



**Nature  
GUARDIANS**  
against environmental crime



# METHODOLOGY FOR THE DEVELOPMENT OF AN ENVIRONMENTAL CRIME DATABASE





Author: Jorge Fernandez Orueta

Suggested citation: Methodology for the Development of an Environmental Crime Database. SEO/BirdLife. Proyecto LIFE Guardianes de la Naturaleza. Madrid 2022

Design, layout and cover illustration: [www.bigonedesign.es](http://www.bigonedesign.es)

This work is financed and conducted within the LIFE Nature Guardians project (LIFE17 GIE/ES/000630), funded by the European Union's LIFE programme, which aims to improve the effectiveness and efficiency of actions aimed at fighting crimes against nature.

Referencing this document is allowed and encouraged, as long as the source is correctly cited.

Publication date: January 2022

DOI: 10.31170/0093

Any comments on this manual are welcome and can be sent to [conservacion@seo.org](mailto:conservacion@seo.org)

# METHODOLOGY FOR THE DEVELOPMENT OF AN ENVIRONMENTAL CRIME DATABASE



**Nature**  
**GUARDIANS**  
against environmental crime

# Contents

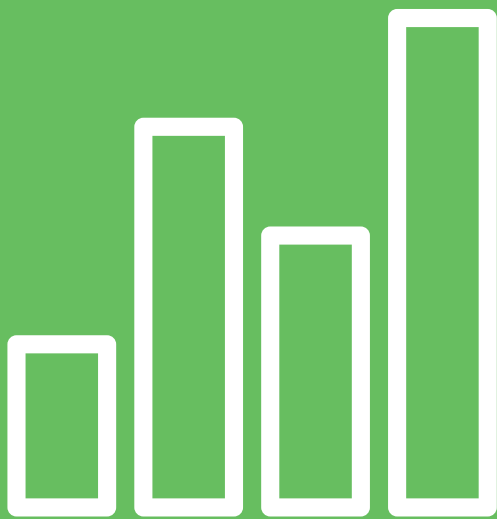
INTRODUCTION .....	5
CHAPTER 1. Requirement to keep statistics on environmental crime .....	6
CHAPTER 2. The implementation of databases in the EU .....	8
2.1. Database overview .....	9
2.2. Information on crimes .....	10
2.3. Information on prosecution and rulings .....	11
2.4. Database evaluation .....	11
2.5. Accessibility of the information .....	11
2.6. Technical information on the database .....	12
CHAPTER 3. Development of a national database in Spain .....	14
3.1. Database format .....	17
3.2. Database access levels .....	17
3.3. Database structure .....	18
3.4. Database access .....	23
Conclusions .....	24

# Introduction

This methodological proposal is developed within the framework of LIFE Nature Guardians with the aim of providing a tool for the collection and monitoring of all information related to cases of non-natural mortality of wildlife, such as poisoning, illegal shooting and species trafficking, as well as other environmental crimes.

Therefore, this proposal aims to implement measures to monitor crimes committed against wildlife, and can be extended to other environmental crimes (dumping, urban planning, fires, etc.). The application of the proposed methodology will provide statistical data in Spain and in other EU countries where it can be implemented and will allow for compliance with Article 12 of the Birds Directive and Articles 11 and 17 of the Habitats Directive. This would ensure that environmental administrations, judicial administrations, law enforcement agencies and environmental NGOs are better able to focus their efforts to fight environmental crime and increase knowledge about the impact of environmental crime.

The methodology included in this publication has been submitted and offered to the Spanish and Portuguese national and regional administrations, leading to the creation of the Information System on Accidental Captures and Killings (SICMA) in Spain, a database that will centralise this information in the country within the Nature Database. The methodological proposal thus becomes an applied system for the collection of data on the different types of attacks sustained by the environment, serving as a practical experience that could be extended to other countries. The creation of a methodology and a national database through this LIFE project has been the best way to achieve its effective implementation. In Spain (and also partly in Portugal), the complicated government structure regarding environmental matters often results in the decentralisation of a large part of the environmental information, which makes its comprehensive collection rather difficult.



# CHAPTER 1

Requirement to  
keep statistics on  
environmental crime

The various organisations acting on behalf of the different governments, from local councils to the national government, such as the companies that provide certain public services or manage infrastructure, are required to contribute to general statistics and collect information for reporting to EU or international institutions on various matters, including environmental issues. These statistics serve as indicators of the effectiveness of measures adopted under various policies. They also allow for the identification of weaknesses so that resources can be increased for their mitigation or elimination, and for monitoring their evolution as baseline data.

In the case of administrative and criminal offences, this type of information is also shared, even without the existence of a ruling or an investigation due to a lack of evidence. There is no doubt that it is useful to have a solid basis on the number, types, impact, etc. of offences committed, so that their evolution over time can be assessed, in particular if specific solutions, both preventive and punitive, are applied.

In Spain it is already required to collect statistical information to be included in the four-yearly National Statistical Plans (PEN). In addition, the Spanish Ministry for Ecological Transition and Demographic Challenge (MITECO) has developed, prompted by LIFE Nature Guardians, the Information System on Accidental Captures and Killings (SICMA) to monitor the non-natural mortality of wildlife nationally. This database must be developed in compliance with article 54.2 of the Act on Natural Heritage and Biodiversity (42/2007), which requires the establishment of a system for collecting information to be used to adopt the necessary measures so that these causes “do not have a significant negative impact on the species included in the List of Species under the Special Protection Scheme, and are minimised in the future”. During the implementation of the LIFE Nature Guardians project, work has been carried out to improve the design of the database to ensure that it complies with the requirements to prevent “any action taken for the purpose of killing, capturing, chasing or disturbing [wildlife], as well as the destruction or deterioration of nests, warrens and breeding, wintering or resting areas”.



## CHAPTER 2

The implementation of  
databases in the EU



In order to develop the methodology described in this document, it was first necessary to know the current situation of the different models and methodologies used for the collection of information and the implementation of databases on environmental damage in the EU. An excellent source to get a clear picture of the situation was the study *Towards a European IKB Database*<sup>1</sup>, carried out within the framework of LIFE Against Bird Crime (LIFE17GE/NL/000599) and coordinated by BirdLife International, which includes the development of a European database on crime against birds among its measures.

In this study, questionnaires were sent to 50 recipients at national or regional level, 26 of which replied concerning databases in 14 European countries. The information gathered from the questionnaires is divided into six conceptual groups.

## 2.1. Database overview

In most of the databases, the access is restricted to law enforcement officers (46%) and to employees of the database managing organisations (39%), conservationists (32%), public prosecutors (14%) and the general public (21%). This depends on the sensitivity of the content, whether the database is available online and on the existence of different levels of access (based on authorisations).

The databases analysed mostly contain data on wildlife crime (82%), although many include mortality data in general (46%). This is followed by databases on general environmental crime and legal proceedings (both 32%), data from wildlife recovery centres (29%) and, interestingly, crimes related to weapons (7%).

In terms of taxonomic groups, 54% of databases contain data on any animal species, and only 39% of them are limited to birds and the rest to other species groups.

In terms of the degree of protection, the databases contain information on species protected at national level (68%) or under various international regulations: Birds or Habitats Directives (54%), Bern Convention (43%), CMS (36%), CITES (32%) or all of them combined (only 5%). One of the databases is specific to vulture species present in Europe.

Most of the databases collect information on the legal process, either for the whole process from complaint to resolution (39%) or for part of it (32%), and only a minority (29%) has no information on the process. The difficulty in following the whole process lies in the fact that the person in charge of the case changes often throughout the process, which is particularly significant in the case of databases managed by NGOs.

In any case, the possibility that information subject to data protection regulations or proceedings in which investigation secrecy may be involved may appear, makes it necessary to reconsider the extent to which such information should be present.

As regards the type of cases registered in the databases, the majority of them (71%) include cases related to the respective organisation, even if they do not lead to an investigation. This can be particularly important to monitor the degree of effectiveness in the identification, reporting, investigation and other phases of the process. It is also important in order to assess the evolution of environmen-

<sup>1</sup> UGOCCO-Web Media (2021) *Towards a European IKB Database. Technical report*. UGOCCO Biodiversity consultants – Web Media Soluzioni e Servizi Web. BirdLife International. 67 pages.

tal crime over time. 43% contain information on the outcome of the investigation, 43% on the administrative penalty imposed, 39% on the procedure followed, 32% on the number of cases submitted to the law enforcement agency and 29% on the criminal sentence given.

Only 7% of the databases were created before 2000, 29% were established after 2016, and the date of creation of the rest is evenly distributed between 2000 and 2016. However, 32% of them have records dating from earlier than 2000, i.e. in many cases collecting data prior to the creation of the database; 25% only have records from 2016 onwards, conforming with their date of creation.

More than half of the databases are updated accurately, either daily (39%) or whenever relevant information emerges (18%). The rest are updated monthly (14%), annually (11%) and a few even rarely (7%). Consequently, 21% have records for the month preceding the questionnaire (January 2021), 68% have records for the final months of 2020, 86% have a cumulative total for 2020 and only 4% (1 case) had no records for that whole year.

It should be noted that 43% of the databases have less than 1000 records, while 14% have from 1000 to 10,000 records, 11% have from 10,000 to 20,000 records, and only two (7%) have more than 20,000 records.

The majority of respondents (79%) define their databases as national, while 14% had a regional focus. Logically, this depends on the scope of the responding organisations.

Of particular interest is the source from which the information is obtained. The data are recorded from law enforcement officers and guards (57% and 29%), NGOs and volunteers (54% each), the general public (46%), veterinarians (39%) and, lastly, environmental departments (7%).

Nearly nine out of ten organisations acknowledge that their databases do not include all the cases of environmental crime within their scope that are recorded by authorised officers. In other words, there are police interventions and recording of data, but not all the information that has been collected is included.

## 2.2. Information on crimes

The databases collect the following data on offences and crimes:

- Date (89%)
- Location: coordinates (46%), municipality (50%), UTM (11%), other (32%)
- Ownership or status of the site of the crime scene (72%)
- Name of the law enforcement agency involved
- Type of offence: detailed description (39%); violated article only (21%); violated law only (43%)
- Details of the violation (given the variety of databases, the data are also somewhat scattered). The majority of respondents (86%) consider that there is more detailed information about the method used than about the circumstances of the event (whether it was a protected area, a closed area, etc.)

- Species affected (82% indicate the species)
- Number of affected specimens (93% indicate this)
- Number of affected specimens per species (79% indicate this)
- Condition of the specimen: egg, living, dead, stuffed or fragmented (11% of the databases lack a field for this description; 43% of them also lack the option to record whether eggs have been affected and 54% lack a field to indicate whether the specimen is a fragment).

### 2.3. Information on prosecution and rulings

64% of the databases have a field to identify the case number, even if there is no further investigation due to lack of evidence.

Only 43% mention which law enforcement agency is in charge of investigating the case.

There are usually no fields to indicate the characteristics of the offender – and therefore no possibility of follow-up – regarding the number of offenders (only 43% have it), gender (29%), age (25%), occupation (7%), nationality (14%) and start and end dates of the investigation (32% and 21%, respectively), although 25% of the databases have other fields.

The fact that several crimes with different lines of investigation and different offenders can be derived from the same illegal event is recorded in the majority of cases (86%).

Only a minority of the databases allow for the record of information on administrative decisions (39%), dates of administrative decisions (29%); court identifications (25%); court case numbers (29%) and criminal sentences and their dates (36%).

### 2.4. Database evaluation

21% of respondents estimate that the databases account for the totality of crimes committed in the respective territory, while the majority (54%) acknowledge that they do not provide any estimation regarding this. A similar situation occurs with the share of records compared to the number of events known to the authorities – 21% of the databases assume that they have the total number, but half of them admit that they do not know.

The majority of respondents consider that the databases will be expanded in the coming years (54%), while 29% do not think that this is going to happen and 18% are considering it.

### 2.5. Accessibility of the information

Unsurprisingly, except in one case, all databases are used for reporting. For the most part (75%), the reports are not available to the public.

## 2.6. Technical information on the database

Despite the advantages of making databases available online, only half of them are. The difficulty of consulting offline databases is obvious, particularly when it comes to sharing information between governments, and especially when attempting to carry out international monitoring activities.

Half of the databases have different levels of access, such as administrator level (full access), contributor level (can enter and modify data), editor level (can modify data, but their contributions have to be validated before entering the database) and others. In these databases, access permissions are managed, which is logical on account of their being online. Similarly, the online databases have a control panel.

Offline databases have no management hierarchy, no access management and no control panel.

Online databases are accessed through an individual login, often linked to the user's email address. Users of some databases are not authorised to upload data, which is done by an administrator. Only one database is connected to other databases for data management, which allows for automatic updating.

Updates are carried out by administrators in 39% of cases; by external or internal technical personnel (25% each) or by database technicians (32%).

The most frequently used system in offline databases is MS Excel, but CSV + MS Word and PDF are also used in a few cases. Excel and CSV allow the import of data into other databases. Online databases do not favour any particular software, with Java and C-Sharp being slightly more used (two cases each), followed by Oracle, MongoDB, Google Forms, specific apps and HTML. In general, licensed software is more used than open source software (10 compared to 8 respondents). The operating system is predominantly Windows (68%), followed by Linux (7%), Google Drive (7%) and Oracle (4%). With only a few exceptions, which make up 18% of cases, all databases are in an exportable format and allow queries by category.

The number of tables and fields in databases has been used to measure database complexity in a UGOCO-WebMedia study<sup>1</sup>. Most often they have one or two tables and less than 20 fields to fill in. Seven out of ten have fewer than 15 tables and fewer than 50 fields.

In a self-assessment of strengths and weaknesses, users find several limitations in the existing databases. The main ones are the inability to import large amounts of data and produce reports in a simpler and more functional way, including using queries to filter data before generating a report.

Another critical problem encountered is the need to improve data entry management and, at the same time, the limited amount of data contained in some databases.

Creating online instead of offline databases would also solve the lack of connection to other databases and access should be organised with better privacy policies than the current ones to provide more security. Last but not least, some other weaknesses pointed out by users are the graphics, the management by external companies preventing from quick and efficient updates, the repetition of contents (with the consequent misalignment of data) and the fact that some databases are undergoing updates or tests and are therefore not fully usable.

Not many strengths are highlighted in the databases managed by the respondents, as only four positive answers are provided (compared to 33 identified weaknesses) – two of them are related to the possibility of making queries and reports, and two others to the volume of data and ease of use.



## CHAPTER 3

Development of a  
national database  
in Spain

Based on the situation described in the EU and the needs and shortcomings detected in the performance of environmental information collection systems, a methodology was drafted, as developed in this section, within the framework of LIFE Nature Guardians, leading to the implementation of a database on non-natural mortality of wildlife and other environmental damage.

In order to ensure that the process of creating this database at the national level was as participative as possible and that the autonomous communities and other authorities benefit from these systems, a questionnaire was sent to the Spanish autonomous communities in order to find out what type of information was already being collected by the authorities for this purpose. This questionnaire included the following questions:

- On what crimes and offences is information collected in each autonomous community?
- Which entities or departments are responsible for collecting the information?
- Which general fields are included in the records?
- How standardised and centralised are these databases?

Although few regional governments provided information, that information has been taken into account in the development of SICMA by MITECO, the entity responsible for data management at the national level.

For the creation of the nationwide database, information from other sources has also been taken into account, such as the Civil Guard and its Nature Protection Service, which has already centralised the collection of information. Ideally, the agents themselves should be authorised users to enter information into the database. Similarly, also at national level, the National Police Corps has an Environment Unit which should have equal access levels.

The implementation of SICMA and the development of its different sections and fields required taking into account the different players who will have access to the system in order to complete or use it. Thus, at the national level, there are environmental agents associated with various bodies under the MITECO:

- National Parks Autonomous Agency
- Provincial Coastal Services and Districts
- River Basin Authorities

The different environmental police forces in the autonomous communities should have access as users, depending on the structure of each autonomous government.

- Andalusia: *Agentes de Medio Ambiente.*
- Aragon: *Agentes para la Protección de la Naturaleza.*
- Principality of Asturias: *Agentes del Medio Natural.*
- Balearic Islands: *Agents de Medi Ambient.*
- Canary Islands: *Agents de Medi Ambient.*

- Cantabria: *Técnicos Auxiliares del Medio Natural*.
- Castilla - La Mancha: *Agentes Medioambientales*.
- Castilla and Leon: *Agentes Medioambientales*.
- Catalonia: *Agents Rurals*.
- Extremadura: *Agentes del Medio Natural*.
- Galicia: *Agentes Medioambientales*.
- La Rioja: *Agentes Forestales*.
- Community of Madrid: *Agentes Forestales*.
- Murcia: *Agentes Forestales*.
- Navarre: *Basozainak*.
- Community of Valencia: *Agents Mediambientales*.
- Basque Country: *Basozainak* attached to each of the three Basque chartered provincial councils.

In some cases, officers report to several different bodies, e.g. the General Directorates for Forestry or Agriculture and Fisheries, but they should be all treated equally, according to their powers and their qualification as law enforcement officers.

In addition, some municipalities have their own specialised police forces, such as Arroyo de la Luz (Cáceres), Madrid, Santa Cruz de Tenerife, Tarazona (Saragossa), Torrejón de Ardoz (Madrid) and Saragossa. Other local institutions, such as the *Conselh Generau d'Aran* and the Barcelona Provincial Council, also have environmental agents. These officers, in so far as law enforcement officers, in principle could also be part of the personnel with access to enter data into the databases.

In addition, the regional police forces that have competencies in environmental matters are:

- *Mossos de Esquadra* in Catalonia
- *Erzainta* in Basque country
- *Policía Foral* in Navarre

Several autonomous communities have specialised bodies for specific areas such as, for example, game-keeping or environmental guardianship. It remains to be determined whether these bodies should have access directly or through the relevant environmental police forces.

In Portugal, the following bodies should have access as users:

- *Guarda Nacional Republicana* (GNR) agents
- *Instituto da Conservação da Natureza e das Florestas* (ICNF) agents



- *Policía de Segurança Pública* (PSP) agents

### 3.1. Database format

From the information gathered at European level<sup>1</sup>, the main disadvantages of electronic offline databases are

- centralisation of data entry work
- lack of access by personnel involved
- Difficulty in sharing information

However, online databases, whether on an Intranet or in a system such as Google Drive, Sharepoint, FTP, etc. allow, even though not always:

- To share the task of data entry, so that when the agents themselves enter the information, it is directly incorporated into the database
- The creation of different access levels, ranging from simple data entry and consultation capabilities to more complex information management tasks
- To easily share information with third parties simply by giving them individual access rights.

It is always advisable that the software used allows to generate reports based on types of crime, geographical areas, offender profiles, etc.

Nowadays, given the increasing implementation of virtual work platforms, the best option is probably that the database be developed in MS Access 365. Governments that do not have the system in place could maintain the same system offline, although this has the disadvantage that data entry would be done by a few users, instead of by any agent.

Access allows the creation of user-friendly forms and users can be given different access levels to ensure secure access to information.

### 3.2. Database access levels

Based on the information gathered<sup>1</sup>, it is recommended to have different access levels. This allows to share the effort of data entry and exploitation, while maintaining the confidentiality required to preserve the protection of sensitive data. Here is an example of access levels:

- Administrator (full access); he/she can grant or modify other access levels and is generally responsible for making reports or authorising other users to do so.

---

<sup>1</sup> *Towards a European IKB Database*

- Contributor (can enter and modify data); an agent that can, in addition to entering data, modify data entered by others. Ideally, they could be authorised by the administrator to occasionally perform other tasks, such as querying or generating reports.
- editor (can modify data, but their contributions have to be validated before entering the database); this would be the case of officers, guards or even members of collaborating organisations (surveillance companies, NGOs, etc.) who could be authorised to enter information provided it is subsequently validated by higher level users.
- Other categories may also have access to specific aspects of information, including very detailed information, e.g. regarding the investigation and prosecution of a case.

In the database, access to personal data of defendants and details relevant to the resolution of cases shall be exclusively granted to the authorities involved in those investigations. However, data on the number of offences, including those that are not prosecuted due to lack of evidence, their geographical distribution and the number of court decisions would be useful for the planning of crime fighting strategies, and also for preventing the causes of accidental but avoidable deaths. The latter is possible because cases of electrocution, road accidents and others will also be included, so that mortality black spots can also be identified.

### 3.3. Database structure

The structure proposed in this methodology is the one applied in SICMA, developed with contributions from SEO/BirdLife through the LIFE Nature Guardians project, and confirmed in 2022. Although this database is not immediately available at user level, it is ready for data entry. These include data collected by SEO/BirdLife from wildlife recovery centres and which have been transferred by this organisation to the General Directorate for Biodiversity, Forests and Desertification of the Ministry for Ecological Transition and Demographic Challenge.

The database has been developed using Microsoft Access and it has six forms:

- 1- Main event: describing the basic circumstances of the incident.
- 2- Affected specimens: species, condition, number, etc.
- 3- Event location: autonomous community, municipality, site, coordinates, etc., depending on the source of information
- 4- Data source: whether it is an institution, a media outlet, etc.
- 5- Related documents: reports, articles, etc.
- 6- Actions: carried out as a result of the event.

The following fields are associated to each form:

Event	
Event ID	Id_Event
Personnel in charge	Id_Personal
Intent	Intenc
Classification	Tipologia
Subtype	Id_Subtipo
Subtype2	Id_Subtipo2
Associated activity	Act_asoc
Description / Observations	Desc
Start date	F_ini
End date	F_fin
Autonomous community	CCAA
Province	Prov
Municipality	Muni
Place	Local
X coordinate	X
Y coordinate	Y
Projection	Proyección
Type of source	Fuente_tipo
Name of source	Fuente_name
Number of specimens	NumEjempl
Specimens	
Specimen ID	Id_Ejemplar
Event ID	Id_Event
Taxon ID	Id_Taxon
Scientific name	scientificName
Vernacular name	Vernacular Name
Taxonomic group	GrupoTax
Environment	Medio
Action	Acción
Apparent injury	Lesion
Cause of death	Necropsia
Necropsy report	Id_doc
Event resolution ID	Id_ResolEvent
Event resolution	ResolEvent
Documents	
Document ID	Id_doc
Specimen ID	Id_Ejemplar
Event ID	Id_Event
Document type	TipoDoc
Link	Link

Lastly, these are the auxiliary tables associated to each form:

Aux_Intencionalidad
1 Unknown
2 Chance
3 Intentional
4 Negligence/accident
Aux_Tipología
1 Armed assault
11 Bow
12 Crossbow
13 Bladed weapon
14 Blunt weapon
15 Handgun
16 Pneumatic weapon
17 Buckshot pellets
18 Automatic weapon
19 Illegal calibre
110 Sport shooting weapon
111 Shotgun
112 Rifle
2 Drowning
21 Ditch
22 Fire suppression pond
23 Plant waste pond
24 Slurry pond
25 Irrigation pond
26 Canal
27 Reservoir
28 Wash-house
29 Natural body of water
210 Swimming pool
3 Alteration in behaviour
31 Land motor vehicles
32 Vessel
33 Manned aircraft
34 Unmanned aircraft
35 Paragliding/Parachuting
36 Climbing
37 Cycling
38 Nature photography/observation
39 Other recreational activities
311 Hunting/Fishing
312 Group sports
313 Livestock farming
314 Forestry
315 Other

4 Entrapment
41 Building
42 Infrastructure
43 Machinery
5 Capture
51 Fishing gear
511 Fishing rod
512 Fish trap
513 Gillnetting
514 Other nets
515 Speargun
516 Fish gig
517 Fishing by hand
518 Electrocuting device
519 Deadlining
5120 Suffocation using poison
5121 Other
52 Hunting gear
521 Suffocation using smoke
522 Leghold trap/clap-bow trap/all-wire snap trap
523 Net
524 Cage trap
525 Snare
526 Hook
527 Light source
528 Glued trap
529 Parany/barraca hunting systems
52120 Falconry
52121 Hunting with mammals (dogs, ferrets)
52122 Other
6 Capture and voluntary surrender to the authorities (CRAS, AAFF, Seprona, etc.).
7 Collision
71 Wind turbine
72 Manned aircraft
73 Unmanned aircraft
74 Building/Window/Glass surface
75 Vessel
76 Train
77 Power line
78 Telephone line
79 Land vehicle
711 Fence
8 Environmental conditions
81 Heat
82 Desiccation of water body

83 Cold
84 Hail
85 Fire
86 Rain
9 Seizure or confiscation
10 Predation
111 Invasive alien species
112 Cats
113 Natural
114 Dogs
11 Unknown
12 Disorientation
13 Destruction of shelter or nest
14 Electrocutation
15 Disease
151 Disease name (please specify)
1511 Death-causing agent (please specify)
16 Poisoning
161 Type of poison (please specify)
17 Plundering of breeding area
18 Perceived helplessness
19 Unintentional poisoning
191 Oil
192 Other
193 Pesticide
194 Lead poisoning
20 Other
<b>Aux_Actividad</b>
1 Agriculture/livestock
2 Aviation
3 Water catchment/transportation/treatment
4 Hunting
5 Trade/traffic in species
6 Sport/leisure
7 Unknown
8 Construction
9 Energy
10 Forestry
11 Industry
12 Mining
13 Other
14 Fishing
15 Rail traffic
16 Marine traffic
17 Road traffic

<b>Aux_Actuación</b>
1 Seizure
2 Suspension of activities
3 Administrative complaint
4 Criminal complaint
<b>Aux_Territorio</b>
1 Unprotected
2 Natura 2000 network
21 Site of Community Importance (SCI)
22 Special Area of Conservation (SAC)
23 Special Protection Area for Birds (SPA)
3 Protected Natural Areas
31 Park
32 Nature Reserve
33 Marine Protected Area
34 Natural Monument
35 Protected Landscape
36 Other protected natural areas
4 Protected areas by international instruments
41 Wetlands of International Importance
42 Natural sites on the World Heritage List
43 Protected areas
44 Specially Protected Areas of Mediterranean Importance
45 Geopark
46 Biosphere Reserve
47 Biogenetic Reserve
<b>Aux_NUTS</b>
Autonomous code according to ISO 3166-2:ES
<b>Aux_MUNI</b>
Municipal code according to the National Statistical Institute (INE) <a href="https://www.ine.es/daco/daco42/codmun/codmun02/02codmun.xls">https://www.ine.es/daco/daco42/codmun/codmun02/02codmun.xls</a>
<b>Aux_Proyección</b>
EPSG codes for geographic or UTM coordinates
<b>Aux_GrupoTax</b>
1 Algae
2 Amphibians
3 Ascidians
4 Birds
5 Chromista, Bacteria and Protozoa
6 Fungi
7 Invertebrates
8 Mammals
9 Fish

10 Non-vascular plants
11 Vascular plants
12 Reptiles
13 Unassigned
<b>Aux_Medio</b>
1 Continental waters
2 Marine
3 Land
4 Urban
<b>Aux_Fuente</b>
1 Forestry or Environmental Agents
2 Autonomous communities
3 Recovery centres
4 Law enforcement agencies
41 Civil Guard
42 Local police
43 National police
44 Port police
45 Customs Surveillance Service
46 Regional police
5 Investigators
6 Justice
7 Media
8 NGO
9 Individual
10 Other
<b>Aux_Personal</b>
1 Forestry or Environmental Agents
2 Private company
3 Public company
4 Law enforcement agencies
5 Other government personnel
6 Individual
<b>Aux_Resol_Evento</b>
1 Escape
2 Euthanasia
3 Irrecoverable in Wildlife Protection Centres
4 Release
5 Death

6 Other
7 Transfer
<b>Aux_Lesion</b>
1 Limb amputation
2 Lodged hook
3 Unknown
4 Shot
5 Evisceration
6 Bone or shell fracture
7 Injuries and/or bruises
8 None
9 Internal organs
10 Feathers
11 Burn
<b>Aux_Accion</b>
1 Admission into Wildlife Protection Centre
2 Release on the spot
3 Death
4 Other
<b>Aux_Documento</b>
1 Audio
2 Written document
3 Web link
4 Other
5 Video

This structure will allow the collection of a large amount of data that will be centralised in SICMA, gathering information from various environmental organisations.

### **3.4. Database access**

A database of non-natural mortality of wildlife should be available in an electronic format for the general public and for the personnel in charge of entering the data, whether on an Intranet or through a searchable website.

The consultation of data by the general public has to be done through reports using specific queries, being the raw data not accessible to them, as details on crimes and offences may contain sensitive or confidential information. Accessibility to the general public (including NGOs and the media) should be limited to reports generated from online forms, but authorities should be able to access the raw data for more in-depth analyses. The same type of access could be granted to investigators under conditions to be determined.

In terms of data entry, access should be restricted either directly to specific personnel, which may result in an excessive workload for them, or to all personnel of the authorities involved (law enforcement officers, civil servants, wildlife recovery centres, etc.) and specially accredited organisations (e.g. NGOs).



**Conclusions**



Analysing and giving consideration to the various sources, namely:

- the study *Towards a European IKB Database*, conducted under LIFE ABC (LIFE17GE/NL/000599),
- the databases shared by the different authorities
- the requirements in Article 54.2 of Act 42/2007 on Natural Heritage and Biodiversity
- the meetings and exchange of information with the General Directorate for Biodiversity, Forests and Desertification (DGBBD) of the Ministry for Ecological Transition and Demographic Challenge (MITECO).
- the meetings and exchange of information with the personnel in charge of the development of the Information System on Accidental Captures and Killings (SICMA), within the Nature Database, also under the Ministry for Ecological Transition and Demographic Challenge (MITECO).

A methodology has been established for the development of a database of non-natural mortality of wildlife that is exportable to other governments and countries.

This database of non-natural mortality of wildlife should be available in an electronic format, whether on an Intranet or through a searchable website.

However, both data entry and consultation must be limited, and access protocols must be established.

The database structure should have fields capable to define the conditions of each event with the highest accuracy, avoiding as much free text as possible.

Although it should be possible to enter data on a massive scale from existing databases (adapting the fields and ignoring those that have not been previously collected), routine data entry should be carried out using a form such as those of MS Access. There should be a main tab providing access to secondary tabs as required.

1-Main: describing the basic circumstances of the incident.

2-Affected specimens: species, condition, number, etc.

3-Event location: autonomous community, municipality, site, coordinates, etc., depending on the source of information

4-Data source: whether it is an institution, a media outlet, etc.

5-Related documents: reports, articles, etc.

6-Actions: carried out as a result of the event.

The auxiliary tables that have been presented in this methodology in collaboration with the personnel in charge of developing SICMA cover all aspects of mortality events and non-lethal impacts on wildlife.

- Aux\_Intencionalidad: whether the event happened by chance, was intentional, etc.
- Aux\_Tipología: extensive section with all the different causes of injuries and wildlife disturbances
- Aux\_Actividad: associated human activities
- Aux\_Actuación: measures taken by the authorities
- Aux\_Territorio: describing the degree and type of protection of the site
- Aux\_NUTS according to ISO 3166-2:ES
- Aux\_MUNI municipal code according to the national statistical authorities
- Aux\_Proyección
- Aux\_GrupoSax: taxonomic group
- Aux\_Medio: major groups of natural environments
- Aux\_Fuente: organisation or individual providing the specimen or the information
- Aux\_Personal: type of organisation or individual
- Aux\_Resol\_Evento: outcome in the Wildlife Protection Centre.
- Aux\_Lesion: based on expert assessment (veterinary or agent)
- Aux\_Accion: fate of the specimen (release on the spot, admission into a Wildlife Protection Centre, death)
- Aux\_Documento: documents, if any.

Other publications:



**Nature  
GUARDIANS**  
against environmental crime

**REPORT, METHODOLOGY AND  
REGULATORY PROPOSAL ABOUT  
THE ECONOMIC VALUATION  
OF CRIMES AGAINST  
PROTECTED ANIMAL  
SPECIES**

Available on:  
[www.guardianes.seo.org](http://www.guardianes.seo.org)



# Nature GUARDIANS

against environmental crime

[www.guardianes.seo.org](http://www.guardianes.seo.org)



in collaboration with

