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# 1. Introduction

## 1.1. BACKGROUND INFORMATION

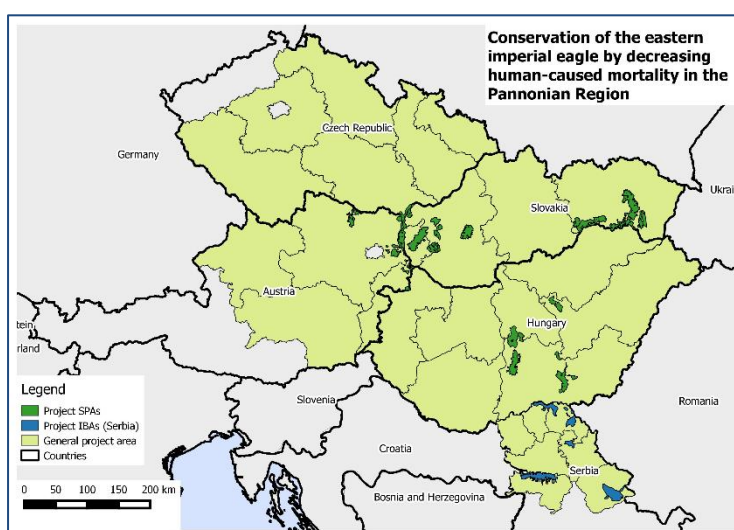
Due to the resilience and conservation efforts of the past decades, the Pannonian biogeographical region (which includes all of Hungary and parts of Slovakia, Romania, Czech Republic, Croatia, Serbia and Ukraine) exceeded 442 breeding pairs of the **Eastern Imperial Eagle (*Aquila heliaca*)**.

Most Imperial Eagles is being killed of direct persecution aiming other predators (shooting, poisoning) and dangerous anthropogenic structures (electrocution, motorways-railways) and natural cause is still minor compared to these. The reduction of semi-natural agricultural lands serving as feeding habitats and old trees and forests patches offering nest sites give reason for serious concern. Predator persecution incidents, especially illegal poisoning is the main threat for the species in the Pannonian region, representing almost 30% of the known mortality causes in 2021.

Persecution also affects other protected raptor species, including another Annex I-listed bird, such as the Saker Falcon (*Falco cherrug*). Combating illegal bird poisoning is in line with the anti-poison policy of the Bern Convention on the Conservation of European Wildlife and Natural Habitats.

## 1.2. PROJECT DESCRIPTION

To help protecting this magnificent predator species, the European Union LIFE Nature Fund supports the project titled **“Conservation of the Eastern Imperial Eagle by decreasing human-caused mortality in the Pannonian Region” (LIFE15 NAT/HU/000902)**. The project is coordinated by MME/BirdLife Hungary together with 10 other partner organizations from 5 different countries.



*Map of the PannonEagle project's site*

### 1.2.1. Objectives

In the frame of the PannonEagle LIFE project, we aim to discover and investigate bird crimes committed against eagles with the help of our trained field staff. We also use working dogs which are specialized in poisoning cases, in close cooperation with a network of national park rangers and policemen. Injured birds are treated by veterinarians and released back into the wild if their conditions allow.

The project aims to facilitate a 10% increase of the Eastern Imperial Eagle's Pannonian population, which would result a 9% increase of the EU population, if other populations remain stable.

Further specific objectives in connection with Bird Crime mitigation are:

- to increase the chance of detecting illegal activities and of successful prosecutions;
- to increase understanding of the true, minimal impact of raptors on game species and encourage raptor-friendly game management methods;
- to increase public awareness of the conservation importance of the Eastern Imperial Eagle and of the possible consequences of persecution.

## 2. Materials and methods

### 2.1. METHODOLOGY AND MONITORING OF BIRD CRIME INCIDENTS

#### 2.1.1. *Definitions: what and how data is being collected?*

The PannonEagle project partners deal with birdcrime cases historically to a quite different extent. Most partner organizations collect every data on illegal activities that involve any bird species. In the course of the current project all known mortality cases of Eastern Imperial Eagles or Saker Falcons are collected by the beneficiaries with special attention paid on human-caused mortalities. In order to unify the reported cases for the use of this report, we set some criteria to be taken account when deciding whether to account it as a “birdcrime” case. The criteria are the following:

- it should affect protected raptor bird species
- illegal human activity (such as shooting, trapping or poisoning, nest robbing etc.)

Thus, our definition of ‘birdcrime’ should rather be addressed by ‘raptorcrime’ – focusing only on birds of prey. We don’t deal with accidental injuries or disturbance of birds, such as collisions. However, accidental poisoning is incorporated if it affects birds of prey species, even though the original intention may have been to kill other animals, the act itself is rather deliberate.



There have been other bird crime related cases, which were excluded from our analysis. These can be categorized in 3 groups:

1.) Birdcrime cases not involving raptor species: e.g. blocking nesting holes of European bee-eater (*Merops apiaster*), or shooting at White storks (*Ciconia ciconia*). Even poisoning cases where only mammals or poisoned baits were found were excluded from this report.

2.) Illegal possession of live or stuffed birds

3.) Vague cases reported with uncertain facts that could not be clarified later, whether or not it surely involved illegal activities

These mentioned cases mentioned above were usually not systematically collected by partners, as they fall outside of the project activities in general. In order not to generate biases based on the involvement of partner organizations in these side activities, we excluded these types of cases from our report.

#### **2.1.2. Data collection: reporting**

The project partners operate several different options for reporting a bird crime incident. Some of these have been in operation for a long time – mostly national hotline and e-mail services, but some new tools have been added especially by the project. In the Czech Republic a hotline and a thematic webpage (<http://karbofuran.cz/>) have been operated by CSO. In Austria a hotline is operated by WWF Austria, in Hungary hotline and email reporting have been installed during the previous Helicon LIFE project. The RPS in Slovakia and INCVP in Serbia takes record of poisoning incidents revealed by its members, authorities or by the public.

New means of reporting possibilities have been created in the frame of the PannonEagle LIFE project. The project's website contains an online reporting form, operating on 6 languages (English, German, Slovakian, Czech, Serbian and Hungarian). The reporting form is accessible at the following link: <http://www.imperialeagle.eu/en/content/reporting-bird-crime>. The form is sent to the national PannonEagle project coordinators, depending on the language used (the English version is directed to MME/BirdLife Hungary).

The BirdLife Austria has created a reporting tool in 2017 which was used since that. The mobile application, called “*BirdCrime*” app. The free, android app has been launched first in July in German and English languages.

The use of the newly developed mobile app is lower than expected. However, a joint advertisement campaign will begin after all language options are tested and finalized.

In practice, the vast majority of reported cases come from the professional communities: national park rangers, environmental authority officers, professional hunters. Maintaining the good contact with these stakeholders is crucial for the program's success, and therefore special attention is paid on nourishing these networks within the PannonEagle project.

### **2.1.3. Data collection: field surveys**

Several different field survey methods are used by the project parallel, depending on the circumstances.

- Dog units
- Drone
- Car

### **Data management and analysis: "TOTEM", the new regional database**

#### **Structure**

The purpose of the online database is to fully register, archive and display information about illegal predator crime primary in the region (including the 5 project countries – geographically Romania should be involved later.) The structure of the database consists of three parts: Finding – Events- Cases

The lowest level is the "Finding" that contains the most important information about the victims found. "Event" is all the connected findings in a particular area. Usually, this comprises the animals/carcasses within 25 meters found on the same day. There may be more findings for one event if the circumstances indicate a clear link among them. Official documents related to the event such as veterinary reports, national park records, police and court documents are also recorded in the database. The database structure can be easily adopted later to keep record on other type of wildlife mortality, as well.

#### **Quantity of data**

The oldest poisoning data in the database is now dated from 1975, however detailed information on raptor crime has been available since 2000. For now, information available on poisoning and shooting of 2193 mammals and birds, of which 102 individuals are IEs. Certainly, these numbers are increasing continuously.

The data submitted online are needed to be validated by an admin/coordinator.

#### **Query options**

Data in the database can be displayed in map and chart using different filter settings. The map display works in the 10 x 10 km UTM grid, which can be saved in image format similarly to the diagram. The data stored

in the database may be imported in a variety of different file formats.

Dog units are best used along linear structures (i.e. ditches, railroads, power lines) or remarkable vegetation switch (like forest edge). Drones can be used to search vast open areas. Cars obviously have a restrain in rough terrain. Actual whether also influences the applicable methods intensely: drones cannot be used in strong wind, while dogs are less tolerant toward a hot summer day nor can small effectively in heavy rain.

### **Dog units**

Country	Organization	Name of the dog	Name of the dog leader	Breed	Age at purchase	Training
Hungary	MME	Carlo	Gábor Deák	Belgian malinois	8 months	passed exam in 2017
Hungary	KNPD	Samu	Kis Viktor	German shepherd	8 months	passed exam in 2017
Czech Republic	CSO	Victory	Klára Hlubocká	Chesapeake Bay retriever	2 months	from July onward
Slovakia	RPS in cooperation with Slovakian Police	Xara	Martin Hupka	Medium schnauzer	with the leader from 2 months	passed exam in 2019
Slovakia	RPS in cooperation with Slovakian Police	Nero	Pavol Gorny	German Shepherd Dog	8 month	exam completed in 12/2019

*Dog units newly employed by the PannonEagle LIFE project*

### **Conducted Surveys**

In the year 2021	No. of field searches	No. of proven crime findings	No. of suspected crime findings
CSO_CZ	45	11	2
KNPD_HU	100	11	47
MME_HU	161	31	4
RPS_SK	28	0	0

*Number of searches/findings in year 2021*

The PannonEagle specialized dog units conducted 446 field searches and revealed 482 proven and 15 suspected crime findings. In relation with the dog unit's field work two bird crime cases reached the court phase.



### 3. Summary of RaptorCrime incidents in 2021

#### 3.1. BIRDCRIME CASES IN THE SCOPE OF THE PANNONEAGLE PROJECT

Poisoning is the most significant human-caused mortality factor for Imperial Eagles in the Pannonian Region. The situation is still grave.

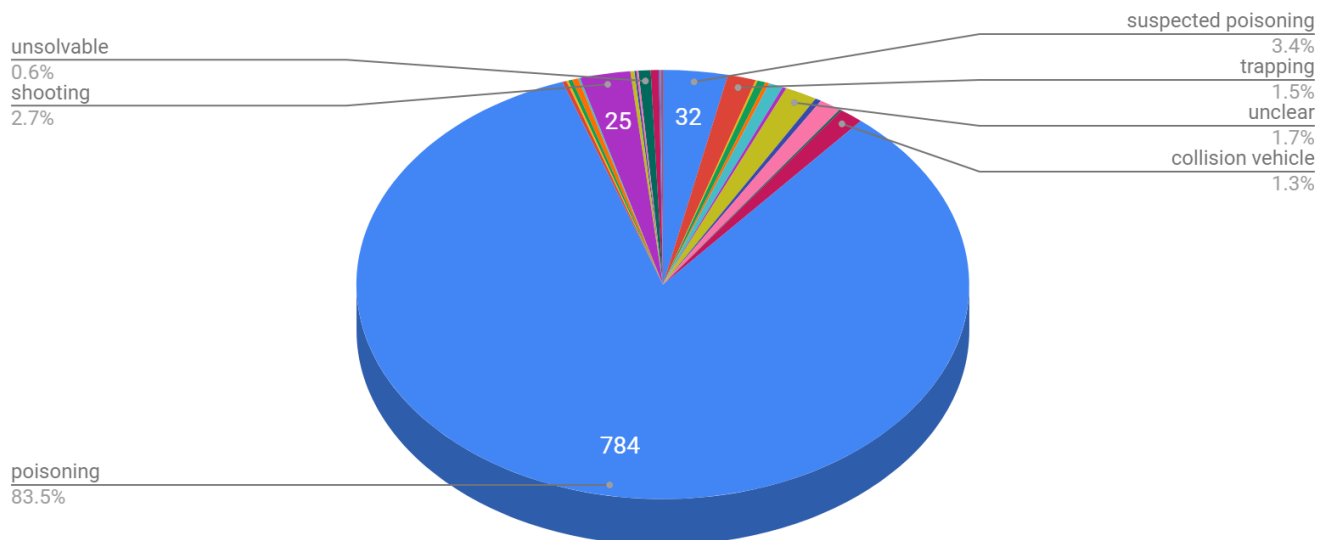
In the year 2021, there were 25 Imperial Eagles found dead in the project countries. From these 3 were known to be poisoned, 1 collided with vehicles (car or train) and 6 got electrocuted. Statistics for mortality causes of IE in total from the 5 project countries in the past 5 years is shown below.

Eastern Imperial Eagle TOTAL	Estimated number of breeding pairs	Mortality causes							
(Aquila heliaca)		Poisoning	Suspected poisoning	Electrocution	Collision w cable	Shooting	Collision w vehicles	Other	Unknown
2021	442	3	0	2	0	1	1	9	9
2020	396	7	5	3	0	1	3	7	4
2019	317	9	7	4	1	3	7	3	9
2018	308	10	1	6	1	1	5	3	3
2017	286	6	2	4	1	1	5	5	6
2016	283	2	0	3	1	0	3	0	1
2015	268	8	1	9	1	0	3	2	7
2014	230	0	2	4	0	0	1	0	0
2013	225	14	0	0	1	1	1	0	2
2012	218	17	0	2	0	1	2	2	2
2007-2011	146	41	0	15	2	5	6	10	8

*Estimated number of breeding pairs and mortality causes of found Imperial eagles in the Pannonian region in years 2007-2021*

The Saker Falcon (*Falco cherrug*) is considered as secondary key species in the PannonEagle project. In 2021 there was 1 bird which was found shot. We have no concrete data of Saker Falcons falling victim of poisoning during the year.

Out of the wide variety of human-induced mortalities, the project deals with the illegal activities affecting raptors - as these cases are all potential threats to our species in focus.

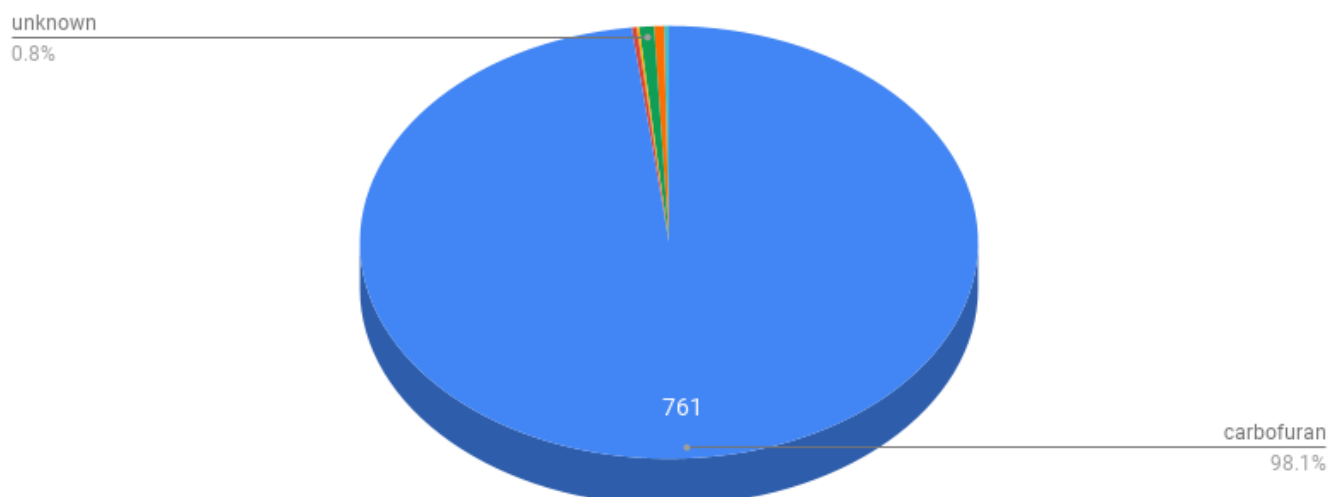


#### *Percentage of persecution cases in 2021*

In the reporting period (01/2021- 12/2021) the PannonEagle project partners reported altogether 157 cases with 939 findings where illegal raptor persecution could be suspected or proved. 83.5 % of the cases are known to be poisoning, either directly or indirectly and another 3.4% can be added as suspected poisoning. The suspected poisoning category here in this database means mostly those cases where the birds with characteristic symptoms being found but the laboratory can not justify (lack of samples or unsuitable for lab). After the poisoning and suspected poisoning, shooting is the third most frequent crime category in 2021 adding up to 2.7 % of the reported cases.

#### **Detected & presumed substances**

Among the detected substances, carbofuran is the most frequent poison in relation of 181 findings. carbofuran is highly neuro-toxic carbamate pesticide that had been banned in the European Union in 2008. Unfortunately, it seems like the perpetrators either still have remaining storage or can import it illegally. A worrying increase of anticoagulant rodenticide poisoning cases also recorded. In Hungary 19 individuals were containing lethal or sub-lethal levels of brodifacoum, a second generation anticoagulant rodenticide.



*Type of laboratory proven poisons used in 2021*

### Species affected

The table below shows the number of species (even bait species) that were affected by persecution in the Pannonian region in 2021. Common buzzard (*Buteo buteo*) and marsh harrier (*Circus aeruginosus*) are the most common victims of persecution incidents. White-tailed eagle (*Haliaeetus albicilla*) is the most common eagle species followed by eastern imperial eagle (*Aquila heliaca*). Poisonous baits are also found in large numbers: meat baits, chicken eggs, chicken, hare and pigeon were used to be injected, poured or dipped into poison. The mysterious mass-poisoning event for european pond turtles were again observed in Hungary. The most common mammal species recored among the persecution cases were foxes, followed by stone marten and domestic dog.



common buzzard ( <i>Buteo buteo</i> )	173
meat bait	141
marsh harrier ( <i>Circus aeruginosus</i> )	104
european pond turtle ( <i>Emys orbicularis</i> )	102
common raven ( <i>Corvus corax</i> )	45
fox ( <i>Vulpes vulpes</i> )	40
rook ( <i>Corvus frugilegus</i> )	30
red kite ( <i>Milvus milvus</i> )	25
chicken - egg (bait)	22
white-tailed eagle ( <i>Haliaeetus albicilla</i> )	21
hooded crow ( <i>Corvus cornix</i> )	15
common kestrel ( <i>Falco tinnunculus</i> )	13
chicken - (bait)	11
imperial eagle ( <i>Aquila heliaca</i> )	11
stone marten ( <i>Martes foina</i> )	10
dog ( <i>Canis lupus familiaris</i> )	9
maggie ( <i>Pica pica</i> )	9
pigeon - egg (bait)	9
jackdaw ( <i>Coloeus monedula</i> )	8
unknown	8
domestic cat ( <i>Felis catus</i> )	7
unknown (bait)	7
pigeon (bait)	6
badger ( <i>Meles meles</i> )	6
northern goshawk ( <i>Accipiter gentilis</i> )	6
sparrow hawk ( <i>Accipiter nisus</i> )	5
eagle owl ( <i>Bubo bubo</i> )	5
deer (bait)	5
common wood pigeon ( <i>Columba palumbus</i> )	5
corn (bait)	4
pheasant eggs- bait	4
otter ( <i>Lutra lutra</i> )	3
sheep (bait) ( <i>Ovis aries</i> )	3
roe deer (bait)	3
unknown	3
Montagu's harrier ( <i>Circus pygargus</i> )	3
black kite	3
tree pipit	3
hoopoe	3
pig (bait)	2
Trap	2

*Number of affected species in all crime category in the Pannonian region in 2021*

black stork ( <i>Ciconia nigra</i> )	2
saker falcon ( <i>Falco cherrug</i> )	2
northern white-breasted hedgehog ( <i>Erinaceus roumanicus</i> )	2
viscera (bait)	2
eurasian jay ( <i>Garrulus glandarius</i> )	2
hare (bait)	2
mallard	2
peregrine falcon ( <i>Falco peregrinus</i> )	2
carion crow ( <i>Corvus corone</i> )	1
bate	1
long-eared owl ( <i>Asio otus</i> )	1
golden jackal ( <i>Canis aureus</i> )	1
gooseander ( <i>Mergus merganser</i> )	1
tawny owl	1
wild boar ( <i>Sus scrofa</i> )	1
great tit ( <i>Parus major</i> )	1
yellowhammer	1
goshawk ( <i>Accipiter gentilis</i> )	1
possible bate	1
woodcock	1
barn owl ( <i>Tyto alba</i> )	1
pheasant (bait)	1
cinereous vulture ( <i>Aegypius monachus</i> )	1
european pine marten ( <i>Martes martes</i> )	1
european robin	1
white stork ( <i>Ciconia ciconia</i> )	1
golden eagle ( <i>Aquila chrysaetos</i> )	1
eurasian skylark	1
eurasian stonechat	1
red backed shrike	1
eurasian skylark ( <i>Alauda arvensis</i> )	1
Mallard ( <i>Anas platyrhynchos</i> )	1
Short-toed snake eagle ( <i>Circaetus gallicus</i> )	1
<i>Calosoma auropunctatum</i>	1
mute swan ( <i>Cygnus olor</i> )	1
griffon vulture ( <i>Gyps fulvus</i> )	1
roller	1

*Number of affected species in all crime category in the Pannonian region in 2021*

## 4. Outcomes

### 4.1.1. Results of cases reported to Police in 2021

It is noticeable that out of the several detected cases, only a little portion of them would finally reach the stage of prosecutions. Even though bird crime cases can be very difficult to investigate and prove, in some countries there is also still a moderate understanding of its importance from part of the law enforcement authorities. Even though there is good cooperation with the national police, many cases reported and plentyful evidence is present the most investigations are closed without fine or conviction. Even more difficult with emerging cases where the intention of poisoning is unclear, such as rodenticide poisoning (where legal substances were used in an irresponsible way).

<b>Country</b>	<b>01 - no procedure</b>	<b>02 - active lab analysis</b>	<b>03 - negative lab result</b>	<b>04 - reported to police or state nature conservancy</b>	<b>05 - active police investigation</b>	<b>06 - closed police investigation (no accusation)</b>	<b>09 - no conviction</b>	<b>11 - convicted by court</b>
Austria	9	3	30	10		12	1	
Czechia	1	1	1	2	24	2		1
Hungary	5			6	11	3		1
Slovakia	1			7				

*Outcomes of the bird crime cases in the Pannonian region in year 2021*

## 5. Summary

Current report summarized the overall results of Action C1 (Detect and Investigate Raptor Persecution) PannonEagle LIFE project in year 2021. Altogether 25 eastern imperial eagle carcasses were recorded in the project countries. In the reporting period (01/2021- 12/2021) the PannonEagle project partners reported 157 cases with 939 findings where illegal activities were suspected or proved. More than half of the cases is poisoning, either directly or indirectly and another 20% is suspected poisoning. The PannonEagle specialized dog units conducted 221 field searches and revealed 63 proven and 33 suspected crime findings. In relation with the dog unit's field work two bird crime cases reached the court phase.