

**IMPRECO**



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**Common strategies and best practices to IMprove the  
transnational PROtection of ECOsystem integrity and  
services**

**Deliverable T2.1.2 - Pilot action  
plan for Northeastern Edge of Crete**

**Author: Region of Crete**

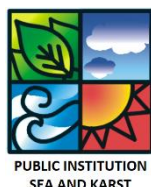


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## 1. NAME OF THE PILOT

Protection and awareness raising for the threatened species, habitats and Ecosystem Services (ESS) of the pilot area, Northeastern Edge of Crete (Greece).

## 2. ES AND ESS CONCERNED

The pilot area includes both terrestrial and marine ecosystems (ES). According to the analysis of the sensitive map the targeted ecosystem services (ESS) by the Pilot Action are:

- Characteristics of living systems that enable scientific investigation or the creation of traditional ecological knowledge
- Characteristics of living systems that enable education and training

In the table below are listed the targeted ecosystem services ESS and the relevant stakeholders' groups (with high interest and capacity to participate in the PAs management).

Characteristics of living systems that enable scientific investigation or the creation of traditional ecological knowledge	86
Research Institute	33
Educational Institute	11
Environmental Non-Governmental Organizations	33
UNESCO Geopark	9
Characteristics of living systems that enable education and training	64
Research Institute	22
Educational Institute	11
Environmental Non-Governmental Organizations	22
Center of Environmental Education	9

### 3. ES MANAGEMENT MEASURE(S) TO BE TESTED

- **The general objective** is to develop, test and suggest to the new Management Body of protected areas of Central and Eastern Crete (appointed in January 2019) of the NATURA 2000 sites of the pilot area, certain management measures, which promote the targeted ESS, through the protection of threatened species and habitats of the pilot area (*Falco eleonora*, Vai Palm Forest, *Pelophylax cretensis*, *Monachus monachus*, *Posidonia* beds). In fact, the proposed actions involve research and knowledge, education as well as awareness raising. The approach will aim at specific interested groups, who either cause the most severe pressures or can contribute to the reduction of their population and spatial range. The methodology for the development and implementation of the actions can be applied to other species or habitats, as a good practice to protect biodiversity, ES and ESS.

- **Specific Objectives - Results expected:**

- 1) Characteristics of living systems that enable scientific investigation or the creation of traditional ecological knowledge

- Extending scientific research to populations of important species and habitats
- Increasing knowledge of protection measures that can be implemented in harmony with traditional and ecological methods

*Result 1: Improved conservation of the threatened species and habitats (through the increase of knowledge)*

- 2) Characteristics of living systems that enable education and training

- Informing and training the final users on activities compatible with the conservation of protected species and habitats
- Informing and educating the visitors and students about the protection measures of important species and habitats

*Result 2: Increased public awareness and sensitisation (through education and training)*

- **Pressures – target groups**

**Falco eleonora**

Pressures: Deterioration of breeding habitat conditions due to climate change in the pilot area consists one of the most serious threats for Eleonora's Falcons breeding colonies.

Target groups: scientists, local community, professional groups from the tourist sector, tourists

**Vai Palm Forest**

Pressures: The red palm weevil (*Rhynchophorus ferrugineus*), constitutes a major hazard for the palm forest. In the last decade it has invaded the Mediterranean basin where it causes severe damage to date palm and canary palm tree, which are planted in Crete as ornamentals.

Target groups: local community, tourists

**Pelophylax cretensis**

Pressures: Habitat loss and degradation of suitable aquatic habitats. Habitats are subject to a number of threats such as water abstraction and climate change.

Target groups: local community, professional groups from the tourist sector, tourists

**Monachus monachus**

Pressures: Species' habitat degradation, including Posidonia beds, or loss, caused by coastal development and other ecosystem changes resulting from human activities. Disturbance leading to behavioural disruption caused by human approaches that may induce long term population effects.

Target groups: fishermen, local community, professional groups from the tourist sector, tourists

### **Posidonia beds**

Pressures: Free anchoring and mooring cause erosive pressure on shallow Posidonia beds and consequentially degrades the shelter and reproduction grounds for a large number of marine organisms.

Target groups: fishermen and other marine users

- **Methods:**

- ✓ Task 1: Collection of scientific and distribution data of protected species and selected habitats (*Falco eleonora*, Vai Palm Forest, *Pelophylax cretensis*, *Monachus monachus*, *Posidonia* beds) resulting in a relevant distribution map.
- ✓ Task 2: Identification of management measures in order to:
  - a) Improve the quality and increase the availability of nesting sites for the benefit of *Falco eleonora*,
  - b) Protect the Vai Palm Forest,
  - c) Prevent damages caused to *Posidonia* beds due to uncontrolled mooring and anchoring from marine users,
  - d) Limit *Monachus monachus* habitat degradation as well as the disturbance caused by human interventions,
  - e) Improve and conserve habitat status of small ponds for the benefit of Cretan frog (*Pelophylax cretensis*) and birds including Eleonora's Falcon.

Management measures will be submitted to the Management Body in order to set the appropriate priorities regarding the design and management of Natura 2000 sites in the Northeastern Edge of Crete.

Implementation of 2 pilot actions based on traditional and ecological methods:

**(a) Construction of artificial nests to be placed on the pilot area**

The action involves the establishment of artificial nests for the improvement of Eleonora's falcon breeding habitat quality on selected colonies. The nests will be constructed using primarily natural materials found on the islets in order to minimize the introduction of non-indigenous materials to the islets. The design and positioning of the artificial nests will provide maximum

protection from wind and sun radiation/heat, two of the main environmental factors which affect the breeding success of the Eleonora's Falcon, and which are expected to increase with climate change.

(b) Filling up artificial ponds for the benefit of amphibians, birds and invertebrates

In the area of Northeastern Edge of Crete, in addition to the largest known wetlands, there are several small, permanent or seasonal wetlands (marshes) that are natural reservoirs used for irrigation and watering of livestock animals. Both seasonal and permanent marshes are important habitats for invertebrates, amphibians and bird species. They are habitats of the endemic Cretan frog, foraging areas for Eleonora's Falcon and refueling sites for many migratory birds as well as permanent residents. Watering of ponds will take place during the dry period (May-October) in collaboration with the Municipality of Sitia.

- ✓ Task 3: Development of a code of conduct based on the above-mentioned measures, addressed to final users (e.g. hotel owners, tourists, fishermen).
- ✓ Task 4: Creation of a digital map including a route with points of interest for touristic activities and the code of conduct. The material will be used for the development of an ecotourism Guide of the pilot area by the Management Body of protected areas of Central and Eastern Crete in a later stage.
- ✓ Task 5: Implementation of awareness raising activities. This task will include:
  - a) Production of a flyer including the map with basic ecotouristic information and the code of conduct to be distributed to final users (the aforementioned target groups).
  - b) Spreading out the above material and the map with the route of interest through social media and institutional websites.
  - c) Development of five 10min presentations based on the above-mentioned material that can contribute to the promotion of the management measures. The presentations will be distributed to the Environmental Education Centers and Sitia Geopark to enhance their information / education programs.

- **The Stakeholders who will be involved** are the members of the Advisory Body of the Joint Task Force, namely the NATURA 2000 areas' Management Body of protected areas of Central and Eastern Crete, the Region of Crete together with an external consultant specialized in biodiversity (Scientific Expert), the UNESCO Geopark of Sitia and the Municipality of Sitia, the Natural History Museum of the University of Crete, the Hellenic Ornithological Society (HOS) – Birdlife in Greece, the Regional Authority of Education, the Decentralized Administration of Crete / Directorate of Forest Management, as well as Professional Fishermen's Society of Sitia, Hotel Owners Association "ITANOS".

The Natural History Museum of Crete is directly involved in the implementation of the Tasks, as the only research institute of Crete involved in the study, protection and sustainable management of species and PA.

- **Equipment and facilities needed:** Existing equipment will be used to carry out the pilot actions. Necessary fieldwork equipment will include equipment for construction of artificial nests, collecting spatial data (GPS), visual observations (binoculars, etc) and photographing species, habitats and activities (digital cameras, etc). Transportation of field teams and equipment will be carried out by the partner vehicles as well as hired local vessels and vehicles. Watering equipment (aquifers, etc.) will be provided by the Municipality of Sitia for watering of ponds during the dry period.

Moreover, office and meeting room facilities, dissemination material and human resources will ensure the smooth implementation of awareness raising activities.



#### 4. PILOT ACTION WORKPLAN

Task	Start date	End date	Location	Human Resources	Stakeholders involved	Costs
<i>Task 1: Collection of scientific and distribution data of protected species and the selected habitats (Falco eleonora, Vai Palm Forest, Pelophylax cretensis, Monachus monachus, Posidonia beds) resulting in a relevant distribution map.</i>	September 2019	October 2019	Northeastern Edge of Crete	<i>The Scientific Experts in cooperation with the Natural History Museum of the University of Crete will undertake the scientific investigation and the collection of distribution data.</i>	<i>The Natural History Museum of the University of Crete, UNESCO Geopark of Sitia, Hellenic Marine Research Center, Hellenic Ornithological Society (HOS) – Birdlife in Greece and Directorate of Forest Management and Protection will provide relevant scientific data.</i>	€ 2.000,00
<i>Task 2: Identification of management measures in order to a) improve the quality and increase the availability of nesting sites for the benefit of Falco eleonora, b) protect the Vai Palm Forest c) prevent damages caused to Posidonia beds due to</i>	September 2019	November 2019	Northeastern Edge of Crete	<i>The Scientific Experts in cooperation with the Natural History Museum will identify and propose the management measures to the Region of Crete and the Management Body of protected areas of Central and Eastern Crete.</i>  <i>The Scientific Experts in cooperation with the</i>	<i>Consultation with</i> - UNESCO Geopark of Sitia, - Hellenic Ornithological Society (HOS) – Birdlife in Greece - Center and Directorate of Forest Management and Protection - Professional Fishermen's Society of Sitia - Hotel Owners Association "ITANOS"	€ 4.000,00

<p><i>uncontrolled mooring and anchoring from marine users, d) limit <i>Monachus monachus</i> habitat degradation as well as the disturbance caused by human approaches and e) improve and conserve habitat status of small ponds for the benefit of Cretan frog and birds including Eleonora's Falcon.</i></p> <p><i>Implementation of 2 pilot actions based on traditional and ecological methods (artificial nests for Eleonara's falcon, ponds in action for benefits of Cretan frog, <i>Falco eleonorae</i> and migrant birds)</i></p>				<p><i>Natural History Museum will (a) construct artificial nests on the pilot area islets and (b) undertake watering of artificial ponds</i></p>		
<p><i>Task 3: Development of a code of conduct</i></p>	<p>October 2019</p>	<p>November 2019</p>		<p><i>The Scientific Experts in cooperation with the</i></p>	<p><i>Consultation with - UNESCO Geopark of Sitia,</i></p>	<p>€ 0</p>

<i>based on the above measures, addressed to final users (e.g. hotel owners, tourists, fishermen).</i>				<i>Natural History Museum of the University of Crete will draft the guidelines.</i>	<ul style="list-style-type: none"> <li>- Hellenic Ornithological Society (HOS) – Birdlife in Greece</li> <li>- Center and Directorate of Forest Management and Protection</li> <li>- Professional Fishermen's Society of Sitia</li> <li>- Hotel Owners Association "ITANOS"</li> </ul>	
<i>Task 4: Creation of a map including a route with points of interest for tourist activities. The material will be used for the development of an ecotourism Guide of the pilot area.</i>	October 2019	December 2019		<p><i>The Scientific Experts in cooperation with the Natural History Museum of the University of Crete will identify the points of interest and provide corresponding ecotouristic information.</i></p> <p><i>An external designer will create the map (digital form).</i></p> <p><i>The Management Body of protected areas of Central and Eastern Crete with the support of Region of Crete</i></p>	<p><i>Consultation with</i></p> <ul style="list-style-type: none"> <li>- UNESCO Geopark of Sitia,</li> <li>- Hellenic Ornithological Society (HOS) – Birdlife in Greece</li> <li>- Center and Directorate of Forest Management and Protection</li> <li>- Municipality of Sitia</li> </ul>	€ 2.000,00

				<i>will develop in an electronic application and/ or publish the ecotourism Guide in a later stage.</i>		
<p><i>Task 5:</i>  <i>Implementation of awareness raising activities.</i>  <i>This task will include:</i>  <i>a) Production of a flyer including the map with basic ecotouristic information and the code of conduct to be distributed to final users (the aforementioned target groups).</i>  <i>b) Spreading out the above material and the map with the route of interest through social media</i></p>	November 2019	December 2019	Northeastern Edge of Crete	<p><i>a) An external designer will develop the flyer to be printed.</i>  <i>The Region of Crete with the Management Body of protected areas of Central and Eastern Crete will approve the material.</i>  <i>The Region of Crete and the stakeholders will undertake the distribution of the flyers.</i>  <i>b) The Communication Manager will undertake the dissemination through social media and institutional websites</i>  <i>c) The Scientific Experts in cooperation with the</i></p>	<i>All – Consultation and distribution of the printed and electronic material</i>	€ 5.000,00

<p><i>and institutional websites.</i></p> <p><i>c) Development of 5 10min presentations as information – education program based on the above material that can contribute to the promotion of the management measures. The presentations will be distributed to environmental education centres and Sitia Geopark.</i></p>				<p><i>Natural History Museum of the University of Crete and the support of Regional Authority of Education will develop the information program.</i></p> <p><i>The Region of Crete will distribute the material.</i></p>		
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## 5. PILOT ACTION MONITORING PLAN

Characteristics of living systems that enable scientific investigation or the creation of traditional ecological knowledge					
Expected result	Related Task(s)	Indicators	Target value	Means of verification	Timing
<i>Result 1: Improved conservation of the threatened species and habitats (through the increase of knowledge)</i>	<i>Task 1: Collection of scientific and distribution data of protected species and selected habitats (Falco eleonora, Vai Palm Forest, Pelophylax cretensis, Monachus monachus, Posidonia beds) resulting in a relevant distribution map.</i>	• No. of Scientific studies	• 2	• A) Distribution map of 5 species and habitats based on scientific investigation; B) Action plan with management measures for the protection and conservation of the selected species and habitats	<i>December 2019</i>
		• No. of pilot actions	• 2	• Reports & Documentation on the implementation of 2 pilot actions (a)artificial nests for Eleonara's falcon; b)ponds in action for benefits of Cretan frog, Eleonara's falcon and migrant birds)	
		• No. of Researchers	• 10	• List of the Researchers involved in the development of the scientific studies and the implementation of the pilot actions	
	<i>Task 2: Identification of management measures for the protection and conservation of the selected species and habitats and implementation of two pilot actions, based on traditional and ecological methods</i>	• No. of Students	• 20	• List of students and volunteers involved in the implementation of the pilot actions	

<p><b>Result 2:</b> <i>Increased public awareness and sensitisation (through education and training)</i></p>	<p><i>Task 3: Development of a code of conduct based on the management measures, addressed to final users</i></p> <p><i>Task 4: Creation of a map including a route with points of interest for tourist activities</i></p> <p><i>Task 5:</i>  <i>a) Production of a flyer including the map with basic ecotouristic information and the code of conduct to be distributed to final users</i>  <i>b) Spreading out the above material through social media and institutional websites</i>  <i>c) Development of 5 10min presentations as information / education program to be distributed to the education centers</i></p>	<ul style="list-style-type: none"> <li>• <i>No. of publications</i></li> <li>• <i>No. of visitors centers</i></li> <li>• <i>No. of institutional websites</i></li> <li>• <i>No. of Documentaries</i></li> <li>• <i>No. of visits to education centres</i></li> <li>• <i>No of guided groups of students</i></li> </ul>	<ul style="list-style-type: none"> <li>• 2</li> <li>• 3</li> <li>• 3</li> <li>• 1</li> <li>• 500</li> <li>• 15</li> </ul>	<ul style="list-style-type: none"> <li>• <i>A) Ecotouristic flyer with a code of conduct addressed to final users B) Information / education program on the threatened species and habitats distributed to the educational centres</i></li> <li>• <i>List of visitors centres that will use the information material (of the publications)</i></li> <li>• <i>List of institutional websites that will host the information material (of the publications)</i></li> <li>• <i>Video included in the information program</i></li> <li>• <i>Report on the arrivals and presence of visitors in the educational centres by the managers</i></li> <li>• <i>List of the guided groups of students to the educational centres</i></li> </ul>	<p><i>May 2020</i></p>
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