seeding is effective. However, no *Veronica oetaea** plants were found in 2018 and 2019. This may be attributable to the unexpected expansion of the mat-forming species *Mentha pulegium* and/or to the adverse meteorological conditions in 2018 and 2019.

*Figure 2 Veronica oetaea* plants at Louka pond in May 2017*

**Problems encountered**

1. The specifications for the Action foresaw pot planting of grown *Veronica oeataea** plantlets in the period of spring when the soil was still wet. This was attempted but without success. In May 2016 it was not possible because the preparation of the pots requires 4 months and the pond dried in late April instead of late May as expected, so the plants were not ready. In 2017 the preparation included two series, one for April and one for May, however, the efforts to grow plants in pots were not successful (see Action C.7). As a result, pot planting was replaced by one more period of seeding, in spring.
2. *Mentha pulegium*, a mat-forming perennial plant, considered typical in certain temporary ponds, had an unprecedented high cover in May 2018 and apparently smothered the other minute annual typical temporary pond species. This proliferation had not been observed in previous years despite the high frequency of the plant and may have been a result of the weather conditions. This subject is investigated by action D.1. It must be noted that *Mentha pulegium* is not grazed, so it was abundant both inside and outside the fence for animals. A series of patches were cleared from *Mentha pulegium* by hand before seeding in May 2018 and subsequent seedings were made at the cleared patches. The rhizomatous habit of the plant makes clearance by hand difficult, while extended uprooting by tools is not possible because it would also affect the other typical plants.

**Modifications**

As stated in the proposal, the Action was supposed to begin in the third year of the project, in 2015, and be completed by 2017. The pond of Louka is heavily grazed and trampled by animals and vehicles, so fencing was a prerequisite for the implementation of population enhancement. However, the fences were only installed in autumn 2016, so the Action started in September 2016 and was completed in November 2018 (implementation for 3 years).

### 5.1.15 Action C.3: Grazing management and woody vegetation clearing for the restoration of temporary ponds (3170*) and mountain grasslands (6210*, 6230*)

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| IMFE | 01/07/2013 | 01/07/2013 | 30/11/2017 | 30/11/2017 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| IMFE | Manual for grazing and woody vegetation management C.3 | 30/11/2017 | 30/11/2019 |

**Grassland management activities**

Grassland management involves activities to control the spread of the Dwarf Juniper (*Juniperus nana*), a pioneer shrub species that facilitates the expansion of neighbouring *Abies* forest, and excess biomass and herbaceous and woody weeds in both mountains.

Prescribed burning was applied in Livadies of Mt. Oiti, as an imitation of the pastoral fires traditionally used to control the same shrub in the past. In October 2013, prescribed burning was carried out on juniper shrubs covering an area of approximately 4 ha. This area was

considered enough for studying the effects of the treatment; the treated area was compared with adjacent areas used as "control".

Mechanical control (cutting) of thistles and woody weeds was applied in the summer and fall of 2014 to c. 29.4 ha in three intervention sites (Nevropoli A, Nevropoli B and Micres Limnes) in the grasslands on Mt. Kallidromo (6230*) and to c. 7.4 ha in two sites (Livadies A and Livadies B) on Mt. Oiti. The control areas (no cutting) correspond to c. 29.4 ha in the same three sites of Kallidromo and c. 24.3 ha in the same two sites of Mt. Oiti.

The same treatment was repeated on both mountains in September-October 2015, by the same contractor as in 2014. Specifically, on Mt. Oiti excess herbaceous biomass was cut mechanically in the same areas as in 2014; on Mt. Kallidromo, cutting was restricted to herbaceous weeds, such as various species of thistles, as well as dwarf spiny shrubs. All these branches were manually carried to nearby streambeds, so that grassland would be freed and become available to the grazing animals.

In order to find the optimal grazing regime for grassland (6210*, 6230*) management and biodiversity conservation, plant cover and biomass were measured in September 2014 in 63 paired plots (enclosure cages and controls) in both mountains. Treatments included three stocking rates corresponding to moderate grazing (at the level of grazing capacity), heavy grazing (twice the level of grazing capacity) and no grazing (control) in non-restored grasslands and grasslands restored with controlled burning and shrub/weed clearing. In September-October 2015, all the grazing enclosures on both mountains were moved to nearby sites, so that the residual grazing effect of the previous year would be avoided.

Finally, aerial photographs, orthophotomaps and satellite images were collected for 1945, 1960 and 2013 in order to study the diachronic land use/cover changes on Mt. Kallidromo.

**Mounting of electronic collars on cattle in Mt. Kallidromo**

Electronic collars were purchased from the Canadian company Lotek Wireless Inc in 2014 and mounted on ten (10) cows grazing in the study area of Mt. Kallidromo in the spring of 2015. Five cows belonged to Nikos Dalaris from the village of Thermopylles who moves his cattle herd for grazing to Mt. Kallidromo, specifically to Strongilovouni, during the summer period. The other five belonged to Panos Papaioannou from the village of Eleftherochori who also brings his cattle herd to Kallidromo, specifically to Nevropoli, during summer. The collars were mounted on the cows at the winter base of the herds just before they started their travel to their summer pastures. Signals from the devices started arriving at the ground station located at the University of Thessaloniki at the same time.

Ten (10) GPS collars (Lotek WildCell-MG) were mounted on meat cows, belonging in two different herds. The animal tracks were monitored from the winter base of the herds just before they started their travel to their summer pastures, located in Mt Kallidromo. However, animals graze in different sites (Strongilovouni and Nevropoli). It was found that both herds travel long distance during their grazing daily routine in the mountainous Mediterranean ecosystems, in search of forage, which was mainly found in the scattered forest openings. These routes were spatially diversified according to forage availability which was prone to seasonal changes, hillslope morphology and relief. Moreover, temporal analysis of the 24-hour pattern showed that animals were activate during the day and less in night, with starting time varying in the morning. Finally, forest openings received

the biggest grazing pressure in comparison to their surrounding land uses, despite the fact that they were very little and small but very productive areas.

What were the conclusions of this action with the collared cattle? Give a short summary.

More details may be found in the report presented in Annex C.3_I of the MtR.

### 5.1.16 Action C.4: Conservation of temporary ponds (3170*)

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| RST, UoA, HSPN | 31/08/2015 | 01/11/2016 | 30/11/2017 | 30/11/2019 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| UoA | Manual for 3170* biotic community restoration | 30/11/2017 | 30/11/2019 |

**Activities undertaken and outputs achieved**

Erosion control works around Nevropoli pond (please see Annex C.4_I of the MtR) were completed and after four years seem to have been successful. According to the specifications (Deliverable A.3_2) the Action included restoration of habitat 3170* in the ponds of Mourouzos, Mouriza, Nevropoli on Mt Kallidromo and Louka on Mt Oiti. Restoration consists in the enhancement of 3170* plant communities by seeding and pot planting of typical species and removal of alien plant species and weeds.

The subaction was implemented according to the specifications outlined in Deliverable A.3_2. The plant communities at the ponds of Livadies, Greveno and Alykaina on Mt. Oiti were at a good conservation status, so no restoration activities were deemed necessary. Restoration took place at the ponds of Louka on Mt. Oiti and the ponds of Nevropoli, Mourouzos and Mouriza on Mt. Kallidromo, which were at a medium to poor conservation status. Restoration included removal of problematic species and planting of typical temporary pond species. The plant material was provided by action C.7.

Fences preventing the entrance of vehicles and animals were a prerequisite for the evaluating the success of restoration. Fences were installed by actions C.1 and C.3 as follows: fence preventing vehicles surrounding the whole pond at all the ponds; fence preventing animals at parts of Mourouzos, Nevropolis and Louka. These were installed in October-November 2016 at Louka, Mourouzos and Mouriza and in September 2018 at Nevropoli.

Removal of problematic species

- At the pond of Nevropoli removal of the invasive alien species *Xanthium spinosum* and *Echinochloa crus-galli*; of the thistle *Cirsium vulgare*; and of the native but invasive nitrophilous species *Cynodon dactylon* in June, July, August and September 2016 and 2017.
- At the ponds of Mourouzos and Mouriza removal of the invasive alien species *Xanthium spinosum* in June, July and August 2016 and 2017.
- At the pond of Louka removal of the nitrophilous species *Convolvulus arvensis* in July 2016 and 2017.

The success of the removal was monitored by action D.1 in 2017, 2018 and 2019.

Nevropoli pond: The removal of *Cirsium vulgare* was successful. The removal of *Xanthium spinosum* and *Echinochloa crus-galli* succeeded in diminishing the populations of both plants in 2017 and 2018. However their populations, especially of *Xanthium spinosum*, increased in 2019. Apparently this is partly due to the fact that the entrance of animals which carry the diaspores was not prevented. On the other hand, it is possible that more treatments were necessary. The removal of *Cynodon dactylon* was not successful. This is a mat-forming perennial notoriously difficult to extirpate and since it grows entangled with the typical pond species extended uprooting was not possible.

Louka pond: The removal of *Convolvulus arvensis* was successful.

Mourouzos and Mouriza ponds: The removal of *Xanthium spinosum* was successful.

Planting of typical temporary pond species

- At the pond of Louka: Seeding of the typical species *Lythrum thymifolia, Ranunculus lateriflorus, Myosurus minimus* and *Veronica oetaea* in spring and autumn 2016, 2017, and 2018 and in spring 2019. Pot planting of the typical species *Lythrum thymifolia* in spring 2017.
- At the ponds of Mourouzos and Mouriza: Seeding of the typical species *Myosurus minimus* and *Heliotropium supinum* in winter 2016 and in spring and autumn 2017, and 2018.
- At the pond of Nevropoli: Seeding of *Myosurus minimus* in early summer 2016 and 2017. Seeding of *Myosurus minimus* and *Heliotropium supinum* in winter 2016 and in autumn 2017 and 2018. Seeding of *Heliotropium supinum* in winter 2016 and in autumn 2017. Planting of *Mentha pulegium* transplants at patches where *Cynodon dactylon* and *Cirsium vulgare* had been removed in summer 2016 and 2017.

The success of plantings is discussed in the deliverable of action D.1.

**Problems encountered**

1. The specifications for the action foresaw pot planting of grown plantlets of the typical species (produced by Action C.7) in the period of spring when the soil was still wet. This was possible for only one species, *Lythrum thymifolia*. The pots were planted in early April 2017 but the pond was unexpectedly dry and plantings had no success. Taking into account the fact the production of plantlets needs a great effort and produces small results (only 50 pots suitable for planting were produced out of 500 *L. thymifolia* seedlings), no more pot planting was attempted.
2. Seed collection of *Verbena supina* and *Heliotropium supinum* which grow at adequate numbers only at Nevropoli was difficult due to the asynchronous fruit maturation, combined with irregular pond flooding. If the pond is flooded before fruit maturation, the production of seeds is greatly reduced. Moreover, the abundance of both plants was much reduced in 2015-2018 and the populations only recovered in 2019. As a result, the number of seeds available for seeding was too small. Seedings included few *Heliotropium supinum* seeds and no *Verbena supina* seeds.
3. The fence at Nevropoli was installed in September 2018 but fencing preventing animal entry was destroyed by vandalism before summer 2019. The much delayed installation of the fence and its destruction negatively affected the results of problematic species removal and seedings.

4. The scheduled autumn seeding at ponds of Kallidromo in 2016 was not possible because adverse weather conditions made the sites inaccessible. Seeding was implemented in early winter (February 2017) instead.

**Modifications**

As stated in the proposal, the Action was supposed to begin in the third year of the project, in 2015, and be completed by 2017. The ponds are heavily grazed and trampled by animals and vehicles, so fencing is a prerequisite for the implementation of population enhancement. However, the fences were only installed in autumn 2016, so the Action started in 2016 and was completed in 2018 (implementation for 3 years).

### 5.1.17 Action C.5: Restoration of *Juniperus foetidissima* forests (9560*)

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| IMFE | 1/9/2012 | 1/9/2012 | 30/11/2017 | 30/11/2017 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| . | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| IMFE | Manual for J. foetidissima forest restoration | 30/11/2017 | 30/11/2019 |

The restoration of *Juniperus foetidissima* started immediately after the beginning of the project in 2012. Plant propagation by grafting started with the collection of Cypress seeds from high altitude (1,500 m in the Anopoli region of Crete) in order to produce the rootstocks for grafting with *Juniperus foetidissima* grafts. The seedlings were grown in the IMFE nursery in pots.

Two pilot trial-graftings of a small number of *Juniperus foetidissima* grafts, collected from Mt. Oiti, on *Cupressus sempervirens* plants, were also carried out during 2013 and 2014, for a better calibration of the grafting method.

After two vegetative periods, 3,000 of the produced plants reached the appropriate dimensions and were grafted with *Juniperus foetidissima* grafts, in February-March 2015.

Grafting on Cypress plants produced in IMFE took place using *Juniperus foetidissima* grafts collected from Mt. Oiti. Watering, fertilization (twice), weed management and partial removal of shade nets during the winter, as well as hedging and plant care works of both the newly grafted and the remaining Cypress plants, were the main conservation and plant care works in the greenhouses at the IMFE facilities.

Despite previous positive experience with the grafting method used, and the great effort to ensure optimal conditions for the best possible development of grafted plants, the results were very poor and unexpected. Some of the reasons for the loss of many cypress plants before even the grafts had a chance to "take" may be: a). The deep shading, chosen to keep the temperature at low levels, probably also limited the photosynthetic capacity of the rootstock so, in combination with the slowdown of these cypresses, it probably exacerbated the phenomenon; b). The high temperatures in the summer of 2014 (lasting some 4 months), resulted in the absence of a "good" bond between the rootstock and the graft and rejection of the graft; c). The excessive relative humidity, sought and achieved by the mist system, was

perhaps higher than appropriate, and ultimately had an adverse effect, favouring the growth of pathogens; d). The amount of irrigation water combined with the high relative humidity exacerbated the phenomenon.

Since the results of Action A.7, after detailed mapping of the distribution, and evaluation of the status of *Juniperus foetidisima* on Mt. Oiti, confirmed the presence of *Juniperus foetidissima* populations in 10 new locations, the number of required plants for the enrichment of the habitat was smaller than originally planned in the proposal. It was decided that those plants be used for reintroduction (enrichment) of *Juniperus foetidissima* in the Trapeza area. The plants produced in the IMFE facilities with grafts of *Juniperus foetidissima* from Mt. Oiti were transplanted to the Trapeza area, in the core of the ONP. Additional plantings were carried out in the next year to replace failed plants; 50 grafted *Juniperus foetidissima* individuals that had been kept at Amalota village for acclimatisation were planted at Trapeza

However, other kinds of interventions were obviously required to ensure the conservation of habitat 9560*, since the main problem of the habitat is its condition and not its area coverage (Action A.7)

After considerable deliberation, the interventions finally adopted in order to accomplish the main goal of Action C.5, the conservation, protection and restoration of the habitat 9560*, were significantly different than those originally described in the proposal.

In order to achieve the goal of restoration of habitat 9560*, as mentioned in the Modification Request, additional management interventions started to be applied in the summer of 2016.

Such measures included:

i) Logging or necrosis of *Abies cephalonica* individuals that are depressive towards *Juniperus foetidissima* individuals. The logging and necrosis of selected *Abies cephalonica* individuals started in May 2016 at Matakia, in June 2016 at Fakitsa, and in July 2016 at Tsouka sites, and then at Amaliolaka, at Zabantolaka and at Keramorachi. For this purpose, a contract was concluded with a forestry technician (lasting until September 2019) to carry out the required works o in the above locations under the scientific guidance of IMFE.

ii) Installation of informative signboards. This started in September 2016 with the placement of 2 signboards at Fakitsa and next year at Tsouka and Profitis Ilias, in order to inform visitors of illegal logging of *Juniperus foetidissima* trees by the locals

A growing method applied in Cyprus to reproduce *Juniperus* plants from seeds was also implemented in 2016. Due to the complete lack of fruits on Mt. Oiti (complete absence of strobili), collection of *Juniperus foetidissima* strobili took place on nearby Mt. Giona where there was strobili production, even if limited. Mt. Giona is very close to ONP, and the *Juniperus* trees grow in very similar ecological conditions. The seeds from Mt. Giona were collected from trees that are younger than those on Mt. Oiti, therefore, more suitable, having better growth potential.

Seed treatments: cold moist stratification and sowing directly in the soil but even the favourable conditions with the seeds, the results were not good.

The deliverable is provided in the Annex C.5_I of this Report.

### 6.1.18 Action C.6: Fire protection measures

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual Date |
|---|---|---|---|---|
| RST | 1/10/ 2013 | 1/ 7/ 2015 | 30/9/2017 | 30/10/2019 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| RST | None | - | - |

This action included enhancement of the fire protection infrastructure on Mts. Oiti and Kallidromo. Its implementation started following the specifications of Action A.8 (see Annex A.8_II of the MtR).

After long deliberations and numerous meetings with the Lamia Fire Brigade (see letter in Annex A.8_I of the MtR), the measures, completed in autumn 2019, are:

- Construction of a fire guardhouse at the site Alonia (38° 52′ 32,21′′ N and 22° 11′ 39,99′′ E) on Mt. Oiti and another one on Mt. Kallidromo at an already existing observation point (38° 47′ 02,55′′ N 22° 28′ 54,27′′ E) on the national road from Lamia to Livadia.

- Placement of two prefabricated water-storage reservoirs close to springs that will ensure adequate supply, one at Sitovorachi (38° 50′ 36,64′′ N and 22° 12′ 07,29′′ E) on Mt. Oiti, and another one at Nevropolis (38° 45′ 15,58′′ N and 22° 29′ 00,70′′ E) on Mt. Kallidromo.

Please find information about the infrastructure in the Annex C.6_I.

### 5.1.19 Action C.7: Ex situ conservation and propagation of keystone species of target habitats

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| UoA | 01/09/2012 | 01/09/2012 | 30/11/2017 | 31/03/2019 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| UoA | Manual for keystone species' seedbank | 30/11/2017 | 30/11/2019 |
| UoA | Manual for keystone species' outplanting | 30/11/2017 | 30/11/2019 |

**Activities undertaken and outputs achieved**

According to the description in the project proposal, Action C.7 included:

a) The creation and function of a seedbank (*ex situ* conservation of genetic material) of the keystone plant species of all target habitats: temporary ponds (3170*), mountain grasslands (6210* and 6230*), *Juniperus foetidissima* forests (9560*), and *Pinus nigra forests* (9530*).

b) The propagation of species to be used for *in situ* conservation (habitat restoration), specifically the keystone species of habitat 3170* (to be used for actions C.2 and C.4) and the keystone species of habitat 9560* (to be used in action C.5).

The typical plant species of each habitat were considered a part of the keystone species group. These include the typical species listed in the deliverables A.3_1 and A.5_1 (in PR1) for temporary ponds and mountain grasslands, respectively, and *Pinus nigra*. According to the results of Action A.7, there are no typical species for *Juniperus foetidissima* forests except for the tree itself, the production of which is the object of Action C.5, so no seed collections or germination experiments were performed.

Creation and function of seedbank

Seed banking is based on protocols for seed collection, handling, storage and germination.

1. Seed collections took place in the appropriate season for each plant species. Collections of the species of habitat 3170* were repeated whenever necessary, for the needs of plant replenishment at the project restoration sites (Actions C.2 and C.4). Seed collections were made from:
   - 10 typical temporary pond species: 8 from Mt. Oiti and 2 from Mt. Kallidromo.
   - 28 grassland species: 18 habitat 6230* species from Mt. Oiti and 10 habitat 6210* species from Mt. Kallidromo.
   - *Pinus nigra* from Mt. Kallidromo.
2. Seed cleaning, separation and sorting were done manually at the Seedbank of UoA or at the establishments of IMFE, as necessary.
3. Seed germination tests for the species of habitats 3170*, 6210* and 6230* were performed at the establishments of UoA. It must be noted that the germination of *Pinus nigra* in Greece has been studied adequately for the needs of a seedbank, so no experiments were performed.
   - 3170* species: Optimal germination conditions (final germination ≥70%) were identified for 8 species; for 1 species final germination did not exceed 30%; for 1 species no experiments were performed.
   - 6210* and 6230* species: Optimal germination conditions (final germination ≥80%) were identified for 20 species; for 3 species final germination was adequate (19–62%). For 3 species final germination was inadequate and optimal conditions were not identified due to low seed availability (small seed lot, high percentage of empty or dead seeds). For 2 species no experiments were performed due to low seed availability for the one and to seeds destroyed by insect infection for the other.
4. Seed storage at the Seedbank of the UoA, according to International Standards. In total the seeds of 10 temporary pond species, 27 mountain grassland species and *Pinus nigra* are stored in the seedbank.

Propagation of 3170* typical species to be used for *in situ* conservation

Production of *Lythrum thymifolia* seedlings: A total of 20,000 seeds were put at optimal germination conditions. They were placed either on agar or on filter paper and cotton for 3,5 months at two sets of pre-treatments and then transferred to agar for germination and seedling growth. Due to fungi infection and the creation of aggregates during transfer, only 500 seedlings were produced. These were used for pot planting (action C.4).

Production of *Veronica oetaea** seedlings: A total of 40,000 seeds were put at optimal germination conditions (including a 4 month pretreatment) on agar. No seedlings were produced.

The poor results in the production of seedlings and their outplanting (see action C.4) in combination the time consuming processes were the reason why no more seedling production attempts were made.

The deliverable of this Action is presented in Annex C.7_I of this report.

### 5.1.20 Action C.8: Annex I bird conservation actions

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| HSPN | 01/07/2014 | 01/07/2014 | 30/06/2017 | 30/06/2017 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| HSPN | Manual for Bird Conservation | 30/11/2017 | 30/11/2019 |

Implementation of this Action started during the 3rd trimester of 2014 according to the initial timetable. The AT decided, in June 2013, to purchase a Suzuki Grand Vitara, the best value-for-money vehicle, well before the action's start date, so that it could be used for a longer period. The car has been in constant use since. According to the guidelines included in the deliverable of Action A.9, 50 nest boxes were constructed. Of them, 20 intended for *Aegolius funerus* were placed in several locations above 1,700 metres, in the ONP in early November 2014 (the locations were delivered in Annex 26 of PR1). During December 2014, 10 more artificial nests intended experimentally for *Dendrocopos leucotos* were placed in several locations of the ONP (these locations were provided in Annex C.8_I of the MtR Report).

During December 2015, the 20 remaining artificial nests, intended experimentally for *Dryocopus martius* and *Picus canus*, were placed in several locations of the ONP (the locations were provided in Annex C.8_II of the MtR).

The last artificial nests were placed after monitoring the first 30 nest boxes (Action D.4) in October 2015. The monitoring results that have been organized during spring and summer 2016 (May, June and July) showed no signs of use, as well as the presence, in all areas, of numerous large and/or old trees, offering plentiful potential natural nesting sites for the woodpeckers. This supports the recommendation of the ornithologist that the nest boxes for woodpeckers be placed experimentally, with very low probability of use by the birds. After more visits and discussion with the ornithologist, the HSPN team decided to place the remaining nest boxes in areas other than those recommended in the guidelines, with younger and/or smaller trees, where natural nesting sites would be less plentiful for woodpeckers. To further test this hypothesis, the last 10 nest boxes were placed in areas that had been logged in the past, and trees were younger.

During 2015, the HSPN team in cooperation with Mr Vasileios Papanastasis evaluated the areas recommended by the guidelines of Action A.9 for shrub and grass removal to improve the habitat and food sources of *Alectoris graeca*. After several meetings and visits to the project area, the HSPN hired a subcontractor to remove shrubs and grasses in three areas (one more than recommended in the guidelines) covering a total of 15 ha in the ONP (the locations were provided in Annex C.8_III of the MtR).

Experts of the HSPN have completed the Manual for Bird Conservation, which is provided in Annex C.8_I.

### 5.1.21 Action C.9: Priority conservation actions for *Ursus arctos**

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| ARCTUROS | 1/10/2013 | 1/10/2013 | 30/11/2017 | 30/11/2017 |

**Action Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| ARCTUROS | Action report<br>(No specific Deliverable foreseen) | | |

The activities implemented by ARCTUROS in the context of Action C.9 include:

A. The provision of 25 HLGDs (15 more puppies than foreseen initially) in November 2013, September 2014 and June 2019, in order to minimise damage to local stockbreeders. A special short report was presented in Annex C.9_I of the MtR. Additional HLGDs will be complementary provided to stockbreeders to compensate for the loss of a considerable number of dogs due to poisoning. At the end of the project, 9 of 25 puppies have survived. According to the monitoring in Action D.5 the high degree of mortality is cause by extensive use of poisonous baits in the area.

B. A special study, required for the enrichment of food resources by planting wild fruit trees. Its completion required the appropriate research in combination with field visits, which took place during November of 2013 and September 2014. The study was submitted to the Forestry Service in April 2015, and, following its evaluation, all suggested improvements were completed by November 2015 and received official approval. In the meantime a tender for the planting contractor (who will also provide the trees) was put out, an agreement signed, and planting took place in 2016. The study for wild fruit tree planting was presented in Annex C.9_II of the MtR, the approval of the study by the Ministry of Environment and Energy in Annex C.9_III of the MtR, the approval of the study by the Forestry Department in Annex C.9_IV of the MtR and the agreement with the planting contractor in Annex C.9_V of the MtR. This subtask of Action C.9 was delayed due to lack of economical fluidity of ARCTUROS. The necessary funds were finally donated by the Stavros Niarchos Foundation as a sponsor of ARCTUROS activities in the project.

C. The provision of 30 electric fences (instead of 20 as initially foreseen) to the Beekeepers Association of Lamia for distribution to its members. The electric fences were received from the providers and delivered to the Association on December 12, 2015 in a special event at the facilities of the Management Authority of the ONP. After internal discussion, the Beekeepers Association declined the offer and returned the electric fences (see relevant note in problems). The fences were then distributed to individual beekeepers before the spring period, in cooperation with the Management Authority of the ONP and the Presidents of the local communities. The agreement with the provider of the electric fences and the printed material with the technical characteristics of the electric fences were presented in Annex C.9_VI of the MtR, while photos of the delivery of the electric fences and the special event are presented

at Annex C.9_VII. This subtask of the Action C.9 was also delayed due to lack of economical fluidity of ARCTUROS. The necessary funds were finally donated by the Stavros Niarchos Foundation as a sponsor of ARCTUROS activities in the project.

D. Participation in the project public awareness campaign with printed communication material and press releases, as well as participation in the design, compilation of texts and overall scientific support. ARCTUROS participated in the special events of the project with the local community, organisations and services.

### 5.1.22 Action C.10: Legal protection of the sites GR2440004 "Ethnikos Drymos Oitis" and GR2440006 "Oros Kallidromo"

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| HSPN | 01/10/2014 | 01/04/2015 | 30/11/2017 | 30/11/2019 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Delivered Date/Expected Delivery Date |
|---|---|---|---|
| HSPN | Ministerial Degree for the Protection of Mt Kallidromo | 15/12/2017 | 30/11/2019 |
| HSPN | Ministerial Degree for the Protection of ONP | 15/12/2017 | 30/11/2019 |

Action C.10 included the preparation of two legal documents on the protection and management of Natura 2000 sites GR2440004 "Ethnikos Drymos Oitis" and GR2440006 "Oros Kallidromo". The specific type of the legal documents produced was determined according to the findings, conclusions and guidelines established through all field actions, as well as following consultation with the Ministry of the Environment and Energy regarding its on-going procedures for the management of protected areas and Natura 200 sites specifically.

Regarding Mt. Oiti: As the Management Authority of the ONP had assigned, in 2015, the updating of the existing Special Environmental Study (SPS) and the preparation of a draft Presidential Decree for the protected area, the conclusions and suggestions of the SPS and their impact on the nature and content of the deliverable on Oiti National Park were evaluated by the project partners. All existing knowledge from the project was incorporated in the updated SPS, and additional information collected after 2015 has been forwarded to the competent department of YPEN, and the new contractor assigned to prepare the final draft Presidential Decree. According to the letter from YPEN dated 28/03/2020, provided in Annex C.10_I of this Report the contract for preparation of the new SPS and draft Presidential Decrees was signed in March 2019, and the final legal documents, which will incorporate the projects findings are expected in 28 months.

Regarding Mt. Kallidromo: The final legal document for Kallidromo is presented in Annex C.10_II of this Report. This Legal Document proposes the land uses of the area, initiates protection zones and sustainable management practices of the area (such as guidelines for logging, high priority protection zones etc.). The document was submitted to the competent department of YPEN in October 2018. Since then, several meetings were held for the approval of the legal document and the preparation of a Ministerial Decision (with a 2-year duration) that will establish protection of the area according to the recommendations of this

document, while waiting for the completion of the SPS. Due to inactivity and bureaucratic procedures at YPEN, and despite continued pressure from the project team, especially after project's end, the acceptance of our document and the assurance that the Ministerial Decision will be issued forthwith was only confirmed with the above-mentioned letter dated 28/02/2020, and provided in Annex C.10_II of this Report

The project team prepared a detailed letter with the findings of the project and submitted it to the competent department of YPEN in February 2018, asking for update of the relevant SDFs (the letter and the reply of the Ministry were provided in Annex C.10_II of PR3). The SDFs were updated according to the project's results in December 2019.

The project team also prepared a detailed letter and submitted to the competent department of YPEN regarding the update of the national list of habitats in order to include again habitat type 6210*, which had been recently removed, according to the findings of the project. A written request had also been sent, in October 2019, to the Hellenic Botanical Society to confirm the project's findings regarding habitat 6210* and support our request to YPEN, but no reply was been received. According to the letter from YPEN dated 10/02/2020, provided in Annex C.10_II of this Report, the Ministry will re-evaluate inclusion of 6210* in the national list of habitats for the new national Monitoring Study of the conservation status to be initiated in 2020, and will accordingly update the relevant SDFs.

## 7. Monitoring of the impact of the project actions

### 5.1.23 Action D.1: Monitoring of the impact of management on Mediterranean temporary ponds (3170*) and on the priority plant species *Veronica oetaea***

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| UoA | 01/05/2016 | 01/05/2016 | 30/11/2017 | 30/11/2019 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| UoA | Annual report with the description and interpretation of the results of monitoring | 30/11/2017 | 30/11/2017 |
| UoA | Final report on 3170* monitoring | 30/11/2019 | 30/11/2019 |

### Activities undertaken and outputs achieved

The action included monitoring in order to assess the results of the conservation actions targeting the temporary ponds (habitat type 3170*) and the species *Veronica oetaea**, specifically Actions C.1 (fencing of the perimeter of the ponds), C.2 (enhancement of the population of *Veronica oetaea**), C.3 (fencing part of the ponds for grazing), and C.4 (conservation of temporary ponds). Monitoring was implemented according to the specifications outlined in deliverable A.3_3 for the plant communities of the temporary ponds and in deliverable A.4_4 for *Veronica oetaea**. Actually, for reasons of comparison, it followed the same methodology as applied in 2013 and 2014, with additional counting plots at the ponds of Louka, Mourouzos and Mouriza where restoration activities took place.

Monitoring of the population size and spatial distribution of *Veronica oetaea** at the ponds of Livadies, Greveno, Alykaina and Louka took place for five years, 2015-2019. Monitoring of

plant community composition and spatial distribution in all the ponds on Mt. Oiti (Livadies, Greveno, Alykaina and Louka) and Mt. Kallidromo (Nevropolis, Mourouzos, Mouriza) also took place for five years, 2015-2019. Fieldwork included counts in plots placed along transects spanning the ponds. On Mt. Oiti it included a total of 55 transects with 324 plots and on Mt. Kallidromo a total of 15 transects with 350 plots.

Monitoring was implemented regardless of the fact that some restoration measures had been delayed (it started in 2016). This was done because annual fluctuations of plant abundance and spatial distribution are great and the accumulation of data for additional years is crucial for the analysis and interpretation of the results. In addition, these data were necessary for the investigation of the relation of the status of the ponds to meteorological data (the stations were put in place in December 2013, after the start of actions A.3 and A.4).

**Problems encountered**

1. Variable weather conditions every year were the main problem encountered during monitoring. The UoA team tried to solve the problem by repeated visits at the ponds each year, but this was not always possible. Inaccessibility of the ponds due to bad weather conditions during the specified period for monitoring and unexpected flooding of the ponds did not allow the completion of monitoring in certain years: plant community monitoring at Greveno in 2016 and 2018, *Veronica oetaea** population at Greveno in 2018, and plant community monitoring at Nevropoli in 2015 and 2018.
2. The capacity of the UoA team was compromised in 2017-2019. This was an unexpected situation which finally prevented monitoring of plant communities at the ponds of Livadies, Greveno and Alykaina in 2017 and did not allow the completion of the annual report of monitoring. It was then decided that all the data analysis and interpretation would be included in one final report. It must be noted that this did not impede the implementation of C Actions, since field observations during the monitoring fieldwork were adequate for a draft assessment of the restoration action results.
3. The fences for preventing vehicles remained intact at all the ponds. The fences for preventing animal entry at the ponds of Alykaina and Nevropolis were installed in the autumn 2018 but had been destroyed by late spring 2019, before the onset of the dry period, typical plant appearance and fieldwork. Thus, in these two ponds comparison between grazed and ungrazed parts was not possible.

**Modifications**

As stated in the proposal, the Action should have started in the fourth year of the project (spring 2016) after one year of application of conservation measures (Actions C.1, C.2, C.3, C.4, starting in spring 2015). However, the implementation of conservation Actions started in 2016, due mainly to the delay in the installation of fences. Thus, regarding the monitoring of the results of the conservation measures, the actual 1$^{st}$ year was: 2017 at the ponds of Louka, Mourouzos and Mouriza, 2018 at the ponds of Livadies and Greveno and 2019 at the ponds of Alykaina and Nevropoli. Monitoring of *Veronica oetaea** and of the temporary pond plant communities in relation to the application of restoration measures is shown in Tables 1 and 2 as Annex D.1 of this Report.

### 5.1.24 Action D.2: Monitoring the impact of management on mountain grasslands (6210*, 6230*)

| Beneficiary | Foreseen Start | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|

| responsible | Date | | | |
|---|---|---|---|---|
| IMFE | 1 /10/2014 | 1/10/2014 | 30/11/2017 | 30/11/2019 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| IMFE | Annual report on mountain grassland monitoring 1 | 31/10/2015 | 31/12/2015 |
| IMFE | Annual report on mountain grassland monitoring 2 | 31/10/2015 | 31/10/2016 |
| IMFE | Final report on mountain grassland monitoring | 30/11/2017 | 30/11/2019 |

Vegetation measurements

In the summer of 2014, 2015 and 2016, when peak plant growth was achieved, vegetation was measured within the 63 grazing enclosures established in the various regimes for both mountains (33 on Mt. Oiti and 30 on Mt. Kallidromo). Measurements included, as foreseen in the project protocol, cover, species composition and biomass. Specifically, for Oiti, where sheep herds arrived relatively late (in June), biomass data were also collected in September to investigate whether there was any additional grazing impact after July. Cover and species composition (determined by species frequency) were estimated by direct observation, while biomass was cut and transferred to the lab for weighing.

In addition to the grazing enclosures, measurements of the cover and species composition were also taken on three line transects, of 50 meters each, in each treatment implemented on both mountains. Altogether, 45 transects were measured, 27 on Mt. Oiti and 18 on Mt. Kallidromo. In each transect, 100 points were recorded. Field data on cover and species composition as well as biomass were collected in the temporary ponds of Mouriza and Mourouzos (Mikres Limnes). Also, field data on species composition and biomass were collected and evaluated in the burnt plots of Mt. Oiti, the only treatment that continued to produce significant results.

Land use/cover changes on Mt. Kallidromo

By using remote sensing and GIS on aerial photographs, orthophotographs and satellite images, the land use/cover types on Mt. Kallidromo were assessed for the years 1945, 1960 and 2013. It was found that the area of forest openings (less than 40% tree cover) was reduced by almost 50% since 1945, while the area covered by dense forest (more than 40% tree cover) increased by 56%. A reduction of 18% was also found for the dense scrublands during the same period.

Cattle activity on Mt. Kallidromo

The ten GPS collars mounted on cows grazing on Mt Kallidromo (5 on animals belonging to the herd of Nikos Dalaris and the other 5 on animals of Panos Papaioannou) provided data about their activities to the ground station located at the University of Thessaloniki.

Information was produced after analysis of the GPS collar data collected in 2015. Each collar recorded, with its satellite GPS tracking system, the coordinates of the position where the specific animal wearing it was at any particular moment. Recording took place every 20 minutes, for a total of 72 recordings every 24 hours. Recordings were sent every 2 hours to

the ground station at Thessaloniki. The data were processed with a special software program, checked for any missing values and evaluated separately for the two herds.

On Mt. Oiti, 20 farmers are grazing their animals, including sheep, goats and cattle, in the summer period with a stocking rate 0.8 sheep/ha. On Mt. Kallidromo, 17 farmers are grazing their animals, including only goats and cattle, in the summer period with a stocking rate of 0.9 sheep/ha. Although this overall rate indicates proper grazing, forest openings are overgrazed because they are more productive and attract cattle, during both day and night, more than dense forest stands. On the other hand, since openings comprise less than 20% of the forested area and the forage production of dense forest stands is minimal, cattle are forced to travel up to 11 kilometres every day to find grazing thus trampling and disturbing the whole ecosystem.

More details about this Action are found in Annex D.2_I (Final report on mountain grassland monitoring).

### 5.1.25 Action D.3: Monitoring of the restoration of *Juniperus foetidissima* forests (9560*)

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| **IMFE** | **01/07/2015** | **01/12/2017** | **30/11/2017** | **30/ 11/2019** |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| **IMFE** | **Annual report on *Juniperus foetidissima* monitoring** | **31/08/2016** | **31/08/2016** |
| **IMFE** | **Final report on *Juniperus foetidissima* monitoring** | **30/11/2017** | **30/11/2019** |

Action D.3 (affected by A.7 and C.5) started immediately after planting, in December 2015 recording the impact of all the interventions:

i) The establishment of grafted *Juniperus foetidissima* by the IMFE in Trapeza

ii) Management interventions to achieve the goal of restoration of *Juniperus foetidissima* forests (9560*), namely:

a) Logging or necrosis of *Abies cephalonica* individuals that are depressive towards *Juniperus foetidissima* individuals, carried out at Matakia, Fakitsa, Tsouka, Amaliolaka, Zabantolaka and Keramorachi.

b) Installation of informative signboards to prevent illegal logging of *Juniperus foetidissima* trees by the locals at Fakitsa, Tsouka and Profitis Ilias

i) Monitoring for survival and growth of the grafted *Juniperus foetidissima* that were established (planted) at Trapeza, took place on November 2017, 2018, and 2019

After the first failures and the necessary replacements, plant survival (which is the most important factor) is satisfactory, especially given the particularly extreme weather conditions encuntered at such high altitude. Their growth is not particularly impressive, as was expected. The last measurements were taken just before the end of the project.

ii) Monitoring the interventions for fir expansion restriction was carried out using the monitoring protocols that have been prepared for monitoring plots and control plots at Matakia, Tsouka, Fakitsa, Zapantolaka, Keramorachi and Amaliolaka. These plots covered a small percentage of the total area where the forest technician contractor had applied these interventions.

Measurements in growth characteristics were repeated for the selected *Juniperus* trees inside the Monitoring Plots affected-depressed by *Abies* individuals, after the release from them. In that way the new measurements were compared with some selected junipers affected-depressed by *Abies* individuals in Control Plots, without any release from them. The conclusions drawn from the measurement results clearly confirm the effectiveness of the interventions for the release of *Juniperus foetidissima* individuals. Inside the Monitoring Plots the *Juniperus foetidissima* individuals that were released from *Abies cephalonica* trees presented a higher growth during the next years in comparison to those that are inside the Control Plots that remained among *Abies cephalonica* trees.

Conclusions will become stronger with the After-LIFE measurements every 5 years, because more time is needed for the effects of such interventions on forest species to become obvious. Responsible for the monitoring is the Forest Services and Management body of the National Park.

iii) Monitoring the effectiveness of the signboards to prevent illegal logging was achieved by two different overlapping methods:

a) Monitoring for new illegal logging in the established Sampling Plots and recording the number of the *Juniperus foetidissima* living (standing) or cut (stumps) trees within them, and in the established Control Plots, far from the established signboards, in areas of potential illegal logging.

b) Using photographic records from around the areas where previous logging was identified so that a comparison (therefore the monitoring of the action) could be made with new photographs taken every year.

During the monitoring period, new illegal logging occurred only at Tsouka (which is close to a shepherd's facility), both in the monitoring and in the control plot. No signs of logging were detected in the plots in the other 3 locations: Fakitsa and Profitis Ilias. Conclusions will become stronger with the After Life observations every 5 years.

The monitoring report is presented in Annex D.3_I of this Final Report.

### 5.1.26 Action D.4: Monitoring the impact of management on Annex I birds

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| HSPN | 01/07/2015 | 01/06/2015 | 30/11/2017 | 30/11/2019 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| HSPN | Annual report on bird monitoring | 30/09/2016 | 30/09/2016 |
| HSPN | Final report on bird monitoring | 30/11/2017 | 30/11/2019 |

This action was scheduled to start in the 3rd trimester of 2015. Since the HSPN team placed the first 30 artificial nests in 2014, their monitoring was carried out in June 2015, ahead of schedule. This lengthened the monitoring period by one year, thus increasing the possibility of occupation and the reliability of results, especially for *Aegolius funereus*.

During the 5 years (2015-2019) of monitoring no signs of use were detected at any of the 50 nest boxes. One nest box was missing since the first year.

However, there were plentiful signs of woodpecker activity, mostly feeding sites of *Dryocopus martius*, in many of the locations visited; we also located several natural nest holes, two of them of smaller species, possibly *Dendrocopos major* or *Dendrocopos leucotos*. Furthermore, there was an abundance of large and/or old trees of sufficient size to provide potential nesting sites for all three targeted woodpecker species. Some natural cavities that could be used as nesting sites by *Aegolius funereus* were also available in a few of the stands.

The negative results are not surprising given the relatively small estimated population of *Aegolius funereus*. Existing literature for this species also indicates a lag period in occupying artificial nesting boxes, especially in the presence of natural cavities.

The existence of large numbers of suitable nesting trees for the woodpeckers confirms the conclusion of the ornithologist that nest boxes for woodpeckers should only be placed experimentally, with a very low probability of occupation. No signs of use were detected for the 20 nest boxes placed in peripheral areas with younger and/or smaller trees or areas that had been logged in the past, where potential nesting sites for the woodpeckers would be fewer. (The nest boxes were being monitoring from 2016 to 2019 during June and July).

The monitoring report is presented in Annex D.4_I of this Final Report.

### 5.1.27 Action D.5: Monitoring the impact of management on *Ursus arctos**

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| **ARCTUROS** | **1/10/2014** | **1/10/2015** | **30/11/2017** | **30/11/2019** |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| **ARCTUROS** | **Annual report on *Ursus arctos** monitoring 1** | **31/08/2015** | **31/08/2015** |
| **ARCTUROS** | **Annual report on *Ursus arctos** monitoring 2** | **31/08/2016** | **31/08/2016** |
| **ARCTUROS** | **Final report on *Ursus arctos** monitoring** | **30/11/2017** | **30/11/2019** |

This Action aimed to monitor and verify the presence and evaluate the population status of *Ursus arctos** in the areas of Mts. Oiti and Kallidromo, as well as to evaluate the conservation actions which were undertaken in the framework of the project.

Implementation started in October of 2015, with four visits to the project area between October and December 2015. The action was delayed by one year due to lack of economical fluidity of ARCTUROS. The necessary funds were finally donated by the Stavros Niarchos Foundation as a sponsor of ARCTUROS activities in the project.

The data collected in 2015 completed the database of *Ursus arctos** presence, created during the implementation of Action A.10. The updated total includes data collected from two years

prior to the beginning of the project (2010) until December of 2015; data were collected through three different procedures:

1. Field visits in the project area, in combination with the needs of other actions of the project.
2. Development of a network of special social target groups, including beekeepers and livestock breeders, the ONP Management Authority and the Forestry Service; data were collected through interviews.
3. Data collection from the scientific staff of other project partners.

The collected information included four data categories:

1. Evidence of bear presence (tracks, scratch marks, hairs).
2. Bear sightings.
3. Oral report from a third party.
4. Damages to beehives, livestock and agricultural production.

The data collected in 2017 and 2018 completed the database of *Ursus arctos** presence, created during the implementation of Action A.10. All relevant data from Action C.9 and monitoring were sent to the Ministry of Environment and Energy in order to include Brown Bear with updated data in the Standard Data Form of GR2440004 "Ethnikos Drymos Oitis".

The additional data also confirm the conclusion that the Brown Bear, most likely, has a seasonal presence in the area, with repeated evidence of active presence mostly in summer and autumn. There is also clear evidence (footprints on snow) of presence in December and March before and after of winter-sleep.

The small number of records confirms our previous estimation of a very low number of individuals (1-2), while the direction of the connecting corridor to the main bear population in south Pindos is to the west, through the Regional Unit of Evritania.

A special visit took place on October 30, 2017. Mr Kostas Stefanidis from ARCTUROS visited the project area and held several meetings with beekeepers, livestock breeders, ELGA, Forestry Services, etc. The main aim of the visit was to collect information regarding the recently reported presence an individual on Mt. Kallidromo, the first ever record for the mountain. Several visits were organized during 2018 and 2019 as well.

The Final monitoring report for the whole period of the implementation of the Action is presented in Annex D.5_I of this Final Report.

### 5.1.28 Action D.6: Assessment of the socio-economic impact of the project

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| **HSPN** | **01/10/2016** | **01/10/2016** | **30/11/2017** | **30/11/2019** |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| **HSPN** | **None** | **30/11/2017** | **30/11/2019** |

The Project team of HSPN worked during the six last months of the project in order to elaborate the study. In order to access the socioeconomic impact of the project the project team distributed questionnaires in the project area. Moreover 15 interviews were conducted. The study was structured according to the guidelines provided in the LIFE programme webpage. It is provided in Annex D6_I of this Final Report.

## 8. Public awareness and dissemination of results

### 5.1.29 Action E.1: Environmental awareness and education campaign

| Beneficiary responsible | Foreseen Start Date | *Actual Start Date* | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| **HSPN** | **01/07/2013** | **01/07/2013** | **30/11/2017** | **30/11/2019** |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| **HSPN** | **Minutes of 2 local event discussions 1** | **31/07/2013** | **31/12/2014** |
| **HSPN** | **Press bulletins 1** | **30/11/2014** | **30/11/2014** |
| **HSPN** | **Leaflets, posters** | **28/02/2015** | **28/02/2014** |
| **HSPN** | **Press bulletins 2** | **31/15/2016** | **31/05/2016** |
| **HSPN** | **Press bulletins 3** | **30/11/2017** | **30/11/2017** |
| **HSPN** | **Minutes of 2 local event discussions 2** | **31/07/2017** | **30/11/2019** |
| **HSPN** | **Video** | **31/10/2016** | **30/11/2019** |

Implementation of this action started during the 3rd trimester of 2013, according to the initial project timetable.

Completed activities included:

- Design of the project logo, which was used in all material related to the project. The logo was actually adopted in September 2012 well ahead of schedule, in order to use it in the website and all other material and activities of the project.
- The first local event took place on 08/11/2012 (minutes, presentations, participant list and photos in Annex 15 of PR1). The project team presented the actions of the project to the Committee for the Environment and Development of the RST, as well as a large audience of local authorities, agencies and stakeholders. After the presentation the project team visited the project sites on Mt. Oiti.
- Design and production of the project leaflet (Annex 28 of PR1). The leaflet was printed in February 2014, well ahead of schedule, in order to use it for a longer period, thus maximizing dissemination time and effectiveness.
- Design and production of the leaflet about the Brown Bear (Annex 29 of PR1). The leaflet was printed in February 2014, well ahead of schedule, in order to use it for a longer period, thus maximizing dissemination time and effectiveness.

- Design and production of the project poster (Annex 30 of PR1). The poster was printed in April 2014, well ahead of schedule, in order to use it for a longer period, thus maximizing dissemination time and effectiveness.
- Design and production of the project's t-shirts (Annex 31 of PR1).
- Three 2-day seminars on Environmental Education for teachers (seminar agenda, presentations, evaluation questionnaire, certification, photos and participant list in Annex 32 of PR1).
- Infoday of the project, in Amfiklia on 18/01/2014 (Annex 41 of PR1).
- Infoday of the project, in Lamia on 22/05/2015 (Annex E.1_I of the MtR). This event was organized on the Natura 2000 Day.
- Educational student excursions in May and June 2014, 2015, 2016, 2017 and 2018 in the ONP. A total of 500 students participated in the excursions. The report was attached with the relevant documents in Annex E.1_II of the MtR.
- Agreement with the film director to produce the project video. The first sample trailers, depicting fieldwork and the Environmental Education seminar were presented in Annex 39 of PR1. The final version of the film is provided in English and Greek in this link: https://www.youtube.com/watch?v=ZVsB91rrABM&t=12s . The film has been uploaded in the project's webpage and in the social media.
- The project team decided to produce a short video about Juniperus foetidissima. The final version of the film is provided in English and Greek in this link: https://www.youtube.com/watch?v=Jgi98b4B2Ro&t=3s . The film has been uploaded in the project's webpage and in the social media.
- Seminar for teachers in the facilities of ARCTUROS in October 2019. Please find the report of the seminar in Annex E.1_I of this Report.
- The environmental Education Team of ARCTUROS visited all the primary and secondary schools of Fthiotida. Please find the report of these educational visits in Annex E.1_II of this Report.

### 5.1.30 Action E.2: Public education and Visitor Information Centres

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| RST | 01/07/2013 | 01/01/2014 | 31/07/2016 | 30/06/2017 |

**Action's Deliverables (within the reference period 01/09/2012-31/01/2016):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Delivered Date/Expected Delivery Date |
|---|---|---|---|
| RST | None | - | - |

Creation of the Visitor Information Centres was initially the responsibility of RST, however, because of long delays, it was transferred to and was successfully completed by HSPN. The Centres were created according to the specifications of Action A.8

For Mt. Oiti, after many visits and contacts, the project team decided to establish the Visitor Information Centre in the building of the former primary school of Ypati. The building belongs to the Municipality of Lamia, so the PM asked the Municipal Council for the relevant permission. The Centre is functional and receiving visitors as of the first week of July 2017. The Environmental Education Centre of Ypati-Stylida has already included the Visitor Information Centre of Mt Oiti in their programme and they visit the Centre with schools. Regarding the Visitor Information Centre for Mt. Kallidromo, the initially proposed building (in the village of Mendenitsa) was severely damaged in the earthquake of August 2013, and was no longer safe. The project team examined several alternatives, and, after numerous visits and contacts, decided to create the Centre in the village of Paleochori in the building of the primary school. This Centre is also operational since July 2017.

The official opening ceremony for the Visitor Centre of Ypati was held on May 19, 2018, with the presence of the Mayor of Lamia, local officials, and the Minster for Agricultural Development and the Environment of Cyprus, Mr Kostas Kadis.

### 5.1.31 Action E.3: Project website

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Expected End Date |
|---|---|---|---|---|
| HSPN | 01/10/2012 | 01/10/2012 | 30/11/2017 | 30/11/2019 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| HSPN | None | - | - |

The project website was designed and online, in both Greek and English, at www.foropenforests.org, within the first three months of 2013 according to the timetable. It contains general information about the project, detailed descriptions of the target habitats and species, and all actions of the project, as well as photos, videos, deliverables, results and news. It was designed according to Article 13 of the Common Provisions and it is regularly updated. Some sections and tabs were changed and/or added within the following months, including a project progress section, which is being updated regularly.

The comments of point 3 of EC letter **ARES 3029136** (11 September 2013), point 14 of EC letter **ARES 309626936** (21 SEP 2014) and points 20 and 32 of EC letter **ARES 3046108** (20 July 2015) have been taken into account and the webpage has been reorganized according to them. The two questionnaires that were prepared in the framework of the Action A.11 are available in Greek online in the webpage of the project. The questionnaire for visitors is also available online in English. Data from the meteorological station of Mt. Oiti, including air and soil temperature, rainfall, wind strength and direction, etc., are also available online in real time. Some reports of inability to access the meteorological data have been investigated and are probably related to the users' browser systems. The GIS maps prepared through Action A.1 are also available online.

To date 2,024,795 visits to the webpage have been recorded. Moreover the project has important presence in social media

### 5.1.32 Action E.4: Training for habitat conservation

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| RST | 1 /04/2013 | 01/04/2014 | 30/11/2017 | 30/11/2019 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| RST | None | - | - |

Action E.4 included two subactions.

**Subaction 1:** Training in *in situ* habitat and species monitoring and restoration. Beneficiary responsible: UoA

This subaction was scheduled to take place in the last year of the project during a period appropriate for the field training. According to the action description in the Technical Application Forms, it would include two 4-day workshops, one for Mt. Oiti and one for Mt. Kallidromo. Due to the larger number of target habitats and species on Mt. Oiti, the subaction finally included one 6 day-workshop for Mt. Oiti and one 2-day workshop for Mt. Kallidromo.

The programmes of the workshops, the lists of participants for each day and the UoA presentations are included in the Annex of Action E.4_I in this Report.

The workshop for Mt. Oiti took place on July 29-August 3, 2019 at the Environmental Information Centre of Oiti (Asteroscholeio) in the village of Ypati. The educator team included 5 persons from IMFE, 4 persons from UoA, 1 person from HSPN and 1 person from Arktouros. There were 21 participants from the Management Body of the National Park of Oiti, Koilada Spercheiou and Maliakos Kolpos, IMFE, the Forestry Department of Lamia, and the Region of Sterea Ellada.

The seminar included one day of theoretical training (Ypati) and one day of field demonstration and training (Mt. Oiti project sites) for the following subjects:

1. Days 1 and 2: Monitoring, management and restoration of mountain grasslands. Monitoring and restoration of *Juniperus foetidissima* forests.
2. Days 3 and 4: Monitoring, management and restoration of bird fauna. Monitoring and management of the Brown bear .
3. Days 5 and 6: Monitoring and restoration of temporary ponds. Monitoring and restoration of *Veronica oetaea**. Ex situ plant conservation.

The workshop for Mt. Kallidromo took place on November 27-28, 2019 at the Cultural Centre of the Municipality of Amfikleia. The educator team included 4 persons from UoA and 1 person from IMFE. There were 10 participants from the Management Body of the National Park of Oiti, Koilada Spercheiou and Maliakos Kolpos and from the Management body of the National Park of Parnassos.

It included one day of theoretical training (Amfikleia) and one day of field demonstration and training (Mt. Kallidromo project sites) for the following subjects:

1. Days 1 and 2: Monitoring and restoration of temporary ponds. Monitoring, management and restoration of mountain grasslands. Habitat mapping.

More details about the two workshops may be found in Annex E4_II and Photos in attached Annex E.4_III of this Report.

**Subaction 2:** Education and training of stakeholders in sustainable grassland management in accordance to the aims and the results of the project. Beneficiary responsible: IMFE

This subaction included education and training of stakeholders (stockbreeders, beekeepers and other farmers) in sustainable grassland management in accordance with the aims and the results of the project was transferred to IMFE of ELGO – DEMETER.

More specifically, three 3-day seminars were held at Molos, Fthiotida, on September 12-14, 2016, Loutra Ypatis, Fthiotida, on December 12-14, 2016, Amfikleia, Fthiotida, on April 24-26, 2017; four 2-day seminars at Neochori, Fthiotida, on June 3-4, 2017, Eleftherochori, Fthiotida, on July 8-9, 2017, Mendenitsa Community, Municipality of Kamena Vourla, on December 7-8, 2018, Gorgopotamos Community, Municipality of Lamia, on June 20-22, 2019; and one 3-day seminar was held at Lamia, Fthiotida, on October 24-26, 2019.

Details for the seminars as follows:

**(a)** Molos, Fthiotida, on September 12-14, 2016

The seminar was held at the Municipality Office of Molos, in order to inform farmers, breeders and beekeepers about the sustainable management of Mt. Oiti and Kallidromo grasslands. The main subject of the seminar was to inform the participants about the New Common Agricultural Policy (CAP), regarding the eligibility of the pastures, especially on the mountainous complexes of Mts. Oiti and Kallidromo. The first two days included presentations by experts (10.00 - 13.00). On the third day a field visit to Mt. Kallidromo took place (9.00 - 14.00), with the aim of exchanging views with the project team on the sustainable management of pastures. All participants attended the seminar free of charge and were given a certificate of attendance.

**(b)** Loutra Ypatis, Fthiotida, on December 12-14, 2016

The seminar was held at the Alexakis Hotel in Loutra Ypatis, in order to inform farmers, breeders and beekeepers about the utilization of Oiti and Kallidromo pastures for the production of quality animal products. The first two days included presentations by experts (10.00 - 13.00). On the third day a visit to a company producing animal products (INACHOS S.A.) took place (9.00-14.00). All participants attended the seminar free of charge and were given a certificate of attendance.

**(c)** Seminar in Amfikleia, Fthiotida, on April 24-26,2017

The seminar held in the "Papakostio" Cultural Centre of Amfikleia, to inform farmers, breeders and beekeepers about the coexistence of animal production and the natural environment. The first two days included presentations by experts (on subjects such as apiculture, livestock farming, certification of animal products, basic principles of the new CAP, etc.) from 10.00 until 15.00. The third day included an informative/educational visit to pastures of Mt. Kallidromo. All participants attended the seminar free of charge and were given a certificate of attendance.

**(d)** Seminar in Neochori, Fthiotida, on June 3-4, 2017.

The seminar titled "Actions to improve Mt. Oiti mountainous pastures and ensure sustainable management", addressed to farmers-breeders was held at the Local Community Office of Neochori (12.00-17.00). An informative/educational visit to pastures of Mt. Oiti took place on the first day. The second day included presentations by experts. In particular, this seminar addressed: (a) the LIFE ForOpenForests project and its actions to improve Mt. Oiti

mountainous pastures for purposes of grazing livestock, and (b) the results of the actions targeting grazing on the mountainous pastures of Mt. Oiti and proposals for their sustainable management. All participants attended the seminar free of charge and were given a certificate of attendance.

**(e)** Seminar in Eleftherochori, Fthiotida, on July 8-9, 2017

The seminar titled "Actions for the improvement of the mountain pastures of Kallidromos and their rational management", addressed to farmers-breeders was held at the Local Community Office of Eleftherochori (12:30-15:30). The first day included presentations by experts. In particular, this seminar addressed: (a) the LIFE ForOpenForests project and its actions to improve mountainous pastures for purposes of grazing livestock, and (b) the results of the actions targeting grazing on the mountainous pastures and proposals for their sustainable management. On the second day a training visit was organized to pastures of Mount Kallidromo (12:00-16:00). All participants attended the seminar free of charge and were given a certificate of attendance.

**(f)** Seminar in Mendenitsa, Fthiotida, on December 7-8, 2018

The seminar titled "Actions to improve the mountain pastures of Kallidromo and rational management - Common Agricultural Policy", addressed to farmers-breeders was held at Local Community Office of Mendenitsa. The first-day (15.00-21.00) included presentations by experts. In particular, the seminar concerned: (a) the LIFE ForOpenForests project and its actions for the improvement of Mt. Kallidromo mountainous pastures for grazing livestock, (b) the results of the actions for grazing on the mountainous pastures of Kallidromo and proposals for their sustainable management, (c) beekeeping, (d) food safety and quality, and modern technologies in their processing and maintenance and (e) implementation of the New CAP in Fthiotida. An informative/educational visit was organized to pastures of Mt. Kallidromo on the second-day (11:00-13:00). All participants attended the seminar free of charge and were given a certificate of attendance.

**(g)** Seminar in Gorgopotamos, Fthiotida, on June 20-22, 2019

The seminar titled "Mountain pastures of Oiti and their rational management - Quality and certification of products" was held in Grogopotamos. The first (10.00-15.30) and second (10.00-14.30) days included lectures by Service Agents, Researchers and Association Representatives on "Actions to improve the mountain pastures of Oiti and their rational management - Quality and product certification". Specifically, LIFE ForOpenForests project recommendations, the results of the actions for grazing the mountainous pastures of Mt. Oiti and suggestions for the implementation of sustainable management, the bear and livestock conflict, forest management and beekeeping, the drupe-bearing and other tree crops, controls and certified products of animal and plant origin and implementation of the Common Agricultural Policy in Fthiotida. An informative/educational visit was organized to pastures of Mt. Kallidromo on the third-day (10:00-12:00). All participants attended the seminar free of charge and were given a certificate of attendance.

**(h)** Seminar in Lamia, Fthiotida, on October 24-26, 2019

The seminar titled “Rational Management of the Ecosystems of Mt. Oiti and Kallidromo” was held in Lamia. The first (10.00-13.15) and second (9.00-14.00) day presentations concerned: the LIFE ForOpenForests project, the most important habitats of Mts. Oiti and Kallidromo, the *Juniperus foetidissima* forests and their restoration, infrastructures from LIFE ForOpenForests on Mts. Oiti and Kallidromo, impacts of implementing vegetation actions at forests openings for the restoration of grassland habitats, cattle behaviour on Mt.

Kallidromo and its effects on the vegetation of forest openings, implementing good practices on farm animal grazing, practicing beekeeping at forests, problems and suggestions for future actions, the contribution of walnut and chestnut cultivations in the development of the mountainous and semi-mountainous project areas, training programs for new farmers in Central Greece and implementation of the CAP in Fthiotida. An informative/educational visit was organized to pastures of the project on the third-day (10:00-12:00). All participants attended the seminar free of charge and were given a certificate of attendance.

Please find the Report of the seminars in the Annex E.4_III of this Report.

### 5.1.33 Action E.5: Dissemination of the results to the scientific community and Layman's report

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| **UoA** | **01/07/2013** | **01/06/2014** | **30/11/2017** | **30/11/2019** |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| **UoA** | **Presentations to conferences** | **30/11/2019** | **30/11/2019** |
| **UoA** | **Publications to journals** | **30/11/2019** | **30/11/2019** |
| **UoA** | **Publication to the HERPAS bulletin[1]** | **30/11/2019** | **09/10/2018** |
| **UoA** | **Publication to the EDGG bulletin[2]** | **30/11/2019** | **30/11/2019** |
| **UoA** | **Layman's report** | **30/11/2019** | **30/11/2019** |

[1]The last HERPAS (Greek Rangeland Society) bulletin was published in 2011-2012. Three presentations were made at the 8th (2014) and 9th Panhellenic (2018) Rangeland Congress and published in the Book of proceedings instead (No 3, 4, 15).

[2] The EDGG bulletin is quarterly and since the October 2018 issue it is named "Palaearctic Grasslands". The project team had planned a publication in the issue of October 2017, based on the presentation at the 14th Eurasian Grassland Conference sponsored by EDGG (No 12). This was not possible and the publication has been rescheduled for 2020. This delay has not affected any other action.

The Layman's report is a 24 page booklet with the following contents:

| PAGE | Title | Content | AUTHORS |
|---|---|---|---|
| COVER PAGE | Project Title- Partners | | HSPN |
| 2 | Introduction | Project Scope And Objectives | HSPN |
| 3 | Actions | List Of Project Actions | HSPN |
| 4 | Map Of Oiti | Target Habitat Mapping | EKPA |
| 5 | Map Of Kallidromo | C Action Sites | EKPA |

| | | | |
|---|---|---|---|
| 7-11 | Temporary Ponds<br>Habitat Type 3170 | • Brief Description<br>• Foreseen Actions<br>• Implementation<br>• Results - Benefit/Impact<br>• Conservation Specifications | EKPA |
| | *Veronica oetaea** | | |
| 12-15 | Grasslands<br>Habitat Type 6230<br>Habitat Type 6210 | | DEMETER<br>DEMETER |
| 16-18 | Conifer Forests<br>Habitat Types 9560, 9530 | | DEMETER |
| 19-20 | *Ursus Arctos* | | ARCTUROS |
| 21-22 | Avifauna | | HSPN |
| 23 | Results | Cost-Benefit, Transferability | EKPA |
| 24 | Backpage | Photos | |

Dissemination of the project results to the scientific community has been achieved through some 20 presentations in national and international conferences and publications in the corresponding Books of Proceedings. Also two papers at scientific journals were published (No 16, No 20). It is expected that more scientific publications will be made after the end of the project, for example publications based on the complete datasets of the temporary pond and *Veronica oetaea** monitoring and of the meteorological data.

The 20 publications are listed below and presented in detail in the Annex of action E.5.

1. Mantzanas K.T., Evangelou Ch., Papanastasis V.P., Delipetrou P., Georghiou K. 2014. Structural and productive characteristics of mountain grassland habitats in central Greece. International conference: Enhancing Biodiversity in Mediterranean Ecosystems from Theory to Practice. Final public event of the project LIFE09 NAT/GR/000326 – VERENIKE. Thessaloniki, Greece, 18-20 June 2014.
2. Xanthopoulos G., Karetsos G., Papanastasis V., Daskalakou E., Kaoukis K., Lyrintzis G. 2014. Perspectives on forest fire issues in the National Parks of Parnis and Oeta in Greece. In: Proceedings of the International Workshop on Fire Management in Protected Areas and Cultural and Natural Heritage Sites, in the frame of preparation of the IUCN World Congress 2014, Freiburg, June 27th, 2014, 8p.
3. Alexopoulos J.D., Dilalos S., Vassilakis E., Michelioudakis D., Mavroulis S., Farangitakis P. 2014. A geophysical insight for the occurrence of Mediterranean temporary ponds on Mts. Oiti and Kallidromo (Greece). 20th European Meeting of Environmental and Engineering Geophysics. Athens, Greece, 14-18 September 2014.
4. Mantzanas K.T., Evangelou Ch., Papanastasis V.P., Delipetrou P., Georghiou K. 2014. A comparative study of grassland habitat types in Mts Oiti and Kallidromo, central Greece. Book of Proceedings of the 8th Panhellenic Rangeland Congress. Thessaloniki, Greece, 1-3 October 2014, pp. 221-226 (in Greek with English abstract).

5. Evangelou Ch., Mantzanas K.T., Papanastasis V.P. 2014. A comparative study of livestock husbandry on mountains Oiti and Kallidromo. Book of Proceedings of the 8th Panhellenic Rangeland Congress. Thessaloniki, Greece, 1-3 October 2014, pp. 215-220 (in Greek with English abstract).

6. Georgiadis L., Bousbouras D., Papakostas G., Stefanidis K., Karamanlidis A.A. 2014. Brown bears (*Ursus arctos**) at their southernmost distribution on the European continent: research and conservation efforts at Mount Oiti, Central Greece. 23rd International Conference on Bear Research and Management. Thessaloniki, Greece, 5-11 October 2014.

7. Καρέτσος Γ., Λυριντζής Γ., Παπαναστάσης Β., Προύτσος Ν., Μάντακας Γ., Καούκης Κ., Μπουρλέτσικας Α. 2014. Έργο LIFE+ Nature για τη Διατήρηση Δασών και Δασικών Ανοιγμάτων Προτεραιότητας στον Εθνικό Δρυμό Οίτης και στο Όρος Καλλίδρομο της Στερεάς Ελλάδας. ΥΠΑΤΗ, Περιοδική Έκδοση του Συνδέσμου Υπαταίων και Φίλων της Υπάτης, τευχ. 54 (2014).

8. Papanastasis V., Mantzanas K., Evangelou C., Delipetrou P., Lyrintzis G., Karetsos G., Georghiou K. 2016. Conservation of priority grassland habitats in Macedonian fir silvipastoral systems of Greece. Book of Abstracts, World Congress Silvo-Pastoral Systems, 27 – 30 September 2016, Évora, Portugal, p. 201

9. Papanastasis, V.P., K. Mantzanas, C. Evangelou, G. Lyrintzis and G. Karetsos. 2016. Effects of weed clearing and cattle grazing on conservation of forest openings in Macedonian fir silvopastoral systems of Greece, p. 214. In: Proc. World Congress Silvo-pastoral Systems, 27-30 September 2016, Evora, Portugal (Annex E5_II).

10. Delipetrou P., Dimitriadis I., Vallianatou I., Sarika M., Georghiou K. 2016. Mediterranean temporary pond plant conservation on Mt. Oiti and Mt. Kallidromo in the region of Sterea Ellada, Greece.S.1.127, Book of Abstracts - 1st Mediterranean Plant Conservation Week, 24 – 29 October 2016, Ulcinj, Montenegro, p. 35 (Annex E5_III)

11. Delipetrou P. Vallianatou I., Koutsovoulou K., Skourti E., Dimitriadis I., Sarika M. and Georghiou K. High altitude Mediterranean temporary pond conservation in the mountains Oiti and Kallidromo (Sterea Ellada), Proceedings of the 39th E.E.B.E. Scientific Conference, Lamia, May 25-27, 2017, p. 89 (Annex E5_IV)

12. Delipetrou P., Sarika M., Michopoulos G., Karetsos G. 2017. Mountain grasslands in central Greece 14th Eurasian Grassland Conference. 4-11 July 2017 in Riga, Latvia and Western Lithuania

13. Delipetrou P., Vallianatou I., Koutsovoulou K. , Skourti E. , Dimitriadis I., Sarika M., Georghiou K. High altitude Mediterranean temporary pond conservation in Greece. International Congress for Conservation Biology, Cartagena, Colombia, July 23-27 2017

14. Skourti E., Delipetrou P., Dimitriadis I., Georghiou K., Thanos C.A. 2017. Seed germination in Mediterranean temporary ponds (3170*): the case of two annual Ranunculaceae. 15ο Πανελλήνιο Επιστημονικό Συνέδριο Ελληνικής Βοτανικής Εταιρείας, Χανιά, 14-17 Σεπτεμβρίου 2017

15. Ευαγγέλου Χ., Μαντζανάς Κ., Παπαναστάσης Β.Π., Λυριντζής Γ., Καρέτσος Γ. 2018. Χωρική και χρονική ανάλυση της μετακίνησης βοοειδών στο Όρος Καλλίδρομο της Στερεάς Ελλάδας. Προφορική παρουσίαση. Πρακτικά 9ου Πανελλήνιου Λιβαδοπονικού Συνεδρίου, 9 – 12 Οκτωβρίου 2018, Λάρισα, σελ. 245 – 252.

16. Vasilatos C., Anastasatou M., Vassilakis E., Alexopoulos J., Dilalos S., Petrakis S., Delipetrou P., Georghiou K., Antonopoulou S., Stamatakis M. 2019. Assessment of the geo-environmental status of European Union priority habitat type "Mediterranean temporary mountain ponds" in Mt. Oiti, Greece. Water 11: 1627 – 1649.

17. Παπαναστάσης Β., Λυριντζής Γ.Α., Σολωμού Α.Δ. 2018. Παραδοσιακή διανομή των λιβαδιών στο Νεοχώρι Υπάτης του νομού Φθιώτιδας. ΔΗΜΗΤΡΑ 21: 9 – 11.

18. Σολωμού Α., Μαντζανάς Κ., Ευαγγέλου Χ., Παπαναστάσης Β., Προύτσος Ν., Καρέτσος γ., Τσαγκάρη Κ., Λυριντζής Γ., Μάντακας Γ., Καούκης Κ. 2019. Βλάστηση ποολιβαδικών τύπων οικοτόπων Οίτης και Καλλιδρόμου στη Στερεά Ελλάδα. Πρακτικά 16ου Συνεδρίους της Ελληνικής Βοτανικής Εταιρείας, Αθήνα 10 – 13 Οκρωβρίου 2019, σελ. 105

19. Mitsika G.S., Dilalos S., Nastos P.T., Alexopoulos J.D., Delipetrou P., Georghiou K. 2019. High altitude meteorological observations in Central Greece. 15th International Congress of the Geological Society of Greece, Athens 22 – 24 May 2019. Bulletin of the Geological Society of Greece, Sp. Pub. 7, Ext. Abs. GSG2019-078

20. Marrone F., Arculeo M., Georgiadis C., Stoch F. 2019. On the non-malacostracan crustaceans (Crustacea: Branchiopoda, Copepoda, Ostracodan from the inland waters of Fthiotida (Greece). Biogeographia - The Journal of Integrative Biogeography, 34: 87 – 99

In annex F5_I please find the Layman's Report of the project in Greek and English, and in Annex E.5_II all the publications of the project. The Layman's report has been uploaded in the projects webpage and has been shared in social media (Facebook account).

## F. Overall project operation and monitoring

### 5.1.34 Action F.1: Project coordination and management

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| **HSPN** | **01/09/2012** | **01/09/2012** | **30/11/2017** | **30/11/2019** |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| **HSPN** | **Project process indicators** | **31/05/2013** | **31/05/2013** |
| **HSPN** | **Administrative-Financial team meeting minutes 1** | **31/12/2012** | **31/12/2012** |
| **HSPN** | **Administrative-Financial team meeting minutes 2** | **31/12/2013** | **31/12/2013** |
| **HSPN** | **Administrative-Financial team meeting minutes 3** | **31/12/2014** | **31/12/2014** |
| **HSPN** | **Administrative-Financial team meeting minutes 4** | **31/12/2015** | **31/12/2015** |
| **HSPN** | **Administrative-Financial team meeting minutes 5** | **31/12/2016** | **25/05/2016** |

The overall project management is clearly described in Chapter 4. There was good cooperation with all the partners and frequent communication through telephone or the Internet (a specific mailing list was created to facilitate the project team communication). In addition to scheduled meetings, all the partners informed the Project Coordinator about the implementation of each action via email.

As mentioned in Chapter 4.2.1, reallocations of subactions and the relevant budget were decided in order to ensure timely completion of said subactions because of complicated and time-consuming bureaucratic procedures of RST. The modified Partnership Agreements were signed and stamped by all beneficiaries and were presented in Annex F.1_I of the MtR.

The 1st Administrative and Financial meeting (minutes, participants list, presentation and photos in Annex 16 of the IR) was held on 27/9/2012 in the offices of the HSPN with the participation of all partners. During this meeting the beneficiaries decided to appoint the PM, who was nominated officially on 1/10/2012. The PM prepared a draft of the PA, and started communications with all partners in order to finalize the terms and the contents. Four Pas were signed between the coordinating beneficiary and each of the four associated beneficiaries. Also, all partners appointed persons responsible for every Action and accordingly informed the PM.

The 2nd Administrative and Financial meting (minutes in Annex 17 of the IR) was held on 1/3/2013 in the offices of IMFE.

The 3rd Administrative and Financial meting (minutes in Annex 46 of the PR1) was held on 06/03/2014 in the offices of HSPN.

The 4th Administrative and Financial meeting was held on 29/01/2015 in the offices of HSPN (minutes in Annex F.1_II of the MtR).

The 5th Administrative and Financial meeting was held on 25/05/2016 in the offices of HSPN (minutes in Annex F.1_I of the PR2).

Meetings continued as needed until 30/11/2019.

### 5.1.35 Action F.2: Stakeholder Committee

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| RST | 01/10/2012 | 01/10/2012 | 31/03/2017 | 30/11/2019 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| RST | Stakeholder Committee meeting minutes 1 | 31/01/2013 | 30/07/2013 |
| RST | Stakeholder Committee meeting minutes 2 | 31/01/2014 | 20/12/2014 |
| RST | Stakeholder Committee meeting minutes 3 | 31/01/2015 | 31/03/2015 |
| RST | Stakeholder Committee meeting minutes 4 | 31/01/2016 | 31/03/2017 |
| RST | Stakeholder Committee meeting minutes 5 | 31/01/2017 | 30/11/2019 |

The Action started according to the foreseen timetable. The first meeting of the STAC was organized in Lamia on June 14, 2013. The participation list, presentations, programme and minutes were provided in Annex 47 of PR 1.

The second meeting of the STAC was held in Lamia on November 20, 2013. The participation list, presentations, programme and minutes were provided in Annex 47 of PR 1. According to the Action description one STAC meeting would be held every year; however, the project team decided to hold the second meeting during 2013 as well, in order to present to the STAC members the specifications and sites for the implementation of Action C.1.

The third meeting of the STAC was held in Lamia on March 11, 2015. The participation list, presentations, programme and minutes are attached in Annex F.2_I of PR2.

The fourth meeting of the STAC was held in Lamia on March 17, 2017. The participation list, presentations, programme and minutes are attached in Annex F.2_I of PR3.

The fifth meeting of the STAC was held in Lamia on October 23, 2019. The participation list, presentations, programme and minutes are attached in Annex F.2_I of this Report

All five meetings were quite successful, with good participation of the various stakeholders, lively discussions and constructive comments and suggestions.

### 5.1.36 Action F.3: External auditing

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| RST | 01/10/2014 | 01/10/2014 | 30/11/2017 | 30/11/2019 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| RST | None | - | - |

The external auditor is Dimitris Manos, Registration No: 33. During January 2014, 2015, 2016, 2017, 2018, 2019 and 2020 Mr Manos audited all HSPN invoices for the years 2012-2019. Moreover, in January 2020 Mr Manos audited the invoices of IMFE and ARCTUROS.

Following that Mr Manos provided an Auditing report (Annex F.3_I of this Report).

### 5.1.37 Action F.4: After-LIFE habitat and species conservation

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| RST | 01/10/2016 | 01/10/2016 | 30/11/2017 | 30/11/2019 |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| RST | After-LIFE Conservation Plan | 30/11/2017 | 30/11/2019 |

The After Life Conservation Plan was prepared by the project team and was presented to the external monitor during the monitoring visit that was held in October 2019. The After-LIFE Conservation Plan is provided in Annex F.4_I of this Report.

The After-LIFE Conservation Plan includes an assessment of the situation at the end of the project, after LIFE objectives and methodology, funding needs and source of funding, and SWOT analysis.

### 5.1.38 Action F.5: Networking with similar LIFE and non-LIFE projects

| Beneficiary responsible | Foreseen Start Date | Actual Start Date | Foreseen End Date | Actual End Date |
|---|---|---|---|---|
| **UoA** | **01/07/2013** | **01/06/2014** | **30/11/2017** | **30/11/2019** |

**Action's Deliverables (within the reference period 01/09/2012-30/11/2019):**

| Beneficiary responsible | Name of Deliverable | Foreseen Delivery Date | Actual Delivery Date |
|---|---|---|---|
| **UoA** | **Report of the experience in the conservation and management of target habitats at European and Mediterranean level** | **31/05/2013** | **31/10/2013** |
| **UoA** | **Internet directory of experts** | **30/11/2017** | **30/11/2019** |

A review of the current knowledge and experience on the target species and habitats has been compiled (Deliverable F5.1, Annex F5_I in the MtR).

Networking has been established with similar LIFE projects:

i) JUNICOAST LIFE07NAT/GR/000296. The know-how on the methodology of sex ratio assessment and regeneration in *Juniperus* spp. populations was acquired through personal communication with members of the project team.

ii) JUNIPERCY LIFE10 NAT/CY/000717. Contact was established with the partners of the work team of JUNIPERCY, especially the Forestry Department of Cyprus. Scientific information and ideas on reproduction and regeneration of *Juniperus foetidissima* were exchanged within the framework of a scientific committee meeting.

iii) LIFE JunEx LIFE12 NAT/GR/000539. The PM visited the laboratory of Technological Institute of Drama and was informed about the germination experiments of *Juniperus foetidissima*. Further meeting are planned with the IMFE team.

iv) FORBIRDS LIFE13 NAT/CY/000176. Contact and agreement for exchange of visits to project sites in Greece and Cyprus in the summer of 2016.

v) LIFE11/NAT/IT/234. Contact and agreement for exchange of visits to project sites in Greece and Italy during 2016 or 2017. Contact with the Project Manager Annette Mertens.

vi) LIFE17/NAT/GR/000511. A common monitoring event was held in Rome on September 16, 2019.

vii) LIFE13/NAT/PL/000038. Participation in the final conference of the project and meeting with the representatives of the project on April 18-19, 2018 at the HSPN offices. There were presentation of the activities of the two projects and exchange of experience and information between the project teams.

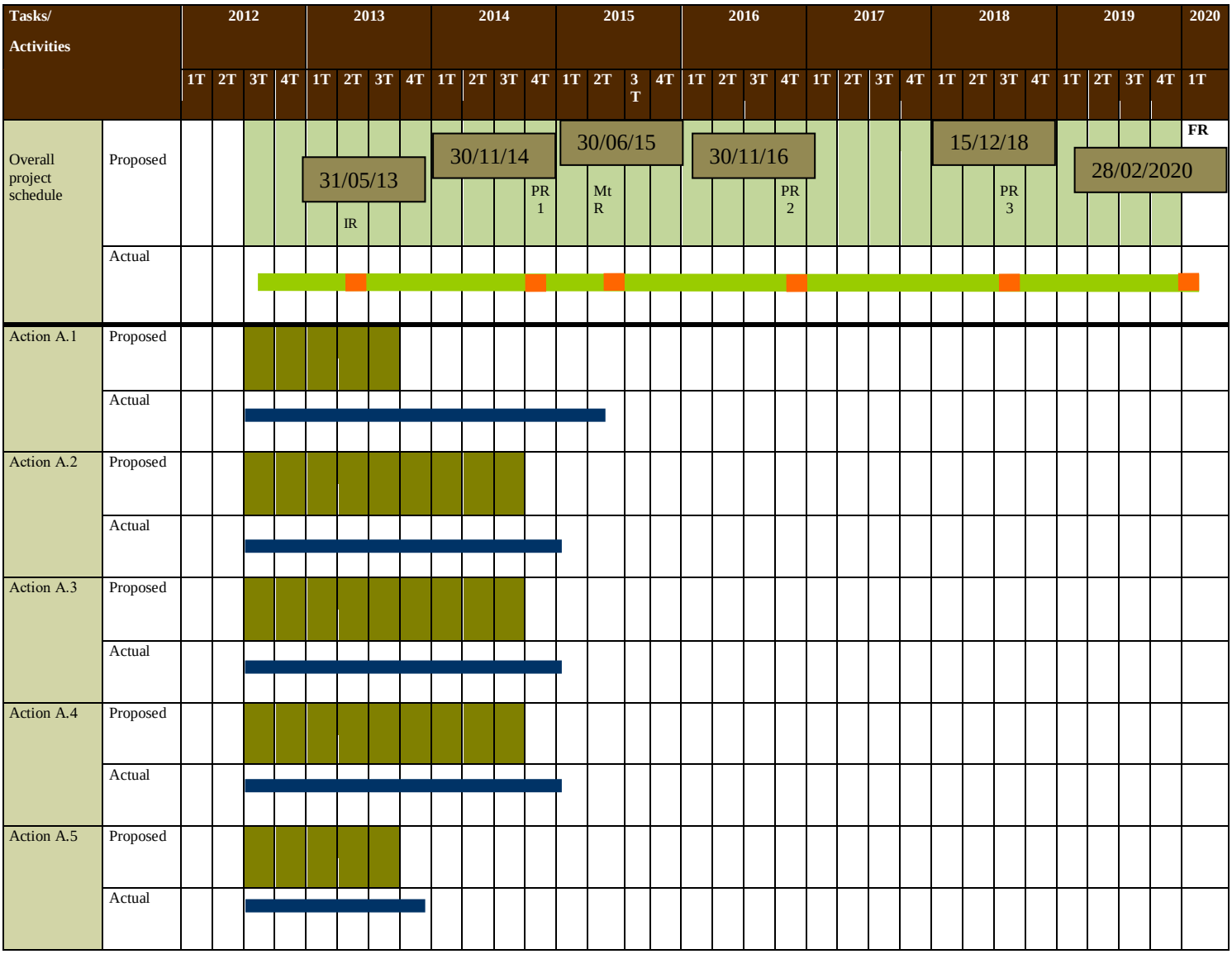
viii) LIFE 13 NAT/SI/000550. A networking event in which executives of the Forest Service of Slovenia and the University of Zagreb were invited and communicated with Greek participants of LIFE projects was held on May 27-30, 2019 at the Aristotelian University of Thessaloniki by the project, and included a field visit to the ARCTUROS facilities in Nymfaio.

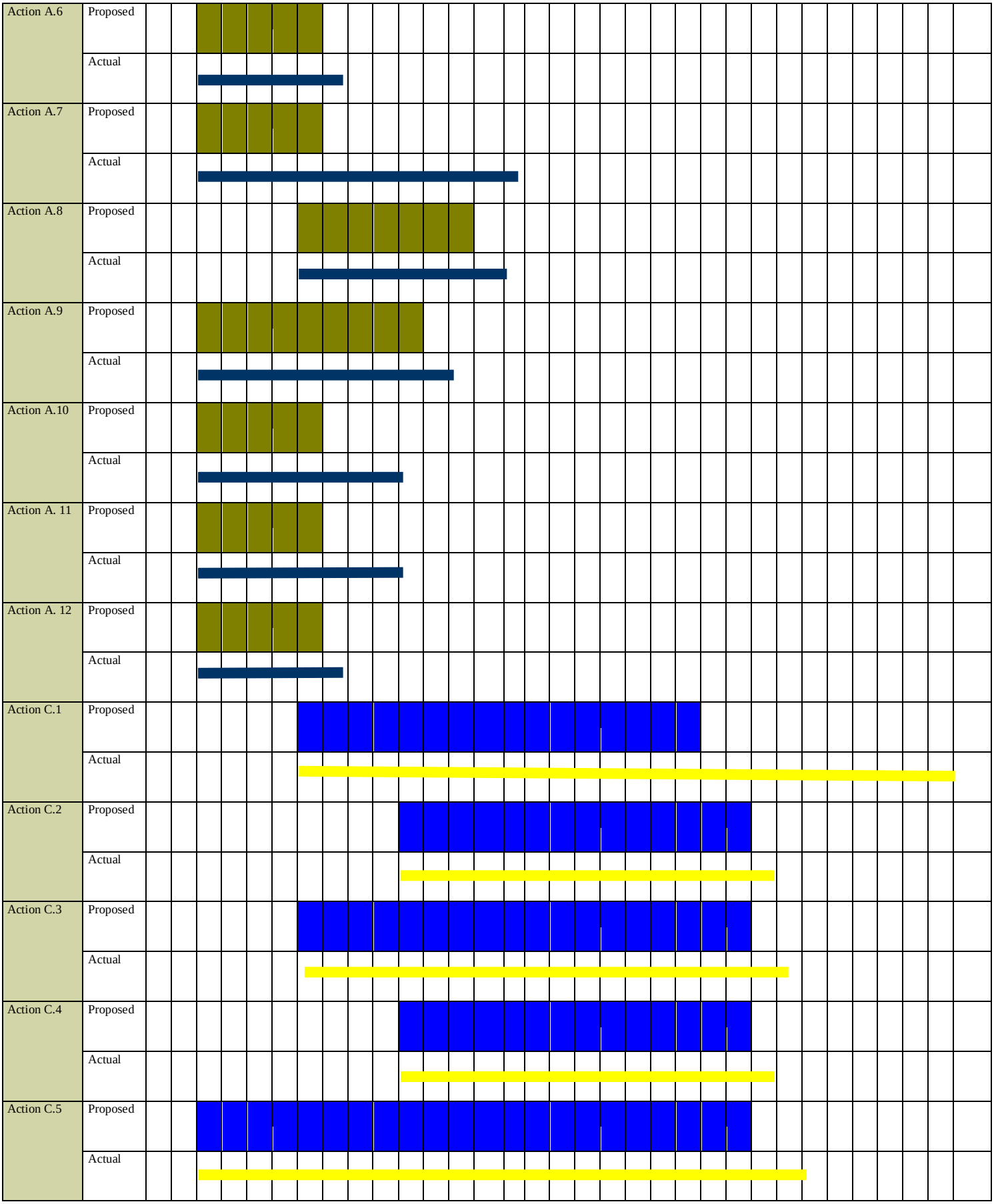
In terms of networking activities three members of the project team actively participated in "LIFE Nature platform meeting on the management of Mediterranean habitats", Polis Chrysochous, Akamas, Cyprus, 9-10 October 2014.

The project managed to create a network with other LIFE project in order to share information and knowledge about the targeted priority species and habitats. The network is still operation through informal contacts.

Please find attached the Report of the Action in Annex F.5_I of this Report.

**Table 2:** Gantt chart of the Implementation Progress

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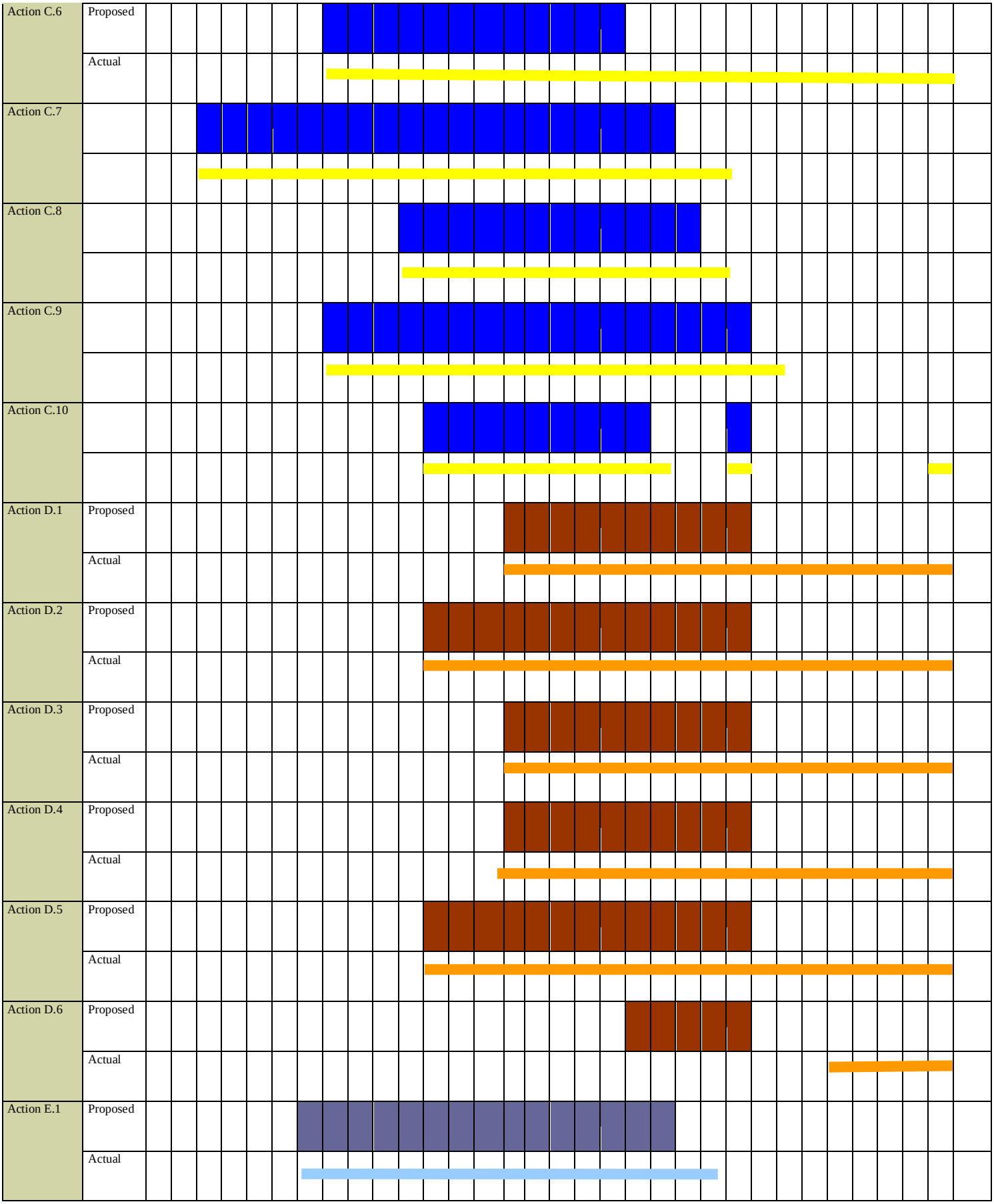
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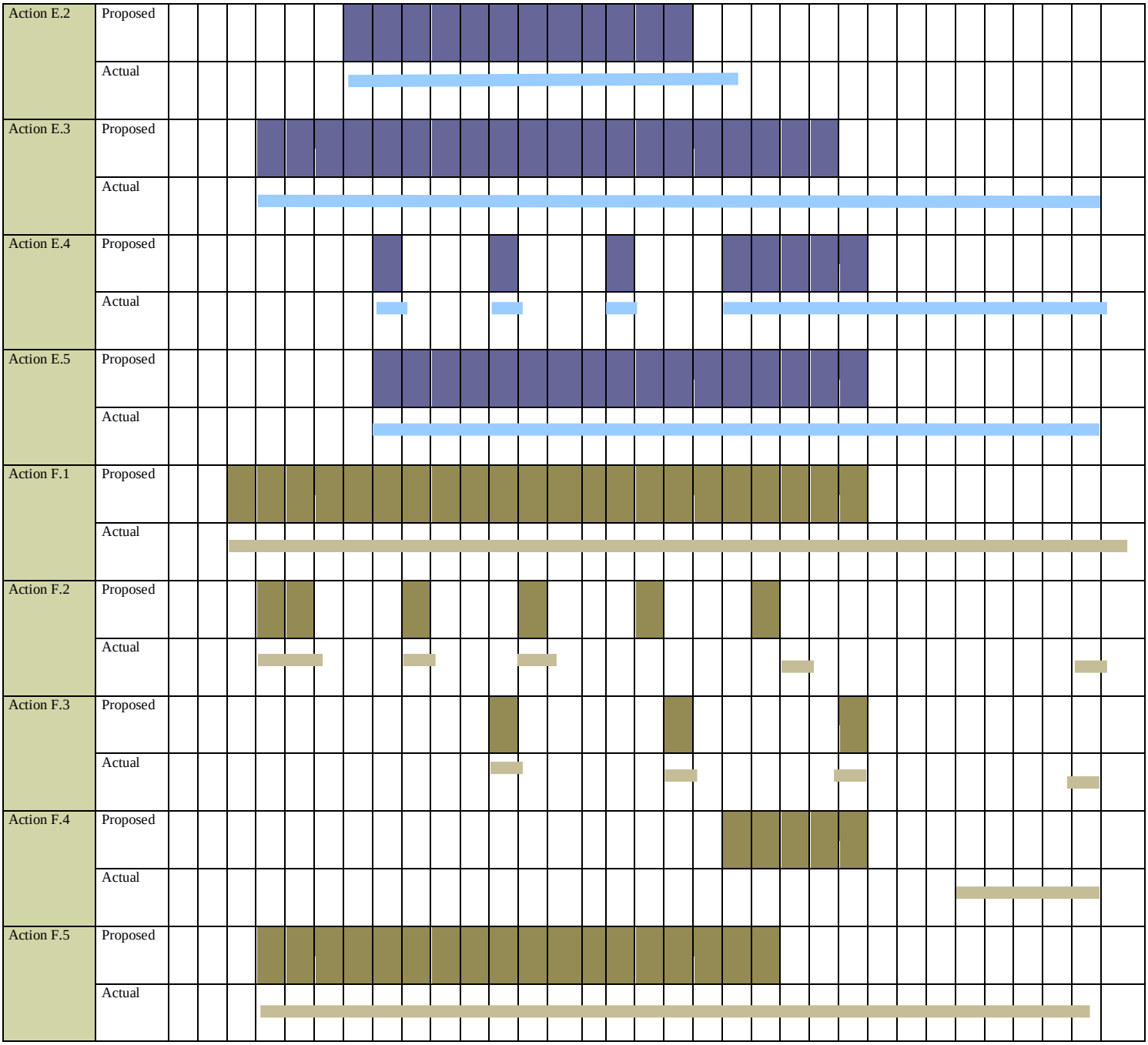


## 5.2 Dissemination actions

### 5.2.1 Objectives

The main objective of the dissemination activities of the project was to promote its results, both to the scientific community and the general public. The specific objectives were:

- To increase awareness of general public about the protection of priority species and habitats.
- To provide information about new methodologies for the protection of priority species and habitats.

- To provide information about conservation needs of specific species and habitats.
- To inform the general public about EC's efforts to support in protecting of the environment.

### 5.2.2 Dissemination: overview per activity

- A Facebook page was created (https://www.facebook.com/foropenforests), as well as a Twitter account. The Facebook page seems quite popular with 1,623 likes and thousands of engagements to date.
- A series of articles was published every three months in the journal "I FYSI" of the HSPN, for the full duration of the project, describing all activities of the project in the previous trimester. The articles are provided in Annex E.1_III of MtR.
- One article was published in the national newspaper "TO VIMA" – date of publication 26/01/2014 (Annex 37 in PR 1).
- One article was published in the national newspaper "KATHIMERINI" – date of publication 28/06/2014 (Annex 38 in PR 1).
- 12 press releases were prepared and distributed to several local and national media. The press released was published in several newspapers and a total of 10 publications was noted (please see these press releases in Annex E.1_IV of the MtR).
- One article was prepared by Karetsos G., Lyrintzis G., Papanastasis V., Proutsos N., Mantakas G., Kaoukis K., Mpourletsikas A., and published in the Journal of the "Freinds of Ypati vol. 54 (2014). (the journal is attached in Annex E.1_V of MtR).
- TV interview of Mr Georgiadis, Ms Tsaggari and Mr Papanastasis in October 2016, in the Regional TV channel, TV Central Greece.

## 5.3 Evaluation of Project Implementation

**Table 3: Evaluation of the project implementation**

| Action number | Foreseen in the revised proposal | Achieved | Date of Achievement | Evaluation |
|---|---|---|---|---|

| Action number | Foreseen in the revised proposal | Achieved | Date of Achievement | Evaluation |
|---|---|---|---|---|
| **Action A.1** | ▪ Mapping of the priority habitats. | 2 high-resolution maps.<br>High-resolution reference images. | 01/06/2017 | -Remote sensing methodology for the assessment of temporary pond evolution.<br>-Development of WebGIS system with spatial data for the target habitats and species, including real time data.<br>-Contribution to the implementation of Actions A.3, A.5, A.6, A.7, C.2, C.3, C.4, C.5, D.1, D.2 |
| **Action A.2** | ▪ Determination of abiotic factors influencing the Mediterranean temporary ponds (3170*). | 1 report.<br>1 monitoring protocol. | 30/12/2014 | -Basic knowledge of the geoenvironment, hydrology and geochemistry of the temporary ponds.<br>-Contribution to the implementation of concrete conservation Actions C.1, C.2, C.3 and C.4. |
| **Action A.3** | ▪ Determination of the biotic communities' structure, composition, and phenology in the Mediterranean temporary ponds (3170*). | 2 reports.<br>1 monitoring protocol.<br>1 feasibility study and specification guide. | 20/12/2015 | - Basic knowledge of the ecology and conservation status of biotic communities of temporary ponds.<br>-Proper implementation and monitoring of concrete conservation Actions C.1, C.3, and C.4. |
| **Action A.4** | ▪ Study of population dynamics of the priority plant species *Veronica oetaea**. | 1 report.<br>1 feasibility study.<br>1 monitoring protocol. | 20/12/2015 | - Basic knowledge of the population status and ecology of *Veronica oetaea**.<br>-Proper implementation and monitoring of concrete conservation Action C.2 |
| **Action A.5** | ▪ Determination of vegetation composition and structure in the mountain grasslands (6210*, 6230*). | 1 monitoring protocol.<br>1 report. | 20/12/2015 | -Basic knowledge of the composition, structure, and ecology of mountain grasslands.<br>-Proper implementation and monitoring of concrete conservation |

| Action number | Foreseen in the revised proposal | Achieved | Date of Achievement | Evaluation |
|---|---|---|---|---|
| | | | | Action C.3. |
| **Action A.6** | ▪ Determination of the effects of grazing and forest expansion on the temporary ponds (3170*) and mountain grasslands (6210*, 6230*). | 1 report.<br>1 specification guide. | 26/04/2016 | -Basic knowledge of range condition, grazing capacity and forest expansion on Mt. Oiti and Mt. Kallidromno.<br>-Proper implementation of concrete conservation Action C.3. |
| **Action A.7** | ▪ Study of *Juniperus foetidissima* population and forests (9560*). | 1 monitoring protocol.<br>1 report.<br>1 feasibility study and specification guide. | 30/11/2015 | -Basic knowledge of the ecology and conservation status of *Juniperus foetidissima* forests.<br>-Proper implementation and monitoring of concrete conservation Action C.5. |
| **Action A.8** | ▪ Protection of priority habitats. | 1 manual with specifications. | 31/12/2015 | -A set of specifications for the implementation of Actions C.1, C.4, C.6. |
| **Action A.9** | ▪ Preparation for the implementation of concrete and monitoring Actions for the protection of 5 Annex I bird species. | 1 report on population dynamics of the target species.<br>Specifications for the implementation of Actions C.8, C.10 and D.4. | 31/12/2014 | -Contribution in the successful implementation of Action C.8. |
| **Action A.10** | ▪ Preparation for the implementation of management activities for the protection of Brown Bear *Ursus arctos** | 1 report on population dynamics of the Brown Bear *Ursus arctos**.<br>Study for wild fruit tree planting.<br>Specifications for the implementation of Actions C.9, C.10 and D.5. | 31/12/2014 | -Contribution in the successful implementation of concrete Actions C.9 and C.10. |
| **Action A.11** | ▪ Stakeholder consultation and establishment of a communication and participation strategy. | 1 report on stakeholder consultation.<br>1 document the communication | 31/12/2014 | -Contribution for a successful communication strategy.<br>- 15 Interviews |

| Action number | Foreseen in the revised proposal | Achieved | Date of Achievement | Evaluation |
|---|---|---|---|---|
| | | and participation strategy. | | |
| **Action A.12** | ▪ Description of the governance structure and legal status. | 1 report on the governance structure.<br>1 report on the legal status. | 31/03/2014 | -Contribution for the elaboration of Action C.10. |
| **Action C.1** | ▪ Protection of priority habitats. | 1,900 m of fence<br>6 information kiosks<br>4 recreation<br>4 Parking sites<br>2 paths<br>14 signs | 31/10/2019 | -Management of visitors and access control. |
| **Action C.2** | ▪ Enhancement of the population of *Veronica oetaea***. | 1 manual.<br>3 additional subpopulations of *Veronica oetaea**. | 30/11/2018 | -Enhancement of the population of *Veronica oetaea**. |
| **Action C.3** | ▪ Grazing management and woody vegetation clearing for the restoration of temporary ponds (3170*) and mountain grassland (6210*, 6230*). | Management of 160 ha.<br>1 manual. | 30/11/2017 | - The maximum area where we would expect restoration due to management interventions is estimated at around 80 ha in GR2440004 and around 80 ha in GR2440006.<br>- A manual for grazing and woody vegetation management for the conservation of grasslands and temporary ponds based on the proposals of Actions D.1 and D.2. |
| **Action C.4** | ▪ Effective protection and restoration of temporary ponds (3170*) | Restoration in 7 ponds.<br>1 manual. | 30/11/2019 | -Erosion control.<br>-Restoration of modified hydrology.<br>-Restoration of the biotic communities. |
| **Action C.5** | ▪ Restoration of *Juniperus foetidissima* forest (9560*). | 60 ha of new habitat.<br>1 manual. | 30/11/2017 | -The area of *Juniperus foetidissima* forests on Mt. Oiti will be increased by c. 60 ha.<br>- A manual with |

| Action number | Foreseen in the revised proposal | Achieved | Date of Achievement | Evaluation |
|---|---|---|---|---|
| | | | | guidelines for the restoration of *Juniperus foetidissima* forests. |
| **Action C.6** | ▪ Fire protection of the area. | 2 guardhouses.<br>2 artificial water storage reservoirs. | 30/10/2010 | -Protection from fires. |
| **Action C.7** | ▪ Ex situ conservation and propagation of keystone species of target habitats. | 1 manual with protocols.<br>1 manual with guidelines. | 31/03/2019 | -Storage of the keystone species in the UoA seedbank.<br>- Production and manipulation of plant material for the restoration of the target habitats. |
| **Action C.8** | ▪ Increase of the population of 5 Annex I bird species. | 50 artificial nesting boxes.<br>1 manual. | 30/06/2017 | -Manual for bird conservation. |
| **Action C.9** | ▪ Decreasing the damages caused by Brown Bear *Ursus arctos**. | 25 HLGD<br>30 electrified fences<br>1,000 wild fruit trees planted | 30/11/2017 | -Support of stockbreeders in the region by providing instruments of protection of their herds from wolf and bear damages. |
| **Action C.10** | ▪ Effective protection of the targeted habitats. | Legal documents.<br>Public consultation. Suggestion and proposal list. | 30/11/2019 | -Legal Protection of the project area. |
| **Action D.1** | ▪ Monitoring of the impact of the management on Mediterranean temporary ponds (3170*) and on the priority plant species *Veronica oetaea**. | 2 annual reports. | 30/11/2019 | -Assessment of the results of concrete conservation actions on temporary ponds and *Veronica oetaea**.<br>-Guidelines for management and restoration methodology. |
| **Action D.2** | ▪ Monitoring of the impact of the management on mountain grassland (6210*, 6230*). | 3 annual reports. | 30/11/2019 | -Assessment of the results of concrete conservation actions on mountain grasslands.<br>-Guidelines for management and restoration methodology. |

| Action number | Foreseen in the revised proposal | Achieved | Date of Achievement | Evaluation |
|---|---|---|---|---|
| **Action D.3** | ▪ Monitoring of the restoration of *Juniperus foetidissima.* | 2 annual reports. | 30/11/2019 | -Assessment of the results of concrete conservation actions on *Juniperus foetidissima* forests.<br>-Guidelines for management and restoration methodology. |
| **Action D.4** | ▪ Monitoring the impact of Action C.8 on the population of Annex I birds. | 1 annual report.<br>1 final report. | 30/11/2019 | -Protocol for the monitoring of 5 bird species populations. |
| **Action D.5** | ▪ Monitoring the impact of Action C.9 on the population of Brown bear *Ursus arctos**. | 1 annual report.<br>1 final report. | 30/11/2019 | -Protocols for the monitoring of Brown Bear *Ursus arctos**. |
| **Action D.6** | ▪ Evaluation of the socioeconomic impact of the project. | 1 study. | 30/11/2019 | -Study of the socioeconomic impact of the project. |
| **Action E.1** | ▪ Increase public awareness.<br>▪ Encourage public participation in the protection of priority habitats and species. | 6,000 leaflets.<br>1,000 posters.<br>2,000 T-shirts.<br>1 video.<br>2 notice boards.<br>6 seminars.<br>4 local events.<br>5 educational student excursions. | 30/11/2019 | -More than 10,000 people informed about the project.<br>-200 participants in the seminars.<br>-About 500 students participated in the educational excursions.<br>-More than 10 schools visited by ARCTUROS staff. |
| **Action E.2** | ▪ Increase of public awareness.<br>▪ Improvement of the socio-economic situation of the local communities. | 2 public education and information centres. | 30/06/2017 | -200 visitors per month. |
| **Action E.3** | ▪ Information about the project. | 1 webpage.<br>621,805 visits to date | 31/03/2013 | -1,500 visitors per month. |
| **Action E.4** | ▪ Training of local stakeholders for habitat conservation. | 2 training workshops.<br>8 seminars | 30/11/2019 | -Training of 100 local stakeholders. |

| Action number | Foreseen in the revised proposal | Achieved | Date of Achievement | Evaluation |
|---|---|---|---|---|
| **Action E.5** | ▪ Dissemination of the project results. | 1 Layman's report.<br>10 presentations. | 30/11/2019 | -Participation in national and international conferences.<br>-Publication of Layman's report.<br>-Publications in scientific magazines. |
| **Action F.1** | ▪ Management and administration of the project. | 68 reports. | 29/02/2020 | -5 technical reports.<br>-2 financial reports.<br>-63 monthly reports. |
| **Action F.2** | ▪ Establishment and function of a Stakeholder Committee. | 5 Stakeholder Committee minutes. | 23/10/2019 | - Effective management and protection of the target habitats and species in the project sites. |
| **Action F.3** | ▪ Financial monitoring of the project and approval of project expenses. | 1 external auditing report. | 30/11/2019 | -Approval of project expenses. |
| **Action F.4** | ▪ After LIFE conservation and protection of targeted species and habitats. | 1 conservation plan. | 30/11/2019 | -Submission of the conservation plan to EE |
| **Action F.5** | ▪ Networking with similar projects. | 1 report.<br>5 visits.<br>1 internet directory. | 30/11/2019 | -Exchange of experience and knowhow. |

## 5.4 Analysis of long-term benefits

### 5.4.1 Environmental benefits

**Direct / quantitative environmental benefits:**

- Priority habitat type 3170* (Mediterranean temporary ponds): Improvement of the conservation status of the habitat in 3 of the 7 targeted ponds (Action C.4): Louka (0.06 ha), Mourouzos (0.04 ha) and Nevropoli (2 ha). Guidelines are provided and the methodology is applicable to the management of other high altitude ponds in Greece and the EU.
- Priority species *Veronica oetaea**: Pilot establishment of the species in one more locality (currently known from only 3 localities) through Action C.2. Guidelines are provided and the methodology has only local application.

- Priority habitats 6210* and 6230* (mountain grasslands): Pilot application of management techniques and procedures for the improvement of the conservation status and management of the habitat in both sites of the project (Action C.3). The project has developed a low-intensity pasture system management technique, which can be used by farmers in order to both maintain the targeted habitats and improve their practices towards a sustainable management. Also, the project has proposed sustainable forestry practices. Farmer education through numerous seminars and on-site training (Action E.4) is expected to contribute that effect. Guidelines are provided and the methodology will be applicable at other grassland systems in Greece and the EU.
- Priority habitat type 9560* (*Juniperus foetidissima* forests): Improvement of the conservation status of the habitat on Mt. Oiti mainly by enhancement of the population of *Juniperus foetidissima* and by removal of the competitive fir trees (Action C.5). A total of c. 60 ha of habitat were restored out of the c. 140 ha of the current area of the habitat. Guidelines are provided and the methodology will be applicable at other *Juniperus foetidissima* projects in Greece and the EU.
- Visitor infrastructures (Actions C.1 and E.2) are expected to contribute to the conservation of targeted habitats and species by removing pressures and also to have a positive impact on the economy of the local communities. The Information Centres already attract numerous visitors and play a very important role in increasing awareness about the project, and the local sensitive habitats and species.
- Improvement of the conservation status of *Aegolius funerus* by providing supplementary artificial nesting sites (20 nest boxes) but mainly by maintaining forest openings necessary for hunting; of the three woodpecker species by preserving suitable nesting and feeding areas; of *Alectoris graeca* by improving feeding habitat (Action C.8). Guidelines are provided and the methodology will be applicable at other areas in Greece.
- Improvement of the conservation status of *Ursus arctos** (Action C.9) through the reduction of bear-human conflicts by providing Hellenic Livestock Guarding Dogs and electric fences, and through improving food resources by planting wild fruit trees. Guidelines will be provided at the end of the project and the methodology will be applicable at other areas in Greece.

**Relevance for environmentally significant issues or policy areas**

- The project directly aims to the application of the EU Directives 92/43/EEC (Habitats' Directive) and 2009/147/EC (Birds Directive) for conservation and monitoring of habitats and species in SCI and SPA sites.
- The project is relevant to the 7$^{th}$ EU Environment Action Programme because it conforms to the key objective "protect, conserve and enhance the Union's natural capital" in that it targets conservation of biodiversity issues and also grassland habitats which are used as pastures. The project applies the "enablers" regarding better information by improving the knowledge base (most preparatory actions and monitoring of conservation actions) and regarding integration of environmental requirements and consideration into the

agro-environment policy (Action C.3). Finally, the project contributes towards the horizontal objective of addressing climate challenges since it targets vulnerable high altitude habitats and species, or species at the southernmost limit of their distribution range, and produces knowledge and management experience which will help in coping with climate change.

**Long-term benefits and sustainability**

**Long-term / qualitative environmental benefits**

- The outlook of the targeted habitats and species is as follows:
  - Temporary ponds (3170*) and *Veronica oetaea**: The temporary ponds of Livadies, Greveno, and Alykaina and *Veronica oetaea** on Mt. Oiti are at an excellent conservation status and expected to remain so, especially since they will be protected from various impacts such as trampling and grazing (Action C.1). The temporary ponds at Louka on Mt. Oiti and at Nevropoli, Mourouzos and Mouriza on Mt. Kallidromo are at an inadequate status. The conservation measures (Actions C.1 and C.4) are expected to improve their status. Especially at Louka and Nevropoli the prospects are quite favourable but long-term management will be necessary for the maintenance of the project results.
  - Mountain grasslands (6210*, 6230*): The mountain grasslands at the project sites, even the ones under heavy grazing, maintain a good conservation status regarding biodiversity and productivity. Overgrazing and scrub-forest expansion seem to be the main threats, which have already had a negative impact on the area of the grasslands (over the last 50 years). Action C.3 applied pilot management to part of the grasslands but their maintenance will need long-term application of management techniques.
  - *Juniperus foetidissima* forests (9560*): Stinking Juniper forests on Mt. Oiti are more extensive that known before the project, but are still at an inadequate conservation status, mainly due to the *Abies* forest expansion and illegal logging. The status of the habitat will be improved by the project, but long-term monitoring and possibly maintenance are necessary.
  - Annex I bird species: Because of low population density, *Aegolius funereus* is at an inadequate conservation status; artificial nests will probably not have an impact, because there are plentiful nesting sites for such a small population, but maintenance of forest openings is essential to improve its status. Long-term monitoring and management will be required to sustain improvements. Of the three woodpecker species, *Dryocopus martius* is at an excellent conservation status and expected to remain so. *Dendrocopos leucotos* has lower population densities but is very widespread and appears to be at good conservation status. *Picus canus* appears to have a very localised distribution and is at an inadequate conservation status. The last two species are expected to benefit from preservation of feeding and nesting habitat in the buffer zone according to the guidelines provided. *Alectoris graeca* is at an inadequate conservation status, mainly because of illegal hunting pressure; it will benefit to a limited degree by the interventions to improve feeding habitat, however, strict long-term measures to control access and hunting are required to improve its conservation status and sustain improvements.

- *Ursus arctos**: The monitoring results to date and the bear presence data lead to an estimation of a very low population, perhaps 1-2 individuals, with a seasonal presence. Good quality foraging habitat with fruit trees is mainly located close to villages and settlements. By planting the wild fruit trees, a considerable enhancement of the foraging habitat will be achieved, creating an important nucleus of food sources closer to the core area of the Natura 2000 zone of Mt. Oiti, at maximum distance from human settlements. The effectiveness of habitat improvement must be monitored and evaluated in the long term, in combination with the other activities, such as the provision of electric fences to beekeepers and of HLGDs to stockbreeders.

- The environmental education and awareness campaign events (Action E.1), accompanied by the permanent education and information centres (Action E.2) are expected to have a continued effect on the attitude of the general public and local authorities regarding conservation management at the project sites. Training workshops (for the personnel of local authorities, the ONP Management Authority, local NGOs) and educational seminars for farmers, as well as the STAC will enable key stakeholders to continue conservation management of the project sites. Actions E.5 and F.5, as well as the restoration guidelines which were produced, will allow effective transfer of the monitoring and restoration methodology used in the project to other countries.

**Long-term / qualitative economic benefits**

- Visitor infrastructure (Actions C.1 and E.2) will contribute towards regional development.

**Long-term / qualitative social benefits**

- The implementation of concrete conservation actions funded by the EU and nationally for the first time in the area of Eastern Sterea Ellada will have a positive social impact on local communities and other local actors that have expressed concern for the natural environment.

- The project has a positive social impact on local stock-breeders and beekeepers who were consulted regarding the project actions (Action F.2), received training and education (Action E.4), and were directly involved in conservation actions (Actions C.3, C.9), and were, thus, for the first time, considered partners in conservation management.

**Continuation of the project actions by the beneficiary or by other stakeholders.**

- After-Life conservation on Mt. Oiti is expected to be implemented primarily by the ONP Management Authority, assisted by the Forest Service of Lamia and possibly local NGOs. After-Life conservation on Mt. Kallidromo is expected to be implemented primarily by the Forestry Service of Lamia, and possibly local NGOs. In both project areas, local authorities may play a role by supporting the management actions among the local communities. The municipal authority of Ypati will continue operation of the visitor information centre for Mt. Oiti, and the municipal authority of Palaiochori will continue operation of the visitor information centre for Mt. Kallidromo. All the beneficiaries of the project FOROPENFORESTS will be eager to provide scientific advice and help in the application of monitoring and management.

The HSPN plans to continue monitoring for *Aegolius funereus*. The UoA plans to continue research activities on temporary ponds.

**Best Practice lessons**

- Action C.3 for mountain grasslands and temporary ponds: Application of various management regimes involving grazing (by establishing wooden cages which prevent grazing at sites with different grazing pressures and by fencing of temporary ponds) and scrub clearing (by burning and cutting) and also animal tracking (in order to monitor the activity of cattle).
- Application of state-of-the-art techniques in habitat mapping (Action A.1) and in hydrogeological survey and collection of meteorological data (Action A.2) and generation of an interactive, web based digital map projecting –among others– real time data (Action A.1). The methodologies used worked satisfactorily. The establishment of meteorological stations providing real time data under very adverse conditions (snow cover, inaccessibility of the sites), especially on Mt. Oiti, proved to be a challenge and is a valuable experience for future application at other sites.
- Restoration of *Juniperus foetidissima* forests. An innovative method for the reproduction of *Juniperus foetidissima* involving grafts applied to high altitude cypress plants was used but the results were discouraging. Clearing of *Abies cephalonica* trees (trough removal or necrosis), which expand at the expense of *Juniperus foetidissima*, was used for the first time and the results will be monitored.

**Innovation and demonstration value**

- The project applied and monitored management regimes involving grazing control and establishment of biotic communities for the first time at the ecological conditions and specific species assemblages of high altitudes of mainland Greece.
- The use of high spectral and spatial resolution remote sensing data (available for the first time since the beginning of the project), combined with older panchromatic ortho-photo mosaics has provided the temporal dimension of the evolution of temporary ponds and of the forest-grassland interaction.

**Long term indicators of the project success**:

- Conservation status of temporary ponds (3170*): Cover of typical temporary pond species vs cover of dry grassland species, synanthropic species and alien species (survey of permanent transects-plots).
- Conservation status of *Veronica oetaea**: Minimum and maximum number of 2x2 grid cells occupied (the grids cover the whole area of the ponds where the species grows), minimum and maximum number of individuals at permanent plots.
- Number of utilised artificial nests.
- Increased records of species with low population densities (i.e. *Aegolius funereus, Picus canus,* etc.), indicating positive effect of conservation actions.

- Dissemination of results: number of scientific publications based on the results of the project and possibly on after-LIFE monitoring and management (during and after the project), number of visits to the project website.

## 6. Financial part

### 6.1 High personnel rates for some members of the project team.

Regarding personnel you will find out that we have declared a higher cost for personnel compared to the amount that had been foreseen in the initial proposal. This happened for two reasons:

1. Due the extension of the project (for 24 more months) the administrative and scientific expertise (needed because the monitoring of some Actions lasted more than initially foreseen) costs, including personnel and travel, were significantly higher than foreseen in 2011.
2. Some of the personnel rates are higher than the ones calculated in 2011, when the proposal was submitted. Regarding this, please take into account that in order to implement such a complicated project it was necessary to employ highly qualified personnel (e.g Mr Christos Georgiadis (HSPN), Project Manager, Masters Degree in the Management of Protected Areas, Ms Gogo Koumparou (RST), civil engineer with a long experience in tendering procedures of public procurements).

### 6.2 Establishment of the accounting system.

The coordinating beneficiary and all associated beneficiaries kept separate accounting systems for the project needs. They also had dedicated bank accounts used only for the project's transactions.

### 6.3 Brief presentation of the procedure of approving costs.

Each partner approved costs according to its internal rules and regulations.

The costs of durables were eligible in full, according to the approved proposal, using the prorate percentage for the non–recoverable VAT (waiting for the final figures for 2019). All project equipment (photographic camera, desktop PC, pots, tubs, taps, etc.) was labelled by using self-adhesive stickers of the project. Metal signs were placed on the artificial nests and the electric fences supplied to beekeepers. Large signs with the project logos and required details were placed on the car doors.

The same procedure, regarding prorate, is followed for external assistance, infrastructure and consumables costs.

### 6.4 After-LIFE use of the 4x4 vehicle that has been purchased by the project.

Regarding the purchase of the 4x4 vehicle, according to the initial description of the project, on page 59 of 163 in the field of "How, where and by whom will the equipment acquired be used after the end of the project?" we had submitted the following "One 4 Wheel Drive vehicle acquired by HSPN for action C.8. After the end of the project the vehicle will be transferred to the Management Body of the National Park of Oiti so that it will be used for surveillance of the site and for monitoring". However, at this time HSPN is coordinator in another LIFE project (LIFE17 NAT/GR/000511 LIFE PRIMED) implemented at the Nestos

Delta, and a vehicle is necessary, both for travelling to the area, but also accessing the project locations, which require off-road driving. Considering that there was no car purchase planned in the PRIMED project, we believe that keeping this car, purchased for the LIFE ForOperForests project, will greatly facilitate our activities for the conservation and protection of priority habitats in Nestos Delta area, and will reduce costs, as no car rentals will be needed. Additionally, HSPN is a partner in the newly approved LIFE19 NAT/BG/001017 which will also require travel to northeastern Greece, so the vehicle will be used for that project too.

This is situation has been explained in email that was sent to Mr Alexis Tsalas on 19th of February 2020. Mr Tsalas replied on the same day that he approves our proposal.

**6.5 Brief presentation of the registration, submission and approval procedure/routines of the time registration system.**

All partners used the appropriate timesheets to register time worked for the project. The LIFE+ Nature model timesheets were used to register the time worked for the project, for permanent and temporary personnel, individually per project Actions from June 2015. The employment of temporary personnel was confirmed every time by the HSPN, UoA and IMFE scientific responsibles. Timesheets are electronically completed and submitted by the stuff member to the scientific responsible. Timesheets are submitted by the stuff members every month. The signatures of stuff members and the Scientific Coordinator of IMFE are promptly affixed.

**6.6 Brief explanation on ensuring that invoices contain a clear reference to the LIFE+ project showing how invoices are marked in order to show the link to the LIFE+ project.**

All project cost invoices were approved by the respective responsible person of each partner and are marked with the LIFE+ designation.

**6.7 Modified Partnership agreements.**

The cumbersome and inflexible bureaucratic procedures of the RST, especially regarding tendering of works and arranging for travelling compensation, combined with delays during the transition from the previous to the current Regional Council after the elections of 2014, resulted in significant delays in the timetable of Actions C.4, E.2 and E.4.

In order not to jeopardise timely completion of these Actions, after several meetings the AT recommended, and the RST accepted, that actual implementation of Actions C.4, E.2 and E.4 be transferred to other partners, under the supervision of the RST.

The Partnership Agreements were modified accordingly (presented in Annex F.1_I of the MtR). The new responsible partners completed the Actions.

### 6.8 VAT exception of RST

Public authorities in Greece are excluded from VAT. Please find attached the documents proving this exclusion of RST in Annex F.1_I of this Report.

### 6.9 Costs incurred (summary by cost category and relevant comments).

**Table 4:** Incurred project costs:

| Budget breakdown categories | Total cost in € | Costs incurred from the start date to 28.02.2019 in € | % of total costs |
|---|---|---|---|
| **1. Personnel** | **621,400** | **773.202,8** | **124,43** |
| **2. Travel and subsistence** | **238,800** | **203.958,9** | **85,41** |
| **3. External assistance** | **398,250** | **340.282,4** | **85,44** |
| **4. Durable goods** | **-** | **-** | **-** |
| **Infrastructure** | **99,000** | **97.789,35** | **98,78** |
| **Equipment** | **128,100** | **122.205,16** | **95,40** |
| **5. Land purchase / long-term lease** | **0** | **0** | **0** |
| **6. Consumables** | **79,000** | **63.874,53** | **80,61** |
| **7. Other Costs** | **71,750** | **65.512,28** | **91,31** |
| **8. Overheads** | **114,540** | **98.607,95** | **86.09** |
| **TOTAL** | **1,750,840** | **1.765.242** | **100.82** |

**Comments:**

### 6.10 Costs incurred (summary by cost category and relevant comments)

**Table 5:** Incurred project costs per action

| Action no. | Short name of action | 1. Personnel | 2. Travel and subsistence | 3. External assistance | 4.a Infrastructure | 4.b Equipment | 4.c Prototype | 5. Purchase or lease of land | 6. Consumables | 7. Other | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A.1 | 27959 | 8507,11 | | | 10480,45 | | | 800,16 | | 47746,72 |
| 2 | A.2 | 23997 | 16982,99 | | | 14429,44 | | | 6630,16 | | 62039,59 |
| 3 | A.3 | 8800 | 6429,5 | | | 699,18 | | | 923,88 | | 16852,56 |
| 4 | A.4 | 10893 | 2579,3 | | | 96,8 | | | 776,1 | | 14345,2 |
| 5 | A.5 | 18000 | 17869 | | | 2000 | | | 5000 | | 42869 |
| 6 | A.6 | 17480 | 9353,46 | | | 4449,87 | | | 1191,35 | | 32474,68 |
| 7 | A.7 | 36000 | 18500 | | | 3850 | | | 1000 | | 59350 |
| 8 | A.8 | 24000 | 1250 | | | | | | | | 25250 |
| 9 | A.9 | | | 18000 | | | | | | | 18000 |
| 10 | A.10 | 12000 | 2500 | | | | | | | | 14500 |
| 11 | A.11 | 18000 | 1250 | | | | | | 1506 | | 20756 |
| 12 | A.12 | 18000 | 1250 | | | | | | 2000 | | 21250 |
| 13 | C.1 | 18500 | | 70000 | 51789,35 | | | | | | 140289,4 |
| 14 | C.2 | 10000 | 1040,23 | 7661,3 | | | | | | | 18701,53 |
| 15 | C.3 | 42500 | 6547 | 16000 | 8000 | 32400 | | | 2000 | | 107447 |
| 16 | C.4 | 7000 | | 55291,52 | | | | | | | 62291,52 |
| 17 | C.5 | 51000 | 9800 | 39000 | | 2500 | | | 12000 | | 114300 |
| 18 | C.6 | 12704 | | 41000 | | | | | | | 53704 |
| 19 | C.7 | 9000 | 5093,03 | | | 16153,23 | | | 1913,24 | 100 | 32259,5 |
| 20 | C.8 | 32800 | 3750 | | 8000 | 21004 | | | 8000 | | 73554 |
| 21 | C.9 | 11000 | 6000 | 15000 | 15000 | | | | | 4500 | 51500 |
| 22 | C.10 | | | 25000 | | | | | | | 25000 |
| 23 | D.1 | 12437,7 | 8942,49 | | | 1537,58 | | | 1195,92 | | 24113,69 |
| 24 | D.2 | 30500 | 11236 | | | | | | 1500 | | 43236 |
| 25 | D.3 | 24800 | 6000 | | | | | | | | 30800 |
| 26 | D.4 | 13500 | 8650 | | | 3000 | | | | | 25150 |
| 27 | D.5 | 2000 | 3680 | | | | | | | | 5680 |
| 28 | D.6 | 5000 | | | | | | | | | 5000 |
| 29 | E.1 | 24778 | 6782 | 3500 | | | | | 13000 | 49989 | 98049 |
| 30 | E.2 | 36600 | 7960 | | 15000 | 2000 | | | | | 61560 |
| 31 | E.3 | 6000 | | 25000 | | | | | | | 31000 |
| 32 | E.4 | 22400 | 3788,65 | | | | | | 4239,59 | 6000 | 36428,24 |
| 33 | E.5 | 11554,28 | 16143,01 | 3730 | | | | | | | 31427,29 |
| 34 | F.1 | 145000 | | | | | | | | 3246,78 | 148246,8 |
| 35 | F.2 | 26000 | 5105 | | | | | | | 1676,71 | 32781,71 |
| 36 | F.3 | | | 19900 | | | | | | | 19900 |
| 37 | F.4 | | | | | | | | | | 0 |
| 38 | F.5 | 3000 | 6970 | 1200 | | 7604,64 | | | 197,6 | | 18972,24 |
| Over-heads | | | | | | | | | | | 98607,95 |
| | TOTAL | 773202,98 | 203958,77 | 340282,82 | 97789,35 | 122205,19 | 0 | 0 | 63874 | 65512,49 | 1765434 |

## 7. List of Annexes

**Action C.1**

- Annex C.1_I Report of the Action's implementation

**Action C.4**

- Annex C.4_I Manual
- Annex C.4_I_ Report of the Action's implementation

**Action C.5**

- Annex C.5_I Manual

**Action C.6**

- Annex C.6_I Report of the Action's implementation

**Action C.8**

- Annex C.8_I Manual for Bird Conservation

**Action C.9**

- Annex C.9_I Photos of electric fences

**Action C.10**

- Annex C.10_I Letters sent by the project
- Annex C.10_II Replies of YPEN
- Annex C.10_III Law for Natura 2000 network
- Annex C.10_IV SDF for Natura 2000 site
- Annex C.10_V Map
- Annex C.10_VI Letter of the Subcontractor

**Action D.1**

- Annex D.2_I Final Report of the Action

**Action D.2**

- Annex D.2_I Final Report of the Action

**Action D.3**

- Annex D.3_I Final Report of the Action

**Action D.4**

- Annex D.4_I Final Report of the Action

**Action D.5**

- Annex D.5_I Final Report of the Action

**Action D.6**

- Annex D.6_I Socioeconomic Study

**Action E.1**

- Annex E.1_I Seminar Documentation
- Annex E.1_II School Visits Documantation

**Action E.4**

- Annex E.5_I Report of the Seminars
- Annex E.5_II Evaluation of the Seminars
- Annex E.5_II Report of the Workshops
- Annex E.5_IV Photos

**Action E.5**

- Annex E.5_I Layman's Report in Greek and English
- Annex E.5_II Publication

**Action F.1**

- Action F.1_I VAT Certificate of RST

**Action F.2**

- Annex F.2_I 5th Meeting of the STAC

**Action F.3**

- Annex F.3_I Auditor's Report

**Action F.4**

- Annex F.4_I After-LIFE Conservation Plan

**Action F.5**

- Annex F.5_I Report on Networking