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**LIFE+11 BIO/ES/000726  
DEHESA ECOSYSTEMS: DEVELOPMENT OF POLICIES AND TOOLS FOR BIODIVERSITY  
CONSERVATION AND MANAGEMENT**

**ABSTRACT**

**Project objectives:**

**Overall objective:**

Promote the sustainable and integrated management of dehesas in order to improve the situation of biodiversity through the dissemination of demonstrational actions that address the main challenges related to the conservation of dehesas.

"Dehesas" are commonly identified as types of "open oak forest pasturelands" that can be found in Spain and Portugal. Andalusian Law 7/2010, governing dehesas, has defined the concept of a dehesa for regulatory purposes as a forestry exploitation primarily comprising wooded areas (mainly holm, cork and gall oaks or wild olive trees, and sometimes other species), covering between 5% and 75% of the area, which enable the development of livestock grazing or hunting species, as well as other forestry, hunting or agricultural uses.

**Specific objectives:**

1. Strengthen the capacity of dehesas in Andalusia to respond to their deterioration, ageing and vulnerability to climate change.
2. Demonstrate the feasibility of integrated dehesa management that respects the conservation of this habitat and promotes biodiversity.
3. Transfer the best available knowledge and the latest technical innovations to the entire dehesa area.
4. Support institution building to promote integrated dehesa management.
5. Contribute to human capital formation aimed at the integrated management of dehesas.

**Actions and means involved:**

Actions are divided into four groups:

1. Compilation of best available knowledge and finalization of horizontal systems, methods and protocols to foster sustainable management of dehesas.

The resources used for this set of actions are mainly based on the technical work of the project team and, in certain cases, external assistance will be hired.

- A.1. Compilation of previous experiences.
  - A.2. Inventory of critical areas for conservation of the dehesa and its biodiversity.
  - A.3. Inventory of dehesa areas that are inhabited or have the potential to be inhabited by threatened species.
  - A.4. Model of an Integrated Management Plan for dehesas.
  - A.5. Definition of indicators that will enable evaluation and monitoring of dehesa biodiversity.
  - A.6. Designing of protocols to detect causes of forest decline and diagnose its extent.
  - A.7. Designing of protocols to prevent plant reproductive material from being infested by pathogens involved in forest decline.
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A.11. Action Plan for implementation of an Oak Decline Assessment Service.

F.2. Creation of a Geographic Information Service for the dehesa.

## 2. Creation of a Pilot Dehesas Network.

The Pilot Dehesas Network will be formed by a representative selection of dehesa developments that will be proposed by project partners. Prior to taking any specific action in the selected dehesas, an integrated management plan will be drawn up. The work will be carried out by the project teams.

A.8. Selection of the Pilot Dehesas Network.

A.9. Preparation of integrated management plans for the Pilot Dehesas Network.

A.10. Creation of a network of cooperating developments: formalization of the network through cooperation agreements.

## 3. Implementation of specific conservation actions in the Pilot Dehesas Network.

The specific conservation actions to be implemented in the dehesas belonging to the Network will be the result of the transfer of the best research outcomes and technical, management and technological developments over the past few years. They will be included in the Management Plan for each dehesa and will be evaluated and monitored by the team working with the research and development centres.

C.1. Actions for woodland renovation.

C.2. Actions for woodland management.

C.3. Actions related to domestic livestock and hunting species management.

C.4. Actions related to pasture land conservation, diversification and enhancement.

C.5. Actions to diversify tree and shrub vegetation associated to dehesa systems

C.6. Soil and water conservation.

C.7. Integrated control of forest pests and diseases.

C.8. Actions related to habitats diversification.

## 4. Monitoring, evaluation and transfer of results throughout the dehesa territory.

The basically demonstrative nature of Life bioDEHESA will be materialized in the creation of a consultation and training network (technical assistance service) that will enable the transfer of results to the whole of the dehesa sector. Accordingly, the working team, with external assistance, will perform the following tasks:

D.1. Socio-economic indicators.

D.2. Environmental indicators.

D.3. Environmental evaluation of dehesa externalities and ecosystems.

E.1. Communication actions.

E.2. Consultation and training programme.

E.3. Preparation of teaching and dissemination materials.

E.4. Organization of conferences and field trips to the Pilot Dehesas Network.

E.5. Creation of a manual for dehesas biodiversity conservation in a compatible way with domestic livestock, forestry and hunting activities.

E.6. Awareness campaign about the importance of consuming dehesa products for biodiversity conservation.

E.7. Electronic newsletter.

E.8. Creation and maintenance of the LIFE+ Project's website.

- E.9. Preparation of final informative report: Layman's Report.
- E.10. International visibility.
- E.11. Final seminar.
- E.12. Information panels.
- F.5. Establishment of a network with other projects (both LIFE and non-LIFE projects).
- F6. Post-LIFE Guidance Plan for dehesas and their importance for biodiversity conservation.
- F.7. Post-LIFE Communication Plan.

## Expected results

The results of the Life project are detailed below and are related to each objective of the project. The expected date of completion of Life project actions is September 30, 2016. There will be an additional 3-month period to prepare final reports and a buffer period in case there are unexpected delays in the project; this buffer period may be extended until March 31, 2017. Given the nature of the project, a distinction is made between the direct results of the implementation of actions and induced results deriving from the transfer of experience and knowledge gathered in the project by the partner institutions and organizations:

**OBJECTIVE 1.** - Strengthen the capacity of dehesas in Andalusia to respond to their deterioration and ageing and vulnerability to climate change.

*Direct results (ballpark figures):*

- 1.1. – Performance of demonstrational activities for the renewal of trees by seed plantation on 400 ha of dehesas, by plantation on 400 ha and by shoot selection and protection on 400 ha.
- 1.2. – Performance of demonstrational actions to prevent and fight against forest decline by, for example, treatment of 40 ha with phosphoric acid salts, liming of 160 ha of soil, installation of 80 pheromone traps to reduce the incidence of pests and the installation of 2,000 nests.
- 1.3. - Diversification of production focusing especially on niche opportunities based on nature and biodiversity conservation in 10% of dehesas in the Pilot Dehesas Network (4).

*Induced Results (ballpark figures):*

- 1.4. – Actions to renew trees in 5% of the surface area of dehesas in Andalusia (approximately 5,000 ha).
- 1.5. - Actions to prevent and combat forest decline in 5% of the surface area of dehesas in Andalusia (approximately 5,000 ha).
- 1.6. - Diversification of production activities in 1% of dehesas in Andalusia (approximately 65).

**OBJECTIVE 2.** - Demonstrate the feasibility of integrated dehesa management that respects the conservation of this habitat and promotes biodiversity.

*Direct results (ballpark figures):*

- 2.1. – Development of a model integrated management plan that can be applied to all dehesas in Andalusia.
  - 2.2. – Drafting of integrated management plans for the entire Pilot Dehesas Network (40 dehesas)
  - 2.3. - Demonstration of rational pruning in dehesas in 160 ha of dehesa oak forests.
  - 2.4. - Inventory of traditional dehesa management practices that benefit biodiversity and proposal to update their application to make them compatible with the current economic and social reality of dehesas.
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2.4. – Demonstrational management practices that reconcile domestic livestock and hunting in 40 dehesas, including the conditioning of 80 feeding troughs, 80 drinking troughs, 4,000 m of perimeter mesh fencing and 8,000 m of temporary electric fencing.

2.5. – Demonstrational actions to improve grazing areas in 40 dehesas, including the planting of pasture species or varieties and phosphate-based fertilizer on 400 ha.

2.6. - Diversification of dehesa landscapes by reforestation 4,000 linear meters of riparian areas and watercourses, 12,000 m of hedges, the enrichment of 80 ha with woody species and 40 ha with vegetation patches.

2.7. - Demonstrational actions to reduce erosion through the installation of 2,000 square meters of masonry structures for the correction of gullies and clearance of 40 ha of scrubland on sloped areas.

2.8. – Demonstrational actions to improve the habitat of species living in dehesas, such as the conservation of 8,000 m of stone walls, the reconstruction of 2,400 m of stone walls, the planting of 80 ha of bee or aromatic flora, the conditioning of 80 drinking troughs, the creation of 40 ponds suitable for wildlife, the installation of 320 refuges to promote rabbit breeding, the installation of 160 structures to enhance the breeding of species of interest, the installation of 12,000 m of linear fencing to protect rabbit populations and the rehabilitation of 40 water sources.

*Induced Results (ballpark figures):*

2.9. - Extend the application of integrated management plans to 5% (325) of all dehesas in Andalusia (there are approximately 6,500 dehesas in the whole of Andalusia).

2.10. – Performance of actions to enrich wooded pastureland vegetation (hedges, isolated plantations, etc.) in 5% of dehesas in Andalusia (approximately 325).

2.11. - Strengthen the implementation of 4 Plans for the Recovery and Conservation of Endangered Species (Agreement adopted by the Andalusian Regional Government on January 18, 2011) whose current or potential range of distribution is within the dehesas: Iberian lynx, necrophagous birds (black vulture, griffon vulture), imperial eagle and steppe birds (great bustard).

2.12. - Incorporation of the action criteria deriving from experience in the Pilot Dehesas Network in regulatory and promotional actions carried out by the Administration (incentives and subsidies, regulations deriving from the Forestry Law and Woodland Law, the Dehesa Master Plan).

**OBJECTIVE 3.** – Transfer the best available knowledge and the latest technical innovations to the entire dehesa area.

*Direct and induced outcomes:*

3.1. – Create and make available to partners a database containing documents on dehesa management.

3.2. - Publication of informative material (leaflets, slide shows) gathering the experiences deriving from actions performed in the Pilot Dehesas Network.

3.3. – Publication of a manual on dehesa management for biodiversity conservation.

3.4. - Economic evaluation of actions carried out in dehesas that have a positive impact on their overall management and biodiversity.

3.5. - Development of an agroforestry accounting system specially adapted to dehesas.

**OBJECTIVE 4.** - Support institution building to promote integrated dehesa management.

*Direct results:*

4.1. - Development and operation of a Geographic Information System to support management decisions in dehesas.

4.2. – Launch of the Oak Decline Assessment Service and pilot implementation in the 40 dehesas belonging to the Pilot Dehesas Network.

4.3. - Integrate experience acquired in the Life bioDEHESA Project in the instruments implementing Dehesa Law 7/2010: Dehesa Master Plan, operating contracts, etc.

*Induced Results:*

4.4. - Consolidation of an integrated perspective of dehesa management in the partner administrations.

4.5. - Consolidation of a thematic area of research, training and transfer of results related to dehesas in the Institute for Agricultural and Fisheries Training and Research (IFAPA).

4.6. - Generation of lines of research specifically aimed at the integrated management of dehesas and their relationship with biodiversity.

4.7. – Creation of a network of institutional and sectorial alliances to promote dehesas.

4.8. – Dissemination and sharing of the implementation of experiences deriving from the Life bioDEHESA project in other Spanish regions and in Portugal.

**OBJECTIVE 5.** - Contribute to human capital formation geared to integrated dehesa management.

*Direct results:*

5.1. - Training of 6 technical consultants, one in each partner organization, and representing the majority of the dehesa sector.

5.2. – Training of 4 technical experts in the evaluation and transfer of knowledge in dehesas.

5.3. - Training of 5 technical experts in the management and institutional coordination of dehesas.

5.4. - Creation of 6 technical advisory services for dehesas, one in each partner organization.

5.5. - Transfer of the best available knowledge on integrated management of dehesas and their benefits for biodiversity (gathering the results of the Life bioDEHESA project) through 8 training courses intended for 200 technical experts and dehesa managers.

5.6. - Learning of experience gathered from actions in the Pilot Dehesas Network by 2,000 technical experts, managers and other professionals related with dehesas.

*Induced Results:*

5.7. - Dissemination of the best available knowledge on the integrated management of dehesas and their benefits for biodiversity to a potential pool of 6,000 dehesa owners.

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