



LIFE AEGYPIUS RETURN

REPORT

Deliverable 5.1. Report on poisoning cases detected within the LIFE Aegyptius Return study area. 2024.

July 2024





Almost four decades after becoming extinct in Portugal as a breeding species, the Cinereous Vulture (*Aegypius monachus*) returned to colonize the country in 2010, as some birds coming from Spain nested in the Tejo International Natural Park. Thanks to the conservation efforts carried out in both countries by NGOs and government entities, the number of breeding pairs has been steadily increasing. However, the Portuguese population is still too fragile, and its future remains uncertain. The LIFE Aegypius Return project will ensure the definitive return of the species.

<https://4vultures.org/life-aegypius-return/>

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Authors and Contributors

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Contributing organizations *(by alphabetical order)*

GNR – Guarda Nacional Republicana
 ICNF – Instituto da Conservação da Natureza e das Florestas
 Palombar – Conservação da Natureza e do Património Rural
 VCF – Vulture Conservation Foundation

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List of acronyms and abbreviations

CIARA – Centro de Interpretação Ambiental e Recuperação Animal de Felgar

CV – Cinereous Vulture (*Aegypius monachus*)

EU – European Union

GIC – Grupo de Intervenção Cinotécnico

GNR – Guarda Nacional Republicana

ICNF – Instituto da Conservação da Natureza e das Florestas

IUCN – International Union for Conservation of Nature

LPN – Liga para Protecção da Natureza

LxCRAS – Centro de Recuperação de Animais Silvestres de Lisboa

NGO – Non-governmental organizations

NICCOA – Núcleo de Investigação de Crimes e Contraordenações Ambientais

NUIPC – Número Único de Identificação do Processo Crime

PACAN – Plano de Ação para a Conservação das Aves Necrófagas

PAP – Programa Antídoto Portugal

PSP – Polícia de Segurança Pública

SAC – Special Areas of Conservation (Natura 2000 network)

SEPNA – Serviço de Proteção da Natureza e do Ambiente (GNR)

SPA – Special Protection Areas (Natura 2000 network)

VCF – Vulture Conservation Foundation



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INTRODUCTION

1. FOREWORD

The Cinereous Vulture (*Aegypius monachus*) is an endangered species with conservation status of Endangered (EN) in Portugal and Vulnerable (VU) in Spain. Globally, it is classified as Near Threatened (NT) by the International Union for Conservation of Nature. It is protected by the Habitats Directive (Annex I), as a priority conservation species in Europe, by the Bern Convention (Annex II), by the Bonn Convention (Annex II) and by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES - Annex II-A).

As a scavenger bird, it plays a fundamental ecological role by feeding on carcasses and minimising the spread of disease.

Formerly widespread in Iberia, the Cinereous Vulture became increasingly scarce in the region over the 20th century mostly due to habitat loss, wildlife poisoning and direct persecution. In the 1970s the breeding population went extinct in Portugal, and only around 200 pairs remained in Spain. Following the implementation of legal protection and targeted conservation measures, the species started recovering in Spain and naturally recolonised Portugal with the first breeding pair detected in 2010 in the Tejo Internacional Natural Park. Since then, more pairs began settling across different regions of Portugal and five colonies are currently known (the fifth just recently discovered, in June 2024).

The recovery process has been steady, although slow and limited, and the need of urgent action to ensure the definitive return of the species to Portugal and Western Spain led to the approval of the LIFE Aegypius Return project.

Until 2027, the project aims to increase the breeding population in Portugal to at least 80 pairs in five colonies, improve the breeding success, encourage the connectivity between colonies and downgrade the national conservation status from Critically Endangered to Endangered (which already occurred in 2023 with the update of the Portuguese [Red List](#) of Breeding Birds – Almeida et al. 2022).

Concrete conservation actions will include the reduction of disturbance around the nests, fire prevention, the installation and reparation of nesting platforms, the improvement of food availability, anti-poisoning fights, and population reinforcement via soft release strategies. Furthermore, a thorough collaboration and capacitation plan will be put in place, promoting joint work with all relevant stakeholders – e.g. hunters, farmers, national authorities, conservationists – to improve ecological conditions for the species and to detect and fight wildlife crime and illegal poisoning, which is vultures' biggest threat worldwide.

The success of LIFE Aegypius Return relies on the extensive collaboration of nine partners and the active involvement of such stakeholders.

2. POISON AS A THREAT TO WILDLIFE

The use of poison baits, although illegal in most parts of the world, is still one of the most widely used methods worldwide to eradicate animals such as predators and pests, considered to be harmful to certain human activities, particularly game management for hunting, livestock farming, and other agricultural practices, and has been a common practice in many rural parts of Europe for a long time. Today, illegal wildlife poisoning represents one of the most urgent conservation issues as it has devastating effects on numerous threatened species populations and can lead to local and regional extinctions (e.g. Ogada et al. 2016, Plaza et al. 2019). The use of poison baits is an illegal practice that also poses a danger to public health of both the perpetrator and unaware citizens, as they may easily come in contact with available pesticides and poisoned animals or baits in their communities.

It is extremely difficult to control and prevent illegal wildlife poisoning in our environment since toxic substances can be easily obtained and used, which encourages preparators to exercise this highly damaging and illegal method of exterminating animals. Poisoning silently kills animals, as extremely small amounts can cause major deaths and only about 20% of incidents are ever recorded or reported.

The placement of poison baits is a non-selective method for killing animals. This method does not discriminate as almost every domestic and wild animal that ingests poison baits dies. Scavengers like vultures and predators can then feed on these poisoned carcasses and meet a tragic end themselves, with multiple species often falling victim to this highly damaging practice.

Since illegal wildlife poisoning is the most significant threat to wildlife, and notably to vultures, that often feed on poisoned baits, this factor must be considered when planning any conservation initiatives. The Vulture Multi-species Action Plan for the conservation of the old world vultures (Botha et al. 2017) – the global blueprint for vulture conservation, and that has been adopted and endorsed by the UN Convention for Migratory Species (CMS), and all its signatory countries, including the EU, clearly says that poison baits are the number one threat to vultures in Europe and the world, thus mitigating this threat is of paramount importance.

It is urgent to tackle illegal wildlife poisoning to prevent further vulture and other wildlife mortality and help boost local populations, enabling the recovery of especially endangered species, such as vultures, which play an essential role in the ecosystem, providing environmental services that benefit the environment, other wildlife and society.

3. FIGHTING ILLEGAL POISONING IN PORTUGAL AND WITHIN LIFE Aegyptius Return

In Portugal, the national efforts to fight against poison are crystallized in the [Programa Antídoto](#), which was revised in 2018 (Barroso, 2020) through a collaboration of stakeholders that take part in the several phases of a poison detection case (e.g. authorities, toxicology laboratories, NGO, etc).

Programa Antídoto defines a national strategy against the use of poisons, with the aim of combating the various forms of misuse of toxic substances and contributing to a better understanding of the consequences of these practices for Portuguese wildlife species.

Hence, it implies early detection of poison baits and poisoned animals, and, unfortunately, there is often limited progress with this, often due to lack of resources.

The LIFE Aegyptius Return project includes two tasks that aim at developing local capacity to deal and follow-up poisoning and other incidents with the Cinereous Vulture (and other species) and expanding the anti-poisoning programme.

On the one hand, under Task T.5.4, the project intends to increase the operational capacity of the enforcement agency that has competences to act in poisoning events (SEPNA, the GNR service that has the national responsibility for Nature and Environmental Protection) so that they can act effectively, both preventively or reactively to detect or investigate suspected poisoning cases and avoid others. The project will allow GNR to reinforce their canine detection capacity through the establishment of two new canine teams (man with dog) specialized in poison detection in the field, with a total of three trained dogs. These paired teams will follow a regular, intensive, and streamlined schedule of surveillance operations, conducting preventive and reactive patrols and providing quick response to suspected poisoning cases - at least three patrols a month are planned across the project area in Portugal. Preventive patrols happen when dogs search areas without a suspected case to search blindly, both in high-risk areas (where historical records are concentrated), or next to human settlements, to provide a deterrent effect on local populations. Reactive patrols happen when dead or live incapacitated individuals are found in the fields, suggesting a poisoning incident. Furthermore, the project includes the establishment of one Laboratory for Manipulation/Handling of the poison used to train the canine teams during the whole project, with the necessary security and safety conditions and procedures for both men/dogs complying with National/European related legislation. This Laboratory will be based in the central canine unit in Lisbon and will be able to store big quantities and varieties of poison to be used during the project by every poison detection canine team. The samples of poison used and in possession of the Canine Unit (Aldicarb, Carbofuran, Strychnine, Bromadiolone, etc) have more than 90% of toxicity which requires additional and specialised measures when storing the samples. At the same time, it will enable GNR to possess large amounts of poison in order to refresh the samples distributed to the dislocated canine teams across the country. This capacity reinforcement will allow GNR to react to incidents and try to detect poisoned baits and dead animals, suspected of being poisoned, early on.

On the other hand, through Task T.5.5, the project will also enhance the judicial completion of poisoning crimes. Unfortunately, up until now, and even though several notorious poisoning cases in the project area have been investigated, there has been no conviction or completion of the due judicial process, either because evidence was inconclusive, or because there are no identified suspects, and thus cases are archived by the prosecutors. A crime against wildlife seldom reaches the trial phase, due to lack of evidence, lack of suspects or lack of awareness. Consequently, most offenders know they will not have to face the judicial process and so there is an insufficient deterrent to illegal poisoning. This impunity leaves an important gap in

the fight against poisoning of wildlife and generally all crimes against wildlife. This project task ensures that the effort in the detection of poisoning and other crime does not end at the judicial enquiry phase and seeks to create jurisprudence and an effective judicial process. This will be done through the contracting of legal services to deal with the most serious and best documented cases of crime against wildlife. There will be a strong focus on the Cinereous Vulture, but it can also be used in outstanding crime cases against other species, particularly raptors, since illegal persecution of raptors does not distinguish between species. It is expected that these efforts will end up being dissuasive of crime against wildlife in the project areas. This is important since it is known that poisoning, as well as other illegal killing of wild species, is traditionally seen as a minor crime even by some in the judiciary. As a result of this task, the LIFE Aegypius Return project aims that at least 30% of poisoning cases generate an official investigation (in which project beneficiaries formally assist in the procedures) and one or two reach courts.

The poison fighting work planned in LIFE Aegypius Return is framed in the Portuguese Action Plan for the Conservation of Necrophagous Birds (PACAN; published under legislative Dispatch nr. 7148/2019 from August 12th). This diploma, particularly in its Specific Objective nr. 7, bolsters the need for fighting non-natural mortality of birds through the reinforcement of *Programa Antídoto* in priority areas for scavenging birds, and stresses the importance of early detection and prevention through the work of canine teams in articulation between ICNF, GNR and SEPNA.

4. REPORT CONTENT

This report constitutes the LIFE Aegypius Return project's Deliverable D5.1, the mid-term report of poisoning cases detected within project area and their judiciary follow up. It covers the work done in the fight against illegal poisoning in Portugal since the beginning of the project (01/09/2022) until 30/06/2024, under Tasks T.5.4 *Developing local capacity to deal and follow-up poisoning and other incidents with target species* and T.5.5 *Implementation and/or expansion of the anti-poisoning programme*.

We will present a situation point regarding:

- preventive and reactive patrols done by GNR canine teams;
- suspected poisoning cases in Portugal and in the project study area;
- main results;
- two case studies.

Despite the project partners' effort, during the reporting period it was not possible to obtain information on the judicial follow-up of any of the detected cases, as they remain under judicial secrecy.

The office of the attorney general (*Procuradoria-Geral da República*) were contacted several times, but no answers were formally obtained up until this moment.



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RESULTS

During the reporting period, GNR, as a Portuguese public institution and national authority, faced some bureaucratic difficulties regarding procurement and administrative processes for building the laboratory and the kennels and purchasing the dogs. However, those constraints did not hinder the tasks planned in LIFE Aegyptius Return.

Organization of GNR canine units

Currently, GNR and their Main Canine Unit (*Grupo de Intervenção Cinotécnico* - GIC), have four canine teams specialized in poison detection based in Lisbon. Until recently, other poison-specialized dog units existed in other parts of the country, as part of other projects - LIFE Rupis (LIFE14 NAT/PT/000855) in the northeast (Bragança), and LIFE Imperial (LIFE13 NAT/PT/001300) in the south (Alentejo). However, those dogs reached seniority and retired from police activity. Hence, it's the four canine teams based in Lisbon that are currently performing preventive and reactive patrols in the whole country (in the case of a suspected poison event, even in Madeira and Azores islands).

LIFE Aegyptius Return foresees the acquisition and training of three new canine teams - two new canine teams to be established in central Portugal (Guarda) and one canine team to be based in Lisbon, in the GIC headquarters. These three additional dogs are currently completing their training and will start field work in September 2024 (with an active life predicted until 2030). Until the training is complete, GNR is abiding with preventive and reactive patrols using the four pre-existing canine teams.

5. PREVENTIVE PATROLS

Preventive patrols happen when dog units search areas without a suspected case to search blindly, both in high-risk areas (where historical records are concentrated), or next to human settlements, to provide a deterrent effect on local populations.

A minimum of 3 monthly poison-prevention patrols are foreseen within LIFE Aegyptius Return. However, in this report other types of preventive patrols were also considered, such as the ones preventing any other disturbance to the Cinereous Vulture breeding colonies or providing a deterrent effect on local populations.

Study area

In the scope of preventive patrols, GNR team refer mainly to the target areas of the project. The LIFE Aegyptius Return project intervention area is mostly comprised of 10 Special Protection Areas (SPA) in the border region of Portugal (7) and Spain (3) which already have Cinereous Vulture breeding colonies, or that apparently present adequate habitat for the species' expansion (Fig. 1):

- PTZPE0038 Douro Internacional e Vale do Águeda
- PTZPE0037 Rios Sabor e Maçãs
- PTZPE0039 Vale do Côa
- PTZPE0007 Serra da Malcata
- PTZPE0042 Tejo Internacional, Erges e Pônsul

PTZPE0045 Mourão/Moura/Barrancos
 PTZPE0047 Vale do Guadiana
 ES0000202 Campo de Azaba
 ES0000370 Sierra de Gata y Vale de Pilas
 ES0000434 Canchos de Ramiro y Ladronera

In June 2024 a fifth breeding colony was discovered in the municipality of Vidigueira, outside any protected area or the established buffer (Fig. 1). This demonstrates the importance of expanding the project's efforts beyond the 10 target SPA.

Hence, as the project aims at minimizing mortality of the Cinereous Vulture and promoting connectivity among colonies, within the project's scope a buffer area of 40 km to each side of the North-South Portuguese-Spanish border is generally considered as "the project area" (Fig. 1). This buffer radius was determined considering the average distance from the nest in which Cinereous Vultures usually search for food during the breeding season.

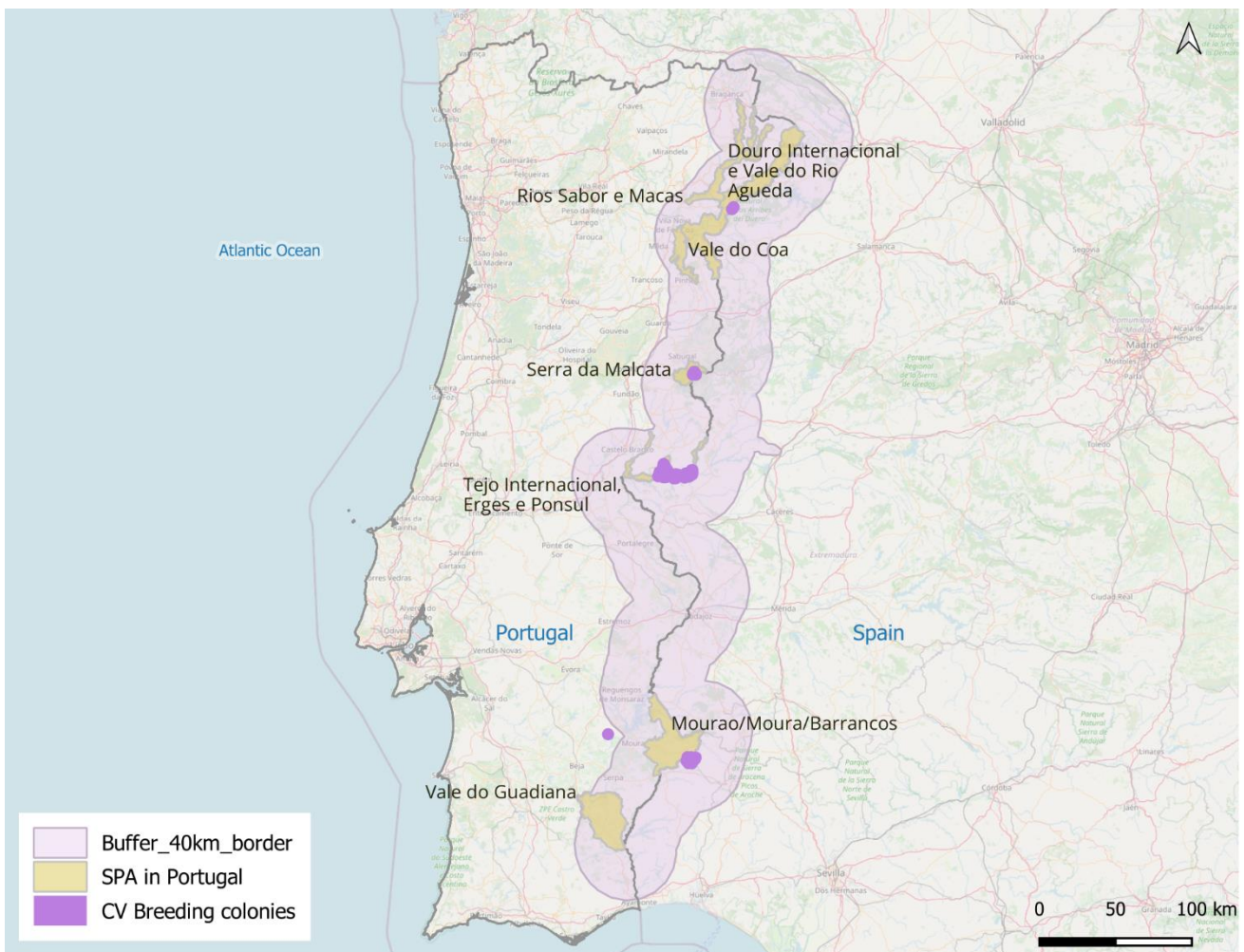


Fig. 1. LIFE Aegypius Return project area: 7 Target Special Protection Areas (SPA) in Portugal, the 5 Cinereous Vulture (CV) breeding colonies in Portugal and a buffer of 40 km to each side of the North-South Portuguese-Spanish border considered for consolidating and expanding the Cinereous Vulture population in Portugal and Western Spain.

Preventive patrols

Since the beginning of LIFE Aegyptius Return, a total 184 preventive patrols were completed in the 7 SPA in Portugal (Table 1). Dog patrols for poison detection only started in January 2023, as before that no poison-specialized dogs were available. This gap was largely compensated by general patrols, made by GNR officers alone.

After each preventive patrol, the responsible GIC officers issue an internal report. In case any suspected environmental criminal activity (such as poisoning) is found, it is immediately reported to the environmental police group (SEPNA). In case of poison suspicion, SEPNA implement the *Programa Antídoto* protocols. GIC may not receive feedback (such confirmation of the poisoning) after issuing the patrol's report, since data follows the established procedure and are passed on to other departments.

Table 1. Number of preventive patrols done by GNR in the 7 target Special Protection Areas (SPA) in Portugal, within project LIFE Aegyptius Return, from 01/09/2022 to 30/06/2024.

Month	Year	Nr of General Patrols	Nr of Canine Patrols
09	2022	9	0
10	2022	9	0
11	2022	8	0
12	2022	9	0
01	2023	6	3
02	2023	5	3
03	2023	4	3
04	2023	6	3
05	2023	4	3
06	2023	5	3
07	2023	5	3
08	2023	5	3
09	2023	4	3
10	2023	6	3
11	2023	4	3
12	2023	6	3
01	2024	6	3
02	2024	6	3
03	2024	6	3
04	2024	5	3
05	2024	6	3
06	2024	6	3
	Sub Total	130	54
	TOTAL	184	

6. REACTIVE PATROLS during LIFE Aegyptius Return

Reactive patrols happen when dead or live incapacitated animals are found in the fields, suggesting a poisoning incident.

When a poisoning incident is detected, the citizens or technicians who detected it call the environmental GNR group (SEPNA) through the local officers or via the SOS Environment HelpLine - 808 200 520. SEPNA articulates with GIC for the deployment of poison detection canine units and the teams will do a thorough investigation, including collection of dead animals and poisoned baits and collation of criminal evidence, witness reports, etc., which will then be sent for expert laboratory analysis according to standardized protocols. Patrol teams always carry first response kits against poison, to collect suspicious samples and preserve them as evidence for use in judicial cases when necessary. Animals suspected of having been poisoned are transported to fauna recovery centres which are officially recognized as *Programa Antídoto* necropsy centres and have the capacity to perform forensic necropsies.

The GNR's competences include the enforcement powers for environmental crimes in Portugal, and they will also instruct, when relevant, the processes to present to the judicial authorities in Portugal.

For each case of suspected criminal activity, a unique identification number (NUIPC - *Número Único de Identificação do Processo Crime*) is issued.

In case there is evidence of criminal activity, the case is transferred to the public prosecutor's office and is protected by the judicial secrecy system. Hence, there is only so much information GNR can provide on the description of the cases.

In the scope of LIFE Aegyptius Return, all suspected poisoning cases detected in mainland Portugal and regarding any impacted species (and not only the Cinereous Vulture) are considered.

During the reporting period (01/09/2022 – 30/06/2024), a total of 25 potential poisoning cases were detected, having caused the death of 42 animals of 7 species (two domestic: cat and dog; and 5 wild: Iberian wolf, Spanish imperial eagle, red kite, magpie, fox) (Table 2; Fig. 2). No vulture cases were found during this period.

Thirteen individuals of endangered and protected species (1 Iberian wolf, 2 Spanish imperial eagles, and 10 red kites) died in these events. Two red kites, one red fox and one domestic cat were confirmedly killed by poison.

Out of the 25 cases, over one third (n=9) occurred in 3 of the project target SPA (Fig. 3): 2 cases in SPA Douro Internacional e Vale do Águeda (of which the southernmost case also within the Parque Natural do Douro Internacional limits); 3 in SPA Mourão/Moura/Barrancos (the southernmost of which also within the SAC PTCON0053 Moura/Barrancos); and 4 in SPA Vale do Guadiana (the 4 within the Parque Natural do Vale do Guadiana limits and one of them also within SAC PTCON0036 Guadiana). No other SPA, SAC or protected area in Portugal registered suspected poisoning cases.

Toxicological analysis confirmed the use of poison in only 3 cases. The poisons used were strychnine in Évora, a non-specified phytopharm in Salvaterra de Magos, and carbofuran in Idanha-a-Nova (Table 2, Fig. 3).

The 25 suspected poisoning events occurred at a pace of, on average, 1.14 cases/month.

Table 2. Potential and confirmed poisoning cases investigated by GNR in mainland Portugal between 01/09/2022 and 30/06/2024. Blue cells highlight endangered species and their conservation status in Portugal. Orange cells highlight confirmed poisoning cases. Conservation status in Portugal *cf* Almeida et al. 2022 (birds), Mathias et al 2023 (mammals).
*Conservation statuses (IUCN Red List categories): LC – Least Concern; CR – Critically Endangered; EN – Endangered.

	District	Municipality	Date	Project SPA	Affected species	Conservation status (PT)*	Nr of affected individuals	Suspected poison	Poisoning confirmation
1	Castelo Branco	Proença-a-Nova	06/09/2022		<i>Canis lupus familiaris</i>	-	2	Unkonwn	No
2	Évora	Montemor-o-Novo	21/09/2022		<i>Canis lupus familiaris</i>	-	2	No toxic substance	No
3	Beja	Moura	24/09/2022	Mourão/Moura/Barrancos	<i>Canis lupus familiaris</i> ; <i>Vulpes vulpes</i>	- LC	3 (2;1)	Unkonwn	Unknown
4	Évora	Évora	10/11/2022		<i>Milvus milvus</i> ; <i>Vulpes vulpes</i>	CR/LC; LC	2	Strychnine	Yes
5	Beja	Mértola	16/11/2022	Vale do Guadiana	<i>Milvus milvus</i>	CR/LC	2	Unkonwn	Unknown
6	Beja	Moura	28/11/2022		<i>Vulpes vulpes</i>	LC	1	Unkonwn	Unknown
7	Castelo Branco	Penamacor	29/11/2022		<i>Canis lupus familiaris</i>	-	2	Unkonwn	Unknown
8	Évora	Mourão	05/12/2022	Mourão/Moura/Barrancos	<i>Felis catus</i>	-	5		Unknown
9	Beja	Mértola	06/12/2022		<i>Aquila adalberti</i>	CR	1	Unkonwn	Unknown
10	Bragança	Torre de Moncorvo	14/12/2022		<i>Canis lupus signatus</i>	EN	1	Unkonwn	
11	Évora	Mourão	21/12/2022	Mourão/Moura/Barrancos	<i>Pica pica</i>	LC	1	Metaldehyde (on chicken baits)	No
12	Bragança	Vila Flor	06/01/2023		<i>Canis lupus familiaris</i>	-	1	Unkonwn	Unknown
13	Santarém	Ourém	16/01/2023		<i>Canis lupus familiaris</i>	-	6	Substance on food	No
14	Beja	Ourique	19/01/2023		<i>Milvus milvus</i>	CR/LC	1	Unkonwn	Unknown
15	Beja	Ourique	05/02/2023		<i>Milvus milvus</i>	CR/LC	1	Unkonwn	Unknown
16	Bragança	Alfândega da Fé	15/02/2023						
17	Beja	Mértola	20/02/2023	Vale do Guadiana	<i>Aquila adalberti</i>	CR	1	Unkonwn	Unknown
18	Santarém	Salvaterra de Magos	11/03/2023		<i>Felis catus</i>	-	1	Phytopharm (on food)	Yes
19	Beja	Mértola	05/05/2023	Vale do Guadiana	<i>Vulpes vulpes</i>	LC	1	Unkonwn	Unknown
20	Castelo Branco	Idanha-a-Nova	26/06/2023		<i>Milvus milvus</i>	CR/LC	1	Carbofuran	Yes
21	Bragança	Miranda do Douro	05/08/2023	Douro Internacional e Vale do Águeda	<i>Milvus milvus</i>	CR/LC	1	Unkonwn	
22	Beja	Mértola	02/01/2024		<i>Milvus milvus</i>	CR/LC	1	Unkonwn	Unknown
23	Beja	Mértola	04/01/2024	Vale do Guadiana	<i>Milvus milvus</i>	CR/LC	1	Unkonwn	Unknown
24	Castelo Branco	Idanha-a-Nova	10/01/2024		<i>Milvus milvus</i>	CR/LC	1	Unkonwn	No
25	Bragança	Mogadouro	24/02/2024	Douro Internacional e Vale do Águeda	<i>Vulpes vulpes</i>	LC	3	Unkonwn	

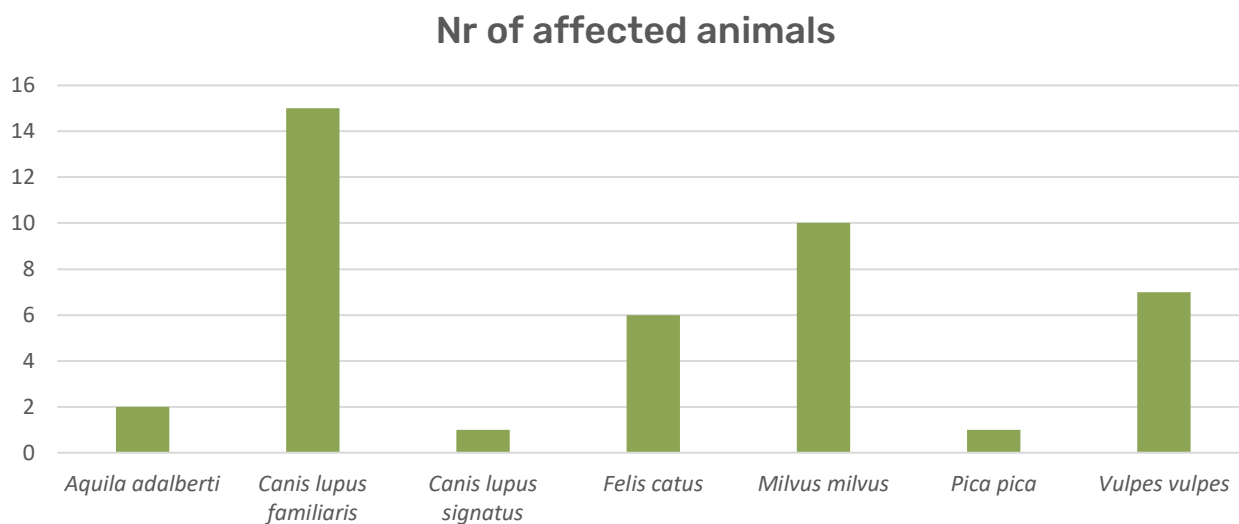


Fig. 2. Species and number of animals that died under potential or confirmed poisoning cases investigated by GNR in mainland Portugal between 01/09/2022 and 30/06/2024.

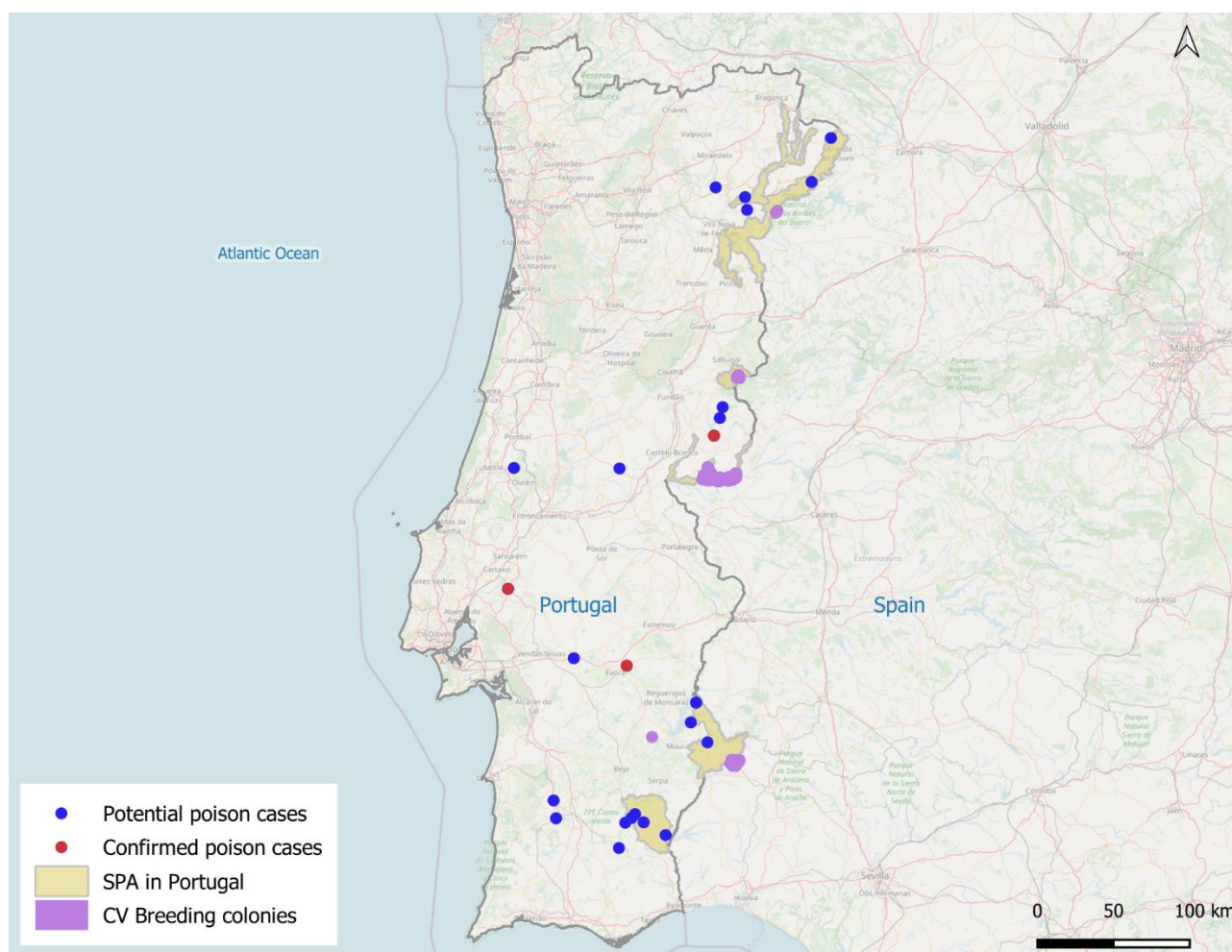


Fig. 3. Potential (22) and confirmed (3) poisoning cases investigated by GNR in mainland Portugal between 01/09/2022 and 30/06/2024.

7. REACTIVE PATROLS since 2021

Between 01/01/2021 and 31/08/2022

In this section, data on suspected poisoning cases since 01/01/2021 is presented and discussed. Although this timeframe expands beyond the duration of the LIFE Aegyptius project, it allows a more thorough analysis of the poisoning events in Portugal.

Between 01/01/2021 and 31/08/2022, a total of 59 potential poisoning cases were detected in mainland Portugal, having caused the death of 874 animals of 15 species (three domestic: cat, dog and sheep; and 12 wild, including 2 Cinereous Vultures, 11 Red Kites and 3 Spanish Imperial eagles, which are endangered and protected species (Table 3). Excluding the 785 fish registered at event nr 47, still 89 animals died possibly from poison-related events in mainland Portugal in less than two years (Fig. 4). However, it was only possible to confirm the death of 8 animals by poison (1 red kite, 1 griffon vulture, 2 foxes and 4 dogs).

About 14% of the events (n=8) took place in the 7 target SPA of LIFE Aegyptius Return. Other SPA with records were SPA Évora (PTZPE0055) with one case and SPA Castro Verde (PTZPE0046) with 8 cases. No other Natura 2000 or protected areas had any other records in this period.

Table 3. Potential and confirmed poisoning cases investigated by GNR in mainland Portugal between 01/01/2021 and 31/08/2022. Blue cells highlight endangered species and their conservation status in Portugal. Orange cells highlight confirmed poisoning cases. Conservation status in Portugal *cf* Magalhães et al. 2023 (fish), Almeida et al. 2022 (birds), Mathias et al. 2023 (mammals). *Conservation statuses (IUCN Red List categories): LC – Least Concern; CR – Critically Endangered; EN – Endangered.

	District	Municipality	Date	Project SPA	Affected species	Conservation status (PT)*	Nr of affected individuals	Suspected poison	Poisoning confirmation
1	Beja	Moura	05/01/2021		<i>Milvus milvus</i>	CR	1	Unknown	No
2	Beja	Alvito	06/01/2021		<i>Milvus milvus</i>	CR	1	Unknown	Yes
3	Castelo Branco	Idanha-a-Nova	14/02/2021		<i>Vulpes vulpes</i>	LC	2	Unknown	No
4	Castelo Branco	Proença-a-Nova	26/02/2021		<i>Felis catus</i>	-	1	Unknown	No
5	Castelo Branco	Castelo Branco	04/03/2021		<i>Felis catus</i>	-	2	Unknown	No
6	Castelo Branco	Castelo Branco	11/04/2021		<i>Canis lupus familiaris</i>	-	1	Unknown	No
7	Castelo Branco	Vila Velha de Ródão	12/04/2021		<i>Canis lupus familiaris</i>	-	1	Unknown	Unknown
8	Castelo Branco	Castelo Branco	21/04/2021		<i>Canis lupus familiaris</i>	-	1	Unknown	No
9	Castelo Branco	Sertã	21/04/2021		<i>Canis lupus familiaris</i>	-	1	Unknown	No
10	Beja	Almodôvar	04/05/2021		<i>Milvus milvus</i>	CR	1	Unknown	No
11	Beja	Castro Verde	12/05/2021		<i>Vulpes vulpes</i>	LC	2	Unknown	Yes
12	Castelo Branco	Fundão	31/05/2021		<i>Canis lupus familiaris</i>	-	2	Unknown	Unknown
13	Beja	Moura	03/06/2021	Mourão/Moura/Barrancos	<i>Gyps fulvus</i>	LC	1	Unknown	No
14	Castelo Branco	Castelo Branco	30/06/2021		Columbidae (doves)		9	Unknown	No

	District	Municipality	Date	Project SPA	Affected species	Conservation status (PT)*	Nr of affected individuals	Suspected poison	Poisoning confirmation
15	Évora	Reguengos de Monsaraz	05/07/2021		<i>Canis lupus familiaris</i>	-	1	Unknown	Unknown
16	Castelo Branco	Castelo Branco	06/07/2021		<i>Felis catus</i>	-	2	Unknown	No
17	Santarém	Chamusca	03/08/2021		<i>Canis lupus familiaris</i>	-	2	Unknown	Yes
18	Santarém	Chamusca	04/08/2021		<i>Canis lupus familiaris</i>	-	1	Unknown	Yes
19	Santarém	Chamusca	11/08/2021		<i>Canis lupus familiaris</i>	-	1	Unknown	Yes
20	Évora	Évora	18/08/2021					Unknown	No
21	Castelo Branco	Sertã	18/09/2021		<i>Felis catus</i>	-	1	Unknown	No
22	Beja	Aljustrel	27/09/2021		<i>Gyps fulvus</i>	LC	1	Unknown	Unknown
23	Évora	Évora	15/10/2021		<i>Canis lupus familiaris</i>	-	1	Unknown	Unknown
24	Castelo Branco	Castelo Branco	26/10/2021		<i>Milvus sp.; Rodentia</i>		2	Unknown	No
25	Beja	Castro Verde	30/10/2021		<i>Gyps fulvus</i>	LC	2	Unknown	Unknown
26	Castelo Branco	Castelo Branco	08/11/2021		<i>Felis catus</i>	-	2	Unknown	No
27	Castelo Branco	Fundão	15/11/2021		<i>Canis lupus familiaris</i>	-	1	Unknown	Unknown
28	Beja	Beja	10/12/2021		<i>Milvus milvus</i>	CR/LC	1	Unknown	Unknown
29	Castelo Branco	Idanha-a-Nova	06/01/2022		<i>Vulpes vulpes</i>	LC	1	Unknown	No
30	Bragança	Vila Flor	09/01/2022		<i>Canis lupus familiaris</i>	-	3	Unknown	No
31	Beja	Castro Verde	25/01/2022		<i>Milvus milvus; Corvus corax</i>	CR/LC; LC	2	Unknown	No
32	Bragança	Vinhais	29/01/2022						
33	Castelo Branco	Penamacor	30/01/2022		<i>Canis lupus familiaris</i>	-	2	Unknown	Unknown
34	Beja	Castro Verde	02/02/2022		<i>Aquila adalberti</i>	CR	1	Unknown	No
35	Beja	Mértola	04/02/2022		<i>Ciconia ciconia</i>	LC	4	Unknown	Unknown
36	Castelo Branco	Castelo Branco	12/02/2022		<i>Felis catus</i>	-	3	Unknown	No
37	Beja	Ferreira do Alentejo	14/02/2022		<i>Milvus milvus</i>	CR/LC	1	Unknown	Unknown
38	Beja	Mértola	16/02/2022	Vale do Guadiana	<i>Ciconia ciconia</i>	LC	1	Unknown	Unknown
39	Bragança	Alfândega da Fé	18/02/2022						
40	Bragança	Vimioso	19/02/2022		<i>Canis lupus familiaris</i>	-	2	Unknown	Unknown
41	Bragança	Miranda do Douro	20/02/2022		<i>Canis lupus familiaris</i>	-	1	Unknown	Unknown
42	Castelo Branco	Vila Velha de Ródão	21/02/2022		<i>Ciconia ciconia</i>	LC	1	Unknown	Unknown
43	Beja	Castro Verde	22/02/2022		<i>Milvus milvus</i>	CR/LC	1	Unknown	Unknown
44	Beja	Castro Verde	02/04/2022		<i>Aegypius monachus; Aquila adalberti</i>	EN; CR	2; 2	Unknown	Unknown

	District	Municipality	Date	Project SPA	Affected species	Conservation status (PT)*	Nr of affected individuals	Suspected poison	Poisoning confirmation
45	Bragança	Miranda do Douro	05/04/2022	Douro Internacional e Vale do Águeda	<i>Milvus milvus</i>	CR/LC	1	Yes	No
46	Évora	Reguengos de Monsaraz	07/04/2022					Gunshot on a red deer	No
47	Bragança	Bragança	15/04/2022	Rios Sabor e Maçãs	<i>Pseudochondrostoma polylepis</i>	LC	785		It was not poison
48	Beja	Mértola	22/04/2022		<i>Ovis aries</i> (and <i>Gyps fulvus</i> in Spain)	-		Unknown	Unknown
49	Bragança	Mogadouro	29/04/2022	Rios Sabor e Maçãs	<i>Gyps fulvus</i>	LC	1	Yes	Yes
50	Bragança	Freixo de Espada à Cinta	08/06/2022	Douro Internacional e Vale do Águeda	<i>Gyps fulvus</i>	LC	1	Unknown	Unknown
51	Santarém	Alcanena	10/06/2022		<i>Canis lupus familiaris</i>	-	1	Suffocation	No
52	Castelo Branco	Sertã	17/06/2022		<i>Felis catus</i>	-	3	Unknown	No
53	Bragança	Miranda do Douro	28/06/2022		<i>Milvus migrans</i>	LC	2	Yes	No
54	Santarém	Alcanena	04/07/2022		<i>Canis lupus familiaris</i>	-	1	Suffocation	No
55	Bragança	Mogadouro	14/07/2022		<i>Milvus milvus</i>	CR/LC	1	Yes	No
56	Beja	Aljustrel	02/08/2022		<i>Milvus milvus</i>	CR/LC	2	Unknown	Unknown
57	Castelo Branco	Proença-a-Nova	16/08/2022		<i>Canis lupus familiaris</i>	-	1	Unknown	No
58	Beja	Mértola	20/08/2022	Vale do Guadiana	<i>Canis lupus familiaris</i> ; <i>Vulpes vulpes</i> ; <i>Genetta genetta</i>	- ; LC; LC	3	Unknown	Unknown
59	Bragança	Freixo de Espada à Cinta	28/08/2022	Douro Internacional e Vale do Águeda					

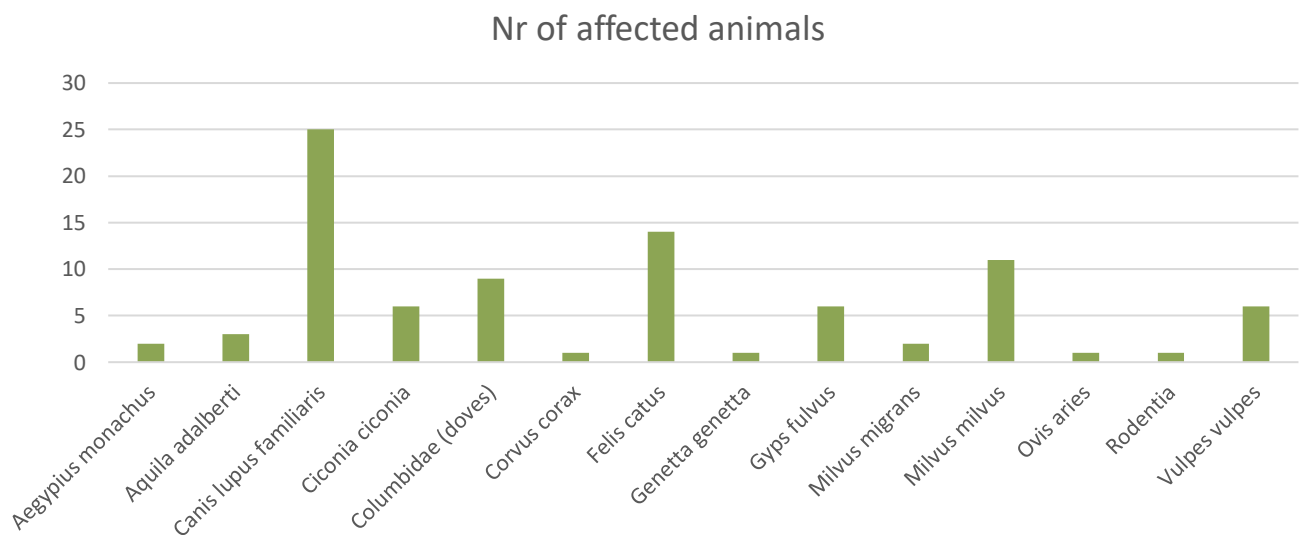


Fig. 4. Taxa and number of animals that died under potential or confirmed poisoning cases investigated by GNR in mainland Portugal between 01/01/2021 and 31/08/2022. These data exclude 785 fish that died in one event (15/04/2022).

Between 01/01/2021 and 30/06/2024

An analysis to the database of suspected poison cases registered by GNR between 01/01/2021 and 30/06/2024 reveals a total of 84 cases (Table 2 and Table 3). Hence, considering this longer timespan, an average of 2.00 cases happened each month (Table 4).

Laboratorial analysis only confirmed poison in 9 cases (10.7%) (Table 2; Table 3).

In general, after high numbers of poisoning cases in 2021 and 2022, the number of cases diminished in the last two years (2023 and 2024) (Table 4).

The 84 events caused the death of 916 animals of 17 species (assuming the non-identified doves all belonged to the same species). Excluding one event where 785 Iberian Nases died, the total is 131 individuals, in an average of 3.12 dead animals per month (Table 4 and Table 5).

Four endangered and protected species were impacted: 2 Cinereous Vultures, 5 Spanish imperial eagles, 21 Red kites and 1 Iberian Wolf died after poison-related events.

Domestic animals accounted for 53% (n = 70) of the poison-related victims. Among these domestic animals, dogs were the most common casualties (57%), followed by cats (29%) and doves (13%) (Table 5, Fig. 5).

Wild animals accounted for 47% (n = 61) of cases. The most affected species were the Red Kite (34% of dead wild animals), the Red Fox (21%), the White Stork and the Griffon Vultures (both 10%), and the Imperial Spanish eagle (8%).

Table 4. Data on potential and confirmed poisoning cases investigated by GNR in mainland Portugal between 01/01/2021 and 30/06/2024. The number of dead animals exclude 785 fish that died in one event (15/04/2022).

Year	Nr cases	Nr months with data	Avg Nr Cases/Month	Nr dead animals	Avg Nr dead animals/Month
2021	28	12	2,33	44	3,67
2022	42	12	3,50	67	5,58
2023	10	12	0,83	14	1,17
2024	4	6	0,67	6	1,00
Total	84	42	2,00	131	3,12

Table 5. Species that died under potential or confirmed poisoning cases investigated by GNR in mainland Portugal between 01/01/2021 and 30/06/2024. Conservation statuses in Portugal *cf* Magalhães et al. 2023 (fish), Almeida et al. 2022 (birds), Mathias et al. 2023 (mammals). *Conservation statuses (IUCN Red List categories): LC – Least Concern; CR – Critically Endangered; EN – Endangered.

	Scientific name	Common name	Conservation status (PT)*	Nr of affected individuals
1	<i>Aegypius monachus</i>	Cinereous Vulture	EN	2
2	<i>Aquila adalberti</i>	Spanish imperial eagle	CR	5
3	<i>Canis lupus familiaris</i>	Dog	-	40
4	<i>Canis lupus signatus</i>	Iberian Wolf	EN	1
5	<i>Ciconia ciconia</i>	White stork	LC	6
6	Columbidae	NI Doves	-	9
7	<i>Corvus corax</i>	Common Raven	LC	1
8	<i>Felis catus</i>	Cat	-	20
9	<i>Genetta genetta</i>	Common Genet	LC	1
10	<i>Gyps fulvus</i>	Griffon Vulture	LC	6
11	<i>Milvus migrans</i>	Black Kite	LC	2
12	<i>Milvus milvus</i>	Red Kite	CR/LC	21
13	<i>Milvus sp.</i>	NI Kite	-	1
14	<i>Ovis aries</i>	Sheep	-	1
15	<i>Pica pica</i>	Magpie	LC	1
16	<i>Pseudochondrostoma polylepis</i>	Iberian Nase	LC	785
17	Rodentia	NI Mouse	-	1
18	<i>Vulpes vulpes</i>	Red Fox	LC	13
TOTAL [without <i>P.polylepis</i>]				916 [131]



Fig. 5. Proportion of domestic and wild species that died under potential or confirmed poisoning cases investigated by GNR in mainland Portugal between 01/01/2021 and 30/06/2024.

Most of the poison-related cases occurred in interior parts of the country, with a special prevalence in Alentejo (districts of Beja and Évora), in the Center (Beira Baixa – district of Castelo Branco) and the Northeast (Trás-os-Montes – district of Bragança) (Table 6).

A total of 17 cases (20.24%) occurred within 4 of 7 the LIFE Aegyptius Return's target SPA: 6 cases in Vale do Guadiana, 5 cases in Douro Internacional e Vale do Águeda, 4 cases in Mourão/Moura/Barrancos, and 2 cases in Rios Sabor e Maçãs (Table 2, Table 3, Fig. 6). Other than these project's target SPA; also SPA Castro Verde had a high number of cases (n=8).

Table 6. Distribution of the potential or confirmed poisoning cases investigated by GNR in mainland Portugal between 01/01/2021 and 30/06/2024 according to their district of occurrence.

District	Nr cases
Beja	28
Castelo Branco	24
Bragança	17
Évora	8
Santarém	7
Total	84

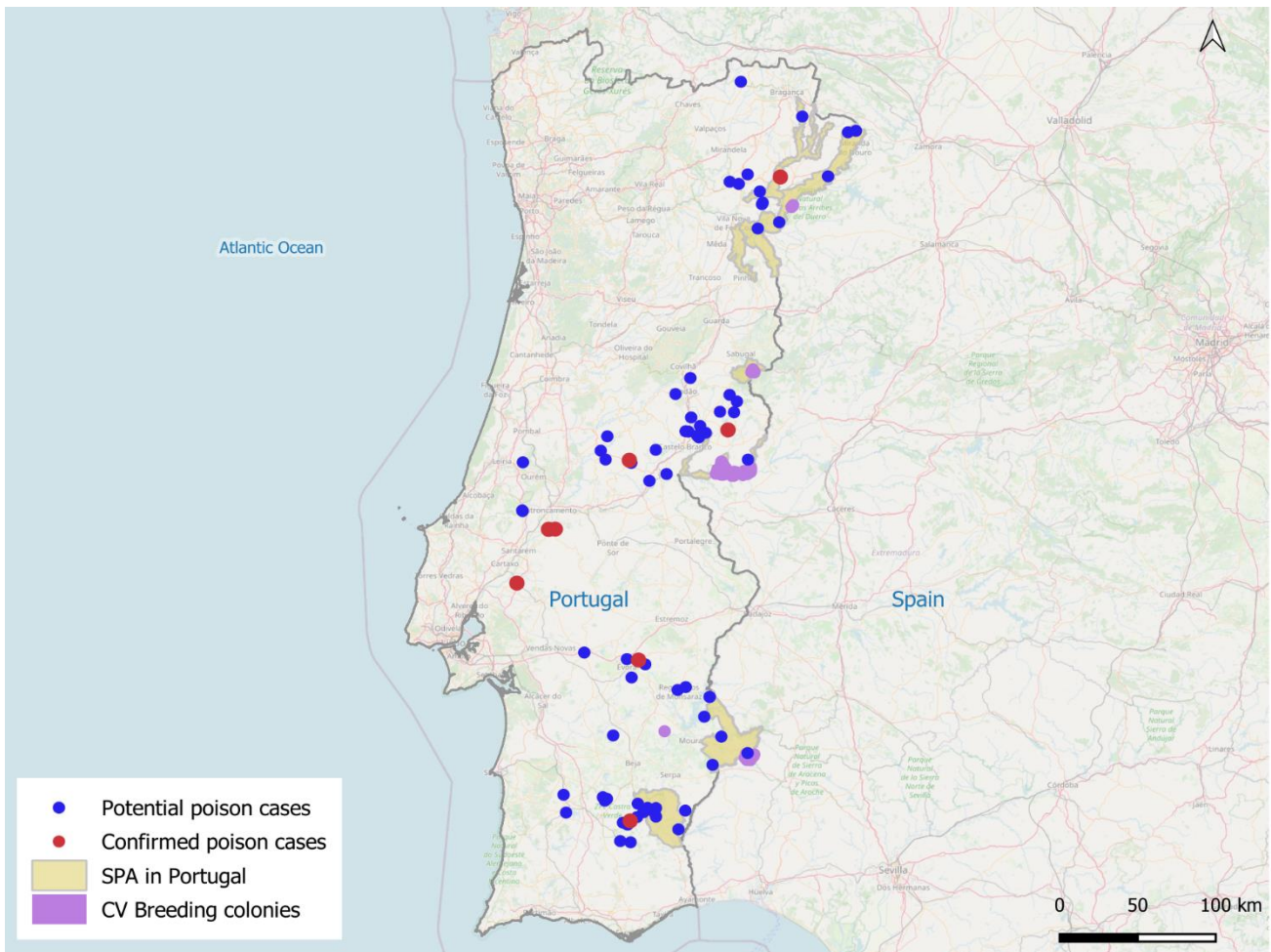


Fig. 6. Map of the potential (75 – blue dots) and confirmed (9 – red dots) poisoning cases investigated by GNR in mainland Portugal between 01/01/2021 and 30/06/2024.



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CASE STUDIES

To better illustrate the procedures and challenges associated with poison detection, two case studies are presented. These events occurred during the implementation phase of the LIFE Aegypius Return project.

Case Study 1

Milvus milvus (August 2023)

On 04/08/2023 the project partner Palombar (within their [Sentinels Programme](#)) detected anomalous movements on a tagged *Milvus milvus* movement. The next day, they organized a field search, around the last locations transmitted by the bird's GPS/GSM tag, which was in the district of Bragança, within limits of SPA Douro Internacional e Vale do Águeda, and Douro Internacional Natural Park. Soon after, the red kite was found dead. At about 14h43 of 05/08/2023 Palombar called GNR and SEPNA officers arrived at the scene at about 16h10. At this moment it was not possible to implement the *Programa Antídoto* protocol. However, the dead bird was collected and sent to CIARA wildlife rehabilitation center for necropsy.

On the 10th and 11th /08/2023, and also after a request from LIFE Aegypius Return, GNR investigated the area with poison-specialized canine units and detected suspected poison baits. During these days, the *Programa Antídoto* protocol was applied.

Forensic evidence was sent to further investigation and no feedback was received after.

This case is number 21 in Table 2.



Fig. 7. Red kite (*Milvus milvus*) found dead in SPA Douro Internacional e Vale do Águeda on 05/08/2023. ©Palombar



Fig. 8. Intervention of the Poison Detection Canine Units of the GNR's GIC in SPA Douro Internacional e Vale do Águeda on 10/08/2023. ©GNR



Fig. 9. Collection of forensic evidence by NICCOA in in SPA Douro Internacional e Vale do Águeda on 10/08/2023. ©GNR

Case Study 2

Aquila adalberti (January 2024)

On 18/01/2024 a citizen from Corte de Gafo, within the SPA and Natural Park Vale do Guadiana, contacted LIFE Aegypius Return's partner LPN reporting a weakened "vulture" in their land. The project partners immediately called the Regional Delegation of ICNF (nature conservation authority), since the event was taking place within the limits of Parque Natural do Vale do Guadiana. ICNF technicians went to the place and identified the bird as a Spanish imperial eagle (*Aquila adalberti*). The individual was recognised as an adult female, over 7 years old, belonging to the breeding pair that breeds in the Corte de Gafo region. The bird was collected and sent to the LxCRAS wildlife rehabilitation center in Lisbon. At this stage, GNR was not in the field, hence the *Programa Antídoto* protocol was not applied.

The LIFE Aegypius Return team reported the event to GNR on the same day, requesting the intervention of poison detection canine units, as the eagle presented symptoms compatible with poisoning.

On 21/01/2024, GIC's canine units from Lisbon searched the land and nothing was detected. The officers gave feedback with a phone call. The case's NUIPC was not listed in the database presented in the previous chapter of this report.

The bird fully recovered and was released back to nature on 27/03/2023. When it entered LxCRAS it had no external or internal lesions. Analysis showed a liver inflammation compatible with lead intoxication, however toxicology results were negative.



Fig. 10. Weakened *Aquila adalberti* captured by ICNF in SPA Vale do Guadiana on 18/01/2024. ©ICNF



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COMPARISON WITH PREVIOUS DATA AND DISCUSSION

The results presented demonstrate Tasks T.5.4 *Developing local capacity to deal and follow-up poisoning and other incidents with target species* and T.5.5 *Implementation and/or expansion of the anti-poisoning programme* of project LIFE Aegyptius Return are being successfully implemented and bring important information and contributions to the anti-poisoning fight in mainland Portugal. These contributions should become even more relevant after September 2024, when three additional poison-specialized dogs will complete their training and join GNR's force. Also, the foreseen lab facilities will start their construction by the end of 2024, which will enhance GNR's capacities in dealing with poisoning events.

The three poison-detection preventive patrols per month planned in LIFE Aegyptius Return started with a little delay in January 2023 but were compensated with a high number of general patrols directed at other types of disturbances, which is also an objective of the project. The reported preventive patrols were all done in the target SPA and the surroundings of the Cinereous Vultures breeding colonies and add up to many other patrols GNR performs in the rest of the country (which are not reported in this document).

During a preventive patrol, if a suspicious poison event is detected, a case is opened, a NUIPC is issued, and the case is transferred to the reactive patrols reporting system. Reactive patrols are also put in place when any citizen, force or nature conservation personnel detects suspicious activities. The data presented show that, in general, after a higher number of poison-related events in 2021 and 2022, the number of cases diminished considerably in the last two years (2023 and 2024 so far) (Table 4). A report from the project LIFE Imperial (Barosa et al. 2020, page 18) also presented GNR (who were also a partner) data on the number of poisoning cases (suspected and confirmed) between 2013 and 2018. Adding these data to the ones gathered for this report (2021-2024), a slightly decreasing trend in the number of cases is confirmed, with 2023 and 2024 (so far) being the years with the fewer number of records (Fig. 11). Similarly, regarding impacted animals (dead or alive) – resorting to the same data sources, and not considering the 785 fish that died in one event in 15/04/2022 –, years 2015, 2017 and 2022 showed particularly high numbers, but, in general, data exhibit a slight decreasing trend throughout the years (Fig. 12).

Nonetheless, this data should be analysed sparingly, as they may not completely translate the actual situation and numbers, and there is a high possibility of underestimation. As explained, reports are issued by field officers and transferred to different GNR units/departments depending on the subject and category of crimes investigated. GNR's internal database management and information flow has many restrictions, and access is somehow limited to the administrative personnel who provide the database for project reporting purposes. For example, case study nr 2 was not listed in the database provided for this report, as some other cases that happened, for instance, in Algarve. On the other hand, the potential underestimation applies similarly to all datasets throughout the years, so it is likely the general trend of decrease is true, which is also supported by the GNR officers' perception and experience.

Difficulties in establishing the real magnitude of wildlife poisoning are a common trait and run far beyond administrative or information flow of the responsible authorities (e.g. Mateo-Tomás et al. 2012, Cano et al. 2016). They are also due to the sensitive and cryptic nature of such activities, as well as the struggle in detecting poisoned animals/baits, despite its active search (e.g. Deak et al. 2021, Olea et al. 2022). However, official databases still are a proxy for the real standing. Hence, a decreasing trend in the number of poison occurrences may suggest that the human population is becoming more aware of the criminal and damaging nature of these actions, and/or that preventive patrols done by GNR effectively generate a deterrent effect. This is also supported by conversations the LIFE Aegyptius Return project staff very often have with landowners and common citizens, mostly in rural areas. There is empirical evidence of a generalized notion that the use of poisoned baits is an illegal activity, and that law enforcement (in particular, dog squads) have a steadier presence and effective surveillance and research schemes.

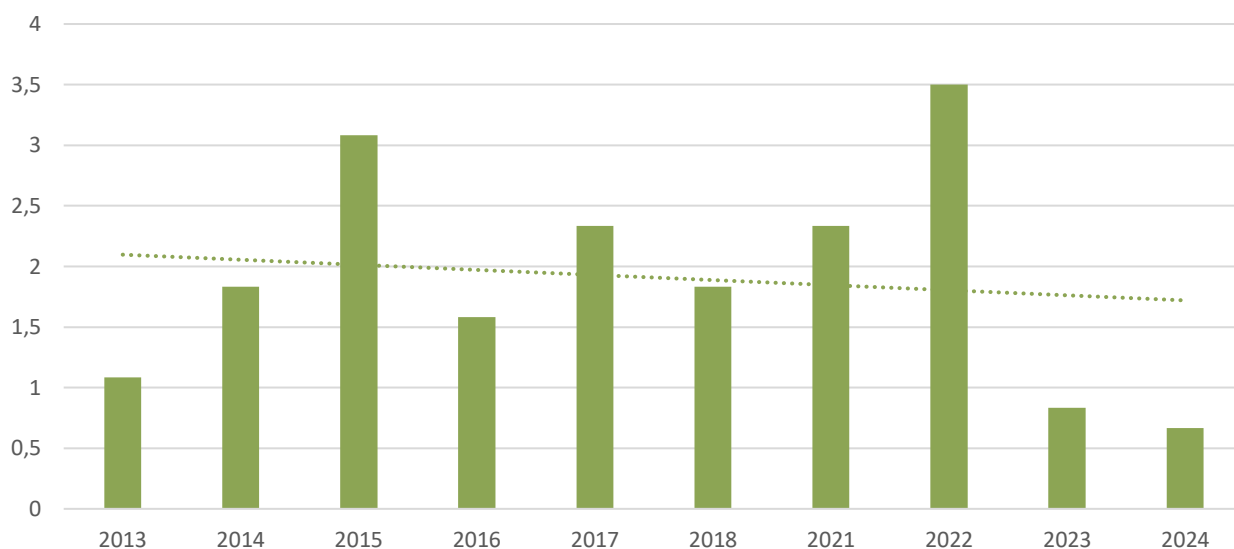


Fig. 11. Average number of poison-related cases (suspected and confirmed) per month, investigated by GNR in mainland Portugal between 2013 and 2018 and between 2021 and 2024.

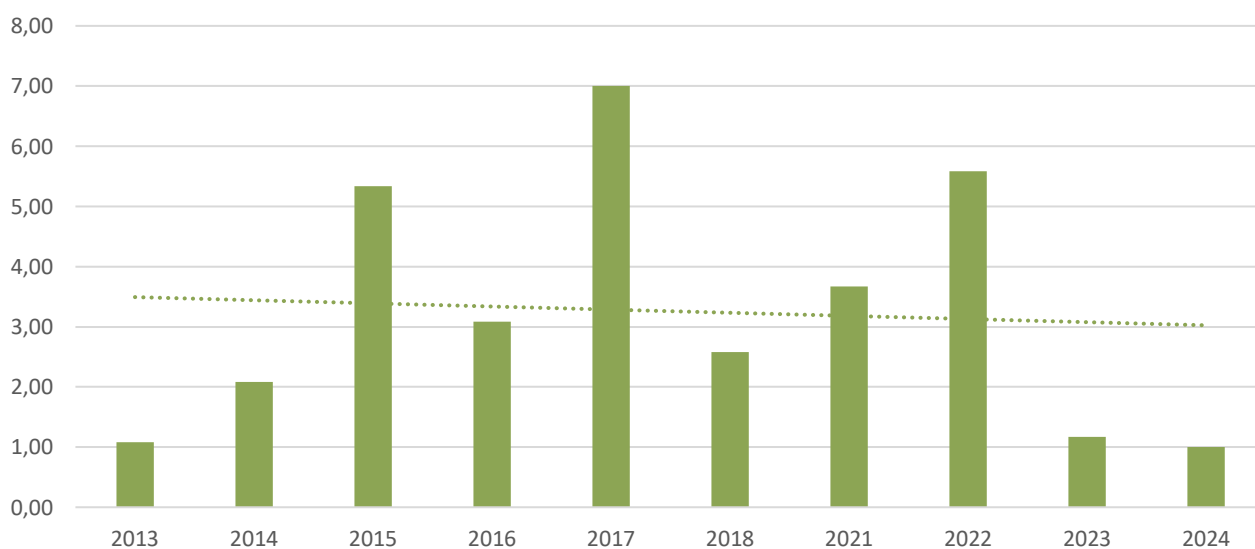


Fig. 12. Average number of affected animals (dead and alive) by poison-related cases (suspected and confirmed) per month, investigated by GNR in mainland Portugal between 2013 and 2018 and between 2021 and 2024.

This may be even more true in protected areas, which besides GNR also count on the work of ICNF rangers and technicians. Since 2021, most cases occurred outside protected areas in Portugal, with the majority of protected areas without any case. About 30% (n=25) of the cases concentrated in five protected areas (SPA Castro Verde, and the project target SPAs Vale do Guadiana, Douro Internacional e Vale do Águeda, Mourão/Moura/Barrancos, Rios Sabor e Maçãs; in an order of decreasing number of cases).

Concerning the geographical distribution of cases, during LIFE Aegyptius Return, the districts that represented poison hot spots were Beja, Castelo Branco and Bragança. Between 1992 and 2002, and according to the information provided by *Programa Antídoto Portugal* to the report prepared under LIFE Imperial (Barosa et al. 2020) the districts with higher number of cases were Portalegre, Braga Viana do Castelo, Bragança, and Castelo Branco. During 2013-2018, data provided by GNR reports the districts of Beja, Castelo Branco, Bragança and Coimbra as having the highest number of poison-related cases (Table 7). Despite some differences, data from both LIFE projects have a certain consistency, with Beja, Castelo Branco and Bragança as the districts with the highest poison-related cases. However, older data show different geographical distributions. One should consider these data have different origins (*Programa Antídoto* vs GNR), which might originate different ways of gathering, storing and analysing information, as is quite evident throughout the LIFE Imperial report (Barosa et al. 2020). Variations in datasets also support the obstacles to assessing the real magnitude of the illegal poisoning situation in Portugal, as discussed above.

Nonetheless, particularly the most recent data inform risk maps and priority areas for both law enforcement and environmental education efforts. Additionally, these data should spark a larger discussion on the effectiveness of formal protection of the territory in deterring poison crimes in Portugal.

Table 7. Geographical distribution of (potential and confirmed) poison-related cases in mainland Portugal, per district, period and data source. The colour scheme represents a decreasing order from the five highest (dark red-brown) to lowest (light salmon pink) number of cases. *Data extracted from Barosa et al. 2020.

Data Source	Programa Antídoto *		GNR (LIFE Imperial) *		GNR (LIFE Aegyptius Return)	
Period	1992 - 2002		2013 - 2018		09/2022 - 06-2024	
District	Nr	%	Nr	%	Nr	%
Aveiro	0	0,00	0	0,00	0	0,00
Beja	3	2,88	75	53,57	28	33,33
Braga	14	13,46	2	1,43	0	0,00
Bragança	12	11,54	8	5,71	17	20,24
Castelo Branco	11	10,58	19	13,57	24	28,57
Coimbra	0	0,00	8	5,71	0	0,00
Évora	10	9,62	0	0,00	8	9,52
Faro	1	0,96	4	2,86	0	0,00
Guarda	6	5,77	6	4,29	0	0,00
Leiria	0	0,00	3	2,14	0	0,00
Lisboa	0	0,00	3	2,14	0	0,00
Portalegre	24	23,08	5	3,57	0	0,00
Porto	1	0,96	0	0,00	0	0,00
Santarém	0	0,00	0	0,00	7	8,33
Setúbal	0	0,00	2	1,43	0	0,00
Viana do Castelo	13	12,50	3	2,14	0	0,00
Vila Real	8	7,69	1	0,71	0	0,00
Viseu	1	0,96	1	0,71	0	0,00
TOTAL	104	100,00	140	100,00	84	100,00

The data provided by GNR since 2021 show 53% of poison-related cases have affected domestic animals, mostly dogs, but also cats, and other species (e.g. doves), which (excepting the cats) is generally in accordance to previous data from Barosa et al. 2020. The wild species mostly impacted since 2021 were Red Kites, Red Foxes, Griffon vultures, and White storks, but also Spanish imperial eagles and Cinereous Vultures, which is also generally in accordance with previous data from Barosa et al. 2020.

Although the toxicological analysis did not yet provide conclusive results (or they are not registered in GNR's database yet), it is quite likely that since 2021, at least four endangered and protected species were impacted by the poisoning of 2 Cinereous Vultures, 5 Spanish imperial eagles, 21 Red kites and 1 Iberian Wolf. These results are concerning, as there is evidence that poison-induced individual mortality is linked to the population decline of threatened species (e.g. Hernández and Margalida. 2009, Mateo-Tomás et al. 2020, Tenan et al. 2012). The two Cinereous Vultures died in April 2022, when the known breeding population of the species in Portugal was of 40 pairs. Hence, the death of two individuals represented 2.5% of the population. Obviously, the negative impacts of these deaths linger beyond their specific existence, as they will also not reproduce or contribute to the species dynamics and not be able to contribute to the species recovery in Portugal. These lingering negative effects of course apply to any species, but are even more concerning when they impact an endangered species that typically already face a large array of other threats, and sometimes are the target species of conservation projects, which investments (often made with public money) become useless.

Finally, as illustrated in both case studies, not all poison suspicion cases receive the correct and immediate application of the *Programa Antídoto* protocol, mostly owing to the lack of resources or readiness of the field teams. Also, most cases are archived or remain without closure and conclusion on the poison used and other criminal circumstances. Moreover, many toxicological samples found in the field, on baits or on dead animals do not provide conclusive results – at least in the Portuguese formal chain of custody. SPEA, partner in LIFE Aegypius Return, after events involving poisoned birds, received negative or inconclusive results in Portuguese toxicology work, but positive results in counter-analysis done in Spanish labs. This has nothing to do with the competences of the Portuguese staff or the quality of the system in place, but mostly to technical limitations possibly related to outdated or obsolete equipment. All these circumstances represent severe constraints to the understanding, prevention, reaction and instruction to poison-related criminal activities. LIFE Aegypius Return, in collaboration with similar conservation projects and NGOs, believe a joint discussion on this matter is urgent and should be arranged at the soonest with authorities and stakeholders involved, making sure that not only less crimes occur, but the ones that happen are properly instructed and prosecuted, resulting in adequate legal sentences.

The LIFE Aegypius Return partners are committed to the conservation of the Cinereous Vulture and will continue to actively implement all project tasks and fight all threats the species faces in Portugal and Western Spain. Fighting illegal poisoning, the main threat to vultures around the world, is among our top priorities, hence no efforts will be spared to better understand and react to this silent yet deadly menace.



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