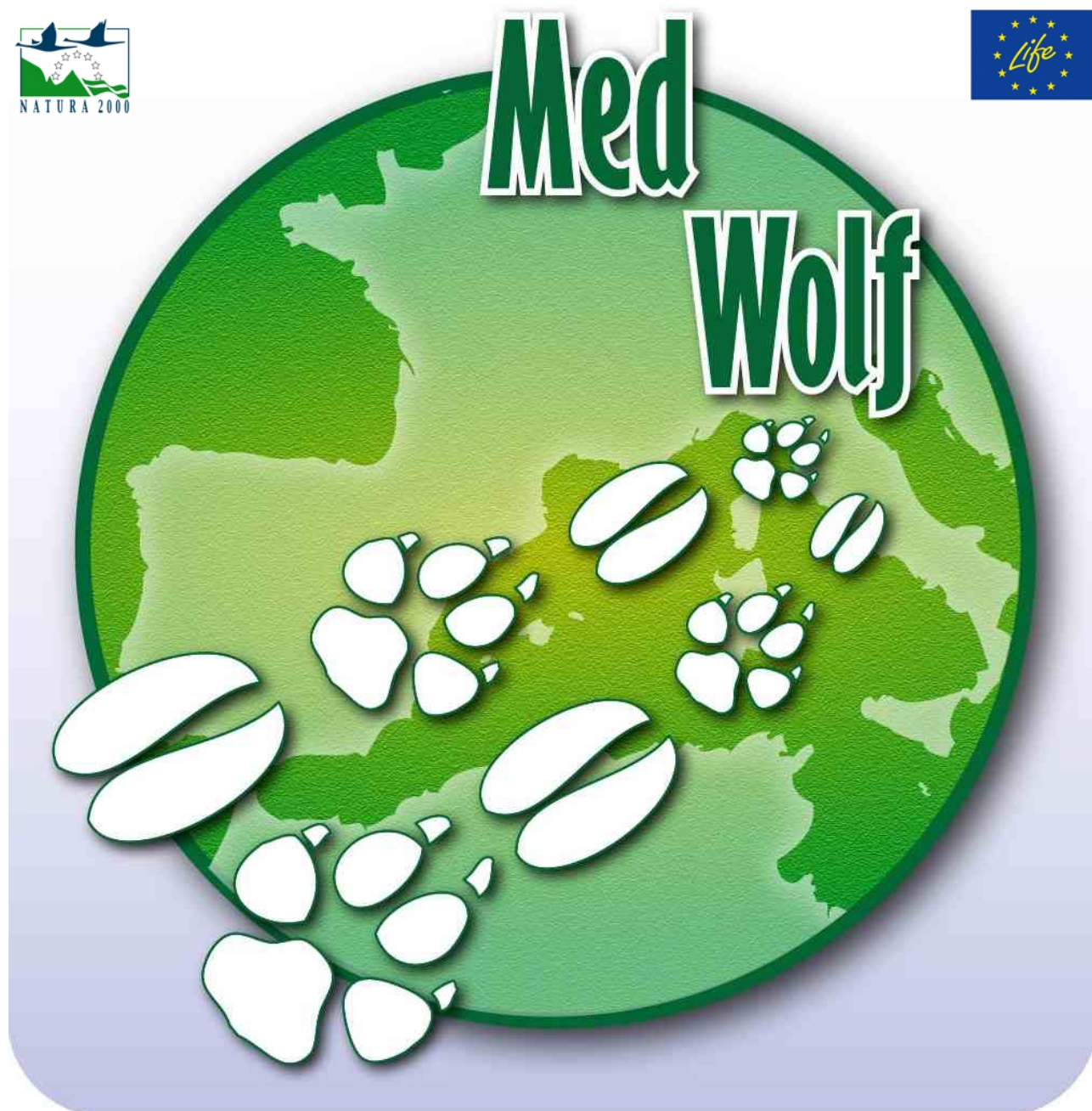


Best practice actions for wolf conservation in Mediterranean-type areas

LIFE MEDWOLF



AFTER LIFE CONSERVATION PLAN

After-LIFE Conservation Plan

At the end of their projects, all LIFE Nature beneficiaries are obliged to produce an After-LIFE Conservation Plan. The plan sets out how conservation activities are planned to continue and to develop after the end of the project, and how the longer-term management of the project targeted species will be assured. It should give details regarding what actions will be carried out, when, by whom, and using what sources of finance. This document reports on the activities planned for granting the continuation of activities undertaken by the LIFE MEDWOLF project, and was produced in 2017.

The LIFE programme

The LIFE programme is the EU's funding instrument for the environment, particularly devoted for the implementation of the Habitats Directive. The general objective of LIFE is to contribute to the implementation, updating and development of EU environmental policy and legislation by co-financing pilot or demonstration projects with European added value.

**LIFE11NAT/IT/069 MEDWOLF after project conservation plan
Prepared by Valeria Salvatori with contributions from project partners.**

November 2017

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Acronyms

AUSL	– Azienda Unità Sanitaria Locale
CDP	– Carnivore Damage Prevention
CIA	– Confederazione Italiana Agricoltori
CIBIO	– Research Centre in Biodiversity and Genetic Resources
CREA	– Consiglio per la Ricerca in agricoltura e l'analisi dell'Economia Agraria
FCUL	– Faculdade de Ciencias Universidade de Lisboa
ICNF	– Instituto da Conservação da Natureza e das Florestas
IEA	– Istituto di Ecologia Applicata
IPCB	– Instituto Politécnico de Castelo Branco
ISPR	– Istituto Superiore per la Protezione e la Ricerca Ambientale
LCIE	– Large Carnivore Initiative for Europe
LGD	– Livestock Guarding Dogs
MATTM	– Ministero dell'Ambiente e per la Tutela del Territorio e del Mare
MoU	– Memorandum of Understanding

1. Introduction

European populations of wolf (*Canis lupus*) are generally increasing (with the exception of the Sierra Morena isolated small population) due to a series of different factors, but mainly thanks to the intrinsic adaptability of the species (Chapron *et al.* 2014). This positive trend is generally associated to an expansion of the presence range, which often includes areas where wolves had been absent for variable lengths of time. Such come-backs bring about a series of side effects, among which the most frequent one, strictly associated to the predatory nature of the wolf, is depredation on free ranging domestic animals, used to be raised in absence of predators, thus often without any prevention measure against wolf attacks. If not tackled timely and with the necessary technical competence, such lack of practical measures to avoid depredation often leads to development of conflicts of interests over the land, that can be extreme and associated to retaliatory behaviour.

Damage prevention measures can be different but should always take into full consideration the local husbandry traditions as well as the cultural background of the local farmers. No matter how smart a device could be if there is no willingness to implement it. Resistance to implement technical measures can be motivated by lack of trust, ideological positions and previous negative experiences.

Wolf range expansion has been reported both in Italy and Portugal. There it has been detected in areas where it had been absent for the latest decades. In order to facilitate the range expansion of wolf in rural areas of Italy and Portugal mitigating emerging impacts on livestock, the LIFE MEDWOLF project aimed at promoting the adoption of damage prevention measures among local livestock owners, to increase awareness among the general public and students about wolf conservation and management, to counteract any eventual illegal act against the wolf through the implementation of anti-poison and anti-poaching teams and to create a Damage Prevention Working Group at the European level in strict collaboration with Large Carnivore Initiative for Europe (LCIE) and AGRIDEA.

2. LIFE MEDWOLF project implementation

The LIFE MEDWOLF project was implemented in two rural areas and through an integrated partnership arrangement so that involvement of different representatives of the stakeholders would be ensured. The project was developed in Province of Grosseto (Italy) and districts of Guarda and Castelo Branco (Portugal), two areas dominated by rural landscapes and where local economies are strongly dependent on livestock raising activities. The project was characterised by a strong inclusion and flexible approach, so as to take into full consideration the local conditions and cultures that would affect the correct implementation of the actions planned.

The specific objectives were:

- to reduce damages to livestock through the increase of the number of farms adopting damage prevention measures;
- to improve the system of control for illegal practices against wolf;
- to increase awareness about wolf conservation in the general public and the other different sectors of the society;
- To create an international Damage Prevention Working group
- To increase capacity of technicians and civil servants through organisation of thematic training workshops.

The project was coordinated by Istituto di Ecologia Applicata and actions implementation was made under the responsibility of the local partners.

3. Results achieved through the implementation of the LIFE MEDWOLF project

The actions planned to achieve the set objectives were mainly three: delivery of selected livestock guarding dogs (LGDs) (Actions C1 and C2), delivery of fences to protect livestock (Action C3 and C4), facilitation of anti-poison activities (Actions C5 and C6), and development of education, dissemination, exchange of experiences and communication activities (Actions E1- E8). Such core actions were associated to

complementary activities such as the reliable surveys on wolf presence (Actions A2, D3 and D4), assessment of baseline damage levels (Actions A3 and A4), evaluation of the level of awareness and attitudes towards wolf in the project areas (Actions A5 and A6), and evaluation of the effectiveness of the implemented damage prevention measures (Actions D1 and D2).

The results achieved by the project are in line with the objectives set and some actions were implemented beyond the project's planned scope, in order to satisfy the local needs and overcome obstacles to achieve the project's objectives. In practical terms, the results obtained can be summarised as follows:

3.1 Wolf presence and range

- In Grosseto province for the first time a robust estimation of the wolf population was provided: we estimated 86-115 individuals distributed in 22-24 packs over an area of 2,838 km². This represents an increase in wolf presence and distribution in comparison with data provided through previous projects (LIFE10NAT/IT/256 IBRIWOLF, and Regional Funds). Although the results are not completely comparable, the minimum number of packs detected in 2014 increased by 50% (see Annex 19, 24 of the Project Final Report).
- In seven municipalities of the districts of Guarda and Castelo Branco the estimates of wolf presence and distribution made in 2013, 2014 and 2016 showed a considerable increase in range and number of packs, when compared to the last national survey conducted in 2003-04, where only two probable packs had been confirmed, and with an increase of 5.5 fold in its range. In what concerns the number of packs, in 2013-14 one confirmed pack and m probable pack were estimated to be present, while in 2016 the estimates improved with 1 confirmed pack and 2 probable packs (See annex 23 of the Project Final Report), and with the confirmed presence of wolves in two other areas in the west of the project area, in one of which two wolves were identified. Nevertheless, it should be stressed that the effort and number of methods used in this project were higher and thus comparisons with the national census data must be made with caution. The innovative use of the Scat Detection Dog Team provided an improvement in the techniques and made scat collection more efficient, while the genetic analysis of swabs collected from kill sites provided a large data sample.

3.2 Damage prevention measures

- In Grosseto Province a total of 71 holdings were provided support for implementation of damage prevention measures, consisting of 80 fences and 46 livestock guarding dogs. The project's objectives of setting up 130 electric fences could not be reached because such fences were not suitable for implementation in the project area, thus in accordance with local farmers we established fixed fences that were more expensive but proved more effective in preventing damage overnight. We delivered more LGDs than expected (20 expected, 79 delivered, of which 6 died and 27 outside Grosseto Province).
- In the frame of the Project we developed an association called DifesAttiva made up of local farmers, and with the aim of creating a network for exchanging and managing LGDs, to promote the use of prevention measures, and to promote local products.
- The efficacy of the fences was tested through a series of approaches (see annex 4 of the Final Project Report) and demonstrated that when appropriately used, they bring damage occurrence down to near zero. Nevertheless, we also proved that they cannot be used at all times, given the need for the local breeds of sheep and cows to graze freely in pastures even overnight in hot summers. Satisfaction from beneficiaries was highly positive in 81% of the holdings, both for fences and for LGDs. Damages during daytime increased in the project area, but in the holdings participating to the project damages decreased by 47%.
- In Portugal we were able to involve 29 holdings which implemented 34 fixed fences and 31 livestock guarding dogs. We achieved the project's objectives and went beyond by delivering more LGDs and fences than originally expected (15-20 LGDs expected, 31 delivered; 15 fences expected, 34 installed). Again the use of electric fences was not considered adequate by most farmers and only permanent fences were built.
- The efficacy of the fences proved to be 100% when correctly used, but in some cases the livestock raising system was such that it was impossible to secure all the raised heads, that where in large numbers and divided into scattered groups. Beneficiaries expressed positive feedback proving

satisfied in 63% of the cases. Damages to holdings showed a decrease over the project implementation and the holdings participating to the project had a reduction of 83% of losses (See Annex 3 of the Project Final Report).

3.3 Anti poison and anti-poaching teams and tools

- In Portugal we promoted the use of canine anti-poison teams and collaborated with anti-poison teams set up through other LIFE projects and made tools available to the Guarda Nacional for implementing control activities. We increased the awareness on the effects of poison and facilitated coordination of activities through collaboration with other initiatives, all taking part to the Programa ANTIDOTO. We also contributed to the training of personnel from local Guarda Civil and invited Spanish experts to perform specific anti-poison surveys.
- A Canine Anti-poison team has been established in Grosseto province, with two trained dogs delivered from Spain. The training and set up process was shared with two other LIFE projects (LIFE13NAT/IT/311 Pluto and LIFE13NAT/IT/728 MIRCo-lupo) in order to ensure coherence and consistency with procedures and approaches. The team is based with the Carabinieri Forestali at Follonica in Marsiliana State Reserve. At the same time two anti-poaching teams have been set up in Grosseto Provincial Carabinieri Forestali Station for routine and extra ordinary checks in potentially risky situations. Operationality of the teams has been fine tuned and a work programme as well as a protocol for action has been produced (see Annex 42 to the Project Final Report).

3.4 Awareness raising, education, exchange of experience, collaboration and participation

A series of initiatives were organised in order to promote the knowledge about the following:

- a) The project in general, the LIFE programme and Natura 2000 Network
- b) Wolf ecology and past and present range
- c) Wolf management, damages to domestic animals, prevention measures that can be adopted
- d) Livestock guarding dogs' management
- e) Supplementary workload born by holdings adopting damage prevention measures (fences)
- f) Effect of poison on wildlife and domestic animals and presentation of the anti-poison activities

Such themes were treated in different ways depending on the audience they were directed to, as indicated in the following table, where activities may overlap dealing with various targets and various themes:

Theme	Target	Activities
LIFE MEDWOLF project, LIFE Programme, Natura 2000	General public	Festambiente Festival, local meetings, participation at local markets and fairs, media articles, itinerant exhibit, brochures, info panels, posters, layman report, social media, media news, participation at EXPO 2015, IV Iberian Wolf Congress
	Farmers and Agricultural associations	Specific meetings at local, regional and national levels
	Local authorities	Information sheets, ad hoc meetings, training actions and workshops, seminars, participation at working groups for wolf management plans
	School children	Wolf kit, lectures, Natura 2000 days
Wolf ecology, past and present range	General public	Information days, Festambiente festival, lectures, seminars

		congresses, itinerant exhibit, media news, leaflets, Museum exhibit, wolf eco-tours
	Agricultural associations, livestock owners	Ad hoc meetings, workshops, social events with livestock owners
	School children	Wolf kit, lectures, laboratories, exhibits, leaflets
Wolf management, damages to domestic animals, prevention measures that can be adopted	General public	Tours to wolf areas and farms, exhibits, Festambiente festival, media articles, workshops, lectures, leaflets
	Agricultural associations, livestock owners, other stakeholders	Meetings with interest groups, internal meetings with project partners, ad hoc meetings
	School children	Visit to project farms, laboratories, lectures, leaflets
	Scientific community, technical experts	Three scientific papers published, participation at 22 scientific meetings and workshops, publication of the CDP Newsletter
Livestock guarding dogs' management	General public	Participation at local fairs, local public events, media articles, leaflets
	Agricultural associations, livestock owners	Ad hoc meetings, social media, MoU with different entities, leaflets, lectures, media news
Promotion of the additional management workload born by holdings adopting damage prevention measures	General public	Visit to project farms, media articles, final project symposium
	School children	Visit to project farms, laboratories
Effects of poison and presentation of the anti-poison activities	General public	Ad hoc meetings and lectures, leaflets, media news
	Vets and local authorities	On purpose events, info sheet
	School children	Lectures, demonstrations

Overall, the awareness raising activities reached the target audiences that declared to be aware about the project and the theme related to wolf predation on livestock and damage prevention measures. The debate on wolf management was further stimulated at national levels both in Italy and Portugal as during the project implementation both countries were involved in the wolf national management plan development. In both countries project staff was involved and contributed to the plan development, namely by providing relevant data collected within the MEDWOLF, and while in Portugal the final document was officially published in November 2017, in Italy it still has to be approved by all regional governments. Furthermore, in Portugal the project staff is also involved in the definition of the Antidoto Program - Portugal official strategy.

The project has signed a series of memoranda of understanding with different entities, establishing formal collaboration on a series of issues:

- provision of LGDs in Italy. MoU with: Eliante NGO, Wolf Apennine Centre and LIFE MIRCo-lupo project, Unione Comuni Garfagnana, National Park Foreste Casentinesi,
- Data sharing. National Health Office of Grosseto, CIBIO-InBIO, LIFE WOLFALPS, CREA.

Within the scope of different MoUs we have delivered 27 LGDs outside the Italian project area.

4. Assessment of persisting problems / issues to be tackled

Trends in wolf presence are still on the increase both in Italy and Portugal, thus the issue of damage caused to free ranging domestic animals will be actual and still present in both project areas.

The threats originally identified that justified the project implementation have been mitigated locally, but further work will be needed to ensure long term sustainability of results achieved.

Particularly:

Threats identified	Status	Issues to tackle
Conflicts with local human activities	Mitigated: increased number of farmers that use damage prevention measures	Impact of wolf (and other predators like wolf-dog hybrids) on domestic animals need to be reduced through promotion of damage prevention measures and modification of livestock management practices. Functionality of delivered damage prevention measures needs to be ensured.
Social habitat fragmentation	Mitigated: interventions and controls have resulted in less cases of poaching, wolf distribution has expanded	In Italy this is not relevant any more as wolves do expand in areas not previously detected. In Portugal social barriers have been mitigated, and genetic analyses show that one wolf of the study area is related to the western wolf nucleus, confirming the connection and transfer of individuals in the Portuguese wolf population south of the Douro river. In both countries wolf monitoring will be continued by the relevant authorities (i.e. ICNF in Portugal and Regional Governments through funds that will be made available by MATTM). Anti-poaching and anti-poison activities will be continued in order to contract illegal practices. Participatory approach will be promoted within the Regional Administration.
Lack of coherent conservation measures in Iberia	Improved: exchange of experience and technical staff ensures consistent monitoring approaches	Establishment of an Iberian Wolf Working Group including technical staff from both Spain and Portugal to share approaches and results. Communication will need to be continued.
Lack of systematic testing of efficacy of damage prevention measures	Mitigated: local authorities are aware that monitoring is needed. The project has provided reliable data.	A best practice example was provided for measuring effective use of damage prevention measures have been produced (See Annex 4 of the Project Final Report). Promotion of their approach among other projects needs to be ensured.

Although the project has mitigated all the threats identified through the implementation of all the actions planned, and additional activities that emerged as necessary, thus accomplishing the objectives of the project, some actions will need to be brought further at least in the next 3-year period.

5. Objectives for the next 3-year period

The main objective for the after-LIFE MEDWOLF project is to ensure durability of implemented measures and implementation of best practices as replication of approaches in wider areas. Specifically, we aim at:

1. Ensure correct use of the implemented damage prevention measures in the project areas;
2. Ensure technical support for managing LGDs;
3. Facilitate adequate management of conflicts;
4. Promote implementation of project actions in other areas;
5. Ensure support to anti-poison and anti-poaching activities;
6. Raise awareness on: (a) wolf presence and potential impact on livestock; (b) use of damage prevention measures; (c) wolf ecology, through divulgation of correct information based on hard facts.

All project beneficiaries will be involved in the achievement of such objectives, for their competences and according to available resources (see section 7 below).

6. Activities that need to be continued

As already forecasted in the LIFE MEDWOLF project document, some of the actions implemented will need to be continued, and taken further with a broader scope in order to achieve the after life conservation objectives. The activities to be undertaken will be the following:

Objective 1. Ensure correct use of the implemented damage prevention measures in the project areas

Activities:

; ; Check for correct fence maintenance, status and use, at least twice/year

All the farmers that have received fences within the project will be visited twice a year for ensuring their correct use

1.2 Visits to LGDs provided with the project, at least twice a year

All the LGDs delivered by the project will be visited, or telephone calls will be made in order to get updates on their working quality

1.3 Provision of LGD food and care

Food and assistance for behavioural issues will be provided in Grosseto within DifesAttiva Association.

Objective 2. Ensure support for problem solving in case of LGDs

Activities:

2.1 Promotion of good practices through meetings, workshops and talks

DifesAttiva members will continue to promote use of LGDs and organise workshops for farmer colleagues. In Portugal Grupo Lobo will continue promotion of LGDs

2.2 Information about potential problems through social media

Social media will be used by DifesAttiva and Grupo Lobo for promoting problem solving while dealing and managing LGDs.

Objective 3. Facilitate adequate management of conflicts

Activities:

3.1 Divulgation of participatory process results

IEA will promote the positive outcomes of the participatory process within the EU Stakeholder Platform for coexistence between humans and large carnivores as well as in other national and international venues; participants will spread the word of mouth on their experience

3.2 Monitoring wolf presence

Wolf presence will need to be continued, possibly by the relevant authorities. Project partners will provide support. In Italy a national monitoring scheme is planned and the project will provide inputs for methodology.

3.3 Collection of information on damage events

Collaboration with relevant authorities (ICNF and AUSL) has increased awareness on the need for collection of structured and detailed information. These activities will be continued by relevant authorities.

3.4 Provision of support to responsible authorities through data and expertise

Final analyses shared with local authorities have stimulated interest and project partners will continue to provide technical support for elaboration of damage prevention implementation and evaluation schemes.

3.5 Publication and presentation of project final results

Final project results will be published in scientific papers, technical magazines and presented at conferences by IEA and GL, but also other partners on occasions.

Objective 4. Promote implementation of project actions in other areas**Activities:****4.1 Transmission of project results**

Technical staff will promote the approaches of LIFE MEDWOLF in other areas for replicability, highlighting the utility of project results, the effectiveness of intervention and importance of collaboration.

4.2 Ad hoc meetings with agricultural associations

In Grosseto, the local offices will promote project activities with offices in neighbouring provinces so as to underline the importance of damage prevention strategies as an integral part of the farms' business plan.

4.3 Participation to other projects' events

Project partners will take all available opportunities for exchanging experiences with other ongoing projects

4.4 Donation of LGDs and expansion of this tool

Pups from the project LGDs will be assigned to new farms and constant contacts will be made in order to keep tracks. In Italy the association DifesAttiva will establish links with other similar associations, and through the support of agricultural organisations will be in touch with new farms.

4.5 Promotion of wolf ecotourism

Tourist activities linked to wolf presence will be promoted in both project areas: in Italy collaborations between Festambiente, DifesAttiva and IUSP will ensure continued tourism activities also linked to the holdings that have installed damage prevention measures. In Portugal, Grupo Lobo will continue the collaboration with Montes de Encanto and other tourism activities for promoting wolf areas and visit the Wolf Recovery centre.

4.6 Wolf surveys using the scat detection dog (SDD) team and genetic analysis

The established SDD Team will be made available to colleagues and other projects for promoting its use in the future.

Objective 5. Ensure support to anti-poison and anti-poaching activities**Activities:****5.1 Full operability of anti poison team in Italy**

The anti-poison team of Follonica will become fully operational and follow a planned timetable of activities, as well as ensuring interventions upon urgent calls.

5.2 Full operability of anti-poaching teams and extraordinary campaigns in Italy

Grosseto will be included in the extraordinary campaigns undertaken by Carabinieri Forestali for contrasting illegal acts on wildlife (e.g., bird poaching over the Sicily strait). On the current activities, the anti-poaching team will continue joint surveys with ASL in and around damage event sites.

5.3 Collaboration with anti-poison teams in Portugal

Collaboration with the anti-poison teams established within other projects and initiatives will be ensured by ALDEIA and GL, given they are part of the network established within Programa ANTIDOTO Portugal.

Objective 6. Raise awareness on: (a) wolf presence and potential impact on livestock; (b) use of damage prevention measures; (c) wolf ecology, through divulgation of correct information based on hard facts**Activities:****6.1 Provision of information to livestock owners**

Local farmers who have not implemented damage prevention measures will receive information and suggestions on how to implement them in the future by the agricultural organisations (CIA, Coldiretti and Confagricoltura) in Italy, as part of their duties in supporting farms for accessing RDF and other public funds, and by IP-CB in Portugal, also by provision of technical assistance on what to do in each situation and supported by evidences coming from the evaluation activities of the project.

6.2 Publication of lay texts on magazines and press

As new events will arise (e.g., delivery of LGDs, construction of new fences, meetings, etc.) lay articles on the newspapers and magazines will be produced by Festambiente and WWF, supported by IEA in Italy, and by Grupo Lobo in Portugal.

6.3 Support new construction of fences

Technical support will be provided by the technicians who took part to the project for correct implementation of fences.

6.4 Inclusion of information in specific projects

Most project partners will continue to be involved in different projects (e.g., RDF projects for the agricultural

organisations; conservation projects for Grupo Lobo, ALDEIA, Festambiente, WWF and IEA; research projects for University of Lisbon, INIAV and IP-CB). Each of them will include results that stemmed from project activities in relevant projects, thus building on the project's experience and promoting the work done.

6.5 Participation at local fairs and Festivals

The promotion of damage prevention measures will be continued through participation at local fairs and festivals by Festambiente, Grupo Lobo, ALDEIA, DifesAttiva. This activity will be done mostly during summer months and will build from the promotional activities done during the project implementation.

6.6 Lectures and activities in schools included those outside the project's area

Festambiente and Grupo Lobo will continue the activities in schools as they have done with different intensities previous to the project implementation. In the future they will be able to include information and data, also pictures, originated by the project, thus ensuring information is provided to school students.

6.7 Promotion of use of exhibits

The exhibits produced during project implementation will continue to be available for free to all those who will request it. No shipping costs will be covered, but in most cases this will not be an obstacle for future installation of the exhibits.

6.8 Publication of the CDP News

The Editorial Board of CDP News will continue to be active and collaborate within the LIFE EUROLARGE CARNIVORES project (LIFE GIE/DE/000661). Agreements have already been made and AGRIDEA will lead the editorial board.

6.9 Maintenance of the website

The website will continue to be active under the shared responsibility of Festambiente and Grupo Lobo.

7. Action Plan and financial outlook

The actions planned to be continued in the next three to five years time will be slightly different in Italy and Portugal, in order to adequately adapt to the local conditions. They are planned as follows:

Actions to be continued in Italy

Action	Responsibility	Time planning	Financial resources
1.1 Check for correct fence maintenance, status and use, at least twice/year	CIA, Confagricoltura, Coldiretti	31/1/2018 – 31/12/2020	CIA: 11,970€ own funds CONFAGRICOLTURA: 2,300€ own funds COLDIRETTI: 12,400€ own funds
1.2 Visits to LGDs provided with the project, at least twice a year	Difesattiva	31/1/2018 – 31/12/2020	18.000€ (2018, from collaboration project with IEA), 6.000 € from FESTAMBIENTE (use of car)
1.3 Provision of LGD food and care	Difesattiva WWF Italia (through/in collaboration with Difesattiva)	31/1/2018 – 31/12/2020	DifesAttiva: Same funds as above WWF: 2,000€/year Own current fund, raised through wolf campaign 2017
2.1 Promotion of good practices through meetings	Difesattiva, CIA, Confagricoltura, Coldiretti	1/1/2018 – 31/7/2019	DifesAttiva: 2,000E/year, regional funds CIA: 8,500€ Regional funds own funds, in collaboration with CONFAGRICOLTURA and COLDIRETTI
2.2 Information about potential problems through social media	Difesattiva, Festambiente	31/1/2018 – 31/12/2020	3.600 € from FESTAMBIENTE (internal press officer)
3.1 Divulcation of participatory process results	Istituto di Ecologia Applicata, Festambiente, WWF	28/12/2017 – 28/12/2020	IEA (funds from EC project "Establishment of local stakeholders platforms for coexistence of large carnivores and people", 499.000€)
3.2 Wolf monitoring surveys	Regional government, Carabinieri Forestale	28/3/2018 – 31/12/2020	Within the process of discussion of the Wolf Management Plan it was agreed that MATTM would provide funds to ISPRA for coordinating a

			national wolf survey in the future 3 years. Carabinieri Forestali are continuing the monitoring activities in Feniglia Reserve (6,000€ until June 2018).
3.3 Collection of information on damage events	AUSL, Province of Grosseto	Continuously	AUSL (own current funds), GR (Regional funds for project on promotion of damage prevention measures 45.000€)
3.4 Provision of support to responsible authorities	CIA, Confagricoltura, Coldiretti, Province of Grosseto	Continuously	Current funds, through ordinary consultative activities
3.5 Publication and presentation of project final results	Istituto di Ecologia Applicata, Festambiente	1/1/2018 – 31/8/2018	FESTAMBIENTE, August 2018 (through the organization of a public conference to disseminate the project's results)
4.1 Transmission of project results	Istituto di Ecologia Applicata, Difesattiva, Coldiretti, CIA, Confagricoltura	28/12/2017 – 28/12/2020	IEA: within activities in collaboration with other authorities for the EC funded project: Establishment of local stakeholders platforms for coexistence of large carnivores and people", 499.000€.
4.2 Ad hoc meetings with agricultural associations	CIA, Confagricoltura, Coldiretti	01/01/2018 – 31/12/2020, continuously and within current activities	CIA: Own current funds, 800€/year COLDIRETTI: Own current funds, 800€/year CONFAGRICOLTURA: Own current funds, 800€/year 8,000€ project MABITA with Regional funds.
4.3 Participation to other projects events	Festambiente, Difesattiva WWF Italia	01/01/2018 – 31/12/2020	Upon invitation
4.4	Difesattiva	2018	18.000€ (from collaboration project with IEA), 2.000 € from FESTAMBIENTE (use of car), 5.000€ through collaboration with WWF
4.5 Promotion of wolf ecotourism	DifesAttiva, Festambiente	01/01/2018 – 31/12/2020	DifesAttiva: 6,000€ from CIA, FESTAMBIENTE: 4,000€ from Provincia di Grosseto with Regional Funds.
5.1 Full operationality of anti poison team in Italy	Carabinieri Forestale	01/01/2018 – 31/12/2020	Own current funds
5.2 Full operationality of anti-poaching teams and extraordinary campaigns in Italy	Carabinieri Forestale	01/01/2018 – 31/12/2020	Own funds, extraordinary campaign for 15,000€ per survey, twice a year
6.1 Provision of information to livestock owners	CIA, Coldiretti, Confagricoltura, Difesattiva	01/01/2018 – 31/12/2020	CIA: 2,000€/year COLDIRETTI: 2,000€/year CONFAGRICOLTURA: 1,000€/year
6.2 Publication of lay texts on magazines and press	Festambiente, Istituto di Ecologia Applicata WWF Italia	2018	IEA: upon requests and on special occasions, 500€/year from own funds
6.4 Inclusion of information in specific projects	Festambiente, CIA, Coldiretti, Confagricoltura, Province of Grosseto	01/01/2018 – 31/12/2020	FESTAMBIENTE : 1) Project "A scuola con la DOP" (in 2018: 408 children, 25 school classes, 6 municipalities involved and 9 in situ visits in the province of Grosseto. BUDGET 9.500 €);

			<p>2) project "I sentieri del lupo" (in 2018 involvement of 6 farms with trekking activities, dissemination activities on stray dogs, on prevention measures and Difesattiva products tastings. 4 Farms located in the province of Grosseto, 1 in Arezzo and 1 in Siena, all of them using protection measures, mainly protection dogs. BUDGET 8.500 €);</p> <p>3) February 2018 - presentation of Difesattiva and its activity on the occasion of the 2nd edition of ASTA (Alta Scuola sul Turismo Ambientale) and tasting of Difesattiva products</p>
6.5 Participation at local fairs and Festivals	Festambiente, Difesattiva	01/01/2018 – 31/12/2020	Organisation of Workshops and tastings of products from local farms (Difesattiva farm) at the National Festival of Legambiente
6.6 Lectures and activities in schools	Festambiente WWF Italia	01/01/2018 – 31/12/2020	Festambiente through the annual advertising to schools (own resources). Medwolf activity will be included in the annual proposal addressed to schools WWF Italia through its local offices
6.7 Promotion of use of exhibits	Festambiente, WWF Italia	Continuously and upon request	Own funds and through the website

Actions to be continued internationally

6.8 Publication of the CDPNews	AGRIDEA with Grupo Lobo and IEA	1/1/2018- 28/02/2022	Within LIFE EUROLARGECARNIVORES project, available budget 110,000€
6.9 Maintenance of the website	Festambiente and Grupo Lobo	1/12/2017- 30/11/2022	800€/year own current funds

Actions to be continued in Portugal

Action	Responsibility	Time planning	Financial resources
1.1 Check for correct fence maintenance, status and use, at least twice/year	IPCB	01/01/2018 – 31/12/2020	Own resources, 3.350€/year
1.2 Visits to LGDs provided with the project, at least twice a year	Grupo Lobo	01/01/2018 – 31/12/2020	GL: Own resources (2,500€/year)
2.2 Information about potential problems through social media	Grupo Lobo	01/01/2018 – 31/12/2020	GL: Own resources (300€/year)
3.2 Wolf monitoring surveys	ICNF, Grupo Lobo	to be defined	POSEUR – Portugal2020
3.3 Collection of information on damage events	IPCB	01/01/2018 – 31/12/2020	Own resources, 3.350€/year
3.4 Provision of support to responsible authorities	FCUL, Grupo Lobo, INIAV, ALDEIA	01/01/2018 – 31/12/2020	GL: Own resources (300€/year) ALDEIA: 400€/year, through different project initiatives and own funds.
3.5 Publication and presentation of project final results	FCUL, Grupo Lobo, INIAV, ALDEIA	2018	GL: Own resources (400€/year) ALDEIA: 200€/year, own funds.
4.1 Transmission of project results	FCUL, Grupo Lobo, INIAV, ALDEIA	2018	GL: Own resources (850€/year) ALDEIA: 200€/year, own funds.

4.3 Participation to other projects' events	Grupo Lobo, ALDEIA	01/01/2018 – 31/12/2020	GL: Own resources (300€/year) ALDEIA: 200€/year, own funds.
4.4 Donation of LGDs and expansion of this tool	Grupo Lobo	01/01/2018 – 31/12/2020	GL: LGD Program financed by ACHLI (156,120€/3 years) NW PT and South Douro, also adjacent to the project area
4.5 Promotion of wolf ecotourism	Grupo Lobo	01/01/2018 – 31/12/2020	GL: Own resources (300€/year), partnerships with local entities and tourism companies
4.6 Wolf surveys using the scat detection dog team and genetic analysis	Grupo Lobo, INIAV	2018 (possibly 2019, 2020)	GL: Own resources, Private funds (4,000€/4 months). INIAV: mainly own human resources – 600 euros/year without reagents
4.7 Lectures and activities in schools	Grupo Lobo, INIAV	01/01/2018 – 31/12/2020	GL: Own resources(150€/year) INIAV: annual training for high school students with non-invasive genetic wolf detection activities (since 2010-annually funded by “Ciência Viva” – 150 euros in average)
5.3 Collaboration with anti-poison teams in Portugal	ALDEIA, Grupo Lobo	01/01/2018 – 31/12/2020	GL: Own resources (150€/year), ANTIDOTO Program (150€/year) ALDEIA: 400€/year, through other project initiatives and own funds
6.1 Provision of information to livestock owners	IPCB, Grupo Lobo	01/01/2018 – 31/12/2020	Own resources (IPCB: 3.350€/year)
6.2 Publication of lay texts on magazines and press	Grupo Lobo	01/01/2018 – 31/12/2020	GL: Own resources (400€/year)
6.3 Support new construction of fences	IPCB	01/01/2018 – 31/12/2020	Own resources, 3.350€/year
6.4 Inclusion of information in specific projects	IPCB, FCUL, Grupo Lobo, INIAV, ALDEIA	01/01/2018 – 31/12/2020	GL: Own resources (1,100€/year). IPCB: 3350€/year ALDEIA: 200€/year, own funds.
6.5 Participation at local fairs and Festivals	Grupo Lobo, ALDEIA	01/01/2018 – 31/12/2020	GL: Own resources (1,500€/year) ALDEIA: 400€/year, own funds.
6.6 Lectures and activities in schools	ALDEIA, Grupo Lobo	01/01/2018 – 31/12/2020	GL: Own resources (350€/year) ALDEIA: 400€/year, own funds.
6.7 Promotion of use of itinerant and permanent exhibits	Grupo Lobo, MUHNAC	01/01/2018 – 31/12/2020	GL: Own resources (700€/year), sponsors

8. Conclusions

The LIFE MEDWOLF project has focused interventions on an issue that is always associated to wolf presence and expansion: its impact on extensive grazing livestock. The actions implemented were not particularly innovative tools, but the approach has proven to be different from previous project: first of all the inclusive and participatory approach, where different parties have been directly involved instead of a responsible authority managing resources and imposing standard tools. This has represented an added value to the project, which has also experimented new approaches for implementing best practice actions. In Italy the involvement of agricultural associations will guarantee the promotion of damage prevention measure not only in the project area but at least in all the Regional territory.

The trust building process has allowed sharing of results in a clear and transparent way, providing keystone information to the main interested parties. This has also allowed for the contribution of the project to the development of the National Wolf Management plans both in Italy and Portugal.

The implementation of damage prevention measures has been done according to the livestock owners' needs and management systems. This has ensured correct use and optimisation of resources. The scheme for evaluating damage prevention measures has allowed to show that damages most frequently occur when not protected, but also that less impacting prevention measures ought to be experimented, in order to avoid keeping livestock for long periods inside small spaces limited by enclosures. The project has also stressed the need for technical assistance to beneficiaries of damage prevention measures, particularly for what concerns the education of livestock guarding dogs, and the support needed in the first 18-24 months of age of the dog, when it finally becomes a working dog.

The project has represented an unprecedented occasion for sharing issues and finding common solutions through a series of thematic workshops at technical level, both national and international. This has led to guidance documents, some of which were published in the Carnivore Damage Prevention Newsletter and scientific publications. Such collaborations and innovative approaches have made possible the establishment of collaboration with various entities for replicating and /or exporting project's activities. Only few actions will need to be continued in order to ensure sustainability of the project results, and most of them will be included in other project's activities within the beneficiaries' budgets or as recurrent actions.

Project facts sheet

Title: Best practice actions for wolf conservation in Mediterranean-type areas

Acronym: MEDWOLF

Duration: 1/9/2012 – 30/11/2017

Project implementation areas: Provincia di Grosseto (Italy) and Districts of Guarda and Castelo Branco (Portugal)

Coordinating beneficiary: Istituto di Ecologia Applicata

Associated beneficiaries: Provincia di Grosseto, Grupo Lobo, Faculty of Science of the University of Lisbon, Instituto Politécnico de Castelo Branco – Escola Superior Agrária, Instituto Nacional de Investigação Agrária e Veterinária, ALDEIA, WWF Italy, Festambiente, CIA Grosseto, Confagricoltura Grosseto, Coldiretti Grosseto, Carabinieri Forestali.

Project contact person: Valeria Salvatori (valeria.salvatori@gmail.com)

Project budget: 3,315,272€

Project website: www.medwolf.eu