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INNOVATIVE ACTIONS AGAINST ILLEGAL POISONING IN EUROPEAN MEDITERRANEAN PILOT AREAS



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The LIFE “Innovation Against Poison” project

1.1 THE PROJECT

The Mediterranean region has an ancient history of poison use that goes as far back as the 5th century B.C., where in Greece was described the use of toxic plants to control wolf populations as well as other species considered as damaging to game and livestock species. Throughout times this practice evolved and spread out, currently has a huge negative impact on human health and biodiversity, being one of the most relevant non-natural cause of death of many endangered species.

The LIFE project “Innovative actions against illegal poisoning in EU Mediterranean pilot areas” was implemented with the objective of demonstrating procedures and practices that contribute to halt the loss of biodiversity due to the illegal use of poison in the European Union (EU). This project is also

known as LIFE “Innovation Against Poison”, with the code LIFE09 NAT/ES/000533. It took place between 2010 and 2014, in Portugal, Spain and Greece and it was co-financed by the European Commission’s LIFE Programme.

1.2 THE PILOT AREAS

Areas with similar characteristics were selected to deploy this project:

- Presence of the most endangered EU species, having the illegal poisoning as the main cause of non-natural death;
- Proven poison use cases related to rural activities, as hunting and stockbreeding;
- To be a Natura 2000 Network area;
- Have comparable surface areas.

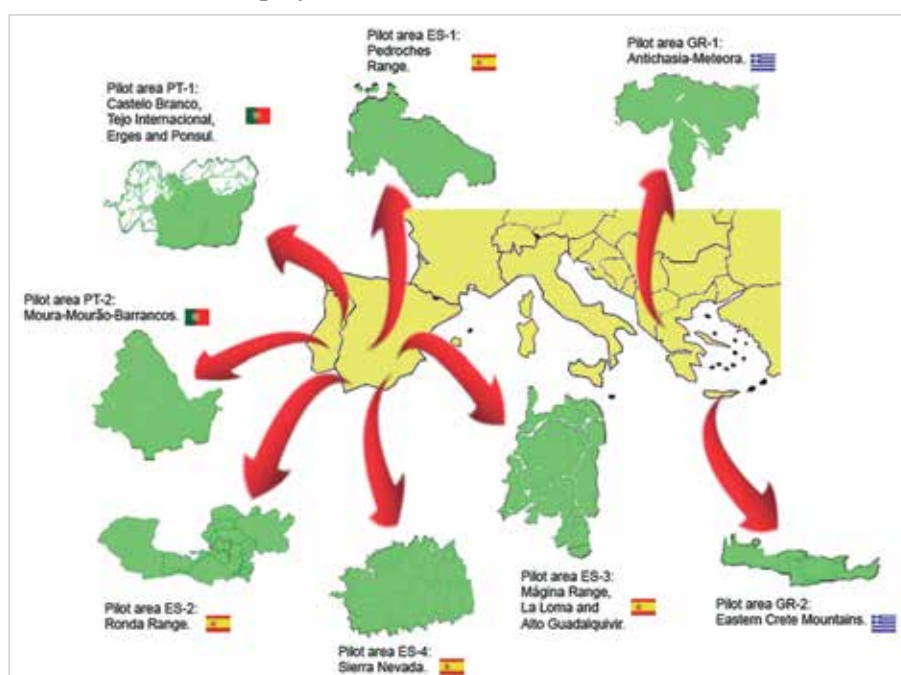


Fig. 1 – General map of the eight pilot areas of the LIFE project “Innovation Against Poison”.

Through these criteria eight pilot areas were selected, in Portugal, Spain and Greece (fig. 1). These areas differ in aspects such as the administrative and legal framework or the level of development in the fight against illegal poisoning. The use of similar tools, in areas with such differences, allowed comparing the achieved results and to better predict the effectiveness of each tool when applied to other regions or countries.

1.3 THE STRATEGY FOLLOWED

The use of poison in rural regions is usually associated to the relevant economic activities of those areas, namely the stockbreeding and hunting. However past efforts to address illegal poisoning in Europe had little or no focus in promoting the engagement of rural groups towards its eradication. The result was a weak social knowledge of the impact that this practice has on both biodiversity and public health.

In this project, the efforts made to tackle the illegal poisoning had an innovative character due to its **participative approach**, focused on a deeper understanding of the use of poison's motivations and on an active social involvement to fight this illegal practice.

The project initiated with a “study of the preoperational conditions in the pilot areas” which

defined the starting conditions and which were identified the more appropriated tools to apply with each target group (hunters, stockbreeders and municipalities) in the different areas.

Simultaneously, an “illegal poison use indicators network” was designed, applicable to all pilot areas, to allow a similar analysis of results between areas.

In a second phase, a set of tools and actions were deployed and monitored. The active and volunteer participation of the target groups enhanced their involvement in the deterrence efforts and implementation of awareness raising campaigns, through a shared responsibility in the fight against illegal poison. These tools and actions were gathered in three different networks, considering the different groups, and the networks were framed as the European Networks Against Illegal Poisoning.

The poisoning monitoring in the pilot areas was made through the work of the European Canine Team, the tagging and monitoring of bioindicator species and the close contact with stakeholders and official environmental bodies.

The knowledge and the social involvement accomplished were enhanced through several communication campaigns, raising awareness actions, technical and scientific meetings and workshops and an international congress.



Fig. 2 – Despite the terrible impact on biodiversity and human health, the use of poison is still considered as a method to avoid predatory attacks over livestock and game species.

The illegal poisoning in the eight pilot areas of the project

2.1 THE ILLEGAL USE OF POISON FRAMEWORK IN THE EIGHT PILOT AREAS

Massive poisoning events of wild species was frequent in the Mediterranean region throughout centuries, due to the historic use of toxic substances to control fauna considered as damaging. Currently, the poison use is explicitly forbidden in Europe, through Article 8 of the Birds Directive 79/409/EC and Article 15 of the Habitats Directive 92/43/EC. Nevertheless, illegal poisoning remains a reality and toxic substances remain available in the market, both legal and illegally, as active principles of a broad spectrum of authorized pesticides or as illegal products available in black market.

Despite the devastating impact of poison use, both on public health and biodiversity, the lack of reliable data and research makes it very difficult to stop this illegal practice. As mentioned above a “study of the preoperational conditions” regarding the poison use, was the first deployed action, in each pilot area. This study gathered the available information for the eight project’s areas, and was completed it with fieldwork data, surveys and field inspections by the European Canine Team. This action allowed identifying the singularities of each pilot area but also the similar aspects (table 1). As an example is the fact that the poison use is generally associated to areas with small game species and extensive stockbreeding areas. The small game species and the cattle are more vulnerable to attacks from predators. However, in



Fig. 3 – Poisoned wolf (*Canis lupus*), found in the Antichasia-Meteora pilot area (Greece).

the two Greek areas the poison use also appears linked to strong conflicts between hunters and/or stockbreeders and also beekeepers. In this last case the poison use is directed to the wasps that destroy the beehives.

The 1,200 inquiries that were made in the eight pilot areas reveal that the illegal use of poison is a social condemned practice. Nevertheless, it is rarely reported to the authorities, even from the ones that are victims from it. As an example, in Portugal, and according to the Portugal Antidote Programme, between the years of 2000 and 2010, the collected information showed 288 poison use episodes, resulting in the death of 1,367 animals. Still, only 116 of those episodes were reported to

Table 1 – Pilot areas of the project main characteristics, according the “study of the pre-operational conditions”.

Pilot area	RURAL ACTIVITY SECTORS					
	Hunting		Stockbreeding		Farming	
	Hunters main complaints	Species referred as damaging	Stockbreeders main complaints	Species referred as damaging	Damages mainly on	Species referred as damaging
PT-1	. Poaching . Predation . Lack of administ. Support	. Fox . Wild boar . Feral dog . Egyptian mongoose	. Low profitability . Sanitary problems . Loss of pastures	. Feral dog . Fox . Vultures	-	-
PT-2	. Game shortage . Predation . Agricultural changes	. Egyptian mongoose . Fox . Wild boar	. Low profitability . Predation . Lack of administ. support	. Fox . Egyptian mongoose . Feral dog	-	-
ES-1	. Poaching . Conflicts with stockbreeders . Game shortage / Predation	. Fox . Stray dog . Wild boar	. Excessive bureaucracy . Low profitability	. Fox . Stray dog / cat . Griffon vulture	-	-
ES-2	. Game shortage . Predation	. Fox . Egyptian mongoose . Wild boar	. Predation . Lack of administ. support	. Fox . Egyptian mongoose . Wild boar	-	-
ES-3	. Agricultural changes . Predation . Game shortage	. Fox . Wild boar . Corvid	. Low profitability . Damages by feral dogs . Loss of pastures	. Feral dog . Fox	-	-
ES-4	. Game shortage . Lack of administ. support . Predation	. Wild boar . Fox . Corvid . Feral dog	. Low profitability . Lack of administ. support . Loss of pastures	. Feral dog	-	-
GR-1	. Poaching . Predation . Conflict with stockbreeders	. Grey wolf	. Predation	. Grey wolf . European brown bear	. Crops . Beehives	. European brown bear
GR-2	. Conflicts between hunters and between hunters and stockbreeders . Predation	. Beech marten . Feral dog . Corvus / birds of prey	. Livestock diseases . Predation . Conflicts with hunters	. Feral dog	. Beehives (preyed by wasps)	. Wasp



Fig. 4 – Often domestic animals are victims of poisoning, in one hand accidentally due to consumption of poisoned baits, directed to wild species, and in other hand in a deliberated action, due to conflicts between neighbors.

Table 2 – Known poison use data for the eight pilot areas, for the period of 2001 - 2008

Pilot area	Poisoning episodes	Poisoned animals found			Poisoned baits found	Main poison family
		Wild	Domestic	Total		
PT-1	46	-	-	142	-	Strychnine, Organophosphates
PT-2	4	35	16	51	1	-
ES-1	27	24	0	24	6	Carbamates
ES-2	90	52	57	107	119	Carbamates
ES-3	29	8	21	29	17	Carbamates
ES-4	15	27	3	30	8	Carbamates
GR-1	-	-	-	-	-	-
GR-2	133	133	-	133	0	-

the authorities. In the case of Greece the lack of data and limited research regarding the poison use was even more serious and the poisoning cases were rarely studied, leading to the absence of data on a well-known problem.

Despite the official numbers (table 2), the reality is much more disturbing. Very often the poisoned animals are not detected or sent to rehabilitation centres, thus not entering in the official data. It is estimated that only 10% of the wild animals killed by poison are detected, leading to a strong probability of more than 10,000 endangered wild animals poisoned in Portugal, Spain and Greece in the last decade.

2.2 ENDANGERED WILDLIFE IN THE PILOT AREAS

Because the commonly poisoning method is the use of poisoned baits, the most frequently affected species are the carnivores and the scavengers.

The eight pilot areas represent important regions for the conservation of a significant number of endangered species, that have seen their populations drastically reduced due to the illegal use of poison (table 3).

**Fig. 5** – Poisoned bait found in the Moura-Mourão-Barrancos pilot area (PT-2) by the European Canine Team.**Table 3** – Some of the endangered wildlife in the pilot areas, according to IUCN – *International Union for the Conservation of Nature* – the conservation status corresponds to: CR – Critically Endangered; EN – Endangered; VU – Vulnerable; NT – Near Threatened; LC – Least Concern; DD – Data Deficient.

WILD SPECIES		CONSERVATION STATUS IN EACH PILOT AREAS							
Common name	Scientific name	PT1	PT2	ES1	ES2	ES3	ES4	GR1	GR2
Bearded vulture	<i>Gypaetus barbatus</i>						EN		CR
Eurasian griffon vulture	<i>Gyps fulvus</i>	NT	NT	LC	LC	LC	LC		VU
Eurasian black vulture	<i>Aegypius monachus</i>	CR	CR	VU					
Egyptian vulture	<i>Neophron pernocterus</i>	EN		E	E			CR	
Iberian imperial eagle	<i>Aquila adalberti</i>	CR	CR	E	E				
Golden eagle	<i>Aquila chrysaetos</i>	EN	EN	VU	VU	VU	VU	EN	EN
Bonelli's eagle	<i>Aquila fasciata</i>	EN	EN	VU	VU	VU	VU		VU
Lesser Spotted Eagle	<i>Aquila pomarina</i>							EN	
Red kite	<i>Milvus milvus</i>	CR	CR	E	E			DD	
Black kite	<i>Milvus migrans</i>	LC	LC	LC	LC	LC	LC	CR	
Wolf	<i>Canis lupus</i>	EN*			CR*			VU**	
Wild cat	<i>Felis silvestris</i>	VU	VU	LC	LC	LC	LC	LC	EN***
European brown bear	<i>Ursus arctos</i>							EN	

* Iberian wolf (*Canis lupus signatus*) ** Grey wolf (*Canis lupus*) *** Cretan subspecies (*Felis silvestris cretensis*).



Fig. 6 – Bearded vulture (*Gypaetus barbatus*).



Fig. 7 – Griffon vultures (*Gyps fulvus*) dead by poisoning in the PT-1 pilot area (Portugal).



Fig. 8 – Grey wolf (*Canis lupus*).



Fig. 9 – European brown bear (*Ursus arctos*).



Fig. 10 – Egyptian vulture (*Neophron percnopterus*).

European Networks Against Illegal Poisoning

The project evolved around the concept of fighting the loss of biodiversity caused by illegal poisoning through a social approach. The work focused on the rural activity sectors commonly linked to that illegal practise (i.e. stockbreeding and hunting) and local administration (municipalities), which are the public officials closest to citizens.

To achieve the proposed project goals it were implemented specific tools and actions, organized in three networks, namely:

- European Network of Stockbreeders Against the Illegal Poisoning (ENSAIP);
- European Network of Municipalities Against the Illegal Poisoning (ENMAIP);
- European Network of Hunters Against the Illegal Poisoning (ENHAIP).

The three networks gather a total of 402 stakeholders who shared the will to achieve a poison free environment (table 4). Through these networks, locals can participate and incorporate

their needs, perceptions and interests in rural space management as well as be informed about the costs of biodiversity loss and also the benefits of anti-illegal poisoned baits actions.



Fig. 11 – A member of the European Network of Stockbreeders Against Illegal Poisoning in pilot area GR-2, with the identification sign of his participation.

Table 4 – European Networks Against Illegal Poisoning, number of foreseen members and number of effectively signed protocols.

PILOT AREA	EUROPEAN NETWORKS AGAINST ILLEGAL POISONING					
	STOCKBREEDERS		MUNICIPALITIES		HUNTERS	
	Foreseen	Signed	Foreseen	Signed	Foreseen	Signed
PT-1	30	32	2	2	18	18
PT-2	30	27	3	3	18	4
ES-1	30	22	16	8	18	13
ES-2	30	3	25	8	18	16
ES-3	30	24	17	15	18	19
ES-4	30	28	21	7	18	14
GR-1	30	47	3	3	18	28
GR-2	30	41	12	12	18	10
Total	240	224	99	58	144	122

3.1 EUROPEAN NETWORK OF STOCKBREEDERS AGAINST ILLEGAL POISONING (ENSAIP)

The European Network of Stockbreeders Against Illegal Poisoning (ENSAIP) gathers a total of 224 stockbreeders. To achieve it, direct meetings with individual stockbreeders and stockbreeders associations were made, where the project's objectives and the Network's foreseen actions were explained.

The adhesion to the ENSAIP was not always an easy task, mainly due to the low profitability of exploitations, the damages or losses caused by wildlife or the distrust in environmental projects. To overpass this obstacle a trust-based relation played an important role and the stockbreeders and association's representatives that were potential Network's members were crucial interlocutors of the project to those more reluctant.

The number of ENSAIP members was continuously increasing throughout the project's implementation period, emphasising the importance of the results' dissemination and the personal trust factor, both on the project's staff and on the project's local interlocutors.

The anti-poisoning tools available (table 5) were chosen and applied accordingly with the specific needs of each stockbreeding estate and the ecological characteristics of the pilot areas.



Fig. 12 – Implementation of the anti-predation method of raven deterrents in a stockbreeders' exploitation, in the GR-2 pilot area.

Table 5 – Anti-illegal poisoning tools implemented in the framework of the stockbreeders' network (ENSAIP).

ANTI-ILLEGAL POISONING TOOLS ADDRESSED TO LIVESTOCK OWNERS (MEMBERS OF THE ENSAIP)	
Feral/stray animals control management	Technical meetings with entities related to feral/stray animals control
	Meetings with stockbreeders and environmental officers, to coordinate efforts to control feral/stray animals
	Dissemination of mammal traps to relevant authorities for capturing feral/stray animals.
	Development of feral/stray dogs innovative capture techniques.
Predation minimization methods to protect livestock	Provision of shepherd dogs
	Shepherd dogs chip tagging campaign
	Electric fences implementation
	Installation of raven deterrents
Technical advising	Technical advising on evaluating the stockbreeding farm, proposal of anti-predation measures and conflicts with the hunting sector
	Mediation to solve conflicts with the hunting sector
	Availability of the European Canine Team in suspected cases of poisoning
	Support in administrative issues
	Free phone line
Legal consulting	Legal consulting for stockbreeders on poisoning related cases
Raising awareness	Delivery of awareness materials (leaflets, flyers), workshops, seminars, events, etc.



Fig. 13 – Delivering shepherd dogs to a stockbreeder network member, in the GR-1 pilot area.



Fig. 14 – Chip tagging a shepherd dog of a stockbreeder network member, in the PT-2 pilot area.

3.2 EUROPEAN NETWORK OF MUNICIPALITIES AGAINST ILLEGAL POISONING (ENMAIP)

To design the European Network of Municipalities Against Illegal Poisoning (ENMAIP) a presentation of the project's objectives and actions was made to each municipality, through formal letters and direct meetings with members of the Municipalities' staff.

For the most part of the municipalities the ENMAIP was consider an important opportunity for the municipality to be actively implicated in the environmental quality improvement. However, some have had a negative response to the project. The main deterrent factors to join the ENMAIP were related to: the agreement's section, specifying that a municipality member of the ENMAIP must be a private prosecutor in cases of poisoning; differences between distinct political levels (regional and local); and previous conflicts with environmental authorities.

A total of 58 municipalities scattered through the eight pilot areas of the project form the ENMAIP. Several anti-poisoning tools and actions (table 6) were developed, taking into consideration the social and administrative features of each municipality member of the ENMAIP.



Fig. 15 – Environmental awareness about the species most vulnerable to the use of poison, in the ES-3 pilot area.

Table 6 – Anti-illegal poisoning tools implemented in the framework of the municipalities network (ENMAIP).

ANTI-ILLEGAL POISONING TOOLS ADDRESSED TO MUNICIPALITIES (MEMBERS OF THE ENMAIP)	
Hunting management	Hunting management for game areas of their municipalities (as areas members' of the ENMAIP)
Raising awareness	Distribution of awareness materials (leaflets, flyers, posters)
	Raising awareness public events
	School lectures
Technical advising	Participation on scientific seminars
	Meetings between the ENMAIP members
	Free phone line
Legal consultation	Legal consulting for municipalities on poisoning related cases
Training to local environmental sectors	Seminars and workshops to local environmental-related sectors about natural resources



Fig. 16 – Public event about the importance of the European networks on fighting the illegal use of poison (ES-2 area).



Fig. 17 – Workshops directed to technical personal, in the ES-4 pilot area.

3.3 EUROPEAN NETWORK OF HUNTERS AGAINST ILLEGAL POISONING (ENHAIP)

To develop the European Network of Hunters Against Illegal Poisoning (ENHAIP) were made several direct meetings with representatives of the main hunting associations in each pilot area, presenting the project.

The ENHAIP reached a total number of 120 hunting areas, a number slightly lower than the expected. The persuasion of the hunting associations to join the fight against illegal poisoning was not always easy, while some hunters were not fully convinced of the problem of illegal poisoning or they were not so much sensitized about environmental issues. As occurred with the stockbreeding sector and the ENSAIP establishment, the hunting sector is strongly based on personal and trust-based relations. For that reason, the continuous and close collaboration with those who became network's

members was essential to the establishment and development of the ENHAIP. Additionally, project's public dissemination events also played an important role in the recognition of the effectiveness of some measures, encouraging other hunters to join the ENHAIP.

The selection of the anti-poisoning tools applied (table 7) depended on the characteristics and problems found in each hunting area and the ecological, social and administrative characteristics of each pilot area.

Table 7 – Anti-illegal poisoning tools implemented in the framework of the hunters’ network (ENHAIP).

ANTI-ILLEGAL POISONING TOOLS ADDRESSED TO HUNTING AREAS (MEMBERS OF THE ENHAIP)	
Feral/stray animals control management	Technical meetings with entities related to the feral/stray animals control.
	Development of feral/stray dogs innovative capture techniques.
Technical advising	Technical advising on hunting and predation management
	Meetings between the ENHAIP
	Mediation to solve conflicts with the stockbreeding sector
	Free phone line
Legal consulting	Legal consulting for hunters on poisoning related cases
Predation control methods based on habitat improvement	Development of an habitat improvement study (GR1 and GR-2 pilot area)
	Chiptagging hunting dogs campaign
Raising awareness	Delivery of awareness materials (leaflets, flyers), scientific workshops, seminars, events, etc.
	Free phone line



Fig. 18 – Protocol signing with Mr. Ferreira, to join the ENHAIP, in the PT-2 pilot area.



Fig. 19 – Projects’ veterinarian is chiptagging a hunting dog, in the framework of the campaign for chiptagging of hunting dogs in Crete (GR-2 pilot area).



Fig. 20 – Technical support to the ENHAIP members, in the ES-1 pilot area.

Assessing the illegal poison use

A single poisoned bait or carcass left in the field can lead to hundreds of indiscriminate victims from poisoning, representing an extremely serious threat both to domestic, wild species and to man. This represents an extremely serious threat both to domestic and wild species and also to man. This fact highlights even more the need of not only stop the illegal use of poison but also to detect and remove poisoned baits and carcasses left in nature, stopping death by a poisoning chain.

To achieve this goal two different actions were implemented:

- Field inspections with the European Canine Team;
- Monitoring bioindicator species.

4.1 EUROPEAN CANINE TEAM (ECT)

The European Canine Team (ECT) integrates a dog trainer and six to ten specialized dogs trained to detect poisoned baits and carcasses in the field. The ECT made annual inspections in the project's eight pilot areas with the aims of detecting the illegal use of poisoned baits and to assess the effectiveness of trained dogs in uncovering this illegal activity.

Between 2011 and 2014 the ECT carried out 303 field inspections in the pilot areas, detecting 126 poisoned baits and 205 poisoned animals, which could not be detectable otherwise (fig. 21). In each inspection the project's field technician and representatives of the environmental authorities for each region accompanied the ECT. Every element found and marked by the ECT as



Fig. 21 – Joint work between the project's team and Portuguese and Spanish environmental authorities, in the PT-2 pilot area.



Fig. 22 – Poisoned bait pick up detected by the European Canine Team, in the GR-1 pilot area.

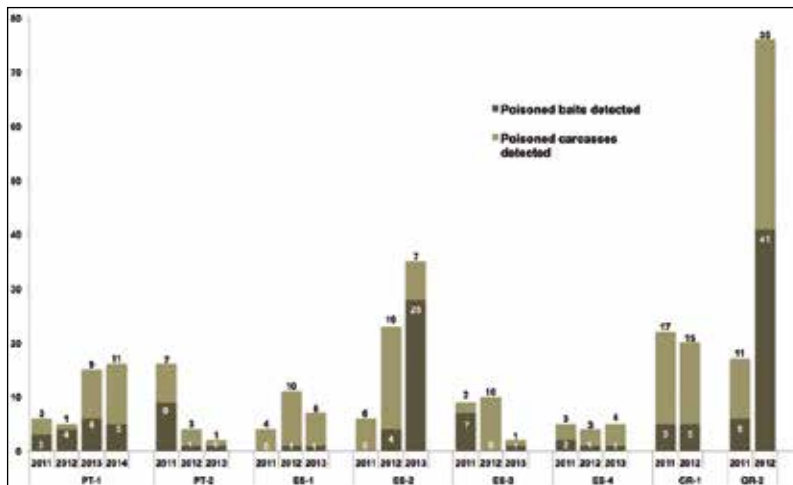


Fig. 23 – Results of the European Canine Team work in the eight pilot areas of the project.

containing poison traces was collected by the official authorities as possible evidence in a legal action case and sent to laboratorial analysis. The reduced number of reference laboratories and/or the high price of detailed laboratorial analysis have proven to be one of the major difficulties to carry out properly a poison use legal action.

The effectiveness of the ECT work was calculated through the number of positive laboratorial results regarding the presence of poison in the collected

samples. This effectiveness varied between years and between pilot areas, mainly due to a greater or lesser degradation state of the sample. Nevertheless, the effectiveness was more than 85%, proving that the ECT is an excellent tool in the fight against illegal use of poison and in stopping the poisoning chain in nature.



Fig. 24 – Detection of a Griffon vulture (*Gyps fulvus*) dead by poisoning, in the GR-2 pilot area.

4.2 MONITORING SPECIES BIOINDICATOR OF POISON USE

A species is considered as bioindicator of the illegal use of poison if, due to its feeding behaviour, it is particularly sensitive to poison. Through the monitoring of bioindicator species it was expected to detect poisoning events over a short span of time, as well as to locate their main food sources and foraging areas and through these two keys, to identify the areas where the use of poison baits prevail.

This action had foreseen the tagging of 40 bioindicator animals per pilot area, 30 with radio-transmitters and 10 with GSM-transmitters. However, the analysis of the project's scientific advisor (the Estación Biológica de Doñana) on the preliminary results, achieved in the Spanish pilot areas, showed an unbalanced capture and monitoring effort versus poor results, recommending the end of this action as it was foreseen.

On three pilot areas (PT-1, PT-2 and GR-2) the action remained in progress, with changes in the tracking methods, to achieve a larger number of monitored birds. A total of 246 scavenger and raptor birds were tagged, from 9 different bioindicator species (table 8). Those species were selected taking into account territorial factors, abundance, and

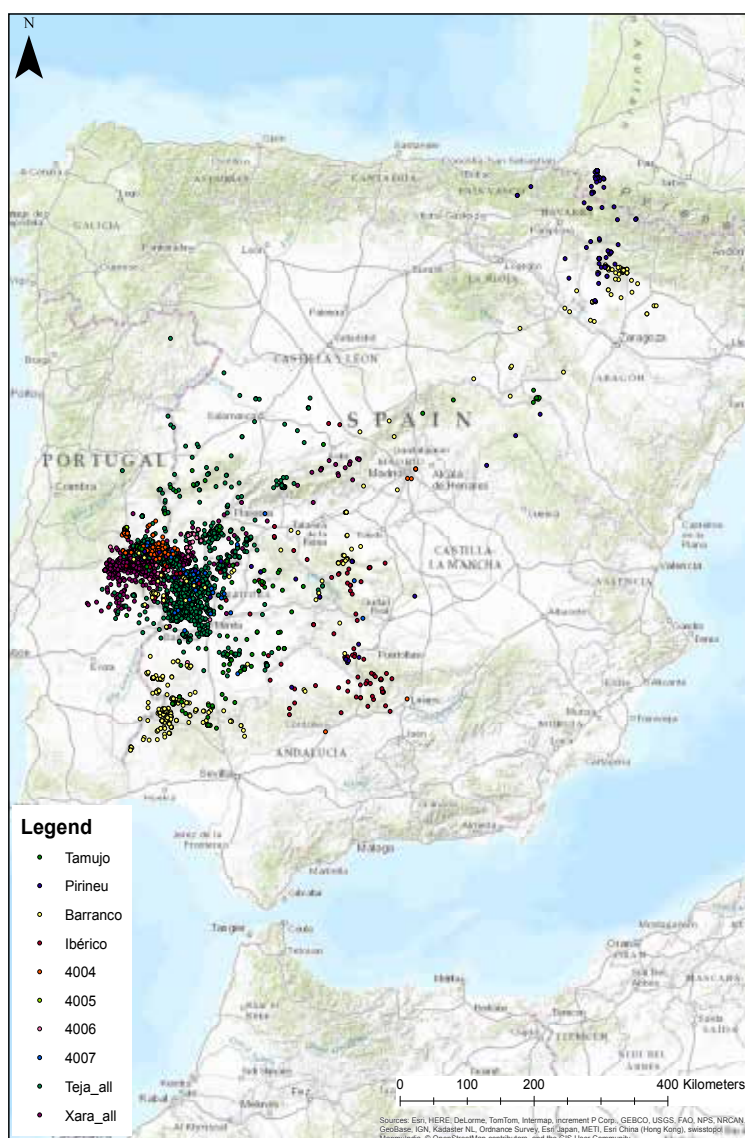


Fig. 25 – Map with the movements of 10 vultures, tagged in the PT-1 pilot area.

Table 8 – Bio-indicator species monitored – species and number of tagged birds and type of following made.

Common name	Scientific name	Monitoring method	N. ° of monitored birds	
Bearded vulture	<i>Gypaetus barbatus</i>	Radio transmitter	2	2
		Patagial wing tags	138	
Eurasian griffon vulture	<i>Gyps fulvus</i>	Radio transmitter	23	165
		GPS-GSM transmitter	4	
Rüppell's vulture	<i>Gyps rueppellii</i>	Patagial wing tags	1	1
		Patagial wing tags	3	
Eurasian black vulture	<i>Aegypius monachus</i>	PTT solar GSM transmitter	3	9
		GPS-GSM transmitter	3	
Red kite	<i>Milvus milvus</i>	Patagial wing tags	3	3
Black kite	<i>Milvus migrans</i>	Patagial wing tags	3	3
Common buzzard	<i>Buteo buteo</i>	Patagial wing tags	1	1
Long-eared Owl	<i>Asio otus</i>	PVC coloured rings	25	38
		PVC coloured rings + radio transmitter	13	
Raven	<i>Corvus corax</i>	PVC coloured rings	14	24
		PVC coloured rings + radio transmitter	10	

246



Fig. 26 – Observation of a wing tagged Eurasian black vulture, in the PT-2 pilot area.

also the feasibility of capturing a suitable sample size to have a correct assessment of the use of poisoned baits impact.

Of the monitored birds, 13 were found dead:

- 8 griffon vultures - 1 dead due to collision with a wind farm mill and 2 with undetermined cause of death, due to the advanced carcasses' decomposition; 1 by illegal shooting in Senegal, 1 drowned, 2 electrocuted in power lines, and 1 by illegal trapping in Morocco.
- 1 raven and 4 long-eared owls – all with suspicion of dead by poisoning that was not possible to confirm due to the carcasses' mummified state and improper for toxicological analysis.

In conclusion, monitoring poison use bioindicator species proved to be quite good in identifying the

foraging areas of target species, their seasonal or even daily movements, the areas where those birds are more susceptible to poisoning. The information collected helped also better understand the complaints received from stockbreeders regarding possible raptors attacks to cattle and many scientific information can now be used for conservation purposes.

However the method failed to detect the cause of death as birds may die in non-accessible areas or are found several days /weeks after and poison substances have been disintegrated and toxicological analysis are not feasible. Nevertheless, the movements' data collected in association with population monitoring and wildlife rehabilitation data can be used to evaluate the impact of poison use on wildlife.

Public awareness and dissemination

This project aimed at fighting the illegal use of poison through a participative and social approach, emphasizing the importance of involving the rural activities' sectors but also the general population. The three European networks against the illegal use of poison created (chapter 3) were focused on the rural activities' target groups and regarding the general population and schoolchildren were developed raising awareness campaigns.

However, the central topic of the project - illegal poisoning – is not an easy or attractive subject to public in general and especially not to children. To bypass this fact, the raising awareness campaigns were thought in ways that could make them more appealing. Whenever possible the campaigns, that included actions such public talks, round tables discussions, project LIFE Open Days or sessions in classrooms for schoolchildren, were associated with other “less common” activities, as some examples:

- Public demonstrations of the European Canine Team;
- Release wild birds to nature;
- Participation in festivals, fairs, seminars and other public events;
- Fieldtrips;
- Theatre, storytelling and exhibitions.

The raising awareness and educational materials produced addressed the problem of the illegal use of poison in a clear and simple manner while encouraging active participation from citizen and stakeholder



Fig. 27 – Participation of the European Canine Team in awareness and environmental education actions (ES-2 pilot area).



Fig. 28 – Environmental education action with one of the schools in the GR-1 pilot area.

groups. The project's materials have been delivered to the three networks, public administration services, schools and general public during meetings and public awareness activities.

At the end of the project, were reached more than 15,000 children and carried out more than 340 raising awareness actions directed at the general public. Furthermore, and to reach a broader audience, more than 130 press releases, around 30 radio and TV reports and 170 articles were produced in the Portuguese, Spanish and Greek media. The project, its objectives, actions and results were also presented in 13 scientific European seminars, congresses and meetings and were organized 19 workshops for environmental officers and public servants.

It was organized also an international conference with the subject "Poison, Wildlife and Society" that joined some of the best European experts in the fight against poison from the legal,

toxicological and ecological perspectives and with the attendance of ca. 200 participants from 9 European countries who shared their knowledge on this conservation and social problematic.

All these awareness actions were considered as fundamental to change mentalities and to ensure the long-term effect of the project on biodiversity preservation.



Fig. 29 - T-shirt delivery in a awareness action at the Zebreira elementary school, Idanha-a-Nova, in the PT-1 pilot area.



Fig. 30 – Environmental awareness action, in the ES-3 pilot area.

Innovation against poison – main achievements

This project had since the beginning characteristics that made it a challenging task. The subject itself, an ancient and deeply rooted practice that, even being illegal since years ago, remains present. Additionally, the target groups to which the project was focused, sectors of traditional rural activities, are sometimes more reluctant to open their daily management to new methods. And finally, the geographical scope of the project, eight pilot areas of three different countries, represented itself a challenge to the project's staff.

As main project's results and achievements, it's important to point out aspects like:

- Regarding the reduction of predation related problems, network members considered useful the **help provided** via technical advisory and other anti-predation measures;
- Improving the databases of poison related cases and a clear improvement in the **methodologies available** in the detection of poison use cases, by tools as the European Canine Team (ECT) work. Where the majority of poison use episodes, which the ECT detected poison traces, lead to legal investigations by the official authorities. Another positive aspect derives from the fact that in several areas where in first ECT visits poison was detected, in the next years it seemed to be poison free, which can be a good indication of the persuasive effect of this project's actions;
- The **increasing social implication** in the fight against illegal poisoning. Several possible poison use cases were denounced to the projects' staff in the different pilot areas, and were later followed by official authorities. Additionally, members of the networks against illegal poisoning presented themselves as prosecutors in legal cases against alleged poisoners. This

happened with the municipality of Ronda (member of the municipalities' network, in the Spanish ES-2 pilot area) and with a stockbreeder (member of the stockbreeders' network in the Greek GR-1 pilot area);

- The increasing efforts of national authorities in fighting illegal poisoning. Two very good examples were the creation of two Greek Canine Teams, by the Hellenic Ornithological Society and the Management Body of the North Pindus Park (through two different LIFE projects), and the consideration of the Portuguese environmental authority - SEPNA (Nature and Environment Protection Service) - to train some of their dogs for poison detection.

The LIFE "Innovation Against Poison" project symbolized an extraordinary opportunity to test the effectiveness of a new approach and tools aiming the eradication of illegal poison use. The achieved results represented an important improvement on that matter. However, the social character of this subject made clear that it is vital to keep on the started work and assure that new generations can prepare a future, aware of the surrounding biodiversity's value and the need of its protection.



Fig. 31 – Release to nature of red kite, a threatened species by the illegal use of poison, by the Mourão's Municipality President (an ENMAIP member) and with schoolchildren of that region, in the PT-2 pilot area.

PROJECT LIFE09 NAT/ES/000533 "INNOVATION AGAINST POISON"

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October 2010 – October 2014

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