

LIFE makes a difference

NATURE EX-POST EXERCISE 2018
SUMMARY REPORT



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List of abbreviations

EU:	European Union
EC:	European Commission
MS:	Member State
NGO:	Non-Governmental Organisation
SPA:	Special Protection Area, designated by EU member states in compliance with the Birds Directive
SAC:	Special Area of Conservation, designated by EU member states in compliance with the Habitats Directive
MDI:	Measure Driven Improvement
PMR :	Plant Micro Reserve
REPS:	Rural Environmental Protection Scheme from the Irish Department for Agriculture
OPUL:	Austrian agri-environmental programme
RDP:	Rural Development Programme
SRDP:	Scottish Rural Development Programme
AECS:	Agri-Environment Climate Scheme (Scotland)
DREAL:	Direction Régionale de l'Environnement, de l'Aménagement et du Logement (France)
AEWA:	Agreement on the Conservation of African-Eurasian Migratory Waterbirds
LWfG:	Lesser white-fronted goose
LIPU:	Lega Italiana Protezione Uccelli

Codes for conservation status assessments in line with the reporting for article 17 of Habitats Directive:

FV: favourable

U1: unfavourable inadequate

U2: unfavourable bad

U1 and U2 are followed by an indication of the trend: improving (+), stable (=), declining (-), or unknown (x)

Red List Categories:

CR: Critically endangered

EN: Endangered

VU: Vulnerable

NT: Near Threatened

LC: Least Concern

DD: Data Deficient

Introduction

To revisit a LIFE project five to ten years after its completion allows the Commission to assess whether it has led to lasting improvements in the conservation status of habitats and species. This is called ex-post monitoring and is now an established part of the LIFE Programme.

In 2018, 20 LIFE Nature projects were revisited linked to a Commission study on Measure Driven Improvements¹. The key question was - has LIFE made a difference to the conservation status of European habitats and species? From the selection of projects the simple answer is yes, but the study also gives examples of where the situation is not so clear cut. This report includes extracts of the quantitative information on habitats and species collected at the ex-post missions. Short case studies give examples of the various situations found 5-10 years after the end of the project.

In all visits an effort was made to collect quantitative information on the situation pre-project, at the end of the project and some years after including trend information. The aim was to present the results of LIFE projects using the same process and terminology as that used for member states' reporting under Article 17 of the Habitats Directive and Article 12 of the Birds Directive.

The conclusion already known from over 100 completed ex-post studies is that LIFE Nature is highly relevant in supporting EU nature policies, that projects are effective and that their impact and sustainability is high. The experience of the ex-post exercise for LIFE Nature, based on project reports to 2013, is summarised in the Commission publication *Long-term impact and sustainability of LIFE Nature*².

That publication shows that LIFE projects have been used to meet urgent threats to habitats and species, to develop the capacity of NGOs and field staff, to act as a catalyst for conservation action, to communicate with local communities, to engage with new stakeholders, to gain acceptance for nature conservation and to develop best practice guidance. All these elements are included to some extent in this summary report and the set of reports originating from each ex-post visit.

Successful projects engage people, raise awareness about European nature values and form partnerships built on trust between different sectors. LIFE Nature has helped to demonstrate in practice that Natura 2000 does not unduly restrict sustainable land use activity. It can support economic activity, especially in marginal areas, and can bring new economic opportunities such as eco-tourism linked to natural values.

This report presents an analysis of the findings of the 2018 ex-post exercise covering 20 LIFE Nature projects.

The 'Measures Driven Improvement' study

In 2017 the European Commission funded a study linked to the reporting of conservation status through the nature directives. Member states were invited to identify examples where **genuine improvements** have been recorded through the reporting processes in the conservation status of habitats and species. A questionnaire was used to record examples of habitats and species considered to have a genuine improvement in conservation status at member state or at biogeographic region reporting level, or at a sub reporting level, that can be labelled as Measure Driven Improvements (MDI).

1 IEEP (2018) Study on identifying the drivers of successful implementation of the Birds and Habitats Directives under contract ENV.F.1/FRA/2014/0063

2 Silva, J P and Houston, J (2014). Long-term impact and sustainability of LIFE-Nature. European Commission. <http://ec.europa.eu/environment/life/publications/lifepublications/>

MDI are defined as genuine improvements that have mainly occurred as a result of intentional environmental measures, whether or not they were targeted at the habitat or species in question, or other habitats and species, or were more general environmental measures (e.g. to reduce pollution).

For selected habitats and species the EU member states' questionnaire included information on the conservation measures taken with information about their importance, location and evaluation. Measures evaluated as 'maintain' or 'enhance' contribute to the assessment of MDI.

The MDI questionnaire includes an estimation of the contribution made to the MDI by, amongst others, Species or Habitat Action Plans, LIFE projects, agri-environment measures, Natura 2000 measures, Rural Development Programme measures and national public funds. Therefore the information being collected acknowledges that LIFE projects have the potential to contribute to improvements in measured conservation status of habitats and species. The relative contribution of a LIFE project to a long term programme can also be assessed with an indication of whether the role of LIFE funding was essential, major, moderate, minor etc.

Selection of projects

Using this approach for every habitat or species demonstrating genuine improvement in conservation status in each member state; i) the LIFE database was checked for projects including actions for the habitats or species and ii) the relative significance of the project was ranked. This identified LIFE projects which were considered essential for the target habitat or species, either alone or in combination with other measures.

From a long-list of over 80 projects 20 ex-posts were selected. The selection criteria included a split across projects for habitats, Habitats Directive species and Birds Directive species and covered as many member states as possible.

TABLE 1: SELECTED PROJECTS FOR LIFE NATURE EX-POST 2018

COUNTRY	LIFE PROJECT	SHORT TITLE USED IN THIS REPORT	FULL TITLE
Ireland	LIFE04 NAT/IE/000125	Farming for Conservation in the Burren	Farming for Conservation in the Burren
UK	LIFE08 NAT/UK/000204	Scottish machair	Conserving machair habitat and species in a suite of Scottish Natura sites
Germany	LIFE05 NAT/D/000111	Inland salt marshes of Brandenburg	Conservation and development of the inland salt marshes of Brandenburg
Netherlands	LIFE09 NAT/NL/000418	Dutch dune revival	Realisation of Natura 2000 targets for calcareous white, grey dunes and dune slacks in three Dutch dune sites
Spain	LIFE08 NAT/E/000075	Saproxylic beetles	Management and conservation of * <i>Osmoderma eremita</i> , * <i>Rosalia alpina</i> and other saproxylic habitats of Community interest in Gipuzkoa
Hungary	LIFE07 NAT/H/000322	Hungarian meadow viper	Conservation of Hungarian meadow viper (<i>Vipera ursinii rakosiensis</i>) in the Carpathian-basin
Greece	LIFE04 NAT/GR/000104	Plant micro- reserves in Western Crete	A pilot network of plant micro reserves in Western Crete
Denmark	LIFE05 NAT/DK/000153	Houting in Denmark	Urgent actions for the endangered Houting (<i>Coregonus oxyrhunchus</i>)
Belgium	LIFE02 NAT/B/008590	Pearl mussels in Belgium	Conservation of habitats of pearl mussels in Belgium

TABLE 1: (continue)

COUNTRY	LIFE PROJECT	SHORT TITLE USED IN THIS REPORT	FULL TITLE
France	LIFE06 NAT/F/000137	Viola and Biscutella	Rescue of <i>Viola hispidia</i> and <i>Biscutella neustriaca</i> on the Seine Valley
Cyprus	LIFE08 NAT/CY/000453	Plant micro reserves in Cyprus	Establishment of a plant micro reserve network in Cyprus for the Conservation of Priority Species and Habitats
Estonia	LIFE08 NAT/EE/000257	Dragonlife	Securing <i>Leucorhina pectoralis</i> and <i>Pelobates fuscus</i> in the northern distribution area in Estonia and Denmark
Sweden	LIFE03 NAT/S/000073	Arctic fox	Saving the endangered Fennoscandian <i>Alopex lagopus</i>
Finland	LIFE05 NAT/FIN/000105	Lesser white-fronted goose	Conservation of <i>Anser erythropus</i> on European migration route
Portugal	LIFE07 NAT/P/000654	Farmland birds in Baixo Alentejo	Conservation of Great bustard, Little bustard and Lesser kestrel in the Baixo Alentejo cereal steppes
Romania	LIFE05NAT/RO/000169	Dalmatian pelican in Danube Delta	Saving <i>Pelecanus crispus</i> in the Danube Delta
France	LIFE03 NAT/F/000100	Bearded vulture in the Alps	International programme for the Bearded vulture in the Alps
Malta	LIFE06 NAT/MT/000097	Yelkouan shearwater in Malta	SPA Site and Sea Actions Saving <i>Puffinus yelkouan</i> in Malta
Italy	LIFE05 NAT/IT/000009	Raptors of Matera Province	Safeguard of the threatened raptors of the Matera Province
Austria	LIFE09 NAT/AT/000225	Great bustard in Austria	Cross-border protection of the Great bustard in Austria- continuation

Ex-post missions were carried out between March and May 2018 and reports submitted to the Commission.

The need to obtain quantitative information of the situation at the start of the project, at the end of the project and at the ex-post stage (generally five to ten years after the end of the project) was stressed, including information on trends.

Three specific questions were asked:

1. Has the conservation status of the target habitat or species improved as a result of the measures applied by the project?
2. Is maintenance or enhancement of the target habitats or species confirmed by monitoring of habitat condition and species population including trends?
3. Was the project linked to other projects? Did the project have a catalytic role in disseminating best practice, developing national guidelines, preparing management plans, pump-priming effect, inspiration for other projects, bringing together relevant stakeholders, etc?

Although some additional effort was required, e.g. contacting national authorities for up-to-date information, the exercise showed that it was possible to consistently obtain quantitative information from ex-post studies.

Overview of results

This was the first ex-post exercise to focus on collecting quantitative information on habitats and species in line with national Article 17 (habitats) and Article 12 (birds) reporting. In most cases quantitative information could be collected but it was not always directly comparable to the reporting formats as shown in some of the examples.

Most reports confirm an already documented improvement in the conservation status of the target habitat or species at site level between the situation prior to the project and the situation at the end of the project. The ex-post perspective gives added value by seeing whether the gains could be sustained at project level and whether the project acted as a catalyst for follow-on projects or for replication at regional or national level. Short snapshots of the projects are given at the end of the report.

The range of results include projects where:

- The situation improved during the project and has continued to do so after the end of the project (e.g. the Burren in Ireland, Great bustard in Austria)
- The situation improved during the project but where there have been fluctuations (some natural) since the end of the project (e.g. projects on plants in France, Cyprus and Greece)
- Changes to the conservation status have happened only after the end of the project
- Projects which addressed a significant (up to 100%) proportion of the habitat or species – strongly linked to Article 17 / Article 12 reporting (e.g. plant micro reserves in Cyprus and Greece, pearl mussel in Belgium, inland salt marshes in Brandenburg, Germany)
- Projects which achieved favourable conservation status for targeted habitats or species (e.g. machair in Scotland)
- Projects which halted or slowed a negative trend and have started a slow recovery (e.g. Arctic fox in Sweden)

The ideal scenario is perhaps where a project addresses threats (an unfavourable-bad situation), then either stops the decline or begins to reverse the situation (an unfavourable-inadequate but recovering situation) and then, five to ten years after the project the ongoing support for the project objectives has achieved a sustainable state (favourable situation). Only a few projects can show this ideal scenario: most show that it is more complicated than that and that habitat and species recovery is a long road. Several reports show that two or more LIFE projects are often necessary and even then favourable conservation status might not be reached due to persistent pressures and threats.

Effects of the projects (results, outcomes and impacts)

A previous ex-post study for the Commission³ showed that the **results** of a project can be described in terms of changes in knowledge, skills, awareness, attitudes and motivation. This new situation should lead to desirable **outcomes** where there is a real change in behaviour, practices, policies and procedures, an essential aspect of sustainability.

³ COWI (2009): Ex-post evaluation of projects and activities financed under the LIFE programme: Final Report Parts 1 to 6 <http://ec.europa.eu/environment/life/publications/lifepublications/evaluation/>

TABLE 2: SOME EXAMPLES OF RESULTS FROM THE CURRENT REVIEW ARE GIVEN BELOW - THE LIST IS NOT COMPREHENSIVE

Knowledge	Example: Learning about habitats and species of the Natura 2000 area, restoration methods etc.	<ul style="list-style-type: none"> • Knowledge of migration routes of Lesser White-fronted Goose increased by GPS/satellite tracking • Artificial nests for Lesser kestrel in Matera province (Italy) support research on the ecology of the species • An increase in knowledge of the Pearl mussel's ecological requirements in Belgium • Increased knowledge of the distribution and conservation needs of saproxylic beetles in northern Spain • Genetic studies on endangered plants in Crete and Cyprus • Increased knowledge of the threats to Yelkouan shearwater in Malta and appropriate measures • A comprehensive publication resulted from the increased knowledge of inland salt meadows in Brandenburg, Germany
Skills	Example: Developing skills and good practice techniques	<ul style="list-style-type: none"> • Staff in Forestry Directorate of Chania (Greece) learning about endemic species and how to conserve them • The Arctic fox project took on 40-50 students every summer: 10 years after the project the interest remains high with c.70 applications every year for 30-50 places • Best practice guide published by several projects
Awareness	Example: Local stakeholders becoming aware of the importance of local nature	<ul style="list-style-type: none"> • Scottish crofters now more aware of machair and its associated species • Millions of visitors to zoos learnt about the conservation of the Hungarian meadow viper • Fishermen in Malta becoming aware of the threats to the Yelkouan shearwater and other seabirds • Local people in Spain more aware of the value of old trees for saproxylic beetles also with more appreciation of the species
Attitude	Example: Improving local stakeholders attitudes from indifference/hostility to support	<ul style="list-style-type: none"> • Scottish crofters supported a return to more traditional agricultural practices • In Portugal people identify with Great bustard and several local initiatives have it as a mascot or logo • In France the violet was added to the official logo of Romilly-sur-Andelle • A change in attitude by farmers in the Burren (Ireland) based on restoring pride in local heritage • The Bearded vulture now enjoys a positive image in the Alps to benefit of local tourism
Motivation	Example: Land owners being inspired to carry out conservation work	<ul style="list-style-type: none"> • An action plan for farmers in Brandenburg (Germany) showed options for the use of agri-environmental funds • Local landowners showed interest in maintaining or establishing ponds for amphibians and dragonflies in Denmark and Estonia • Local communities took on responsibility for plant micro reserves in Crete and Cyprus • Profits from the Visitors Centre in the National Park of Samaria in Crete are distributed to local Forestry Authorities ensuring that some income is returned to the community • Local people in Matera (Italy) monitor Lesser kestrel artificial nests which have become a tourist attraction



There is a wide variety of dissemination activities that LIFE projects use to increase awareness, involve stakeholders and inspire local communities. Examples from France, Denmark and Estonia (LIFE03 NAT/F/000100 © Maud Latruberce, and LIFE08 NAT/EE/000257 © Carl-Hermann Hansen, Voldemar Rannap)



TABLE 3: EXAMPLES OF OUTCOMES FROM THE CURRENT REVIEW

Behaviours	Example: visitors avoiding damage /disturbance to nature (using paths etc)	<ul style="list-style-type: none"> • A local climbing association helped raise awareness of other climbers to threats to rare plants in France • Reduction in disturbance to Dalmatian pelican colonies from fishermen, hunters and tourists in Romania
Practices	Example: changing management practices (e.g. forestry) to accommodate nature interests	<ul style="list-style-type: none"> • Forest practice in Belgium was adapted to take account of risks to Pearl mussel populations • Cypriot scientists learnt about establishing plant micro reserves (PMR) by visiting PMR networks in Greece, Spain and Bulgaria • Farmers in the Burren adopted best practices developed through demonstration farms • A cooperative approach between water boards, provinces and municipalities helped to develop new approaches to dune management in the Netherlands • Development of a reintroduction protocol for the Hungarian meadow viper • Development of monitoring guidance for Arctic fox • Farming practices such as grazing and mowing of salt meadows are regularly adapted in acquired/secured areas based on the regular habitat monitoring in Brandenburg, Germany.
Policies	Example: adopting new local/regional/national legislation to protect habitats or species	<ul style="list-style-type: none"> • Species Action Plan prepared for Arctic fox in Sweden • National Action Plans prepared for Lesser white-fronted goose in Estonia, Finland and Norway and some temporary bans on hunting • National Action Plan for Dalmatian pelican in Romania • A new results-based agri-environment scheme was developed for the Burren in Ireland • In western Crete three Wildlife Refuges were created and two were modified to establish plant micro reserves • Plant micro reserves in Cyprus are codified in Forest Law ensuring sustainability in their protection and conservation • Inclusion of Annex II beetle species in the Basque catalogue of threatened species (Spain)
Procedures	Example: delivering a policy for land purchase to protect nature	<ul style="list-style-type: none"> • Large part of Castro Verde (Portugal) declared UNESCO Biosphere Reserve to preserve traditional land uses and landscape and to promote tourism and other products • In Denmark infrastructure created in Houting project transferred to municipalities. Future management is defined in rulings of water boards according to national legislation. • Water treatment investment plans took into account the requirements for Pearl mussel in Belgium • In Portugal marking of fences to reduce bird collisions included in agri-environment prescriptions • Energy companies in Austria burying power lines to protect Great bustard



Following the project LIFE07 NAT/P/000654 a large part of Castro Verde (Portugal) was declared UNESCO Biosphere Reserve in 2017 to preserve traditional land uses and landscape and to promote tourism and other products (© Liga para a Proteção da Natureza)

Sustainability

The sustainability of a project is a combination of the way the effects (results, outcomes and impacts) lead to long-term management practices, protection of habitats and species and stakeholder support. The main focus of ex-post project visits is to assess sustainability.

Assessing sustainability includes checking the current conservation status of target habitats and species to see what has changed, what ongoing measures are required, whether a management plan was prepared, whether it was approved by relevant authorities, whether adequate resources have been allocated for its implementation, and evaluated and whether obstacles still remain. In addition, the assessment will check on whether monitoring has continued and reports have been generated, whether Natura 2000 areas were enlarged and/or protected and whether there is continuity of project management and creation of permanent jobs.



Project LIFE05 NAT/D/000111 started using herds of buffalo for habitat management and this has developed into a local business increasing the sustainability of the project by creating revenue (© Jan Sliva)

Sustainability is the project 'legacy' which can be evaluated to what extent relevant bodies continue to support the project, whether there is capacity to continue the work and whether stakeholders still benefit from project results.

Good examples of sustainability from the projects include:

- The development of a results-based agri-environment scheme in the Burren, Ireland
- A volunteer network to ensure protection for the still increasing Great bustard population in Austria
- The establishment of plant micro reserves in Crete and Cyprus with local community support
- The return to traditional management of machair grassland in the Western Isles of Scotland
- Strategic land purchase and management in several projects
- Developing wider international networks for the Bearded vulture in Europe
- Recurrent conservation management of salt meadows secured in land purchase areas in Brandenburg, Germany

Several of the most successful projects are those supported by agri-environment schemes where the costs of management are supported for the duration of the Rural Development Plan. However, these projects also have a dependency on funding (e.g. up to 3m€/ year for Great bustard in Austria) so also carry a risk.

The ex-post study by COWI in 2009 highlighted a number of key factors linked to an assessment of sustainability. These are:

- **Funding** for recurring activities
- An **organisation** for maintaining planned post-project measures
- The formal participation of relevant **authorities**
- **Land purchase** leading to full control of land use
- Effects of a targeted **awareness-raising** campaign

- **Legal protection** and /or enlargement of Natura 2000 sites
- **One-off measures** for nature conservation which have a sustainable character (e.g. drain blocking)

The relative importance of these will vary from project to project. The table below provides an overview of expert-based assessments and indicates which projects may be low, medium or high for overall sustainability. The first three factors (continuation of funding, a permanent organisation, and support from authorities) are generally the most important for overall sustainability.

TABLE 4: EXPERT-BASED ASSESSMENTS OF THE SUSTAINABILITY OF EACH EX-POSTED PROJECT
(* low, ** medium, *** high)

PROJECT	CONTINUATION OF FUNDING	ORGANISATION	SUPPORT FROM AUTHORITIES	LAND PURCHASE	AWARENESS RAISING	NEW LEGAL PROTECTION	ONE OFF RESTORATION	OVERALL
Burren	***	***	***	-	***	-	**	High
Scottish machair	**	***	***	-	***	-	**	High
Inland salt marshes	**	**	**	***	**	-	***	Medium
Dutch dunes	***	***	**	-	***	-	**	High
Saproxyllic beetles	*	*	*	**	*	**	**	Low
Hungarian meadow viper	**	***	***	***	***	-	*	High
PMR Western Crete	**	**	**	-	**	**	*	Medium
Houting in Denmark	***	**	***	**	**	**	**	High
Pearl mussels in Belgium	**	***	***	***	*	-	***	High
Viola and Biscutella	**	**	**	**	***	*	*	Medium
PMR in Cyprus	***	***	***	-	**	**	*	High
Dragonlife	**	**	**	-	**	-	**	Medium
Arctic fox	***	***	***	-	***	**	-	High
Lesser white-fronted goose	***	***	***	-	***	**	*	High
Farmland birds in Baixo Alentejo	**	***	**	***	***	*	**	Medium
Dalmatian pelican - Danube Delta	**	***	**	-	**	***	*	Medium
Bearded vulture in the Alps	*	***	**	-	***	**	-	Medium
Yelkouan shearwater in Malta	***	***	***	-	**	***	**	High
Raptors of Matera Province	***	***	*	**	***	**	**	Medium
Great bustard in Austria	***	***	***	-	***	-	**	High



Monitoring activities are key to assessing the sustainability of the project results (LIFE08 NAT/EE/000257, © Mads Fjeldsoe Christensen)

Additional aspects of ex-post monitoring

Reporting from ex-post visits can also highlight other positive aspects of the LIFE Programme and its ability to help form strong and lasting partnerships for nature. Amongst the findings from the selected projects are examples of:

- The value of **pump-priming** supporting the initial stages of restoration work
- Projects being a **catalyst** for more work in area or other areas and for **follow-on LIFE projects**
- The value of assisting **capacity building** in organisations and project areas
- The value of **promoting dialogue** and creating **partnerships** with stakeholders
- Providing **demonstration models** of innovative **best-practice**
- **Disseminating** results and **networking** with similar projects
- Being able to measure real **conservation benefit**
- The **incentive value** of projects in attracting additional funding
- Establishing **long-term management programmes** under agri-environment schemes
- **Integration** of conservation with other policy sectors
- Positive **influence** on the local economy, local community and stakeholders

Several of these aspects are further illustrated in the short case studies in this report.

Conclusion

All projects show impact on the target habitats or species. Those which target a significant percentage of the total area of habitat or population of a species at member state level have the potential for the greatest impact. For example the conservation status of the machair habitat in Scotland and the Pearl mussel in Belgium have made significant progress thanks to the LIFE Programme. The study also shows that, in many cases, it has taken a number of LIFE projects in the same area or across habitat or species range to secure an improvement in conservation status. This has been the case for Arctic fox, Lesser kestrel, Great bustard and Yelkouan shearwater.

In all cases that were covered by the 2018 ex-post exercise, LIFE has made a difference for the species or the habitat. This is also confirmed by the Measure Driven Improvements study that looks much further than these 20 cases and covers all genuine improvements in the conservation status of species and habitats reported by the member states.

Several of the most successful projects are those supported by agri-environmental schemes (e.g. the Burren in Ireland, Great bustard in Austria). The projects that succeeded to secure a continuation of funding, and that can rely on a stable organisation and the necessary support from the authorities, are the projects that showed the highest degree of sustainability after the end of the project. With these three factors ensured, the project's outcome has good chances of being sustained or even further improved.



*A stable organisation, continuation of funding, and support from the authorities are three indispensable factors for project sustainability
(© Thomas Wouters)*

Examples from the 2018 ex-post study

1

Permanent improvement in conservation status- habitat example

FARMING FOR CONSERVATION IN THE BURREN

The main objective was to develop a new model for sustainable agricultural management of the priority habitats of the Burren (Ireland) through maintenance or enhancement of the conservation status of habitats on 2,000 ha. At the start the project intended to engage with 20 farmers to act as advocates and to provide demonstration farms. These farms covered more than 3,000 ha of farmland including 2,485 ha of EU habitat types. A prolongation allowed the project to transition between the first 20 farms and the next set of farms already identified as wanting to join. This extended programme was supported by the Department for Agriculture based on the new Rural Environmental Protection Scheme (REPS). While the impact at the end of the project might have been modest, the impact now is huge, with over 270 farms in the scheme at the end of 2017 (covering two thirds of the total SAC area in the Burren) and with a new scheme about to be launched the priority habitats are showing significant improvements. The aim is to get all 350 eligible farms signed up to the scheme during the next programme period 2016-2022 with financing from the European Investment Plan.

The project made the farmer the central focus with the management unit being a farmer's field which made the concrete and recurrent actions very meaningful to the land managers who were not primarily interested in conservation per se. The project and its successors have addressed the problems arising from abandonment of former rural farming methods, considered to be costly and inefficient. The project re-established a grazing regime that suits the calcareous grasslands and limestone pavements as well as reducing nitrogen runoff to protect the wetlands.

The results-based approach to monitoring and associated payments has been the main incentive and a 'game changer' in terms of changing attitudes towards conservation. A recognition that farmers welcome a move away from previous 'conservation payments' under REPS where they were incentivised to do nothing and getting paid to receiving payments only for direct improvements in each field unit has improved the relationships between the authorities and the farmers and brought about positive change. The farmers are further incentivised through the scale of payments to bring about improvements on failing fields – payments are higher for fields brought under better management than for those that are good to start with. Also, payments are reduced if results decline.

Farmers now see conservation as a 'product' rather than a nuisance – something they can sell to the significant tourist trade in the region through visits to orchid rich meadows and the cultural heritage in the landscapes.

In terms of impact on priority habitats this is less easy to report. While clear that the programme is extremely successful in delivering the improvements to habitats it is difficult to reflect this in national monitoring, and in national reporting. This is because national monitoring is at habitat level and project monitoring is at field level (a field may contain several habitat types).

TABLE 5: IMPACT OF THE BURREN PROJECT

	BEFORE PROJECT HA	END OF PROJECT HA	5+ YEARS AFTER HA
Limestone Pavement Orchid Rich Grassland	unknown	2,000 ha	8,151 ha 2013 21,000 ha in 2017
		Under positive management	Under positive management
		Good +ve trend	Good +ve trend

According to figures in 2013 the Burren programme was being implemented on 160 farms covering 14,600 ha or 46% of the total area of the SACs. Within the SACs there are 17,500 ha of limestone pavement, so 8,151 ha under positive management at that time represents about 25% of the total national resource. This information was used to inform the future prospects assessment in the 2013 Article 17 report. Ten farms overlapped with the monitoring sample sites, with areas from 25-90% of each monitoring site extending into the farms. These monitoring sites were generally in good condition.



Sustained recovery of species populations

GREAT BUSTARD IN AUSTRIA

The objectives were to reduce the threat of collision with power lines for Great bustards and to continue habitat management efforts through agri-environmental funds. As the Austrian breeding population is part of the West Pannonian population of which a significant part over-winters in Austria, the project also aimed to ensure the effectiveness of cross-border protection in Austria, Hungary, Slovakia and the Czech Republic.

Over 50km of medium-voltage power lines and 4 km of high-voltage power lines were buried as foreseen. The expected increase of the breeding population during the project was 262 - 272 bustards by 2015. In fact the population increased to 327 - 426 bustards by 2015. These are very impressive numbers especially taking into account the starting point of 60 remaining birds in 2000. The project set up a network of volunteers who monitor the numbers of Great bustards in the project area. By 2015 more than 700 volunteers - mainly hunters and farmers - took part in this monitoring. This network of volunteers still exists more than two years after the project end.

The population in the project area is still increasing: the estimated number of individuals in 2017 was 368- 481 compared to 327- 426 at the end of the LIFE project in 2015. However, as there is a follow on LIFE project in the same area with similar activities it is not really possible to assess whether the population trend is an impact of this project or the new project.

The project is a good example of close cooperation between nature conservationists (NGO, competent authorities), important stakeholders (farmers, hunters), local politicians (mayors), the private sector (energy suppliers), and a committed project management team. This cooperation proved to be the main driver of successful project implementation. Moreover, the cross-border cooperation of the project with Hungary and Slovakia was exemplary.

Each year 2,750,000 – 3,000,000 € are paid by the agri-environmental scheme ÖPUL to farmers for the bustard friendly management of their land. The financial support from ÖPUL is available at least until 2020 and is a good example of a complementary measure supporting a LIFE project.

The long-term welfare of the species in Austria strongly depends on habitat quality. The bustard-friendly management of large parts of the project area is the crucial factor for the successful conservation of the species. However, this management is only guaranteed by the Austrian agri-environmental scheme until 2020. Therefore, it is of utmost importance that the bustard-friendly management of the species' breeding and wintering sites continues after 2020 to secure a favourable conservation status of the Great bustard in Austria for the long-term.

TABLE 6: PROJECT IMPACT ON THE AUSTRIAN GREAT BUSTARD POPULATION

SPECIES	POPULATION IN PROJECT AREA BEFORE PROJECT	POPULATION IN PROJECT AREA AT END OF PROJECT	POPULATION IN PROJECT AREA 2+ YEARS AFTER PROJECT
Great bustard (<i>Otis tarda</i>)	225- 268 individuals during breeding time	327 - 426 individuals during breeding time	368- 481 individuals during breeding time

The reliability of the figures is good. The whole Austrian Great bustard population was targeted by the project, so the population size at national level is the same as that in the project area.

3 A LIFE project stopping habitat decline and setting out the basis for sustainable management

CONSERVING MACHAIR HABITATS AND SPECIES IN A SUITE OF SCOTTISH NATURA 2000 SITES

The aim was to improve the conservation status of 70% of the world's machair habitat (a dune type of sandy coastal plains confined to the UK and Ireland), a total area of 23,766 ha, and associated species by demonstrating sustainable management methods compatible with local agricultural practice. The project achieved improvements in the condition of the habitat in three Natura 2000 sites and increased awareness of machair through its outreach work which helped to change attitudes. Nature designations were initially seen as restrictive and negative and although agri-environment schemes have come and gone, there is a strong belief among stakeholders that it is the LIFE project that made the big leap in informing crofters of the way forward. The incentive for crofters to return to more traditional forms of farming still remains largely financial and that means agri-environment support.



Collecting seaweed on the beach before spreading on the machair grasslands in LIFE 08 NAT/UK/000204. This measure was considered instrumental in raising the plant species diversity to bring it back to favourable condition (©Neil Wilkie).

Improved cooperation between conservationists and crofters is achieved through the new Western Isles Crofting for Wildlife partnership which delivers an advisory service to crofters. However, since the end of the project the external policy environment has changed significantly and there remains considerable uncertainty as to what will replace the Scottish Rural Development Programme (SRDP) and Agri-Environment Climate Scheme (AECS) once the UK leaves the EU.

At a UK level, in 2007 machair habitat was classed as 'unfavourable bad' (U2) and in 2013 it was classed as 'unfavourable inadequate' (U1). Given that such a large proportion of machair habitat is found in the project area, there would be a reasonable expectation that the national status for this habitat over the next assessment period (up to 2018) will show a positive trend to U1+ or even Favourable (FV). If so, this will be a clear example of how a LIFE project can improve the conservation status of a habitat not only at a project level, but also at a national level.

TABLE 7: CONSERVATION STATUS OF THE MACHAIR HABITAT HAS IMPROVED THANKS TO THE PROJECT

HABITAT 21A0: MACHAIR	AT START OF PROJECT 2009	CONDITION 2013 – 2015
North Uist Machairs SAC	unfavourable declining	favourable maintained
South Uist Machairs SAC	unfavourable declining	favourable maintained
Oransay, South Colonsay SAC	unfavourable no change	favourable maintained

While this of course is a good news story for the habitat, there remain some serious issues with some Natura 2000 bird interest in drastic decline due to non-native hedgehogs. While this was not tackled by the project, it remains a significant threat to the overall Natura 2000 interest. So, in this case, while LIFE has done great things demonstrated through Article 17 reporting, the Article 12 reports show there is still work to be done.



A LIFE project must sometime first stabilise a situation before reporting significant improvements

INLAND SALT MARSHES OF BRANDENBURG

Inland salt meadows (priority habitat *1340 in the Habitats Directives) are rare habitats in Europe. In Brandenburg, Germany, almost all of the 155 ha of inland salt meadows are protected in the Natura 2000 network. The project implemented a combination of measures: planning and stakeholder involvement, land purchase, re-wetting, habitat restoration (mowing of reed, removal of woodland) and the promotion of agri-environmental schemes. Hydrological condition improved on a wider area, improving the conditions for further development of inland salt meadows. The project definitely stabilised the conservation status of the target habitat inland salt meadows. However, the ex-post study could not find any harmonised monitoring data to assess whether the LIFE project had led to an improvement in conservation status.

To promote agri-environment measures an Action Plan was prepared for farmers for conservation of wet meadows. The current financial instrument available in Brandenburg is very flexible and can support restoration actions according to specific local requirements. Nevertheless, there is a weak point in the conservation land management system when the conservation status depends on regular agricultural use, which in turn depends on the financial attractiveness of the agri-environmental schemes. To help overcome this the project tested conservation management with buffaloes which generated a financial return. The experiment worked well and gave rise to a small business.



Project LIFE05 NAT/D/000111 restored the water regime as an essential condition for the improvement of the conservation status of the inland salt marshes (©Jan Sliva).

The study concluded that the current conservation status of the habitat is approximately equal to the status before, or during the project. Although difficult to assess the role of the project in this development it is considered likely that the stabilisation of habitat quality would not have been achieved without the project actions for land purchase, restoration measures and ongoing management.



LIFE project may focus on increasing the area of habitat as part of its objective

DUTCH DUNE REVIVAL

The main aim of the Dutch dune revival project was to enlarge and restore dune habitats and to increase the presence of rare species in three dune complexes in the west and southwest of the country. The project plan was to set back succession to an earlier stage to create good conditions for the development of species-rich grey dunes and white dunes, as well as humid dune slacks, by removing scrub, forest, and grassy vegetation. Approximately 200 ha of dune habitat types were restored by removing the spread of scrub and woodland.

Dune systems are a mosaic of EU habitat types. However, without grazing pressure and wind dynamics open dune habitats will develop into scrub and woodland habitats. The project redressed the balance of habitats by restoring 22.4 ha of mobile 'white' dunes, 143 ha of fixed 'grey' dunes, and 34 ha of humid dune slacks. Although there was reciprocal loss of the scrub habitats they were improved by removal of invasive species.

TABLE 8: REPORTED CHANGES IN DUTCH DUNE HABITAT AREA

HABITAT	KENNEMERLAND-ZUID (HA)		VOORNE, GOEREE & KWADE HOEK (HA)	
	START OF PROJECT	END OF PROJECT	START OF PROJECT	END OF PROJECT
No habitat type			1,245	1,184 (-)
H2110 Embryonic shifting dunes	17	17 (=)	5	5 (=)
H2120 White dunes	154	175 (+)	2.5	4 (+)
H2130 Grey dunes	2,124	2,151 (+)	16	119 (+)
H2160 Dunes with Hippophae rhamnoides	1,531	1,531 (=)	73	19 (-)
H2180 Dune forest	1,534	1,534 (=)	24	21 (-)
H2190 Humid dune slacks	189	206 (+)	1.4	19 (+)

The information confirms the increase in area of white dunes, grey dunes and dune slacks matched by reductions in the area of 'no habitat type' in the Voorne complex and dune scrub and forest.



Computer animation of the situation before and after restoration measures in project LIFE09 NAT/NL/000418 (© Harm Botman)

▼ Wind dynamics at work (© Ulco Glimmerveen)



It is not always easy to measure success

HUNGARIAN MEADOW VIPER

The Hungarian meadow viper (*Vipera ursinii rakosiensis*) is Europe's most endangered venomous snake with less than 500 in Hungary in two small and isolated populations and, despite protection measures, the population continues to decline. The project aimed to increase the population by increasing the area of continuous habitat (c. 1,600 ha), grassland habitat restoration and release of captive bred vipers into natural habitats. An extensive public awareness programme worked with Zoos to gain public support. The management of land purchased for viper conservation is supported by agri-environmental funds or national biodiversity schemes.

TABLE 9: ESTIMATED NATIONAL POPULATION OF HUNGARIAN MEADOW VIPER WILL HAVE INCREASED EVEN THOUGH THERE IS LIMITED DATA AVAILABLE

SPECIES	NATIONAL POPULATION BEFORE PROJECT	NATIONAL POPULATION AT END OF PROJECT	NATIONAL POPULATION 5+ YEARS AFTER PROJECT
Hungarian meadow viper	Estimated < 500 individuals	> 500 (after releasing 242 individuals)	Estimated 500-1,000 individuals (after releasing more than 500 individuals)

Hungary assessed the conservation status in 2007-2012 as overall Unfavourable-bad (U2) and Unfavourable-inadequate (U1) for habitat (structure and function) components. With the Hungarian population of the viper now estimated at 500 to 1,000 individuals it is expected that the reporting of this species for 2013-2018 will be positively updated.

However, as there is little knowledge available about the survival rate of adult vipers, it is difficult to prove that the released individuals effectively contributed to a meta-population increase. Taking into consideration that only very rough baseline population estimates are available, the real, mid- or long-term changes in meta-population sizes are not quantifiable. Ultimately, without reliable monitoring data on meta-population sizes the trend of these population units also remain uncertain. All of these aspects have a certain effect on the assessment of the conservation status of the species and of the overall impact of the project on the viper meta-populations.



7 LIFE pioneering new approaches

PLANT MICRO RESERVES IN WESTERN CRETE

A pilot plant micro reserves (PMR) network in Western Crete was established through seven reserves (less than 10 ha each) located within Natura 2000 sites. Each reserve included a significant percentage of the population of six endemic species of Crete (EU priority species): *Androcymbium rechingeri*, *Anthemis glaberrima*, *Bupleurum kakiskalae*, *Cephalanthera cucullata*, *Hypericum aciferum cucullata*, *Nepeta sphaciotica* and one priority habitat Palm groves of *Phoenix theophrasti*.

The project demonstrated the PMR approach in Greece for the first time and was appropriate for endemic species with limited distribution and genetic diversity. The approach benefited four endemic species by keeping populations stable and two species by increasing their populations. Management plans contributed to species' future reproductive success and are used to monitor conservation status. The species are now protected from previous threats and seeds are stored for future *in-situ* and *ex-situ* conservation, thus safeguarding the limited genetic pool of the species.

The PMR approach works well for authorities. Due to the small size of the protected sites, it is less bureaucratic, timely and with fewer local conflicts. The designation of Wildlife Refuges is fast, stricter than other national designations and easily replicable and so a significant incentive for the licensing authorities. On the other hand, the small versus large area approach has been a debate amongst conservation scientists for some time and the project could not contribute towards its resolution.



Cephalanthera cucullata, one of the target species of LIFE04 NAT/GR/000104 (© Malamo Korbetis)

TABLE 10: PROJECT IMPACT ON THE TARGET SPECIES

SPECIES	POPULATION IN PROJECT AREA BEFORE PROJECT	POPULATION IN PROJECT AREA AT END OF PROJECT	POPULATION IN PROJECT AREA 5+ YEARS AFTER PROJECT
<i>Androcymbium rechingeri</i>	350,000 ⁽¹⁾	stable	stable
<i>Anthemis glaberrima</i>	Approx. 100,000 ⁽¹⁾	Stable but variable ⁽²⁾	Stable but variable ⁽²⁾
<i>Bupleurum kakiskalae</i>	100 – 120 ⁽¹⁾	100 – 120	200 – 230 ⁽³⁾
<i>Cephalanthera cucullata</i>	128 ⁽⁴⁾	150 - 160	220 – 250
<i>Hypericum aciferum</i>	300 ⁽¹⁾	stable	stable
<i>Nepeta sphaciatica</i>	30,000 ⁽¹⁾	30,000	40,000 ⁽⁵⁾
<i>Phoenix theophrasti</i> habitat 9370	48 ⁽¹⁾	stable, but problems with reproduction	stable, but problems with reproduction ⁽⁶⁾

(1) Data from project Inventory Report

(2) Stable population but very variable from year to year due to annual life cycle of species.

(3) Higher number partially attributed to more thorough survey (part of the AfterLIFE monitoring) and partially to actual population increase (estimated 30-40 individuals) as a result of conservation actions.

(4) Taken from thorough survey in 2006, before conservation actions (population estimation difficult since plants do not bear above ground parts every year).

(5) Population is stable, higher population size attributed to more thorough survey (part of the AfterLIFE monitoring) in a difficult to access part of the steep slope.

(6) Species is demonstrating a low regeneration rate most possibly due to situation too close to the sea where salinity is high. No new seedlings have been established since the creation of the PMR.



Sometimes there is little impact on the target species but wider benefits

HOUTING IN DENMARK

The objective was to restore and maintain favourable conservation status for the North Sea Houting (*Coregonus oxyrhynchus*) in four Danish rivers but also to have a positive effect on other components of the river ecosystem including improved access for other migratory fish species (salmonids and lampreys). Weirs and dams were removed, riffles and meanders constructed to facilitate upstream migration, hydroelectric power plants and fish farms decommissioned and new spawning grounds created.

The project implemented the main part of the National Action Plan for conservation of Houting by providing access for migrating fish to an additional 130 km of rivers in southwest Denmark. However, after five years the project has not yet had a clear impact on the Houting population. The population size in the main river remains steady at the same level as before and during the project. However, the project is believed to have contributed to improvements to the overall health of the rivers.

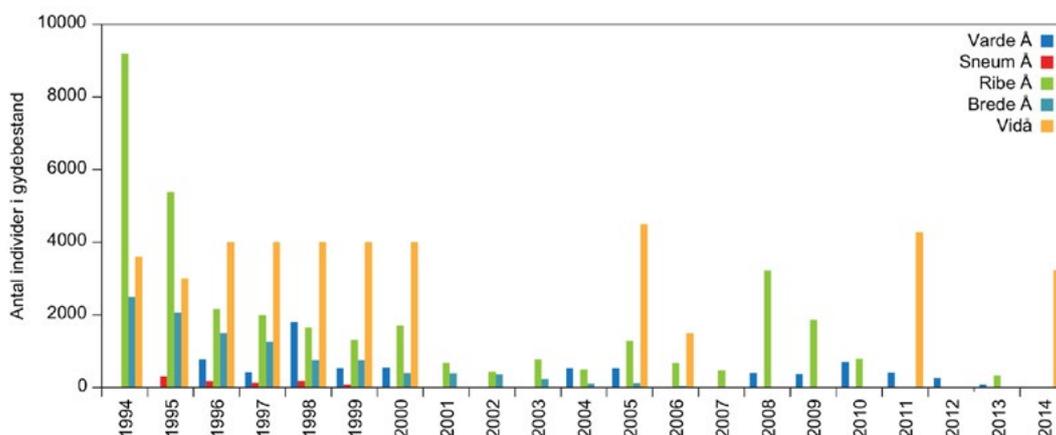


*The river restoration measures taken by the Danish project LIFE05 NAT/DK/000153 for the conservation of Houting will also favour other migrating fish species
(© Bent Jepsen)*

Houting has been monitored in the national monitoring programme, fry drifting downstream have been recorded in one river and anglers have reported sightings giving a solid basis for assessing the size and development of the population. Danish authorities conclude that Houting is confirmed in three project rivers and, compared to the situation in 2004 the distribution has not changed, although the potential spawning area has been substantially increased and river quality improved.

In spite of this the spawning population has decreased since 2004 and is seriously threatened. The Environment Agency confirms that no significant increase in the population has been registered since 2014. The Minister of Environment and Food will conduct an intensive monitoring programme in 2018 and 2019 and revise the national action plan for the species based on the results of the monitoring.

FIGURE 1: SPAWNING POPULATION OF HOUTING IN 5 RIVERS IN SOUTHWEST JUTLAND BETWEEN 1994-2014 BASED ON DATA FROM THE NATIONAL MONITORING PROGRAMMES.



Source: øgaard, B., Wind, P., Bladt, J.S., Mikkelsen, P., Wiberg-Larsen, P., Galatius, A. & Teilmann, J. 2015. Arter 2014. NOVANA. Aarhus Universitet, DCE – Nationalt Center for Miljø og Energi, 74 s. - Videnskabelig rapport fra DCE - Nationalt Center for Miljø og Energi nr. 168

TABLE 11: THE PROJECT DID NOT HAVE A CLEAR IMPACT ON THE HOUTING POPULATION BUT HAS CONTRIBUTED SIGNIFICANTLY TO RIVER QUALITY

SPECIES	NATIONAL POPULATION BEFORE PROJECT	NATIONAL POPULATION AT END OF PROJECT	NATIONAL POPULATION 5+ YEARS AFTER PROJECT
Houting	Est. 6-7,000	3,500	3,500

The project area covered the whole distribution area and therefore the whole national population.

The conservation status of Houting reported in the Article 17 report 2012 is overall U2 unfavourable bad, mainly due to the population status of the species. The status based on area is favourable, as a result of the restoration of rivers in the project area and removal of barriers for migration.



Sometimes good results occur only after the end of the project

PEARL MUSSEL IN BELGIUM

The project aimed to protect and restore populations of Pearl mussel (*Margaritifera margaritifera*) through the long-term conservation and improvement of their habitats in the four catchments in Belgium where they still occur. The project covered the entire area of the species in Wallonia. Actions included restoring riverbanks, removing conifers from river valleys and planting deciduous, riparian woodlands, all effective measures in a river catchment with important areas of forest. The major positive outcome was that the pearl mussel started to reproduce again in one of the river systems, not during the project but some years later thanks to the progressive improvement initiated by the measures implemented.

The approach resulted in the involvement of many farmers in grazing and mowing in the river valleys without nutrient input. Project success was in part due to a strong partnership skilled in nature conservation strategies and techniques, partners already active in the project area, a vision for the region, strong scientific background, issues and problems systematically addressed and land purchase as the most efficient, effective and durable tool for long term management of sensitive areas.



1. This dead pearl mussel, marked in earlier monitoring, illustrates the risk of population collapse. Thanks to the measures implemented in and after this LIFE project, natural reproduction has re-started in the same stream (© Jean-Paul Herremans)
2. Pearl mussel larvae, known as glochidia, attached to the gills of a trout, where they grow in an oxygen-rich environment before they drop off (© Jean-Paul Herremans)



*As a restoration measure, fences were installed along the streams to avoid the cattle from trampling the banks, and this way avoiding erosion. This is essential as the mussels require gravel or coarse sand. When the river bed becomes clogged with silt, the oxygen level drops and the mussels die
(© Jean-Paul Herremans)*

The Article 17 evaluation 2012 upgraded the status of the species from U2- to U2+. Belgium was the only member state in the Continental region where the status was upgraded and this positive result is due to the project which improved the situation in all the catchments occupied by the species. The situation in 2018 is significantly better than in 2012 and includes the confirmation of reproduction in one stream. As this occurred on one of the streams where the project was particularly active this can be considered a result of the project.

However, this positive news does not hide the fact that the population remains very small and that the reproduction has re-started only in one stream. In all the other rivers and streams where the species occurs (occurred) the trend is still bad.

10

Plant populations can vary widely from year to year in response to climatic factors

BISCUTELLA AND VIOLA

The highly threatened species *Viola hispida* and *Biscutella neustriaca* are only found in two Natura 2000 sites of the Seine valley in Normandy. Their natural environments are rocky scree and scorched chalk grassland respectively. The project followed on from the LIFE project *Priority species, Chalk grassland and scree in the lower Seine valley catchment area* (LIFE99 NAT/F/6332) carried out by the same beneficiaries between 1999 and 2003 on the same species and Natura 2000 sites. The first project gained knowledge on the location, ecology and needs of the species, and defined the management actions needed to protect them. The second project focused on implementing conservation action.

The results were increased number of individuals (four times for *Viola hispida*, two times for *Biscutella neustriaca*) and viable populations (six and seven respectively), higher potential for long-term survival of both species and more support and involvement of local stakeholders (municipalities, associations, inhabitants) and co-financers (Region and DREAL⁴). A long-term management plan was produced.

Restoration measures on purchased land or by management agreement were effective in restoring short term favourable environmental conditions thus directly contributing to rescuing the species from extinction. Awareness-raising with local stakeholders was successful, the local municipalities were concerned by the need to rescue the species and there was successful collaboration between scientists and managers. The involvement of a local climbing association helped raise awareness amongst climbing users who changed their behaviour to avoid damage to the species.

However, despite the encouraging results obtained during and after the project threats remain, in particular the spread of woody species is a natural process that needs constant action for habitats to be maintained. The long-term viability of the species is therefore dependant on the continuous availability of funding to maintain their habitats.



⁴ DREAL stands for Direction Régionale de l'Environnement, de l'Aménagement et du Logement

The projects LIFE99 NAT/F/6332 and LIFE06 NAT/F/000137 were able to increase the viable populations of the highly threatened *Viola hispida* (© Mathilde Redon)

TABLE 12: PROJECT IMPACT ON THE TARGET SPECIES COMPARED TO THE CONSERVATION STATUS AND THE CONDITION OF THE TARGETED HABITATS

SPECIES	NO OF KNOWN LOCATIONS BEFORE PROJECT	NO OF KNOWN LOCATIONS AT THE END OF PROJECT	NO OF KNOWN LOCATIONS 5+ YEARS AFTER PROJECT
<i>Viola hispida</i>	13	21	At least 11 ¹
<i>Biscutella neustriaca</i>	60	68	At least 47 ¹

¹ Less than at the end of the project: this will be confirmed by assessment in 2018 to prepare the next conservation plan.

SPECIES	CONSERVATION STATUS BEFORE PROJECT	CONSERVATION STATUS AT END OF PROJECT	CONSERVATION STATUS 5+ YEARS AFTER PROJECT
<i>Viola hispida</i>	Unfavourable - Bad	Unfavourable - Bad	Not known yet – certainly Unfavourable – Bad
<i>Biscutella neustriaca</i>	Unfavourable - Bad	Unfavourable - Inadequate	Not known yet

HABITAT 8160 "MEDIO-EUROPEAN CALCAREOUS SCREE"	CONDITION BEFORE PROJECT	CONDITION AT END OF THE PROJECT	CONDITION 5+ YEARS AFTER PROJECT
	Very bad	Good	Good
	TREND	TREND AT END OF PROJECT	TREND 5+ YEARS AFTER
	-	+	=
	CONSERVATION STATUS BEFORE PROJECT	CONSERVATION STATUS AT END OF PROJECT	CONSERVATION STATUS 5+ YEARS AFTER PROJECT
	Unfavourable - Bad	Unfavourable - Bad	Not known yet – certainly Unfavourable – Bad
HABITAT 6210 "SEMI-NATURAL DRY GRASSLANDS AND SCRUBLAND FACIES ON CALCAREOUS SUBSTRATES"	CONDITION BEFORE PROJECT	CONDITION AT THE END OF PROJECT	CONDITION 5+ YEARS AFTER PROJECT
	Bad	Good	Good
	TREND	TREND AT END OF PROJECT	TREND 5+ YEARS AFTER
	-	+	=
	CONSERVATION STATUS BEFORE PROJECT	CONSERVATION STATUS AT END OF PROJECT	CONSERVATION STATUS 5+ YEARS AFTER PROJECT
	Unfavourable - Bad	Unfavourable - Bad	Not known yet – certainly Unfavourable – Bad

11

LIFE can pioneer new approaches

PLANT MICRO RESERVES IN CYPRUS

The objective was to improve the conservation status of four endemic plant species *Arabis kennedyae*, *Astragalus macrocarpus* subsp. *lefkarensis*, *Centaurea akamantis* and *Ophrys kotschy* and two habitat types 9590 *Cedrus brevifolia* forests and 9390 Scrub and low forest vegetation of *Quercus alnifolia* in Cyprus. The project adopted the plant micro reserve (PMR) approach by establishing a PMR network of small reserves of less than 20ha each in four Natura 2000 sites. In each micro reserve permanent monitoring systems were established and targeted conservation measures were implemented.

New knowledge was obtained on the target species and habitats through actions for inventory, documentation and protection and data was collected on the ecology, physiology and population of the species at each site. Seed banks are used to store collected seed and other seed is germinated in the botanic gardens of the Department of Forests. Some plantlets were planted *in situ* during the project while others in the botanic gardens provide a backup in case of damage to naturally occurring plants.

Project education and dissemination actions included exchange of know-how with local communities, capacity building for forestry personnel and other field workers, education of teachers, presentations to schools and university students and networking with scientists in other countries.

The Forestry Department is responsible for regular monitoring and for reporting under Article 17 of the Habitats Directive.



Plant micro reserve in Cyprus established for *Astragalus macrocarpus* by the project LIFE08 NAT/CY/000453 (© Georgia Valaoras)

TABLE 13: PROJECT IMPACT ON THE TARGET SPECIES IN THE PROJECT SITES COMPARED TO NATIONAL DATA

SPECIES	POPULATION IN PROJECT AREA BEFORE PROJECT	POPULATION IN PROJECT AREA AT END OF PROJECT	POPULATION IN PROJECT AREA 5+ YEARS AFTER
<i>Ophrys kotschyi</i>	Approx. 800	872	900 (in 2017) ⁱⁱ
<i>Arabis kennedyae</i>	1202 ⁱ	505	Approx. 1,000
<i>Centaurea akamantis</i>	532 (2010) ⁱ	536 (2013)	540
<i>Astragalus macrocarpus subsp. lefkarensis</i>	350	400	400
SPECIES	NATIONAL POPULATION BEFORE PROJECT	NATIONAL POPULATION AT END OF PROJECT	NATIONAL POPULATION 5+ YEARS AFTER PROJECT
<i>Ophrys kotschyi</i>	2,000 ⁱⁱⁱ	Approx. 2,000	3,850 (in 2017 considerable fluctuation in all known locations)
<i>Arabis kennedyae</i>	1,500 (2004-2006) ⁱⁱⁱ	Approx. 10,000 ^{iv}	Approx. 3,000 (see note iv regarding smaller number of individuals)
<i>Centaurea akamantis</i>	590 ⁱⁱⁱ	Approx. 800 (increase due to discovery of new location)	Approx. 800
<i>Astragalus macrocarpus subsp. lefkarensis</i>	2,400 (+500 in occupied areas) ⁱⁱⁱ	Approx. 2,400	Approx. 2,600 (due to discovery of new location)

- i. Population evaluated at start of project. The species is an annual where its germination depends on environmental conditions.
- ii. Population of the species will be re-evaluated in summer 2018. The plant's stems grow in the field depending on environmental criteria.
- iii. Data from the Red Data Book of the Flora of Cyprus.
- iv. The population size shows considerable fluctuation in all locations. Since 2006 the total population size ranges from as low as 1,500 to 10,950 individuals. The maximum population size for the period 2000-2006 was 10,950 on the three known locations. The fluctuations depend on environmental conditions.
- v. The conservation status of *Arabis kennedyae* changed from U2+ in 2007 to FV in 2013 according to the Article 17 assessment. The other species status remained FV.

12

LIFE can develop and promote best practices to ensure conservation of species

DRAGONLIFE

The objective was to secure the favourable conservation status of the small and isolated populations of *Leucorrhinia pectoralis* (yellow-spotted whiteface dragonfly) and *Pelobates fuscus* (common spadefoot toad) in the northern part of their range in Estonia and Denmark. Specific objectives included rescuing isolated populations to preserve the gene pool and avoid further range reduction and large-scale habitat restoration. Results were restored aquatic and terrestrial habitats and isolated populations saved in the Northern distribution range. Expert networks established will ensure long-lasting cooperation and useful experience and knowhow was obtained for use in future work. The project raised public awareness on these rather unknown species. The management of the ponds and terrestrial habitat continues in both countries but monitoring is rather irregular and inconsistent.

Estonia and Denmark will submit Article 17 monitoring data in 2019. In Estonia, an ongoing special study suggests that for 2013-2018 *Leucorhina pectoralis* remains in favourable conservation status with an increasing trend. A study including *Pelobates fuscus* has been commissioned but no results are available yet.

According to the Estonian amphibian expert, out of 129 ponds created in 2010-2016 (including 101 project ponds) in Estonia, 51% were inhabited by spadefoot toad in 2017. Spadefoot toad inventories conducted in the period 2007-2014 have shown that without improving the quality of small water bodies, the spadefoot toad tadpoles are present in only 4% of small water bodies. Thus, restoring and creating new ponds is essential for preserving populations as well as for improving overall status. The LIFE project's role has been essential for this measure driven improvement.

TABLE 14: CONSERVATION STATUS OF COMMON SPADEFOOT TOAD AND YELLOW SPOTTED WHITEFACE FROM ESTONIA'S ARTICLE 17 REPORTING

	2001-2006 (2007)	2007-2012 (2013)	2013-2018 (2019)
<i>Pelobates fuscus</i> (common spadefoot toad)	unfavourable - inadequate (U1)	unfavourable - inadequate (U1)+	<i>Study commissioned</i>
<i>Leucorhina pectoralis</i> (yellow spotted whiteface)	unfavourable - inadequate (U1)+	favourable (FV)	<i>Presumably favourable conservation status.</i>



Pelobates fuscus (common spadefoot toad) and *Leucorhina pectoralis* (yellow-spotted whiteface dragonfly) targeted by the project LIFE08 NAT/EE/000257
(© Mads Fjeldsoe Christensen)





Monitoring of amphibians in Estonia
(LIFE08 NAT/EE/000257 (© Mads Fjeldsoe
Christensen and Lars Christian Adrados)

13

Some projects are part of a long term and sustained strategy for species recovery

ARCTIC FOX

In the EU, the Arctic fox *Alopex lagopus* is found only in the northern parts of Sweden and Finland. The population size has declined drastically during the 20th century, and the adult population was estimated to be just 100 animals in 1997. The project, the second for this species, aimed to increase reproductive output and decrease mortality, and thereby substantially increase population viability.

The project demonstrated that a combination of feeding, protection around dens and information-sharing can halt the population decline and even increase the population size of Arctic foxes and increase the chances for their long-term viability. In areas with intensive actions the population more than doubled over a four-year period.

Information-sharing and protection around dens are difficult to evaluate in a quantitative way, but they are important factors in the cumulative conservation efforts. The project helped increase ecological understanding of why Arctic fox populations have not increased after more than 70 years of protection.

Yet, despite the actions of the project, most of the threats (competition and predation by Red fox, diseases and hybridisation) remain. Low population size is still a threat although an increase in the number of litters is a good start for a further increase in the population. Also, most populations fluctuate widely in numbers between years in response to varying lemming numbers. Analysis indicates that 47% of the explained variation in population productivity can be attributed to lemming abundance whereas winter feeding had a 29% effect and Red fox control a 20% effect.



Arctic fox spotted by a trail camera at a feeding station installed by the project LIFE03 NAT/S/000073

The ecological understanding of why the populations have not increased after more than 70 years of protection have offered inspiration to different stakeholder groups: storytellers, writers, handcrafters. The Arctic fox is featured on many souvenir items and warm-hearted characters in story books. Thanks to the project tourism operators started organising guided tours for wildlife tourists to see foxes in their natural habitat. The project significantly increased the chances of seeing Arctic fox so helping local businesses. The Arctic fox population in Sweden is small and sensitive to disturbance, but the positive impacts of Arctic fox tourism seem to contribute to their conservation under the current level of tourism pressure.

The project played a significant role in strengthening networking between Sweden and Norway as shown by the joint Species Action Plan 2017 – 2021.

INFORMATION ON THE SPECIES

TABLE 15: VULPES LAGOPUS POPULATION IN SWEDEN AND SCANDINAVIA

REGION	POPULATION IN PROJECT AREA BEFORE PROJECT	POPULATION IN PROJECT AREA AT END OF PROJECT	POPULATION IN PROJECT AREA 5+ YEARS AFTER PROJECT
Sweden	35 – 50 individuals	100 individuals	175 individuals
Finland	10	*	*
Scandinavia	40 – 60 individuals	150 individuals	270 individuals

* In Finland, no litters were recorded during the project period, although a few individuals were observed. Today, Metsähallitus is responsible for conservation of Arctic fox and checks c. 200 dens each year (in 2016 two dens out of 176 checked had signs of habitation).

**TABLE 16: VULPES LAGOPUS HABITATS DIRECTIVE ARTICLE 17 REPORTING 2007 – 2012;
THE LIFE PROJECT HELPED WITH THE REPORTED IMPROVEMENT**

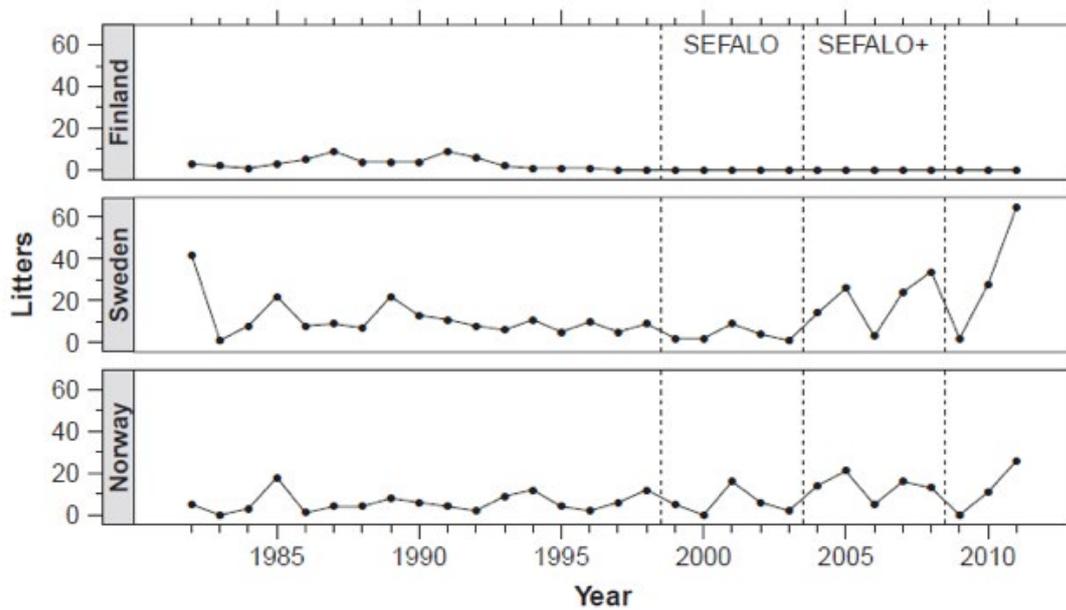
MEMBER STATE	CONSERVATION STATUS (CS)	PREVIOUS CS	NATURE OF CHANGE
Finland	U2 Unfavourable-Bad	U2-	a (genuine change)
Sweden	U2 Unfavourable-Bad	U2-	c1 (use of different method to measure or evaluate different parameters in overall conservation status)

TABLE 17: VULPES LAGOPUS IUCN RED LIST OF THREATENED SPECIES

	ASSESSMENT	CURRENT POPULATION TREND
European regional assessment:	Least Concern (LC)	Stable
EU 25 regional assessment:	Critically Endangered (CR)	Stable
Global	Least Concern (LC)	Stable

FIGURE 2: THE NUMBER OF ARCTIC FOX LITTERS IN SWEDEN, NORWAY AND FINLAND FROM 1982 TO 2011.

(Note that the numbers for Norway do not include the southern population which is built up from captive breeding and release of Arctic foxes, measures that were initiated in these areas from 2007)



14

Saving a species from extinction

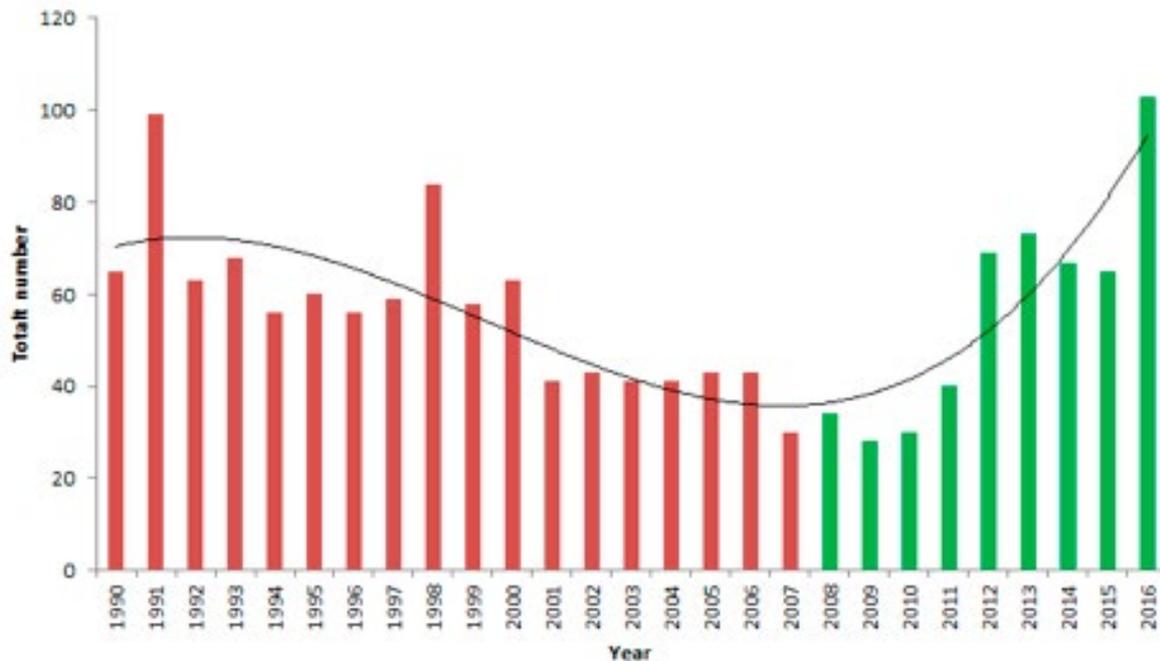
LESSER WHITE-FRONTED GOOSE

The objective was to improve and monitor the conservation status of the Lesser white-fronted goose (LWfG) at its most important breeding, staging and wintering sites along the European flyway. Public awareness campaigns, mainly for hunters and farmers in Estonia, Hungary and Greece aimed to reduce the risk of geese being shot. The project also contributed to the International Single Species Action Plan for the Western Palearctic Population of LWfG adopted by AEWA (Agreement on the Conservation of African-Eurasian Migratory Waterbirds) in 2008 and revised in November 2015. In Greece, the Joint Ministerial Decision for the implementation of the agri-environment schemes, proposed by the project was finally signed in 2011 for the Greek Rural Development Programme (RDP) 2007-2013: the relevant action is also included in the RDP 2014-2020. The project demonstrated that international co-operation and a flyway approach are vital for protecting such a critically endangered migratory species, and that such international effort needs to be continued to save the population from extinction.

The currently known breeding sites of the wild Fennoscandian population are situated in northernmost Norway. In 2009 the Nordic breeding population was estimated at only c. 20 breeding pairs with a sustained, statistically significant, negative trend in the population between 1990 and 2008, continuing a long-term decline, from an estimated 10,000 individuals in the early 20th century. However, in recent years extensive conservation measures along the species flyway have taken place that have resulted in a slow but steady increase in the population as monitoring data from the Valdak marshes in Norway (graphs below)* as well as Greece reveal. The measures included mainly a Red fox culling programme in the core breeding area (green bars - 2008-2016) and extensive patrolling at the wintering sites in Greece.



Lesser white-fronted geese in flight at Lake Kerkini (Greece), one of the sites where the project LIFE05 NAT/FIN/000105 was implemented. Other sites are located in Finland, Norway, Estonia, and Hungary (©Theodoros Naziridis / Lake Kerkini Management Authority)

FIGURE 3: LESSER WHITE-FRONTED GOOSE NUMBERS AT VALDAK MARSHES, NORWAY

Source: Aarvak, T., Oien J.I. & Krvonen R. 2017. Development and key drivers of the Fennoscandian Lesser White-fronted Goose population monitored in Finnish Lapland and Finnmark, Norway. Pp. 29-36 in Vougioukalou, M., Kazantzidis, S. & Aarvak, T. (Eds.) 2017. Safeguarding the Lesser White-fronted Goose Fennoscandian population at key staging and wintering sites within the European flyway. Special publication. LIFE+10 NAT/GR/000638 Project, HOS/BirdLife Greece, HAOD/Forest Research Institute, NOF/BirdLife Norway report no. 2017-2.

1.5

Some progress but project gains are set against long term declines

STEPPE BIRDS IN PORTUGAL

The project addressed threats to three pseudo-steppe bird species, Lesser kestrel, Great bustard and Little bustard. The main threats relate to habitat management and are directly related to agricultural practice and land use. The only places where threats are less intense are Castro Verde and Vale do Guadiana SPAs, resulting in increasing relevance of this area at national level.

The rules of LIFE funding meant that the project could not duplicate work potentially funded through EU agri-environment schemes, even though LIFE would have been useful to test and refine such measures before implementing them. Therefore, it focused on supporting activities such as fitting power-lines with devices to reduce collisions, making fences safe and installing water troughs and feeders in over 18,000 ha through agreements with game reserves. Good practice manuals for farmers and game managers were produced, vets were trained and two recovery centres were adapted to treat injured steppe birds.

The project, together with implementation of agri-environmental measures, has significantly contributed to secure Castro Verde SPA as the Portuguese stronghold for pseudo-steppe species. It was particularly successful in the involvement of the local population and stakeholders, evidenced in the area covered by management agreements, more than 21,000 ha compared to 3,500 ha originally foreseen.



Little bustard (© Luís Venâncio)

As a result of the measures all three species have maintained in the short-medium term a stable or positive population trend in the project area - home to approximately 80% of the national populations for these steppe birds. This was achieved in spite of continuous changes in agricultural practices both outside the SPAs and, partly, inside most SPAs (with exception of Castro Verde SPA). During the last 10-15 years, local populations of the target species outside this area have decreased.

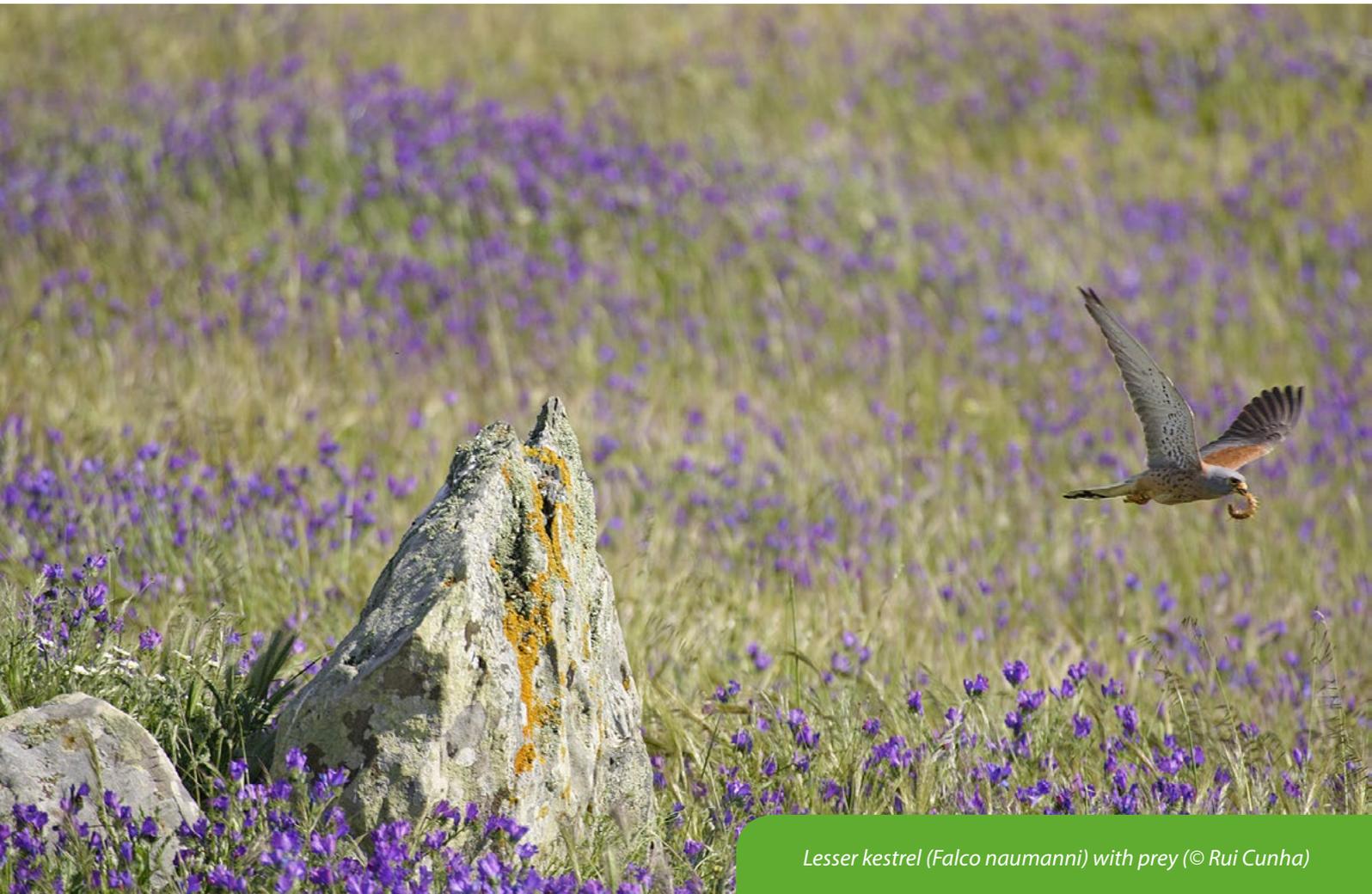
Unfortunately, the (often partial) population quantitative data available seem to indicate that the conservation efforts in the core area are barely sufficient to counter the modifications in agricultural practices experienced at national and, in particular, at regional level. This is also related to insufficient application of available agri-environment measures in most SPAs. For example, the 2016 national census of Little bustard found an overall decrease of 50% of the population in 10 years, including inside some SPAs, and the annual census of Great bustard in Castro Verde SPA in 2018 also detected a surprising 40% decrease in the local population.

INFORMATION ON SPECIES

TABLE 18: DATA AVAILABLE IN PORTUGAL'S NATIONAL REPORT UNDER ARTICLE 12 OF THE BIRDS DIRECTIVE FOR THE 2008-2012 PERIOD

SPECIES	% EU POPULATION	BREEDING POPULATION	SHORT TERM POPULATION	LONG TERM POPULATION TREND
Lesser kestrel (<i>Falco naumanni</i>)	2.2	480-484 pairs	+	+
Little bustard (<i>Tetrax tetrax</i>)	11.0	13,250-21,771 males	+	+
Great bustard (<i>Otis tarda</i>)	10.0	701 males	+	+

In 2001, before the start of project LIFE02 NAT/P/008481 LIFE Penereiro the national population of Lesser kestrel was estimated at 289 pairs. By 2006, date of the last national census, the Castro Verde and Vale do Gadiana SPAs held 79% of the national population.



Lesser kestrel (Falco naumanni) with prey (© Rui Cunha)

The results for Little bustard correspond to the national census 2003-2006. A new national census was carried out in 2016. According to it, the estimated population of males had decreased to 5,546-13,207, which means a sharp decrease of 47.8% in ten years. These results are confirmed by the national census carried out in Spain in 2016, showing also a decline of approximately 50%. This may lead to the inclusion of the species in the 'Endangered' category, as has already happened, for instance, in the Spanish region of Extremadura. According to this last census, the decline was more marked outside the SPAs (-62.2%) than inside them (-28.4%) and, as a result, the population of the species is now higher inside SPAs than outside. The Castro Verde SPA also experienced a small decline but remains as the most important area at national level because approximately one third of the national population breeds there.

According to the data obtained during the project for the Great bustard, in 2005 there were 1,150 individuals (males and females) of the species, of which 912 were in Castro Verde SPA (79%). In 2011, there were 1,740 individuals, of which 1,300 were in Castro Verde SPA (74%). The data for Castro Verde SPA suggest a more or less stable population of between 1,200 and 1,400 individuals between 2007 and 2016. Since then, it declined to 1,154 individuals in 2017 and to 804 in 2018. The reason for the recent sharp decrease is not known but it may indicate the impact of the severe drought in 2016-17, although it is extremely worrying for this endangered species at national level.



Great bustard (© Luís Venâncio)

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The importance of legal and policy-related results from projects

DALMATIAN PELICAN

The main objective was to protect and increase the breeding population of the Dalmatian pelican (*Pelecanus crispus*) in the Danube Delta. The project aimed to increase the number of breeding pairs by 27% so that the population in 2009 would be around 500 pairs.

The beneficiaries elaborated the National Action Plan for the conservation of Dalmatian pelican. Breeding conditions were improved by protecting the five key sites in the Danube Delta and by increased the nesting area by installing and maintaining artificial structures. Training for Delta wardens, regular patrolling and monitoring of the colonies, awareness-raising of stakeholder groups and local people, regular meetings, and publications were all important aspects of the project.



Dalmatian pelican breeding population at the Ceaplace island in the Danube delta (©Sebastian Bugariu)



A National Action Plan for Dalmatian pelican was developed by LIFE05 NAT/RO/000169 (©Sebastian Bugariu)

Conservation measures included:

- designation of all six breeding sites as SPAs
- designation of two of the breeding sites as core protection areas within the Danube Delta Reserve
- creation of artificial breeding structures
- reducing erosion of breeding islands
- reducing human disturbance
- making electric lines safe using markers
- new hunting law favourable for pelicans
- erecting information panels and boards
- reed management
- regular patrolling and monitoring

The activities gave a good view on how the breeding population can fluctuate, depending on natural and human-caused factors. The National Action Plan was only approved by the state authorities after the end of the project (2010), while the management indications were included and approved in the Delta Management Plan only in 2015. Along with the inclusion of two more Dalmatian pelican colonies in the core protection areas of the Delta and with the declaration of all Delta colonies and other relevant sites along the Danube as SPAs, the project set the favourable background for the conservation of the species in Romania.

The project stabilised the breeding population of Dalmatian pelican in three sites and increased it in two. After the project and up to 2014, the overall population increased (compared to data from 2002-2004) but remained below the numbers at the start of the project. Actions continued after the end of the project have been rather minimal, but overall, the sustainability of project results was ensured greatly by the legal and policy-related achievements of the project.

TABLE 19: INFORMATION AVAILABLE ON THE DALMATIAN PELICAN ON PROJECT, REGIONAL AND NATIONAL LEVEL

SPECIES	POPULATION IN PROJECT AREA BEFORE PROJECT	POPULATION IN PROJECT AREA AT END OF PROJECT	POPULATION IN PROJECT AREA 5+ YEARS AFTER PROJECT
<i>Pelecanus crispus</i> species (breeding pairs)	262 pairs (max. 526)	310 - 350 pairs	346 (fluctuating)
Source	Project document (estimates by Romanian Ornithological Society, data from 2002-2004)	Final Report of the project (final monitoring report for 2009)	Monitoring data gathered by the Romanian Ornithological Society (2014)

SPECIES	NATIONAL POPULATION BEFORE PROJECT	NATIONAL POPULATION AT END OF PROJECT	NATIONAL POPULATION 5+ YEARS AFTER PROJECT
<i>Pelecanus crispus</i> species (pairs)	~ 400 1,192 – 1,504 pairs in Europe, as per BirdLife estimates	243 - 329	300 - 350 3,000 – 3,600 pairs in Europe, as per the BirdLife factsheet (2015)
Source	Romanian Ornithological Society estimates	Art. 12 reporting (for 2008-2012)	Romanian Ornithological Society counts



LIFE can help projects grow from national to international programmes

BEARDED VULTURE

The Bearded vulture (*Gypaetus barbatus*) is considered threatened in the EU. The species was totally extinct in the Alps at the beginning of the 20th century and in the 1970s ornithologists began to work on the development of a captive breeding programme to support reintroductions. In 1978, a first breeding centre was created in Austria, and young Bearded vultures were released for the first time in 1986 in Austria and in 1987 in France. Between 1986 and 2002, 114 Bearded vultures were released in the whole Alps. In France, a first LIFE project was implemented between 1998 and 2002 (LIFE98 NAT/F/005194), followed by the ex-posted project LIFE03 NAT/F/000100.

The primary objective of this project was to establish a self-sufficient population of Bearded vulture in the entire alpine massif, with the release of six to eight young vultures over four years and actions to reduce mortality risks. The project also aimed at improving the co-ordination of Bearded vulture conservation at the international level, especially the monitoring process.

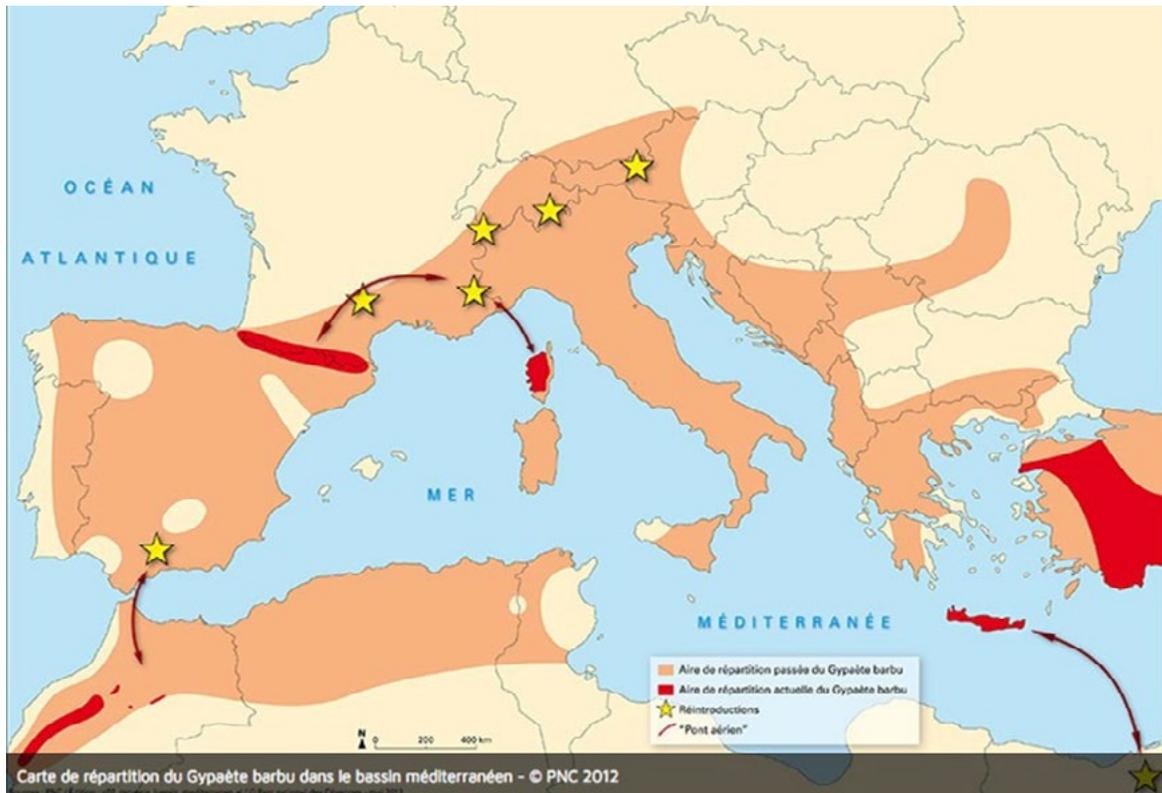
The project and further developments contributed to strengthening the alpine population of Bearded vultures through reintroductions and measures to reduce mortality risks. In addition, the project strengthened the international cooperation and especially the captive breeding programme.



Young bearded vulture feeding (© Julien Heuret)

The network of Bearded vulture conservation managers has further developed and is not restricted anymore to the alpine region. Now the aim is to recreate a meta-population in the EU and establish or re-establish gene flows between existing populations, through several ongoing projects. More information can be found on the Vulture Conservation Foundation website: <https://www.4vultures.org/life-projects>.

FIGURE 4: HISTORICAL DISTRIBUTION (ORANGE) AND CURRENT DISTRIBUTION (RED) OF THE BEARDED VULTURE WITH REINTRODUCTION SITES STARRED. ARROWS REPRESENT THE CONNECTIVITY



Source: <http://rapaces.lpo.fr/gypaete-grands-causses/le-gypaete-barbu>

The Bearded vulture now enjoys a positive image in the Alps, which brings added value to the territory. This has benefited many economic operators: power line managers, ski resorts, touristic offices, restaurants, etc.

Although in the Alps the Bearded vulture population significantly increased during the project and has continued to increase since the end of the project, the Alpine population, now estimated at 50 pairs, remains fragile, as any death of an adult individual has a significant impact on the whole population considering the species long-life cycle. The Bearded vulture conservation status is still assessed as 'Threatened' in the EU-27 (Birds Directive) and 'Vulnerable' on the European IUCN Red List. The total European population is estimated at 207 pairs in 2017. Threats have not been fully eradicated; recent cases of poisoning have been found that are suspected to be linked to the expansion of wolf and the poison that has been left to (illegally) kill wolves.

The current number of pairs in the project area is not known. But overall in the whole Alps, the number of pairs increased during the project from nine in 2003 to 16 in 2007 (between six and 13 over the same period in the project area), and since 2007 it has further increased with 50 pairs in 2017. This is a very good result. In addition, the productivity, i.e. the number of flying chicks per mature pair, is very high compared with other regions with on average 0.58 flying chicks per pair over 2007-2017, versus 0.33 in the Pyrenees and a productivity close to zero in Corsica. This is the result of the major conservation effort provided in the Alps for the species for 30 years, of which this project was a significant contribution.



TABLE 20: NUMBER OF PAIRS OF BEARDED VULTURE IN THE WHOLE ALPS BETWEEN 1995 AND 2017, NUMBER OF FLYING CHICKS AND PRODUCTIVITY (PRODUCTIVITY REFERS TO THE NUMBER OF FLYING CHICKS PER MATURE PAIR)

	MATURE PAIRS	FLYING CHICKS	PRODUCTIVITY
1995	1	0	0
2000	4	3	0.75
2005	12	7	0.58
2010	19	10	0.53
2015	34	20	0.59
2017	50	31	0.62



LIFE piloting new procedures for the protection of species with good results

YELKOUAN SHEARWATER IN MALTA

The population of Yelkouan shearwater (*Puffinus yelkouan*) in Malta was declining due to premature mortality, loss of breeding habitat, and human disturbance at nesting sites. The project aimed to reverse this decline and increase the population at the Rdum tal-Madonna SPA which hosts one third of the Maltese breeding population.

The result was a 10% increase in the population, adult survival rates of 96% and breeding success increasing from 21% to 90%. This was achieved by control of rats, reduction of human disturbance and partnerships between NGOs, fishermen, other stakeholders and national and local government bodies. A proposal for identification and designation of Marine SPAs in the Maltese islands was submitted and approved (implemented in a second LIFE project) helping to increase awareness levels among the decision makers.

Better knowledge on threats and measures to address them helped BirdLife Malta support the Maltese government in fulfilling its obligations for the creation of Marine SPAs in line with the Birds Directive. The intensive fieldwork to locate feeding and rafting areas for the breeding colony at Rdum tal-Madonna helped the project team identify the first eight Marine Important Bird Areas for this species and other seabirds.

Surveys undertaken by the current project LIFE14 NAT/MT/000991, LIFE Arcipelagu Garnija show that the number of nests and reproductive success has significantly increased since 2007 from six nests and 83% reproductive success to 38 nests and 84% reproductive success. The current project is trying to quantify more precisely the status of the Yelkouan shearwater in the Maltese Islands. Its ultimate objective is to revise estimates, assess threats and wherever possible address them, in order to prepare a Maltese national Species Action Plan for the Yelkouan shearwater.

The project's management plan, the first proposed for a SPA and seabird colony, served as a prototype for other seabird colonies in Malta. The project team has also secured continuous funding for a rat control programme, already active for 11 years. Legal notices issued by the Maltese Government have consolidated the protection status of Yelkouan shearwater, e.g. by reducing of the hunting season at sea by one month, by introducing more stringent regulations on the hunting of wild birds and by approval of the management plan for the SPA (in 2010) and including a wider area subject to restricted access.

The most reliable data on the species at the Rdum tal-Madonna SPA was provided in the final report of Garnija Maltija while recent data was obtained from LIFE Arcipelagu Garnija also visited as part of the ex-post mission.

TABLE 21: DATA PROVIDED ON THE YELKOUAN SHEARWATER IN THE PROJECT AREA

ECOLOGICAL INDICATOR	POPULATION IN AREA BEFORE PROJECT (2006)	POPULATION IN AREA AT END OF PROJECT (2009)	POPULATION IN AREA 6+ YEARS AFTER PROJECT (2016)	POPULATION IN AREA 7+ YEARS AFTER PROJECT (2017)	TREND
No. of nests	6	11	24	38	↑
Reproductive success	67%	73%	88%	84%	↑

Quantitative data on national presence of the target species were obtained from the Natural History Museum, as the government authorities contracted for this purpose.

TABLE 22: NATIONAL DATA FOR MALTA ON THE YELKOUAN SHEARWATER POPULATION

SPECIES	NATIONAL POPULATION AT PROJECT START (2006)	NATIONAL POPULATION AT THE END OF PROJECT (2010)	NATIONAL POPULATION 7+ YEARS AFTER PROJECT (2017)	TREND
<i>Puffinus yelkouan</i> breeding population	1,620 – 2,075	1,680 – 2,110	1,760 – 2,265	↑

These figures first and foremost point at an increased knowledge on the species, but they are also more generally in line with assessment information published by BirdLife International in 2015 according to which the population trend is increasing, and hence the species does not approach the thresholds for Vulnerable under the population trend criterion.



Monitoring of breeding locations of the Yelkouan shearwater (© Yael Meroz)

19

LIFE getting support from local communities for species protection in urban areas

RAPTORS OF MATERA PROVINCE IN ITALY

The aim was to protect and to improve the conservation status of four endangered birds of prey with breeding populations in Basilicata, Lesser kestrel (*Falco naumanni*), Egyptian vulture (*Neophron percnopterus*), Red kite (*Milvus milvus*) and Lanner falcon (*Falco biarmicus*). Different approaches were foreseen depending on the species, such as artificial nesting sites, charnels (feeding stations for birds of prey), breeding / recovery centres and conservation strategies. The main focus of the project was on the conservation of Lesser kestrel.

The project provided better knowledge on the conservation status to give a baseline for future efforts. A specific action was to provide alternative nesting sites for Lesser kestrel at the beginning of a touristic boom in the historical towns of the Region and Matera in particular which saw the 'improvement' of many older buildings.

Actions greatly increased awareness amongst residents on the importance of conservation of priority birds, through involvement of the inhabitants and local authorities in identification of nesting sites for Lesser kestrel and in rescuing injured birds. The project highlighted the administrative systems that in several cases were an obstacle for implementation of conservation activities.

The campaign on artificial nests and the offer of free nests encouraged inhabitants to host the falcons with an additional 400 artificial nests installed after the project. The nesting of Lesser kestrel is now a tourist attraction



Lesser kestrel (©Giuseppe Grossi)

in the towns of Matera and Montescaglioso and some hotel managers request artificial nests as a promotional initiative, providing guests also with information on the ecology of this falcon. Nests are occupied every year by the falcons, and the occupation rate has increased, reaching in some cases 75%.

TABLE 23: NUMBER OF NESTING PAIRS OF LESSER KESTREL IN THE PROJECT AREA MATERA BEFORE THE PROJECT, AT THE END OF THE PROJECT AND EIGHT YEARS AFTER THE END OF THE PROJECT

SPECIES	COLONY	POPULATION IN AREA BEFORE PROJECT - NESTING PAIRS	POPULATION IN AREA AT END OF PROJECT - NESTING PAIRS	POPULATION IN AREA 8+ YEARS AFTER PROJECT	TREND	REFERENCES
<i>Falco naumanni</i>	Matera	714-804	953-1,074	increasing	↑	National Action Plan for Lesser kestrel

TABLE 24: POPULATION TRENDS OF LESSER KESTREL IN THE STUDY AREA AVAILABLE FROM THE ANNUAL MONITORING OF ROOSTS CARRIED OUT BY LIPU (LEGA ITALIANA PROTEZIONE UCCELLI) IN THE PERIOD 2009-2017

SPECIES	COLONY	POPULATION IN AREA BEFORE PROJECT - INDIVIDUALS	POPULATION IN AREA AT END OF PROJECT - INDIVIDUALS	POPULATION IN AREA 8+ YEARS AFTER PROJECT - INDIVIDUALS	TREND
<i>Falco naumanni</i>	Matera	1,853	2,789	3,250	↑
	Montescaglioso	100	185	775	↑

TABLE 25: AVAILABLE DATA AT NATIONAL LEVEL FOR LESSER KESTREL IN ITALY

SPECIES	NATIONAL POPULATION BEFORE PROJECT - NESTING PAIRS	NATIONAL POPULATION AT END OF PROJECT - NESTING PAIRS	NATIONAL POPULATION 8+ YEARS AFTER PROJECT - NESTING PAIRS	TREND	REFERENCES
<i>Falco naumanni</i>	3,640-3,840	3,640-3,840	6,673 - 9,115	↑	National Action Plan for Lesser kestrel

The data confirms the contribution of the project to conservation of Lesser kestrel at the local level through measures such as (i) artificial nests; (ii) modification of the building code of Montescaglioso and (iii) establishment of a recovery and rehabilitation centre. It is true that the Italian population of this species has generally increased in the last decade, but it is also a fact that the presence of 800 artificial nests in Matera, with a local population fluctuating between 2,500 and 3,500 individuals depending on the year (meteorological conditions/drought and consequent presence of prey and therefore reproduction success) and the presence of the bird recovery centre at San Giuliano can make the difference. Also with the designation of Matera as European Capital of Culture 2019, several restoration works are being carried out, and the artificial nests (that are well preserved even after nine years) represent a valid alternative.

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Problems with lack of continuity of actions

CONSERVATION OF SAPROXYLIC BEETLE POPULATIONS IN GIPUZKOA, BASQUE COUNTRY, SPAIN

The overall objective of the project was to guarantee a long-term favourable conservation status of *Osmoderma eremita*, *Rosalia alpina* and other saproxylic beetle populations of Community Interest in Gipuzkoa, by enhancing and restoring pollard tree stands remaining in this area. Objectives were to increase knowledge on the species and to develop techniques to manage ancient pollards and create new pollards.

Unfortunately despite studies, action plans, land purchase and establishment of reserves there was little continuity of the actions. Four saproxylic species targeted were included in the Basque Catalogue of threatened species: *Osmoderma eremita* as 'vulnerable' and *Rosalia alpina*, *Lucanus cervus* and *Cerambyx cerdo* as 'of special interest'. However, the management plans for the four species that should have followed their cataloguing have not been drafted yet due to the very limited information available. According to the Basque environmental authority, they are still far from being able to draft these plans. The effectiveness of the conservation actions on beetle populations has not been assessed and awareness raising activities have not been continued at the local level.

For Article 17 reporting in Spain, Autonomous Communities are responsible for collecting information on habitats and species at regional level for submission to the Spanish Ministry of Environment, which makes the national report. In the case of the Basque Country, saproxylic beetles are not amongst the species to be reported on, thus the Basque Government does not have the assessment of the conservation status of these species at regional level. The distribution area of these species is not known for certain, and therefore, the assessment of conservation status can be only based on bibliographic references.

At the national level, the Spanish Article 17 report identifies a lack of information for both *Osmoderma eremita* and *Rosalia alpina*. The overall conservation status is 'unknown'. For *Cerambyx cerdo* the status is unfavourable but improving with its habitat considered to be in favourable condition. For *Lucanus cervus* the situation is unfavourable with an unknown trend.

The Spanish reports do not provide quantitative information on the number of individuals of the population of each saproxylic species. The information is reported in terms of 'number of localities' although it is said that it is not possible to give accurate estimations but only minimum population data (in the Atlantic region: 5 localities for *O. eremita*; 51 localities for *R. alpina*; 67 localities for *C. cerdo*, 303 localities for *L. cervus*). The report points out that there are no data allowing the conversion of 'number of localities' into 'number of individuals'. It is also explained that the estimations are based on very patchy data or on experts' opinions.

This publication would not have been possible without the help of the mentioned projects' beneficiaries, their teams, stakeholders and volunteers. They have kindly welcomed each expert and given time to answer quite a lot of questions and to provide information, data and photographs. The results and outcomes described in this publication have only been possible thanks to their dedication and hard work. We hope to see that the positive trends observed during the ex-post visits are confirmed and consolidated in the future.

